STRUCTURAL EQUATION MODEL OF CORPORATE SOCIAL RESPONSIBILITY INNOVATION, CORPORATE IMAGE AND CORPORATE REPUTATION TOWARDS CORPORATE SOCIAL RESPONSIBILITY INNOVATION ADOPTION AMONG GENERATION Y

Chonnikarn Seritanondh

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ABSTRACT

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This research on Structural Equation Model of Corporate Social Responsibility Innovation, Corporate Image and Corporate Reputation towards Corporate Social Responsibility Innovation Adoption among Generation Y aims to (1) examine the social issues and the attributes of innovation in CSR innovation of three organizations; Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd. and PTT Public Co, Ltd. and (2) test the Structural Equation Model of CSR innovation, corporate image and corporate reputation towards CSR innovation adoption among Generation Y, generated by the researcher, with the existing empirical literatures and principles. Both qualitative research and quantitative research are applied to conduct a research. Firstly, the content analysis is applied to conduct CSR innovation news analysis of these three organizations, starting from 2014 to 2016. Then, 340 sets of questionnaire are distributed to collect data from Generation Y, who are 18 to 34 in age, living, studying or working in Bangkok and Vicinity.

The content analysis results report 170 CSR innovation news in total from 2014 to 2016. In fact, community involvement issue was likely to be supported the most, reporting 36.55% of all six social issues, followed by environmental protection issue (28.74%) and injury prevention issue (16.55%). Apart from this, the analysis shows that the top three main attributes of innovation found in CSR innovation news were relative advantage, compatibility and risk (17.42% equally in each); however, the content analysis results of each organization show both similar and different findings.
In addition, the overall results of Structural Equation Model analysis show that the model fit with empirical data (Chi-square = 100.632, df = 97, p = 0.380, Chi-square/df = 1.037, GFI = 0.970, AGFI = 0.941, CFI = 0.999, IFI = 0.999, NFI = 0.984, RMSEA = 0.011, RMR = 0.010). Corporate reputation has positive direct effect towards CSR innovation adoption at significant level. The value of effect is 0.74. Interestingly, corporate image shows positive direct effect towards corporate reputation at significant level. The value of effect is 0.93. Likewise, attributes of CSR innovation report positive direct effect towards CSR innovation adoption. The value of effect is 0.21. Besides these direct effects, corporate image has indirect effect towards CSR innovation adoption through corporate reputation. The value of effect is 0.68. Still, the model analysis of each organization report different findings.

The finding indicates that attributes of CSR innovation have low value of positive direct effect to CSR innovation adoption among Generation Y consumers, compared with corporate image and corporate reputation variables. This is probably because Generation Y consumers believe that even though CSR innovation demonstrates all seven attributes of innovation that lead to acceptance, it is little important than a good corporate image and corporate reputation.

In other words, no matter how attributes of CSR innovation are, they are less important than reliability and trustworthiness perceived by Generation Y consumers through a good corporate image and corporate reputation. In addition, corporate image happens before corporate reputation as people’s first impression towards the organization and then evaluate its execution over a course of time and create corporate reputation; therefore, corporate image is a variable that has positive direct effect to corporate reputation. In summary, if an organization has a good corporate image, its corporate reputation will be good accordingly. Then, it will probably show positive effect to CSR innovation adoption among Generation Y consumers.
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After an intensive period of three years, it’s time to write the last page of my dissertation. Firstly, I would like to express my sincere gratitude to my superb advisor Professor Yubol Benjarongkij, Ph.D for the continuous support of my Ph.D study and related research, for her patience, motivation, encouragement and immense knowledge. Her guidance helped me a lot in all the time of research and writing of this dissertation. I could not have imagined having a better advisor and mentor for my Ph.D study. Besides my advisor, I would like to deeply thank the rest of my dissertation committee: Associate Professor Patchanee Cheychanya, Associate Professor Rungrapa Pitpreecha, and Associate Professor Napawan Tantivejakul, Ph.D for their insightful comments related to research methodology and corporate reputation suggestion.

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Last but not the least, I would like to thank my family: Assistant Professor Siriporn Seritanondh, Ph.D and Paisarn Seritanondh for supporting me spiritually throughout writing this dissertation and my life in general. Both of you are my role models of hard working and attempt. You’ve inspired and encouraged me to be the best student and teacher I could possibly be. Thank you so much for everything that you’ve done to help me reach the highest of my profession.

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INTRODUCTION

1.1 Introduction and Problem Statement

At one time, Corporate Social Responsibility (CSR), which includes corporate philanthropy and community volunteering, was merely optional for organizations (Saetang, 2007). Currently however, CSR is not simply one option for organizations seeking to generate a good image, compete with competitors or follow a global trend; rather it is fully merged with business models and is a core business strategy (Seritanondh, 2016). This is similar to what Theerasorn (2009) said about corporate image and corporate reputation. He said that these two concepts are not able to be generated in the short-term period, for example by news announcements or advertising, but are composed of many important factors like offering good quality products and services, using innovation to produce products and services, and having responsibility in business. CSR focuses on sustainability and has three dimensions; economic, social, and environmental (Thaipat Institute, 2008a).

In Thailand, Siam Cement Group Public Co., Ltd (SCG), a large, well-known organization, has an outstanding image for CSR. SCG is a registered company listed on The Stock Exchange of Thailand and has organized many social and environmental projects such as “SCG Conserving Water for Tomorrow”. SCG began this project in 2003 and had checked 10,000 dams by January 2009. SCG also taught people in Lampang and Chiang Mai how to build their own dams (Siam Cement Group Public Co. Ltd., 2010). As a result of projects like this, SCG has received awards from The Stock Exchange of Thailand including an innovation award in 2017.

The 70th Session of the United Nations General Assembly (UNGA 70) developed 17 Sustainable Development Goals (SDGs),
SDG 9 concerns industry, innovation, and infrastructure (see Figure 1.1). Thailand’s 20 Year Strategic Plan as well as the 12th National Economic and Social Development Plan also focus on economic health and sustainable well-being; infrastructure development; and science and technology research and innovation (Thaipat Institute, 2017a).

![Figure 1.1 Sustainable Development Goals](image_url)

Figure 1.1 Sustainable Development Goals

Toyota Motor Thailand Public Co., Ltd. uses innovation to manufacture the Toyota Prius, a hybrid electric car that can run on both gasoline and electricity. In fact, this eco-friendly car produces less pollution and costs less to fuel than a conventional gasoline-powered car (Tidd & Bessant, 2009). Thanachart Insurance Public Co., Ltd. also uses innovation in its “Drive DD United” project. The project encourages teenagers and university students to produce a video clip related to the “Don’t Drive Drunk and No Calling While Driving” campaign.

As a result of international consensus (Thaipat Institute, 2017a), the rise of public expectations (Sonthijirawong, 2011) and the advancement of innovation, organizations place importance on CSR and sustainable development. Hulsmann and Pfeffermann (2011) stated that new technology and communication innovation have affected business practices and corporate communication. Organizations can enhance
strategic planning through corporate communication; for example, issue management, crisis communication, and innovation communication. Moreover, organizations also bring innovation and technology into the manufacturing process of products and services (McWilliams & Siegel, 2001, as cited in (Preuss, 2011), for example, Idea Green, eco-friendly paper devolved by Siam Cement Group Public Co., Ltd, paper made from farmed trees developed by Double A (1991) Public Co., Ltd., innovative foods developed by Charoen Pokphand Foods Public Co., Ltd. and the “1 Million Trees For King” project of PTT Public Co., Ltd.

Research of Ministry of Information and Communication Technology (2016) shows that people from Generation Y spend around 53.2 hours per week on the internet. Their three main activities are searching for information, reading electronic books, and watching videos. Gray and Balmer (1998) suggested organizations use various communication channels to communicate with Generation Y and develop strategic plans taking into account new technology and innovation development that allows Generation Y consumers to access information via new media and communication channels.

Moreover, members of Generation Y have a positive attitude towards innovative organizations. They are interested in new things, including technology, package design, and any kind of corporate social initiatives and activities like community volunteering (Prachachat Turakij, 2016).

According to Forbes and The New York Times, Generation Y will play a significant role as employees and consumers within the next three years. Generation Y will account for 50% of the workforce by 2020. Since Generation Y grew up with technology and innovation, they are interested in new media, technology, and innovation. Furthermore, Generation Y sees the importance of charity donations and community volunteering. Around 60% of Generation Y said, “They are concerned and worried about the state of the world and feel personally responsible to make the difference”.

Additionally, Deloitte reported that around 63% of Generation Y are interested in corporate philanthropy activities and expect organizations to be good corporate citizens with high social responsibility, especially the organizations they work with.
Indeed, Generation Y expects to see executives have a good vision for profitability community well-being (Lumesse, 2017).

There has been a lot of research into consumer responses to corporate social responsibility. The effectiveness of corporate social responsibility in supporting social issues has also been widely researched. Duangpornprasert (2015) wrote “Media Exposure, Knowledge, Attitude, and Participation in Solving Problems of Alcohol Use among Adolescents in Bangkok”. It showed that the sample in the study aged 19-22 had a high level of new media exposure, followed by personal media, mass media, and ad-hoc media, respectively. In addition, an older sample in the study, with degrees and who are alcohol consumers also had a high level of new media exposure to problems caused by alcohol use. Furthermore, the study reported the best way to solve the drinking problem was warning drinkers not donating money.

Wongwitsong (2014) wrote “The Perception and Attitude of People Towards Corporate Social Responsibility Activities of Toyota Motor Thailand Public Co., Ltd”. It showed the sample group’s perceptions about the “White Road” campaign. The group had positive attitudes towards corporate social responsibility activities, which is beneficial to Toyota and society at large. Additionally, the research reported a correlation between perception and attitude variables. Toyota car owners had a higher level of perception of the corporate social responsibility activities of Toyota than of other car brands.

Furthermore, research entitled “Responsible Consumption Behavior and Attitude that Influence Overall Corporate Image: Employee’s and Consumer’s Perspective” by Phomun (2012) was conducted using three case studies: PTT Public Co., Ltd., Bangchak Petroleum Public Co., Ltd., and Siam Cement Group Public Co., Ltd. The study reported that the sample group had a positive attitude towards Bangchak Petroleum Public Co., Ltd. at the highest level, followed by Siam Cement Group Public Co., Ltd., and PTT Public Co., Ltd. However, the statistics showed indifference among these three organizations. Interestingly, the attitudes towards CSR activities of consumers who are 23-32 years old was significantly different from consumers of 43-52 years old. Television was the source of information consumers 23-32 years old used to receive CSR news, followed by the internet. In addition, the CSR activities of these organizations that ranked in first place and consumers could
recognize well were: the “Purchase of Used Cooking Oils for Biodiesel Production Project” of Bangchak Petroleum Public Co., Ltd., the “SCG Conserving Water for Tomorrow” project of Siam Cement Group Public Co., Ltd. and the “1 Million Trees For King” project of PTT Public Co., Ltd.

Seritanondh (2011) conducted experimental research to examine the effects of two variables on corporate image. Two variables used in the study were: (1) product involvement (high product involvement and low product involvement) and (2) congruency between corporate core business and CSR activities (congruence and incongruence). Toyota’s car safety on the road was used as a case study for testing the effects of high product involvement and congruent CSR activities whereas Toyota’s car and animal right protection case represented a high product involvement and incongruent social issue. Meanwhile, the case of Double A paper and environmental issue was used to represent a low product involvement and congruent CSR activity whereas Double A paper and safety on the road case was used for testing the effects of low product involvement and incongruence. The research results indicated that the two factors used in this study had no interaction effects on corporate image whereas each of them had effects on corporate image.

Limwilai (2012) conducted quantitative research on “Factors Relating Consumers’ Buying Behavior Trend on Environmental Innovation in Paper of Idea Green Brand in Bangkok and Metropolis”, collecting data from Generation Y youths aged approximately 25 or younger. The results indicated that the innovative Idea Green paper, which is one of the environmental friendly products of Siam Cement Group Public Co., Ltd., had a significant effect on Generation Y’s satisfaction. In fact, the good quality of paper and the eco-friendly process used were key factors affecting the purchasing behavior of consumers. In fact, consumers had high level of purchase intention for Idea Green paper and were keen to share information to others. The source for receiving information about innovative paper was television.

with "Paper from KHAN-NA" innovation. The communication methods for Creating Shared Value with "Paper from KHAN-NA" innovation consisted of a Message Strategy that aimed to communicate with consumers and farmers and a Media Strategy. The communication methods for Creating Shared Value with “Paper from KHAN-NA” innovation affected the business of the company in terms of increased sales of paper and more farmers participating in the project.

Boonprasert (2012) wrote “Corporate Social Responsibility to Engage Generation Y Staff” and found that social responsibility activities and employee engagement have a positive correlation. Remarkably, corporate social marketing, which aims to change the behavior of people, is the best predictor of a Generation Y employee’s engagement at around 26%, followed by Socially Responsible Business Practices at 25%.

There is much research in this area of study; however, there is no research that directly examines the attributes of innovation, especially in a CSR innovation dimension. The effects of CSR innovation, corporate image, and corporate reputation on CSR innovation adoption by consumers, particularly Generation Y consumers, merit further study. In the past, CSR activities were mainly presented through traditional media such as television. Nowadays, new communication channels, technology, and innovation play a significant role in CSR activities and provide more areas of study CSR is also more prominent in the mission of organizations today. Many organizations place more emphasis on innovation in CSR activities. The aim is to meet demand. This research aims to fill a gap in this area of study.

1.2 Research questions

1.2.1 What are the social issues and the attributes of innovation in corporate social responsibility innovation of the three organizations?

1.2.2 Does the structural equation model of the effect of corporate social responsibility, corporate image, and corporate reputation on corporate social responsibility innovation adoption among Generation Y, generated by the researcher, correspond with the existing empirical literature and principles and, if so, how?
1.3 Research objectives

1.3.1 To examine the social issues and the attributes of innovation in corporate social responsibility innovation of the three organizations

1.3.2 To test if and how the structural equation model of the effect of corporate social responsibility innovation, corporate image, and corporate reputation on corporate social responsibility innovation adoption among Generation Y, generated by the researcher, corresponds with the existing empirical literature and principles.

1.4 Scope of the research

This research uses both qualitative research and quantitative research.

Firstly, a qualitative research methodology with a content analysis technique is used to monitor and analyze CSR innovation news. The sources of information are Matichon News Center (MiC e-Library), annual reports, organizations’ websites and executive interviews in the media.

The content analysis technique is used to analyze CSR innovation news about the three organizations listed on The Stock Exchange of Thailand. The research only focuses on organizations that offer products and services which are familiar and related to the daily life of people. This is to ensure that there is sufficient information about the selected organizations to analyze.

Furthermore, the selected organizations should have engaged in CSR activities for at least three years. This is based on Kotler and Lee (2005) who stated that successful measurement requires at least three years of CSR activity. Moreover, the selected organizations should be well-known in term of innovation as well.

A cross sectional survey method is also applied. Some 315 sets of a questionnaire were used to collect data from Generation Y respondents, aged 18-34, living, studying, or working in Bangkok and surrounds. Data collection was from August to October 2017.
1.5 Operational definitions

Innovation

This refers to the successful use of things for the purpose of change and development. There are two types of innovation: radical innovation and incremental innovation.

Attributes of innovation

These are the characteristics affecting CSR innovation adoption by Generation Y. Rogers (2003) suggested five attributes: Relative Advantage, Compatibility, Complexity, Trialability, and Observability. Masso and Thompson (2016) added two more attributes: Adaptability and Risk. The explanations of each term are given below;

1. Relative Advantage

The degree to which a CSR innovation is perceived as better than the existing ideas in terms of providing users with a more convenient life, more profit, a better society and environment, and being more relevant to people’s daily lifestyles.

2. Compatibility

The degree to which a CSR innovation is perceived as being consistent with the existing values, past experiences, ways of life, and needs of potential adopters in terms of both society and the environment.

3. Complexity

The degree to which a CSR innovation is perceived as user friendly, easy to understand and adaptable.

4. Trialability

The degree to which a CSR innovation offers users a free trial before making a purchase. The greater the perceived trialability, the higher the rate of adoption.

5. Observability

The degree to which the results of a CSR innovation are truly visible to society and in the environment.
6. Adaptability
The degree to which a CSR innovation is functional and adaptable to society and the environment.

7. Risk
The degree to which the results of a CSR innovation either have low risk, or show no negative effects on society or the environment.

Social issues
These are issues that an organization uses CSR initiatives to support. According to Branco and Rodrigues (2006), Lafferty (2007), Kotler and Lee (2008) and Wu and Wang (2014), there are six social issues: Health Promotion, Injury Prevention, Environmental Protection, Education, Animal Rights Protection, and Community Involvement. Explanations of each issue are given here.

1. Health Promotion
This refers to support for health, hygiene, nutrition, and disease prevention; for example, anti-smoking activities.

2. Injury Prevention
This includes the support for saving human life and assets; for example, prevention of accidents on the road, physical injury, and drunk driving.

3. Environmental Protection
This includes encouraging people to preserve natural resources such as forests and to save energy, reduce waste, minimize global warming, decrease air pollution, and conserve water.

4. Education
This includes developing education and providing opportunities to youth and others; for example, giving stationery or learning items making donations, and offering skill development programs.

5. Animal Rights protection
This includes helping animals in cases of injury, disability, and abandonment. It also includes wildlife protection and action against the testing of products on animals.
6. Community Involvement

This includes supporting community well-being, including donating food and necessary items, donating money, and making job offers.

Corporate social responsibility innovation

This is defined as designing novel ways of addressing the six social and environmental concerns mentioned, together with integrating these concerns into business operations and interactions with stakeholders. CSR innovation has four dimensions (Preuss, 2011; Tidd & Bessant, 2009).

However, only two dimensions, which are related to products and services, will be applied. Two dimensions are as follows.

1. CSR innovation in CSR project content

This dimension is related to product and service development and the use of innovation and technology to produce environmental friendly goods and services.

2. CSR innovation in CSR processes

This dimension is related to both social and environmental issues, focusing on the production and execution processes of an organization, and aimed at reducing operational costs and negative social and environmental effects.

Innovation adoption

This refers to the perceptions, attitudes, and interests of Generation Y consumers in evaluating the CSR innovation news they have received. In this research, the technology acceptance model (TAM) is used as a measurement scale for testing this variable. The personal innovativeness dimension is also added to the scale. This is similar to the measurement method Sirithorn (2011) used for his research. Innovation adoption has six dimensions: Perceived Usefulness, Perceived Ease of Use, Attitude toward Using, Behavioral Intention to Use, Actual System Use, and Personal Innovativeness.
Corporate image

This is defined as the internal feelings of Generation Y consumers, occurring when they have seen or been attracted to an organization’s name. Corporate image can be both positive and negative. In this research, three dimensions of corporate image are measured: social and environmental responsibility, innovation, product and service. These three dimensions are in the research questions, which aim to examine the effects of CSR innovation on consumers’ innovation adoption in terms of producing goods and services. These three dimensions are measured from the viewpoint of Generation Y. Lastly, the scale of this research is adapted from the scales of Wanakasemsan (2009) and Sabaiwan (2010) which had high Cronbach’s alpha coefficients for reliability.

Corporate reputation

This is defined as the internal feelings of Generation Y consumers, occurring when they have seen or been attracted to an organization’s name. Corporate reputation improves when organizations have a consistent performance over time. It is generated from direct or indirect experiences Generation Y have with organizations. In this research, three dimensions of corporate reputation are measured: social and environmental responsibility, innovation, product and service. This is similar to three dimensions of corporate image, as a result of the high relevance of these two terms. These three dimensions are in the research questions, which aim to examine the effects of CSR innovation on consumers’ innovation adoption in terms of producing goods and services. These three dimensions are measured from the viewpoint of stakeholders who are Generation Y. Lastly, the scale of this research, is adapted from the scale of RQ (Fombrun, Gardberg, & Sever, 2000) RepTrak (Reputation Institute, 2015, 2017), and Suangswang (2005) which had high Cronbach’s alpha coefficients for reliability.

Generation Y

Generation Y is made up of people born between 1983 and 1999. Generation Y members are interested in technology and innovation. They also have active lifestyles, love challenges, and always welcome new things to their lives.
1.6 Expected benefits of the research

1.6.1 This research aims to be a guideline for academic study related to CSR innovation, corporate image, corporate reputation and CSR innovation adoption among Generation Y.

1.6.2 This research aims to be a guideline for businesses seeking effective CSR innovation executions. Strengthening corporate image and corporate reputation among Generation Y consumers will lead to innovation adoption.
CHAPTER 2

CONCEPT, THEORY, AND LITERATURE REVIEW

2.1 Theories and Concepts of Innovation

Currently, technology plays a significant role in business operations and corporate communication. It also enhances the ability of people to access and share information more quickly and conveniently. Organizations can employ innovation in strategic planning of corporate communication, for example in issue management, innovation communication, and crisis communication. (Hulsmann & Pfeffermann, 2011)

Tidd and Bessant (2009) said innovation refers to success in new idea exploration and is composed of “invention” and “exploitation” for the purpose of change and development. It includes not only major advances in technology but also small scale-changes in technological know-how. There are four dimensions of innovation: product, process, position, and paradigm (Figure 2.1), and two types of innovation; radical innovation and incremental innovation.

![Figure 2.1 The 4Ps of innovation space](image)

Some examples of innovation under the 4Ps are given in Table 2.1.

Table 2.1 Some Examples of Innovations Mapped onto the 4Ps Model

<table>
<thead>
<tr>
<th>Innovation Type</th>
<th>Incremental</th>
<th>Radical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>do what we do but better</td>
<td>do something different</td>
</tr>
<tr>
<td><strong>what we offer the world</strong></td>
<td>Windows Vista replacing XP – essentially improving on existing software idea.</td>
<td>New to the world software, e.g., the first speech recognition program.</td>
</tr>
<tr>
<td></td>
<td>VW EOS replacing the Golf – essentially improving on established car design.</td>
<td>Toyota Prius – bringing a new concept – hybrid engines.</td>
</tr>
<tr>
<td></td>
<td>Improved performance incandescent light bulbs</td>
<td><strong>LED-based lighting, using completely different and more energy efficient principles.</strong></td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>Improved fixed-line telephone services. Extended range of stock-broking services. Improved auction house operations. Improved factory operations efficiency through upgraded equipment. Improved range of banking services delivered at branch banks</td>
<td>Skype and other VoIP systems Online share trading eBay Toyota Production System and other “lean”approaches Mobile banking in Kenya and The Philippines –using phones as an alternative to banking systems.</td>
</tr>
<tr>
<td><strong>how we create and deliver that offering</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Position</strong></td>
<td>Haagen Dazs changing the target market for ice cream from children to adults. Low-cost airlines University of Phoenix and others building large education businesses via online approaches to reach different markets. Dell and others segmenting and customizing computer configurations for individual users. Banking services targeted at key segments – students, retired people.</td>
<td>Addressing underserved markets, e.g., Tata Nano which targets the huge but relatively poor Indian market using the low-cost airline model –target cost is 1 Lakh. “Bottom of the pyramid” approaches using a similar principle – Aravind eye care, CEMEX construction products. One laptop per child project –the $100 universal computer. Microfinance –Grameen Bank opening up credit for the very poor.</td>
</tr>
<tr>
<td><strong>where we target that offering and the story we tell about it</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation Type</td>
<td>Incremental</td>
<td>Radical</td>
</tr>
<tr>
<td>-----------------</td>
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</tr>
<tr>
<td></td>
<td>do what we do but better</td>
<td>do something different</td>
</tr>
<tr>
<td><strong>Paradigm</strong></td>
<td><strong>Bausch and Lomb</strong> – moved from eye wear to eye care as its business model, effectively letting go of the old business of spectacles, sunglasses and contact lenses all of which were becoming a commodity business. Instead it moved into new high-tech fields like laser surgery equipment, specialist optical devices and research into artificial eyesight.</td>
<td><strong>Grameen Bank and other microfinance models</strong> – rethinking the assumptions about credit and the poor.</td>
</tr>
<tr>
<td><strong>how we frame what we do</strong></td>
<td><strong>IBM</strong> – moving from being a machine maker to a service and solution company – selling off its computer making business and building up its consultancy and service side.</td>
<td><strong>iTunes platform</strong> – a complete system of personalized entertainment.</td>
</tr>
<tr>
<td><strong>VT</strong> – moving from being a ship builder with roots in Victorian times to a service and facilities management business</td>
<td><strong>Rolls-Royce</strong> – from high quality aero engines to becoming power by the hour.</td>
<td><strong>Cirque du Soleil</strong> – redefining the circus experience</td>
</tr>
</tbody>
</table>


1. **Product innovation**: is generally about improvements in the products or services organizations offer and the introduction of new products and services. Microsoft’s launch of Windows Vista would be an example of incremental innovation because it improved an existing product. The introduction of the Toyota Prius is radical innovation because it used new technology to make a new product, i.e., hybrid cars (Tidd & Bessant, 2009).

2. **Process innovation**: is change in the ways in which products are created and delivered. Preuss (2011) explained that process innovation would bring organizations a competitive advantage through increased product variation or lead to cost minimization. Efficiency improvement through equipment upgrading could be an example of “incremental innovation” whereas online share trading, e-commerce, and mobile banking would be examples of “radical innovation” (Tidd & Bessant, 2009).
3. **Position innovation**: relates to a situation where established products or services are introduced into a new context (Preuss, 2011). Incremental innovation in this case refers to image adjustment in consumers’ perceptions like the case of Haagen Dazs that re-branded itself by defining new target audiences. Radical innovation would be if organizations offer new business functions by like the case of Grameen Bank. The bank expanded its business in financial markets by offering microfinance and credit to the poor (Tidd & Bessant, 2009).

Preuss (2011) added, “In general, this dimension would focus on emotional benefit than functional benefit. This is similar to advertising and brand communication concepts.” In Thailand, Kasikorn Bank exemplifies this concept, since the bank moved from agricultural banking to digital banking, aimed at building an innovative banking image in consumers’ perceptions (Manager Online, 2014).

4. **Paradigm innovation**: is change in the underlying mental models which frame what organizations do. Preuss (2011) explained that this dimension appears when firms change the “deeply engrained assumptions that influence how people understand the world and how they take action. It would be “radical innovation” if organizations deeply change organizational structures, including vision and mission. An example of radical innovation would be iTunes, since it envisions itself as a personal entertainment service provider. Meanwhile incremental innovation is Bausch and Lomb changing their business model from “eye wear” to “eye care” (Tidd & Bessant, 2009).

In Thailand, CP ALL Public Company Limited (CP), has developed an innovative business model called “All in One Chicken Farming”, enhancing chicken farming standards to meet global standards. Moreover, the company has focused on education, establishing the “Panyapiwat Techno Business School”. The aims are to build many qualified and professional retail staff as well as to establish their own teams serving the growth of CP’s 7-Eleven retail stores. (CP., 2013)

Tidd and Bessant (2009) pointed out that “innovation” is comparable to the “core business process” that requires on-going actions, starting from searching, selecting, implementing, and capturing value from the innovation (see Figure 2.2).
1. Searching is the process through which an organization goes to examine and analyze the internal and external situations with an aim to identify opportunities and threats of change.

2. Selecting is the process through which an organization makes a decision based on a strategic viewpoint of how the organization will be developed or benefit the most from the change.

3. Implementing is the process whereby an organization makes concrete its selected creative ideas and brings these innovations to society. In this stage, the organization should know that there might be some obstacles or unexpected factors involved in the application of creative ideas. Therefore, it is essential to prepare for these situations and to have knowledge and expertise to overcome them.

4. Capturing value from the innovation is the process through which an organization evaluates how it benefits from using the innovation from creative ideas to make changes. The evaluation includes both application and sustainable acceptance of the innovation, as well as learning the process through the mechanism of the innovation so that the organization can develop a knowledge base and a way to manage the innovation in the future.

However, there might be certain factors that affect innovation management in an organization. The first factor is the organization’s own sectors. Each sector has...
different ways to prioritize innovation matters and different ways of working. The second factor is the size of the organization. Smaller organizations may have limited access to data and resources than larger ones. Therefore, small organizations need to develop a larger network. The third factor is the national system of innovation. Different nations view the importance of innovation differently. The different points of view influence how national policies are made and the support from government agencies. Next, the life cycle of an organization may be another factor that influences how it applies innovation to business operations. For example, there might be a different enthusiasm for innovation between a newcomer in the IT business and an older organization. Also, the degree of novelty between continuous innovation and temporary innovation must be considered. That is to say, each organization may have different ways to access and manage innovation. Lastly, the role played by external agencies such as regulators matters. For example, telecommunication agencies may be influenced by external factors, like politics, which may affect the way the organizations apply innovation (Tidd & Bessant, 2009).

There are a number of theories and concepts about innovation. Rogers believes that such a sub-structure as economic structure is the primary factor that determines super-structures such as ideology, consciousness, social institution, and politics. Rogers considers technology a factor of minor significance, believing that “although communication technology is a key factor for social changes, it needs to work together with other factors in the society”. Writing about new media technology, Rogers concluded that there are three attributes of new media: 1) it generates instant interaction between technology and people, 2) it enhances individualism among users, and 3) it works in separate sections, but can be reassembled (Kaewthep & Hinviman, 2010).

According to Rogers (2003), innovation is a new thing diffused in the society. Innovation that is widely adopted usually consists of two components: the idea and the object. For an innovation to be adopted, it not only involves the receiver, the social system, and the communication, but also the innovation itself. Innovation that is likely to be adopted should make society better, fit the culture of the society, and not be too complicated.
Attributes of innovation

Rogers (2003) said five attributes of innovation affect its adoption.

1. **Relative advantage** involves the perception that the new innovation is more valuable than the one existing in society. Relative advantage could appear in the form of profit or improvement of social status. The innovation acknowledged as more useful will become popular rapidly.

2. **Compatibility** involves the perception that the innovation that is compatible with its value and in line with the past experience and the needs of society. Innovation that people think compatible with the culture of society will get adopted quickly.

3. **Complexity** involves the perception of the simplicity or complexity of the innovation. Innovation that people in society think is hard to understand and use will have a lower adoption rate than the one that is simpler to understand, use, and control.

4. **Trialability** involves the perception that trial of the innovation can be carried out. Innovation that can be divided into small portions for trial tends to be adopted faster than the indivisible innovation.

5. **Observability** involves the perception that the innovation’s results can be observed. Innovation whose impacts on the society are evident will get adopted more easily and quickly than innovation whose impacts are difficult to observe.

Masso and Thompson (2016) proposed two other attributes of innovation.

6. **Adaptability** involves the perception that the innovation can be adapted to society and the environment, satisfying diverse groups of people.

7. **Low risk** involves the perception that the innovation has low risk when applied to society and the environment and does not cause concerns for people in society.

Rogers (2003) developed the “S-curve” to explain the steps of technology diffusion in a society in order to estimate the time when the technology gets adopted and when the demand for such technology expires. The vertical axis represents the
efficiency of the technology and the horizontal the time when the technology is released to the market (see Figure 2.3).

Figure 2.3 Steps in Technology Diffusion

Figure 2.3 shows that when a new technology is released to the market, its efficiency might not be high and it may need improvements from time to time. Once the efficiency of the innovation is good enough and it is familiar to people in society, they will start to adopt and apply it in their daily life. There will be a time when the innovation is developed to its peak and there is nothing else to make it better or there is a competitor’s innovation and the technology will become less popular. For example, when smart phones with higher efficiency than typical mobile phones were first introduced to the market, people became interested in them and typical mobile phones began to disappear.

The explanation is similar to that of Assael (1994) who discussed the product life cycle. According to Assael, the product life cycle is divided into four phases. The first phase is the introduction when the first people who adopt an innovation start to use the product. The next stage is growth. The people in this period are known as early adopters. Early majority and late majority are the groups of people who decide to make purchases when the product reaches its maturity state. The final group is called the laggards. These people usually buy the product when it has becomes less popular or is in decline (see Figure 2.4).
Figure 2.4 Product Life Cycle and Diffusion of Innovation

The innovation development process
Rogers (2003) illustrated a model of the innovation development process which consists of six stages (see Figure 2.5).

Figure 2.5 The Innovation Development Process

1. Recognizing a Problem or Need
In the innovation development process, when there is a problem or a need to do something, but it cannot be solved immediately, it is important to develop an innovation to solve the problem or fulfill the need. For example, scientists at the University of California anticipated that tomato farmers would experience labor shortages during the harvesting season, they then conducted research to develop a tomato strain that does not get bruised when harvested using a machine.
2. Basic and Applied Research

Most innovations involve new technology stemming from scientific research. This kind of research is basic research that does not aim to solve a problem or be applied, but to explore new innovation. After the basic research, the outcome will be tested in more specific applied research. For example, the R&D team of 3M Company conducted research and development on a new adhesive. At first, the adhesive was found not to have a strong adhesive property. That is to say, when it sticks, it can be removed easily and does not leave any stain. The findings from this research as subsequently developed and led to the product that brings the largest profit to the company, namely Post-it sticky notes.

3. Development

Development would never happen without research. Research and development usually work in parallel. However, from the innovation perspective, these two activities can be separated. Innovation development involves bringing together new ideas in a desirable form in order to satisfy the target group. Innovators need to foresee potential problems when the innovation reaches the users, although the problems might not happen so clearly in the production process.

In addition, other factors such as the organization’s own personnel, competitors, or government regulations might affect the success of innovation development. Therefore, sharing data on development is a key success factor in innovation development. The data may include patent registrations, innovation developments of competitors, production technology, government policy, and trends in customer demand. As such, the innovation development process in the midst of uncertain situations should be strengthened by sharing technical data.

4. Commercialization

This process involves production, packaging, marketing, and commercializing the innovation as an outcome of applying the research idea that has been realized into a product or service to be sold in the market or bring profit to the business.
Von Hippel (1988) explained that innovation might not derive only from research and development, but can be developed from the solution of businesses. Therefore, many innovations are packed together when sold because their nature of usage is similar. Also, combining many innovations together might make them get diffused into society more quickly.

5. Diffusion and adoption

Diffusion and adoption are the key steps to move innovation into society. In doing so, there are usually some problems affecting the innovation adoption such as unclear messaging or unwillingness of government agencies to cooperate. Therefore, the organization needs to find diverse communication channels and consider the communication barriers.

6. Consequence

The last step is about the consequences of the innovation, both at the level of the individual and society as a whole, based on the adoption or rejection of the six sequential processes of innovation development. In many cases, however, the sequence of the process may be rearranged, with an exception for this consequence step.

This research uses the five attributes of innovation from Rogers (2003): relative advantage, compatibility, complexity, trialability, and observability as the guideline to analyze how innovation is used in CSR.

For this reason, “Concepts about Corporate Social Responsibility” is the next topic followed by additional research on “Concepts about Corporate Social Responsibility Innovation”.
2.2 Concepts of Corporate Social Responsibility

“Corporate Social Responsibility” (CSR) refers to the operations of an organization aimed at improving quality of life for people and the environment. The available resources of the organization are used to contribute to society and the environment. The resources could include financial support, donations, scholarships, and other means of support such as staff volunteering for community development and transferring knowledge (Kotler & Lee, 2005).

History of CSR.

Around the early 19th century in the United States, CSR originated in the form of donating money or objects for charity as the law required companies to help society to their capacity. In 1960, it was determined that CSR should be conducted voluntarily rather than as required by law (BrØnn & Vrioni, 2001).

Carroll (1979) proposed four levels of CSR: to economic, legal, ethical, and charitable. In 1991, Carroll further developed the concept of CSR by introducing the pyramid of corporate social responsibility (see Figure 2.6). The pyramid shows that, among the four levels of CSR, ethical and philanthropic responsibilities are more important than the other two levels.

![Pyramid of Corporate Social Responsibility](source)

Figure 2.6 Pyramid of Corporate Social Responsibility
Carroll (1991) explained that the first level of responsibility is the bottom of the pyramid, namely economic responsibilities. An organization may fulfill its economic responsibilities by selling its products at reasonable prices, not taking advantage of society, and playing a role in developing the economy of the country.

The next level of corporate social responsibility is legal responsibilities. Companies should operate according to legal requirements. For example, in Thailand, convenience stores must abide by the law prohibiting the sale of alcohol from 00.00 to 11.00 a.m. and 2.00 to 5.00 p.m.

The third level is ethical responsibilities. At this level, companies are expected to have more social responsibility than just required by law. It is comparable to a vow to be a good company that does not cause negative impacts on society, the environment, or stakeholders. An example is the White Road Project by Toyota Motor Thailand PLC., which aims to increase safety awareness among road users. Although this activity is not stipulated in any law, the company decided to launch the project for the benefit of the society as a whole.

At the top of the pyramid is philanthropic responsibilities. It is the highest level of responsibility expected of a company. At this level, the company is expected to be a good citizen in society and operate at its full potential by using its own resources to improve society and the environment such as establishing a childcare center for employees at the office.

In 2000, Dyllick and Hockerts added that the concept of CSR should be combined with “sustainable development”. This idea is the origin of “sustainable corporate”. The main mission of a sustainable corporate is to run the corporate in a sustainable manner that satisfies the expectations of society and relevant stakeholders, directly and indirectly. The concept of sustainable corporate involves the context of “3-dimensional strategy” commonly known as the “triple bottom line”. The key principle is that the CSR activities should be related to and satisfy three dimensions: economic, environmental, and social (Branco & Rodrigues, 2006).

The concept of CSR originated in the United States, yet when considered from the dimensions of culture, religion, values, and beliefs, there are differences in other countries (BrØnn & Vrioni, 2001).
According to Enderle and Tavis (1998), American society expects companies to have consciousness in business operations, abide by basic laws, pay taxes, and respect the rights of people. In the latter case, companies are expected to run their businesses while also addressing problems in society (BrØnn & Vrioni, 2001).

From the Asian perspective, L’Etang conducted research in 1995 in Singapore and discovered that Singapore has a community-centered system that requires companies to contribute to society and not focus on making too much money. However, some people in the country stood against this. They viewed the system as increasing the burden on corporates such by making them pay taxes for the sake of the public (BrØnn & Vrioni, 2001).

In Thailand, CSR started to form its clear shape when Kofi Annan, Secretary-General of the United Nations, called on companies from around the world to become good global citizens and declared “The UN Global Compact” as the framework for developing sustainable business. In 2000, the Organization for Economic Co-operation and Development established guidelines for the implementation of CSR in member countries (Corporate Social Responsibility Institute, 2008).

In Thailand, CSR was initially about charitable donations and community volunteering. In 2006, CSR became more popular, concrete, and brought to practice under the principle of “capable” and “good” companies that operated responsibly to develop the economy, society, and the environment (Thaipat Institute, 2008a).

Initially, most Thai companies viewed CSR as a waste of money. Thus, CSR activities at many companies were only in the form of donating money or goods to foundations (Saetang, 2007).

Subsequently, many companies in Thailand saw the importance of CSR and undertook CSR activities (Corporate Social Responsibility Institute, 2013). This could be due to rising expectations about companies and the rise of innovation (Sonthijirawong, 2011). For example, CSR and innovation have been integrated in the production processes of some companies (McWilliams & Siegel, 2001, as cited in Preuss (2011).

The definition of CSR has recently expanded to cover sustainable development. As a result, CSR shifted from “doing good things” to “sustainable development”. Also, there is the influence of the term Creating Shared Value (CSV).
Porter and Kramer explained that the key principle of CSR is to create the shared value between the company and society rather than just using the existing value of the company to help society (Corporate Social Responsibility Institute, 2013).

CSV is the latest development in CSR. The focus of CSV is to creating shared value between the company and society by making use of the resources and expertise of the company. However, CSV does not replace CSR. It complements CSR in that each company can use its expertise to improve society and the environment while contributing to create shared value (Yodprudtikan, 2014).

Listed companies that are known for CSR and have been awarded by the Stock Exchange of Thailand include, Charoen Pokphand Group (CP), Siam Cement Group (SCG), PTT, and Bangchak Corporation (BCP) (The Stock Exchange of Thailand, 2010).

Siam Cement Group initiated the “SCG Conserving Water for Tomorrow Project” in 2003 to build check dams in 2003 constructed 10,000 dams by January 2009. SCG also transferred the knowledge of how to build check dams and sponsored villagers in Lampang and Chiang Mai to build check dams in their communities (Siam Cement Group Public Co. Ltd., 2010).

In 2017, the Thaipat Institute and the Corporate Social Responsibility Institute gave a presentation entitled “Direction of Corporate Social Responsibility in 2017” and issued a report called “6 CSR Directions in 2017: Articulating 'Global Goals' to 'Local Impacts'”. The report was intended for companies to use as a guideline for CSR. Its key contents are explained below (Thaipat Institute, 2017b).

**Direction 1: Integrity**

This year (2017) is the year of pushing good governance among business corporates and the authorities in order to upgrade good governance and narrow the gap between good intention and real practice.

**Direction 2: Inclusiveness**

This direction aims to establish collaboration between business corporates and other sectors by making use of business expertise to develop society and the community. Business networks will also be used to support community work and stakeholders of the corporates.
Direction 3: Equality

Business corporates need to use their potential to solve social problems such as labor shortages, an aging society, and social inequality. Business corporates should step in to serve sustainable development by sponsoring economic development in areas that suffer from poverty and difficulties.

Direction 4: Local

Building a strong community is like building the foundation of national development. For this reason, the Thai government is trying hard to solve the problem by strengthening development from the inside. The government has allocated money to stimulate the economy in 18 provinces. As a consequence, business corporates at the regional level are more willing to cooperate with the government to develop the local community in order to create business opportunities and improve competitiveness.

Direction 5: Tourism

The year 2017 is the international year of sustainable tourism. Business corporates have to develop new products or services to serve sustainable tourism and promote collaboration among stakeholders to use tourism for positive changes.

Direction 6: Renewability

Climate change has caused several environmental problems. This year (2017), business sectors need to adjust to the changing environment and use resources in a sustainable fashion by increasing the consumption of renewable and environmentally-friendly energy, decreasing road transport, and relying more on railway transport.

Definitions of Corporate Social Responsibility Activity

Corporate social responsibility activity has been defined by many scholars. Kotler and Lee (2005) defined it in their book “Corporate Social Responsibility: Doing the most good for your company and your cause” as companies improving the quality of life for people and solving environmental problems through business operations that can make use of the companies’ own resources.

From the economic perspective, the World Business Council for Sustainable Development (WBCSD), stated that corporate social responsibility activity is a company’s commitment to society to develop a sustainable economy, help employees
and their families, and support local communities to have better well-being (Kotler & Lee, 2005). The definition is consistent with that of Bhattacharya and Sen (2004) who defined corporate social responsibility activity as a company’s implementation of CSR, including ethical and economic aspects, by operating the business according to social norms and linking CSR with the business in order to develop the national economy.

From the marketing point of view, Hidayati (2011) reflected that corporate social responsibility activity has the objective of reducing cost. In the short term, CSR does not result in a concrete effect right away. However, in the longer term, it will contribute greatly to marketing of the company both directly and indirectly. For this reason, companies should apply CSR. Implementing corporate social responsibility activities will result in effective outcomes, reduce the expenditures, and reduce the costs of business.

Enderle and Tavis (1998) concluded that corporate social responsibility activity has economic, political, cultural, social, and environmental dimensions. In 2000, Dyllick and Hockerts further explained that CSR was integrated into sustainable development, becoming the concept of “sustainable corporate”. This is similar to John Elkington’s Triple Bottom Line, which was in turn derived from the original concept of Brundtland Commission that the United Nations established in 1987. The CSR activities create sustainability in three aspects. First of all, in the economic aspect, the business should grow in line with national economy. Second, the social aspect is about helping the community and improving quality of life. Finally, the environmental aspect involves environmentally-friendly production processes (Branco & Rodrigues, 2006).

CSR involves companies being a good citizen in society, charity activities by companies, community involvement, and community relations. The essence of CSR is that the companies do good things for society (Kotler & Lee, 2005).

**Types of CSR**

Lantos (2001) divides CSR into three types.

1. **Ethical CSR** refers to companies implementing CSR according to the principle of “good ethics is good business. It includes
1.1 Capability usage: The Company may allow employees who have the capability to volunteer for society or use the business’s own resources to help society.

1.2 Causal responsibility: the company will help the community when there is a problem or relieve the damage caused by business operations.

1.3 Role-related responsibility: The accounting department of the company needs to disclose accurate and traceable accounting details. Mass media should report the data to the public in an accurate and fair manner.

2. Altruistic CSR refers to the scenario when the company takes social responsibility by being a good citizen in society and pays back to the society. This corresponds with the highest level of responsibility in Carroll’s pyramid, namely philanthropic responsibility. In this case, the company returns good things to the society and use the company’s expertise to increase the well-being of people in society and link business to the needs of society to contribute even more to society.

3. Strategic CSR refers to the scenario when companies run their businesses with social responsibility and have strategic goals to run their businesses in a way that benefits the companies and society at the same time. Most companies will use strategic CSR to create a good image for the organization, especially to attract investors. For this reason, it could be considered a type of investment with an expected return in a long term. For example, Ford, one of the leading automobile manufacturers, has CSR activities to encourage parents to use child safety seats to create the image that the company cares about people. At the same time, the company can make money from selling child safety seats as well.

Porter and Kramer (2006) categorized CSR into two types: strategic CSR and responsive CSR.

1. Strategic CSR aims to create shared value between the company and society by making the optimum use of company resources. To do so, the company will survey its resources and use innovation to organize CSR activities to establish competitive advantage and contribute to society at the same time. Toyota, one of the world’s largest auto manufacturers, uses hybrid technology to produce the Prius model. The Prius series is well known for its reducing pollution and saving energy.
With this image, of the products Toyota has secured competitive advantage in the automobile industry.

2. Responsive CSR aims to address social problems. This type of CSR can be implemented in two ways.

2.1 The company needs to be a good citizen. Thus, the corporate will launch CSR activities to establish relationships with people and tackle social issues that affect all stakeholders. Apart from creating good relationship with government and the community, by doing such activities, the company does also keep a good relationship with its employees. When the company encourages its employees to CSR activities, it secures employee.

2.2 The company must address existing social issues and anticipate potential social problems. This is because the business operations of the company may cause social and environmental problems. Thus, companies need to have CSR activities to demonstrate that they take responsibility for damage or problems.

Pirsch, Gupta, and Grau (2007) divided CSR into two types: institutional CSR and promotional CSR.

1. Institutional CSR aims to communicate the vision of the company towards society and all stakeholders. The outcomes from institutional CSR are that stakeholders have positive attitudes towards the company and have lower doubts about the business operations, or even have more loyalty toward the company.

2. Promotional CSR aims for short-term impacts. Promotional CSR is considered a marketing tool that helps promote sales of products and services. Therefore, most companies would undertake CSR activities that have some relationship to social issues. For example, some percentage of sales is deducted to help solve social problems. This kind of promotion will help promote sales and boost profits for the company.

In Thailand, the Thaipat Institute (2008b) explained that, considering the role and applicability of agencies, CSR can be divided into three types.

1. CSR after process aims to make contributions to society. Most CSR activities are found to be separate from the main business of the company and usually take place later in order to solve problems. For example, companies may distribute
disaster relief packages to people who suffer from the impacts of business operations, give out blankets in winter, or volunteer for different activities. Most of these CSR activities are done outside of usual business hours.

2. **CSR in process** is done in the main business of the company. That is to say, the purpose is to make profits at the average rate and have social responsibility. For example, a company may have CSR activities aiming to prevent and remove pollution from its production processes to lessen the impact on the community, product quality products or provide quality services following the standard and requirements on the label, disclose accurate and complete data to the public, and compensate consumers for the mistakes and errors of employees. CSR activities of this type are included in normal business hours.

3. **CSR as process** involves CSR that is not designed to gain profit for the company. To clarify, all CSR activities are meant to contribute to society. For example, foundations or public organizations to help the society are founded based upon the ideology of social developers and management. The strength from social developers and business people are combined to benefit society. Most of the time, owners of these companies usually label themselves as social entrepreneurs.

**The forms of CSR activities**

CSR activities may come in different forms. Kotler and Lee (2005) collected divided CSR activities into four types.

1. **Cause promotions** are organized to help society using money or resources from the company. Activities will make people aware of a problem so that they understand its importance.

2. **Cause-related marketing** is done when a company deducts some proportion of total sales and donates the money to agencies or non-profit organizations. Companies use this type of CSR to promote sales and create a good image among people.

3. **Corporate social marketing** is a form of CSR aiming to develop or change the behavior of people. Corporates may address health issues, injury prevention, environmental protection, and community involvement.
4. **Corporate philanthropy** is when companies donate money, items, or services to non-profit organizations. Companies use this type of CSR when the community, the company, and agencies benefit from using the resources of the company.

5. **Community volunteering** is when companies encourage their employees and stakeholders to volunteer to help society. This form of CSR can be organized in two ways. First, companies can do it themselves. For example, they may lend staff with expertise in technology to train children how to use computers. Second, corporates may collaborate with other non-profit organizations. For instance, employees at Shell gas stations together with the Ocean Guards, hold an activity to collect trash and clean the beach.

6. **Socially responsible business practices** aim to improve the people’s quality of life and the environment. Activities can be done in two ways. First, they can be organized by the companies themselves. For example, Kraft has a policy to not sell products to children at school. Second, companies may collaborate with other non-profit organizations. For instance, Starbucks works with international protection organizations to help farmers to minimize environmental impacts on local communities. Companies can 1) design equipment to meet environmental and safety standards, 2) create a development process, 3) refrain from producing dangerous products, 4) choose trade partners who are committed to sustainable development, 5) choose packaging that is friendly to the environment, 6) disclose the data about production processes, 7) promote good quality of life for employees, 8) monitor business operation in a transparent manner, 9) have responsible marketing to youth, 10) increase access to technology for people with disabilities, 11) protect consumer privacy, and 12) be aware of their impact on society and the environment due to the business operation.

Subsequently, Kotler and Lee (2009) added another type of CSR.

7. **Developing and delivering affordable products and services** is when companies produce quality products and services delivered at reasonable prices.
An example is Hindustan Lever, one of the largest soap manufacturers in India. Hindustan Lever produces a soap product that kills the bacteria that causes diarrhea. Since the Company started marketing communication the product, sales rose rapidly.

Kotler and Lee (2005) proposed six guidelines for choosing the type of CSR activity. 1) Choose CSR activities that best serve the goals of the company, 2) Choose CSR activities that serve the needs of social issues, 3) Choose more than one type of CSR activity to solve social problems, 4) Choose CSR activities that promote the image that the company is a good citizen in society, 5) Choose CSR activities in which the company has expertise to create an image of credibility, and 6) Choose CSR activities where the company can make the most of its resources.

**Social issues from CSR activities**

Branco and Rodrigues (2006) said that CSR can address five social issues: environmental protection, human resource management, workplace welfare, community relations, and trade partner and consumer relations. Companies usually integrate social and environmental issues into their business plans and develop relationships with stakeholders like trade partners or consumers in their CSR activities.

Lafferty (2007) suggested that CSR activities can be divided into four categories based on the type of foundations, agencies, or non-profit organizations involved. For example, the American Cancer Society is in charge of health issues; World Wide Fund for Nature (WWF) is in charge of animal rights protection; The American Red Cross is in charge of community relations; and Greenpeace is in charge of environmental issues.

In fact, there are more than 50 social issues that corporates can support through CSR activities. Kotler and Lee (2008) classified them into four main categories.

1. **Health promotion** concerns a variety of health-related issues such as tobacco, alcohol consumption, obesity, cancer, oral cavity health, AIDS, and teenage pregnancy.
2. Injury prevention concerns such issues as driving under the influence, road accidents, safety belts, traffic rule violations, violence, and suicide.

3. Environmental protection concerns deforestation, air pollution, water resource shortages, energy shortages, and waste problems.

4. Community involvement involves issues of well-being for people such as the shortage of organs for patients, blood supply shortages, illiteracy among children.

Before lending a hand with these issues through CSR activities, companies should consider whether these issues are related to their core business. Lafferty (2007) suggested that the core business and the social issues to be solved should be related. For example, Avon, a manufacturer of cosmetics and women's underwear, operates a business about women. The company should address social issues related to women such as providing financial support for breast cancer research. This is consistent with Kotler and Lee (2005) and Porter and Kramer (2006). They believed that companies could not deal with all social issues due to their limited budgets. Rather, they should choose social issues that are associated with their core business. Rifon, Choi, Trimble, and Li (2004) conducted research on the impact of consistency in CSR activities sponsoring social activities. They found consistency between the core business of the company and the social issues behind the CSR activities can reduce the doubt and distrust among consumers. In addition, it can even create awareness, positive attitudes, and confidence among consumers. Therefore companies should support social issues that are consistent with their core business. However, if the company is already well-known and favored by society, it may opt to deal with other social issues that are not related to its core business since this does not create a negative image of the company.

Brink, Odekerken- Schröder, and Pauwels (2006) concluded that companies should communicate with top management, make them understand the importance of CSR activities and convince them to do the activities. Also, companies should have good management of resources and run CSR activities for a long time. Alcañiz, Cáceres, and Pérez (2010) recommended that companies should carry out CSR activities for a long time in order to establish trust and lighten distrust among consumers.
In Thailand, Sae-Jew and Ditcharoen (2011) concluded that companies should underline the duration of their CSR activities and integrate the activities with their business strategies.

In addition, Kotler and Lee (2005) proposed guideline for choosing social issues for CSR activities. 1) Companies should choose only 2-3 social issues for CSR activities, 2) Companies should choose social issues that target communities are interested in, 3) Companies should choose social issues that stakeholders are interested in, 4) Companies should choose social issues that serve their vision, mission, and products or services, 5) Companies should choose social issues that are consistent with their business goals, 6) Companies should choose social issues about which activities can be carried out in the long term.

**Benefits from social responsibility**

Kotler and Lee (2005) summarized the benefits from social responsibility.

1. Companies can improve sales and market share
2. Product positioning is clearer.
3. Companies can improve their image.
4. Companies can improve employee loyalty and attract new employees.
5. Companies can save the operation costs.
6. Companies can improve their attractiveness to financial analysts and investors.
2.3 Concepts of Corporate Social Responsibility Innovation

In recent years, innovation has been discussed by CSR scholars. Porter and Kramer opined that that CSR should be more than just spending on corporate or charitable donations but also a source of opportunity, innovation, and competitive advantage. Zwersloot highlighted that innovation and non-stop development should be part of business operations and CSR. CSR activities can incorporate innovation by welcoming creative ideas from external sources such as NGOs and local communities. This method is referred to as open innovation (Preuss, 2011).

In Thailand, the Corporate Social Responsibility Institute (2008) said that companies should undertake CSR activities that fit their business strategies and boost innovation to create competitive advantage and added value for the business and society. They proposed three guidelines.

1. Companies should conduct a survey on whether existing business processes pose any risk to society or the environment and find preventive and corrective measures to minimize the risk. In addition, companies should look for business innovation.

2. Companies should disclose to stakeholders the innovations they discover, especially those that are beneficial to society and the environment. The disclosure will stimulate other companies to take up and further develop the innovations.

3. Companies should continue to develop innovation and incorporate innovation into CSR activities.

Innovative CSR refers to the discovery of new methods to handle social and environmental and establish good relationships with stakeholders (Preuss, 2011).

Innovation can be linked to the 4Ps innovation model of Tidd and Bessant (2009), which consists of product, process, position, and paradigm, as explained below.

1. CSR P1 Innovation in CSR project content

CSR innovation in this category usually deals with environmental issues. For example, a company may opt to avoid using metals, solvents, or ingredients that contain toxic substance in the production process of product or service.
2. CSR P2 Innovation in CSR processes

This type of CSR innovation usually concerns social and environmental issues. The innovation mostly concerns products that minimize negative social and environmental impacts. Companies may invent renewable packaging material and decomposable products. Some corporates may change from using road transport to using railway transport. Some corporates apply the concept of open innovation from external sources or stakeholders into CSR activities.

3. CSR P3 Innovation in CSR positioning

Innovation in CSR can be used for business positioning. For example, illyCaffe repositioned its business when a new generation succeeded the former management. The new management team changed its organizational culture by focusing on social and environmental issues and developing good relationships with stakeholders such as coffee bean producers in order to compete with giant competitors like Starbucks.

4. CSR P4 Innovation in CSR paradigm

Innovation can be used with business operations for social responsibility. The focus is on the core business model. For example, AT&T used to make charitable donations as CSR activity. Later, they changed their business model to be driven by CSR. In the mid-1980s, the AT&T Foundation established a family care fund managed by the Union Management Committee to support employees at different communities during the day. As a result, not only could the Foundation help employees during the day, service was also improved. In addition, the activity was the inspiration to solve problems in management of the Union.

This research will focus on two dimensions of CSR innovation: in products and services. This is because these are the dimensions closely associated with two parameters in the structural model: corporate image and corporate reputation.

The two CSR innovations are:

1. Innovation in CSR project content
2. Innovation in CSR processes
An example of a foreign company that successfully used product innovation in CSR is DBB, a world class agency. Cooperating with Water If Life, an organization that campaigns for clean water in China, DBB published “The Drinkable Book” for Chinese people who suffered from clean water shortages. The book provided knowledge about water quality, while every page of the book could be ripped out and used as a water filter able to filter out 99% of bacteria (CreativeMove., 2015).

A good example in Thailand of innovation in CSR is Siam Cement Group (SCG) who, during the 2011 Flood, SCG used product innovation in CSR activities following the 4-strength model (Marketeer., 2011).

1. The Disaster Relief Project: SCG produced toilet paper in crepe paper boxes which are light-weight, portable, and durable. More than 100,000 boxes were distributed to the flood victims. The next innovation was the floating toilet, which SCG developed with HUMANIST Co., Ltd., a charitable architecture company. In a floating toilet, there are two restrooms, a treatment tank, and buoys. Another innovation was a safety raft made from the 8” PVC pipe. The head of the raft was designed to move in the water quickly. The base of the raft is made of used plastic bottles. The arrangement of bottles was calculated according to the mechanical rules, making it robust, stable, and able to hold up to 400 kg. There was also the manual water pump made from Elephant Brand pipes. The pump was light-weight and could pump water very quickly.

2. The Flood Protective Equipment Project: SCG provided 1 million sandbags and 1 million rock powder bags and assigned its affiliates to distribute these flood prevention bags to stakeholders such as trade partners, customers, and government agencies.

3. The Flood Rehabilitation Project “House Repairs: Happiness Returns”: SCG provided consultations about house repairs on social media and sent qualified lecturers to educate flood victims about home restoration after the flood. Also, cleaning activities were also carried out in flooded areas.

4. The Flood Prevention Project: To prevent future floods, SCG developed an innovation to help victims to survive in natural disasters. SCG invented floating houses and invested in the R&D to produce environmentally-friendly products.
Similarly, the 3 giant mobile phone operators in Thailand, Advanced Info Service (AIS), Total Access Communication (DTAC), and TRUEMOVE, brought their communication technologies to assist flood victims. For example, the companies extended the valid date of data usage packages, added balance for pre-paid users, offered free internet usage, installed Wi-Fi at evacuation centers, and gave mobile phones, sim cards, and calling packages to volunteers (Marketeer., 2011).

From the communication arts perspective, the term “innovation” in CSR activities is a dimension of “communication”. New media such as websites, applications, and social media have been used as communication channels for CSR activities so that companies can expand communication coverage and destroy space and time limitations.

Many companies introduced communication innovations like new media into their CSR activities. For instance, Domtar, a top paper manufacturer in North America made the website “Paper Trails” to communicate its CSR activities to consumers and stakeholders domestically and internationally. The website allowed visitors to make purchases and trace the origin of products. Thus, consumers could know whether a purchased product had an environmental impact. In addition, there was the activity called Project Learning Curve. Smart pens are used with an application that the Company developed in order to track the movement of children’s hands when they write. This was in an effort to let the young generation know the importance of writing on the paper instead of typing text on a computer screen (Marketing Oops, 2015a).

In Thailand, Thanachart Insurance used communication innovation like new media in the “Drive DD United Project”. The goal of the project was to reduce road accidents and the target group was teenagers because they are the highest risk. The company organized a viral video competition called “No Driving Under Influence and No Phone While Driving”. University students were invited to join the Drive DD United Project, support road safety, and show their ability by making video clips that encourage road safety.

In addition, the Company also made an educational video about safe commuting in order to make teenagers aware of the problems caused by driving under the influence and driving while using mobile phones (Marketing Oops, 2015b).
Dr. Pipat Yodprudtikan, Director of Thaipat Institute, said social media will play a more important role in CSR activities, whether for sales promotion, corporate image promotion, or customer relations development. In addition, social media can be used as pro-active tools for strategic communication. It can be used in marketing activities aimed at social issues and changing the behavior of people in the society (Thaipat Institute, 2015).

One of the objectives of CSR is to communicate company’s image (Kotler & Lee, 2005). When the company runs a CSR activity for a long time, it develops the company’s reputation.
2.4 Concepts of Corporate Image and Corporate Reputation

According to the Operational model for managing corporate reputation and image developed by Gray and Balmer (1998), “corporate image” and “corporate reputation” are two factors arising from the image that the company created and communicated through the corporate communication. That is to say, communication creates corporate image among stakeholders. When a company runs CSR activities constantly for a long time, it will finally result in competitive advantage. (See Figure 2.7)

The rise of new communication innovation allows the corporate communication target group to have more access to information. Gray and Balmer (1998) suggested that companies should have various communication channels in order to suit the changing behaviors of the target group and continue to develop strategies.

![Operational Model for Managing Corporate Reputation and Image](image)

Figure 2.7 Operational Model for Managing Corporate Reputation and Image

In the above model, “corporate image” and “corporate reputation” are closely related.
Definition and importance of corporate image

Dowling (1986) explained that the term “image” has been used in several contexts such as product image and corporate image. With these different contexts, confusion about its definition might arise. Dowling summarized the definition of “image” as a set of meaning that individuals have toward things through memory and connection with people. That is to say, “image” is a result of belief, thought, feeling, and impressions of humans toward something. Regarding “corporate image”, Dowling said that it is not quite concrete. If companies wish to deal with their image, they need to understand the origin of corporate image and how to measure corporate image.

Gray and Balmer (1998) defined “corporate image” as the image of the company in minds of the target group. Pope and Voges (1999) added that “corporate image” is the overall feeling of each individual in the target group toward the company.

Lapirattanakul (2003) stated that “image” is the internal perception that an individual has toward living and non-living things that they have direct or indirect experience with. For example, “corporate image” comes from the fact that the target group has good experiences from being customers of a company (direct) or when they are told by others about good experience with the company (indirect).

This is consistent with Santiwong and Santiwong (1999) who said that “image” is the perception of a company by individuals and the image comes from direct and indirect experiences of the individuals of the company. However, different target groups may perceive corporate image differently. Factors that contribute to corporate image include the corporate product, employee personality, corporate environment, and corporate communication method.

Vungsuntitum (2007), said “image” is something that individuals create in their minds. It is the perception that individuals have for other people, institutions, or operations of companies. Image can come from direct or indirect experience. However, it might take time for image to be created in people’s minds. Therefore, if a company wishes to create a positive image, it needs communication via media regularly in order that the target group perceives the intended image.
Theerasorn (2009) said that corporate image and corporate reputation cannot be created quickly through communication or advertisements. Instead, it requires several factors such as quality products and services, application of innovation to product and service design, social responsibility, and transparency.

Likewise, Wongmonta (1998) said companies produce products and services with similar characteristics to the market. Therefore, “image” is an important factor in making companies stand out from competitors. Companies could create an image through CSR activities.

**Elements of corporate image**


1. **Executives** are an important factor for determining corporate image. Executives with good vision, capability, and honesty in business operation usually have a good image.

2. **Employees** are an important part of corporate image. That is to say, the behavior of employees is an important element in creating corporate image.

3. **Products and services** with good quality create a good corporate image.

4. **Business practices** can create good corporate image from the perspective of the society as a whole and specific target groups.

5. **Social activities** such as donations, volunteering, and charity, can create good corporate image from the perspective of people in the society.

6. **Artifacts or corporate identity** such as employee uniforms and office supplies can create a corporate image (Vungsuntitum, 2007). For example, if the company uses environmentally-friendly office supplies that creates the image that it cares for the environment.

Barich and Kotler proposed a model that reflects the eleven elements (See Figure 2.8) of corporate image (Keller, 2003). The eleven elements are as below.

1. **Corporate business conduct** consists of corporate reputation, innovation, financial stability, and the quality of corporate management.

2. **Corporate social conduct** consists of environmental work, being good citizens, development of quality of life for people in society, and good community relations.
3. **Corporate contribution conduct** consists of sponsoring charitable organizations, art organizations, schools and universities.

4. **Corporate employee conduct** consists of having respect for employees, fair payment, and opportunity to grow in career paths.

5. **Product** consists of the characteristics of the product, product design style, efficiency of product, durability, reparability, quality, and reliability.

6. **Communications** consist of advertisements, publication of corporate news and information, sales promotion, direct marketing, and mobile marketing.

7. **Price** consists of pricing, discounts, deals, and financial status.

8. **Support** consists of educational support for employees or communities, training in how to use the product for customers, and consultation by experts from the company.

9. **Service** consists of installation service, maintenance, warranty, and availability of spare parts.

10. **Distribution channels** consist of the place of selling the product or service, service at the selling point, and the potential of the distribution channels.

11. **Sales force** consists of the number of employees, potential of employees, reliability, responsibility, and willingness to help customers.
Figure 2.8 Determinants of Corporate Image


**Dimensions of corporate image**

Considering how corporate is created according to Keller (2003), corporate image can be created through 4 dimensions.
1. Dimension of product properties and benefits and attitude of the target group

In this dimension, corporate image will be formed when the target group relates the product of the company through:

*Product properties:* For example, when customers see the brand Hershey’s, they relate to the image that the company produces chocolate products.

*Type of product users:* When customers see someone driving a BMW, they relate to the image that the driver is rich.

*The context of the product application:* When thinking of entertainment, many people think of Club Med.

*The overall image of the product:* When someone sees the Sony brand, they relate to the image that Sony produces quality products.

Keller (2003) divided corporate image and product brand in this dimension into two subcategories.

1.1 Relating the corporate image as the producer of quality products

Corporate image is created when the company tries to make target group aware that its product is of high quality and thus it can be sold at high prices. This can influence the decision to purchase.

1.2 Relating the corporate image as the innovation leader

Corporate image is created when the company tries to make the target group aware that it runs its business in a modern way, applies innovations, continues to release new products, and emphasizes research and development.

2. Dimension of employees and developing relationships with the target group

In this dimension, corporate image is formed when the target group relates to the product brand and the corporate image from their perspective. Corporate image might be created from the personality of the employee who services the customer, especially in service industries such as airlines and hotels. The service of employees in these industries can affect the product that their company produces and presents, both directly and indirectly. For this reason, companies should focus on keeping good relationships between employees and the target group in order that the target group has a positive attitude toward the product brand. To do so, companies should be open to hearing the opinions of the target group (Keller, 2003).
3. Dimension of value and corporate activities

In some cases, corporate image may come from the activities that companies do in order to express vision and values. For example, a company may launch a marketing communication campaign that shows its social responsibility, which boosts its corporate image.

Keller (2003) divided the relation of corporate image to product brand into two subcategories.

3.1 Relating the corporate image of corporate social responsibility

Corporate image is created when the company makes the target group aware that it operates its business and runs its activities to help society and improve quality of life.

3.2 Relating the corporate image of corporate environmental responsibility

Corporate image is created when the company makes the target group aware that it operates its business and runs its activities to protect and improve the environment and use natural resources optimally.

4. Dimension of corporate reliability

In this dimension, corporate image is created when the target group believes that the company can design, produce, and sell a product that satisfies the demands of society. Corporate reliability depends on three factors. The first factor is expertise of the company: when the target group is aware that the company has expertise in producing and selling the product. The second factor is corporate reliability: when the target group knows that they can rely on the company due to its honesty. The third factor is corporate fondness: when the target group likes the company, it has successfully created a good relationship with the target group.

When the company successfully relates corporate image and product brand, it earns loyalty from employees and this can lead to survival in critical situations (Keller, 2003).
Types of corporate image

Lapirattanakul (2003) divided image into four types.

1. Corporate image is the image that a company wishes to communicate in order to establish its reliability and earn trust from people and attract investors. This type of image comes from the perceptions of people toward the operations, management, products, and services of the company.

2. Institutional image is the image that a company communicates to make society aware, not of the product or service that it produces, but of the company itself.

3. Product/service image is the image that a company communicates to create awareness of the product/service that it produces.

4. Brand image is the image that a company communicates to make the target group fond of and loyal to the product brand. Brand image can come from packaging design, color, font, media, content, and form of advertisement.

Vungsuntitum (2007) said that there are two main types of image.

1. Corporate image or institutional image: This type of image comes from the feeling or perception of people toward a company, institution, or agency (henceforth a “corporate”) in managing their business, product, and service. Corporate image is compared to the picture in the target group’s mind of the corporate. Corporate identity is a reflection of what the corporate really is while corporate image is how the target group perceives it through the media channels, both verbally and non-verbally. Corporate image can be displayed in many ways, such as how corporate leaders appear in the eyes of the public, service by staff, the quality of products and services that the corporate produces, or even the stock price in the stock exchange.

2. Product/service image covers brand image. This type of image comes from how the public perceives the product brand and trademark of the corporate. In general, corporate image is communicated through advertisements and sales promotions. Although the product/service is produced by the same corporate, the product/service image may differ, depending on the product positioning in the public perception.
Measuring the corporate image

Wanakasemsan (2009) investigated corporate image from 1989 – 2009 in 77 theses and special projects of PhD students at Chulalongkorn University and found that most corporate image was measured using a Likert scale, which is an interval indicator. That is to say, there are questions for informants to answer about whether they agree or disagree and to what extent they do so on certain topics. Most of the questions are rather positive.

Wanakasemsan then developed a new questionnaire to measure corporate image. Its measurements were tested for validity and reliability. The result was that reliability was 0.9525, which was highly satisfactory. The questionnaire contained questions that measure corporate image regarding 6 attributes.

1. **Image about executives**

   The questionnaire had 12 questions such as:
   
   The executives of your company have leadership.
   The executives of your company communicate with the public well.
   The executives of your company conduct business with honesty.

2. **Image about employees**

   The questionnaire had 17 questions such as:
   
   Employees of your company are polite and humble.
   Employees of your company do the best in their jobs.
   Employees of your company provide the information that satisfies the need.

3. **Image about product and service**

   The questionnaire had 13 questions such as:
   
   Products and services of your company are various.
   Products and services of your company can facilitate daily life.
   Products and services of your company have good quality.

4. **Image about business management**

   The questionnaire had 32 questions such as:
   
   Your company uses technology to work inside the organization.
   Your company continues to improve working methods.
   Your company manages the business according to laws.
5. Image about external environment
The questionnaire had 9 questions such as:
- Your company has enough office supplies and equipment.
- Your company has nice interior decorations.
- Your company has good security systems.

6. Image about social responsibility
The questionnaire had 11 questions such as:
- Your company sponsors activities at educational institutes.
- Your company brings revenue to the country.
- Your company brings employment.

In 2010, Sabaiwan further developed the measurement of corporate image from Wanakasemsan (2009) by testing the question structures with 500 samples to improve reliability.

After testing, the reliability of the questionnaire was 0.9808, which was very good. The new questionnaire consisted of the questions regarding the same six attributes; however the difference was that the attributes had different names.

1. Image about the corporate
The questionnaire had 17 questions such as:
- The company has good management system.
- The company has clear working policy.

2. Image about employees
The questionnaire had 9 questions such as:
- Employees of the company are responsible.
- Employees of the company behave themselves and are good examples.

3. Image about executives
The questionnaire had 7 questions such as:
- Executives of the company are honest.
- Executives of the company conduct the business with honesty.

4. Image about economic, social, and environmental responsibility
The questionnaire had 6 questions such as:
- The company sponsors education scholarships for youths.
- The company cares for public safety.
5. Image about products and services
The questionnaire had 6 questions such as:
   - Products and services of the company have good quality.
   - Products and service of the company satisfy the customers’ needs.

6. Image about equipment, building, and common area
The questionnaire had 5 questions such as:
   - The company has a security system of good standard.
   - The company has enough office supplies and equipment.

Regarding measurement of corporate image in the context of CSR, Seritanonhd (2011) applied the measurements of corporate image from Wanakasemsan (2009) and Sabaiwan (2010) to develop a questionnaire on corporate image in CSR. Also, some interesting questions about corporate reputation from Fombrun et al. (2000), were included. The new questionnaire had good reliability (0.911). It consisted of questions on two attributes and there were nine questions.

1. Corporate social responsibility
   - The company has corporate social responsibility.
   - The company has projects and activities that are beneficial to the society.
   - The company does not aim only at making a profit.
   - The company is sincere about helping the society.
   - The company expresses that it cares for society.
   - The company is outstanding in supporting social issues and social assistance.

2. Being a good citizen in society
   - The company is reliable.
   - The company has good behavior and is a good citizen in society.
   - The company has activities that benefit both business and society.

From the measurements of corporate image above, the researcher has selected only questions that fit the research area of using innovation in holding CSR activities on social and environmental issues and focusing on products and services. Thus, the measurement in this research consists of three attributes: 1) social and environmental responsibility, 2) innovation, and 3) products and services.
Corporate reputation is another factor that is closely related to corporate image. Gray and Balmer (1998) developed the model of corporate image and corporate reputation management that indicated that they are closely related.

**Definition and importance of corporate reputation**

Pitpreecha (2014) defined corporate reputation as resulting from operations, including the old works of the corporate that reflect its ability and profits, and the extent to which the corporate benefited society. Corporate reputation is the notion that people in society perceive. Therefore, the corporate should carefully manage corporate reputation in order to earn trust among stakeholders by operating with openness, honesty, and responsibility. Good corporate reputation management will lead to esteem, trust, and admiration.

Topalian (1984) stated that corporate reputation refers to the notion and expectation of people in the society toward the business operations of the corporate. It comes from the identity that the corporate creates and communicates through its communication channels.

Fombrun et al. (2000) explained that corporate reputation comes from perception of stakeholders, either inside the organization such as employees, or outside the organization such as customers and investors. Corporate reputation is formed when these people have direct experience with the corporate. For instance, when they are exposed to the corporate’s media. In some cases, they might have indirect experience, like when they are told by other people and evaluate the information as the corporate reputation. The four factors: 1) corporate reliability, 2) corporate confidence, 3) corporate trust, and corporate social responsibility are important and corporates should take them into account in order to retain a good reputation.

Gray and Balmer (1998) added that corporate reputation takes a long time to be formed, unlike corporate image which comes faster. Corporate reputation in the notion of stakeholders will directly influence their willingness to support or go against the corporate. Therefore, when such stakeholders as customers of the corporate have negative perceptions about the corporate or the product brand, sales will be affected.
Schwaiger (2004) proposed that, to evaluate the attitude of stakeholders toward the corporate reputation, the corporate might consider cognitive and affective components. This is because reputation evaluation does not only depend on the notion of individuals toward certain attributes of the corporate like quality of the product and success of business operations, but it is important to also consider affective elements. For example, customers may have a feeling that Corporate A may not be successful, but they are still fans.

Barnett, Jermier, and Lafferty (2006) collected the data on the definition of corporate reputation by conducting a literature review. They concluded that corporate reputation comes from the judgment of stakeholders owing to the financial, social, and environmental status of the corporate that it communicates to the stakeholders for a certain period of time until it finally becomes of economic value, such as through stock prices (See Figure 2.9). What is different from corporate image is that the latter is only the impression of an individual toward the corporate.

![Figure 2.9 Disaggregating Corporate Reputation](image)


**Components of corporate reputation**

Schwaiger (2004) found that corporate reputation may come from 10 components.

1. Quality of employees
2. Quality of management
3. Quality of products and services
4. Financial performance
5. Market leadership
6. Customer orientation
7. Attractiveness
8. Reliability
9. Social responsibility
10. Ethical behavior
Schwaiger (2004) added that the 10 components might be suitable to be cognitive factors. However, affective factors have not been thoroughly studied. Therefore, he conducted a focus group meeting and interviewed experts to investigate this topic. Schwaiger asked the interviewees about the aspects that relate to corporate reputation. The interview results revealed that there were three other affective components not in the original 10 components.

1. Fair attitude towards competitors
2. Transparency and openness
3. Credibility

Pitpreecha (2014) interviewed business executives from large, medium, and small business and found that the following four factors can determine Thai business reputation.

1. **Products and services**
   This factor include selling quality products at reasonable prices, timeliness, products’ and services’ capability to satisfy customer’s needs, repeated buying and using behavior, being the top brand for a long time, acceptance, and no negative trend about the corporate.

2. **Turnover**
   This factor includes good business performance, high market share, mass media, attractiveness from the public point of view, news and information about the corporate and executives, and continuous growth of business.

3. **Business governance**
   Business governance includes being a corporate with good governance, honesty, and ethics.

4. **Citizenship**
   Being a good citizen includes consideration about all stakeholders, social support, not causing suffering and negative impacts to the society, and the ability to coexist with the community or the society.
Pitpreecha (2014) proposed the overall factors that determine corporate reputation.
1. Product and Service
2. Innovation
3. Workplace
4. Governance
5. Citizenship
6. Leadership
7. Performance

Measuring corporate reputation

In 1984, the Fortune magazine developed a corporate reputation measurement called AMAC (America’s Most Admired Companies) to rank the most reputable business corporates in the USA (Schwaiger, 2004). There are 8 criteria or determinants of reputation.
1. Quality of management
2. Quality of products and services
3. Innovation
4. Long-term investment value
5. Financial soundness
6. People management such as the ability to persuade, improve, and maintain employees with good performance to keep working at the corporate
7. Social responsibility to the community and/or environment both in the community and/or environmental dimensions
8. Use of corporate assets

However, the AMAC measurement focused mainly on financial performance or financial soundness from the perspective of the corporates’ own executives. As a result, the results only measured reputation among a small group of people. In addition, the measurement was limited to businesses in the United States.

In 1997, Fortune and Hay Group Consultants together developed GMAC (Global Most Admired Companies). Still, there were limitations. To clarify, although it could be used to measure the reputation of corporates outside the United States, it was too international and not applicable to local corporates (Schwaiger, 2004).
The most widely used and accepted corporate reputation measurement is Reputation Quotient (RQ), developed by Fombrun et al. (2000). The measurement consists of 20 questions that cover six attributes of corporate.

<table>
<thead>
<tr>
<th>1. Emotional appeal</th>
<th>2. Products and services</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are 3 questions.</td>
<td>There are 4 questions.</td>
</tr>
<tr>
<td>- I have good perception about the corporate.</td>
<td>- The corporate guarantees the products/services.</td>
</tr>
<tr>
<td>- I accept and respect the corporate.</td>
<td>- The corporate improves the innovation of products/service.</td>
</tr>
<tr>
<td>- I trust the corporate.</td>
<td>- The corporate offers high quality products/services.</td>
</tr>
<tr>
<td>- The corporate sells the products/services at reasonable prices.</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>3. Vision and leadership</th>
<th>4. Workplace environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are 3 questions.</td>
<td>There are 3 questions.</td>
</tr>
<tr>
<td>- Executives have high leadership.</td>
<td>- The corporate has good management system.</td>
</tr>
<tr>
<td>- Executives have clear vision.</td>
<td>- The corporate seems like a good place to work for.</td>
</tr>
<tr>
<td>- Executives anticipate competitive opportunity.</td>
<td>- The corporate is full of employees with lots of potentials.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Social and environmental responsibility</th>
<th>6. Financial performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are 3 questions.</td>
<td>There are 4 questions.</td>
</tr>
<tr>
<td>- The corporate supports beneficial social issues.</td>
<td>- The corporate has good financial performance.</td>
</tr>
<tr>
<td>- The corporate operates environmental-friendly business.</td>
<td>- The corporate has low risk and is attractive to investors.</td>
</tr>
<tr>
<td>- The corporate maintains good standards in behaving with the society.</td>
<td>- The corporate has competency beyond competitors.</td>
</tr>
<tr>
<td>- The corporate has good growth rate in the future.</td>
<td></td>
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</tbody>
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However, RQ has certain limitations. Therefore, the Reputation Institute developed another reputation measurement called the RepTrak System. The Institute conducted research to develop this tool by testing it with 15 groups of stakeholders in more than 7,000 corporates in 25 industries from 50 countries worldwide.

The research revealed that this tool can measure corporate reputation with many groups of stakeholders and with many types of corporates. It consists of seven attributes where the key factors are esteem, trust, feeling, and admiration that people in society have for the corporate (Reputation Institute, 2017) (See Figure 2.10). The 7 attributes are as follows.

1. Products and services  
2. Innovation  
3. Workplace environment  
4. Governance  
5. Good citizenship  
6. Leadership  
7. Performance
Figure 2.10 Measurement by RepTrak® Framework

Figure 2.11 The RepTrak® Model
1. Products and services

There are 4 questions.

- The corporate produces quality products/services.
- The corporate offers the products/service at reasonable prices.
- The corporate guarantees the products/services.
- The corporate produces the products/services that satisfy the needs of society.

2. Innovation

There are 3 questions.

- The corporate is a corporate of innovation.
- It is a leader in the market.
- It can adapt to changes quickly.

3. Workplace environment

There are 3 questions.

- The corporate offers fair and equal opportunity to employees.
- The corporate pays employees fairly.
- The corporate cares for the quality of life of employees.

4. Governance

There are 3 questions.

- The corporate operates the business with openness.
- The corporate has ethical business operations.
- The corporate’s business operations are transparent and trackable.

5. Good citizenship

There are 3 questions.

- The corporate has environmental responsibility.
- The corporate drives society toward a good direction.
- The corporate supports beneficial social issues.

6. Leadership

There are 4 questions.

- The corporate has good management system.
- The corporate has good leadership.
- The corporate has executives with capability.
- The corporate’s executive has good vision.

7. Performance

There are 3 questions.

- The corporate earns the profit to the country.
- The corporate has good direction of business growth.
- The corporate has better revenue than expected.

In this research, corporate reputation measurement is adapted from Wanakasemsan (2009), Sabaiwan (2010), RQ, RepTrak, and Suangswang (2005), all of which have high reliability.

The researcher decided to use questions for corporate image measurement and the corporate reputation measurement that consider how innovation is used for socially and environmentally responsibility activities through producing the products and services influences the adoption of the corporate’s CSR innovation.

For this reason, the corporate image measurements and the corporate reputation measurements consist of three applicable attributes which are 1) social and environmental responsibility, 2) innovation, and 3) products and services. These attributes can be measured from the perspective of stakeholders i.e. Generation Y as the sample group.
2.5 Concepts of Generation Y

In the communication process for CSR activities, the “audience” or “target group” of the corporate should be the focal point. The corporate should consider their openness to information, feelings, interest in the activities, and the response of the target group to the CSR activities.

However, different groups and different ages may have different responses to CSR activities. Previous studies showed that age is an important factor in responding to CSR activities.

For instance, Phomun (2012) discovered that consumers aged 23-32 had different attitude toward CSR than those aged 43-52. Tantivejakul (2012) found different age ranges have different engagement in CSR issues.

Sirithorn (2011) identified Generation Y as people aged 16-31 years old. They are more open to new media and adopting communication technologies than Generation X. Similarly, Peamsutanont (2014) found that Generation Y follow hot news or social trends more than Generation X. Promsit (2016) revealed that demographic characteristics affect openness to Facebook sharing about products and brands.

This study focuses on Generation Y (millennials) because they have high market value and have high expenditures, especially on innovation and technology products (Rugimbana, 2007).

Definition of Generation Y

A survey of the behavior of internet users in Thailand in 2015 divided them into 5 different generations sorted by age.

1. Traditionalists (born from 1925 – 1945)
2. Baby Boomers (born from 1946 – 1964)
5. Generation Z or Gen Z (born from 2001 onward)
It could be said that Generation Y are the children of the baby boomers and the younger brothers and sisters of Generation X. They are raised by their parents to try to make up for what they failed to have in their childhoods (Decharin, 2008; Pisithanusorn, 2007).


Wangkiat, said Generation Y (millennials) are those who were born 1980-1994. They like technology, look for opportunities and career growth, and connect and communicate to the rest of the world through online channels.

Wangkiat added that Generation Y is becoming more important as the driver of national development every day, especially in the economic dimension, because they are becoming the majority population of Thailand and of the world. It is noteworthy that the proportion of Generation Y in developing countries is larger than in developed countries mainly because due to lower fertility rates in the latter. Also, due to medical advancement, Thai society will become an aging society within a short time. A survey by World Population Prospect, UN, discovered that the 2016 Thai Health Report revealed that there are 22 million people who were born from 1982-2005, 10,982,000 of whom were male and 10,850,000 female (Bangkok Post, 2016) (see Figure 2.12).
Figure 2.12 Population of Thailand in 2015

Generation Y, for this research, are those who were born from 1983-1999 or aged 18 -34 years old. They grew up in an era of technological advancements. Therefore, they are fond of technology, fast lifestyles, challenges, and are curious to learn new things.

**Specific nature of Generation Y consumers**

Samutachak said that Generation Y have different lifestyles to previous generations because the environmental, economic, and social conditions are different (Mongkolsiri, 2005).

Kengkarnchang (2013) said Generation Y were born in the era of a good economy and technological advancements. Communication was easy and fast. There were computers, mobile phones, digital cameras, the internet, and other gadgets that allowed easy access to information.

Thus, the thoughts, feelings, and behavior of Generation Y are unique and need understanding. They tend to be curious, love challenges, and are sensitive to uncertainties. Generation Y people do not usually make long-term plans and do not think about the future. Therefore, their consumption behavior is abrupt.

Wangkiat added that this group of people are viewed as diverse and aware of individualism. With their expertise in technology, they like to look for new opportunities and progress. They can communicate easily via mobile channels in the borderless world (Bangkok Post, 2016)
Mongkolsiri (2005) summarized the nature of Generation Y.

1. Generation Y are an improved version of Generation X. That is to say, Gen Y people take care of their looks. They have better tastes in fashion and are more able to use technology. They can speak foreign languages and communicate with foreigners better than Gen X.

2. Generation Y grew up as happy kids. They have been taken care of by their families who are baby boomers and Gen X. As a result, their upbringing was warm and filled with modern items and technologies.

3. It is a high-tech generation because technological advancements occurred at the same time as they grew up. It was the time when the internet was fully developed. Therefore, Gen Y people rely more on the internet than other generations, either to search for information, to access entertainment, or to communicate with strangers. Furthermore, Generation Y are more open to new technologies than Generation X.

4. Generation Y are pragmatic and not loyal to brands. The products that Generation Y like to use are the ones that are useful and have affective impacts such as Gap and Adidas.

5. Generation Y are pluralistic and believe in choices because they were born with the freedom to choose. For example, they are free to choose to study in the majors or universities that they like. They can choose programs to chat with other people. There are several brands of clothes to choose from to suit their individual style. They can choose to have entertainment from many different channels and only view the programs that they like. All in all, Generation Y were born with diversity and believe in choices. Therefore, corporates need to adjust to the generation by improving products and services as well as the image of brand.

6. Generation Y are highly individual persons (HIP). They are more modern than Generation X and prefer cheap products to expensive ones.

7. Generation Y are close to their parents because they were well taken care of by their families. Ninety percent of Generation Y feel that they are close to their parents while only 30 percent of Generation X do.

8. Generation Y are indifferent and pro-volunteer. They are willing to participate in activities that benefit society.
9. Generation Y are overrun by popular culture. To clarify, people in this generation are open to a lot of new cultures such as new genres of music or fashion trends. Exposure to various cultures is a result of exposure to foreign media by means of the internet.

Wittawatolarn (2007) described the personality, attitude, values, and behavioral trends of Generation Y, sorted into 13 items.

1. They are highly individual persons. They are confident and have unique taste in fashion. They live life the way they want because they do not want to copy others.

2. They have low patience, both physically and mentally. Generation Y are found to be hotheaded, impatient to wait, and unable to keep their feelings inside.

3. Generation Y are curious and always ask “Why?” They expect the question to be answered immediately. This upsets baby boomers because the latter are familiar with waiting instead of asking questions.

4. The often violate or challenge the rules. Generation Y are not famous for strictly following rules. The stricter the rules are, the more likely Generation Y will violate them. Moreover, Generation Y are not strict about traditions, cultures, and practices of the older generations. As a result, the baby boomers will consider Generation Y as different.

5. Generation Y are highly ambitious. They have a clear plan for their future job. Most of them set their goals high and make a strong effort to achieve them. They will look for shortcuts for career growth. They are not fond of working at lower levels in an organization. Therefore, the turnover rate of Generation Y is high when they do not foresee the opportunity to grow.

6. Generation Y are familiar with technology. They always carry some gadgets or technology with them like a laptop, smart phone, or music player. Without these gadgets, Generation Y will feel like something is lost.

7. Generation Y like changes. They have a positive attitude toward changes, without carefully considering whether the outcomes will be good or bad. The nature of these people is that they love challenges and changes.
8. Generation Y are enthusiastic. They are flexible, think fast, talk fast, and do things quickly, and thus expect immediate outcome. Sometimes, it makes other people feel like Generation Y are not careful.

9. Generation Y have positive attitudes and think that everything is possible. They think that they can be successful despite lack of experience. That explains their optimism. Also, Generation Y have good attitudes toward baby boomers and Generation X in the workplace.

10. Generation Y always have creative ideas since they do not cling onto rules. This is because they were raised by parents who yielded to their needs most of the time, resulting in the high confidence.

11. Generation Y are highly confident. They have good self-esteem and believe in their abilities. This is expressed through the way they talk and take actions.

12. Instead of respecting seniors, Generation Y tend to respect those who have respectable abilities, regardless of age.

13. Generation Y has low corporate loyalty. They view corporates as a school where they learn. These people will have low involvement with a corporate. As a result, the turnover rate is high. Also, Generation Y question why the baby boomers can keep working in the same organization from graduation to retirement and why Generation X do not quit a job when they are not satisfied with it.

The 13 characteristics of the Generation Y consumers mentioned above are common among Generation Y in Thailand and in other countries. With globalization, people tend to have similar cultures and way of life. The internet links people from all around the world. Therefore, Generation Y from one country can get to know others from other countries. They are exposed to news and information and share information more than other generations.

Likewise, Samutachak said that Generation Y from different parts of the world share certain similar natures due to globalization that allows them to connect via the cyber world. As a result, they share similar natures and lifestyles (Thai Health Organization, 2016).

Tapscott (2009) described the media consumption behavior of Generation Y, who were born from 1981-1996. They were born in the era of technology such as computers, the internet, and digital technology. As a result, they are a generation with
several skill sets and are able to do many things at the same time. Generation Y tend to turn on chatting programs all the time. According to Tapscott, they share 8 similar characteristics.

1. Freedom

Generation Y love freedom to make a decision. They love freedom to choose their jobs. They will not tolerate unsatisfying jobs. Therefore, the turnover rate of Generation Y is high. Also, Generation Y have freedom to search for information through new technology. As a result, they can check the details and prices of products quickly.

2. Customization

Generation Y love to customize things to express their individuality. Most customizations are done to satisfy affective feelings. For example, they customize their identity on social media and watch YouTube channels at the time they want.

3. Scrutiny

Generation Y live in a society with technology advancements. They make use of the technology to search for information about products and services and compare them before making a purchase.

4. Integrity

According to research, 71 percent of Generation Y are willing to support a company that officially and sincerely apologizes and takes responsibility for a crisis and 40 percent of them tend to stop using or buying from the company that does not have social responsibility.

5. Collaboration

Generation Y like to develop mutual relationships and keep in touch with friends regularly. They share information about products, services, and even corporates, eventually resulting in a network that influences its members or the phenomenon called N-fluence (net generation-influence).
6. Entertainment

Generation Y usually combine work with entertainment in such a way that sometimes they do both at the same time. For example, they use social media during work because they think it is not a bad thing as long as their jobs are done.

7. Speed

Generation Y grew up with technology and digital media. Everything moves fast, including work and searching for information on websites. Therefore, they are addicted to fast lifestyles. According to research, 56 percent of Generation Y admit that they have low patience.

8. Innovation

With technology in place, people can invent new things more easily. Generation Y want to try new things. For example, when a new mobile phone model is released, they want to use it. This also includes innovation at work. Generation Y are usually against orders from supervisors and traditional ways of working.

**Generation Y customer segmentation**

Sirithorn (2011) said that despite being the same age, Generation Y people might have different consumption behavior. For this reason, communication and marketing to them should be more specific. Srikatanyoo (1997) studied media exposure and consumption of Generation Y. He found that they are highly exposed to media and aware of the importance of the environment and threat of drugs as a social problem. However, there are certain differences. For example, Generation Y in Bangkok put their family first and care little about using high technology. In contrast, those in the United States demonstrate the opposite.

In addition, Generation Y, in Bangkok can be divided into 6 groups.

1. The beauty lovers are those who care about beauty and fashion. They use media regularly and follow their favorite artists and actors and are very close to friends.

2. The travelers are those who go shopping, watch movies, eat fast food, hang out at night, travel upcountry, and watch sports.
3. The nerds are people who put their studies first. They like reading books, go to tutorial schools, review the lessons with their friends, and meditate.

4. The introverts are people who love to be alone, mind their own business, and do little for people around them. These people usually escape from the hustle around them and get away from the media.

5. The dreamers are people who like to imagine their future. They want to be successful in life, but do not give much effort. They like to relax and eat.

6. The home lovers are those who like to be at home. These people usually watch TV and spend most of their time with family.

For this research, Generation Y can be divided into 3 groups.

1. Twixters include those aged 18-22. They are currently in higher education. They were born when technology and the internet were fully developed. They are digital natives and able to use modern technology fluently and advise other people on how to use it.

2. The Early Nesters are 23-27 years old. They are beginning their working life. They will look for good opportunities and stability. These people were born in the early days of technology such as laptops and smart phones. They are easily adaptable to new things.

3. The in betweens are those aged 28-32. They currently have a certain life stability. They could be in lower manager position or be business owners. Generation Y in this group are similar to Generation X in certain things. First, they were born when technology was not fully developed. They are sometimes referred to as the digital immigrants. They still open to old media such as television and radio.

**Media usage of Generation Y**

A survey by the National Statistics Office indicated that Generation Y grew up with online media. Up to 80 percent of Generation Y connected to the internet spend most of their time on social media with an average of 8 hours a day. They normally use online platforms to search for information that interests them. In 2015, 78.8 percent of Generation Y aged 15-24 and 60.1% of those aged 25 – 34 years old used the internet the most compared to other generations (See Figure 2.13).
Most of Generation Y use the internet to download games (85.4%), watch movies and listen to music (83.9%), and connect to online social media (80%) (See Figure 2.14) (Bangkok Post, 2016)

Figure 2.13 Percentage of Internet Users

Figure 2.14 Main internet activities in 2014
A survey on internet user behavior in Thailand in 2016 by the Bureau of Strategy, Electronic Transactions Development Agency (Public Organization), Ministry of Information and Communication Technology indicated that the average internet usage was 45 hours/week or 6.4 hours/day. The LGBT group and Generation Y had the highest average of 48.9 hours/week and 53.2 hours/week, respectively. (See Figure 2.15)

![Figure 2.15 Average Internet Usage](image)

**Figure 2.15 Average Internet Usage**

In 2016, smart phones were the equipment that most internet users used. Up to 85.5 percent of people used smart phones and the average using time was 6.2 hours/day, significantly higher than the previous year.

The time when most people used personal computers to access the internet was 08.00–12.00 hrs. while those using smart phones did so from 16.00–20.00 hrs.

The top five activities that internet users did on their mobile equipment were:

1. Chatting on social networks (86.8%)
2. Watching YouTube videos (66.6%)
3. Reading e-Books (55.7%)
4. Searching (54.7%)
5. Financial transactions (45.9%).
The top five activities that internet users did on their personal computers were:

1. Searching (57.6%)
2. Email (56.9%)
3. Watching YouTube videos (47.2%)
4. Downloading software/music/TV shows/games (45.6%)
5. Reading e-Books (44.2%)

According to the survey on online social media use, YouTube is most popular among Generation Y and Generation Z (98.8% and 98.6%, respectively), followed by Facebook (97.9% and 93.8%, respectively), and Line (97.2% and 91.4%, respectively).

**Generation Y and CSR activities**

According to Forbes and the New York Times, Generation Y consumers, born 1980-2000, will become the majority of the American population, with a total of 86 million people. From this figure, we can safely assume that these people will be the majority consumers in the market and majority manpower of corporates.

By 2020, Generation Y will make up over 50 percent of the labor market. These people grew up with modern communication technologies, and still focus on charitable donations and volunteer activities. Approximately 60 percent of Generation Y said that they keep up with the global situation and feel that they should make the world a better place. A report by Deloitte also indicated that around 63 percent of Generation Y does not only donate for charities but also expect corporates, especially the ones they work for, to have a vision beyond just making profits in (Lumesse, 2017).

In addition, Generation Y have positive attitudes toward corporates that create innovation. They are interested in novelty, including technology, new product packaging, helping social issues, volunteering, and activity networks (Prachachat Turakij, 2016).

In 2006, a survey conducted by Cone Millennial Cause study pointed out that 80 percent of people aged 13-25 wanted to work for corporates with social responsibility. Generation Y consumers expect corporates to demonstrate CSR
at a high level. They tend to change jobs or product brands if they find that they do not have social responsibility. It could be said that CSR activities are the central element that create and maintain a good relationship between corporates and Generation Y. (Lumesse, 2017)

In Taiwan, Wu and Wang (2014) studied the impact of CSR activities as an independent variable affecting dependent variables such as perception of product brand, attitude toward brand, and decision to buy, in a case study of Starbucks. The research collected data from 624 samples who were from Generation X and Generation Y.

The research found that Generation X (born 1961-1979) placed strong importance on and responded better to CSR activities about the environment than Generation Y. On the contrary, Generation Y (born from 1980-2000,) placed strong importance on and responded better to CSR activities about community than Generation X, especially perception of product brands in the symbolic dimension. In other words, the image of the brand is a key to changing the attitude of consumers toward the product of the corporate, especially among Generation Y consumers. This is because this they tend to focus on CSR activities that suit their lifestyle. CSR of this type will improve the attitude of these consumers toward the product brand.

In the context of Thailand, Boonprasert (2012) examined how corporate social and environmental responsibility affects Generation Y employees. The study revealed that corporate social and environmental responsibility activities had positive relationship with involvement of Generation Y employees with the corporate. The form of corporate social marketing that focuses on changing the behavior of people in society is able to predict the dependent variables, namely involvement of Generation Y employees with the corporate at 26 percent, followed by CSR which starts with the process of operating the business with social and environmental responsibility, at 25 percent.
2.6 Theories and concepts of Innovation Adoption

According to a survey on internet user behavior in Thailand in 2016 by the Ministry of Information and Communication Technology, Generation Y have the highest average internet usage time of 53.2 hours/week. The three main activities were searching for information, reading e-Books, and watching YouTube videos (Ministry of Information and Communication Technology, 2016). The three activities could be collectively called as receptive behavior.

Generation Y in Thailand are interested in information about technology, have positive attitudes toward corporates that produce innovation, and volunteer in CSR activities (Prachachat Turakij, 2016). In addition, Phomun (2012) found that consumers aged 23-32, who are categorized as Generation Y, have a better attitude toward CSR activities than other generations. Sirithorn (2015) said that Generation Y are more open and adopt innovation better than Generation X. Therefore, this research contains a literature review about innovation adoption.

Generally speaking, adoption is a part of the process of consumer behavior. Solomon (2011) explained his book that there are 5 stages in consumer decision making. (See Figure 2.16)

![Figure 2.16 Stages in Consumer Decision Making](image)

Stage 1: Problem recognition

Problem recognition is the first stage when consumers realize that the current situation is different from their expectation. This recognition results in the desire to turn the current situation into what they wanted or better than that. For this reason, consumers will try to find something to fulfill their desire or solve the existing situation.

Stage 2: Information search

In this stage, consumers search for information from sources such as mass media. They collect information for making the decision in the next stage. The reason for information search is because consumers are aware of perceived risk that might occur after making the decision. They research the information to support their decision. Consumers usually search for information from reliable sources such as websites (mass media) or people around them (personal media). Information search can be done internally such as through the experience of individuals or externally such as continuous information search, information search for specific decision to buy, information search for non-specific decision to buy, and information search without an effort.

Stage 3: Evaluation of alternatives

Consumers evaluate the alternatives of the available brands. In general, the brands to be considered usually have similar qualities. They are in the list of products to be decided for purchase.

Stage 4: Product choices

In this stage, consumers choose one of the alternatives in Stage 2 and Stage 3. In the selection process, they might use certain criteria, depending on their decision.

Stage 5: Evaluation of outcome

This stage occurs when consumers have already bought the product. In this stage, consumers evaluate the product or service in the form of satisfaction, memory, experience, and other behaviors such as recommendation of the product on an online platform or making claims when there are problems with the product.

However, the learning process does not necessarily go from problem recognition to evaluation of outcome in order to adopt the product. Some of these stages are interchangeable as Solomon (2011) explained (See Figure 2.17).
1. The standard learning hierarchy

The learning process starts from thinking, learning, and doing. This is the process whereby individuals make a decision to solve a problem. It all begins with creating thought, confidence, and openness to information about products, services, or corporates, develop into knowledge and understanding. After that, the feeling of individuals toward the products, services, and corporates will be evaluated. As a result of the evaluation, individuals will demonstrate behavior that is consistent with their evaluation. This type of hierarchy occurs with the products, services, and issues that individuals are highly involved with because it takes a long time to search for information and evaluate the alternatives carefully before making a decision to buy the product or participate in the activity.
2. The low-involvement hierarchy

The learning process starts from doing, feeling, and thinking. This is the process whereby individuals make a decision to solve a problem in a situation where they have low involvement with the products, services, or corporates. Therefore, the process begins with doing, with low knowledge about the thing they do, such as buying a product for trial and participating in an activity for the first time. After evaluating their feeling toward the products or services or the activity for the second time, it will later become knowledge. This could be alternatively called learning by doing. The choice to determine the experience as good or bad comes after doing it. This type of hierarchy might affect persuasiveness of the information about the products, services, or activities and does not result in expected effectiveness. This is because individuals use simple response to arousal to make a decision. Therefore, the method that can be used is to place the product/service or hold an activity at the point of purchase in order to attract the behavior.

3. The experiential hierarchy

The learning process starts from feeling, thinking, and doing. This is the process whereby individuals make a decision to solve a problem. The process begins with the individuals’ evaluation of the products, services, or corporate, and then researching the information in order to create knowledge and understanding before purchasing the products or services or participating in the corporate’s activity. In this hierarchy, intangible qualities of the product such as interesting packaging, emotionally convincing advertisements, and brand are usually the method that communicators use to convince people. Adoption then, is a function of the attitude that individuals have toward things that they are open to. Fishbein and Ajzen (1975, as cited in Lutz, 1991) explained that attitude derives from propensity of learning in order to serve certain purposes. Attitude could be either positive or negative. Lutz (1991) concluded that attitude is how individuals feel, negatively or positively, toward something or social issues. There are four attributes of attitude.
1. It is a product of learning.
   1.1 Through exposure to news and information around them such as advertisements
   1.2 Through direct experience such as trying a new beverage recently released to the market
   Sometimes, attitude can come from both sources.

2. Attitude is the tendency that results in response. It is something that occurs in the mind of people. It cannot be observed from outside appearance. In general, scholars use attitude as the independent variable to analyze the trend of the behavior of the target group.

3. Attitude functions as the tool for managing feelings and behavior into two forms: the feeling of liking or disliking something. Such a feeling is usually stable. It can be concluded that attitude is the factor that can determine the trend of people’s behavior.

4. Attitude occurs when something supports its existence. That is to say, attitude is the feeling that someone has toward something, either living things, objects, or social issues, such as the attitude toward brands, corporates, or advertisements.

   Lutz (1991) said that attitude has only one component. However, according to Schiffman and Kanuk (2007), attitude consists of three components.

   **Unidimensionalist view of attitude**

   Lutz (1991) explained that attitude can occur and be measured by a single component, which is the affective component that consumers have toward something. Cognition is only the source of feeling while conation is merely the result of feelings. The essence of this concept is that the three components are clearly separated and cannot be considered concurrently. (See Figure 2.18)
Tripartite view of attitude

Schiffman and Kanuk (2007) explained that there are three main components of attitude.

1. **Cognitive component** refers to consumers’ awareness of something that they perceived through direct experience or exposure to news and information, becoming the belief of consumers toward that thing and even resulting in positive or negative attitudes and eventually responses in the form of behaviors.

2. **Affective component** refers to the emotion or feeling of the consumer toward something that they have evaluated as liking or disliking the product in the advertisement or satisfaction with going to a certain place. These feelings result in such behavior as recommending to other people.

3. **Conative component** is the trend of consumer behavior in responding to a certain thing as a result of cognitive and affective components. From marketing and consumer behavioral research, the conative component covers the intention to buy of consumers.

The essence of this concept is that the three components are related. That is to say, the cognitive component that consumers have toward something will lead to the affective component toward it, and result in the conative component that is reflected through behaviors. (See Figure 2.19)
Subsequently, Solomon (2011) defined attitude as something inside the individual. It is an individual’s general evaluation of someone or something, including the issues around them. Attitude allows an individual to determine their feeling or behavior such as selecting the news and information that they prefer.

Solomon (2011) discussed the components of attitude based on the above scholars. He explained the balance theory of Heider that by nature individuals will keep the balance between their own beliefs and evaluation of their feelings. When the two go different ways and are imbalanced, they will try to rebalance. The balance theory consists of three components. (See Figure 2.20)

Figure 2.20 Balance Theory by Heider (1946)
In 1971, Rogers explained that the changes in individuals resulting from communication consist of three components: change in knowledge, change in attitude, and change in practice. The three components collectively known as K-A-P usually occur in a series. However, sometimes attitude and behavior do not necessarily go the same way. In other words, exposure to news and information allows individuals to develop cognition and attitude about what they are exposed to, such as advertisements. In practice, such behaviors as buying products or joining an activity might go the opposite way. This phenomenon is called the K-A-P gap or the gap between the three factors. It is worth noting that this phenomenon does not occur very often because, by nature, individuals usually behave in the same way as their cognition and attitude. In conclusion, knowledge, attitude, and practice occur in a series and in accordance, but not always.

To cover the K-A-P gap between the three factors can be done by either 1) educating about the method or practice, 2) giving advice closely, probably by experts, so that individuals adopt the innovation, or 3) giving incentives to increase the positive force for the innovation adopters in order to convince other people to follow, and 4) using persuasive strategies such as personal media like people who are close to them or influencers to communicate with the target group. (Kertsombat, 2008)

Attitude is the variable that keeps changing through the learning process that comes from such factors and surrounding environment as family influences, peer group influences, personality, and information and experience (Assael, 1998).

1. Family influences: Family is the institution that has strong influences over individuals’ attitudes because it is the institution that disciplined individuals in their childhood.

2. Peer group influences: Peer groups have a stronger influence on the buying and consumption behavior of individuals than using advertisements directly. This is because humans are social animals and need to live in a group. They need acceptance from society. For this reason, peer group influences are important for developing or changing the attitudes of people.
3. Personality: The personality of an individual can affect development of attitude. For example, people who have a sportive personality will have a good attitude toward sport kits, despite their high price. They are willing to pay more for sports than other people.

4. Information and experience: Information is a factor that can determine attitudes of an individual. Past experience can develop or change the attitude toward a brand according to learning theory. For example, if a person is exposed to positive information or has a good experience about a product, he or she tends to buy the product.

**Innovation adoption and categories of innovation adopters**

In the context of innovation adoption, Rogers (2003) said that people adopt innovation at different speeds and for different durations. Some people adopt quickly while it takes some time for others. Rogers (2003), therefore, proposed that innovation adopters be divided into five categories (See Figure 2.21).

![Figure 2.21](image)

**Figure 2.21 Adopter Categorization on the Basis of Innovativeness**


**1. Innovators** are people who adopt the innovation before anyone else. They love novelty and try new things. They understand and know how to apply complicated knowledge. They can manage the risk of the failure of innovation that they try. However, these people are not accepted as influencers, but only introducers of innovation to the society.

**2. Early Adopters** are people who adopt and try the innovation in order to evaluate it before recommending it to other people in society. These people are accepted and trusted by society. The general public would follow these people and ask suggestions from them before adopting the innovation.
3. **Early Majority** are people who adopt innovation after some time, but not so late. They might contact other people in the society in order to share information. However, they are not influencers because they spend some time to consider before making a decision to adopt the innovation. They use social standards to adopt it. In other words, when most people adopt the innovation, these people will do the same.

4. **Late Majority** are people who adopt the innovation after a long time, probably due to their financial limitation or social pressure that forces them to follow the majority. These people would not adopt the innovation until most people in society do so. They need assurance that the new innovation is good and safe enough.

5. **Laggards** are those who adopt the innovation after a very long time. It could be said that they almost do not adopt it because they believe that the old things are safe and easy for their life. They tend to care little about the outside world and do not accept changes easily.

However, the system of categorization of innovation adopters is not completely balanced. Rogers (2003) said that balancing by separating early laggards from late laggards or combining the innovators and early adopters as one might be a way. However, the behaviors of adopting innovation of innovators and early adopters are not entirely the same. Also, it might be difficult to separate early laggards from late laggards because they are the same group of people who similarly hold on to the same old things.

For the above reason, in the academic forms, innovation adopters are categorized into five groups.

**The decision process of innovation adoption**

Rogers (2003) proposed that the decision process of innovation adoption consists of five steps. (See Figure 2.22)

1. **Awareness** is the first step where an individual knows about the existence of the innovation. People will try to find the information and understand how the innovation works. Knowledge can be divided into three dimensions:

   1.1 Knowledge about the innovation refers to the knowledge that influences alertness and awareness of the innovation and what it can be used for.
1.2 Knowledge about how to use the innovation is the knowledge received from mass media and the distributors of information. This type of knowledge enables individuals to use the innovation correctly. Without this knowledge, the innovation might be rejected.

1.3 Knowledge about the principles is in-depth knowledge of the innovation. This kind of knowledge will lead to adoption of the innovation.

2. **Persuasion** is the step at which individuals like or dislike the innovation. That is to say, individuals will research information enthusiastically. They start to get interested in more details of the innovation, which will lead to deeper knowledge about it. Individuals are already aware that the innovation poses certain risks. Therefore, they need assurance from interpersonal communication to make themselves feel confident in the innovation.

3. **Decision** is the step at which individuals adopt or do not adopt the innovation. They evaluate and weigh the pros and cons of the innovation, and whether the application of the innovation benefits their activities and whether the benefits are high enough to fully adopt it.

4. **Implementation** is the step at which individuals try to use innovation in their situation and daily life. They will try for themselves whether it works or not and whether the benefits are high enough to fully adopt it.

5. **Confirmation** happens after having made the decision for a short while. It is the step at which individuals find more information or additional assurance to make further decisions about the innovation. In this stage, people around them will play a significant role. However, individuals may change their mind if they happen to find new information that is against the existing information.
Figure 2.22 Innovation-Decision Process

**Measuring innovation adoption**

One of the most frequently employed tools for measuring innovation adoption is the innovation adoption model (Technology Acceptance Model) developed by Davis (1989) based on the theory of reasoned action of Ajzen and Fishbein in 1975 which served to explain an individual’s voluntary behavior, including behaviors regarding computer use. This model has been widely adopted in measuring or predicting an individual’s behavior regarding innovation adoption (Agarwal & Prasad, 1999).

This model suggests that when it comes to acceptance of new technology, there are two major factors that influence users’ decisions.

1. **Perceived usefulness (PU)** was defined as “the degree to which a person believes that using a particular system would enhance his or her performance”.

2. **Perceived ease of use (PEOU)** was defined as “the degree to which a person believes that using a particular system would be free from effort”.

Perceived ease of use is a factor that directly influences innovation adoption behaviors and usage intentions of individuals, and indirectly influences usage of technology through the acceptance factor, as well as perceived usefulness (Agarwal & Prasad, 1999; Venkatesh, 2000).
Davis (1989) proposed the innovation adoption model, or Technology Acceptance Model (Figure 2.23), explaining that perceived usefulness and perceived ease of use both have influence on attitude toward use, which subsequently leads to behavioral intention to use and actual system use.

![Technology Acceptance Model](image)

Figure 2.23 Technology Acceptance Model

Source: Davis, F. D. (1989). *Perceived usefulness, perceived ease of use and user acceptance of information technology*: MIS Quarterly.

This model was widely adopted in a large number of studies investigating innovation adoption in different contexts. Lu, Yu, Liu, and Yao (2003) reviewed 18 studies that were conducted between 1989 and 2001 in which this model was employed to study innovation adoption in different contexts and found further factors that contributed to innovation adoption with five of them being found across all 18 studies.

1. Perceived usefulness
2. Perceived ease of use
3. Attitude towards use
4. Behavioral intention to use
5. Actual system use

Venkatesh, Morris, Davis, and Davis (2003) conducted a study to identify factors that influence behavioral intention to use and actual system use, which include (1) performance expectancy (perceived usefulness, extrinsic motivation, suitability, relevant usefulness, and outcome expectancy); (2) effort expectancy (perceived ease of use and perceived complexity of use); (3) social factors (individual norms, social influence, and image); (4) facilitating conditions (perceived control of usage behavior, and potential external support); (5) attitude towards technology (attitude towards behavior and intrinsic motivation); (6) personal confidence; and (7) personal anxiety.
In addition, another factor that is always taken into consideration together with individual innovation adoption is “personal innovativeness” which is a measurement of individuals’ technology-seeking behavior. For example, a study by Lu, Yao, and Yu (2005) investigating the role of personal innovativeness and social influences on acceptance of wireless Internet via mobile devices showed that personal innovativeness is a determinant of individuals’ acceptance of wireless Internet via mobile devices.

In Thailand, there was a study by Sirithorn (2011) investigating media exposure and innovation adoption of generation X and generation Y consumers using the innovation adoption model (Technology Acceptance Model) with personal innovativeness being taken in account as an addition to the five major factors, given that it was considered relevant and agreeable with demographics of the study population. The finding showed that the reliability coefficient of the questionnaire on acceptance of communication technology, after being adapted to the local Thai context, was 0.84, which was a good result.

Given the result, personal innovativeness was added into the innovation adoption model (Technology Acceptance Model) employed in this study as an indicator when the framework was drawn with an objective to investigate acceptance of CSR innovations among generation Y. To be specific, the level of innovation adoption in this study was measured in six aspects: (1) perceived usefulness, (2) perceived ease of use, (3) attitude towards use, (4) behavioral intention to use, (5) actual system use, and (6) personal innovativeness.
2.7 Structural Equation Models

In this study, the framework was drawn from a review of theories and concepts related to the study factors, and then a structural model was made to depict relationships among the factors and tested to find out if the model agreed with the existing empirical data or not.

Conducting research starts with identifying a topic of interest, reviewing related literature to establish conceptual frameworks and hypotheses, collecting data, and analyzing the data. The reliability value often depends on two major factors: selection of sample and selection of analytical method (Angsuchoti, Wijitwanna, & Pinyopanuwat, 2011).

In the past, in finding a relationship between two factors, one might choose to perform Pearson’s product moment correlation, Chi-square, or multiple regression analysis. These methods, however, rely heavily on traditional measurement methods, with a fixed normal distribution across all factors and a fixed error of 0 on average, as well as the variance sitting at 1. In addition, some methods including regression analysis and factor analysis also come with the condition that the measurement must be free of error (accuracy value of 1), which is uncharacteristic of measurements in social science and behavioral science (Wiratchai, 1995).

These methods also identify each of the hypotheses separately, not in an integrative way, resulting in the analysis model being different from the research model. In the case where variables in the research model cannot be directly measured, they will be considered latent variables. (Figure 2.24)

![Figure 2.24 Simple Linear Regression Model with factors K and E.](image_url)
As shown in Fig. 2.24, K is a latent variable that can be measured through variables X1, X2, and X3 which are collectively called observed variables whereas E is a latent variable that can be measured through variables Y1, Y2, and Y3.

According to the traditional analytical method, components of latent variables K and E must be identified first, before they are weighed and prepared for the simple linear regression analysis. However, one might find that variables X1, X, and X3 are not the same components or aspects as variables Y1, Y2, and Y3 (Angsuchoti et al., 2011).

As a result, Jorekong in 1973, Keesling in 1972, and Wiley in 1973 worked to modify factor analysis, path analysis, and parameters in regression analysis, and came up with the new analytical method called Structural Equation Modeling (SEM).

Kraiwan (2013) explained that the SEM enables a concurrent analysis of multiple variables and their relationships, thus avoiding the situation in which the analysis model is not the same as the research model. Researchers need to understand symbols such as:

- **□** Represents observed variables, which come in two sets: X represents exogenous latent variables and Y represents endogenous latent variables.

- **〇** Represents latent variables, which come in two sets: exogenous variable are independent variables and endogenous variables are dependent variables.

- **→** Represents correlation and causation.

- **↔** Represents a relationship or a covariance between two variables.

There are two sub-models in SEM.

1. **Measurement model**

Measurement model depicts the linear relationship between latent variables and observed variables. There are two types of measurement model:
1.1 Measurement model for exogenous latent variables or independent variables

1.2 Measurement model for endogenous latent variables or dependent variables

Similar to the method used in confirmatory factor analysis (CFA), the method used in measurement model involves a component analysis of observed variables for each latent variable, containing only the measurement part and showing the relations between latent variables and their indicators.

2. Structural model

Structural model depicts potential causal dependencies between endogenous and exogenous variables, and must be constructed based on a firm ground of concepts, theories, and studies because the validity of this model will be confirmed or tested by the empirical data, which is unlike an experimental study in which researchers have a better control over variables.

In using SEM, steps are taken as follows.

1) Study related concepts, theories, and studies.

This step allows researchers to develop a solid research framework based on a good understanding of relevant variables and what tools are suitable for the measurement.

2) Develop a research model.

This step is reached after the researcher finishes preparing materials in the previous step and is ready to develop a research model.

3) Perform model identification.

This step is carried out to test if the model is an identified model or not using the software. An identified model is a model where a specific parameter value uniquely defines the model.

4) Perform parameter estimation.

If the software finds that the model is overidentified, it will estimate values of all parameters in the model and calculate variances and covariances of the observed variables in the model, and show results of comparison between the covariance matrices.
5) **Assess the model and the model fit.**

The software is used to assess the model and the model fit, calculating how similar the predicted data are to matrices containing the relationships in the actual data. One of the most commonly used measures of fit is Chi-square’s test, which is a function of the sample size and the difference between the observed covariance matrix and the model covariance matrix. If the test shows no statistical significance, then the predicted data are similar to the actual data. However, if the sample size is relatively large, the test result may be statistically significant (less than .05). As a result, other indicators than Chi-square’s test may also have to be taken into account when it comes to the assessment of model and model fit.

6) **Modify the model.**

If the assessment shows that the predicted data are not similar to the actual data, then the model has to be modified, and the modification must be performed until the best model fit is achieved (Angsuchoti et al., 2011; Kraiwan, 2013).

To summarize, the new SEM is better because: 1) The analysis model is the same as the research model; 2) The analysis model recognizes latent variables and variances, relaxing the limitation of the component analysis in traditional exploratory analysis models, 3) Variances can be related, relaxing the limitation of the traditional analysis method., 4) The model could be tested to find out if it agrees with the actual data or not, 5) The model could be tested across different samples using the program called ‘LISREL (Linear Structure Relationship)’ which was developed by Joreskog and Sorbom for SEM analysis and has been used widely in Thailand. Other programs include AMOS, WQS, Mplus, PLS, and Graph (Angsuchoti et al., 2011).
2.8 Related studies

To begin with, there is a study of Churngchalard (2006) that investigates corporate image and brand equity in greater detail. For example, a study by with the title “Impact of Sponsorship on Corporate Image and Brand Equity” was experimental research with 2x2x2 factorial design investigating three aspects of the given topic: (1) familiarity with the sponsor brand, (2) types of sponsorship, and (3) size of the sponsorship to test if these three factors have any influence on corporate image and brand equity or not. The sample group consisted of 277 students from Chulalongkorn University.

The findings show that (1) the second factor - types of sponsorship - has direct impact on corporate image; to be specific, sponsorship with charitable purpose will result in a more positive corporate image than sponsorship with commercial or business purpose; (2) familiarity with sponsor brand and the size of sponsorship both have a mutual impact on corporate image; to be specific, brands that the respondents are more familiar with that sponsor national events have, on average, better results in corporate quality; and (3) with all three factors tested together, they do not have any mutual impact on corporate image and brand equity at all.

Seritanondh (2011) also conducted experimental study with a focus on the congruence between corporate core business and CSR activities, under the research title “Effectiveness of Congruence between Corporate Core Business and CSR Activities towards Corporate Image”. The study aimed at investigating if and how the level of congruence between products, divided into two categories (one with high level of involvement such as Toyota cars and the other with low level of involvement such as Double A paper), and CSR activities of each of the two companies, divided into two categories (one with relevance to products and the other with irrelevance to products) have any impact, direct or mutual, on corporate image. The 2x2 factorial design was employed in collecting data from Chulalongkorn University students.

The finding shows that the product involvement and the congruence between corporate core business and CSR activities both have significant direct effects on corporate image. To be specific, after CSR activities are finished, consumers are likely to follow up on updates and evaluation results of such activities in relation to
high involvement automobile products more than updates and evaluation results of activities in relation to low involvement paper products.

On the congruence between corporate core business and CSR activities, it was concluded that companies that run CSR activities that are more relevant to their core businesses are more likely to have a better corporate image due to the fact that an ability to utilize corporate potential and expertise in handling social issues that are related to the corporate core business contributes to a better corporate image from consumers’ point of view.

With both factors being taken into account together, however, it was found that they do not have any significant interaction effect on corporate image. Seritanondh explained that sometimes personal involvement with social issues that the company is trying to tackle may result in a better, more positive perception of the company’s CSR activities, regardless of what the corporate core business is or whether the social issue is related to the corporate core business or not. As a result, any business firms should pay more attention to showing their CSR and incorporating CSR activities into their businesses while also working to tackle social issues whether they are related to their corporate core businesses or not.

In the same year, Sirithorn (2011) wrote a research paper called “Media Exposure and Innovation Adoption of Generation X and Generation Y Consumers” which compared media exposure and innovation adoption between the two generations. It was quantitative research using surveys to collect data from the sample group in Bangkok. The findings show that generation Y (aged 16-31) are more exposed to media than generation X (aged 32-48) in a statistically significant way. In fact, generation X are more exposed to traditional media than generation Y on a weekly basis, except for the frequency of exposure to television where there is no difference between the two generations. In terms of exposure to new media, generation Y have higher frequency of exposure to new media than generation X on a weekly basis, as well as longer periods of such exposure.

In terms of communication innovation adoption, it was found that generation Y accept communication technologies such as Internet TV, cable TV, satellite TV, social media websites, chat applications, smart phones, and tablets more than generation X, and are more interested in personal innovations. Besides, it was found
that communication innovation adoption has a positive relationship with innovation ownership, which means that the more either generation accepts communication technology, the more they own such innovations, and the more they accept communication technology, the more they are interested in personal innovations. As the finding shows a positive relationship between interest in personal innovations and innovation ownership, the more either generation is interested in personal innovations, the more they are likely to own such innovations.

Two years later, there is a study by Boonprasert (2012) with the title “Corporate Social Responsibility to Engage Generation Y Staff” showing that the activity type has a positive relationship with the level of engagement that employees have towards their organization. Also, it was found that the CSR activities that focus on changing human behaviors are the variable that best predicts organizational engagement of generation Y with a prediction efficiency at 26% before CSR activities on the society and the environment that are incorporated into the organization’s operation, with a prediction efficiency at 25%.

In addition, Limwilai (2012) conducted a quantitative study with the title “Factors Relating Consumers’ Buying Behavior Trend on Environmental Innovation in Paper of Idea Green Brand in Bangkok Metropolis” using questionnaires to collect data from a total of 385 consumers in Bangkok who bought the brand’s product.

The findings show that most of the respondents were 25 years old or younger, and had a high level of satisfaction in the paper innovation product of Idea Green. However, differences in age did not seem to play a role in determining consumers’ behavior when it comes to buying the product. This was explained by Limwilai as because paper is a mere consumer product, and what Idea Green did was only using more eco-friendly materials in the production phase.

On marketing aspects, it was found that the respondents viewed the overall marketing mix of the product including product, pricing, distribution channel, and marketing promotion as very good, and viewed the overall brand value and equity including brand awareness, brand visibility, brand loyalty, and brand image as good.

On buying behaviors, it was found that the main reason why the respondents chose the brand’s product is that they get high quality products that are eco-friendly, and the best-selling package of the products is A4 paper (100 pieces).
The person with the most influence on the buying decision is themselves and the major source of knowledge regarding Idea Green’s eco-friendly paper is television. The likeliness for them to keep buying the product and make word-of-mouth recommendations is high.

Phomun (2012) conducted a study with the title “Responsible Consumption Behavior and Attitude that Influence Corporate Image: Employee’s and Consumer’s Perspective” with sample groups from three companies: PTT PCL, Bangchak Petroleum PCL, and Siam Cement Group (SCG) PCL.

This research was a survey study using a total of 833 questionnaires to collect data from consumers (414 copies) and employees (419 copies), given that all the respondents were consumers of product or service from any of these three companies.

The findings show that consumers of Bangchak Petroleum show the highest score in terms of attitude towards CSR, before those of SCG and those of PTT. In terms of statistics, however, consumers’ attitudes towards CSR are not different across all three companies, and interestingly, it was found that consumers with aged 23-32 have different attitude towards CSR from consumers with age between 43 and 52.

In terms of activity perception through media, it was found that the perception was mostly made via television, before the internet, and that the CSR projects shown on television and best known to consumers are “Buying used cooking oil to fuel biodiesel production project” from Bangchak Petroleum, “Planting trees over one million rai of area project” from PTT, and “Conserving water for the future project” from SCG. Phomun explained that broadcasting via television allows the content to reach all groups of audience but is relatively costly while the internet makes it easier to promote products, services, or organizations, as well as large amounts of content, considering that the internet offers a more limited audience coverage than television. This has resulted in the difference in media exposure between the two groups of age, allowing the consumers aged 23-32 to have a better perception and attitude towards CSR than consumers aged 43-52.

Also, it was found that responsible consumption behavior is related to intention to buy products, brand preference, corporate image, credibility, and attitude towards CSR. Phomun explained that consumers buy products that are eco-friendly or
products with social responsibility because they prefer brands with the same level of responsibility as themselves.

Besides, attitude towards CSR also is related to corporate image, credibility, brand preference, and intention to buy products. Phomun explained that corporate image is an image that reflects what consumers think of the corporation, which can be affected by the company’s communication, and when consumers are convinced that a company is socially responsible, the company receives greater competitive edge and added value. As a result, the win-win strategy has been implemented instead of the traditional strategy that focuses solely on taking advantage. Phomun further explained that the intention to buy products shows lower relativity than corporate image because the buy decision depends not only on corporate image but also on numerous consumer factors. Despite no difference in attitude towards CSR among employees of all three companies, however, the employees’ attitude is different from the consumers’ attitude in a statistically significant way. To be specific, employees experience and learn the concept of CSR directly through their participation at work while consumers learn and experience it indirectly through media.

Wongwitsong (2014) conducted a study with the title “The Perception and Attitude of People towards CSR Activities of Toyota Motor Thailand Public Company Limited” with a sample group consisting of Toyota owners, non-Toyota owners, and those who didn’t have cars.

The findings show that the respondents were most aware of the “White Road” project from among all such activities, and most aware of the CSR activities on product and service development as well as driving the society towards sustainable development from among all such aspects of attitude. It was also found that perception and attitude were related factors, and from the comparison of perception and attitude of the sample group towards Toyota’s CSR activities, that Toyota owners were more aware of the CSR activities than non-Toyota owners and those who didn’t have cars.

It was a qualitative study based on the data collected from documents and from in-depth interviews with top management, as well as the brand communication unit, PR unit, and three groups of external stakeholders including farmers who plant trees for paper making, product consumers, and mass media.

The findings show that the company implemented a communication strategy to build a shared value through the innovation called “Paper from Khan-na” including the use of different messages to communicate with different audiences - that is, messages about the brand itself to consumers and messages about Double A trees to farmers. The communication method implemented was a mixed method aiming at increasing sales and increasing the number of participating farmers, as well as enhancing attitude and behavior of the audience.

In addition, it was found that the three groups of external stakeholders had different attitudes and levels of acceptance towards the innovation product. To be specific, farmers who plant trees for paper making had a positive attitude and accepted that the product contributed to increased incomes among farmers, while product consumers also had a positive attitude and accepted that growing trees for paper production would help reduce climate change, but they still were not convinced that the new tree variety would be different from the previous eucalyptus variety or farmers would earn extra incomes from the project. Some of the mass media had a positive attitude whereas others had a negative attitude towards the project, and the former ones would accept the project, buy the product, and help make recommendations to the public.

Peamsutanont (2014) was interested in human behavior about the acceptance of online video and thus conducted a quantitative study called “YouTube Music Listening Behavior of Generation X and Generation Y Consumers” using surveys to collect data from both generations in Thailand who have listened to music on YouTube. In the study, quota sampling was employed, leading to a total of 300 respondents consisting of 158 members of generation X (aged 35-49) and 142 members of generation Y (aged 17-34).

The findings show that there is a statistically significant difference between the two generations when it comes to selecting and watching videos on YouTube. To be specific, news and subjective norm play a greater part in determining music
preferences of generation X members potentially because they are expressive, always seek recognition, have interest in technology, and are infatuated with themselves and brand logos, making them more open to being convinced by the subjective norm. In contrast, generation Y members are highly self-confident, ambitious, and individualistic, always take a careful look at each choice, and have individual taste, so they are more likely to listen to music of the genre or the artist of their own choice and are more difficult to be convinced by the subjective norm.

In addition, there is a statistically significant difference between the two generations when it comes to downloading behavior after they listen to music on YouTube. To be specific, 98.6% of the generation Y respondents downloaded the music after they listened to it on YouTube whereas only 36.7 of generation X respondents did so. According to the findings, consumers who listen to music online can be divided into four groups: those who follow subjective norm, those who listen to music via online platforms, fan clubs, and cover dance enthusiasts. These four groups are similar in two ways: (1) they consist of students and/or company employees, and (2) they have the factors that influence their music listening behavior in common including discovery and experience, preference, desire to repeat the experience, and desire to own either legally or illegally (legal or illegal downloading). It was found that the majority of both generations download the music illegally through certain websites or applications.

As for studies investigating CSR innovations in relation to generation Y, there is a study by Wu and Wang (2014) from Taiwan with the title “Impact of CSR Perception on Brand Image, Brand Attitude, and Buying Willingness: A Study of a Global Cafe” taking the Starbucks Love Project as a case study and comparing data collected from a total of 624 people including both generation X and generation Y.

The independent variable was type of CSR activities divided into five groups: (1) CSR activities on customers, (2) CSR activities on employees, (3) CSR activities on the environment, (4) CSR activities on the economy, and (5) CSR activities on community. The objective was to examine the path of relationships among the independent variable and dependent variables such as brand image (divided into three aspects: utility, symbol, and experience), brand attitude, satisfaction, loyalty, and intention to buy, based on a path analysis.
The findings show that generation X (born between 1961 and 1979) responded to CSR activities on the environment more than generation Y (born between 1980 and 2000) who responded to CSR activities on community more than generation X, especially when it comes to the perception of brand image as a symbol. To be specific, brand image is key to changing brand attitude among generation Y because they tend to pay attention to CSR activities that correspond to their unique lifestyles, thus making their attitude towards the brand a positive one.

There is a study concerning CSR activities and CSR innovations by Duangpornprasert (2015) with the title “Media Exposure, Knowledge, Attitude, and Participation in Solving Problems of Alcohol Use among Adolescents in Bangkok.” It was a survey study involving both male and female adolescents with aged 13-22.

The findings show that most of the respondents were female adolescents aged 19-22, and they were most exposed to new media, before personal media, mass media, and specialized media, partly because they were exposed to various forms of media and each form of media has its own strengths and weaknesses. It could be said that the adolescents are reading news from new media - particularly on the internet - because they are already using the internet to search for information, keep up with any updates, and chat with others, making the internet a convenient platform for them to find news.

Besides, it was found that adolescents at higher ages with higher education levels who drink alcohol are more open to news concerning alcohol issues than those in Bangkok at lower ages with lower education levels who have never drunk alcohol, due to the fact that the former are more exposed to the risk of alcohol use, and thus are more eager to find news from various media platforms, including the internet, personal media, mass media, or specialized media.

In addition, it was found that the respondents demonstrated a high level of knowledge and a higher level of knowledge over feeling and behavior towards alcohol problems. The level of participation in solving such problems was medium, which means that they managed to warn drinkers of possible health effects but rarely donated their money to help ease the situation. Three common reasons for taking part in solving the problems are (1) they are aware of the health effects of alcohol, (2) they would like to make greater use of their free time, and (3) they would like to contribute
to society. Meanwhile, three common reasons for not taking part in solving the problems are (1) they are not aware of the activities, (2) the activities are not interesting enough, and (3) they are not motivated enough to join.

As for studies investigating innovation adoption there is a study by Thaikerd (2015) with the title “Innovation Adoption Influencing Purchasing Decision, Satisfaction and Loyalty of Users to Reserve Accommodation Online in Bangkok and Vicinity Areas”. The study aimed at investigating factors that influence purchasing decisions and satisfaction of users in reserving accommodation online such as innovation adoption, and identifying factors that influence their loyalty such as decision making and satisfaction of users, as well as confirming the influence of innovation adoption over decisions to purchase accommodation online, user satisfaction, and loyalty of users in Bangkok and vicinity areas. This research was a quantitative study using questionnaires to collect data from a total of 400 users in Bangkok and vicinity areas who reserve accommodation online, together with SEM.

The findings show that the model was consistent with the actual data and, first of all, that innovation adoption factors such as relative advantage, compatibility, trialability, and observability have positive impact on decisions to reserve accommodation online and satisfaction of such users. Thaikerd explained that, in terms of comparative advantage, for example, users show positive innovation adoption because (1) reserving accommodation online allows them to easily search for more information through links, (2) reserving accommodation online often comes with a variety of promotions, and (3) reserving accommodation online often has lower service rates, all of which are about finding and comparing comprehensive sets of information. Besides, users can get access to interesting information on online platforms including reviews from previous users, photos, and videos, as well as promotions and special discounts that are different from a walk-in reservation. It could be said that online reservation is an extension of the market made in response to the lifestyle of those who are growing up with technology where useful, comprehensive, and reliable information is key to the buying decisions of modern consumers. Second, the decision to reserve accommodation online has a positive influence on satisfaction and loyalty of the users. Third, satisfaction of the users has a positive influence on their loyalty.
The explanation was that most of the users were open to accepting new technologies that bring greater convenience to them as such technologies provide them with plenty of information they need. The online market can directly interact with users or consumers, thus making it easier for them to make a decision, while also offering new values that make buyers look to come back again.

Sirithorn (2015) wrote another research article with the title “The Study of Consumption Behavior of Teenager Smartphone Users with Critical Theory” with a focus on the consumption behavior of teenagers. He started off with the view that the emergence of new communication technologies has resulted in higher dependency on smart devices among teenagers, especially smart phones that can perform a wide variety of functions these days - including making phone calls, sending messages, taking photos, taking notes, and accessing to social media websites via mobile applications. Given this phenomenon, Sirithorn posed two questions: (1) Why are smart phones so popular among teenagers and (2) How does the technology expand their potential?

In this qualitative study, group discussions were conducted in order to collect data from three groups of teenagers: early teenagers, middle teenagers, and late teenagers.

The findings show that, across all three groups, smart phones are used for taking notes, taking photos, helping with their study, and keeping in touch, as well as building new relationships. Early and middle teenagers are different from late teenagers in that they tend to use more complicated applications to satisfy their various needs while late teenagers tend to use more simple applications. In addition, it was found that all three groups of teenagers use smart phones to make phone calls, connect to the internet, and make telecommunications via social media websites such as Facebook and Instagram as well as chat applications such as LINE and Messenger. They also expand their potential and welcome new experiences from using smart phones. To be specific, early and middle teenagers find new experiences by using smart phones to enjoy both academic and entertainment content including websites, games, music, TV series, TV dramas, and films, whereas late teenagers focus more on news and serious content.
Sasithanakornkaew (2015) conducted a study with the title “The Acceptance of Social Network Service of Generation Y” using a quantitative method and surveys to collect data from 400 members of generation Y aged 20-35 who live in Bangkok and use social media websites.

The findings show that their social media use is moderate, and the most commonly used social applications is LINE, followed by Facebook and YouTube. Interesting findings include the following. First, perceived “usefulness” of social media has a positive relationship with social media use. Second, perceived ease of use has a positive relationship with generation Y’s social media use. Third, “subjective norm” in using social media is related to generation Y’s social media use. To conclude, the more generation Y is aware of the perceived usefulness, perceived ease of use, and subjective norm in using social media, the more they intensify their social media use. The explanation was that the high level of perceived usefulness and the high level of perceived ease of use towards social media among generation Y reflect the environment in which they grew up; they grew up with communication technologies, and thus have a good understanding of how to make use of such technologies, especially social media, unlike generation X.

In terms of subjective norm, the findings show that generation Y has a high level of subjective norm, which may result from their desire for social acceptance, and this subjective norm has a relatively high influence over generation Y’s decisions to use social media as they always need to utilize them to communicate with their friends, colleagues, or professors.

Promsit (2016) conducted a quantitative study with the title “Exposure, Attitude, and Behavioral Intention in Sharing Information Relating to the Products on Facebook among Generation Y” using surveys to collect data from respondents living in Bangkok aged 15-34 who were exposed to information sharing on Facebook at least once a month in the past three months.

The findings show that different demographic characteristics (age, education, and income) resulted in different frequencies of exposure to information sharing concerning brands and products on Facebook. To be specific, most of the respondents (aged 25-29) were exposed to information sharing once or twice per week at most, provided that most of the information came in photos, and spent their time
sharing the information concerning brands and products up to one hour at a time. In addition, it was found that the respondents were most exposed to the sharing of information that described external characteristics such as logo, label, package, and price, and that they were most interested in entertainment brands and products. In terms of attitude towards sharing information about brands and products, it was concluded that generation Y has a positive attitude toward information sharing on Facebook, looking at the method as the least expensive way to spread news, and they have the most positive attitude towards the sharing of knowledge or information about up-to-the-minute updates.

In terms of frequencies of exposure to the sharing of information, those aged 30-34 are more frequently exposed than those aged 15-24 while those aged 25-29 are more frequently exposed than those aged 20-24. Members of generation Y with different genders and professions, however, show no difference in their exposure to the sharing of information about brands and products on Facebook.

Different demographic characteristics, however, do not lead to any difference in attitude towards, and the behavioral intention in, the sharing of information about brands and products on Facebook. In other words, regardless of their gender, age, education, profession, or income, generation Y all share the same attitude towards and behavioral intention in the sharing of information about brands and products on Facebook: for example, they intend to be exposed to information sharing in the future and look to further forward the information to everyone else.

In addition, it was found that the frequency of exposure to the sharing of information on Facebook has a positive relationship with the attitude towards information sharing among generation Y. To be specific, the more they are exposed to information sharing on Facebook, the better their attitude towards information sharing. The length of exposure, however, was found to have no relationship with the attitude, which means that regardless of how long they are exposed to information sharing, their attitude will remain the same. Finally, the finding shows that the attitude is related to behavioral intention: the better their attitude towards the sharing of information about brands and products on Facebook, the more likely they are going to share the information.
Seritanondh (2017) also wrote a paper called “Factors Affecting Digital Natives’ Participation in CSR Activities related to Safety on the Road” which was a quantitative study using surveys to collect data from the sample group consisting of a total of 416 digital natives aged 15-24 who live in the Bangkok Metropolitan Region.

The findings show that openness to news, experience, attitude, and involvement with social issues are all related. In the study, experience, attitude, and involvement with social issues are independent variables that have medium influence over the level of participation in CSR activities related to road safety, while another independent variable - openness to news - shows relatively low influence over the level of participation.

Interestingly, openness to news, experience, attitude, and involvement with social issues can be used collectively to predict the level of participation in CSR activities related to road safety, with a prediction efficiency at 37.4%, given that involvement with social issues is the most reliable indicator of the level of participation among all factors considered.

This result from Seritanondh’s study is similar to that of the study by Tantivejakul (2012) called “Issue Involvement in relation to Consumers’ Response towards the Company’s Corporate Social Responsibility Initiatives and Corporate Image” which employed surveys to collect data from 1,226 consumers who are the target audience of the CSR activities of SCG living in Bangkok and who are aware of the company’s CSR activities.

The finding shows that consumers with different levels of involvement with social issues react differently in terms of familiarity to environmental projects, attitude towards CSR activities, and intention to buy products. It was concluded that issue involvement is a factor that could affect consumers’ response in terms of familiarity, attitude, and intention to buy products.
Considering all studies, it could be concluded that generation Y members have a good tendency to respond to CSR activities and innovations concerning the product or service used in the communication process, and that CSR activities also play a part in determining the corporate image, and when carried out continuously, they will result in favorable brand equity.

However, there are several issues that need to be worked on by further studies for example, there should be studies that further investigate CSR innovations in greater detail to find out what social issues they are helping to tackle and what issue is being prioritized considering the amount of CSR efforts being made, as well as what characteristics define such innovations and what characteristics are most prevalent in CSR activities, in order to provide the most comprehensive overall picture of what the CSR landscape looks like at present.

In addition, the findings show that generation Y is a group of people totally worth researching as they grew up with the emergence of innovations and technologies which make them unique, interested in CSR activities, and fond of innovative companies. Also in the near future, this generation will make up of the majority of the consumer market as well as the labor market. If we could understand how they accept and respond to innovations, especially CSR innovations, then we would be able to create a communication strategy for these CSR innovations that best suits this group of audience, the generation Y consumers.
2.9 Conceptual Framework

**Independent Variable 1 (X₁)**
- Characteristics of CSR Innovations
  - Relative advantage
  - Compatibility
  - Complexity
  - Trialability
  - Observability
  - Adaptability
  - Low risk

**Independent Variable 2 (X₂)**
- Corporate Image
  - Social and environmental responsibility
  - Innovation
  - Product and service

**Independent Variable 3 (X₃)**
- Corporate Reputation
  - Social and environmental responsibility
  - Innovation
  - Product and service

**Dependent Variable (Y)**
- Adoption of Innovations
  - Perceived usefulness
  - Perceived ease of use
  - Attitude towards use
  - Behavioral intention to use
  - Actual system use
  - Personal innovativeness
CHAPTER 3

RESEARCH FRAMEWORK AND METHODOLOGY

3.1 Research framework

This research uses both qualitative research and quantitative research.

Firstly, a qualitative research methodology with a content analysis technique is used to monitor and analyze CSR innovation news. Then, a quantitative research with a cross sectional survey method is also applied to collect data from Generation Y respondents, aged 18-34, living, studying, or working in Bangkok and surrounds.

The framework mentioned in Chapter 2 shows the correlation between CSR innovation, corporate image, and corporate reputation which affects CSR innovation adoption among Generation Y consumers. After reviewing related theories and research findings, it can be concluded that CSR activities can build and leverage corporate image (Kotler & Lee, 2005). Particularly in today’s era of advancement in technology and innovation, organizations attempt to integrate innovation with CSR activities to build good corporate image and reputation in the minds of their stakeholders (Corporate Social Responsibility Institute, 2008; Preuss, 2011).

Besides, it was also found that corporate image can affect corporate reputation because corporate reputation is built through consistent business operations and CSR activities carried out by organizations through effective communication (Gray & Balmer, 1998). Corporate image and corporate reputation are multidimensional.

For this research, only three dimensions will be measured due to fact that only these dimensions can be measured from the perspective of the study group. Three dimensions are the social and environmental responsibility dimension, the innovation dimension, and the products and services dimension. Other dimensions; to illustrate, work environment, can be measured from other stakeholders such as employees of organizations.
The dependent variable of this research is innovation adoption. According to Technology Acceptance Model (TAM), Lu et al. (2003), Lu et al. (2005) and Sirithorn (2011), the innovation adoption variable can be measured from six dimensions: Perceived usefulness, Perceived ease of use, Attitude toward using, Behavioral intention to use, Actual system use and Personal innovativeness.

Thus, a Linear Structural Relationship Model or LISREL with latent and observed variables was developed. The model of corporate social responsibility, corporate image, and corporate reputation affecting corporate social responsibility innovation adoption among Generation Y consumers, is presented below with following acronyms:

The symbol of each variable in the model has a meaning as follows:

- **CSR**: Refers to a latent variable regarding attributes of innovation
- **IMAGE**: Refers to a latent variable regarding corporate image
- **REPUT**: Refers to a latent variable regarding corporate reputation
- **ACCEPT**: Refers to a latent variable regarding innovation adoption
<table>
<thead>
<tr>
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<th>Refers to an observed variable of relative advantage attribute</th>
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<tbody>
<tr>
<td>CSR1</td>
<td>Refers to an observed variable of compatibility attribute</td>
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<td>CSR2</td>
<td>Refers to an observed variable of complexity attribute</td>
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<td>CSR3</td>
<td>Refers to an observed variable of trialability attribute</td>
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<td>CSR4</td>
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<td>CSR5</td>
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<td>CSR6</td>
<td>Refers to an observed variable of risk attribute</td>
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<tr>
<td>IMAGE1</td>
<td>Refers to an observed variable of corporate image towards social and environmental responsibility</td>
</tr>
<tr>
<td>IMAGE2</td>
<td>Refers to an observed variable of corporate image towards innovation</td>
</tr>
<tr>
<td>IMAGE3</td>
<td>Refers to an observed variable of corporate image towards products and services</td>
</tr>
</tbody>
</table>
Refers to an observed variable of corporate reputation towards social and environmental responsibility

Refers to an observed variable of corporate reputation towards innovation

Refers to an observed variable of corporate reputation towards products and services

Refers to an observed variable of perceived usefulness

Refers to an observed variable of perceived ease of use

Refers to an observed variable of attitude toward using

Refers to an observed variable of behavioral intention to use

Refers to an observed variable of actual system use

Refers to an observed variable of personal innovativeness

Refers to a regression coefficient from causal variable on result variable

Refers to associations among observed variables
Figure 3.1 Structural equation model based on hypothesis indicating the associations between corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y consumers

Note: the independent variable “attributes of innovation” (CSR) of the above framework in quantitative research, is also considered as a variable used in a qualitative research methodology with a content analysis technique, accompanying with “social issues” variable.
3.2 Variables in the research

3.2.1 Variables in qualitative research

Two variables used in the research

1\textsuperscript{st} variable attributes of innovation

Sub-variables, which are seven attributes of innovation, were studied. The seven attributes of innovation were:

1. Relative advantage
2. Compatibility
3. Complexity
4. Trialability
5. Observability
6. Adaptability
7. Risk

2\textsuperscript{nd} variable social issues

Sub-variables, which are six social issues, were studied. The six social issues were:

1. Health promotion
2. Injury prevention
3. Environmental protection
4. Education
5. Animal rights protection
6. Community involvement
3.2.2 Variables in quantitative research

Three independent variables and one dependent variable used in the research.

1\textsuperscript{st} independent variable (X\textsubscript{1}) \hspace{1cm} attributes of innovation

Sub-variables, which are seven attributes of innovation, were studied. The seven attributes of innovation were:

1. Relative advantage  \hspace{1cm} 2. Compatibility
2. Complexity \hspace{1cm} 4. Trialability
3. Observability \hspace{1cm} 6. Adaptability
4. Risk

2\textsuperscript{nd} independent variable (X\textsubscript{2}) \hspace{1cm} corporate image

The corporate image variable is measured in three dimensions:

1. Social and environmental responsibility
2. Innovation
3. Products and services

3\textsuperscript{rd} independent variable (X\textsubscript{3}) \hspace{1cm} corporate reputation

The corporate reputation variable is measured in three dimensions:

1. Social and environmental responsibility
2. Innovation
3. Products and services

Dependent variable (Y) \hspace{1cm} innovation adoption

The innovation adoption variable is measured in six dimensions:

1. Perceived usefulness
2. Perceived ease of use
3. Attitude toward using
4. Behavioral intention to use
5. Actual system use
6. Personal innovativeness
3.3 Research hypotheses

The research hypotheses formulated based on two research problems are as follows:

3.3.1 Research hypotheses for qualitative research

1st research problem: What are the social issues and the attributes of innovation in corporate social responsibility innovation of the organizations?

1st hypothesis: All organizations studied adopt innovation in their CSR activities and support social issues through CSR activities covering six areas:

- Health promotion
- Injury prevention
- Environmental protection
- Education
- Animal rights protection
- Community involvement

Seven attributes of innovation can be applied to analyze the content of such activities. The seven attributes of innovation are:

- Relative advantage
- Compatibility
- Complexity
- Trialability
- Observability
- Adaptability
- Risk

3.3.2 Research hypotheses for quantitative research

2nd research problem: Does, and if so how, the structural equation model of corporate social responsibility, corporate image and corporate reputation towards corporate social responsibility innovation adoption among Generation Y, generated by the researcher correspond with the existing empirical literature and principles?

2nd hypothesis: the structural equation model of corporate social responsibility, corporate image and corporate reputation towards corporate social responsibility innovation adoption among Generation Y, generated by the researcher corresponds with the existing empirical literatures and principles. The details are as follows:
1. Attributes of innovation have a positive effect on corporate social responsibility innovation adoption among Generation Y.
2. Corporate image has a positive effect on corporate social responsibility innovation adoption among Generation Y.
3. Corporate reputation has a positive effect on corporate social responsibility innovation adoption among Generation Y.
4. Attributes of innovation have a positive correlation with corporate image.
5. Attributes of innovation and corporate image have a positive effect on corporate reputation.
6. Attributes of innovation, corporate image, and corporate reputation have a positive effect on corporate social responsibility innovation adoption among Generation Y.
7. Attributes of innovation, corporate image, and corporate reputation can be used as predictors of corporate social responsibility innovation adoption among Generation Y.

3.4 Population and sample

3.4.1 Population and sample for qualitative research

Qualitative research was conducted with a content analysis method.
3.4.1.1 Population

A study on CSR activities of organizations that adopt innovation was conducted by analyzing the content of such activities from sources; for instance, annual reports, and MiC e-Library, as well as from organizations’ websites and executive interviews in the media.

3.4.1.2 Sample

The selection method was purposive selection, where only organizations listed on the Stock Exchange of Thailand (SET), and among the industries regulated by SET, were selected for study. Among the eight industries, only the agro & food industry, industrials, and resources – the energy & utilities industry were selected due to the fact that these industries are highly related with the routines of consumption of people in society, ensuring that people were familiar with the studied organizations as they always consume and use products and services from these organizations.
Furthermore, the studied organizations must have been consecutively carrying out CSR activities for at least three years. According to Kotler and Lee (2005), CSR activities must be carried out for at least three consecutive years in order to measure their success. Besides, the organizations carrying out the CSR activities should be organizations that have proven success in adopting innovation in their business operations and have been awarded innovation awards.

Therefore, the selection criteria for organizations to study were:

1. The selected organizations must be in the agro & food industry, industrials, and resources – the energy & utilities industry and must be listed in the SET.
2. The selected organizations must have been carrying out CSR activities for at least three consecutive years and have been adopting innovation in their operation.
3. The selected industry must have won innovation awards over the past three years before the study was conducted.

After the selection process, there were three organizations with qualifications that aligned well with the criteria. The three organizations were:

Charoen Pokphand Foods Public Co, Ltd. (CP)
Siam Cement Group Public Co, Ltd (SCG)
PTT Public Co, Ltd. (PTT)

References:
https://www.set.or.th/regulations/simplified_regulations/industry_sector_p1.html
http://award.nia.or.th/en/award-winner/search?year=2015&type=0&keyword

The content analysis of CSR activities carried out by the selected organizations over the past three years, from 2014 to 2016, was conducted from the summary of each corporate’s annual report. The details are as follows:
### Charoen Pokphand Foods Public Co, Ltd. (CP)

<table>
<thead>
<tr>
<th>Year</th>
<th>URL</th>
</tr>
</thead>
</table>

### Siam Cement Group Public Co, Ltd.

<table>
<thead>
<tr>
<th>Year</th>
<th>URL</th>
</tr>
</thead>
</table>

### PTT Public Co, Ltd.

<table>
<thead>
<tr>
<th>Year</th>
<th>URL</th>
</tr>
</thead>
</table>
Simultaneously, the content analysis of CSR activities carried out by the selected organizations over the past three years, from 2014 to 2016, was also conducted from Matichon’s MiC e-Library through [http://www.matichonlibrary.com](http://www.matichonlibrary.com).

3.4.2 Population and sample for quantitative research

Quantitative research is conducted with a survey method.

3.4.2.1 Population

The studied population was Generation Y consumers living in Bangkok. According to World Population Prospect by UN, in 2016, Thailand Health Report revealed that there were approximately 22 million people in Thailand in Generation Y; 10,982,000 of which were male, and 10,850,000 were female (Bangkok Post, 2016).

Only Generation Y consumers who were born 1983-1999, and lived in the Bangkok area, were selected because Bangkok, besides being the capital city of Thailand, has the greatest proportion of internet, innovation, technology, and smartphone users. Furthermore, internet usage in Bangkok is greater than other provinces, accounting for 48.1 hours/day on average (Ministry of Information and Communication Technology, 2016).
3.4.2.2 Sample

The sample in this study was Generation Y consumers living in Bangkok. The sample size was determined by defining observed variables in the hypothetical model, totaling 21 variables, multiplied by 10-20. Consequently, the sample size was 210-420 people, which is appropriate for mean score comparison and model invariance analysis. (Wiratchai, 1999)

In this study, the sample size was set at 315 people (approximately 15 times) on the condition that the selected sample must be Generation Y consumers who were born 1983-1999, and lived in the Bangkok area.

Sampling method
Stage 1: Purposive sampling

The researcher began with studying the Bangkok Land Use Zoning Plan. The plan divided Bangkok into 13 zones (Department of City Planning, 2006):

1. Low-density Residential Zone
2. Middle-density Residential Zone
3. High-density Residential Zone
4. Commercial Zone
5. Industrial and Warehouse Zone
6. Warehouse Zone
7. Specific Industry Zone
8. Rural and Agricultural Zone
9. Educational Institute Zone
10. Rural and Agricultural Conservation Zone
11. Thai Art and Cultural Conservation Zone
12. Religion Institute Zone
13. Government Institutes, Public Utilities and Amenities Zone

Among the 13 areas, the Educational Institute Zone was intentionally selected as the area was the location for universities and organizations with many people in Generation Y, aged between 18-34, living, studying, and working. Thus, the target could be reached easily, achieving the objectives of data collection.

Moreover, those 13 areas can be divided into 46 administrative districts including: Dusit District, Pathum Wan District, Pom Prap Sattru Phai District, Samphanthawong District, Phaya Thai District, Thon Buri District, Bangkok Yai District, Taling Chan District, Bangkok Noi District, Bang Khun Thian District, Phasi Charoen District, Nong Khaem District, Rat Burana District, Bang Phlat District,
Bang Sue District, Chom Thong District, Ratchthewi District, Bang Khae District, Thawi Watthana District, Thung Khru District, Bang Bon District, Nong Chok District, Bang Rak District, Bang Khen District, Bang Kapi District, Phra Khanong District, Min Buri District, Lat Krabang District, Yan Nawa District, Huai Khwang District, Din Daeng District, Bueng Kum District, Sathon District, Chatuchak District, Prawet District, Khlong Toei District, Suan Luang District, Don Muang District, Lat Phrao District, Watthana District, Lak Si District, Sai Mai District, Saphan Sung District, Wang Thonglang District, Khlong Sam Wa district, and Bang Na District.

Stage 2: Simple random sampling

The researcher used a lucky draw to randomly select 9 representative districts among Educational Institute Zone areas, accounting for approximately 20 percent of Educational Institute Zone areas. The selected districts were:

1. Dusit District
2. Pathum Wan District
3. Bang Kapi District
4. Chatuchak District
5. Phaya Thai District
6. Lat Phrao District
7. Bang Na District
8. Sathon District
9. Wang Thonglang District

Stage 3: Quota sampling

The sample, 315 people in total, was divided into three categories, approximately 105 people each, for data collection. The categories were: early Generation Y (aged 18-22), middle Generation Y (aged 23-27), and late Generation Y (aged 28-34).

Stage 4: Convenience sampling

At the final stage, the researcher applied convenience sampling. The data collection took place at the 9 representative districts mentioned in the second stage.
3.5 Research instruments

The research instruments for the qualitative research with content analysis method were designed through the following steps.

3.5.1 Research instruments for qualitative research

**Step 1:** Reviewing literature and research that were relevant to the variables “corporate social responsibility innovation” with sub-variables derived from the concepts by the academics and related institutions as demonstrated below.

<table>
<thead>
<tr>
<th>Topics</th>
<th>Sub-variables to study</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social issues</td>
<td>- Health promotion</td>
<td>A summary from:</td>
</tr>
<tr>
<td></td>
<td>- Environmental protection</td>
<td>Lafferty (2007)</td>
</tr>
<tr>
<td></td>
<td>- Education</td>
<td>Kotler and Lee (2008)</td>
</tr>
<tr>
<td></td>
<td>- Animal right protection</td>
<td>Wu and Wang (2014)</td>
</tr>
<tr>
<td></td>
<td>- Community involvement</td>
<td></td>
</tr>
<tr>
<td>Attributes of innovation</td>
<td>- Relative advantage</td>
<td>Rogers (2003)</td>
</tr>
<tr>
<td></td>
<td>- Compatibility</td>
<td>Masso and Thompson (2016)</td>
</tr>
<tr>
<td></td>
<td>- Complexity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Trialability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Observability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Adaptability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Risk</td>
<td></td>
</tr>
</tbody>
</table>

**Step 2:** Developing a coding sheet from the conclusion after the literature review for content analysis of the studied CSR activities, highlighting two dimensions:

1. “CSR innovation in CSR project content” means that product and service development of organizations were environmentally friendly and were designed in a sustainable way.

2. “CSR innovation in CSR processes” means that organizations have a process of producing products and services to reduce the impact on the environment (Preuss, 2011).
In this study, the selected organizations were: Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd., and PTT Public Co, Ltd. If the content of the CSR activities carried out by these organizations from 2014 – 2016 was found relevant to the studied sub-variables, the researcher would put ✔ in the respective box (see the table on the next page). The summary would be conducted at the end of the study to answer the research questions.
<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activities</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.</td>
<td></td>
<td>Health promotion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td></td>
<td>Injury prevention</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.</td>
<td></td>
<td>Environmental protection</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>1.</td>
<td></td>
<td>Education</td>
<td>Compatibility</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td></td>
<td>Animal right protection</td>
<td>Complexity</td>
</tr>
<tr>
<td>2016</td>
<td>1.</td>
<td></td>
<td>Community involvement</td>
<td>Trialability</td>
</tr>
<tr>
<td></td>
<td>1.</td>
<td></td>
<td>Relative advantage</td>
<td>Observability</td>
</tr>
</tbody>
</table>

Total of each sub-variable

Grand Total
### Social Issues

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td>2015</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td>2016</td>
<td>1.</td>
</tr>
</tbody>
</table>

**Total of each sub-variable**

**Grand Total**
<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>1.</td>
</tr>
<tr>
<td>2015</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td>2016</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total of each sub-variable

Grand Total
3.5.2 Research instruments for quantitative research

For quantitative research, a survey method was used. The research instruments designed for the quantitative research were as follows.

To collect data, a questionnaire using the self-administration method was created and distributed. The collected data was analyzed to develop the conclusion. There were two parts in each questionnaire: screening questionnaire and main questionnaire.

3.5.2.1 Screening questionnaire

There were two questions in this part. The first question asked about the age range of the respondents. The respondents must be in early Generation Y, mid-Generation Y, or late Generation Y. The second question asked about the names of the studied organizations using innovation in CSR activities, which were, Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd., and PTT Public Co, Ltd. The reason why the respondents were asked about the name was to ensure that the respondents were familiar with the names and the CSR activities conducted by the organizations studied. Besides, the respondents must not be employed by the organizations studied to prevent other interfering variables; to illustrate, loyalty to the organizations, personal bias towards the organizations. After the screening process, the respondents could continue to fill in the questions in the following parts.

3.5.2.2 Main questionnaire

This part was comprised of five sub-parts including:

Part 1: Demographical questions – the questions asked about gender, highest educational level, occupation, and monthly income.

Part 2: Questions regarding corporate social responsibility innovation – names and details of CSR activities conducted by the studied organizations in the past three years were gathered from Matichon’s MiC e-Library and the organizations’ annual reports from 2014-2016 and were analyzed using the content analysis method indicated in the qualitative research to conduct the questionnaire. The CSR activities must be carried out with all attributes of innovation, allowing the respondents to answer the questions and have mutual understanding before answering.
The researcher developed questions asking about the attributes of innovation of three organizations, which were, Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd., and PTT Public Co, Ltd.

The five attributes of innovation by Rogers (2003) were applied. The five attributes were comparative advantage, compatibility, complexity, trialability, and observability. Additionally, the attributes of innovation by Masso and Thompson (2016) were added. The added attributes were adaptability and risk. The questions were divided into three sub-questions using five-point Likert scales to measure each attribute of innovation.

There were 63 questions asking about the level of agreement on statements measuring corporate social responsibility innovation. The three organizations were assigned the same set of questions, 21 questions each.

- Number 5 refers to a Likert item “strongly agree” 5 points
- Number 4 refers to a Likert item “agree” 4 points
- Number 3 refers to a Likert item “neutral” 3 points
- Number 2 refers to a Likert item “disagree” 2 points
- Number 1 refers to a Likert item “strongly disagree” 1 points

The researcher developed the questions for measurement from five attributes of innovation by Rogers (2003), and Masso and Thompson (2016). The reference of the questions was also from the innovation adoption questionnaire by Thaikerd (2015) with the reliability value of the measurement instrument of innovation attributes exceeding 0.86 in all aspects.

Part 3: Questions regarding corporate image – the questions asked about corporate image in three dimensions, which were, social and environmental responsibility dimension, innovation dimension, and product and service dimension. The questions had been divided into four sub-questions using five-point Likert scales to measure each dimension.

There were 36 questions asking about the level of agreement on statements measuring corporate image. The three organizations were assigned the same set of questions, 12 questions each.
Number 5 refers to a Likert item “strongly agree” 5 points
Number 4 refers to a Likert item “agree” 4 points
Number 3 refers to a Likert item “neutral” 3 points
Number 2 refers to a Likert item “disagree” 2 points
Number 1 refers to a Likert item “strongly disagree” 1 points

The researcher adapted the questions for measurement from corporate image measures by Wanakasemsan (2009) and Sabaiwan (2010) with the reliability value of the measurement instrument at 0.9525 and 0.9808 respectively.

Part 4: Questions regarding corporate reputation – the questions asked about corporate reputation in three dimensions, which were, social and environmental responsibility dimension, innovation dimension, and product and service dimension. The questions were divided into four sub-questions using a five-point Likert scale to measure each dimension.

There were 36 questions asking about the level of agreement on statements measuring corporate image. The three organizations were assigned the same set of questions, 12 questions each.

Number 5 refers to a Likert item “strongly agree” 5 points
Number 4 refers to a Likert item “agree” 4 points
Number 3 refers to a Likert item “neutral” 3 points
Number 2 refers to a Likert item “disagree” 2 points
Number 1 refers to a Likert item “strongly disagree” 1 points

The researcher developed the questions for measurement from the corporate reputation scale Reputation Quotient (RQ) by Fombrun et al. (2000) with a reliability value of 0.75. Also, some questions in each dimension were selected from the RepTrak System developed by the Reputation Institute (Reputation Institute, 2017) and were adapted from the corporate reputation questionnaire in the research by Suangswang (2005), with a reliability value of 0.93.

In Parts 3 and 4, the researcher deliberately selected the questions on corporate image and corporate reputation that related to the research problem “Does, and if so how, applying innovation in CSR activity operation through organizations’ production of goods and services affect corporate social responsibility innovation adoption?”
Thus, the corporate image and corporate reputation scale is comprised of three related dimensions: social and environmental responsibility dimension, innovation dimension, and product and service dimension, to ensure consistency with the research problems and to be able to measure the perspectives of the study group, which was Generation Y consumers.

Part 5: Questions regarding innovation adoption – the questions asked about innovation adoption in six dimensions, which were, perceived usefulness, perceived ease of use, attitude toward using, behavioral intention to use, actual system use, and personal innovativeness. The questions were divided into three sub-questions using a five-point Likert scale to measure each dimension.

There were 54 questions asking about the level of agreement on statements measuring innovation adoption. The three organizations were assigned the same set of questions, 18 questions each.

Number 5 refers to a Likert item “strongly agree” 5 points
Number 4 refers to a Likert item “agree” 4 points
Number 3 refers to a Likert item “neutral” 3 points
Number 2 refers to a Likert item “disagree” 2 points
Number 1 refers to a Likert item “strongly disagree” 1 points

The questions for measurement were adapted from innovation adoption scale of the Technology Acceptance Model or TAM (Davis, 1989; Lu et al., 2003). The researcher deliberately selected the mutual questions in each dimension from the innovation adoption questionnaire that had already been tested in Thai society by Sirithorn (2011) with a reliability value at 0.84.

To interpret the collected data about attributes of innovation, corporate image, corporate reputation, innovation adoption, and behavior on CSR activity participation, the researcher developed the range of class interval. The class was divided into five ranges based on the following formula (Bunnag, 1994):

\[
\text{Interval} = \frac{\text{Range}}{\text{Class}} = \frac{5 - 1}{5} = 0.80
\]
According to the formula, the class interval score range of attributes of innovation, corporate image, corporate reputation, and innovation adoption can be divided as follows:

Score 5.00 – 4.21 : Highest
Score 4.20 – 3.41 : High
Score 3.40 – 2.61 : Moderate
Score 2.60 – 1.81 : Low
Score 1.81 – 1.00 : Lowest

Criteria for determining the level of relationship were as follows, if the correlation coefficient was:

0.81 and above is considered highest correlation
0.61 – 0.80 is considered high correlation
0.40 – 0.60 is considered moderate correlation
0.20 – 0.39 is considered low correlation
0.20 and below is considered lowest correlation
3.6 Instrument reliability

There were two processes conducted to measure the reliability value of the instrument. The first process was validity. Validity was comprised of content validity by academics and professionals. The second process was reliability. The steps to measure both are given below.

3.6.1 Instrument validity and reliability in qualitative research

Step 1: Content validity

For qualitative research, the validity of a conducted coding sheet was examined by research’s advisor following literatures and researches that were relevant to the two variables: (1) attributes of innovation and (2) social issues derived from the concepts by the academics and related institutions.

Step 2: Reliability

To measure the reliability value, the researcher analyzed the coding sheet and did the data coding process together with two research assistants who were academics. The two research assistants were:

1. Pichanut Nueangjammong
   Full-time lecturer, School of Communication Arts, Assumption University

2. Pinnachan Dangulavanich
   Full-time lecturer, School of Communication Arts, Assumption University
3.6.2 Instrument validity and reliability in quantitative research

Step 1: Content validity

The developed questionnaire were reviewed by three academics:

1. Asst. Prof. Dr. Asawin Nedpogaeo
   Director of the Doctoral program, Graduate School of Communication Arts, NIDA.
2. Asst. Prof. Dr. Nuchada Dumrongsiri
   Full-time lecturer, Department of English, Thammasat University
3. Dr. Prichaya Manmin
   Full-time lecturer, School of Communication Arts, Assumption University

In addition, the coding sheet and the developed questionnaire were also reviewed by two professionals:

1. Kovit Savangvareesakul
   Communication Director, Ogilvy Public Relations Worldwide Inc.
2. Kanokchan Patanapichai
   Chief Editor, Ogilvy Public Relations Worldwide Inc.

The five experts mentioned above validated language use and content in the coding sheet and the questionnaire.

For the questionnaire, the researcher tested the consistency between the studied topics and the questions by using Item–Objective Congruence Index (IOC). The experts must evaluate each question in the metric of each variable with three grades:

+1 If assured that the question is consistent with the definition of the variable
0 If not assured that the question is consistent with the definition of the variable
-1 If assured that the question is inconsistent with the definition of the variable

After that, the scores from the five experts have been gathered to find the IOC using the formula below:

\[
IOC = \frac{\Sigma R}{N}
\]

\[\Sigma R = \text{sum of the scores given by the experts in each question}\]

\[N = \text{total number of the experts}\]
The result revealed that the validity of this questionnaire was between 0.60 – 1.00, signifying that this questionnaire can be used to measure the studied variables well (see Appendix A). Thereafter, the researcher revised the questionnaire according to the recommendations and the score.

**Step 2: Reliability**

In order to measure the reliability value, the researcher conducted a pre-test of the revised questionnaire among 34 people that lived in Bangkok and were similar to the sample but were not in the sample of the research. Additionally, the pre-test was also conducted for a purpose of testing language use, understanding of message, and studied topics. Afterwards, the researcher tested the obtained data using Cronbach’s Alpha (Ketsingha, 1994).

The reliability value of the questions regarding corporate social responsibility in the second part was 0.970. The reliability value of the questions regarding corporate image in the third part was 0.962. The reliability value of the questions regarding corporate reputation in the fourth part was 0.951. And, the reliability value of questions regarding innovation adoption in the fifth part was 0.965. All in all, the total reliability value of the questionnaire was 0.987. However, after collecting the data according to the number of samples set by the researcher, the reliability value of all the questions in this research was 0.942.

To measure construct validity, the researcher measured the validity of the observed variables and the latent variables using Confirmatory Factor Analysis (CFA) in the first structural equation.
3.7 Data collection method

3.7.1 Data collection method for qualitative research

The data was mainly collected from MiC e-Library, accompanying with annual reports from organizations’ websites and executive interviews in the media.

3.7.2 Data collection method for quantitative research

The data was collected from three sub-groups of Generation Y consumers living in the nine areas randomly selected in the sampling process. The sub-groups were early Generation Y, mid-Generation Y, and late Generation Y. Each sub-group was comprised of 105 samples, 315 in total. The researcher observed and approached the samples with characteristics aligning well with the criteria, explaining about the objectives of the questionnaire before asking them to fill it in.

Additionally, the researcher explained the method of data collection in each part, ensuring that the samples clearly understood. However, the samples had to complete the questionnaire without interference from the researcher. The data collection process took approximately three months.

3.8 Data analysis method

3.8.1 Data analysis method for qualitative research

The results were analyzed by using an overview comparative table and a summary table for each organization. The ranking was also used to show the highest and the lowest score in terms of both number and percentage of two variables: (1) attributes of innovation and (2) social issues appeared in corporate social responsibility innovation news from 2014 – 2016 of each organization.
3.8.2 Data analysis method for quantitative research

The results were analyzed by using descriptive statistics and inferential statistics.

1. Descriptive statistics

This analysis method used frequency, percentage, means, and standard deviation to analyze data and describe demographic data, corporate social responsibility innovation, corporate image, corporate reputation, and Generation Y consumers’ adoption of corporate social responsibility innovation.

2. Inferential statistics

This analysis applied Pearson’s product moment correlation and multiple regression analysis to analyze the correlation between three independent variables, which were, attributes of innovation, corporate image, and corporate reputation. Furthermore, it was applied to analyze the correlation between the three independent variables and one dependent variable. The dependent variable was Generation Y consumers’ adoption of corporate social responsibility innovation. Also, it was applied to analyze predictor variables affecting the dependent variable.

Also, the Structural Equation Model was applied using the AMOS program, statistical software. The reason for selecting the Structural Equation Model was because it could explain both direct and indirect influences of external latent variables, internal latent variables, and observed variables, which were, corporate social responsibility innovation, corporate image, corporate reputation, and Generation Y consumers’ adoption of corporate social responsibility innovation, testing the hypotheses with the statistical significance level set at .05 and the reliability value set at 95%.

To check the congruence of the model, the researcher cited the congruence index according to Kraiwan (2013) who indicated acceptable congruence indices as follows:

(1) Chi-square/df index below 3.00
(2) GFI index exceeding 0.95
(3) AGFI index exceeding 0.90
(4) CFI index exceeding 0.97
(5) IFI index exceeding 0.95
(6) NFI index exceeding 0.95
(7) RMSEA index below 0.05
(8) RMR index below 0.05
CHAPTER 4

RESEARCH FINDINGS

This study uses both qualitative and quantitative research methodologies to find answers to the two research questions in Chapter 1.

Firstly, content analysis was used to analyze corporate social responsibility innovation news of the three selected organizations. These three selected organizations, which bring innovation to their corporate social responsibility initiatives, are Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd., and PTT Public Co, Ltd. The content was from various sources; Matichon News Center (MiC e-Library), annual reports, organizations’ websites, and executive interviews in the media. The purpose was to answer Research Question 1 “What are the social issues and the attributes of innovation in corporate social responsibility innovation of the organizations?”

For Research Question 2 “Does, and if so how, the structural equation model of corporate social responsibility, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y, generated by the researcher correspond with the existing empirical literatures and principles?”, survey methodology was used to collect data from Generation Y, 340 respondents in total, aged 18-34, living, studying, or working in Bangkok. The data collection period was from August to October 2018.

4.1 Qualitative research findings

4.1.1 The result of content analysis: corporate social responsibility innovation news of three organizations

In the Matichon News Center (MiC e-Library), three organizations’ names were the main keywords of news search in 2014, 2015, and 2016. The results show all related news (see Table 4.1 and Figures 4.1 to 4.3).
Table 4.1 Number of News Items in Matichon News Center Search for All Three Organizations

<table>
<thead>
<tr>
<th>Name of organization</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
</tr>
<tr>
<td>Charoen Pokphand Foods Public Co, Ltd.</td>
<td>2,765</td>
</tr>
<tr>
<td>Siam Cement Group Public Co, Ltd.</td>
<td>803</td>
</tr>
<tr>
<td>PTT Public Co, Ltd.</td>
<td>4,326</td>
</tr>
</tbody>
</table>

Figure 4.1 Number of News Items in Matichon News Center Search for Charoen Pokphand Foods Public Co, Ltd from 2014 - 2016
Figure 4.2 Number of News Items in Matichon News Center Search for Siam Cement Group Public Co, Ltd from 2014 - 2016
As can be seen in Table 4.1 and Figures 4.1 to 4.3, the number of news items in Matichon News Center search includes all news from all publications in Thailand. This is the reason why there are many similar news items found in the search result. In fact, these are the same news items, but in different publications.

Thus, only related news about corporate social responsibility innovation initiations of three organizations were selected for content analysis. Moreover, if there were many similar news items in different publications, only one news item was selected with the condition of completeness in news reporting for further analysis.

Furthermore, the annual reports in 2014, 2015, and 2016 of the three organizations, organizations’ websites, and executive interviews in the media were additional sources of information to support news found in the Matichon News Center (MiC e-Library) for content analysis. The results of content analysis start from the overview of three organizations, followed by the result of each organization.

Figure 4.3 Number of News Items in Matichon News Center Search for PTT Public Co, Ltd from 2014 - 2016
The summary of content analysis: corporate social responsibility innovation news of three organizations for three years is shown in the table below.

Table 4.2 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Three Organizations from 2014 to 2016

<table>
<thead>
<tr>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health promotion</td>
<td></td>
</tr>
<tr>
<td>Injury prevention</td>
<td></td>
</tr>
<tr>
<td>Environmental protection</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Animal rights protection</td>
<td></td>
</tr>
<tr>
<td>Community involvement</td>
<td></td>
</tr>
<tr>
<td>Relative advantage</td>
<td></td>
</tr>
<tr>
<td>Complainability</td>
<td></td>
</tr>
<tr>
<td>Complexity</td>
<td></td>
</tr>
<tr>
<td>Trailability</td>
<td></td>
</tr>
<tr>
<td>Observability</td>
<td></td>
</tr>
<tr>
<td>Adaptability</td>
<td></td>
</tr>
<tr>
<td>Risk</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Summary Table of Three Organizations From 2014 To 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview summary in 2014 of three organizations: 52 news</td>
</tr>
<tr>
<td>16 21 39 6 0 50 52 52 50 18 24 51 52</td>
</tr>
<tr>
<td>Overview summary in 2015 of three organizations: 54 news</td>
</tr>
<tr>
<td>21 27 38 5 0 53 54 54 53 20 23 53 54</td>
</tr>
<tr>
<td>Overview summary in 2016 of three organizations: 64 news</td>
</tr>
<tr>
<td>26 24 48 5 0 56 64 64 63 22 27 62 64</td>
</tr>
<tr>
<td>Three year-overview summary of three organizations: 170 news</td>
</tr>
<tr>
<td>63 72 125 16 0 159 170 170 166 60 74 166 170</td>
</tr>
<tr>
<td>Three year-overview summary of each variable of three organizations</td>
</tr>
<tr>
<td>Three year-overview percentage summary of each sub-variables found in 170 news of three organizations</td>
</tr>
</tbody>
</table>
Figure 4.4 shows the percentage of social issues and attributes of innovation variables found in corporate social responsibility innovation news of three organizations from 2014 to 2016.

As can be seen in the above chart, all three organizations were likely to have three main attributes of innovation in their corporate social responsibility innovation activities. They were relative advantage, compatibility, and risk attributes. The percentage of all these three main attributes found is around 17.42% each.
Figure 4.5 shows that from 2014 to 2016, all three organizations brought innovation and technology to apply with their corporate social responsibility initiatives by supporting five out of six social issues. They are health promotion, injury prevention, environmental protection, and education and community involvement. Interestingly, animal rights protection issue received no support from all three organizations during these three years.

Comparing the first two ranks between community involvement and environmental protection issues in corporate social responsibility innovation activities of all three organizations shows that all three organizations gave support to community involvement issues every year, from 2014 to 2016, while the support for environmental protection issues in 2015 showed a small decline in 2015 compared to 2014, then, the number rose again in 2016.

Figure 4.5 shows the comparison of social issues found in corporate social responsibility innovation news of three organizations from 2014 to 2016
Figure 4.6 shows that from 2014 to 2016, all three organizations brought innovation and technology to apply with their corporate social responsibility initiatives by considering all seven attributes of innovation, which are relative advantage, compatibility, complexity, triability, observability, adaptability, and risk.

The comparison of three attributes in the first rank, which are relative advantage, compatibility and risk, shows that all three organizations continuously focused on these three attributes every year.

Figure 4.6 shows the comparison of attributes of innovation found in corporate social responsibility innovation news of three organizations from 2014 to 2016.
Table 4.3 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Charoen Pokphand Foods Public Co, Ltd. in 2014

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.</td>
<td>Project: CPF’s product sustainability (Green Value Chain)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Project: CP’s Green factory (CPF SHE Management System Policy)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>Project: CP’s new technology for sausage manufacturing factory- CPF</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>Project: CP joins DuPont to develop food innovation for sustainability</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>Project: CP develops &amp; educates community about CPF Turbo program</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td>Project: CP’s 7 Go Green, a shop model at Thara Square branch</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>7.</td>
<td>Project: CP applies shop model’s innovation with its current branches</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Summary in 2014</strong></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overview summary of each variable in 2014</td>
<td>22</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The percentage summary of each sub-variable found in seven news in 2014</td>
<td>57.14</td>
<td>57.14</td>
</tr>
</tbody>
</table>
Figure 4.7 shows that in 2014, Charoen Pokphand Foods Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives for seven activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that Charoen Pokphand Foods Public Co, Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 31.82% of all six social issues, followed by environmental protection issue, around 27.27%.

Figure 4.7 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Charoen Pokphand Foods Public Co, Ltd. in 2014.
Table 4.4 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Charoen Pokphand Foods Public Co, Ltd. in 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.</td>
<td>Project: CP’s T-VER, a greenhouse glass mgt. to produce bio diesel</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Project: CP develops automotive and alternative energy in logistic</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>Project: CP’s Balance campaign, announcement, offering a new menu</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>Project: CP’s Pig farming development, based on eco-friendly concept</td>
<td>✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>Project: CP’s Food innovation development: retorted food, help Nepal</td>
<td>✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td>Project: CP’s Use of solar hybrid in pig processing plant factory</td>
<td>✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>7.</td>
<td>Project: CP’s Shrimp dumpling got a carbon footprint reduction label</td>
<td>✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td>Project: CP’s Chicken breast, as a part of food development concept</td>
<td>✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>Project: CP’s Food innovation, special cereal for getting a better pork</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td>Project: CP’s new technology for sausage manufacturing factory-CPF</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td>Project: CP’s 7 Go Green, a shop model at Thara Square branch</td>
<td>✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td>Project: CP applies shop model’s innovation with its current branches</td>
<td>✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summery in 2015</th>
<th>5</th>
<th>4</th>
<th>9</th>
<th>0</th>
<th>0</th>
<th>13</th>
<th>13</th>
<th>13</th>
<th>12</th>
<th>7</th>
<th>9</th>
<th>13</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview summary of each variable in 2015</td>
<td>38.46</td>
<td>30.77</td>
<td>69.23</td>
<td>0.00</td>
<td>0.00</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>92.31</td>
<td>53.85</td>
<td>59.23</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>The percentage summary of each sub-variable found in 13 news in 2015</td>
<td>43.46</td>
<td>30.77</td>
<td>69.23</td>
<td>0.00</td>
<td>0.00</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>92.31</td>
<td>53.85</td>
<td>59.23</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Figure 4.8 shows that in 2015, Charoen Pokphand Foods Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives for 13 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that Charoen Pokphand Foods Public Co, Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 41.94% of all six social issues, followed by environmental protection issue, around 29.03%.

Figure 4.8 show the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Charoen Pokphand Foods Public Co, Ltd. in 2015.
Table 4.5 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Charoen Pokphand Foods Public Co, Ltd. in 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1</td>
<td>Project: CP’s Chicken innovation got carbon footprint reduction label</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Project: CP’s Food manufacturing factory for elder, patient &amp; vegetarian</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Project: CP shares shrimp feeding technology knowhow to fishery farmer</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Project: CP’s Pork shop, the world sustainable kitchen for communities</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Project: CP’s Solar rooftop</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Project: CP’s Environmental Friendly Packaging</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Project: CP’s use of microorganism for vacuum grease trap</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Project: CP decreases pollution in the shipping and transportation process</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Project: CP’s new technology for sausage manufacturing factory-CPF</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Project: CP’s 7 Go Green, a shop model at Thana Square branch</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Project: CP applies shop model’s innovation with its current branches</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Summary in 2016:

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trialability | Observability | Adaptability | Risk |
|------------------|-------------------|---------------------------|-----------|--------------------------|-----------------------|---------------------|---------------|-------------|-------------|--------------|-------------|----------|------|
| 6                | 4                 | 8                         | 2         | 0                        | 11                    | 11                  | 10            | 6           | 6           | 11          | 11          | 11       |      |

Overview summary of each variable in 2016:

| 31 | 66 |

The percentage summary of each sub-variable found in 11 news in 2016:

| 24.55 | 26.36 | 72.73 | 18.18 | 6.06 | 100.0 | 100.0 | 100.0 | 90.91 | 24.55 | 24.55 | 100.0 | 100.0 |
Figure 4.9 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Charoen Pokphand Foods Public Co, Ltd. in 2016.
Table 4.6 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Charoen Pokphand Foods Public Co, Ltd from 2014 to 2016

<table>
<thead>
<tr>
<th></th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health promotion</td>
<td>Injury prevention</td>
</tr>
<tr>
<td>Overview summary in 2014: 7 news</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Overview summary in 2015: 13 news</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Overview summary in 2016: 11 news</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Three year-overview summary</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Three year-overview summary of each variable</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Three year-overview percentage summary of each sub-variable found in 31 news</td>
<td>48.39</td>
<td>38.71</td>
</tr>
</tbody>
</table>
Figure 4.10 shows that from 2014 to 2016, Charoen Pokphand Foods Public Co, Ltd. brought innovation and technology to apply with their corporate social responsibility initiatives for 31 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that Charoen Pokphand Foods Public Co, Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 36.9% of all six social issues, followed by environmental protection issue, around 27.38%.

Figure 4.10 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Charoen Pokphand Foods Public Co, Ltd from 2014 to 2016.
Figure 4.11 shows that from 2014 to 2016, Charoen Pokphand Foods Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives by supporting four out of six social issues. They are health promotion, injury prevention, environmental protection, and community involvement. Education received support in 2014 and 2016, but not in 2015. Interestingly, animal rights protection issue received no support from Charoen Pokphand Foods Public Co, Ltd. during these three years.

In the comparison of the first two ranks between community involvement and environmental protection issues in corporate social responsibility innovation activities of Charoen Pokphand Foods Public Co, Ltd, the result shows that in 2015, Charoen Pokphand Foods Public Co, Ltd gave support to these issues more than in 2014. After that, the support slightly went down in 2016.

Figure 4.11 shows the comparison of social issues found in corporate social responsibility innovation news Of Charoen Pokphand Foods Public Co, Ltd from 2014 to 2016
Figure 4.12 shows that from 2014 to 2016, Charoen Pokphand Foods Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives by considering all seven attributes of innovation, which are relative advantage, compatibility, complexity, trialability, observability, adaptability, and risk.

The comparison of four attributes in the first rank, which are relative advantage, compatibility, adaptability and risk, shows that Charoen Pokphand Foods Public Co, Ltd. focused on these four attributes in 2015 rather than in 2014; however, the focus slightly went down in 2016.
Table 4.7 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Siam Cement Group Public Co, Ltd. in 2014

<table>
<thead>
<tr>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reduces pollution</td>
<td>Injury prevention</td>
</tr>
<tr>
<td>Project: SCG Conservating Water for Tomorrow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG brings the good books to Thai children; general &amp; blind</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG joins Sedanau in SCG House, innovation for eco-house</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG develops bio-plastic compound (100% disposable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG develops dissolving pulp innovation; a eucalyptus wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG develops products for elder in SCG Eldercare Solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG produces paper from a recycle, as a part of green carton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG’s Share3Share, paper from a recycle for buying material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG improves well-being of employees and green building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG produces electricity from solar cell placed on rooftop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG develops idea green plus; eco-fiber paper innovation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG executes CSR with partners (green network concept)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG Chemical’s innovation for disposing organic waste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG joins Siri (to develop product and living for elder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG executes technology innovation recovering saline - soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG Chemical-DIY spacer assembly for asthma patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG Chemical-eco factory concept expansion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG research: The next eco-sustainable technology for home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG research-Innovative prefabric building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG research-Environmental friendly hybrid cement formula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG research-Fiber cement technology, replacing wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG receive customers' roof tile in disposing collaboration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG changes production process of clay roof tile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG’s in cab coaching, a safety driver training program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG research-Windor Fast Renew, a living innovation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG research-Create a robot for processing the machines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG develops paper materials for medical use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project: SCG’s idea case pack, a paper cup innovation for drinking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overview summary of each variable in 2014:
- Summary in 2014: 71
- The percentage summary of each sub-variable found in 28 news in 2014:
  - 32.14, 37.71, 71.43, 14.22, 9.00, 100.0, 100.0, 100.0, 82.28, 66.43, 100.0, 100.0
Figure 4.13 shows that in 2014, Siam Cement Group Public Co., Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives for 28 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that Siam Cement Group Public Co., Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 39.44% of all six social issues, followed by environmental protection issue, around 28.17%.

Figure 4.13 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Siam Cement Group Public Co., Ltd. in 2014.
### Table 4.8 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Siam Cement Group Public Co, Ltd. in 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td></td>
<td>Siam Cement Group Public Co, Ltd.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Activity

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project: SCG Packaging introduces Fest, a brand for food packaging</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Project: SCG Eldercare Solution, restroom innovation for the elder</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Project: SCG Chemical-Eco factory concept completeness</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Project: SCG develops Solar Eco System, a solar energy from rooftop</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Project: SCG joins Industrial Estate to develop garbage power factory</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

#### Social Issues

- Health promotion
- Injury prevention
- Environmental protection
- Education
- Animal rights protection
- Community involvement
- Relative advantage
- Compatibility
- Complexity
- Tradability
- Observability
- Adaptability
- Risk

#### Presenting innovation in SCG Innovative Exposition 2015: innovation that cares

1. SCG’s 3D printing technology innovation for construction drawing
2. SCG’s Eldercare Solution, living innovation for the elderly
3. SCG’s The next eco-sustainable technology innovation for home
4. SCG’s Active Airflow System innovation
5. SCG’s Plastic innovation for medical use e.g. polymer collar
6. SCG’s Mini-Sure kit, a surgical instruments innovation
7. SCG’s Food packaging innovation for the elderly
8. SCG’s Packaging innovation for microwavable use with safety
9. SCG’s Peel and clean lid film, a transparent film for food packaging
10. SCG’s Easystem, a packaging with automatic airflow in microwave
11. Project: SCG research-Innovative precast building
12. Project: SCG commercial factory, transform waste to be salt-chemical
13. Project: SCG Paste Valve innovation for safety and better transportation
14. Project: SCG Conservating Water for Tomorrow in Lampang
15. Project: SCG Conservating Water for Tomorrow in Saraburi
16. Project: SCG brings the good books to Thai children; general & blind
17. Project: SCG research: Create a robot for processing the machines
18. Project: SCG develops paper materials for medical use
19. Project: SCG’s idea care pack, a paper cup innovation for drinking

#### Summary in 2015

<table>
<thead>
<tr>
<th>Overview summary of each variable in 2015</th>
<th>13</th>
<th>18</th>
<th>15</th>
<th>1</th>
<th>6</th>
<th>23</th>
<th>24</th>
<th>24</th>
<th>7</th>
<th>6</th>
<th>23</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>The percentage summary of each sub-variable found in 24 news in 2015</td>
<td>54.17</td>
<td>75.00</td>
<td>62.50</td>
<td>48.18</td>
<td>90.00</td>
<td>90.00</td>
<td>100.00</td>
<td>100.00</td>
<td>70.17</td>
<td>25.00</td>
<td>90.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>
Figure 4.14 shows that in 2015, Siam Cement Group Public Co., Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives for 24 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that Siam Cement Group Public Co., Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 32.86% of all six social issues, followed by injury prevention issue, around 25.71%.

Figure 4.14 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Siam Cement Group Public Co., Ltd. in 2015
Table 4.9 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Siam Cement Group Public Co, Ltd. in 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1</td>
<td>Project: SCG joins NCH in SCG Eldercare Solution for elder and env.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Project: SCG builds knockdown portable toilets for people</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Project: SCG’s Transportation tech. &amp; sedan day nationwide service</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Project: SCG joins industrial sector, set up Water War Room function</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Project: SCG sets up noise barrier on bridges, light-counter &amp; danceable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Project: SCG provides eco-toll way booth made from polyethylene</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Project: SCG creates robot to monitor construction in dangerous place</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Project: SCG research-cement innovation for eco-plastered wall</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Project: SCG research-substitute materials innovation for wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Project: SCG develops special bin for disposing medical needles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Project: SCG develops anti-microbial dental plaster (anti bacteria)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Project: SCG develops a polyethylene floating bobber for solar cell</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Project: SCG EcoBrick; transform fly ash to construction materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Project: SCGbranes eco fiber to produce Green Series brand’s paper</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Presenting innovation from SCG Packaging in THAIFEX World of Food Asia 2016

15. SCG’s Fest, an innovation for food packaging
16. SCG’s Packaging innovation for microwaveable use with safety
17. SCG’s Feel and clean lid film, a transparent film for food packaging
18. SCG’s Ecosteam, a packaging with automatic airflow in microwave
19. SCG’s Steam pressure bar innovation
20. SCG’s Coffee bar innovation
21. SCG’s Fresh fruit packaging innovation, extending the expired date
22. SCG’s Paper packaging (suitable for any industries’ transportation)
23. SCG’s Packaust for frozen food


24. SCG’s living innovation: The next eco-sustainable technology for homes
25. SCG’s Active airflow system innovation
26. SCG’s Organic palm melamine tableware set made from natural palm
27. SCG’s Eco plastic chair innovation (less plastic used in production)
28. SCG’s Emission green label industrial product that could save energy
29. SCG’s Cement that has an environmental friendly production process
30. SCG’s Green carton packaging innovation
31. Project: 3D printing technology: innovation for construction drawings
32. Project: SCG Conserving Water for Tomorrow in many provinces
33. Project: SCG Conserving Water for Tomorrow in Rayong
34. Project: SCG executes technology innovation recovering salins-salts
35. Project: SCG brings the good books to Thai children, general & blind

Summary in 2016
14 16 22 1 0 29 35 35 35 8 12 33 35

Overview summary of each variable in 2016
32

The percentage summary of each sub-variable found in 35 news in 2016
40.00 45.71 62.86 2.90 0.00 32.86 100.0 100.0 100.0 21.82 34.36 94.29 100.00
Figure 4.15 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Siam Cement Group Public Co, Ltd. in 2016.
Table 4.10 Summary of Content Analysis: Corporate Social Responsibility Innovation News of Siam Cement Group Public Co, Ltd from 2014 to 2016

<table>
<thead>
<tr>
<th>The Summary Table</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health promotion</td>
<td>Injury prevention</td>
</tr>
<tr>
<td>Overview summary in 2014: 28 news</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Overview summary in 2015: 24 news</td>
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<td>18</td>
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<td>Overview summary in 2016: 35 news</td>
<td>14</td>
<td>16</td>
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<tr>
<td>Three year-overview summary</td>
<td>36</td>
<td>44</td>
</tr>
<tr>
<td>Three year-overview summary of each variable</td>
<td>223</td>
<td></td>
</tr>
<tr>
<td>Three year-overview percentage summary of each sub-variable found in 87 news</td>
<td>41.38</td>
<td>50.57</td>
</tr>
</tbody>
</table>
Figure 4.16 shows that from 2014 to 2016, Siam Cement Group Public Co, Ltd. brought innovation and technology to apply with their corporate social responsibility initiatives for 87 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that Siam Cement Group Public Co, Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 35.87% of all six social issues, followed by environmental protection issue, around 25.56%.

Figure 4.16 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of Siam Cement Group Public Co, Ltd from 2014 to 2016.
Figure 4.17 shows the comparison of social issues found in corporate social responsibility innovation news of Siam Cement Group Public Co, Ltd from 2014 to 2016.

Figure 4.17 shows that from 2014 to 2016, Siam Cement Group Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives by supporting five out of six social issues. They are health promotion, injury prevention, environmental protection, education, and community involvement. Interestingly, the animal rights protection issue received no support from Siam Cement Group Public Co, Ltd. during these three years.

In the comparison of the first two ranks between community involvement and environmental protection issues in corporate social responsibility innovation activities of Siam Cement Group Public Co, Ltd, the result shows that in 2015, Siam Cement Group Public Co, Ltd gave support to these issues less than in 2014. After that, the support increased in 2016.
Figure 4.18 shows the comparison of attributes of innovation found in corporate social responsibility innovation news of Siam Cement Group Public Co, Ltd from 2014 to 2016.
Table 4.11 Summary of Content Analysis: Corporate Social Responsibility Innovation News of PTT Public Co, Ltd. in 2014

| Year | No. | Activity                                                                 | Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------|-----|----------------------------------------------------------------------------|------------------|-------------------|--------------------------|-----------|--------------------------|----------------------|------------------|--------------|------------|-------------|--------------|--------------|-----------|------|
| 2014 | 1   | Project: PTT’s CSR Green Energy, building dams in community               | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 2   | Project: PTT’s T-VER, growing plant to reduce global warming              | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 3   | Project: Thai collaboration helps victims who’re suffered from waste      | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 4   | Project: PTT’s The miracle of natural gas miracle romance, Rayong         | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 5   | Project: PTT’s Solar farm aims to produce and sell solar energy           | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 6   | Project: PTT’s Garbage power plant model in Rayong; waste to power        | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 7   | Project: PTT joins highway dept. to establish more safe U-turn bridge     | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 8   | Project: PTT joins KU to develop auto operated vehicle used in the sea    | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 9   | Project: PTT joins partner to develop PTT Diesel CNG to save energy       | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 10  | Project: PTT’s Weeco21, a model for eco-industry innovation               | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 11  | Project: PTT’s Life station application that helps user search stations   | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 12  | Project: PTT’s Café Amazon drive aware application for more safety        | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 13  | Project: PTT develops lubricant products that could save environment      | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 14  | Project: PTT develops powertrac super plus that could save energy         | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 15  | Project: PTT produces electricity and tap water for community              | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 16  | Project: PTT produces substitute power from solar cell energy             | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |
|      | 17  | Project: PTT BioPBS, a paper innovation to produce Amazon Bio Cup          | ✔                | ✔                 | ✔                        | ✔         | ✔                        | ✔                    | ✔                | ✔            | ✔          | ✔           | ✔            | ✔          | ✔        |

Summary in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 3                | 7                 | 13                       | 1         | 0                        | 15                    | 17                 | 17            | 15         | 16          | 7            | 16           | 17          |     |

Overview summary of each variable in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |

The percentage summary of each sub-variable found in 17 news in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |

Overview summary of each variable in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |

The percentage summary of each sub-variable found in 17 news in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |

Overview summary of each variable in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |

The percentage summary of each sub-variable found in 17 news in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |

Overview summary of each variable in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |

The percentage summary of each sub-variable found in 17 news in 2014

| Health promotion | Injury prevention | Environmental protection | Education | Animal rights protection | Community involvement | Relative advantage | Compatibility | Complexity | Trustability | Observability | Adaptability | Risk |
|------------------|-------------------|--------------------------|-----------|--------------------------|-----------------------|--------------------|---------------|------------|-------------|--------------|--------------|-------------|------|
| 17.65            | 41.18             | 76.47                    | 5.88      | 0.00                     | 88.24                 | 100.0              | 100.0         | 100.0      | 100.0       | 100.0        | 100.0        | 100.0       |     |
Figure 4.19 shows that in 2014, PTT Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives for 17 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that PTT Public Co, Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 38.46% of all six social issues, followed by environmental protection issue, around 33.33%.

Figure 4.19 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility
innovation news of PTT Public Co., Ltd. in 2014

Table 4.12 Summary of Content Analysis: Corporate Social Responsibility Innovation News of PTT Public Co., Ltd. in 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1.</td>
<td>Project: PTT Godji the adventure w/application to learn about energy</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Project: PTT Household’s rotten water recycle for industry use</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>Project: PTT’s Forest in the city w/innovation and technology items</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>Project: PTT gives bio gas receiving from pig farm to community</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>Project: PTT’s Crime zero w/emergency tech. connected to the police</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td>Project: PTT develops PTT performs lubricant, the moving innovation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>7.</td>
<td>Project: PTT Group waste pooling to reduce industry’s waste</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td>Project: PTT develops fuel energy and lubricant products formula</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>9.</td>
<td>Project: PTT leverages the effectiveness of water level monitoring</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>Project: PTT develops engine; natural gas option for pick up cars</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td>Project: PTT uses In-Vehicle monitoring system in fuel transportation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td>Project: PTT develops PTT Life station application to monitor NGV</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td>Project: PTT’s The miracle of natural gas miracle romance, Rayong</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>14.</td>
<td>Project: PTT adjusts space of the miracle romance to be plant nursery</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>Project: PTT’s T-VER, growing plant to reduce global warming</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>16.</td>
<td>Project: PTT BioPBS, a paper innovation to produce Amazon Bio Cup</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>17.</td>
<td>Project: PTT’s WeCoZi, a model for eco-industry innovation</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Summary in 2015

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>5</th>
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<th>0</th>
<th>17</th>
<th>17</th>
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<th>6</th>
<th>8</th>
<th>17</th>
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<tbody>
<tr>
<td>Overview summary of each variable in 2015</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The percentage summary of each sub-variable found in 17 news in 2015</td>
<td>17.65</td>
<td>29.41</td>
<td>82.35</td>
<td>23.53</td>
<td>6.00</td>
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<td>100.0</td>
<td>100.0</td>
<td>55.29</td>
<td>47.96</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

168
Figure 4.20 shows that in 2015, PTT Public Co. Ltd. brought innovation and technology to apply with their corporate social responsibility initiatives for 17 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that PTT Public Co. Ltd. was likely to organize corporate social responsibility innovation activities to support community involvement issue the most, reporting 39.53% of all six social issues, followed by environmental protection issue, around 32.56%.

Figure 4.20 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of PTT Public Co. Ltd. in 2015.

Figure 4.20 shows that in 2015, PTT Public Co. Ltd. brought innovation and technology to apply with their corporate social responsibility initiatives for 17 activities in total by considering all seven attributes of innovation.

As can be seen in the above chart, the percentage shows that PTT Public Co. Ltd. was likely to have five main attributes of innovation in its corporate social responsibility innovation activities. They were relative advantage, compatibility, complexity, adaptability and risk attributes. The percentage of all these five main attributes found is around 17.17% each.
### Table 4.13 Summary of Content Analysis: Corporate Social Responsibility Innovation News of PTT Public Co., Ltd. in 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Activity</th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1.</td>
<td>Project: PTT’s Disposable green plastic in medical items production</td>
<td>✓, ✓, ✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>Project: PTT uses natural power to produce tap water for community</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>Project: PTT uses natural power to produce electricity and tap water</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>Project: PTT joins big companies to increase PTT EV stations service</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>5.</td>
<td>Project: PTT research natural gas controller for the big diesel engine</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>6.</td>
<td>Project: PTT supports shops of public kitchen, providing BioPBS dish</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>7.</td>
<td>Project: PTT develops the beach cleaning robot and reduce pollution</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>8.</td>
<td>Project: PTT’s Type for the blind</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>9.</td>
<td>Project: PTT’s Read for the blind</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>10.</td>
<td>Project: PTT’s Eco-care industrial water system innovation</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>11.</td>
<td>Project: PTT’s Bio silver skin coffee master batch innovation</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>12.</td>
<td>Project: PTT builds more EBS fuel mixture stations</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>13.</td>
<td>Project: PTT develops mercury adsorption in natural gas factory</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>14.</td>
<td>Project: PTT’s Forest in the city with innovation and technology items</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>Project: PTT gives bio gas receiving from pig farm to the community</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>16.</td>
<td>Project: PTT’s The miracle of natural gas miracle, Rayong</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>17.</td>
<td>Project: PTT’s T-VER, growing plant to reduce global warming</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
<tr>
<td></td>
<td>18.</td>
<td>Project: PTT’s WeeCoZi, a model for eco-industry innovation</td>
<td>✓</td>
<td>✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓, ✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summary in 2016</th>
<th>6</th>
<th>4</th>
<th>18</th>
<th>2</th>
<th>0</th>
<th>16</th>
<th>18</th>
<th>18</th>
<th>8</th>
<th>9</th>
<th>18</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview summary of each variable in 2016</td>
<td>2333</td>
<td>2222</td>
<td>100.0</td>
<td>11.11</td>
<td>0.69</td>
<td>88.89</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>88.44</td>
<td>56.00</td>
<td>100.0</td>
</tr>
<tr>
<td>The percentage summary of each sub-variable found in 18 news in 2016</td>
<td>2333</td>
<td>2222</td>
<td>100.0</td>
<td>11.11</td>
<td>0.69</td>
<td>88.89</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>88.44</td>
<td>56.00</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Figure 4.21 shows that in 2016, PTT Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives for 18 activities in total by supporting various social issues.

As can be seen in the above chart, the percentage shows that PTT Public Co, Ltd. was likely to organize corporate social responsibility innovation activities to support environmental protection issue the most, reporting 39.13% of all six social issues, followed by community involvement issue, around 34.78%.

Figure 4.21 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of PTT Public Co, Ltd. in 2016.
Table 4.14 Summary of Content Analysis: Corporate Social Responsibility Innovation News of PTT Public Co, Ltd from 2014 to 2016

<table>
<thead>
<tr>
<th></th>
<th>Social Issues</th>
<th>Attributes of Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health promotion</td>
<td>Injury prevention</td>
</tr>
<tr>
<td>Overview summary in 2014: 17 news</td>
<td>3 7 13 1 0 15 17 17 17 5 7 16 17</td>
<td></td>
</tr>
<tr>
<td>Overview summary in 2015: 17 news</td>
<td>3 5 14 4 0 17 17 17 17 6 8 17 17</td>
<td></td>
</tr>
<tr>
<td>Overview summary in 2016: 18 news</td>
<td>6 4 18 2 0 16 18 18 18 8 9 18 18</td>
<td></td>
</tr>
<tr>
<td>Three year-overview summary</td>
<td>12 16 45 7 0 48 52 52 52 19 24 51 52</td>
<td></td>
</tr>
<tr>
<td>Three year-overview summary of each variable</td>
<td>128</td>
<td>302</td>
</tr>
<tr>
<td>Three year-overview percentage summary of each sub-variable found in 52 news</td>
<td>23.08 30.77 86.54 13.46 0.00 92.31 100.0 100.0 100.0 36.54 46.15 98.08 100.0</td>
<td></td>
</tr>
</tbody>
</table>
Figure 4.22 shows that from 2014 to 2016, PTT Public Co, Ltd. brought innovation and technology to apply with their corporate social responsibility initiatives for 52 activities in total by considering all seven attributes of innovation.

As can be seen in the above chart, the percentage shows that PTT Public Co, Ltd. was likely to have four main attributes of innovation in their corporate social responsibility innovation activities. They were relative advantage, compatibility, complexity and risk attributes. The percentage of all these four main attributes found is around 17.22% each.

Figure 4.22 shows the percentage of social issue and attributes of innovation variables found in corporate social responsibility innovation news of PTT Public Co, Ltd from 2014 to 2016.
Figure 4.23 shows that from 2014 to 2016, PTT Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives by supporting five out of six social issues. They are health promotion, injury prevention, environmental protection, education, and community involvement. Interestingly, animal rights protection received no support from PTT Public Co, Ltd. during these three years.

In the comparison of the first two ranks between community involvement and environmental protection issues in corporate social responsibility innovation activities of PTT Public Co, Ltd., the result shows that the support for environmental protection increased year by year. On the other hand, the support for community involvement in 2015 was more than in 2014. After that, the support turned down in 2016.

Figure 4.23 shows the comparison of social issues found in corporate social responsibility innovation news of PTT Public Co, Ltd from 2014 to 2016.
Figure 4.24 shows that from 2014 to 2016, PTT Public Co, Ltd. brought innovation and technology to apply with its corporate social responsibility initiatives by considering all seven attributes of innovation, which are relative advantage, compatibility, complexity, trialability, observability, adaptability, and risk.

The comparison of four attributes in the first rank, which are relative advantage, compatibility, complexity and risk, shows that PTT Public Co, Ltd. increased the focus of these four attributes every year, from 2014 to 2016.

Figure 4.24 shows the comparison of attributes of innovation found in corporate social responsibility innovation news of PTT Public Co, Ltd from 2014 to 2016
4.1.2 The comparison of six social issues found in corporate social responsibility innovation news of three organizations from 2014 to 2016

As a result of the content analysis of corporate social responsibility innovation news of three organizations from 2014 to 2016, the number and the percentage summary of six social issues to which the three organizations gave support each year, are shown below (See table 4.15).

<table>
<thead>
<tr>
<th>Social issues</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health promotion</td>
<td>4</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Injury prevention</td>
<td>4</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Environmental protection</td>
<td>6</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Animal rights protection</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Community involvement</td>
<td>7</td>
<td>28</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 4.15 Comparison of Six Social Issues to which Three Organizations Gave Supports in Corporate Social Responsibility Innovation Activities from 2014 to 2016

* Charoen Pokphand Foods Public Co, Ltd
  Total number of news: 7 news in 2014 | 15 news in 2015 | 11 news in 2016
* Siam Cement Group Public Co, Ltd
* PTT Public Co, Ltd
  Total number of news: 17 news in 2014 | 17 news in 2015 | 18 news in 2016
The details of each social issue to which the three organizations gave support in corporate social responsibility innovation activities from 2014 to 2016 are provided below.

1. **Health promotion:** The results show that in 2014 and 2016, Charoen Pokphand Foods Public Co, Ltd was the organization whose corporate social responsibility innovation activities mostly supported the health promotion issue, 18.18% and 19.35% respectively. However, Siam Cement Group Public Co, Ltd was in the first rank of the chart in 2015 with 18.57%.

2. **Injury prevention:** The results show that in 2014, Charoen Pokphand Foods Public Co, Ltd was the organization whose corporate social responsibility innovation activities mostly supported the injury prevention issue, with a percentage of 18.18%. Siam Cement Group Public Co, Ltd was in the first rank of the chart in 2015 and 2016, with 25.71% and 19.51% respectively.

3. **Environmental protection:** The results show that Siam Cement Group Public Co, Ltd took first place during the three years in which its corporate social responsibility innovation activities supported the environmental protection issue. The percentages of each year were 33.33%, 32.56%, and 39.13% respectively.

4. **Education:** The results show that in 2014, Siam Cement Group Public Co, Ltd was the organization whose corporate social responsibility innovation activities mostly supported the education issue, with a percentage of 5.63%. PTT Public Co, Ltd stepped up to the first rank of the chart in 2015, showing a percentage of 9.30%. Eventually, Charoen Pokphand Foods Public Co, Ltd took the first place in the chart in 2016 with a percentage of 6.45%.

5. **Animal rights protection:** Interestingly, animal rights protection received no support from these organizations in corporate social responsibility innovation activities during from 2014 to 2016 at all.

6. **Community involvement:** The results show that in 2014, Siam Cement Group Public Co, Ltd was the organization whose corporate social responsibility innovation activities mostly supported the community involvement issue, with a percentage of 39.44%. Charoen Pokphand Foods Public Co, Ltd stepped up to the first rank of the chart in 2015 and 2016, with 41.94% and 35.48%, respectively.
### 4.1.3 The comparison of seven attributes of innovation found in corporate social responsibility innovation news of three organizations from 2014 to 2016

Table 4.16 shows the comparison of the seven attributes of innovation in corporate social responsibility innovation activities to which three organizations gave support from 2014 to 2016.

<table>
<thead>
<tr>
<th>Attributes of innovation</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CPFC</td>
<td>SCGC</td>
<td>P T</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relative advantage</td>
<td>7</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>17.95</td>
<td>17.07</td>
<td>17.71</td>
</tr>
<tr>
<td></td>
<td>16.25</td>
<td>18.18</td>
<td>17.17</td>
</tr>
<tr>
<td></td>
<td>16.67</td>
<td>18.13</td>
<td>16.82</td>
</tr>
<tr>
<td>Compatibility</td>
<td>7</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>17.95</td>
<td>17.07</td>
<td>17.71</td>
</tr>
<tr>
<td></td>
<td>16.25</td>
<td>18.18</td>
<td>17.17</td>
</tr>
<tr>
<td></td>
<td>16.67</td>
<td>18.13</td>
<td>16.82</td>
</tr>
<tr>
<td>Complexity</td>
<td>5</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>12.82</td>
<td>17.07</td>
<td>17.71</td>
</tr>
<tr>
<td></td>
<td>15.00</td>
<td>18.18</td>
<td>17.17</td>
</tr>
<tr>
<td></td>
<td>15.15</td>
<td>18.13</td>
<td>16.82</td>
</tr>
<tr>
<td>Trialability</td>
<td>2</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>5.13</td>
<td>6.71</td>
<td>5.21</td>
</tr>
<tr>
<td></td>
<td>8.75</td>
<td>5.30</td>
<td>6.06</td>
</tr>
<tr>
<td></td>
<td>9.09</td>
<td>4.15</td>
<td>7.48</td>
</tr>
<tr>
<td>Observability</td>
<td>4</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>10.26</td>
<td>7.93</td>
<td>7.29</td>
</tr>
<tr>
<td></td>
<td>11.25</td>
<td>4.55</td>
<td>8.08</td>
</tr>
<tr>
<td></td>
<td>11.09</td>
<td>6.22</td>
<td>8.41</td>
</tr>
<tr>
<td>Adaptability</td>
<td>7</td>
<td>28</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>17.95</td>
<td>17.07</td>
<td>16.67</td>
</tr>
<tr>
<td></td>
<td>16.25</td>
<td>17.42</td>
<td>17.17</td>
</tr>
<tr>
<td></td>
<td>16.67</td>
<td>17.10</td>
<td>16.82</td>
</tr>
<tr>
<td>Risk</td>
<td>7</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>17.95</td>
<td>17.07</td>
<td>17.71</td>
</tr>
<tr>
<td></td>
<td>16.25</td>
<td>18.18</td>
<td>17.17</td>
</tr>
<tr>
<td></td>
<td>16.67</td>
<td>18.13</td>
<td>16.82</td>
</tr>
</tbody>
</table>

* CPFC: Charoen Pokphand Foods Public Co, Ltd  
  Total number of news: 7 news in 2014 | 13 news in 2015 | 11 news in 2016  
* SCGC: Siam Cement Group Public Co, Ltd  
* PTT: PTT Public Co, Ltd  
  Total number of news: 17 news in 2014 | 17 news in 2015 | 18 news in 2016
The details of each attribute of innovation to which three organizations gave support in corporate social responsibility innovation activities from 2014 to 2016 are provided below.

1. **Relative advantage**: The results show that in 2014, Charoen Pokphand Foods Public Co, Ltd had relative advantage attributes in its corporate social responsibility innovation activities at 17.95% compared to other organizations; however, Siam Cement Group Public Co, Ltd took the first rank of the chart in 2015 and 2016 with 18.18% and 18.13%, respectively.

2. **Compatibility**: The results show that in 2014, Charoen Pokphand Foods Public Co, Ltd had compatibility attributes in its corporate social responsibility innovation activities at 17.95%, compared to the others; however, Siam Cement Group Public Co, Ltd took the first rank of the chart in 2015 and 2016 with 18.18% and 18.13%, respectively.

3. **Complexity**: The results show that in 2014, PTT Public Co, Ltd had complexity attributes in its corporate social responsibility innovation activities at 17.71%, compared to the rest; however, Siam Cement Group Public Co, Ltd took the first rank of the chart in 2015 and 2016 with 18.18% and 18.13%, respectively.

4. **Trialability**: The results show that in 2014, Siam Cement Group Public Co, Ltd had trialability attributes in its corporate social responsibility innovation activities at 6.71%, compared to the others; nonetheless, Charoen Pokphand Foods Public Co, Ltd stepped up to the first rank of the chart in 2015 and 2016 with 8.75% and 9.09%, respectively.

5. **Observability**: Interestingly, the results show that from 2014 to 2016, Charoen Pokphand Foods Public Co, Ltd was in the first rank of the organizations whose corporate social responsibility innovation activities had observability attributes, with 10.26%, 11.25%, and 9.09% respectively.

6. **Adaptability**: The results show that in 2014, Charoen Pokphand Foods Public Co, Ltd had adaptability attributes in its corporate social responsibility innovation activities at 17.95%, compared to the others; Siam Cement Group Public Co, Ltd was listed in the first rank of the chart in 2015 and 2016 with 17.42% and 17.10%, respectively.
7. **Risk:** The results shows that in 2014, Charoen Pokphand Foods Public Co, Ltd had risk attributes in its corporate social responsibility innovation activities at 17.95%, compared to the others; however, Siam Cement Group Public Co, Ltd took this position instead in 2015 and 2016 with 18.18% and 18.13%, respectively.
4.2 Quantitative research findings

4.2.1 Demographic data

There were 340 respondents in total: 152 male (44.7%), 184 female (54.1%) and four of unidentified gender (1.2%). Some 119 respondents were 18-22 years old (35%), 111 were 23-27 years old (32.65%), and 110 were 28-34 years old (32.35%).

Some 256 respondents (75.3%) held bachelor’s degrees. The majority of the sample group, 182 respondents (53.5%), were employers of private businesses sectors, and 138 were students (40.6%). The average income of respondents was between 25,001 and 30,000 baht.

4.2.2 The mean score of attributes of innovation, corporate image, corporate reputation, and corporate social responsibility innovation adoption variables among Generation Y

Table 4.17 Mean Score of Organizations’ Attributes of Innovation, Corporate Image, Corporate Reputation, and Corporate Social Responsibility Innovation Adoption Variables among Generation Y

<table>
<thead>
<tr>
<th>Attributes of innovation</th>
<th>Charoen Pokphand Foods Public Co., Ltd</th>
<th>Siam Cement Group Public Co., Ltd</th>
<th>PIT Public Co., Ltd</th>
<th>Overall average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Relative advantage</td>
<td>$x = 3.98$ S.D. = 0.80</td>
<td>$x = 4.18$ S.D. = 0.63</td>
<td>$x = 4.03$ S.D. = 0.70</td>
<td>$x = 4.06$ S.D. = 0.51</td>
</tr>
<tr>
<td>2. Complexity</td>
<td>$x = 3.00$ S.D. = 0.66</td>
<td>$x = 3.99$ S.D. = 0.63</td>
<td>$x = 3.99$ S.D. = 0.72</td>
<td>$x = 3.90$ S.D. = 0.61</td>
</tr>
<tr>
<td>3. Complexity</td>
<td>$x = 3.00$ S.D. = 0.69</td>
<td>$x = 3.84$ S.D. = 0.71</td>
<td>$x = 3.78$ S.D. = 0.80</td>
<td>$x = 3.85$ S.D. = 0.55</td>
</tr>
<tr>
<td>4. Profitability</td>
<td>$x = 3.27$ S.D. = 0.71</td>
<td>$x = 3.77$ S.D. = 0.75</td>
<td>$x = 3.74$ S.D. = 0.79</td>
<td>$x = 3.74$ S.D. = 0.59</td>
</tr>
<tr>
<td>5. Observability</td>
<td>$x = 3.58$ S.D. = 0.74</td>
<td>$x = 3.04$ S.D. = 0.67</td>
<td>$x = 3.77$ S.D. = 0.71</td>
<td>$x = 3.80$ S.D. = 0.53</td>
</tr>
<tr>
<td>6. Adaptability</td>
<td>$x = 3.02$ S.D. = 0.74</td>
<td>$x = 3.79$ S.D. = 0.71</td>
<td>$x = 3.63$ S.D. = 0.79</td>
<td>$x = 3.70$ S.D. = 0.55</td>
</tr>
<tr>
<td>7. Risk</td>
<td>$x = 3.62$ S.D. = 0.66</td>
<td>$x = 4.02$ S.D. = 0.67</td>
<td>$x = 3.90$ S.D. = 0.76</td>
<td>$x = 3.85$ S.D. = 0.57</td>
</tr>
</tbody>
</table>

Corporate image

<table>
<thead>
<tr>
<th>Corporate image</th>
<th>Charoen Pokphand Foods Public Co., Ltd</th>
<th>Siam Cement Group Public Co., Ltd</th>
<th>PIT Public Co., Ltd</th>
<th>Overall average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social and environmental responsibility</td>
<td>$x = 3.54$ S.D. = 0.76</td>
<td>$x = 4.04$ S.D. = 0.65</td>
<td>$x = 3.86$ S.D. = 0.73</td>
<td>$x = 3.81$ S.D. = 0.59</td>
</tr>
<tr>
<td>2. Innovation</td>
<td>$x = 3.18$ S.D. = 0.72</td>
<td>$x = 4.01$ S.D. = 0.69</td>
<td>$x = 3.85$ S.D. = 0.73</td>
<td>$x = 3.89$ S.D. = 0.57</td>
</tr>
<tr>
<td>3. Product and service</td>
<td>$x = 4.07$ S.D. = 0.84</td>
<td>$x = 3.89$ S.D. = 0.61</td>
<td>$x = 3.88$ S.D. = 0.67</td>
<td>$x = 3.95$ S.D. = 0.56</td>
</tr>
</tbody>
</table>

Corporate reputation

<table>
<thead>
<tr>
<th>Corporate reputation</th>
<th>Charoen Pokphand Foods Public Co., Ltd</th>
<th>Siam Cement Group Public Co., Ltd</th>
<th>PIT Public Co., Ltd</th>
<th>Overall average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social and environmental responsibility</td>
<td>$x = 3.54$ S.D. = 0.78</td>
<td>$x = 4.06$ S.D. = 0.97</td>
<td>$x = 3.86$ S.D. = 0.70</td>
<td>$x = 3.82$ S.D. = 0.63</td>
</tr>
<tr>
<td>2. Innovation</td>
<td>$x = 3.86$ S.D. = 0.72</td>
<td>$x = 4.01$ S.D. = 0.69</td>
<td>$x = 3.85$ S.D. = 0.73</td>
<td>$x = 3.89$ S.D. = 0.57</td>
</tr>
<tr>
<td>3. Product and service</td>
<td>$x = 3.93$ S.D. = 0.69</td>
<td>$x = 3.97$ S.D. = 0.65</td>
<td>$x = 3.89$ S.D. = 0.73</td>
<td>$x = 3.95$ S.D. = 0.57</td>
</tr>
</tbody>
</table>

Corporate social responsibility innovation adoption

<table>
<thead>
<tr>
<th>Corporate social responsibility innovation adoption</th>
<th>Charoen Pokphand Foods Public Co., Ltd</th>
<th>Siam Cement Group Public Co., Ltd</th>
<th>PIT Public Co., Ltd</th>
<th>Overall average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perceived usefulness</td>
<td>$x = 3.90$ S.D. = 0.75</td>
<td>$x = 3.90$ S.D. = 0.73</td>
<td>$x = 3.78$ S.D. = 0.79</td>
<td>$x = 3.82$ S.D. = 0.61</td>
</tr>
<tr>
<td>2. Perceived ease of use</td>
<td>$x = 3.90$ S.D. = 0.75</td>
<td>$x = 3.65$ S.D. = 0.70</td>
<td>$x = 3.64$ S.D. = 0.79</td>
<td>$x = 3.76$ S.D. = 0.63</td>
</tr>
<tr>
<td>3. Attitude toward using</td>
<td>$x = 3.84$ S.D. = 0.77</td>
<td>$x = 3.73$ S.D. = 0.74</td>
<td>$x = 3.65$ S.D. = 0.79</td>
<td>$x = 3.74$ S.D. = 0.63</td>
</tr>
<tr>
<td>4. Behavioral intention</td>
<td>$x = 3.40$ S.D. = 0.85</td>
<td>$x = 3.49$ S.D. = 0.90</td>
<td>$x = 3.42$ S.D. = 0.91</td>
<td>$x = 3.44$ S.D. = 0.78</td>
</tr>
<tr>
<td>5. Actual system use</td>
<td>$x = 3.54$ S.D. = 0.83</td>
<td>$x = 3.56$ S.D. = 0.96</td>
<td>$x = 3.40$ S.D. = 0.92</td>
<td>$x = 3.43$ S.D. = 0.74</td>
</tr>
<tr>
<td>6. Personal innovativeness</td>
<td>$x = 3.27$ S.D. = 1.01</td>
<td>$x = 3.27$ S.D. = 1.02</td>
<td>$x = 3.27$ S.D. = 1.04</td>
<td>$x = 3.27$ S.D. = 0.91</td>
</tr>
</tbody>
</table>
According to the above table, **Charoen Pokphand Foods Public Co, Ltd.** has the highest mean score (4.02) for the compatibility attribute. Product and service dimensions of corporate image variable had the highest mean score (4.07). This is similar to the corporate reputation variable. The highest average mean (3.93) belongs to product and service too.

In terms of the dependent variable of Charoen Pokphand Foods Public Co, Ltd., which is corporate social responsibility innovation adoption among Generation Y, two indicators shows the same highest mean score (3.90); perceived usefulness and perceived ease of use.

The attributes of innovation variable of **Siam Cement Group Public Co, Ltd.**, reports the highest mean score (4.18) for the relative advantage attribute. Besides, innovation dimension of corporate image variable, has the highest mean score (4.06) whereas the social and environmental responsibility dimension of corporate reputation variable shows the highest average mean (4.06).

The dependent variable of Siam Cement Group Public Co, Ltd., which is a corporate social responsibility innovation adoption among Generation Y, perceived usefulness indicator reports the highest average mean (3.80).

The attributes of innovation variable of **PTT Public Co, Ltd.** shows the highest average mean (4.03) for the relative advantage attribute. Besides, the product and service dimension of corporate image variable has the highest average mean (3.88). This is similar to the corporate reputation variable. The highest average mean (3.93) belongs to product and service too (mean=3.89).

The dependent variable of PTT Public Co, Ltd., which is a corporate social responsibility innovation adoption among Generation Y, perceived usefulness indicator reports the highest average mean (3.78).

The overall mean score of three organizations indicate that the attributes of innovation variable in term of relative advantage attribute, shows the highest mean score (4.06). In addition, the innovation dimension of corporate image variable, has the highest average mean (3.95) whereas the product and service dimension of corporate reputation variable shows the highest mean score (3.93). Totally, the dependent variable of the three organizations, which is corporate social responsibility
innovation adoption among Generation Y, reports the highest average mean (3.83) for perceived usefulness indicator.

### 4.2.3 Overview of correlations of organizations’ variables among Generation Y

Table 4.18 Show the overview correlations of organizations’ variables study among Generation Y

<table>
<thead>
<tr>
<th>Variables</th>
<th>Corporate social responsibility innovation adoption</th>
<th>Attributes of innovation</th>
<th>Corporate image</th>
<th>Corporate reputation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate social responsibility innovation adoption</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attributes of innovation</td>
<td>.551 (moderate)</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate image</td>
<td>.641 (relatively high)</td>
<td>.737 (relatively high)</td>
<td>1.000</td>
<td>.000 (relatively high)</td>
</tr>
<tr>
<td>Corporate reputation</td>
<td>.670 (relatively high)</td>
<td>.695 (relatively high)</td>
<td>.870 (high)</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. < = 0.05)*

Apart from the above table, the overview result of organizations’ two independent variables, which are corporate image and corporate reputation, shows a high level of correlation (r=.870)

The remaining independent variables show relatively high levels of correlation, namely attributes of innovation and corporate image (r=.737), attributes of innovation and corporate reputation (r=.695). Furthermore, the correlations between the independent variable and dependent variable also report relatively high levels of correlation too, namely attributes of innovation and corporate social responsibility innovation adoption (r=.551), corporate image and corporate social responsibility innovation adoption (r=.641), corporate reputation and corporate social responsibility innovation adoption (r=.670). These correlations are significant at 0.05 level and are positive correlations.
The explanation of the two independent variables with high levels of correlation is that if organizations have a good corporate image, they will have a good corporate reputation as a consequence; however, if they don’t, the result will be the opposite.

Thus, the study of each organization is likely to show the different results and details. The following is the correlations of Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd., and PTT Public Co, Ltd.

Table 4.19 Correlations of Each Organization’s Variables among Generation Y

<table>
<thead>
<tr>
<th>Variables</th>
<th>Charoen Pokphand Foods Public Co, Ltd</th>
<th>Pearson Correlation (r)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Corporate social responsibility</td>
<td>Attributes of innovation</td>
<td></td>
</tr>
<tr>
<td>innovation adoption</td>
<td>innovation adoption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate image</td>
<td>.596</td>
<td>.600</td>
<td>.000</td>
</tr>
<tr>
<td>(moderate)</td>
<td>(moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate reputation</td>
<td>.579</td>
<td>.539</td>
<td>.000</td>
</tr>
<tr>
<td>(relatively high)</td>
<td>(moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>.726</td>
<td>1.000</td>
</tr>
<tr>
<td>Siam Cement Group Public Co, Ltd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corporate social responsibility</td>
<td>Attributes of innovation</td>
<td></td>
</tr>
<tr>
<td>innovation adoption</td>
<td>innovation adoption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate image</td>
<td>.482</td>
<td>.567</td>
<td>.000</td>
</tr>
<tr>
<td>(relatively low)</td>
<td>(moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate reputation</td>
<td>.548</td>
<td>.729</td>
<td>.000</td>
</tr>
<tr>
<td>(relatively high)</td>
<td>(moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTT Public Co, Ltd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corporate social responsibility</td>
<td>Attributes of innovation</td>
<td></td>
</tr>
<tr>
<td>innovation adoption</td>
<td>innovation adoption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate image</td>
<td>.557</td>
<td>.587</td>
<td>.000</td>
</tr>
<tr>
<td>(relatively high)</td>
<td>(moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate reputation</td>
<td>.455</td>
<td>.648</td>
<td>.000</td>
</tr>
<tr>
<td>(relatively high)</td>
<td>(moderate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. < 0.05)
Aside from the above table, the result of Charoen Pokphand Foods Public Co, Ltd. shows that two independent variables, which are corporate image and corporate reputation, have a relatively high level of correlation ($r=.726$). Also, the correlation between the independent variable and dependent variable reports a relatively high level of correlation too, namely corporate reputation and corporate social responsibility innovation adoption ($r=.661$).

The remaining independent variables show a moderate level of correlation, namely attributes of innovation and corporate image ($r=.600$), attributes of innovation and corporate reputation ($r=.539$). Furthermore, the correlations between the independent variable and dependent variable also report a moderate level of correlation too, namely attributes of innovation and corporate social responsibility innovation adoption ($r=.579$), corporate image and corporate social responsibility innovation adoption ($r=.596$). These correlations are significant at the 0.05 level and are the positive correlations.

The explanation of the variables with relatively high level of correlation is that if Charoen Pokphand Foods Public Co, Ltd has a good corporate image, it will have a good corporate reputation as a consequence. This will positively affect corporate social responsibility innovation adoption among Generation Y too; however, if it doesn’t, the result will be the opposite.

Apart from the above table, the results of Siam Cement Group Public Co, Ltd. show a relatively high level of correlation of independent variables, namely corporate image and corporate reputation ($r=.729$) and attributes of innovation and corporate image ($r=.606$).

The remaining independent variables show a moderate level of correlation, namely attributes of innovation and corporate reputation ($r=.567$). Moreover, the correlations between the independent variable and dependent variable also report a moderate level of correlation too, namely corporate image and corporate social responsibility innovation adoption ($r=.482$), corporate reputation and corporate social responsibility innovation adoption ($r=.458$). These correlations are significant at the 0.05 level and are positive correlations. However, one pair of independent variable and dependent variable reports a relatively low level of correlation, namely attributes of innovation and corporate social responsibility innovation adoption ($r=.359$).
The explanation of variables with a relatively high level of correlation is that if corporate social responsibility innovation activities of Siam Cement Group Public Co, Ltd. have all attributes of innovation, it will have a good corporate image. Then, it will have a good corporate reputation as a consequence; however, if it doesn’t, the result will be the opposite.

Besides, the result of PTT Public Co, Ltd. shows a relatively high level of correlation of independent variables, namely attributes of innovation and corporate image (r=.786), corporate image and corporate reputation (r=.648).

The remaining independent variables show a moderate level of correlation, namely attributes of innovation and corporate reputation (r=.587). Furthermore, the correlation between the independent variable and dependent variable also reports a moderate level of correlation too, namely attributes of innovation and corporate social responsibility innovation adoption (r=.584), corporate image and corporate social responsibility innovation adoption (r=.557), corporate reputation and corporate social responsibility innovation adoption (r=.455). These correlations are significant at the 0.05 level and are positive correlations.

The explanation of the variables with a relatively high level of correlation is that if corporate social responsibility innovation activities of PTT Public Co, Ltd. have all attributes of innovation, it will have a good corporate image. Then, it will have a good corporate reputation as a consequence at the end; however, if it doesn’t, the result will be the opposite.
4.2.4 Overview of regressions of organizations’ variables among Generation Y

Table 4.20 Overview Regressions of Organizations’ Variables among Generation Y

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Adjusted R²</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>(constant)</td>
<td></td>
<td>.150</td>
<td>.220</td>
<td>.684</td>
<td>.494</td>
<td></td>
</tr>
<tr>
<td>Attributes of innovation</td>
<td>.460</td>
<td>.170</td>
<td>.083</td>
<td>2.048</td>
<td>.041</td>
<td>1.607</td>
</tr>
<tr>
<td>Corporate image</td>
<td>.464</td>
<td>.211</td>
<td>.105</td>
<td>.174</td>
<td>2.004</td>
<td>.046</td>
</tr>
<tr>
<td>Corporate reputation</td>
<td>.447</td>
<td>.502</td>
<td>.094</td>
<td>.434</td>
<td>5.317</td>
<td>.000</td>
</tr>
</tbody>
</table>

R = .658 / Adjusted R² = .464 / F = 98.989*, Sig. = .000

*Significant at 0.05 level (Sig. < = 0.05)

Apart from the above regression table, the overview result indicates that, at significance level 0.05, all independent variables, which are attributes of innovation, corporate image, and corporate reputation, can be together used to predict the dependent variable, namely corporate social responsibility innovation adoption among Generation Y. Despite this result, the best predictor is corporate image, with a percentage of 46.4% (Adjusted R² = .464), followed by attributes of innovation (Adjusted R² = .460) and corporate reputation (Adjusted R² = .447). In conclusion, all of these independent variables show a positive value of prediction towards corporate social responsibility innovation adoption among Generation Y.

Thus, the study of each organization is likely to show the different results and details. The following is the regression results of Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd., and PTT Public Co, Ltd.
<table>
<thead>
<tr>
<th>Charoen Pokphand Foods Public Co, Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
</tr>
<tr>
<td>(constant)</td>
</tr>
<tr>
<td>Attributes of innovation</td>
</tr>
<tr>
<td>Corporate image</td>
</tr>
<tr>
<td>Corporate reputation</td>
</tr>
</tbody>
</table>

R = .716 / Adjusted R² = .509 / F = 118.003*, Sig. = .000

<table>
<thead>
<tr>
<th>Siam Cement Group Public Co, Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
</tr>
<tr>
<td>(constant)</td>
</tr>
<tr>
<td>Attributes of innovation</td>
</tr>
<tr>
<td>Corporate image</td>
</tr>
</tbody>
</table>

R = .506 / Adjusted R² = .252 / F = 58.101*, Sig. = .000

<table>
<thead>
<tr>
<th>PTT Public Co, Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
</tr>
<tr>
<td>(constant)</td>
</tr>
<tr>
<td>Attributes of innovation</td>
</tr>
<tr>
<td>Corporate image</td>
</tr>
<tr>
<td>Corporate reputation</td>
</tr>
</tbody>
</table>

R = .665 / Adjusted R² = .437 / F = 88.815*, Sig. = .000

*Significant at 0.05 level (Sig. < 0.05)

Aside from the above regression table, the results of Charoen Pokphand Foods Public Co, Ltd. indicate that, at significance level 0.05, all independent variables, which are attributes of innovation, corporate image, and corporate reputation, can be together used to predict the dependent variable, namely corporate social responsibility innovation adoption among Generation Y.
Despite this result, the best predictor is corporate image, with a percentage of 50.9% (Adjusted R² = .509), followed by attributes of innovation (Adjusted R² = .504) and corporate reputation (Adjusted R² = .436). In conclusion, all of these independent variables show a positive value of prediction towards corporate social responsibility innovation adoption among Generation Y.

Besides, the results of Siam Cement Group Public Co, Ltd. indicate that, at significance level 0.05, corporate image and corporate reputation can be together used to predict the dependent variable, namely corporate social responsibility innovation adoption among Generation Y. Despite this result, the best predictor is corporate reputation, with a percentage of 25.2% (Adjusted R² = .252), followed by corporate image (Adjusted R² = .230). In conclusion, these two independent variables show a positive value of prediction towards corporate social responsibility innovation adoption among Generation Y; however, as can be noticed in the regression table, the stepwise technique has no result shown for the independent variable, namely attributes of innovation of Siam Cement Group Public Co, Ltd. This is probably because of its low value of prediction. Thus, this variable once again is analyzed by another technique in regression. The result is as follows.

### Siam Cement Group Public Co, Ltd

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(constant)</td>
<td>1.573</td>
<td>.283</td>
<td>5.558</td>
<td>.000</td>
</tr>
<tr>
<td>Attributes of innovation</td>
<td>.126</td>
<td>.502</td>
<td>.071</td>
<td>.359</td>
</tr>
</tbody>
</table>

The above table clearly shows that, at significance level 0.05, attributes of innovation can be used to predict the dependent variable, namely corporate social responsibility innovation adoption among Generation Y at only 12.6% (Adjusted R² = .126).

Besides, the result of PTT Public Co, Ltd. indicates that, at significance level 0.05, attributes of innovation, corporate image, and corporate reputation can be together used to predict the dependent variable, namely corporate social responsibility innovation adoption among Generation Y. Despite this result, the best predictor is attributes of innovation, with a percentage of 43.7% (Adjusted R² = .437), followed by corporate image (Adjusted R² = .432) and corporate reputation
(Adjusted $R^2 = .419$). In conclusion, these independent variables show a positive value of prediction towards corporate social responsibility innovation adoption among Generation Y.

4.2.5 The result of construct validity measurement by Confirmatory Factor Analysis (CFA) of the measurement model

Construct validity measurement by Confirmatory Factor Analysis (CFA) of measurement model identifies the fit between the “Structural Equation Model of Corporate Social Responsibility Innovation, Corporate Image, and Corporate Reputation towards Corporate Social Responsibility Innovation Adoption among Generation Y” and the existing empirical literature and principles. In fact, more than three indices of the model meet the standard criteria (Kraiwan, 2013). The details of each index are presented below.
*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.25 Factor Loading of Observed Variables of Latent variable: “attributes of innovation” of all organizations

Chi-square = 3.886, df = 7, p = 0.793,  
Chi-square/df = 0.555, GFI = 0.997, AGFI = 0.987,  
CFI = 1.000, IFI = 1.002, NFI = 0.998, RMSEA = 0.000, RMR = 0.002

The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 0.555 (less than 3.00)
2. Index: GFI = 0.997 (more than 0.95)
3. Index: AGFI = 0.987 (more than 0.90)
4. Index: CFI = 1.000 (more than 0.97)
5. Index: IFI = 1.002 (more than 0.95)
6. Index: NFI = 0.998 (more than 0.95)
7. Index: RMSEA = 0.000 (less than 0.05)
8. Index: RMR = 0.002 (less than 0.05)
The findings indicate the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of attributes of innovation are composed of seven variables, including relative advantage (CSR1), compatibility (CSR2), complexity (CSR3), trialability (CSR4), observability (CSR5), adaptability (CSR6), and risk (CSR7) attributes.

Each observed variable reports its factor loading as follows: 0.72 for relative advantage (CSR1), 0.79 for compatibility (CSR2), 0.80 for complexity (CSR3), 0.77 for trialability (CSR4), **0.87 for observability (CSR5)**, 0.79 for adaptability (CSR6), and 0.82 for risk (CSR7) attributes.

*Significant at 0.05 level (Sig. < = 0.05)*

Figure 4.26 Factor Loading of Observed Variables of Latent Variable: “corporate image” of all organizations

Chi-square = 0.000, df = 1, p = 0.991,  
Chi-square/df = 0.000, GFI = 1.000, AGFI = 1.000,  
CFI = 1.000, IFI = 1.002, NFI = 1.000, RMSEA = 0.000, RMR = 0.000

The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 0.000 (less than 3.00)  
2. Index: GFI = 1.000 (more than 0.95)  
3. Index: AGFI = 1.000 (more than 0.90)  
4. Index: CFI = 1.000 (more than 0.97)  
5. Index: IFI = 1.002 (more than 0.95)  
6. Index: NFI = 1.000 (more than 0.95)  
7. Index: RMSEA = 0.000 (less than 0.05)  
8. Index: RMR = 0.000 (less than 0.05)
The finding indicates the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of corporate image are composed of three variables, including social and environmental responsibility (IMAGE1), innovation (IMAGE2), and product and service (IMAGE3) dimensions.

Each observed variable reports its factor loading as follows: 0.84 for social and environmental responsibility (IMAGE1), 0.85 for innovation (IMAGE2) and 0.86 for product and service (IMAGE3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.27 Factor Loading of Observed Variables of Latent Variable: “corporate reputation” of all organizations

Chi-square = 0.098, df = 1, p = 0.754,
Chi-square/df = 0.098, GFI = 1.000, AGFI = 0.999,
CFI = 1.000, IFI = 1.001, NFI = 1.000, RMSEA = 0.000, RMR = 0.003

The following are eight indices of the model that meet the standard criteria.

1) Index: Chi-square/df = 0.098 (less than 3.00)  
2) Index: GFI = 1.000 (more than 0.95)
3) Index: AGFI = 0.999 (more than 0.90)  
4) Index: CFI = 1.000 (more than 0.97)
5) Index: IFI = 1.001 (more than 0.95)  
6) Index: NFI = 1.000 (more than 0.95)
7) Index: RMSEA = 0.000 (less than 0.05)  
8) Index: RMR = 0.003 (less than 0.05)
The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate reputation are composed of three variables, including social and environmental responsibility (REPUT1), innovation (REPUT2), and product and service (REPUT3) dimensions.

Each observed variable reports its factor loading as follows 0.80 for social and environmental responsibility (REPUT1), 0.92 for innovation (REPUT2) and 0.91 for product and service (REPUT3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.28 Factor Loading of Observed Variables of Latent Variable: “corporate social responsibility innovation adoption” of all organizations

Chi-square = 2.653, df = 1, p = 0.103,

Chi-square/df = 2.653, GFI = 0.997, AGFI = 0.946,

CFI = 0.999,IFI = 0.999, NFI = 0.999, RMSEA = 0.070, RMR = 0.003
The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 2.653 (less than 3.00)
2. Index: GFI = 0.997 (more than 0.95)
3. Index: AGFI = 0.946 (more than 0.90)
4. Index: CFI = 0.999 (more than 0.97)
5. Index: IFI = 0.999 (more than 0.95)
6. Index: NFI = 0.999 (more than 0.95)
7. Index: RMSEA = 0.070 (less than 0.05)
8. Index: RMR = 0.003 (less than 0.05)

The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate social responsibility innovation adoption are composed of six variables, including perceived usefulness (ACCEPT1), perceived ease of use (ACCEPT2), attitude toward using (ACCEPT3), behavioral intention (ACCEPT4), actual system use (ACCEPT5), and personal innovativeness (ACCEPT6).

Each observed variable reports its factor loading as follows: 0.70 for perceived usefulness (ACCEPT1), 0.68 for perceived ease of use (ACCEPT2), 0.78 for attitude toward using (ACCEPT3), **0.98 for behavioral intention (ACCEPT4)**, 0.95 for actual system use (ACCEPT5), and 0.85 for personal innovativeness (ACCEPT6).

Thus, the study of each organization is likely to show the different results and details. The following are the Confirmatory Factor Analysis (CFA) results of Charoen Pokphand Foods Public Co, Ltd., Siam Cement Group Public Co, Ltd., and PTT Public Co, Ltd., respectively.
Figure 4.29 Factor Loading of Observed Variables of Latent variable: “attributes of innovation” of Charoen Pokphand Foods Public Co, Ltd

Charoen Pokphand Foods Public Co, Ltd

Chi-square = 7.060, df = 8, p = 0.530,
Chi-square/df = 0.882, GFI = 0.994, AGFI = 0.980,
CFI = 1.000, IFI = 1.001, NFI = 0.992, RMSEA = 0.000, RMR = 0.008

The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 0.882 (less than 3.00)
2. Index: GFI = 0.994 (more than 0.95)
3. Index: AGFI = 0.980 (more than 0.90)
4. Index: CFI = 1.000 (more than 0.97)
5. Index: IFI = 1.001 (more than 0.95)
6. Index: NFI = 0.992 (more than 0.95)
7. Index: RMSEA = 0.000 (less than 0.05)
8. Index: RMR = 0.008 (less than 0.05)

*Significant at 0.05 level (Sig. < = 0.05)
The findings indicate the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of attributes of innovation of Charoen Pokphand Foods Public Co, Ltd. are composed of seven variables, including relative advantage (CPCSR1), compatibility (CPCSR2), complexity (CPCSR3), trialability (CPCSR4), observability (CPCSR5), adaptability (CPCSR6), and risk (CPCSR7) attributes.

Each observed variable reports its factor loading as follows: 0.54 for relative advantage (CPCSR1), 0.54 for compatibility (CPCSR2), 0.64 for complexity (CPCSR3), 0.65 for trialability (CPCSR4), 0.77 for observability (CPCSR5), 0.64 for adaptability (CPCSR6), and 0.64 for risk (CPCSR7) attributes.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.30 Factor Loading of Observed Variables of Latent Variable: “corporate image” of Charoen Pokphand Foods Public Co, Ltd

Chi-square = 0.100, df = 1, p = 0.752,
Chi-square/df = 0.100, GFI = 1.000, AGFI = 0.999,
CFI = 1.000, IFI = 1.005, NFI = 0.999, RMSEA = 0.000, RMR = 0.004

The following are eight indices of the model that meet the standard criteria.

(1) Index: Chi-square/df = 0.100 (less than 3.00)  (2) Index: GFI = 1.000 (more than 0.95)
(3) Index: AGFI = 0.999 (more than 0.90)          (4) Index: CFI = 1.000 (more than 0.97)
(5) Index: IFI = 1.005 (more than 0.95)            (6) Index: NFI = 0.999 (more than 0.95)
(7) Index: RMSEA = 0.000 (less than 0.05)          (8) Index: RMR = 0.004 (less than 0.05)
The findings indicate the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of corporate image of Charoen Pokphand Foods Public Co, Ltd. are composed of three variables, including social and environmental responsibility (CPIMAGE1), innovation (CPIMAGE2), and product and service (CPIMAGE3) dimensions.

Each observed variable reports its factor loading as follows: 0.69 for social and environmental responsibility (CPIMAGE1), 0.73 for innovation (CPIMAGE2), and 0.60 for product and service (CPIMAGE3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.31 Factor Loading of Observed Variables of Latent Variable: “corporate reputation” of Charoen Pokphand Foods Public Co, Ltd

Chi-square = 0.082, df = 1, p = 0.774,
Chi-square/df = 0.082, GFI = 1.000, AGFI = 0.999,
CFI = 1.000, IFI = 1.003, NFI = 1.000, RMSEA = 0.000, RMR = 0.004

The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 0.082 (less than 3.00)
2. Index: GFI = 1.000 (more than 0.95)
3. Index: AGFI = 0.999 (more than 0.90)
4. Index: CFI = 1.000 (more than 0.97)
5. Index: IFI = 1.003 (more than 0.95)
6. Index: NFI = 1.000 (more than 0.95)
7. Index: RMSEA = 0.000 (less than 0.05)
8. Index: RMR = 0.004 (less than 0.05)
The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate reputation of Charoen Pokphand Foods Public Co, Ltd. are composed of three variables, including social and environmental responsibility (CPREPUT1), innovation (CPREPUT2), and product and service (CPREPUT3) dimensions.

Each observed variable reports its factor loading as follows: 0.66 for social and environmental responsibility (CPREPUT1), 0.84 for innovation (CPREPUT2), and 0.77 for product and service (CPREPUT3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.32 Factor Loading of Observed Variables of Latent Variable: “corporate social responsibility innovation adoption” of Charoen Pokphand Foods Public Co, Ltd

Chi-square = 1.385, df = 4, p = 0.847,
Chi-square/df = 0.346, GFI = 0.999, AGFI = 0.993,
CFI = 1.000, IFI = 1.003, NFI = 0.999, RMSEA = 0.000, RMR = 0.004
The following are eight indices of the model that meet the standard criteria.

<table>
<thead>
<tr>
<th>Index</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square/df</td>
<td>0.346 (less than 3.00)</td>
</tr>
<tr>
<td>GFI</td>
<td>0.999 (more than 0.95)</td>
</tr>
<tr>
<td>AGFI</td>
<td>0.993 (more than 0.90)</td>
</tr>
<tr>
<td>CFI</td>
<td>1.000 (more than 0.97)</td>
</tr>
<tr>
<td>IFI</td>
<td>1.003 (more than 0.95)</td>
</tr>
<tr>
<td>NFI</td>
<td>0.999 (more than 0.95)</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.000 (less than 0.05)</td>
</tr>
<tr>
<td>RMR</td>
<td>0.004 (less than 0.05)</td>
</tr>
</tbody>
</table>

The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate social responsibility innovation adoption of Charoen Pokphand Foods Public Co, Ltd. are composed of six variables, including perceived usefulness (CPACCEPT1), perceived ease of use (CPACCEPT2), attitude toward using (CPACCEPT3), behavioral intention (CPACCEPT4), actual system use (CPACCEPT5), and personal innovativeness (CPACCEPT6).

Each observed variable reports its factor loading as follows: 0.87 for perceived usefulness (CPACCEPT1), 0.63 for perceived ease of use (CPACCEPT2), **0.94 for attitude toward using (CPACCEPT3)**, 0.60 for behavioral intention (CPACCEPT4), 0.64 for actual system use (CPACCEPT5), and 0.53 for personal innovativeness (CPACCEPT6).
Figure 4.33 Factor Loading of Observed Variables of Latent Variable: “attributes of innovation” of Siam Cement Group Public Co, Ltd

Chi-square = 7.210, df = 9, p = 0.615,
Chi-square/df = 0.801, GFI = 0.994, AGFI = 0.982,
CFI = 1.000, IFI = 1.002, NFI = 0.993, RMSEA = 0.000, RMR = 0.007

The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 0.801 (less than 3.00)  
2. Index: GFI = 0.994 (more than 0.95)  
3. Index: AGFI = 0.982 (more than 0.90)  
4. Index: CFI = 1.000 (more than 0.97)  
5. Index: IFI = 1.002 (more than 0.95)  
6. Index: NFI = 0.993 (more than 0.95)  
7. Index: RMSEA = 0.000 (less than 0.05)  
8. Index: RMR = 0.007 (less than 0.05)
The findings indicate the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of attributes of innovation of Siam Cement Group Public Co, Ltd are composed of seven variables, including relative advantage (SCGCSR1), compatibility (SCGCSR2), complexity (SCGCSR3), trialability (SCGCSR4), observability (SCGCSR5), adaptability (SCGCSR6), and risk (SCGCSR7) attributes.

Each observed variable reports its factor loading as follows: 0.72 for relative advantage (SCGCSR1), 0.65 for compatibility (SCGCSR2), 0.68 for complexity (SCGCSR3), 0.72 for trialability (SCGCSR4), 0.75 for observability (SCGCSR5), 0.73 for adaptability (SCGCSR6), and 0.76 for risk (SCGCSR7) attributes.

Figure 4.34 Factor Loading of Observed Variables of Latent Variable: “corporate image” of Siam Cement Group Public Co, Ltd

Chi-square = 0.155, df = 1, \( p = 0.694 \),
Chi-square/df = 0.155, GFI = 1.000, AGFI = 0.998,
CFI = 1.000, IFI = 1.002, NFI = 1.000, RMSEA = 0.000, RMR = 0.004

The following are eight indices of the model that meet the standard criteria.

(1) Index: Chi-square/df = 0.155 (less than 3.00)  (2) Index: GFI = 1.000 (more than 0.95)
(3) Index: AGFI = 0.998 (more than 0.90)  (4) Index: CFI = 1.000 (more than 0.97)
(5) Index: IFI = 1.002 (more than 0.95)  (6) Index: NFI = 1.000 (more than 0.95)
(7) Index: RMSEA = 0.000 (less than 0.05)  (8) Index: RMR = 0.004 (less than 0.05)
The findings indicate the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of corporate image of Siam Cement Group Public Co, Ltd. are composed of three variables, including social and environmental responsibility (SCGIMAGE1), innovation (SCGIMAGE2), and product and service (SCGIMAGE3) dimensions.

Each observed variable reports its factor loading as follows: 0.74 for social and environmental responsibility (SCGIMAGE1), **0.85 for innovation (SCGIMAGE2)**, and 0.78 for product and service (SCGIMAGE3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)*

Figure 4.35 Factor Loading of Observed Variables of Latent Variable: “corporate reputation” of Siam Cement Group Public Co, Ltd

Chi-square = 0.087, df = 1, p = 0.768,
Chi-square/df = 0.087, GFI = 1.000, AGFI = 0.999,
CFI = 1.000, IFI = 1.002, NFI = 1.000, RMSEA = 0.000, RMR = 0.006

The following are eight indices of the model that meet the standard criteria:

(1) Index: Chi-square/df = 0.087 (less than 3.00)  (2) Index: GFI = 1.000 (more than 0.95)
(3) Index: AGFI = 0.999 (more than 0.90)  (4) Index: CFI = 1.000 (more than 0.97)
(5) Index: IFI = 1.002 (more than 0.95)  (6) Index: NFI = 1.000 (more than 0.95)
(7) Index: RMSEA = 0.000 (less than 0.05)  (8) Index: RMR = 0.006 (less than 0.05)
The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate reputation of Siam Cement Group Public Co, Ltd. are composed of three variables, including social and environmental responsibility (SCGREPUT1), innovation (SCGREPUT2), and product and service (SCGREPUT3) dimensions.

Each observed variable reports its factor loading as follows: 0.59 for social and environmental responsibility (SCGREPUT1), 0.87 for innovation (SCGREPUT2), and 0.89 for product and service (SCGREPUT3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.36 Factor Loading of Observed Variables of Latent Variable: “corporate social responsibility innovation adoption” of Siam Cement Group Public Co, Ltd

Chi-square = 2.436, df = 4, p = 0.656,
Chi-square/df = 0.609, GFI = 0.998, AGFI = 0.987,
CFI = 1.000, IFI = 1.001, NFI = 0.998, RMSEA = 0.000, RMR = 0.005
The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 0.609 (less than 3.00)
2. Index: GFI = 0.998 (more than 0.95)
3. Index: AGFI = 0.987 (more than 0.90)
4. Index: CFI = 1.000 (more than 0.97)
5. Index: IFI = 1.001 (more than 0.95)
6. Index: NFI = 0.998 (more than 0.95)
7. Index: RMSEA = 0.000 (less than 0.05)
8. Index: RMR = 0.005 (less than 0.05)

The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate social responsibility innovation adoption of Siam Cement Group Public Co, Ltd. are composed of six variables, including perceived usefulness (SCGACCEPT1), perceived ease of use (SCGACCEPT2), attitude toward using (SCGACCEPT3), behavioral intention (SCGACCEPT4), actual system use (SCGACCEPT5), and personal innovativeness (SCGACCEPT6).

Each observed variable reports its factor loading as follows: 0.62 for perceived usefulness (SCGACCEPT1), 0.70 for perceived ease of use (SCGACCEPT2), 0.76 for attitude toward using (SCGACCEPT3), 0.93 for behavioral intention (SCGACCEPT4), 0.84 for actual system use (SCGACCEPT5), and 0.78 for personal innovativeness (SCGACCEPT6).
*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.37 Factor Loading of Observed Variables of Latent Variable: “attributes of innovation” of PTT Public Co, Ltd

Chi-square = 5.998, df = 9, p = 0.740,
Chi-square/df = 0.666, GFI = 0.995, AGFI = 0.984,
CFI = 1.000, IFI = 1.003, NFI = 0.994, RMSEA = 0.000, RMR = 0.007

The following are eight indices of the model that meet the standard criteria.

(1) Index: Chi-square/df = 0.666 (less than 3.00)
(2) Index: GFI = 0.995 (more than 0.95)
(3) Index: AGFI = 0.984 (more than 0.90)
(4) Index: CFI = 1.000 (more than 0.97)
(5) Index: IFI = 1.003 (more than 0.95)
(6) Index: NFI = 0.994 (more than 0.95)
(7) Index: RMSEA = 0.000 (less than 0.05)
(8) Index: RMR = 0.007 (less than 0.05)
The findings indicate the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of attributes of innovation of PTT Public Co, Ltd. are composed of seven variables, including relative advantage (PTTCSR1), compatibility (PTTCSR2), complexity (PTTCSR3), trialability (PTTCSR4), observability (PTTCSR5), adaptability (PTTCSR6), and risk (PTTCSR7) attributes.

Each observed variable reports its factor loading as follows: 0.65 for relative advantage (PTTCSR1), 0.75 for compatibility (PTTCSR2), 0.64 for complexity (PTTCSR3), 0.67 for trialability (PTTCSR4), 0.74 for observability (PTTCSR5), 0.72 for adaptability (PTTCSR6), and **0.76 for risk (PTTCSR7)** attributes.

*Significant at 0.05 level (Sig. < = 0.05)

![Diagram](image.png)

Figure 4.38 Factor Loading of Observed Variables of Latent Variable: “corporate image” of PTT Public Co, Ltd

Chi-square = 0.118, df = 1, p = 0.731,
Chi-square/df = 0.118, GFI = 1.000, AGFI = 0.999,
CFI = 1.000, IFI = 1.002, NFI = 1.000, RMSEA = 0.000, RMR = 0.004

The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 0.118 (less than 3.00)
2. Index: GFI = 1.000 (more than 0.95)
3. Index: AGFI = 0.999 (more than 0.90)
4. Index: CFI = 1.000 (more than 0.97)
5. Index: IFI = 1.002 (more than 0.95)
6. Index: NFI = 1.000 (more than 0.95)
7. Index: RMSEA = 0.000 (less than 0.05)
8. Index: RMR = 0.004 (less than 0.05)
The findings indicate the factor loading of these observed variables at significance level 0.05. In fact, the observed variables of corporate image of PTT Public Co, Ltd. are composed of three variables, including social and environmental responsibility (PTTIMAGE1), innovation (PTTIMAGE2), and product and service (PTTIMAGE3) dimensions.

Each observed variable reports its factor loading as follows: 0.78 for social and environmental responsibility (PTTIMAGE1), 0.77 for innovation (PTTIMAGE2), and 0.86 for product and service (PTTIMAGE3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.39 Factor Loading of Observed Variables of Latent Variable: “corporate reputation” of PTT Public Co, Ltd

Chi-square = 0.189, df = 1, p = 0.663,
Chi-square/df = 0.189, GFI = 1.000, AGFI = 0.998,
CFI = 1.000, IFI = 1.002, NFI = 1.000, RMSEA = 0.000, RMR = 0.005

The following are eight indices of the model that meet the standard criteria.

1) Index: Chi-square/df = 0.189 (less than 3.00)
2) Index: GFI = 1.000 (more than 0.95)
3) Index: AGFI = 0.998 (more than 0.90)
4) Index: CFI = 1.000 (more than 0.97)
5) Index: IFI = 1.002 (more than 0.95)
6) Index: NFI = 1.000 (more than 0.95)
7) Index: RMSEA = 0.000 (less than 0.05)
8) Index: RMR = 0.005 (less than 0.05)
The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate reputation of PTT Public Co, Ltd. are composed of three variables, including social and environmental responsibility (PTTREPUT1), innovation (PTTREPUT2), and product and service (PTTREPUT3) dimensions.

Each observed variable reports its factor loading as follows: 0.79 for social and environmental responsibility (PTTREPUT1), 0.85 for innovation (PTTREPUT2), and 0.88 for product and service (PTTREPUT3) dimensions.

*Significant at 0.05 level (Sig. < = 0.05)

Figure 4.40 Factor Loading of Observed Variables of Latent Variable: “corporate social responsibility innovation adoption” of PTT Public Co, Ltd

Chi-square = 3.823, df = 2, p = 0.148,
Chi-square/df = 1.912, GFI = 0.996, AGFI = 0.961,
CFI = 0.999, IFI = 0.999, NFI = 0.997, RMSEA = 0.052, RMR = 0.005
The following are eight indices of the model that meet the standard criteria.

1. Index: Chi-square/df = 1.912 (less than 3.00)
2. Index: GFI = 0.996 (more than 0.95)
3. Index: AGFI = 0.961 (more than 0.90)
4. Index: CFI = 0.999 (more than 0.97)
5. Index: IFI = 0.999 (more than 0.95)
6. Index: NFI = 0.997 (more than 0.95)
7. Index: RMSEA = 0.052 (less than 0.05)
8. Index: RMR = 0.005 (less than 0.05)

The findings show the factor loading of these observed variables at significance level 0.05. Indeed, the observed variables of corporate social responsibility innovation adoption of PTT Public Co, Ltd. are composed of six variables, including perceived usefulness (PTTACCEPT1), perceived ease of use (PTTACCEPT2), attitude toward using (PTTACCEPT3), behavioral intention (PTTACCEPT4), actual system use (PTTACCEPT5), and personal innovativeness (PTTACCEPT6).

Each observed variable reports its factor loading as follows: 0.64 for perceived usefulness (PTTACCEPT1), 0.68 for perceived ease of use (PTTACCEPT2), 0.77 for attitude toward using (PTTACCEPT3), **0.93 for behavioral intention (PTTACCEPT4)**, 0.85 for actual system use (PTTACCEPT5), and 0.80 for personal innovativeness (PTTACCEPT6).
4.2.6 The result of model fit analysis of the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y with the empirical literature and principles

The model fit analysis of the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y with empirical literature and principles, uses the advanced statistical analysis Structural Equation Modeling or SEM technique.

Indeed, the model is able to be adjusted until it meets the modification indices or MI standard criteria. The conditions require more than 50% of the total number of indices to meet the criteria in which eight of thirteen indices are recommended (Kraiwan, 2013). The latest adjusted model with the standardized coefficients and indices, are shown below.
Figure 4.41 shows the path coefficients of the structural equation model of corporate social responsibility innovation, corporate image and corporate reputation towards corporate social responsibility innovation adoption of all organizations among Generation Y.
Chi-square = 100.632, df = 97, p = 0.380,  
Chi-square/df = 1.037, GFI = 0.970, AGFI = 0.941,  
CFI = 0.999, IFI = 0.999, NFI = 0.984, RMSEA = 0.011, RMR = 0.010

The following are eight indices of the model that meet the standard criteria.

(1) Index: Chi-square/df = 1.037 (less than 3.00)  
(2) Index: GFI = 0.970 (more than 0.95)  
(3) Index: AGFI = 0.941 (more than 0.90)  
(4) Index: CFI = 0.999 (more than 0.97)  
(5) Index: IFI = 0.999 (more than 0.95)  
(6) Index: NFI = 0.984 (more than 0.95)  
(7) Index: RMSEA = 0.011 (less than 0.05)  
(8) Index: RMR = 0.010 (less than 0.05)

The overview result indicates the path coefficients and shows that the corporate reputation variable (ALLREPUT) has a direct effect towards the corporate social responsibility innovation adoption variable (ALLACCEPT) at 0.74. Corporate image variable (ALLIMAGE) has the direct effect towards corporate reputation (ALLREPUT) at 0.93. Moreover, the attributes of innovation variable (ALLCSR) and corporate image variable (ALLIMAGE) have a positive direct effect to each other at 0.80. The following table exists to show the details of each variable’s relationship in the structural equation model and other key statistical results.
Table 4.22 Causal Relationship of Variables in Structural Equation Model and Other Key Statistical Results of all organizations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ALLREPUT → ALLACCEPT</td>
<td>0.74</td>
<td>0.156</td>
<td>5.085*</td>
<td>Positive</td>
</tr>
<tr>
<td>2.</td>
<td>ALLIMAGE → ALLREPUT</td>
<td>0.93</td>
<td>0.049</td>
<td>19.925*</td>
<td>Positive</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. < = 0.05)

Remark: R² value of variables in the model are ALLREPUT = 0.87 and ALLACCEPT = 0.73

Table 4.23 Variables’ Relationship in Structural Equation Model and Other Key Statistical Results of all organizations

<table>
<thead>
<tr>
<th>No.</th>
<th>Relationship</th>
<th>Correlation</th>
<th>S.E.</th>
<th>C.R. (t-value)</th>
<th>The summary of relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>ALLCSR ←→ ALLIMAGE</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

  ALLCSR \(0.147\) 0.019 7.819* Positive effect in each other

  ALLIMAGE \(0.254\) 0.027 9.848* in each other

*Significant at 0.05 level (Sig. < = 0.05)

Apart from table 4.22, the structural equation model in terms of standardized values of the model, is presented below.

\[
\text{ALLACCEPT} = 0.74\ \text{ALLREPUT}, \ R^2 = 0.73 \quad \ldots (1)
\]

\[
0.156 \\ 5.085^*
\]

\[
\text{ALLACCEPT} = 0.93\ \text{ALLIMAGE} + 0.74\ \text{ALLREPUT}, \ R^2 = 0.73 \quad \ldots (2)
\]

\[
0.049 \quad (0.156) \\ 19.925^* \quad 5.085^*
\]

\[
\text{ALLREPUT} = 0.93\ \text{ALLIMAGE}, \ R^2 = 0.87 \quad \ldots (3)
\]

\[
0.049 \\ 19.925^*
\]

*Significant at 0.05 level
The first equation (1) indicates that the corporate reputation variable can explain the variation of corporate social responsibility innovation adoption variable at around 73%. Indeed, corporate reputation has a positive effect towards corporate social responsibility innovation adoption at 0.05 significance level. Regarding this finding, it could be further explained that if there is a one standard deviation of corporate reputation increase in state, there will be 0.74 standard deviation of corporate social responsibility innovation adoption increase.

The second equation (2) indicates that the corporate image and corporate reputation variables can mutually explain the variation of corporate social responsibility innovation adoption variable at around 73%. Indeed, corporate image and corporate reputation have a positive effect towards corporate social responsibility innovation adoption at 0.05 significance level. Regarding this finding, it could be further explained that if other variables are at a constant level and there is a one standard deviation of corporate image increase in state, there will be 0.93 standard deviation of corporate social responsibility innovation adoption increase. Also, if there is a one standard deviation of corporate reputation increase in state, there will be 0.74 standard deviation of corporate social responsibility innovation adoption increase.

The third equation (3) indicates that the corporate image variable can explain the variation of corporate reputation variable at around 87%. Indeed, corporate image has a positive effect towards corporate reputation at 0.05 significance level. Regarding this finding, it could be further explained that if there is a one standard deviation of corporate image increase in state, there will be 0.93 standard deviation of corporate reputation increase.

Apart from the above findings, the studies partially accept the research hypotheses. In fact, most variables in the tests of the measurement model and structural model show congruence with the existing empirical literature and principles at 0.05 significance level. However, the result of attributes of innovation and corporate social responsibility innovation adoption variables, and the result of corporate image and corporate social responsibility innovation adoption variables, are excluded.
The results of direct effect, indirect effect and total effect analyses of studied variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y

The analysis in Table 4.22 states that the structural equation model of this study is congruent with the existing empirical literature and principles and also has an effect in terms of standardized coefficient values (as can be seen in Figure 4.41). Then, the summary of direct effect, indirect effect, and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y, is shown.

Table 4.24 show the direct effect, indirect effect, and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption of all organizations among Generation Y.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Effect</th>
<th>Predictor variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ALLCSR</td>
</tr>
<tr>
<td>ALLREPUT</td>
<td>DE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>0.00</td>
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<tr>
<td>ALLACCEPT</td>
<td>DE</td>
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</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>0.21</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. ≤ 0.05)

Aside from Table 4.24, the further explanation can be categorized into three parts.
1. **Direct effect**

1.1) Corporate image has a positive direct effect towards corporate reputation at 0.05 significance level. The value of the effect is 0.93.

1.2) Attributes of innovation has a positive direct effect towards corporate social responsibility innovation adoption. The value of the effect is 0.21.

1.3) Corporate reputation has a positive direct effect towards corporate social responsibility innovation adoption at 0.05 significance level. The value of the effect is 0.74.

2. **Indirect effect**

2.1) Corporate image has a positive indirect effect towards corporate social responsibility innovation adoption through corporate reputation at 0.05 significance level. The value of the effect is 0.68.

3. **Total effect**

3.1) Corporate image has a positive total effect towards corporate reputation at 0.05 significance level. The value of the effect is 0.93.

3.2) Attributes of innovation has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.21.

3.3) Corporate image has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.63.

3.4) Corporate reputation has a positive total effect towards corporate social responsibility innovation adoption at 0.05 significance level. The value of the effect is 0.74.

Furthermore, the study of the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y in each organization is likely to show different results and details. The following are the structural equation model studies of Charoen Pokphand Foods Public Co, Ltd, Siam Cement Group Public Co, Ltd, and PTT Public Co, Ltd respectively.
Figure 4.42 shows the path coefficients of the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption of Charoen Pokphand Foods Public Co, Ltd among Generation Y.
Chi-square = 112.280, df = 95, p = 0.109,
Chi-square/df = 1.182, GFI = 0.967, AGFI = 0.933,
CFI = 0.995, IFI = 0.995, NFI = 0.968, RMSEA = 0.023, RMR = 0.019

The following are eight indices of the model that meet the standard criteria.

(1) Index: Chi-square/df = 1.182 (less than 3.00)
(2) Index: GFI = 0.967 (more than 0.95)
(3) Index: AGFI = 0.933 (more than 0.90)
(4) Index: CFI = 0.995 (more than 0.97)
(5) Index: IFI = 0.995 (more than 0.95)
(6) Index: NFI = 0.968 (more than 0.95)
(7) Index: RMSEA = 0.023 (less than 0.05)
(8) Index: RMR = 0.019 (less than 0.05)

The results indicate the path coefficients and shows that the attributes of innovation variable (CPCS), has a direct effect towards the corporate social responsibility innovation adoption variable (CPAC) at 0.33. Corporate reputation variable (CPREP) has the direct effect towards corporate social responsibility innovation adoption variable (CPAC) at 0.65. Moreover, the attributes of innovation variable (CPCS) and corporate image variable (CPIMA) have the positive direct effect to each other at 0.78. Corporate image variable (CPIMA) has a direct effect towards corporate reputation (CPREP) at 0.84. The following table exists to show the details of each variable’s relationship in the structural equation model and other key statistical results.
Table 4.25 Causal Relationship of Variables in Structural Equation Model and other Key Statistical Results of Charoen Pokphand Foods Public Co, Ltd

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CPCSR → CPACCEPT</td>
<td>0.33</td>
<td>0.153</td>
<td>3.509*</td>
<td>Positive</td>
</tr>
<tr>
<td>2.</td>
<td>CPREPUT → CPACCEPT</td>
<td>0.65</td>
<td>0.125</td>
<td>5.676*</td>
<td>Positive</td>
</tr>
<tr>
<td>3.</td>
<td>CPIMAGE → CPREPUT</td>
<td>0.84</td>
<td>0.067</td>
<td>12.579*</td>
<td>Positive</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. < = 0.05)

Remark: $R^2$ value of variables in the model are CPREPUT = 0.70 and CPACCEPT = 0.71

Table 4.26 Variables’ Relationship in Structural Equation Model and other Key Statistical Results of Charoen Pokphand Foods Public Co, Ltd

<table>
<thead>
<tr>
<th>No.</th>
<th>Relationship</th>
<th>Correlation</th>
<th>S.E.</th>
<th>C.R. (t-value)</th>
<th>The summary of relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CPCSR ↔ CPIMAGE</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CPCSR 0.145</td>
<td>0.027</td>
<td>5.381*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CPIMAGE 0.316</td>
<td>0.044</td>
<td>7.117*</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. < = 0.05)

Apart from Table 4.25, the structural equation model in terms of standardized values of the model is presented below.

\[
\text{CPACCEPT} = 0.33 \text{ CPCSR}, \quad \text{R}^2 = 0.71 \\
\quad (0.153) \\
\quad 3.509^* \\
\]

\[
\text{CPACCEPT} = 0.65 \text{ CPREPUT}, \quad \text{R}^2 = 0.71 \\
\quad (0.125) \\
\quad 5.676^* \\
\]

\[
\text{CPACCEPT} = 0.33 \text{ CPCSR} + 0.65 \text{ CPREPUT}, \quad \text{R}^2 = 0.71 \\
\quad (0.153) + (0.125) \\
\quad 3.509^* + 5.676^* \\
\]

... (1)  
... (2)  
... (3)
The first equation (1) indicates that the attributes of innovation variable can explain the variation of corporate social responsibility innovation adoption variable at around 71%. Indeed, attributes of innovation has a positive effect towards corporate social responsibility innovation adoption at 0.05 significance level. Regarding this finding, it could be further explained that if there is a one standard deviation of attributes of innovation increase in state, there will be a 0.33 standard deviation of corporate social responsibility innovation adoption increase.

The second equation (2) indicates that the corporate reputation variable can explain the variation of corporate social responsibility innovation adoption variable at around 71%. Indeed, corporate reputation has a positive effect towards corporate social responsibility innovation adoption at 0.05 significance level. Regarding this finding, it could be further explained that if there is a one standard deviation of corporate reputation increase in state, there will be a 0.65 standard deviation of corporate social responsibility innovation adoption increase.

The third equation (3) indicates that the attributes of innovation and corporate reputation variables can mutually explain the variation of corporate social responsibility innovation adoption variable at around 71%. Indeed, attributes of innovation and corporate reputation have a positive effect towards corporate social responsibility innovation adoption at 0.05 significance level. Regarding this finding, it could be further explained that if other variables are at the constant level and there is a one standard deviation of attributes of innovation increase in state, there will be a 0.33 standard deviation of corporate social responsibility innovation adoption increase. Also, if there is a one standard deviation of corporate reputation increase in state, there will be a 0.65 standard deviation of corporate social responsibility innovation adoption increase.
The fourth equation (4) indicates that the corporate image variable can explain the variation of corporate reputation variable at around 70%. Indeed, corporate image has a positive effect towards corporate reputation at 0.05 significance level. Regarding this finding, it could be further explained that if there is a one standard deviation of corporate image increase in state, there will be a 0.84 standard deviation of corporate reputation increase.

Apart from the above findings, the studies partially accept the research hypotheses. In fact, most variables in the tests of the measurement model and structural model show congruence with the existing empirical literature and principles at 0.05 significance level. However, the result of corporate image and corporate social responsibility innovation adoption variables is excluded.

The results of direct effect, indirect effect, and total effect analyses of studied variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y

Since the analysis in Table 4.25 states that the structural equation model of this study is congruent with the existing empirical literature and principles and also has an effect in terms of standardized coefficient values (as can be seen in Figure 4.42) then the summary of direct effect, indirect effect, and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y is shown.
Table 4.27 shows the direct effect, indirect effect, and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption of Charoen Pokphand Foods Public Co, Ltd among Generation Y.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Effect</th>
<th>Predictor variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CPCSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPIMAGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPREPUT</td>
</tr>
<tr>
<td>CPREPUT</td>
<td>DE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>0.00</td>
</tr>
<tr>
<td>CPACCEPT</td>
<td>DE</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>0.33</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Aside from Table 4.27, further explanation can be categorized into three parts.

1. **Direct effect**
   1.1) Corporate image has a positive direct effect towards corporate reputation at 0.05 significance level. The value of the effect is 0.84.
   1.2) Attributes of innovation has a positive direct effect towards corporate social responsibility innovation adoption at 0.05 significance level. The value of the effect is 0.65.
   1.3) Corporate reputation has a positive direct effect towards corporate social responsibility innovation adoption at 0.05 significance level. The value of the effect is 0.65.

2. **Indirect effect**
   2.1) Corporate image has a positive indirect effect towards corporate social responsibility innovation adoption through corporate reputation. The value of the effect is 0.55.

3. **Total effect**
   3.1) Corporate image has a positive total effect towards corporate reputation at 0.05 significance level. The value of the effect is 0.84.
3.2) Attributes of innovation has a positive total effect towards corporate social responsibility innovation adoption at 0.05 significance level. The value of the effect is 0.33.

3.3) Corporate image has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.48.

3.4) Corporate reputation has a positive total effect towards corporate social responsibility innovation adoption at 0.05 significance level. The value of effect is 0.65.
Remark

*Significant at 0.05 level

Figure 4.43 shows the path coefficients of the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption of Siam Cement Group Public Co, Ltd. among Generation Y.
Chi-square = 124.799, df = 103p = 0.071,
Chi-square/df = 1.212, GFI = 0.963, AGFI = 0.931,
CFI = 0.994, IFI = 0.994, NFI = 0.969, RMSEA = 0.025, RMR = 0.026

The following are eight indices of the model that meet the standard criteria.

(1) Index: Chi-square/df = 1.212 (less than 3.00)
(2) Index: GFI = 0.963 (more than 0.95)
(3) Index: AGFI = 0.931 (more than 0.90)
(4) Index: CFI = 0.994 (more than 0.97)
(5) Index: IFI = 0.994 (more than 0.95)
(6) Index: NFI = 0.969 (more than 0.95)
(7) Index: RMSEA = 0.025 (less than 0.05)
(8) Index: RMR = 0.026 (less than 0.05)

The results indicate the path coefficients and show that corporate image variable (SCGIMAGE), has a direct effect towards corporate reputation variable (SCGREPUT) at 0.88. Moreover, the attributes of innovation variable (SCGCSR) and corporate image variable (SCGIMAGE) have a positive direct effect to each other at 0.71. The following table exists to show the details of each variable’s relationship in the structural equation model and other key statistical results.
Table 4.28 Causal Relationship of Variables in Structural Equation Model and other Key Statistical Results of Siam Cement Group Public Co, Ltd.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>SCGIMAGE → SCGREPUT</td>
<td>0.88</td>
<td>0.111</td>
<td>9.604*</td>
<td>Positive</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. < = 0.05)

Remark: $R^2$ value of variables in the model are SCGREPUT = 0.77 and SCGACCEPT = 0.34

Apart from Table 4.28, the structural equation model in terms of standardized values of the model is presented below.

$$SCGREPUT = 0.88 \text{ SCGIMAGE}, R^2 = 0.77$$  \[1\]

*Significant at 0.05 level

The first equation (1) indicates that the corporate image variable can explain the variation of the corporate reputation variable at around 77%. Indeed, corporate image has a positive effect towards corporate reputation at 0.05 significance level. Regarding this finding, it could be further explained that if there is a one standard deviation of corporate image increase in state, there will be a 0.88 standard deviation of corporate reputation increase.
Apart from the above findings, the studies partially accept the research hypotheses. In fact, most variables in the tests of the measurement model and structural model show congruence with the existing empirical literature and principles at 0.05 significance level.

The results of direct effect, indirect effect, and total effect analyses of studied variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y

The analysis in Table 4.28 states that the structural equation model of this study is congruent with the existing empirical literature and principles and also has an effect in terms of standardized coefficient values (as can be seen in Figure 4.43). Thus, the summary of direct effect, indirect effect, and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y is shown.

Table 4.30 shows the direct effect, indirect effect, and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption of Siam Cement Group Public Co, Ltd. among Generation Y

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Effect</th>
<th>SCGCSR</th>
<th>SCGIMAGE</th>
<th>SCGREPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCGREPUT</td>
<td>DE</td>
<td>0.00</td>
<td>0.88</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>0.00</td>
<td>0.88</td>
<td>0.00</td>
</tr>
<tr>
<td>SCGACCEPT</td>
<td>DE</td>
<td>0.05</td>
<td>0.34</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
<td>0.25</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>-0.05</td>
<td>0.59</td>
<td>0.29</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level
Aside from Table 4.30, further explanation can be categorized into three parts.

1. **Direct effect**

   1.1) Corporate image has a positive direct effect towards corporate reputation at 0.05 significance level. The value of the effect is 0.88.

   1.2) Corporate image has a positive direct effect towards corporate social responsibility innovation adoption. The value of the effect is 0.34.

   1.3) Corporate reputation has a positive direct effect towards corporate social responsibility innovation adoption. The value of the effect is 0.29.

2. **Indirect effect**

   2.1) Corporate image has a positive indirect effect towards corporate social responsibility innovation adoption through corporate reputation. The value of the effect is 0.25.

3. **Total effect**

   3.1) Corporate image has a positive total effect towards corporate reputation at 0.05 significance level. The value of the effect is 0.88.

   3.2) Corporate image has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.59.

   3.3) Corporate reputation has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.29.
PTT Public Co, Ltd.

Remark

 Significant,  ——— Non-significant

*Significant at 0.05 level

Figure 4.44 shows the path coefficients of the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption of PTT Public Co, Ltd. among Generation Y.
Chi-square = 131.348, df = 109, p = 0.71,
Chi-square/df = 1.205, GFI = 0.961, AGFI = 0.932,
CFI = 0.995, IFI = 0.995, NFI = 0.971, RMSEA = 0.025, RMR = 0.028

The following are eight indices of the model that meet the standard criteria.
(1) Index: Chi-square/df = 1.205 (less than 3.00)  (2) Index: GFI = 0.961 (more than 0.95)
(3) Index: AGFI = 0.932 (more than 0.90)   (4) Index: CFI = 0.995 (more than 0.97)
(5) Index: IFI = 0.995 (more than 0.95)     (6) Index: NFI = 0.971 (more than 0.95)
(7) Index: RMSEA = 0.025 (less than 0.05)   (8) Index: RMR = 0.028 (less than 0.05)

The results indicate the path coefficients and show that the corporate image variable (PTTIMAGE) has a direct effect towards corporate reputation variable (PTTREPUT) at 0.95. Moreover, the attributes of innovation variable (PTTCSR) and corporate image variable (PTTIMAGE) have a positive direct effect to each other at 0.69. The following table exists to show the details of each variable’s relationship in the structural equation model and other key statistical results.
Table 4.31 Causal Relationship of Variables in Structural Equation Model and other Key Statistical Results of PTT Public Co, Ltd.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PTTIMAGE → PTTREPUT</td>
<td>0.95</td>
<td>0.058</td>
<td>16.351*</td>
<td>Positive</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level (Sig. < = 0.05)

Remark: $R^2$ value of variables in the model are PTTREPUT = 0.90 and PTTACCEPT = 0.49

Table 4.32 Variables’ Relationship in Structural Equation Model and Other Key Statistical Results of PTT Public Co, Ltd.

<table>
<thead>
<tr>
<th>No.</th>
<th>Relationship</th>
<th>Correlation</th>
<th>S.E.</th>
<th>C.R. (t-value)</th>
<th>The summary of relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PTTCSR ← PTTIMAGE</td>
<td>0.69</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

  | PTTCSR | 0.232 | 0.034 | 6.764* | Positive effect |
  | PTTIMAGE | 0.321 | 0.040 | 8.062* | in each other |

*Significant at 0.05 level (Sig. < = 0.05)

Apart from table 4.31, the structural equation model in terms of standardized values of the model, is presented below.

$$\text{PTTREPUT} = 0.95 \text{PTTIMAGE}, R^2 = 0.90$$

(0.058)

16.351*

*Significant at 0.05 level

The first equation (1) indicates that the corporate image variable can explain the variation of corporate reputation variable at around 90%. Indeed, corporate image has a positive effect towards corporate reputation at 0.05 significance level. Regarding this finding, it could be further explained that if there is a one standard deviation of corporate image increase in state, there will be a 0.95 standard deviation of corporate reputation increase.
Apart from the above findings, the studies partially accept the research hypotheses. In fact, most variables in the tests of the measurement model and structural model, show congruence with the existing empirical literature and principles at 0.05 significance level.

The results of direct effect, indirect effect, and total effect analyses of studied variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y

The analysis in Table 4.31 states that the structural equation model of this study is congruent with the existing empirical literature and principles and also has an effect in term of standardized coefficient values (as can be seen in Figure 4.44). Thus, the summary of direct effect, indirect effect, and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y is shown.

Table 4.33 shows the direct effect, indirect effect and total effect analyses of variables in the structural equation model of corporate social responsibility innovation, corporate image, and corporate reputation towards corporate social responsibility innovation adoption of PTT Public Co, Ltd. among Generation Y

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Effect</th>
<th>Predictor variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PTTCSR</td>
</tr>
<tr>
<td>PTTREPUT</td>
<td>DE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>0.00</td>
</tr>
<tr>
<td>PTTACCEPT</td>
<td>DE</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>IE</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>0.02</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level

Aside from Table 4.33, further explanation can be categorized into three parts.
1. Direct effect

1.1) Corporate image has a positive direct effect towards corporate reputation at 0.05 significance level. The value of the effect is 0.95.

1.2) Attributes of innovation has a positive direct effect towards corporate social responsibility innovation adoption. The value of the effect is 0.02.

1.3) Corporate image has a positive direct effect towards corporate social responsibility innovation adoption. The value of the effect is 0.01.

1.4) Corporate reputation has a positive direct effect towards corporate social responsibility innovation adoption. The value of the effect is 0.67.

2. Indirect effect

2.1) Corporate image has a positive indirect effect towards corporate social responsibility innovation adoption through corporate reputation. The value of the effect is 0.64.

3. Total effect

3.1) Corporate image has a positive total effect towards corporate reputation at 0.05 significant level. The value of the effect is 0.95.

3.2) Attributes of innovation has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.02.

3.3) Corporate image has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.65.

3.4) Corporate reputation has a positive total effect towards corporate social responsibility innovation adoption. The value of the effect is 0.67.
CHAPTER 5

SUMMARY, DISCUSSION, AND SUGGESTIONS

This “Structural Equation Model of Corporate Social Responsibility Innovation, Corporate Image, and Corporate Reputation towards Corporate Social Responsibility Innovation Adoption among Generation Y” has two research objectives:

1. To examine the social issues and the attributes of innovation in corporate social responsibility innovation of organizations;

2. To test the structural equation model of corporate social responsibility, corporate image, and corporate reputation towards corporate social responsibility innovation adoption among Generation Y, generated by the researcher, with the existing literature and principles.

The research methodology used is a combination of qualitative and quantitative research. For qualitative research, the researcher attempted to answer research objective 1 by analyzing content from annual reports, the MiC e-Library system, and organizations’ websites, as well as executives’ interviews published in the media. The study focused on industrial businesses that are already in the registered list of The Stock Exchange of Thailand. These businesses are separated into three groups: agriculture and food products, industrial products, and energy business and utilities. These three business groups are related to people’s consumption in daily life as people need to regularly buy these products, thus the organizations included in the study are well-known to the people. These organizations also had to demonstrate corporate social responsibility activities for at least three consecutive years, based on the suggestion of Kotler and Lee (2005) who stated for successful measurement at least three years of corporate social responsibility executions are needed. Moreover, the selected organizations should publicly utilize innovation to execute their corporate social responsibility activities and have received an innovation award.
Therefore, the selected sample was three organizations: Charoen Pokphand Foods Public Co., Ltd., Siam Cement Group Public Co., Ltd., and PTT Public Co., Ltd. The results are presented in form of a summary table in a coding sheet. Data were analyzed with descriptions to conclude the contents of found data and presented in percentages.

This is done together with quantitative research to answer research objective 2 with a single cross-sectional survey method. Instruments used were surveys targeting 340 Generation Y people aged 18-34 years who were living, studying, or working in Bangkok. The surveys were conducted from August to October 2017. The data collected were later analyzed with Pearson’s product moment correlation to find the correlation between the three independent variables that included the attributes of corporate social responsibility innovation, corporate image, corporate reputation, and one dependent variable that is Generation Y’s adoption of corporate social responsibility innovation. At the same time, multiple regression analysis was used to study the predictor that most influenced the dependent variable with a program called SPSS (Statistical Package for the Social Sciences) for Windows. Furthermore, the structural equation model was analyzed through Confirmatory Factor Analysis (CFA) and empirical data was analyzed with AMOS, a structural equation model analysis program.

5.1 Summary

Qualitative Research

Part 1: Results from the analysis of corporate social responsibility innovation news published from 2014 – 2016 regarding the 3 sample organizations.

Part 2: Results from the analysis of corporate social responsibility innovation news published from 2014 – 2016 regarding Charoen Pokphand Foods Public Co., Ltd.

Part 3: Results from the analysis of corporate social responsibility innovation news published from 2014 – 2016 regarding Siam Cement Group Public Co., Ltd.

Part 4: Results from the analysis of corporate social responsibility innovation news published from 2014 – 2016 regarding PTT Public Co., Ltd.

Part 5: Additional analysis results to compare social issues and attributes of innovation in the 3 sample organizations’ corporate social responsibility innovation.
Quantitative Research

Part 1: General demographic information of Generation Y sample.

Part 2: Results of measurement of innovation attributes in corporate social responsibility innovation, corporate image, corporate reputation, and adoption toward corporate social responsibility innovation adoption among Generation Y.

Part 3: Results of correlation measurement between the variables of the 3 organizations in Generation Y.

Part 4: Results of measurement of predictors for adoption toward the 3 organizations’ corporate social responsibility innovation adoption among Generation Y.

Part 5: Results of confirmatory factor analysis (CFA) of the measuring model.

Part 6: Results of correlation analysis of structural equation model (SEM) and empirical data.

5.1.1 Results of Qualitative Research

Part 1: Results from the analysis of corporate social responsibility innovation news published from 2014 – 2016 regarding the 3 sample organizations.

Regarding the social issues of corporate social responsibility activities from 2014–2016, it was found that all 3 organizations utilized innovation or technology in a total of 170 news articles (activities). The majority of the activities supported community involvement (36.55%), followed by environmental prevention (28.74%), and injury prevention (16.55%).

Year-by-year analysis found that in 2014 (52 news articles) and 2015 (54 news articles), the 3 organizations mainly focused on social issues regarding community involvement, followed by environmental prevention and injury prevention. In 2016 (64 news articles), it was discovered that the 3 organizations retained their focus on social issues regarding community involvement and environmental prevention. The third rank, however, was health promotion instead of injury prevention.

It was also found that throughout the 3-year period, none of the 3 organizations ever utilized corporate social responsibility innovation to execute activities supporting animal rights protection at all.
Regarding the attributes of innovation in corporate social responsibility innovation from 2014 – 2016, it was found that the 3 sample organizations utilized innovation or technology to execute corporate social responsibility activities in a total of 170 news articles (activities), displaying all 7 attributes of innovation throughout the 3-year period. The most dominant attributes were relative advantage, compatibility, and low-risk, each of which accounted for 17.42% for each year.

**Part 2:** Results from the analysis of corporate social responsibility innovation news published from 2014–2016 regarding Charoen Pokphand Foods Public Co., Ltd.

Regarding the social issues of corporate social responsibility activities from 2014–2016, it was found that Charoen Pokphand Foods Public Co., Ltd. utilized innovation or technology in a total of 31 news articles (activities). The majority of activities supported community involvement (36.90%), followed by environmental prevention (27.38%), and health promotion (17.86%).

Year-by-year analysis found that in 2014 (7 news articles), 2015 (13 news articles), and 2017 (11 news articles), Charoen Pokphand Foods Public Co., Ltd. mainly focused on social issues regarding community involvement, followed by environmental prevention and health promotion. In addition, in 2014, it was discovered that Charoen Pokphand Foods Public Co., Ltd. supported social issues regarding injury prevention as much as health promotion, which ranked third that year.

Regarding the attributes of innovation in corporate social responsibility innovation from 2014–2016, it was found that Charoen Pokphand Foods Public Co., Ltd. utilized innovation or technology to execute corporate social responsibility activities in a total of 31 news articles (activities), displaying all 7 attributes of innovation throughout the 3-year period. The most dominant attributes were relative advantage, compatibility, adaptability, and low-risk, each of which accounted for 17.95% for each year.
Part 3: Results from the analysis of corporate social responsibility innovation news published from 2014 – 2016 regarding Siam Cement Group Public Co., Ltd.

Regarding the social issues of corporate social responsibility activities from 2014–2016, it was found that Siam Cement Group Public Co., Ltd. utilized innovation or technology in a total of 87 news articles (activities). The majority of activities supported community involvement (35.87%), followed by environmental prevention (25.56%), and injury prevention (19.73%).

Year-by-year analysis found that in 2014 (28 news articles), 2015 (24 news articles), and 2017 (35 news articles), Siam Cement Group Public Co., Ltd. mainly focused on social issues regarding community involvement. However, second-ranking issues alternated. In 2014 and 2016, environmental prevention was second while in 2015, injury prevention was second, followed by environmental prevention.

Regarding the attributes of innovation in corporate social responsibility innovation from 2014–2016, it was found that Siam Cement Group Public Co., Ltd. utilized innovation or technology to execute corporate social responsibility activities in a total of 87 news articles (activities), displaying all 7 attributes of innovation throughout the 3-year period. The most dominant attributes were relative advantage, compatibility, complexity, and low-risk, each of which accounted for 17.79% for 2015 and 2016. In addition, in 2014, adaptability was also one of the dominant attributes.

Part 4: Results from the analysis of corporate social responsibility innovation news published from 2014–2016 regarding PTT Public Co., Ltd.

Regarding the social issues of corporate social responsibility activities from 2014–2016, it was found that PTT Public Co., Ltd. utilized innovation or technology in a total of 52 87 news articles (activities). The majority of activities supported community involvement (37.5%), followed by environmental prevention (35.16%), and injury prevention (12.50%).

Year-by-year analysis found that in 2014 (17 news articles) and 2015 (17 news articles), PTT Public Co., Ltd. mainly focused on social issues regarding community involvement, followed by environmental prevention and injury prevention respectively. However, in 2016 (18 news articles), PTT Public Co., Ltd. paid most...
attention to environmental prevention. Social issues regarding community involvement were the second, followed by health promotion.

Regarding **the attributes of innovation in corporate social responsibility innovation** from 2014–2016, it was found that PTT Public Co., Ltd. utilized innovation or technology to execute corporate social responsibility activities in a total of 52 news articles (activities), displaying all 7 attributes of innovation throughout the 3-year period. The most dominant attributes were relative advantage, compatibility, complexity, and low-risk, each of which accounted for 17.22% for each year including 2014. In addition, in 2015 and 2016, adaptability was also one of the dominant attributes.

**Part 5:** Additional analysis results to compare social issues and attributes of innovation in the 3 sample organizations’ corporate social responsibility innovation.

Regarding **the social issues of corporate social responsibility activities** from 2014 – 2016, studied in regards of each individual issue, the results were as follows.

**Health promotion**

2014, it was found that Charoen Pokphand Foods Public Co., Ltd. provided the most support to these issues. In 2015, it was Siam Cement Group Public Co., Ltd. that ranked first in this matter. In 2016, however, Charoen Pokphand Foods Public Co., Ltd. reclaimed its post as the best supporter for health promotion. In addition, PTT Public Co., Ltd. ranked third throughout the course of 3 years.

**Injury prevention**

2014, it was found that Charoen Pokphand Foods Public Co., Ltd. provided the most support to these issues. In 2015, it was Siam Cement Group Public Co., Ltd. that ranked first in this matter and remained the same 2016. In addition, PTT Public Co., Ltd. ranked second in 2014 and third in 2015 – 2016.

**Environmental prevention**

During 2014–2016, PTT Public Co., Ltd. was the organization providing most support in this matter. Siam Cement Group Public Co., Ltd. was the second in 2014 and 2016, as Charoen Pokphand Foods Public Co., Ltd. became the second in 2015.
Community involvement

In 2014, it was found that Siam Cement Group Public Co., Ltd. provided the most support to these issues. In 2015, it was Charoen Pokphand Foods Public Co., Ltd. that ranked first in this matter and remained the same in 2016. PTT Public Co., Ltd. was the second in 2014 and 2015 before dropping to third in 2016.

Regarding the attributes of innovation in corporate social responsibility from 2014–2016, studied in regards of attributes of innovation, the results are as follows.

<table>
<thead>
<tr>
<th>Relative advantage</th>
<th>Compatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptability</td>
<td>Low-risk</td>
</tr>
</tbody>
</table>

In 2014, it was found that Charoen Pokphand Foods Public Co., Ltd. demonstrated these 4 attributes in its corporate social responsibility activities the most. While in 2015, it was Siam Cement Group Public Co., Ltd. that became the organization demonstrating these 4 attributes of innovation the most and retained the post in 2016.

Meanwhile, PTT Public Co., Ltd. demonstrated relative advantage, compatibility, and low-risk in its corporate social responsibility activities in the second rank throughout 3 years, except for the adaptability attribute where the company fell to the third rank in 2014.

Complexity

2014, it was found that PTT Public Co., Ltd. demonstrated this attribute the most in its corporate social responsibility activities. In 2015, it was Siam Cement Group Public Co., Ltd. that ranked first in this attribute and remained the same in 2016.

Meanwhile, Charoen Pokphand Foods Public Co., Ltd. ranked third in this attribute in its corporate social responsibility activities throughout the course of 3 years.
**Trialability**

In 2014, it was found that Siam Cement Group Public Co., Ltd. demonstrated this attribute the most in its corporate social responsibility activities. In 2015, it was Charoen Pokphand Foods Public Co., Ltd. that ranked first in this attribute and remained the same in 2016.

Meanwhile, PTT Public Co., Ltd. ranked second in this attribute in its corporate social responsibility activities throughout the course of 3 years.

**Observability**

During 2014–2016, it was found that Charoen Pokphand Foods Public Co., Ltd. ranked first in this attribute in its corporate social responsibility activities throughout the course of 3 years.

5.1.2 Quantitative Research

**Part 1:** General demographic information of Generation Y samples

This research was conducted on a total of 340 Generation Y samples, which consisted of 152 males (44.7%), 184 females (54.1%) and 4 gender unidentified individuals (1.2%). Some 119 samples (35%) were 18–22 years old, 111 samples (32.65%) were 23–27 years old, and 110 samples (32.35%) were 28–34 years old.

Some 256 Generation Y samples (75.3%) had a highest education level at bachelor’s degree. The majority of the samples were working in the public sector, a total of 182 samples (53.5%), followed by 138 students (40.6%). Their average income was 25,001–30,000 Baht range.

**Part 2:** Results of measurement of innovation attributes in corporate social responsibility innovation, corporate image, corporate reputation, and adoption toward corporate social responsibility innovation adoption among Generation Y.

**Attributes in corporate social responsibility innovation**

It can be concluded that, overall, the highest means of attributes in corporate social responsibility innovation of the 3 sample organizations were seen in relative advantage (at 4.06). When each organization is analyzed separately, the results show that Charoen Pokphand Foods Public Co., Ltd.’s corporate social responsibility attribute with the highest means is compatibility (at 4.02). While that of Siam Cement Group Public Co., Ltd. and PTT Public Co., Ltd. is relative advantage (at 4.18 and 4.03 respectively).

**Corporate image**

It can be concluded that, overall, the corporate image indicators in all 3 organizations with the highest means are innovation and goods and services (both at 3.95). When each organization is analyzed separately, the results show that Charoen Pokphand Foods Public Co., Ltd.’s corporate image indicator with the highest mean is goods and services (at 4.07). While that of Siam Cement Group Public Co., Ltd. is innovation (at 4.06) and PTT Public Co., Ltd. is goods and services (at 3.88).
Corporate reputation

It can be concluded that, overall, the corporate reputation indicator in all 3 organizations with the highest mean is goods and services (at 3.93). When each organization is analyzed separately, the results show that Charoen Pokphand Foods Public Co., Ltd.’s corporate reputation indicator with the highest mean is goods and services (at 3.93). While that of Siam Cement Group Public Co., Ltd. is social and environmental responsibility (at 4.06) and PTT Public Co., Ltd. is goods and services (at 3.89).

Corporate social responsibility innovation adoption

It can be concluded that, overall, the corporate social responsibility innovation indicator in all 3 organizations with the highest means is perceived usefulness (at 3.83). When each organization is analyzed separately, the results show that Charoen Pokphand Foods Public Co., Ltd.’s corporate reputation indicator with the highest mean is perceived usefulness and perceived ease of use (both at 3.90). While that of Siam Cement Group Public Co., Ltd. is perceived usefulness (at 3.80) and PTT Public Co., Ltd. is perceived usefulness (at 3.78).

Part 3: Results of correlation measurement between the variables of the 3 organizations in Generation Y

Overall, the results show that the variables “corporate image” and “corporate reputation” have a high correlation value (r = .870) followed by the pair of “innovation attributes” and “corporate image” with a relatively high correlation value (r = .737). When each organization is analyzed separately, starting from Charoen Pokphand Foods Public Co., Ltd., it was discovered that the pair of variables with a relatively high correlation value is “corporate image” and “corporate reputation” (r = .726), followed by “corporate social responsibility innovation adoption” and “corporate reputation” with a relatively high correlation value (r = .661).

Regarding Siam Cement Group Public Co., Ltd., it was discovered that that the pair of variables with a relatively high correlation value is “corporate image” and “corporate reputation” (r = .729), followed by “corporate social responsibility innovation adoption” and “corporate image” with a relatively high correlation value (r = .606).
Regarding PTT Public Co., Ltd., it was discovered that the pair of variables with a relatively high correlation value is “innovation attributes” and “corporate image” \( (r = .786) \), followed by “corporate image” and “corporate reputation” with a relatively high correlation value \( (r = .648) \).

**Part 4:** Results of measurement of predictors for adoption toward the 3 organizations’ corporate social responsibility innovation adoption among Generation Y

Overall, the best predictor for dependent variables regarding corporate social responsibility innovation adoption is “corporate image” with a predictive value of 46.4\% (Adjusted \( R^2 = .464 \)), followed by “innovation attributes” with a predictive value of 46\% (Adjusted \( R^2 = .460 \)), and “corporate reputation” with a predictive value of 44.7\% (Adjusted \( R^2 = .447 \)).

When each organization is analyzed separately, starting from Charoen Pokphand Foods Public Co., Ltd. it was discovered that the best predictor for dependent variables regarding corporate social responsibility innovation adoption is “corporate image” with a predictive value of 50.9\% (Adjusted \( R^2 = .509 \)), followed by “innovation attributes” with a predictive value of 50.4\% (Adjusted \( R^2 = .504 \)), and “corporate reputation” with a predictive value of only 43.6\% (Adjusted \( R^2 = .436 \)).

For Siam Cement Group Public Co., Ltd., it was discovered that the best predictor for dependent variables regarding corporate social responsibility innovation adoption is “corporate reputation” with a predictive value of 25.2\% (Adjusted \( R^2 = .252 \)), followed by “corporate image” with a predictive value of 23\% (Adjusted \( R^2 = .230 \)), and “innovation attributes” with a predictive value of only 12.6\% (Adjusted \( R^2 = .126 \)).

For PTT Public Co., Ltd., it was discovered that the best predictor for dependent variables regarding corporate social responsibility innovation adoption is “innovation attributes” with a predictive value of 43.7\% (Adjusted \( R^2 = .437 \)), followed by “corporate image” with a predictive value of 43.2\% (Adjusted \( R^2 = .432 \)), and “corporate reputation” with a predictive value of only 41.9\% (Adjusted \( R^2 = .419 \)).
Part 5: Results of confirmatory factor analysis (CFA) of the measurement model

Overall, the attribute of innovation observed variable with the most factor loading is “observability (CSR5)” with a factor loading of 0.87. The corporate image observed variable with the most factor loading is “goods and services (IMAGE3)” with a factor loading of 0.86. The corporate reputation observed variable with the most factor loading is “innovation (REPUT2)” with a factor loading of 0.92. The corporate social responsibility innovation adoption observed variable with the most factor loading is “behavioral intention to use (ACCEPT4)” with a factor loading of 0.98.

When each organization is analyzed separately, starting from Charoen Pokphand Foods Public Co., Ltd. it was discovered that the attribute of innovation observed variable with the most factor loading is “observability (CPCSR5)” with a factor loading of 0.77. The corporate image observed variable with the most factor loading is “innovation (CPIMAGE2)” with a factor loading of 0.73. The corporate reputation observed variable with the most factor loading is “innovation (CPREPUT2)” with a factor loading of 0.84. The corporate social responsibility innovation adoption observed variable with the most factor loading is “attitude toward using (CPACCEPT3)” with a factor loading of 0.94.

For Siam Cement Group Public Co., Ltd., it was discovered that the attribute of innovation observed variable with the most factor loading is “low-risk (SCGCSR7)” with a factor loading of 0.76. The corporate image observed variable with the most factor loading is “innovation (SCGIMAGE2)” with a factor loading of 0.85. The corporate reputation observed variable with the most factor loading is “goods and services (SCGREPUT3)” with a factor loading of 0.89. The corporate social responsibility innovation adoption observed variable with the most factor loading is “behavioral intention to use (SCGACCEPT4)” with a factor loading of 0.93.

For PTT Group Public Co., Ltd., it was discovered that the attribute of innovation observed variable with the most factor loading is “low-risk (PTTCSR7)” with a factor loading of 0.76. The corporate image observed variable with the most factor loading is “goods and services (PTTIMAGE3)” with a factor loading of 0.86.
The corporate reputation observed variable with the most factor loading is “goods and services (PTTREPUT3)” with a factor loading of 0.88. The corporate social responsibility innovation adoption observed variable with the most factor loading is “behavioral intention to use (PTTACCEPT4)” with a factor loading of 0.93.

**Part 6:** Results of correlation analysis of structural equation model (SEM) and empirical data

Overall, it was discovered that the variable “attributes of innovation (ALLCSR)” and “corporate image (ALLIMAGE)” have a direct effect to each other at 0.80. “Corporate reputation (ALLREPUT)” has a direct effect to “corporate social responsibility innovation adoption (ALLACCEPT)” at 0.74 which means that corporate reputation can explain the variation of corporate social responsibility innovation adoption at 73% whereas corporate reputation has a positive effect to corporate social responsibility innovation adoption at a significance level of 0.05. In other words, should corporate reputation increase by 1 standard deviation, to corporate social responsibility innovation adoption will increase by 0.74 standard deviation. Moreover, it was also found that “corporate image (ALLIMAGE)” has a direct effect to “corporate reputation (ALLREPUT)” at 0.93 which means that corporate image can explain the variation of corporate reputation at 87% whereas corporate image has a positive effect to corporate reputation at a significance level of 0.05. In other words, should corporate image increase by 1 standard deviation, to corporate reputation will increase by 0.93 standard deviation.

Therefore, “corporate image” and “corporate reputation” together can explain variation of “corporate social responsibility innovation adoption” at 73%. Corporate image and corporate reputation have a positive effect to corporate social responsibility innovation adoption with a significance level of 0.05. In other words, should other independent variables be stable, whenever corporate image increases by 1 standard deviation, corporate social responsibility innovation adoption will increase by 0.93 standard deviation. If corporate reputation increases by 1 standard deviation, corporate social responsibility innovation adoption will increase by 0.74 standard deviation.
From the above, it can be concluded that the results correlate with the research hypotheses to some extent. In other words, the measurement model and the structural model correlate with the empirical data in almost all variables with a significance level of 0.05 except the variable pair between attributes of innovation and corporate social responsibility innovation adoption and the variable pair between corporate image and corporate social responsibility innovation adoption.

The findings can be summarized as follows:

**Direct Effect**
1. Corporate image has a positive direct effect to corporate reputation with an effect value of 0.93.
2. Corporate reputation has a positive direct effect to innovation adoption with an effect value of 0.74.

**Indirect Effect**
1. Corporate image has a positive indirect effect to innovation adoption through corporate reputation with an effect value of 0.68.

**Total Effect**
1. Corporate image has a positive total effect to corporate reputation with an effect value of 0.93.
2. Corporate reputation has a positive total effect to innovation adoption with an effect value of 0.74.

When each organization is analyzed separately, starting from Charoen Pokphand Foods Public Co., Ltd., it was discovered that “attributes of innovation (CPCSR)” and “corporate image (CPIMAGE)” have a direct effect to each other at 0.78. “Attributes of innovation (CPCSR)” has a direct effect to “corporate social responsibility innovation adoption (CPACCEPT)” at 0.33 which means that attributes of innovation can explain variation of corporate social responsibility innovation adoption at 71% whereas attributes of innovation has a positive effect to corporate social responsibility innovation adoption with a significance level of 0.05. In other words, if attributes of innovation increases by 1 standard deviation, corporate social responsibility innovation adoption will increase by 0.33 standard deviation.
Moreover, it was also discovered that “corporate reputation (CPREPUT)” has a direct effect to “corporate social responsibility innovation adoption (CPACCEPT)” at 0.65 which means that corporate reputation can explain variation of corporate social responsibility innovation adoption at 71%. Corporate reputation has a positive effect to corporate social responsibility innovation adoption with a significance level of 0.05. In other words, if corporate reputation increases by 1 standard deviation, corporate social responsibility innovation adoption will increase by 0.65 standard deviation.

Therefore, “attributes of innovation” and “corporate reputation” together can explain variation of “corporate social responsibility innovation adoption” at 71% whereas attributes of innovation and corporate reputation have a positive effect to corporate social responsibility innovation adoption with a significance level of 0.05. In other words, if other independent variables are stable, should attributes of innovation increase by 1 standard deviation, corporate social responsibility innovation adoption will increase by 0.33 standard deviation and if corporate reputation increases by 1 standard deviation, corporate social responsibility innovation adoption will increase by 0.65 standard deviation.

Moreover, “corporate image (CPIMAGE)” has a direct effect to “corporate reputation (CPREPUT)” at 0.84 which means that corporate image can explain variation of corporate reputation at 70% whereas corporate image has a positive effect to corporate reputation with a significance level of 0.05. In other words, should corporate image increase by 1 standard deviation, corporate reputation will increase by 0.84 standard deviation.

From the above, it can be concluded that the results correlate with the research hypotheses to some extent. In other words, the measurement model and the structural model correlate with the empirical data in almost all variables with a significance level of 0.05 except the variable pair between corporate image and corporate social responsibility innovation adoption.

Findings can be summarized as follows:

Direct Effect

1. Corporate image has a positive direct effect to corporate reputation with an effect value of 0.84.
2. Attributes of innovation has a positive direct effect to innovation adoption with an effect value of 0.33.

3. Corporate reputation has a positive direct effect to innovation adoption with an effect value of 0.65.

**Total Effect**

1. Corporate image has a positive total effect to corporate reputation with an effect value of 0.84.

2. Attributes of innovation has a positive total effect to innovation adoption with an effect value of 0.33.

3. Corporate reputation has a positive total effect to innovation adoption with an effect value of 0.65.

For Siam Cement Group Public Co., Ltd. it was discovered that “attributes of innovation (SCGCSR)” and “corporate image (SCGIMAGE)” have a direct effect to each other at 0.71. **Corporate image (SCGIMAGE)** has a direct effect to **corporate reputation (SCGREPUT)** at 0.88 which means that corporate image can explain variation of corporate reputation at 77% whereas corporate image has a positive effect to corporate reputation with a significance level of 0.05. In other words, if corporate image increases by 1 standard deviation, corporate reputation will increase by 0.88 standard deviation.

From the above, it can be concluded that the results correlate with the research hypotheses to some extent. In other words, the measurement model and the structural model correlate with the empirical data in almost all variables with a significance level of 0.05.

Findings can be summarized as follows:

**Direct Effect**

1. Corporate image has a positive direct effect to corporate reputation with an effect value of 0.88.

**Total Effect**

1. Corporate image has a positive total effect to corporate reputation with an effect value of 0.88.
For PTT Group Public Co., Ltd. it was discovered that “attributes of innovation (PTTCSR)” and “corporate image (PTTIMAGE)” have a direct effect to each other at 0.69. “Corporate image (PTTIMAGE)” has a direct effect to “corporate reputation (PTTREPUT)” at 0.95 which means that corporate image can explain variation of corporate reputation at 90% where corporate image has a positive effect to corporate reputation with a significance level of 0.05. In other words, if corporate image increases by 1 standard deviation, corporate reputation will increase by 0.95 standard deviation.

From the above, it can be concluded that the results correlate with the research hypotheses to some extent. In other words, the measurement model and the structural model correlate with the empirical data in almost all variables with a significance level of 0.05.

Findings can be summarized as follows:

**Direct Effect**

1. Corporate image has a positive direct effect to corporate reputation with an effect value of 0.95.

**Total Effect**

1. Corporate image has a positive total effect to corporate reputation with an effect value of 0.95.

Therefore, after comparing the results of qualitative research and those of quantitative research according to the research objectives, it was discovered that the results of both retained and rejected the hypotheses.
5.2 Discussion

Discussion of the results is divided into three main parts, starting with discussion based on each research objective, followed by a comparison of results of both research objectives, and then a discussion of both. The researcher will start by presenting the overall results from the three sample organizations, then discussing the interesting features of each organization based on the following tables.

<table>
<thead>
<tr>
<th>Addressing Research Problems and Research Objectives</th>
<th>Research Methodology</th>
<th>Hypothesis Testing</th>
<th>Topic of Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1 5.2.1 Item 1 Qualitative Research (Content Analysis)</td>
<td>Hypothesis 1</td>
<td></td>
<td>Corporate social responsibility issues</td>
</tr>
<tr>
<td></td>
<td>It was discovered that the hypothesis is mostly retained except in animal rights protection</td>
<td></td>
<td>• All 3 organizations provide support to 5 out of 6 social issues. The 2 most supported social issues are community involvement and environment protection (Detailed discussion is on page 254–255.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• None of the 3 organizations provides support to animal rights protection. The third focused issue of each organization is different. (Detailed discussion is on page 255–256.) Attributes of innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• All 3 organizations utilize innovation or technology to execute corporate social responsibility, demonstrating all 7 attributes of innovation throughout the course of 3 years. The most dominant attributes of innovation seen in all 3 organizations are relative advantage, compatibility, and low-risk. (Detailed discussion is on page 257–258.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• When considering each organization separately, it was discovered that each of them shows differences in their most dominant attributes of innovation, which are adaptability and complexity. (Detailed discussion is on page 258–259.)</td>
</tr>
<tr>
<td>Part 2</td>
<td>Item 2</td>
<td>Quantitative Research (Analysis of CFA and SEM testing)</td>
<td>Hypothesis 2</td>
</tr>
<tr>
<td>--------</td>
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<td>-------------------------------------------------</td>
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</tbody>
</table>
| 5.2.2  |        | It was discovered that the hypothesis is partly retained except effect values in some latent variables |             | • Overall, it was discovered that the measurement model and the structural equation model correlate with the empirical data. ○ Therefore, only the corporate reputation latent variable has an effect on corporate social responsibility innovation adoption attributes of innovation while latent variable and the corporate image latent variable are deemed to have no effects.  
(Detailed discussion is on page 261–271.) |
|        |        | Quantitative Research (Prediction Analysis) | It was discovered that the hypothesis is mostly retained | • When considering each organization separately, it was discovered that the measurement model and structural equation models of Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are similar, while the measurement model and structural equation model of Charoen Pokphand Foods Public Co., Ltd. is different.  
(Detailed discussion is on page 272–282.) |

**Prediction analysis**

• Overall, it was discovered that “corporate image” is the best predictor for “corporate social responsibility innovation adoption” as seen in the results from Charoen Pokphand Foods Public Co., Ltd. while Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are other variables.  
(Detailed discussion is on page 282–285.)

### Part 3

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Comparative Discussion of Qualitative Research (Content Analysis along with Quantitative Research (Analysis of CFA and SEM testing))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 2</td>
<td>-</td>
</tr>
</tbody>
</table>

**Overall**

**Content analysis (Organizations’ execution)**

Mostly utilize innovation to support community involvement and environment protection. Dominant attributes of innovation are relative advantage, compatibility, and low-risk.

**Model testing (Generation Y consumers’ evaluation)**

Attribute of innovation with the most factor loading is observability. While attributes of innovation have no effect on corporate social responsibility innovation adoption.

(Detailed discussion is on page 285–287.)

• **Charoen Pokphand Foods Public Co., Ltd.**

**Content analysis (Organizations’ execution)**

Mostly utilizes innovation to support community involvement and environment protection. Dominant attributes of innovation are similar to the overall results, except for additional adaptability.

**Model testing (Generation Y consumers’ evaluation)**

Attribute of innovation with the most factor loading is observability. While attributes of innovation have a direct effect on corporate social responsibility innovation adoption as well as corporate reputation.

(Detailed discussion is on page 288–289.)

• **Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd.**

**Content analysis (Organizations’ execution)**

Mostly utilize innovation to support community involvement and environment protection. Dominant attributes of innovation are similar to the overall results, except for additional complexity.

**Model testing (Generation Y consumers’ evaluation)**

Attribute of innovation with the most factor loading is low-risk matching the results found in content analysis.

Attributes of innovation have no effects to corporate social responsibility innovation adoption.

(Detailed discussion is on page 290–292)
Part 1

5.2.1 Qualitative Research Discussion (Content analysis)

Hypothesis 1: All three organization samples utilize innovation to execute corporate social responsibility activities, supporting all 6 social issues which include:

- Health promotion
- Injury prevention
- Environment protection
- Education
- Animal rights protection
- Community involvement

In these activities, it was discovered that 7 attributes of innovation can be used to analyze the contents. The 7 attributes include:

- Relative advantage
- Compatibility
- Complexity
- Trialability
- Observability
- Adaptability
- Low-risk

The results from the overall study and individual studies suggest that the hypothesis is mostly retained except in animal rights protection.

Corporate social responsibility issues

All 3 organizations provide support to 5 out of 6 social issues. The 2 most supported social issues are community involvement and environment protection.

The results show that, according to 170 news articles from 2014–2016, all 3 organizations utilized innovation to execute corporate social responsibility activities to support 5 out of 6 issues, where most support was put into community involvement, followed by environment protection. When considering each organization separately, it was discovered that each organization supports 5 out of 6 issues, where most support was put into community involvement, followed by environment protection in all 3 organizations. These results correlate with a conclusion regarding the increasing expectations of society (Sonthijirawong, 2011) and the emergence of modern innovations that affect corporate procedures such as adopting the concept of integrating corporate social responsibility activities into the organization’s goods and services. (McWilliams & Siegel, 2001,
as cited in (Preuss, 2011) Therefore, organizations pay more attention to CSR business execution by supporting social issues to sustainably improve the economy, society, and environment (Thaipat Institute, 2008a). This execution complies with Elkington’s Triple Bottom Line that suggests that CSR activities should create sustainable benefits to 3 aspects: economy, society, and environment (Branco & Rodrigues, 2006).

Therefore, although community involvement and environmental protection are the top 2 issues that all 3 organizations focus on supporting, they also pay attention to other social issues like injury prevention, health promotion, and education as these issues are involved in social well-being and quality of life, as well as the environment, according to Enderle and Tavis (1998) who suggest that corporate social responsibility activities cover various social issues.

However, taking into consideration suggestions made by Kotler and Lee (2005) that state an organization should provide support to 2-3 major social issues to create good corporate image and good positioning in consumers’ awareness, it was discovered that there are only 2 social issues, which are community involvement and environment protection, that all 3 organization focus their support on as top priorities.

None of the 3 organizations provides support to animal rights protection. Moreover, the third supported issue of each organization is different.

It is interesting to find out that, according to 170 news articles from 2014–2016, all these 3 organization did not utilize innovation to execute any corporate social responsibility activities to support animal rights protection at all. This is probably because none of the 3 organizations do business that relates to animal welfare. For example, Charoen Pokphand Foods Public Co., Ltd.’s main businesses are food products manufacturing under the CP brand and service businesses like 7-11 convenience stores, while Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd.’s main businesses are manufacturing consumable products such as paper, materials, chemicals, oil, gas, and also goods and service businesses like Amazon Café and gasoline stations. These business executions, such as production
processes, mainly affect people’s way of life and the environment rather than animal welfare.

Moreover, when considering the results from each organization individually, it is even more interesting to see that the third social issue supported by each organization varied. Charoen Pokphand Foods Public Co., Ltd.’s third-ranked issue was health promotion whereas for Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. it was injury prevention. This is probably because the different nature of the business executed by each organization, as previously mentioned. Health promotion is likely to be slightly more related to the business of Charoen Pokphand Foods Public Co., Ltd. than injury prevention whereas Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd.’s business is likely to be more related to the human and property safety than health promotion.

The different business of each organization affects how they utilize innovation to execute corporate social responsibility activities. This correlates with the principles of Kotler and Lee (2005) about “Social Issue Selection Approach” that an organization should support a social issue that relates to its own vision, mission, goods and services. This approach is well-acknowledged both locally and internationally. For example, a study by Rifen et al. (2004) states that an organization should support a social issue that relates to its main business as it can suppress consumer skepticism, thus creating positive awareness and confidence. According to a case study presented by Lafferty (2007), Avon, a manufacturer of cosmetics and lingerie for women, chooses to support women’s health promotions such as providing help to breast cancer patients. In Thailand, Seritanondh (2011) found that an organization should utilize its own expertise in business to support a social issue related to its business to create a better corporate image. Kotler and Lee (2005) and Porter and Kramer (2006) note that an organization can never support all social issues due to limited budget. Therefore, it is important for an organization to choose to support issues that relate to its business.
Attributes of innovation

All 3 organizations utilize innovation or technology to execute their corporate social responsibility activities demonstrating all 7 attributes of innovation over the course of 3 years.

The most dominant attributes of innovation seen in activities of the 3 organizations are relative advantage, compatibility, and low-risk.

The results show that from 2014–2016, all 3 organizations utilized innovation or technology to execute their corporate social responsibility activities demonstrating all 7 attributes of innovation according to the concept from Rogers (2003) about 5 attributes of innovation affecting consumers’ adoption toward innovation stating that they must include relative advantage, compatibility, complexity, trialability, and observability, together with the concept from Masso and Thompson (2016) suggesting that Rogers’ 5 attributes are not sufficient for achieving adoption. There should be two more additional attributes of innovation, which are adaptability and low-risk. Therefore, utilizing innovation or technology to execute corporate social responsibility activities of each organization studied in this research with content analysis from activity news will include all these 7 attributes of innovation.

Another interesting result to see is the most dominant attributes seen in activity execution of all 3 organizations are relative advantage, compatibility, and low-risk. These results of are partly similar to the results of research by Thaikerd (2015) that suggests that relative advantage and compatibility have a positive effect on decision making and satisfaction of online hotel booking clients, which shows that both attributes of innovation are important to consumers’ adoption of innovation. Therefore, an organization’s use of innovation to execute corporate activities mainly includes these two attributes of innovation. Rogers (2003) said innovation that is likely to be easily adopted should benefit the society more, meaning relative advantage. Likewise, Sasithanakornkaew (2015) also suggests that perception of usefulness in using online social networks has a positive effect on Generation Y’s behavior when using online social networks. Moreover, such innovation should comply with society’s cultures, meaning compatibility, according to Rogers (2003). Masso and Thompson (2016) added that good innovation should pose a low-risk in
adapting to the society and the environment, which means that innovation should not create anxiety in society to be considered good and likely to be easily adopted by consumers.

These results show that the most dominant attributes seen in activity execution are the same attributes in all three organizations. This is probably because the three organizations have been executing their businesses and corporate social responsibility activities for a long time, utilizing innovation and technology long enough to be awarded innovation awards by other institutes. This enables them to understand how to demonstrate these three main attributes of innovation that they deem effective to create consumers’ adoption toward innovation.

When considering each organization separately, it was discovered that the first ranked attributes of innovation of each organization are different, which are adaptability and complexity.

The results show that, in addition to the top 3 attributes of innovation seen in the 3 organizations’ utilizing innovation to execute corporate social responsibility activities, the top ranked attributes of innovation of each organization are different. Charoen Pokphand Foods Public Co., Ltd. has adaptability as an additional top attribute of innovation seen in utilizing innovation to execute corporate social responsibility activities, while Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. have complexity. When discussing this matter with different businesses and consumers’ expectations in mind, it can be seen that because the businesses of Charoen Pokphand Foods Public Co., Ltd. are related to consumable products, such as CP Food, it would utilize innovation to execute corporate social responsibility activities. Consumers should expect that innovation to demonstrate adaptability to respond to different groups of consumers as it is food-related innovation that should be adaptable to a wide range of consumers and should not be limited to only some groups of consumers. According to Masso and Thompson (2016), good attributes of innovation should be able to adapt to society and the environment and reach a wide range of people.
Meanwhile, the business of the other two organizations, Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are related to consumable products such as sanitary ware and chemicals. If they utilize innovation to execute corporate social responsibility activities, consumers are likely to expect (un)complexity such as public bathroom innovations for society, accommodation innovation for elderly people, and BioPBS innovation in Amazon Café paper coffee cups, which require communication in execution to make it easily understandable to consumers. If the innovation does not have such attributes, along with the fact that the businesses is related to chemicals, constructions, and oil, which are hardly related to consumers in addition to being complex, such innovation is unlikely to be successfully adopted by consumers. According to Rogers (2003), good innovation should not be complicated, but easily understandable and adaptable to society and the environment.
Part 2

5.2.2 Quantitative Research Discussion

Hypothesis 2: The structural model of corporate social responsibility innovation, corporate image, corporate reputation, and corporate social responsibility innovation adoption variables created by the researcher correlates with the empirical data.

The results from the overall study and individual studies suggest that the hypothesis is mostly retained except effect values in some latent variables.

<table>
<thead>
<tr>
<th>Hypothesis 2</th>
<th>Overall</th>
</tr>
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<tbody>
<tr>
<td>rejected</td>
<td>retained</td>
</tr>
<tr>
<td>Hypothesis 2.1</td>
<td>Attributes of corporate social responsibility innovation have a positive effect to corporate social responsibility innovation adoption among Generation Y consumers.</td>
</tr>
<tr>
<td>Hypothesis 2.2</td>
<td>Corporate image has a positive effect to corporate social responsibility innovation adoption among Generation Y consumers.</td>
</tr>
<tr>
<td>Hypothesis 2.3</td>
<td>Corporate reputation has a positive effect to corporate social responsibility innovation adoption among Generation Y consumers.</td>
</tr>
<tr>
<td>Hypothesis 2.4</td>
<td>Attributes of corporate social responsibility innovation and corporate image have a positive relationship.</td>
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<tr>
<td>Hypothesis 2.5</td>
<td>Attributes of corporate social responsibility innovation and corporate image have a positive effect to corporate reputation.</td>
</tr>
<tr>
<td>Hypothesis 2.6</td>
<td>Attributes of corporate social responsibility innovation, corporate image, and corporate reputation have a positive effect to corporate social responsibility innovation adoption among Generation Y consumers.</td>
</tr>
<tr>
<td>Hypothesis 2.7</td>
<td>Attributes of corporate social responsibility innovation, corporate image, and corporate reputation can be predictors for corporate social responsibility innovation adoption among Generation Y consumers.</td>
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</table>
Analysis of CFA and SEM testing

Overall, it was discovered that measurement model and structural equation model correlate with the empirical data.

However, only the corporate reputation latent variable has an effect to corporate social responsibility innovation adoption. While the attributes of innovation latent variable and the corporate image latent variable are deemed to have no effect.

An instrument construct validity quality check with Confirmatory Factor Analysis (CFA) reveals that the measurement model of the structural model for corporate social responsibility innovation, corporate image, and corporate reputation and corporate social responsibility innovation adoption among Generation Y consumers correlates with the empirical data as more than three indicators surpass the threshold (Kraiwan, 2013) and it was discovered that the factor loading of all observed variables has a statistical significance level of 0.05.

Therefore, it was discovered that the latent variable “corporate reputation” (REPUT) consists of 3 observed variables which are social responsibility and environment (REPUT1), innovation (REPUT2), and goods and services (REPUT3). The researcher selected these observed variables from the corporate reputation paradigm and measurement by RQ, RepTrak, and research by Suangswang (2005). Having examined these scholars’ paradigms, the researcher found that corporate reputation could be a causal variable that affects corporate social responsibility innovation adoption among Generation Y consumers. Therefore, it was found that the observed variable with the most factor loading was innovation (REPUT2).

It can be discussed with the attitudes and research results of some scholars such as Rugimbana (2007) and Tapscott (2009) regarding that how the innovation
observed variable has the most factor loading among corporate reputation variables because Generation Y consumers are raised in an era with advances in technology so they tend to pay attention to technological innovation occurring in the society and tend to quickly adopt new technological innovations. They also have positive attitudes towards innovative organizations (Kengkarnchang, 2013; Mongkolsiri, 2005; Prachachat Turakij, 2016; Wittawatolarn, 2007). Moreover, they are also interested in social and environmental activities, such as volunteering in corporate social responsibility activities (Lumesse, 2017; Prachachat Turakij, 2016).

Therefore, when organizations have demonstrated corporate social responsibility for a long time, establishing their corporate reputation, Generation Y consumers are likely to look for and pay most attention to the innovation dimension. For example, Generation Y consumers are likely to consider whether an organization is a leading innovator in its field, capable of instantly adapting to social and technological changes or not.

Regarding the latent variable “attributes of innovation” (CSR) which consists of 7 observed variables such as relative advantage (CSR1), compatibility (CSR2), complexity (CSR3), trialability (CSR4), observability (CSR5), adaptability (CSR6), and low-risk (CSR7), the researcher developed these observed variables based on theories related to innovation and the first 5 attributes of innovation from Rogers (2003) and 2 additional attributes from Masso and Thompson (2016). Having examined the paradigm of these scholars, the researcher discovered that attributes of innovation can be a causal variable affecting corporate social responsibility innovation adoption among Generation Y consumers. Therefore, the observed variable with the most factor loading is observability (CSR5).
This result can be discussed with the paradigm of Rogers (2003) regarding how innovation with obvious effects, practically able to improve the society and environment, will be more likely to be accepted and adopted by the society than innovation without such attributes. This complies with Agarwal and Prasad (1999) who suggests that when consumers perceive the usefulness of innovation and believe it can improve their quality of life, the innovation will be easily adopted. Moreover, Rogers (2003) adds that in Step 4 (the implementation) of the decision-making process to adopt innovation, consumers will try using innovation with their daily life scenarios, and once they are aware of the benefits, they will move on to the last process, confirmation. For example, the invention of hybrid cars is an innovation with observability that helps drivers acknowledge how much they can save fuel and reduce air pollution at the same time (Tidd & Bessant, 2009). Therefore, this innovation has been accepted and adopted by many consumers. This correlates with research by Limwilai (2012) into an environmentally-friendly paper innovation called ‘Idea Green’. It suggests that the most important reasons for Generation Y consumers when making a decision to buy a product is knowing they are buying quality products that are environment-friendly. Therefore, the observed variable with the most factor loading among attributes of innovation is observability. Generation Y consumers will consider whether an organization’s innovation can truly improve quality of life for society, reduce pollution, save energy, and preserve nature or not.
Regarding the latent variable “corporate image” (IMAGE) which consists of 3 observed variables, which are social responsibility and environment (IMAGE1), innovation (IMAGE2), and goods and services (IMAGE3) the researcher selected these observed variables based on the corporate image paradigm and measurement developed by Wanakasemsan (2009) and Sabaiwan (2010). Having examined these scholars’ paradigms, the researcher discovered that corporate image can be a causal variable affecting corporate social responsibility innovation adoption among Generation Y consumers. Therefore, the observed variable with the most factor loading that was discovered is goods and services (IMAGE3).

![Diagram of corporate image variables](image)

This result can be discussed with the paradigm of Wongmonta (1998) stating that in the business world, organizations produce more and more similar products. Therefore, an organization must struggle to stand out from competitors, establishing obvious, good, corporate image. Therefore, goods and services are considered one of an organization’s identities created through its logo and package designs to communicate with and make sure consumers acknowledge the correct corporate image as intended. According to Theerasorn (2009), corporate image is created by several factors, one of which is the quality of the goods and services. This complies with Keller (2003) and Vungsuntitum (2007) who suggest that delivering quality goods and services in compliance with how the organization communicates with consumers will create a good experience for consumers and thus good corporate image. A behavioral survey on Generation Y consumers shows that they pay attention to product design (Prachachat Turakij, 2016). Therefore, the observed variable with the most factor loading among corporate image variables is goods and services. Generation Y consumers will consider whether an organization’s goods and services have proper quality and can give them convenience in their daily life or not, as this is a direct benefit they perceive as customers.
Regarding the latent variable “corporate social responsibility innovation adoption” (ACCEPT) which is a dependent variable of the model consisting of 6 observed variables which are perceived usefulness (ACCEPT1), perceived ease of use (ACCEPT2), attitude towards using (ACCEPT3), behavioral intention to use (ACCEPT4), actual system use (ACCEPT5), and personal innovativeness (ACCEPT6), the researcher developed and selected these observed variables based on innovation acceptance theories and measurement according to the Technology Acceptance Model or TAM (Davis, 1989; Lu et al., 2003; Sirithorn, 2011). Therefore, the observed variable with the most factor loading is behavioral intention to use (ACCEPT4).

![Diagram of factor loadings]

It can be discussed that in the Technology Acceptance Model proposed by Davis (1989), the variable “behavioral intention to use” is a variable that is affected by the previous variable in the model, “attitude towards using” then finally affects the variable “actual system use”. Thus, when explained with the attitude of Schiffman and Kanuk (2007), who believe that attitudes consist of three components, it was discovered that the observed variable “behavioral intention to use” of corporate social responsibility innovation adoption has the most factor loading probably because of the conative component in attitudes, which is a tendency for consumers’ behavior to be
based on their previous knowledge, understanding, and emotions. This also means their decision to purchase, acceptance, or participation. In other words, in order for consumers to accept innovation, knowledge, and attitudes towards the organization or innovation are not enough. It requires drive from the consumers’ behavioral intention to use, especially among Generation Y consumers who have unique characteristics compared to other generations. They tend to spend a large amount of money especially for innovative technological goods (Rugimbana, 2007). It can be said that this group of consumers enjoy researching for information about goods and services to compare them before making a decision to purchase (Tapscott, 2009). This requires real behavioral intention to use for such innovations before they accept and adopt them in their daily lives. This complies with some findings in a research by Phomun (2012) who discovered that the sample group aged 23–32 years, considered Generation Y consumers, showed the most apparent response to corporate social responsibility activities compared to other groups. It was also discovered that intention to buy has an effect on social responsibility consuming behaviors. In other words, when the samples have a high intention to buy, they tend to buy goods and services that show high social responsibility too. Therefore, the observed variable with the most factor loading among corporate social responsibility innovation adoption variables is behavioral intention to use. Generation Y consumers will consider whether to use or participate in innovation activities every time or not, and whether to keep using or participating in the organization’s innovation activities although there is something else that is similar or not.

Moreover, the results of Structural Equation Model (SEM) testing show that the structural equation model of innovation in terms of social responsibility, corporate image, and corporate reputation and corporate social responsibility innovation adoption among Generation Y consumers correlates with the empirical data as more than half of the indicators surpassed the threshold, namely 8 out of 13 indicators. (Kraiwan, 2013)
Therefore, considering effect values or path coefficients of the latent variables in the structural equation model, it was discovered that corporate reputation is the only variable that has a positive direct effect to corporate social responsibility innovation adoption among Generation Y consumers with statistical significance and with path coefficients valued at 0.74.

The observed variable with the most factor loading among corporate reputation is innovation (REPUT2).
This result can be proved by a paradigm of Pitpreecha (2014) explaining that corporate reputation is a result of the long business execution of an organization, demonstrating its ability to benefit society through its performance. Good reputation management will create “acceptance”, good relationships, and trust from stakeholders, such as consumers. This complies with Gray and Balmer (1998) who state that corporate reputation is the result of the long business execution of an organization through constant communication such as corporate reputation in terms of corporate social responsibility activities. It takes time to happen and cannot be created instantly (Theerasorn, 2009). Moreover, the three sample organizations focus on innovation and utilize innovation to constantly execute social responsibility, thus receiving innovation awards from outside organizations like the Stock Exchange of Thailand. Therefore, Generation Y consumers who have distinctive characteristics where they show positive attitudes towards innovative organizations are interested in new things like technology, designs, or solving social issues as a volunteering or as a network (Prachachat Turakij, 2016). They also expect organizations to show high social responsibility (Lumesse, 2017). These behaviors cover all 3 dimensions of corporate reputation which are social responsibility and environment, innovation, and goods and services that the researcher selected as observed variables of the structural equation model of this research. Therefore, the findings from testing of the overall structural equation model of all 3 organizations show that **“corporate reputation”** is a variable that has a positive direct effect to corporate social responsibility innovation adoption among Generation Y consumers. Especially the “innovation” dimension, which has the most factor loading among corporate reputation variables, is proof that an organization’s utilizing new technological innovation to execute social responsibility through goods and services production has a positive direct effect to corporate social responsibility innovation adoption among Generation Y consumers.

Other variables like “corporate image” only have a positive indirect effect to corporate social responsibility innovation adoption among Generation Y consumers through the corporate reputation variable first. This finding complies with the ideas of many scholars stating that corporate image is a variable created by corporate identity, then through executing corporate communication such as corporate social responsibility activities to stakeholders. Corporate image is created within consumers’
perceptions. It can be either positive or negative. However, to gain acceptance or good feedback from consumers requires time and good, constant communication to establish good corporate reputation resulting in competitive advantages. Only then does a company gain consumers’ acceptance (Barnett et al., 2006; Gray & Balmer, 1998; Pope & Voges, 1999; Theerasorn, 2009; Topalian, 1984; Vungsuntitum, 2007). Therefore, corporate image does not have a direct effect on corporate social responsibility innovation adoption among Generation Y consumers, but an indirect effect through corporate reputation first. In other words, an organization must demonstrate constant execution in these activities to establish corporate reputation in the perception of Generation Y consumers, making them trust in the organization, leading to acceptance for the organization’s corporate social responsibility innovation.

Regarding “attributes of innovation”, it was discovered that there are no effects on corporate social responsibility innovation adoption among Generation Y consumers. It can be discussed that although an organization’s corporate social responsibility innovation demonstrates all 7 attributes of innovation to create acceptance (Masso & Thompson, 2016; Rogers, 2003), Generation Y consumers are likely to see them as less important than good corporate image and reputation. In other words, no matter how attributes of corporate social responsibility innovation are, they are less important than the reliability and trustworthiness perceived by Generation Y consumers through good corporate image and reputation. There may be other factors that lead Generation Y consumers into corporate social responsibility innovation adoption such as personal innovativeness according to the research results of Lu et al. (2005) and the concept of classifications of people who accept innovation by Rogers (2003) stating that the speed and duration each consumer takes to accept innovation vary individually. Some may take a little time to accept innovation while some may take much longer to accept such innovation into their daily life. These are reasons why attributes of innovation are not factors affecting corporate social responsibility innovation adoption as other factors seem to be more dominant.

Moreover, it was found that corporate image has a positive direct effect on corporate reputation with a path coefficient valued at 0.93 which is very high. This correlates with the analysis results of overall correlations of all three organizations in this research that suggest that corporate image and corporate reputation are a variable
pair with a high level of correlation. This complies with ideas of many scholars such as Gray and Balmer (1998) who explain corporate communication procedures in managing corporate image and corporate reputation, stating that “corporate image” and “corporate reputation” are two correlating variables as a result of the organization’s communicating its identity through corporate communication procedures that function as a channel that links to corporate identity communication, creating corporate image in stakeholders’ perception and later developing it as corporate reputation after a long period of constant execution. This complies with Barnett et al. (2006) whose study collects definitions of ‘corporate reputation’ reviewing literature related to such ideas written by many scholars and concluding the definitions and presenting them through a “classifications of corporate reputation” model stating that corporate image happens before corporate reputation as people’s first impression towards the organization. The people then evaluate the organization through its execution over a course of time and create corporate reputation. Therefore, corporate image is a variable that has a direct effect on corporate reputation. In other words, if an organization has a good corporate image, its corporate reputation will be good accordingly.

Moreover, the latent variables attributes of innovation and corporate image also have a direct effect to each other with a path coefficient valued at 0.80. When the researcher took the findings from activity news content analysis into account, it was discovered that these two variables have a direct effect to each other probably because all three organizations studied in this research utilize innovation to execute their social responsibility activities that demonstrate all 7 attributes of innovation according to Rogers (2003) and Masso and Thompson (2016). Thus, they achieve good corporate image. Once an organization has a good corporate image in the three dimensions studied, which are social responsibility and environment, innovation, and goods and services, the organization should be familiar and become specialized in such execution due to the time it has taken to establish its corporate image through utilizing innovation to execute social responsibility activities, improving the organization’s attributes of innovation. On the other hand, if these organizations had bad corporate image or the innovations they used lack good attributes of innovation;
it could adversely affect the organizations. Therefore, the test results of the structural equation model in this part show that both variables have a direct effect to each other.

When considering each organization separately, it was discovered that the measurement model and structural equation model of Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are similar to each other. While the measurement model and structural equation model of Charoen Pokphand Foods Public Co., Ltd. is different.

The results of a quality check on construct validity using Confirmatory Factor Analysis (CFA) show that the measurement model of the structural model of corporate social responsibility innovation, corporate image, and corporate reputation, and corporate social responsibility innovation adoption among Generation Y consumers of each organization correlate with the empirical data as there are more than three indicators surpassing the thresholds (Kraiwan, 2013). It was also discovered that factor loading of all observed variables has a statistical significance level of 0.05.

Therefore, it was discovered that the observed variables of latent variable attributes of innovation with the most factor loading of each organization are different. Charoen Pokphand Foods Public Co., Ltd.’s is “observability” (CPCSR5), while that of the other two organizations, Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are “low-risk” (SCGCSR7) and (PTTCSR7).
The results can be discussed considering the different nature of the business of each organization. Therefore, the researcher took findings from the activity news content analysis of this research into account. The researcher found that because the nature of business of the first organization, Charoen Pokphand Foods Public Co., Ltd. is related to consumable products, such as CP Foods products, when the organization utilizes innovation to execute its corporate social responsibility activities; it is likely to relate such activities with food products. The organization supports health promotion as the third top issue after community involvement and environment protection, such as developing healthy food innovation, eco-friendly packaging designs, etc. Therefore, consumers expect that innovation utilized by the organization in developing goods and services in corporate social responsibility activities demonstrates observability. In other words, such innovation should truly create benefits in consumers’ daily life. According to Agarwal and Prasad (1999), if consumers perceive the usefulness of innovation and realize that it makes their lives better, they will accept it more easily. This complies with Rogers (2003) mentioning that consumers will try using innovation with their daily life scenarios, and once they are aware of the benefits, they will move on to the last process, the confirmation, adopting such innovation into their life.

On the other hand, the nature of the business of the other two organizations, Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are related to household products like sanitary ware, chemicals, packaging, and construction materials. Therefore, when the organizations utilize innovation to execute corporate social responsibility activities, these are likely to be related to such products. The similarity between the two organizations is how they utilize innovation to support injury prevention as the third issue after community involvement and environment protection, such as Idea Care Pack fluorescence-free paper cups with Curve Lock technology that laminates the cups with BioPBS. Therefore, consumers expect that innovation utilized by the organization in developing goods and services in corporate social responsibility activities demonstrates low-risk. In other words, it should be safe for use. According to Masso and Thompson (2016), good innovation should demonstrate low risk in applying it for use with society and the environment. It should not create anxiety to consumers to be easily accepted. It is clear that the businesses of
the two organizations are related to the safety of society. Consumers, then, pay highest attention to the innovation utilized to execute corporate social responsibility activities in injury protection, or basically low risk.

Regarding observed variables of latent variable corporate image with the most factor loading, it was discovered that it is different for each organization. For Charoen Pokphand Foods Public Co., Ltd. and Siam Cement Group Public Co., Ltd., they are “innovation” (CPIMAGE2) and (SCGIMAGE2), while PTT Group Public Co., Ltd.’s is “goods and services” (PTTIMAGE3).

Corporate image variable: Overall

Corporate image variable: Individual

Regarding observed variables of the latent variable corporate reputation with the most factor loading for each organization, it was discovered that they are different. For Charoen Pokphand Foods Public Co., Ltd. it is “innovation” (CPREPUT2), while for Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. it is “goods and services” (SCGREPUT3) and (PTTREPUT3).
It can be seen that the latent variable with the most factor loading among corporate image and corporate reputation variables of the first organization, Charoen Pokphand Foods Public Co., Ltd. is “innovation” (CPIMAGE2) (CPREPUT2), while for PTT Group Public Co., Ltd. it is “goods and services” (PTTIMAGE3) (PTTREPUT3). Siam Cement Group Public Co., Ltd. shows differences where the latent variable with the most factor loading among corporate image variables is “innovation” (SCGIMAGE2) but the latent variable with the most factor loading of variable corporate reputation is, instead, “goods and services” (SCGREPUT3).

If the results are discussed considering Gray and Balmer (1998) and Barnett et al. (2006), it can be seen that there is an overlapping principle between these scholars where they suggest that corporate image and corporate reputation are correlated, where corporate image happens first and creates corporate reputation later when the organization demonstrates constant execution. Therefore, the corporate image and corporate reputation latent variable of Charoen Pokphand Foods Public Co., Ltd. that has the most factor loading is “innovation” (CPIMAGE2) (CPREPUT2) probably because the company utilizes innovation and publicly adapts it in the execution of corporate social responsibility activities. Most of these innovations are related to consumers’ way of life, such as food innovation or utilizing innovation to execute the 7-11 convenience store business, which is considered both incremental innovation and radical innovation according to Tidd and Bessant (2009). Therefore, both
corporate image and corporate reputation of the company are obvious in terms of innovation. Consumers highly perceive the innovation dimension, regarding the company as a leading innovator with a vision to apply innovation into business execution that deserves innovation awards.

PTT Group Public Co., Ltd. has the most factor loading in “goods and services” among corporate image (PTTIMAGE3) and corporate reputation (PTTREPUT3). It is probably because the company stands out in offering goods and services that are related to consumers’ lifestyle such as gasoline stations and Amazon Café. When the company utilizes innovation to execute corporate social responsibility activities, its corporate image and corporate reputation are obvious in goods and services (product innovation). Therefore, consumers highly perceive the goods and services dimension, seeing the company’s goods and services like gasoline stations create convenience in their daily life and meet the needs of the society as the company keeps improving its goods and services.

These findings correlate with research Pitpreecha (2014) whose in-depth interviews with executives from 12 public companies suggest that public companies of all sizes mainly focus on goods and services. In addition, one of the three factors that is an indicator for business reputation in Thailand is goods and services, which means delivering quality products at reasonable prices.

Regarding Siam Cement Group Public Co., Ltd., the researcher found the latent variable with the most factor loading among corporate image variables is “innovation” (SCGIMAGE2) but for corporate reputation, it is “goods and services” (SCGREPUT3) The reason is probably how the company can utilize innovation to execute corporate social responsibility activities so prominently that it has been given innovation awards by the Stock Exchange of Thailand. Therefore, consumers highly perceive corporate image in the innovation dimension, seeing that the company is a leading innovator as it keeps developing new products based on changes in technology and the society. However, with a wide variety of products, when the company has executed its businesses over a course of time, consumers’ views will change by perceiving corporate reputation in the goods and services dimension rather than innovation. For example, whether the goods and services of the
company can meet the needs of the society and deliver standard quality which is worth the prices or not, etc.

Regarding observed variables of latent variable corporate social responsibility innovation adoption which is a dependent variable of the model with the most factor loading of each organization, it was found that there are differences. For Charoen Pokphand Foods Public Co., Ltd. it is “attitudes toward using” (CPACCEPT3), while for Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. it is “behavioral intention to use” (SCGACCEPT4) and (PTTACCEPT4).

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<thead>
<tr>
<th>Innovation acceptance variable: Overall</th>
<th>Innovation acceptance variable: Individual</th>
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<tbody>
<tr>
<td>ACCEPT 1</td>
<td>CP</td>
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<td>ACCEPT 2</td>
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<td>ACCEPT 3</td>
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<td>ACCEPT 5</td>
<td>PTT</td>
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<td>ACCEPT 6</td>
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</table>

This is probably because of differences in the businesses of Charoen Pokphand Foods Public Co., Ltd. and the other two organizations, Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd., where the nature of the business of Charoen Pokphand Foods Public Co., Ltd. is related to consumable products for society. Most of the products have a low level of relation with the consumers as they are daily-use products that require no comprehensive research before making a decision to buy, such as CP food products and 7-11 convenience stores. This is different from the other two organizations whose businesses are related to household products. Most of these products are highly related to consumers and require more knowledge in using like construction materials, chemicals, oil, gas, etc.
This discussion topic is similar to some results of research by Seritanondh (2011) suggesting that the samples in the research paid more attention to products that were highly related to them rather than products that were hardly related, leading to different statistical results in measuring the effect on corporate image from a social responsibility aspect. Therefore, the process of consumers’ adoption of innovation between these organizations is different in terms of observed variables with the most factor loading. This can be explained by the Technology Acceptance Model proposed by Davis (1989) where “behavioral intention to use” is a variable affected by the previous variable in the model, which is “attitude towards using” then affecting “actual system use” in the end. Schiffman and Kanuk (2007) explained that attitudes have three components. That the observed variable “attitude towards using” of corporate social responsibility innovation of Charoen Pokphand Foods Public Co., Ltd. has the most factor loading is probably because of affective components, which means emotions created by consumers that determine their likes or dislikes of things. With the nature of the business of Charoen Pokphand Foods Public Co., Ltd. being hardly related to consumers, it could lead to consumers using only “attitude towards using” in considering accepting the organization’s corporate social responsibility innovation.

Meanwhile, the reason that “behavioral intention to use” of corporate social responsibility innovation acceptance variable of Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. has the most factor loading is probably because of the conative component in attitudes, which is a tendency for consumers’ behavior to be based on their previous knowledge, understanding, and emotions. This also means decision to purchase, acceptance, or participation. The nature of the business of Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. involves products that consumers are highly related with. Therefore, consumers need the drive from behavioral intention to use, which is a further step after attitude towards using, to accept corporate social responsibility innovation. As the products may be expensive and complicated, consumers need time to search for information to help them make a decision to accept such innovation. Therefore, the factor loading of the observed variable “behavioral intention to use” is the highest.
Moreover, from the test results of the Structural Equation Model (SEM), it was discovered that the structural equation model of the structural model of innovation in social responsibility, corporate image and corporate reputation, and corporate social responsibility innovation adoption among Generation Y consumers of each organization correlates with the empirical data as more than half of the indicators surpassed the threshold, which is 8 out of 13 indicators (Kraiwan, 2013).

**Differences of each organization**

Considering effects or path coefficients of latent variables in the structural equation model of each organization, it was discovered that differences are only seen in the model of Charoen Pokphand Foods Public Co., Ltd. where attributes of innovation and corporate reputation latent variables have a positive direct effect on corporate social responsibility innovation adoption among Generation Y consumers with a statistically significant level with path coefficients valued at 0.33 and 0.65 respectively. Meanwhile, the models of Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are deemed as no effects.
Regarding the reasons, considering content analysis of news about corporate social responsibility activities of each organization collected from qualitative research, it is probably because Charoen Pokphand Foods Public Co., Ltd. is the only organization whose innovation utilized in executing social responsibility activities demonstrates adaptability as one of the four dominant attributes of innovation, while such an attribute is not very obvious for the other two organizations. That corporate social responsibility innovation of Charoen Pokphand Foods Public Co., Ltd. demonstrates adaptability is probably the reason why the attributes of innovation latent variable in the structural equation model has an effect to corporate social responsibility innovation adoption among Generation Y consumers. As Generation Y consumers have a fast-paced lifestyle and focus on ease of living (Kengkarnchang, 2013) while having little patience (Wittawatolarn, 2007), they expect such innovation to be able to be adopted into their daily life, especially food consumption-related innovation which is considered easy to adopt into the lifestyle of many groups of people. Such innovation is worth accepting. According to Masso and Thompson (2016), good attributes of innovation should be able to be adapted to society and environment and reach a wide range of people.

For the fact that the corporate reputation latent variable in the structural equation model of Charoen Pokphand Foods Public Co., Ltd. has an effect on corporate social responsibility innovation adoption among Generation Y consumers while such a latent variable in the structural equation models of the other two organizations is deemed to have no effect, this is probably because the factor loading of both corporate image and corporate reputation latent variables of Charoen Pokphand Foods Public Co., Ltd. are both innovation observed variables while that of the other two organizations are only seen in the corporate image latent variable or other observed variables. With the corporate reputation of Charoen Pokphand Foods Public Co., Ltd. being obvious in innovation, it may lead to the corporate reputation latent variable in the structural equation model having an effect on corporate social responsibility innovation adoption among Generation Y consumers. Generation Y consumers are raised in an era with leaping advancements in technology so they tend to pay attention to technological innovation occurring in society and tend to quickly adopt new technological innovation. They also have positive attitudes towards
innovative organizations (Kengkarnchang, 2013; Mongkolsiri, 2005; Prachachat Turakij, 2016; Wittawatolarn, 2007).

**Similarities of each organization**

However, considering similarities, it was discovered that in the model of each organization, the corporate image latent variable has a positive direct effect on corporate reputation. Charoen Pokphand Foods Public Co., Ltd. has a path coefficient valued at 0.84, Siam Cement Group Public Co., Ltd. at 0.88, and PTT Group Public Co., Ltd. at 0.85 which is very high. This correlates with the results of the overall correlation analysis of the three organizations in this research. It was discovered that corporate image and corporate reputation are a variable pair that has a high level of correlation. In other words, this finding may be a proof for the structural equation model of this research that corporate image and corporate reputation are a variable pair that are interrelated to each other regardless of what kind of business organization is tested, either one selling consumable products or one selling household products.

This correlates with the idea of corporate image and corporate reputation of many scholars whose works have been reviewed by the researcher in Chapter 2, concluding that corporate image happens before corporate reputation as people’s first impression towards the organization. People then evaluate the organization through its execution over a course of time and create corporate reputation (Barnett et al., 2006; Gray & Balmer, 1998; Pope & Voges, 1999; Theerasorn, 2009; Topalian, 1984; Vungsuntitum, 2007). This can be noticed in the principles of creating measurements of corporate image and corporate reputation of both local scholars and foreign scholars. However, these two variables always have a similar dimension in measurement, like social responsibility and the environment, innovation, goods and services, etc. (Fombrun et al., 2000; Reputation Institute, 2017; Sabaiwan, 2010; Suangswang, 2005; Wanakasemsan, 2009).

In addition, the attributes of innovation and corporate image latent variables of each organization have a direct effect to each other. Charoen Pokphand Foods Public Co., Ltd. has a path coefficient valued at 0.78, Siam Cement Group Public Co., Ltd. at 0.71 and PTT Group Public Co., Ltd. at 0.69. This correlates with the test results of
the overall structural equation model of the three organizations. For PTT Group Public Co., Ltd., there is additional correlation analysis. It was found that attributes of innovation and corporate image are a variable pair that has a high level of correlation, partly because the findings from content analysis of news in qualitative research shows that each organization utilizes innovation to execute their corporate social responsibility activities which demonstrate all 7 attributes of innovation according to the concept of Rogers (2003) and Masso and Thompson (2016), thus each organization has good corporate image. Meanwhile, good corporate image, especially in the three dimensions studied, which are social responsibility and environment, innovation, and goods and services, probably helps create reliability for the organization as well as familiarity and expertise in execution according to the explanation of Keller (2003) about corporate trustworthiness, which is one of the four dimensions of corporate image that is can create corporate image. Therefore, when the organization has expertise in utilizing innovation to improve their social responsibility execution, it can design innovation to demonstrate all 7 good attributes of innovation regardless of the business type. Therefore, the test results of the structural equation model of each organization show that these two variables have a direct effect to each other.

**Prediction analysis**

Overall, it was discovered that “corporate image” is the best predictor of the “corporate social responsibility innovation adoption” dependent variable as well as the results of Charoen Pokphand Foods Public Co., Ltd. Meanwhile, the results of Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. show other variables.

The results show that every predictor can predict dependent variables. Overall, the three organizations show that the corporate image variable is the best predictor for the corporate social responsibility innovation adoption dependent variable. When considering each organization separately, it was discovered that results of Charoen Pokphand Foods Public Co., Ltd. are similar.
However, for Siam Cement Group Public Co., Ltd., it is corporate reputation while for PTT Group Public Co., Ltd. It is attributes of innovation.

When different results are discussed together, it was discovered that the reason that corporate image is the best predictor for the dependent variable of corporate social responsibility innovation acceptance among Generation Y consumers of Charoen Pokphand Foods Public Co., Ltd. is probably because corporate image is created in consumers’ view towards an organization’s execution which results in increased expectations among consumers (Sonthijirawong, 2011) along with emergence of modern innovation. According to Hulsmann and Pfeffermann (2011), the emergence of modern communication innovation changes the way organizations work and communicate, as well as expanding consumers’ ability to access information. With information being shared quickly and conveniently, especially among Generation Y consumers, the way Charoen Pokphand Foods Public Co., Ltd. communicates its corporate image is through utilizing innovation to execute production of goods and services for consumers according to the concept of Keller (2003) that organizations can communicate to create their corporate image through goods and services as well as through the trustworthiness dimension that where organizations are leaders and experts in utilizing innovation to provide such goods and services such as utilizing innovation to manufacture healthy food products like CP non-frozen ready meals of Charoen Pokphand Foods Public Co., Ltd. which creates good corporate image in perception of Generation Y consumers and may lead to acceptance of corporate social responsibility innovation among Generation Y consumers. This correlates with some results of research by Wu and Wang (2014) that concludes that corporate image of the brand trademark is a key to changing attitudes of Generation Y consumers towards the organization. As this group of consumers tends to pay attention to corporate social responsibility activities that are compatible with their lifestyle and characteristics, this group of consumers is likely to have a positive behavior towards the organization.

The reason corporate reputation can be the best predictor for corporate social responsibility innovation acceptance among Generation Y consumers of Siam Cement Group Public Co., Ltd. is because this finding emphasizes the ever-changing trends of corporate social responsibility and the concept of sustainable development.
(McWilliams & Siegel, 2001, as cited in Preuss, 2011) stating that an organization must continue contributing to society sustainably and constantly, integrating such contributions into its corporate business on a regular basis as corporate reputation takes time to establish (Gray & Balmer, 1998). According to Pitpreecha (2014), corporate reputation is a result of long corporate execution that demonstrates the potential, capability, and performance that contributes to the society to create trustworthiness and acceptance in society. Siam Cement Group Public Co., Ltd. has been established for over 100 years and is renowned for its constant execution of corporate social responsibility activities which is reflected in its receiving several awards such as from the Stock Exchange of Thailand. The company also improves its procedures in response to innovation trends, thus receiving innovation awards. Therefore, Generation Y consumers have a positive attitude towards innovative organizations and are interested in new things, packing designs, and contributions to solving social issues (Prachachat Turakij, 2016) develop acceptance for corporate social responsibility innovation of Siam Cement Group Public Co., Ltd. mainly because of its good corporate reputation.

Finally, for PTT Group Public Co., Ltd., it was discovered that attributes of innovation can be the best predictor for corporate social responsibility innovation acceptance among Generation Y consumers probably because Generation Y consumers see that the company executes energy-related businesses. If the company were to utilize innovation to execute corporate social responsibility activities, such innovation should demonstrate all 7 good attributes of innovation (Masso & Thompson, 2016; Rogers, 2003). According to Rogers (2003), innovation that is widely accepted usually consists of two main parts: ideas and objects. In other words, for innovation to be accepted, it is not only reliant on the consumer part, but also the innovation itself as to whether it demonstrates all the good attributes of innovation or not. Together with the confirmation from the correlation test results, it was discovered that the variable pair of attributes of innovation and corporate image has a high level of correlation that shows that, for energy-related businesses like that of PTT Group Public Co., Ltd., attributes of innovation are important variables and can be used as predictors for corporate social responsibility innovation adoption among Generation Y consumers. This correlates with part of the results found by Thaikerd (2015) that
suggests that innovation acceptance (attributes of innovation) has a positive effect on decision making to book an accommodation online as well as satisfaction of online hotel booking clients (consumers’ adoption toward innovation).

Part 3

5.2.3 Comparison of qualitative research (content analysis) and quantitative research (structural equation model testing)

**Overall**

![Company Logos]

*Content analysis (organizations’ execution)*

Innovation is most utilized to support community involvement and environmental protection issues. The most dominant attributes of innovation are relative advantage, compatibility, and low-risk.

*SEM testing (Generation Y’s evaluation)*

However, the attribute of innovation with the most factor loading is observability. Attributes of innovation have no effect on corporate social responsibility innovation adoption.

The study of organizations’ execution through content analysis of news about utilizing innovation to execute social responsibility activities in the three organizations from 2014-2016 shows that the two social issues that all three organizations support the most are community involvement followed by environment protection. Probably due to limited budget, an organization cannot provide support for all social issues. Thus, they choose to mainly focus on issues that are related to their businesses (Kotler & Lee, 2005; Porter & Kramer, 2006). Moreover, supporting only a few issues helps create a clear corporate image and product positioning in consumers’ perception (Kotler & Lee, 2005).
The innovation utilized by all three organizations demonstrates attributes of innovation, where relative advantage, compatibility, and low-risk are among the most dominant. This is probably because of the emergence of modern innovation that affects corporate procedures such as combining the concepts of social responsibility and innovation into corporate goods and service production (McWilliams & Siegel, 2001, as cited in (Preuss, 2011) to provide support that contributes to social issues, hoping to sustainably develop the country (Thaipat Institute, 2008a). Innovation that is likely to be accepted should contribute to society, meaning demonstrating relative advantage. This correlates with some findings in research by Sasithanakornkaew (2015) that perceived usefulness in using online social networks has a positive effect to Generation Y’s behavior of using online social networks. Moreover, such innovation should comply with existing cultures in society, meaning demonstrating compatibility, according to Rogers (2003), together with the addition by Masso and Thompson (2016) that good innovation should demonstrate low-risk in adapting to society and the environment, which means that such innovation should not create anxiety in society.

Therefore, these results suggest that the most dominant attributes seen in activity execution for social responsibility of the three organizations are similar, probably because these three organizations have been executing their businesses and corporate social responsibility activities utilizing innovation for a long time, thus receiving innovation awards from several institutes. These three organizations have good understanding of utilizing innovation that demonstrates these three attributes of innovation deemed effective by the organizations in affecting consumers’ adoption toward innovation.

However, considered together with Generation Y’s evaluation toward corporate execution by SEM testing, it was discovered that the attribute of innovation with the most factor loading is observability, which is not the top attribute found by the content analysis of corporate news in Part 1. This is probably because Generation Y consumers tend to examine and search for information about products before making a decision to buy (Tapscott, 2009). So, they may believe that good innovation that is worth accepting should be able to demonstrate clear results such as improving society and the environment. That way, such innovation is more likely to be accepted.
and adopted by society than innovation without such attributes. This view correlates with a statement by Agarwal and Prasad (1999) that when consumers acknowledge that an innovation can actually make their life better, they tend to easily adopt it.

Moreover, the SEM testing suggests that attributes of innovation have no effect on corporate social responsibility innovation adoption among Generation Y consumers. This is probably because Generation Y consumers believe that even though corporate social responsibility innovation demonstrates all 7 attributes of innovation that lead to acceptance, (Masso & Thompson, 2016; Rogers, 2003) it is less important compared to good corporate image and reputation. In other words, no matter how attributes of corporate social responsibility innovation are, they are less important compared to the reliability and trustworthiness perceived by Generation Y consumers through good corporate image and reputation. There may be other factors that lead Generation Y consumers into corporate social responsibility innovation adoption such as personal innovativeness according to the research results of Lu et al. (2005) and the concept of classifications of people who accept innovation by Rogers (2003).
Charoen Pokphand Foods Public Co., Ltd.

Content analysis (organizations’ execution)

Innovation is most utilized to support community involvement and environmental protection issues. The most dominant attributes of innovation are similar to the overall results, except for additional adaptability.

SEM testing (Generation Y’s evaluation)

However, the attribute of innovation with the most factor loading is observability. Attributes of innovation have a positive direct effect to corporate social responsibility innovation adoption as well as corporate reputation.

The study of organizations’ execution through content analysis of news about utilizing innovation to execute social responsibility activities of the organizations from 2014-2016 shows that the two social issues that the organizations support the most are community involvement followed by environment protection probably due to the same reasons as mentioned above (Kotler & Lee, 2005; Porter & Kramer, 2006).

The innovation utilized by the organizations, similar to the overall results, demonstrates attributes of innovation, where relative advantage, compatibility, and low-risk are among the most dominant, and with the additional adaptability attribute. This is probably because the businesses of Charoen Pokphand Foods Public Co., Ltd. are related to consumable products, such as CP Food. If it were to utilize innovation to execute corporate social responsibility activities, consumers should expect that innovation to demonstrate adaptability to respond to different groups of consumers as it is food-related innovation that should be adaptable to a wide range of consumers and should not be limited to only some groups of consumers. According to Masso and Thompson (2016), good attributes of innovation should be able to adapt to the society and environment and reach a wide range of people.
However, considered together with Generation Y’s evaluation toward corporate execution by SEM testing, it was discovered that the attribute of innovation with the most factor loading is observability, which is not the top attribute found by the content analysis of corporate news in Part 1. This is probably because of the same reason as explained in the overall results. (Agarwal & Prasad, 1999; Tapscott, 2009).

Moreover, the SEM testing suggests that attributes of innovation have an effect on corporate social responsibility innovation adoption among Generation Y consumers. This finding contrasts with the previous overall results. That corporate social responsibility innovation of Charoen Pokphand Foods Public Co., Ltd. demonstrates adaptability is probably the reason why attributes of innovation have an effect on corporate social responsibility innovation adoption among Generation Y consumers. As Generation Y consumers have a fast-paced lifestyle and focus on ease of living (Kengkarnchang, 2013) while having little patience (Wittawatolarn, 2007), they expect such innovation to be able to be adapted into their daily life, especially food consumption-related innovation which is considered easy to adapt to the lifestyle of many groups of people. Such innovation is worth accepting. According to Masso and Thompson (2016), good attributes of innovation should be able to be adapted to society and the environment and reach a wide range of people.
Content analysis (organizations’ execution)

Innovation is most utilized to support community involvement and environment protection issues. The most dominant attributes of innovation are similar to the overall results, except for additional complexity.

SEM testing (Generation Y’s evaluation)

The attribute of innovation with the most factor loading is low-risk, matching with one of the attributes found in content analysis. Attributes of innovation have no effects on corporate social responsibility innovation adoption.

The study of organizations’ execution through content analysis of news about utilizing innovation to execute social responsibility activities of these two organizations from 2014-2016 shows that the two social issues they support the most are community involvement followed by environmental protection probably due to the same reasons as mentioned above in the overall results (Kotler & Lee, 2005; Porter & Kramer, 2006).

The innovation utilized by the organizations, similar to the overall results, demonstrates attributes of innovation, where relative advantage, compatibility, and low-risk are among the most dominant, with the additional complexity attribute. This is probably because the nature of businesses of the other two organizations, Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are related to consumable products such as sanitary ware and chemicals. If they were to utilize innovation to execute corporate social responsibility activities, consumers are likely to expect (un)complexity such as public bathroom innovation for society, accommodation innovation for elderly people, and BioPBS innovation in Amazon Café paper coffee cups, which require communication in execution to make it easily understandable to consumers. If the innovation does not have such attributes, along with the fact that the nature of businesses is related to chemicals, constructions, and
oil, which are hardly related to consumers in addition to its complexity, such innovation is unlikely to be successfully adopted by consumers. According to Rogers (2003), good innovation should not be complicated, but easily understandable and adaptable to the society and environment.

However, considered together with Generation Y’s evaluation of corporate execution by SEM testing, it was discovered that the attribute of innovation with the most factor loading is low-risk, which is one of the top attributes found by the content analysis of corporate news in Part 1. The nature of the businesses of the other two organizations, Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. are related to household products like sanitary ware, chemicals, packaging, and construction materials. Therefore, when the organizations utilize innovation to execute corporate social responsibility activities, they are likely to be related to such products. The similarity between the two organizations is how they utilize innovation to support injury prevention as the third issue after community involvement and environmental protection, such as Idea Care Pack fluorescence-free cone paper cup innovation with Curve Lock technology that laminates the cups with BioPBS. Therefore, consumers expect that innovation utilized by the organization in developing goods and services in corporate social responsibility activities demonstrates low-risk. In other words, it should be safe for use. According to Masso and Thompson (2016), good innovation should demonstrate low-risk in applying it for use with society and the environment. It should not create anxiety to consumers in order to be easily accepted. It is clear that the businesses of the two organizations are related to safety of society. Consumers, thus, pay highest attention to the innovation utilized to execute corporate social responsibility activities in injury protection, or basically low-risk.

Moreover, the SEM testing suggests an interesting point that attributes of innovation of these two organizations have no effect on corporate social responsibility innovation adoption among Generation Y consumers. This finding complies with the previous overall results. This is probably because Generation Y consumers believe that it is not important whether the corporate social responsibility innovation of companies executing such businesses demonstrates all 7 attributes that lead to acceptance or not (Masso & Thompson, 2016; Rogers, 2003), or regardless of
good corporate image or reputation, it does not affect their acceptance for social responsibility innovations. There may be some other factors that affect such acceptance when utilizing innovation to execute corporate social responsibility in businesses like Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. such as consumer relations level variables, the correlation between main business and social responsibility innovation, consumers’ brand loyalty, which appear in previous studies. This is an interesting topic to be studied further.

5.3 Suggestions and Limitations

Suggestions for adaptability

1. Generally, an organization should pay attention to utilizing innovation to execute social responsibility activities integrating such execution into the business plans, presenting innovation in goods and services production that contributes to supporting social issues related to its main businesses. The innovation utilized should demonstrate all attributes of innovation, especially relative advantage, compatibility, and low-risk. However, if an organization’s business is related to consumable products such as food and convenience stores, such innovation implemented should also demonstrate adaptability and observability, as the goods and services in these businesses are related to people’s daily life. Generation Y consumers tend to expect corporate social responsibility innovation to be able to be adapted to their daily life and contribute to society and the environment. However, for a business that is related to household products such as chemicals, sanitary ware, packaging, and fuel oil, it is important to determine whether such innovation demonstrates (un)complexity or not. The key point to utilizing innovation to execute social responsibility activities for these businesses is to design the communication to be as simple as possible, because the innovation in such businesses is already complicated.

2. An organization should utilize innovation to execute social responsibility activities by contributing to only a few social issues that are related to its main businesses. The communication of the innovation implemented in goods and services production for society and the environment should be clear and concise, showing how such innovation can contribute to society, how it complies with the culture, and how it
can be adapted to a wide range of people with safety. This is to establish good corporate image in society’s perception. The organization should continue communicating about the innovation constantly without changing innovation or issues too often or executing short-term activities to establish a strong image and later a sustainable reputation. This can eventually lead to corporate social responsibility innovation adoption among Generation Y consumers.

3. Once an organization has begun utilizing innovation to execute social responsibility activities and communicated to consumers regarding the innovation acceptance process of Generation Y consumers, the organization should mainly focus on their attitudes towards using and intention to use. Communication and messages should be designed to emphasize corporate social responsibility activities so that this group of consumers perceives the better and more practical usefulness of such innovation in social responsibility activities.

Suggestions for further studies

1. According to the SEM testing, it was discovered that for businesses related to chemicals, sanitary ware, packaging, and fuel oil such as Siam Cement Group Public Co., Ltd. and PTT Group Public Co., Ltd. the predictors used have no effects to the dependent variables of the model. This is probably because of other factors. Therefore, further studies may attempt to use other variables such as consumer relations level variables, the correlation between main business and social responsibility innovation, consumers’ brand loyalty, which appear in previous studies, to further test the structural equation model.

2. As this research only studies corporate image and corporate reputation variables in three dimensions, which include social responsibility and environment, innovation, and goods and services dimensions, in further studies, researchers may attempt to take into consideration other dimensions of corporate image and corporate reputation variables such as executive and employee dimensions as observed variables of corporate image and corporate reputation variables in the structural equation model to see if they correlate with the empirical data or not, utilizing this research as a guideline, to provide a knowledge body that covers all dimensions of corporate image and corporate reputation variables.
3. The overall results of content analysis of news show that the three organizations demonstrate three similar dominant attributes. However, when examining each individual organization, it was discovered that there are additional attributes. When tested in the structural equation model of the model, it was found that only in the structural equation model of Charoen Pokphand Foods Public Co., Ltd. did attributes of innovation have an effect on corporate social responsibility innovation acceptance. Therefore, in further studies, this matter can be used as an initial question as to why it is so.

**Research limitations**

1. This research was conducted on only three organizations which were Charoen Pokphand Foods Public Co., Ltd.), Siam Cement Group Public Co., Ltd., and PTT Group Public Co., Ltd. Therefore, the results of this study may not apply to other organizations with different natures of business than these three samples. Moreover, the content analysis of news about utilizing innovation to execute social responsibility activities of the three organizations was conducted only on news about the three organizations published from 2014–2016 and surveys taken by Generation Y consumers. Therefore, the results mainly refer to this specific time and to consumers in this group. With updated information, this methodology can be used as a guideline for further studies.

2. This research only examined one group of stakeholders, which is Generation Y consumers. Therefore, the results may only apply to this specific group of stakeholders. However, corporate communication involves several groups of stakeholders such as the press, investors, the community, etc. Therefore, for information about other groups of stakeholders, this study can be used as a guideline for further studies to yield broader and clearer results.
Appendix A
**Item–Objective Congruence Index: IOC**

<table>
<thead>
<tr>
<th>Relative advantage</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
<th>No. 5</th>
<th>IOC</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>+1</td>
<td>0</td>
<td>0</td>
<td>+1</td>
<td>+1</td>
<td>0.60</td>
<td>Good</td>
</tr>
<tr>
<td>2.</td>
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<td>+1</td>
<td>0</td>
<td>+1</td>
<td>+1</td>
<td>0.80</td>
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</tr>
<tr>
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<td>0</td>
<td>+1</td>
<td>+1</td>
<td>0.80</td>
<td>Good</td>
</tr>
<tr>
<td>Compatibility</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>1.00</td>
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</tr>
<tr>
<td>2.</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>1.00</td>
<td>Good</td>
</tr>
<tr>
<td>3.</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>1.00</td>
<td>Good</td>
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<tr>
<td>Complexity</td>
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<td>+1</td>
<td>+1</td>
<td>1.00</td>
<td>Good</td>
</tr>
<tr>
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<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>1.00</td>
<td>Good</td>
</tr>
<tr>
<td>3.</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>+1</td>
<td>1.00</td>
<td>Good</td>
</tr>
<tr>
<td>Trialability</td>
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</tr>
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<td>0</td>
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<td>0.60</td>
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</tr>
<tr>
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<td>+1</td>
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<td>+1</td>
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</tr>
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<td>+1</td>
<td>+1</td>
<td>+1</td>
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</tr>
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#### Charoen Pokphand Foods Public Co., Ltd.

**Social and environmental responsibility**

1. +1 +1 +1 +1 +1 1.00 Good
2. +1 +1 +1 +1 +1 1.00 Good
3. +1 +1 +1 +1 +1 1.00 Good
4. +1 +1 +1 +1 +1 1.00 Good

**Innovation**

1. +1 +1 +1 +1 +1 1.00 Good
2. +1 +1 +1 +1 +1 1.00 Good
3. +1 +1 +1 +1 +1 1.00 Good
4. +1 +1 +1 +1 +1 1.00 Good

**Product and Service**

1. +1 +1 +1 +1 +1 1.00 Good
2. +1 +1 +1 +1 +1 1.00 Good
3. +1 +1 +1 +1 +1 1.00 Good
4. +1 +1 +1 +1 +1 1.00 Good

#### Siam Cement Group Public Co., Ltd.

**Social and environmental responsibility**

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2. +1 +1 +1 +1 +1 1.00 Good
3. +1 +1 +1 +1 +1 1.00 Good
4. +1 +1 +1 +1 +1 1.00 Good

**Innovation**

1. +1 +1 +1 +1 +1 1.00 Good
2. +1 +1 +1 +1 +1 1.00 Good
3. +1 +1 +1 +1 +1 1.00 Good
4. +1 +1 +1 +1 +1 1.00 Good

**Product and Service**

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2. +1 +1 +1 +1 +1 1.00 Good
3. +1 +1 +1 +1 +1 1.00 Good
4. +1 +1 +1 +1 +1 1.00 Good

#### PTT Public Co., Ltd.

**Social and environmental responsibility**

1. +1 +1 +1 +1 +1 1.00 Good
2. +1 +1 +1 +1 +1 1.00 Good
3. +1 +1 +1 +1 +1 1.00 Good
4. +1 +1 +1 +1 +1 1.00 Good

**Innovation**

1. +1 +1 +1 +1 +1 1.00 Good
2. +1 +1 +1 +1 +1 1.00 Good
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4. +1 +1 +1 +1 +1 1.00 Good

**Product and Service**

1. +1 +1 +1 +1 +1 1.00 Good
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**Innovation**

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<th>Result</th>
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**Product and Service**

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### Part 5 Questions about Innovation Adoption

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## BIOGRAPHY

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**ACADEMIC BACKGROUND**  
Bachelor's Degree with a major in Public Relations, Communication Arts from Assumption University, Thailand in 2009.

Master's Degree with a major in Integrated Communication Management, Communication Arts from Chulalongkorn University, Thailand in 2011.

**EXPERIENCES**  
2014 to Present : Full-time lecturer of Department of Public Relations and Assistant to the Dean, Albert Laurence School of Communication Arts, Assumption University, Thailand.

2012-2013: Public Relations Account Executive, Spark Communication Agency

2010-2012: Freelance English Tutor and Research Assistant