# Investigating the Innovation Resistance of Smart Phone Usage in Taiwan

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*Abstract*--Taiwan is one of those countries with fairly high mobile phone and smart phone penetration. By 2009, Taiwan's mobile phone penetration was hovering near 110%. By June 2013, more than 45% Taiwanese over age 13 owned smart phone. However, there are still some Taiwanese intentionally refusing to accept this new product of technology innovation product, the smart phone, for different reasons. In this paper, the researcher launched in-depth interviews to interview traditional mobile users who refused to accept smart phone when choosing their "new" mobile phone. The researcher also added some quantitative survey data to ascertain those factors which may relate to innovation resistance of smart phones. This study shows that besides the much higher price of smart phone, there were still many factors which caused consumers to refuse the new technology. Those reasons include: a fear of the complexity of smart phone functions, a preference toward being free from the perceived bother or time consumption, a contentedness with their traditional mobile phone, as well as personal perceptions and poor impressions regarding smartphone users. In sum, researchers not only need to know why and how consumers accepted smart phones but also why and how they refused to adopt smart phones.

## I. RESEARCH PURPOSE

With the characteristics of neat design, and the unbounded services for sharing information, the smartphone is engaged globally in a technological storm. One of the key factors contributing to this market growth is the increasing demand for smartphones all around the world. The global market for smartphones has also been witnessing rapid technological advancement. The performance of functions in smartphones is constantly increasing with more and more hardware advancements. These advancements also provide substantial cost-, energy-, and space-saving opportunities for end-users. [1] The quantity of innovative hardware and software technology that surrounds smartphone development is significant, such as new gesture technology, bacteria-fighting glass, an iris-scanner, and quite a large number of phone-pairing wearable. [2] The innovation diffusion of smartphones inevitably raises a critical issue to be discussed from the perspectives of both new technology marketing management and communication.

Diffusion of innovations is a theory that seeks to explain how, why, and at what rate new technology or new ideas spread through societies. [3] The vast literature on innovations has predominantly restricted itself to the adoption and diffusion perspectives. One criticism given later by some researchers was that many innovation diffusion studies have the "pro-innovation bias" of researchers and their tendency to classify late adopters as "laggards." This is based on the premise that all innovations are good for the consumer and are surefire improvements over existing product substitutes.

[4] [5]

Although there is less research focusing on "innovation resistance" of new product consumers, it is still an important and interesting approach for new technology marketing or for innovation diffusion perspectives. As Ram [6] mentioned, innovations impose change on the consumer and resistance to change is a normal consumer response. Not all change is necessarily healthy and resistance on its own merit may be desirable and useful. Based on past literature, the innovation resistance of a consumer can be viewed as dependent upon three sets of factors: perceived innovation characteristics, consumer characteristics, and characteristics of propagation mechanisms.

According to Loudon & Bitta [7], certain consumer features have an effect on the consumers' will to adopt or to resist an innovation. Hoyer & MacInnis [8] indicated that consumers may lack confidence in the new technology or innovation and hence avoid the financial as well as the safety risks. The different choices or innovation adoption or resistance are considered by the consumers and they can be categorized by observed risks, perceived worth and the benefits over the other alternatives available in the market, as well as the simplicity and the ease of utilization.

In sum, there are still some Taiwanese intentionally refusing to accept smart phone for a multiplicity of reasons, though finding traditional mobile phones in the Taiwan cellphone market will gradually become more difficult. Even consumers can get a traditional mobile phone; it is usually a design for elder users or is a used one. Investigating the hows and whys of consumer resistance and their refusal to use smart phone technology is as significant and as essential as studying how and why persons adopt smart phones. In this paper, the researcher launched in-depth interviews and a telephone survey of traditional mobile users who expressly refused to consider a smart phone when choosing their "new" mobile phone.

## II. LITERATURE REVIEW

In the global market, Taiwan is one of those countries with comparatively high mobile phone penetration. By 2009, Taiwan's mobile phone penetration was hovering near 110%, with fixed lines holding a steady 55%. By May 2012, one-third of Taiwanese over age 13 owned smartphones. By June 2013, more than 45% of Taiwanese over age 13 owned smart phones. [9] [10] [11] Based on the development of new technology and the rapidly increasing market share of smartphone, an IDC survey indicated that among all cell-phone market in Taiwan, a 70% share is smart phone and only 30% use a traditional mobile phone[12].

According to a Taipei-based Typology Research Institute statement, global shipments of mobile phones will increase in 2013 as more smartphones are launched worldwide and Asia will remain the biggest smartphone market, particularly China, which has a growing need for cellphone functions. [13] Based on the global smartphone market forecast and the rapidly increasing smart phone market share in Taiwan, the adoption of smartphone is an ongoing innovation diffusion process or example which deserves discussion and research.
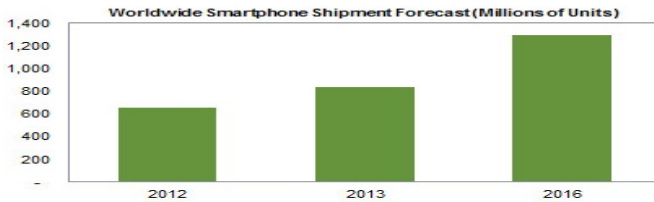


Figure 1: Worldwide Smartphone Shipment Forecast [14]
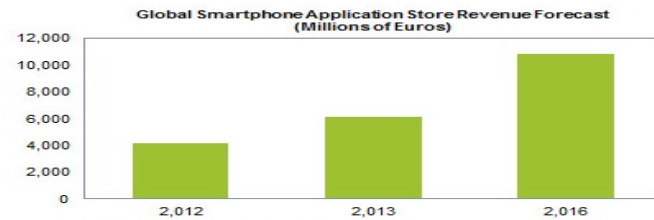


Figure 2: Global Smartphone Application Store Revenue Forecast[15]

Many innovation diffusion studies focused only on the perspectives of adoption and innovation diffusion. The primary reason for this may be the "pro- innovation bias" of researchers and their tendency to classify late adopters as "laggards." [16]

Innovations impose change on consumers, and resistance to change is a normal consumer response. Not all change is necessarily healthy and resistance on its own merit may be desirable and useful.[17] Consumers who refuse to adopt a new idea or product in society should not be just viewed as "laggards" or be blamed as persons who are out-of-fashion or anachronistic without understanding their reasons for resistance first. "Some scholars have, thus, suggested that studying the process of innovation resistance must be given attention …. Therefore, it is about time we respect to individuals who resist change …, understand their psychology of resistance and utilize this knowledge in the development and promotion of innovations rather than thrust upon them preconceived innovations…." [18]. "Resistance to change may be defined as any conduct that serves to maintain status quo in the face of pressure to alter the status quo" [19]. Innovation resistance is the resistance offered by consumers to changes imposed by innovations.

Innovation resistance is a special version of resistance to change which relates to psychological equilibrium; since any change imposed on their behavior has the potential to disturb this equilibrium, the consumer thus more often opts for resisting the change than being disturbed [20].

Base on the literature review, hence, it is quite important that innovation resistance of smartphone is studied. The objective of this paper is to interview young traditional mobile phone users who refuse to adopt smartphones and compare their thoughts with experienced smartphone users to investigate why they refuse to change, and their choice regarding their next "new" mobile phone. As Ram [21] indicated, innovation resistance is not the obverse of innovation adoption. Adoption begins only after the initial resistance offered by the consumers is overcome. It is quite important that innovation resistance per se is studied to help researchers and marketing persons know more about the process of innovation diffusion.

## III. RESEARCH METHOD AND ANALYSIS

In this application study, the researcher launched several consumer in-depth interviews to gather information regarding how and why consumers refuse to adopt smart phones when they decided to purchase a "new" mobile phone. Moreover, the researcher also interviewed five smart phone heavy users to compare with consumers who resist adopting this new technology product, the smart phone.

From March 2013 to April 2013, the researcher posted advertisements and posts on PTT Bulletin Board System (BBS), which is the largest BBS in Taiwan, to call for volunteers who own and are using traditional mobile phones to be interviewees. At the same time the researcher invited five smart phone users as interviewees who are familiar with the hardware and software of smartphones. This study found five traditional mobile phone users and five smartphone heavy users to be interviewees; their ages were between 23 and 37 years old. For details of the interviewees of traditional mobile phones, please see Table 1; for the details of smart phone heavy users, please see Table 2.

TABLE1: INTERVIEWEES OF TRADITIONAL MOBILE PHONE USERS

| Interviewee | gender | age | occupation | mobile phone brand |
|---|---|---|---|---|
| A1 | male | 24 | soldier | Sony Ericsson |
| A2 | male | 23 | graduate student | Sony Ericsson |
| A3 | male | 37 | insurance agent | Nokia |
| A4 | female | 24 | assistant | Nokia |
| A5 | male | 23 | graduate student | Nokia |

TABLE2: INTERVIEWEES OF SMART PHONE HEAVY USERS

| Interviewee | gender | age | occupation | smartphone brand |
|---|---|---|---|---|
| B1 | male | 25 | graduate student | iPhone 4S/ 1year |
| B2 | female | 25 | app evaluator | iPhone 5/ 2months |
| B3 | female | 25 | graduate student | htc radar/ 2 years |
| B4 | female | 23 | graduate student | Sony Xperia/2 years |
| B5 | female | 23 | software engineer | Sony Xperia5/2 years |

In addition, throughout March and April 2013, the researcher launched a national telephone survey in Taiwan, obtaining a representative sample with 1031 responses. This sample was divided into two subsamples; the non-smartphone users' sample had 548 responses and the smartphone users' sample included 483 responses. In this paper, the researcher used responses from the non-smartphone users' sample as supplements to the interview results.

## IV. ANALYSIS

*A. In-depth interview results*

Below are the main findings from these in-depth interviews. The researcher focused primarily on those who refused to adopt smart phones (A1 to A5) and compared their answers with those who are experienced smartphone users (B1 to B5).

1. Mobile phone usage and preferred functions

For those traditional mobile phone users (A1, A2, A3, A4, A5), most use their cell phones to make calls, send and receive SMS, and use as their alarm clocks or radio. It seems they only need very basic cell phone functions. Their preferred brands of cell phones are Sony Ericsson and Nokia. They usually carry their mobile phones with them and are very content with those functions that traditional mobile phones provide. As an example, the answer from A3 replied "For me, the most important cell phone functions are making and getting phone calls, texting and alarm clock. It is just a tool for communication. I prefer to use the brand Nokia due to that I am used to its interface and I broke my cell phones or lost them easily and I think Nokia has a better quality."

Compared with traditional mobile phone users (A1, A2, A3, A4, A5) whose concerns lie more with the basic functions cell phone can provide for communication to help with their work or daily activities, those smart phone users (B1, B2, B3, B4, B5) are very satisfied with their smart phone diversified functions. At the same time, they care about their smart phone brand images. Smart phone users pay attention to what smart phone brand images can bring to them. As B1 mentioned "The brand I am using now is iPhone 4S; most of my friends and coworkers are using iPhone, I chose iPhone because of them. I like the many functions it can provide, especially music due to the fact that I was an iPod user. After I got a smart phone, I still can move all my music from iPod to iPhone easily. In my opinion, Apple iPhone brand image is fashion and simplicity."

2. The possibility to adopt a smartphone

For traditional mobile phone users (A1, A2, A3, A4, A5), only one of them (A5) thought that he would probably change to using a smartphone as his "new" phone, if he broke his cell phone. The other four interviewees indicated that smartphone is a combination of all 3C products; especially the function to get online is attractive for many people. In their opinions, those functions are not necessary but people are easily to be addicted to them. People, they believe, pay too much attention to the web community, Facebook, Line or WhatsApp. This will damage people's interpersonal relationship in reality. So they noted that unless they could not find a traditional cell phone on market, they will still choose traditional mobile phone as their next "new" mobile phone. As A4 indicated," I observed that most smartphone users prefer smartphones because of getting online or playing games everywhere and anywhere. For me, I usually hook to the internet using computers all day while I am working; I don't need to carry a device to log on to the internet everywhere. In addition, it is still more convenient to type or use internet functions via PCs or notebooks." "It is too easy to be bothered if you have a smartphone: your boss can make you 'on call' every minute."

3. The perceived impression of smart phone users

For most traditional mobile phone users, they have bad impressions regarding some smart phone users who focus on their smart phones all the time and neglect people or things around them. They think those smart phone users do not respect other persons around them. In Chinese culture, it is not very polite for smart phone users to be busy chatting or playing games on their smart phones while neglecting others during a family gathering or a conversation.

For example, A4 said ,"I had a conversation with a smart phone user who was playing his smart phone frequently during our conversation. I felt that he did not respect me." A5 mentioned, "I felt sometimes it was an excuse for smartphone users when they don't want to listen or pay attention to some persons or things. When they don't want to talk with their parents, they start to play with their smart phones." A3 said, "I think smart phone usage will affect the interpersonal interaction ability of the next generation. I have attended some dinner parties or family gatherings, I noticed that friends of my generation, middle-aged persons, knew that it's not polite and respectful to use smartphone during that kind of occasion, but they let their children play with smartphones while we were having conversations."

4. Opinions regarding diversified smartphone functions

Regarding the issue of whether it is necessary to develop so many diversified functions for a cell phone as what smart phone can do now, most traditional mobile phone users think the most important basic functions for a cell phone are calling and texting. All other attached functions may be helpful, but there is no one person who can use all of those functions. A smart phone is a combination of all other 3C products. By observing smart phone users, they knew smartphone can do a variety of functions but for them what is most important is whether their lifestyle actually requires those functions. Most traditional smartphone users refuse to adopt smartphones after consideration and some of them refused to adopt smart phones even when they could afford one or even when they felt social pressure from their peer groups and friends. For example, A3 mentioned, "I only need the communication function from a cellphone which means I can use my cell phone for calling out, getting calls and texting. Based on my observation, smartphone producers are using those diversified functions to enlarge their market. So they combine functions of digital camera, computer, internet, PSP…for a smartphone. But I notice that no one can use all these functions on smartphones and actually we already have devices for those functions and perform even much better. I think with a traditional mobile phone and a tablet can satisfy what I need in my daily life so I don't need those diversified smartphone functions." A1 added, "What functions do we really need for a cell phone and use most frequently? Making phone calls and getting phone calls. "

Compared with traditional mobile phone users (A1, A2, A3, A4, A5) who care only about calling and texting functions of cell phones, all smart phone users (B1, B2, B3, B4, B5) appreciated those diversified functions their smartphones offered, and they also suggested some other possible extended functions for the next generation smartphones, such as ones that are more affordable or more convenient to carry, ones with better functions for connecting to the internet, or a hope of being able to replace computers or providing head-wearing and projection. As B3 indicated, "I would like smart phones if could be more durable, lighter and have a projection function so I don't need to get a big screen TV. I also wish it could be more personalized and protect my privacy. For example, it could recognize my finger prints or other personal features so only I can use my smartphone."

5. The necessity to log onto the internet via mobile phone

Most traditional mobile phone users (A1, A2, A3, A4, A5) thought it unnecessary to use a mobile phone to connect to the internet. Firstly, there are many Wi-Fi hotspots in Taiwan's metropolitan areas; there was no felt need for using mobile phone 3G or 4G internet functions. Secondly, the traditionalists tended to believe that having an internet connection at all times was not necessary, and using mobile phone internet functions confirms their sense that human beings are increasingly controlled by technology. The incessant following of Facebook or Line message would, to

them, indicate that a person is much too concerned about his/her image in the virtual internet community and is neglecting the "real world" all around.

For example, A2 stated that "People really don't need to be addicted to the internet; without mobile internet devices we can still live a similar lifestyle. I am not a Facebook person; it would be a bother if I needed to catch up on those messages every moment the phone vibrates. I think we should not be controlled by technologies or tools."

6. The pressure from peer groups and friends

The late adopters of new technologies are often viewed as "laggards", but do these traditional mobile phone users feel pressure from their peer groups or friends? In what ways do they deal with it?

Most traditional mobile phone users stated that they did observe others being forced to change to use smart phones due to peer group pressure. They also believe that when a person with enough disposable income to pay for smart phones and monthly data plans still declines using one, that decision displays his/her sense of self-confidence. As A3 mentioned during the interview, "Lots of my friends are new technology products earlier adopters; they tried to show their smartphones to me and persuade me to get one. And they all knew that I have the disposable income to pay for a smart phone. But in my opinion, I don't like to follow or be followed by Facebook friends. Instead, I prefer personal interaction in reality and I would like to protect my privacy. That is one main reason why I don't adopt smartphones. "

"I think peer group pressure is different from getting involved into group activities. I did not care whether there is pressure from friends because, given the cost to change to a smart phone, it does not bother me. But I am a bit worried that I lose opportunities to participate in some of the group activities since I am not a smart phone user. My classmates or friends frequently interact with each other via Facebook, Line, or What'sapp on smartphones. I was easily forgotten or skipped because it's a bother for them to figure out how to contact me immediately," said A2.

7. Do smartphones (device and service) cost too much?

The cost for adopting a smartphone and its 3G or 4G service appears to be an important issue for traditional mobile phone users. Some of them believe it costs too much to adopt a smartphone. For example, interviewee A1 noted, "I can accept the cost of the smartphone device at less than 200USD, but the more important issue is that the cost of the monthly 3G mobile internet data plan is too high (40USD to 50USD monthly). Now I use the traditional mobile phone and this service cost only 6USD monthly." "Price is one reason that I refuse to change to smart phones," said interviewee A4.

Smart phone users have differing viewpoints when compared with traditional mobile phone users,. Some are heavy cell phone users so even as traditional mobile phones users the telecommunication service was already costly. With their smartphones, they can use App, such as Line,

whatsApp to chat or make free calls with friends. For these heavy cell phone users, using smart phones and related apps can actually save money sometimes.  Conversely, several of them did agree with their use of smartphones, the data service cost were much steeper. They paid more for smartphone usage.

For example, B1 commented, "Adopting smart phones save money for me, because I use the technology to communicate with friends at almost every moment. I used to send SMS or made calls with friends when I used traditional mobile phones. Now I use Line, WhatsApp, Facebook or other apps on smartphones to communicate with friends and family. Right now my data service costs me 45 USD monthly. That is even cheaper than what I paid while I was using traditional mobile phones. Moreover, B2 mentioned, "It did cost me more after I changed to use smart phones because of the internet usage cost. And if you use a smartphone without using mobile internet for saving money, there will be a lot of functions you could not use, so I do need to pay more for service. "

8. The next "new" mobile phone

Another question for the interviewees was, "What is the next mobile phone you would choose – a smart phone or a traditional mobile phone? Which brand?"

Four of the traditional mobile phone users answered that, for a variety of reasons, they will endeavor to find a traditional mobile phone. They worried whether they will find a non-smart phone in the electronics marketplace in the coming years. Only one said that he would probably consider getting a smart phone for his next new mobile phone.

For example, A3 mentioned, "If Nokia is still offering a traditional mobile phone when I am picking my next new mobile phone, I will still get a Nokia. If not, then I will try to find another brand which provides traditional mobile phone."

A5 said, "I think my next mobile phone would be a smartphone. It is not bad to be able to enjoy some functions on one device if you are bored, such as when you are riding the metro or bus."  A4 added, "If I cannot find a traditional mobile phone in the future, I would be forced to change to

using a smart phone, but I would feel bad because usually a smartphone has a bigger screen and bigger size and I like the small size of the traditional mobile phone. Also, using a smartphone will bring me too much information at the same time. I think knowing everything is knowing nothing. I would worry that I could not focus on things I really need to pay attention to."

*B. Telephone survey results*

The factor the researcher investigated initially regarding the smartphone resistance of non-smartphone users was consumers' awareness and knowledge regarding smartphones. Among non-smartphone users, only 20.5% of them felt themselves to be mostly unknowledgeable regarding smartphones; most of them (over 65%) thought they were early observers and knowledgeable regarding the development of smartphone among their peer groups. Furthermore, 68.2% non-smartphone users considered internet service unnecessary for a cell phone (See Table 3).

Based on some innovation resistance studies, researchers examined functional barriers and psychological barriers. Functional barriers are difficulties consumers perceived with regards to new technology usage. In this survey, most non-smartphone users did not experience or perceive functional barriers to smartphones. Near 60% non-smartphone users were unconcerned regarding the internet speed of mobile internet, smartphone battery duration, mobile internet data quality, the small screen size for browsing, or about difficulties in operating mobile internet usage smoothly if they did have a smartphone. Roughly 35 to 40 percent of non-smartphone users did admit concerns about smartphone functions. On the contrary, over 70% of non-smartphone users thought they had little need for mobile internet, though they thought it would not be difficult to learn how to access the internet with a smartphone. A primary reason for their refusal to obtain a smartphone (over 70% of non-smartphone users) was they did not believe mobile internet was necessary and they (80% of non-smartphone users) considered the cell phone functions of making calls and texting to suffice (See Table 4).

TABLE 3: SMARTPHONE RESIDENCE FACTOR 1—LEARNING ABOUT SMARTPHONE

| Do you agree that you know about "smartphones"? | | |
|---|---|---|
| | Frequency | Percentage |
| Strongly agree | 12 | 2.2 |
| Agree | 364 | 66.4 |
| Slightly agree | 65 | 11.9 |
| Disagree | 106 | 19.3 |
| Strongly disagree | 1 | 0.2 |
| **Total** | **548** | **100.0** |
| Do you agree that having internet service is unnecessary for a cell phone? | | |
| | Frequency | Percentage |
| Strongly agree | 7 | 1.3 |
| Agree | 270 | 49.3 |
| Slightly agree | 97 | 17.7 |
| Disagree | 174 | 31.8 |
| Strongly agree | 0 | 0.0 |
| **Total** | **548** | **100.0** |

TABLE 4: SMARTPHONE RESIDENCE FACTOR 2—FUNCTION BARRIERS

Would you be concerned about the internet speed of mobile internet if you have a smartphone?

| | Frequency | Percentage |
|---|---|---|
| Very concerned about it | 6 | 1.1 |
| Concerned about it | 104 | 19.0 |
| Slightly concerned about it | 108 | 19.7 |
| Not concerned about it | 330 | 60.2 |
| Not concerned about it at all | 0 | 0.0 |
| **Total** | **548** | **100.0** |

Would you worry that the battery of smartphone would run out quickly if you have a smartphone?

| | Frequency | Percentage |
|---|---|---|
| Very worry about it | 6 | 1.1 |
| Worry about it | 117 | 21.4 |
| Slightly worry about it | 113 | 20.6 |
| Not worry about it | 312 | 56.9 |
| Not worry about it at all | 0 | 0.0 |
| **Total** | **548** | **100.0** |

Would you be concerned that the mobile internet data quality would be bad if you have a smartphone?

| | Frequency | Percentage |
|---|---|---|
| Very concerned about it | 4 | 0.7 |
| Concerned about it | 103 | 18.8 |
| Slightly concerned about it | 117 | 21.4 |
| Not concerned about it | 324 | 59.1 |
| Not concerned about it at all | 0 | 0.0 |
| **Total** | **548** | **100.0** |

Another issue of innovation resistance is that of psychological barriers, that is, the adoption of new technology as conflicting with consumers' values, feelings or other psychological factors. In this survey, the researcher found that smartphone users' addiction to mobile internet usage or nonstop interaction with others in a virtual reality conflicted with most non-smartphone users' value and left a bad impression regarding smartphone usage for non-smartphone users. More than 70% of non-smartphone users agreed that smartphone users usually were overly addicted to smartphone usage and neglected persons around them, thus leaving a bad impression. More than 75% of non-smartphone users agreed with the statement that smartphone usage would reduce the personal interaction with others in reality. This revealed that there may be psychological barriers for non-smartphone users based on their values and their observation that smartphone usage reduced face-to-face interpersonal interactions (See Table 5).

Former innovation resistance research would likewise state that the financial risk of adopting a new product might be a barrier. In this study, the survey data showed that only 18.8% non-smartphone users would adopt a smartphone if the price was under 5000NT (less than $170 USD). And 60.2% of non-smartphone users said that regardless of the cost of a smartphone, they would not seek to purchase one (See Table 6). These figures indicated that some non-smartphone users did consider the financial risk of smartphone adoption, and would prefer to be able to obtain one at a lower cost. However, it appears that for 60% of non-smartphone users, a smartphone is no necessity and are uninterested in adopting a smartphone even for a lower price (See Table 6, 7).

TABLE 5: SMARTPHONE RESIDENCE FACTOR 3—PSYCHOLOGICAL BARRIERS

Do you agree with the statement that smartphone users usually are too addicted to smartphone usage and neglect persons around them, thus leaving people with a bad impression of them?

| | Frequency | Percentage |
|---|---|---|
| Strongly agree | 11 | 2.0 |
| Agree | 217 | 39.6 |
| Slightly agree | 167 | 30.5 |
| Disagree | 153 | 27.9 |
| Strongly disagree | 0 | 0.0 |
| **Total** | **548** | **100.0** |

Do you agree with the statement that smartphone usage would reduce the personal interaction with people in reality?

| | Frequency | Percentage |
|---|---|---|
| Strongly agree | 7 | 1.3 |
| Agree | 259 | 47.3 |
| Slightly agree | 151 | 27.6 |
| Disagree | 131 | 23.9 |
| Strongly disagree | 0 | 0.0 |
| **Total** | **548** | **100.0** |

TABLE 6: SMARTPHONE RESIDENCE FACTOR 4—FINANCIAL RISK BARRIER

What price for a smartphone device cost would persuade you to adopt one?

|  | Frequency | Percentage |
|---|---|---|
| Less than 5000NT | 103 | 18.8 |
| 5001NT-10000NT | 67 | 12.2 |
| 10001NT-15000NT | 39 | 7.1 |
| 15001NT-20000NT | 7 | 1.3 |
| More than 20001 | 2 | 0.4 |
| Regardless of the smartphone's cost, I would not adopt one | 330 | 60.2 |
| **Total** | **548** | **100.0** |

TABLE 7: THE POSSIBILITY FOR NON-SMARTPHONE USERS TO ADOPT SMARTPHONE

Would you like to adopt a smartphone in the near future?

|  | Frequency | Percentage |
|---|---|---|
| Strong interest in adopting a smartphone soon | 3 | 0.5 |
| Interested in adopting a smartphone | 110 | 20.1 |
| Slightly interested in adopting a smartphone | 78 | 14.2 |
| Would not be interested in adopting a smartphone | 355 | 64.8 |
| Would not at all be interested in adopting a smartphone | 2 | 0.4 |
| **Total** | **548** | **100.0** |

## V. CONCLUSION

Based on the interviews with traditional mobile phone users and experienced smart phone users, here are some conclusions:

1. All interviewed traditional smartphone users are young or middle aged and are capable in internet and computer use. Some of these traditional smart phone users refuse to use a smart phone because of the cost to get a smart phone device and its data plans. But most of them are very content with their traditional mobile phones, and their lifestyle or personality is in sync with the belief that being constantly connected to the internet though mobile devices is not a necessity. Being freed from the bother, the time-consumption, the information overload and virtual interpersonal relationships is preferable. On the contrary, each of the smart phone users believe their ability to connect to the internet is one of the most important functions of smartphone. In the future, they believe, smartphones need to further improve internet capabilities.

2. The higher price of smart phone devices and data plans is one reason the interviewees refuse to change to smart phones. Most of them believe they will continue to resist using a smart phone usage until the traditional mobile phone is no longer available on the cell phone market. Some also were concerned that their lifestyle might be controlled or their privacy may not be well-protected if they chose to adopt using a smart phone.

   Conversely, the smartphone users do not find the higher costs of smartphones and the related data service to be a deterrence; some found they could actually reduce costs by moving to a smart phone given the savings gained by using free Apps such as Line or WhatsApp to communicate with friends and family in lieu of phone calls or texting.

3. Traditional mobile phone users do not worry whether they are able to handle the many diversified functions of a smart phone, so there are no function barriers. However, their personalities show they tend to be neither new technologies innovators nor earlier adopters. Also, some have negative impressions about the "addicted" smartphone users who neglect the interpersonal interactions with real-life people.

4. Traditional mobile phone users prefer smaller cell phone devices due to its convenience in transporting. Contrary to the trends of the product features of smartphones, they do not find a multitude of functions to be a cell phone necessity. The interviewees of smartphone users, however, expect the next generation smartphone to provide more diverse functions.

5. Most interviewed traditional mobile phone users would like to continue with the same brand and same traditional mobile phone they are using now whenever a new purchase is necessary. They did, however, show concern whether non-smart phones will be available in the coming years.

6. In this paper, the researcher divided smartphone resistance into four factors: knowledge acquisition regarding smartphones, functional barriers, psychological barriers, and financial risk. The survey results indicated that most non-smartphone users felt they had already observed smartphone usage and were knowledgeable regarding their features and use. No functional barriers presented themselves for 60% of smartphone users. However, some psychological barriers and perceived financial risks seemed to exist. Most non-smartphone users thought that many smartphone users were addicted to smartphone use and neglected people and things

around them, leaving others with a negative impression. Most non-smartphone users also thought smartphone usage reduced one's ability for real face-to-face interactions with others. The survey results showed that a lower financial risk of obtaining a smartphone could attract some non-smartphone users to change.

In sum, as mentioned in the above literature review, innovations impose change on the consumer and resistance to change is a normal consumer response. Not all change is necessarily healthy and resistance on its own merit may be desirable and useful. For young Taiwanese consumers, many had already transitioned to the smartphone, however, some consumers such as those we interviewed for this study refused to adopt smartphones even under peer group pressure. This was due to the higher cost of smartphone devices and service, the consumers' personalities, their lifestyle, their negative impression regarding smartphone users, and their desires to avoid becoming addicted to new technology products or the internet usage.

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