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Understanding IT adoption and consumption within the social structure of a consumer's economy

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ABSTRACT

Research into adoption, acceptance and consumption of Information Technology (IT) within its diffusion cycle has been extensively studied in Information Systems (IS) and marketing. However, research often focused too narrowly on technology adoption rates and drivers leading to technology adoption and acceptance. This paper discusses how understanding the social structure of a consumer's economy, a consumer's portfolio of capital resources, can reveal the individual's approach and experiences towards technology adoption and consumption present and future. It provides a novel multi-disciplinary and practical approach into understanding the technology consumer by looking at how economic, cultural, social, educational, technological and political capital resources differentiates consumer coping with complex technology consumption experiences. The cultural capital of three technology consumers is specifically compared in this paper. Outcomes from this research will assist designers and marketers in enhancing the future design and promotion of personal technologies.

Keywords

Social structure, capital resources, economic, cultural, social, educational, technological, political, adoption, consumption.

INTRODUCTION

Why do individuals, even with similar individual characteristics such as age, gender and innovativeness, adopt and consume technologies differently? Because we are individuals and because adoption and consumption is characterized by complex human behaviors involving individual's actions within the community, rather than in isolation (Bagozzi, 2007). For several decades, understanding IT's complex diffusion meant measuring and predicting people's decision to adopt, accept and consume technology. At the center of such IS and marketing research were the notable Technology Acceptance Model (TAM) and Diffusion of Innovation Model (DIM), however extension research to TAM and DIM focused too narrowly on demographics, perceived qualities and work-related factor rather than understanding the in-depth characteristics of the decision maker and human consumer. This paper converge theories across disciplines and introduces the social structure of a consumer's economy (Bourdieu, 2005) to understand how our social structure shapes individual's understanding and experience with IT adoption and consumption by understanding where they come from, where they are heading, and how accumulated experiences influences future experiences.

CONCEPTUAL BACKGROUND

Adoption, acceptance and usage frameworks

The TAM is one of the most cited IS frameworks developed for investigating IT adoption, acceptance and rejection. It parsimoniously introduced perceived usefulness and perceived ease of use to predict attitudes towards technology usage and actual usage. From Davis' (1989) premier article, numerous researchers have expanded TAM in different contexts and technologies, adding a copious amount of control factors to empirically verify TAM's robustness and extend its range (Bagozzi, 2007; Lee, Kozar, and Larsen, 2003) and to coherently unify competing frameworks with TAM (Venkatesh, Morris, Davis, and Davis, 2003). However, as Bagozzi (2007, p245) noted, such unified model still has "41 independent variables for predicting intentions and at least eight independent variables for predicting behavior". What the field of IS and TAM requires is not a further broadening with more predictors, but a deepening to explain perceived usefulness and perceived ease of use and how it produces the outcomes of usage (Bagozzi, 2007). The research described in this paper investigates one of TAM's shortfalls as identified by Bagozzi (2007, p248): the "group, cultural, or social aspects of technology acceptance" and decision making by individual persons.

An alternative to addressing the identified shortfall is to combine TAM with DIM (Rogers, 2003). Similarly, DIM has generated considerable attention, developments and extensions to study how innovations are communicated over time in the social system. TAM intertwines with DIM especially with the characteristics determining innovation's rate of adoption, consumers attitude to adoption and non/adoption decision determinants (Viswanathan and Goldhaber, 2003). However DIM still does not provide adequate depth in understanding the IT adopter and consumer beyond demographics or adopter type. This research uniquely understands the individual from an economic, cultural, social, educational, technological and political perspective to understand how the social structure of an individual's economy influences technology adoption and consumption.

Theory of capital resources

Bourdieu (1984; 2005) developed the prominent social structure of a consumer's economy to understand our social world, our accumulated history constituted into capital resources. He developed the concepts of habitus and field to explain the complex subject of human social actions, idea formulation and dispositions. Habitus, is a post-structuralist system of durable and transposable structured thoughts, practices and dispositions developed over a person's history of inculcated beliefs and actions (Bourdieu, 1984; Palumbo-Liu and Gumbrecht, 1993). It challenges the concept of free will, whereby a person's action is limited by their comprehendible options. Members within the same social composition are expected to enact similar dispositions and practices, constituting a class habitus which binds the members together by a network of structural and functional connection called field (Wacquant, 1996). Fields provide society an arena where actors of different social classes and habitus compete for placement and status through the acquisition and reproduction of various capitals (Holt, 1998).

Capital "holds a promise and aura of measurability, which in market-driven times is a highly strategic attribute" (Pieterse, 2000, p1). It assists in explaining why we find enduring differences in the course of action people adopt under various situations, leading to a myriad of consequences – because different people have different values, attitudes, beliefs and habits and will react differently even in similar situations (Inglehart, 1990). Such distinctions are beyond the superficial economic divide that evidently exists in our society (Rojas, Straubhaar, Roychowdhury, and Okur, 2004). Capital refers not only to monetary capital, but more the personal interrelationships between our pertinent social properties including cultural tendencies, education level social networks, technological awareness and even political activism. As such, capitals or capital resources, are disparate with traditional physical resources, but share the same investment concept. Capital can also be termed capital resource to characterize the production returns capabilities by individuals from stored wealth and is not easily transferrable or tradable between individuals but is inheritable, accumulated and reproduced by individuals to increase capital volume to be accessed by the individual to produce economic and non-economic profits to compete and position themselves in the social arena (Bourdieu, 1984, 2005). The portfolio of capital resources can constructively or destructively impact on an individual's adoption and consumption of technology.

Research (Bourdieu, 1984; Dubelaar and Kates, 2003; Holt, 1998; Rojas et al., 2004) suggests a correlation between an individual's access to their reproduction of capital resources with consumption, including technology consumption. Consumption can serve as a potent site for cultural capital reproduction, whilst social, educational and technological capitals can facilitate both access and restriction to technological judgment and consumption. To better understand the motivations that inspire individuals to accept, reject, resist or cope with technological innovations, it is necessary to understand their capital resource portfolio, how it was constructed; how it relate to each other and where is it taking them in the future.

Forms of capital

Capital can present itself in different forms depending on the field of interest. However, all consumers possess three core forms: economic, cultural and social capitals. **Economic capital** is the most recognizable form and can be directly converted into monetary capital. It may be institutionalized as financial resources, occupation, time availability, demographics and property rights (Bourdieu, 1984, 1986). The volume of economic capital is demonstrated by the availability, liquidity and diversity of the economic resources. All subsequent "types of capital can be derived from economic capital" (Bourdieu, 1986, p53) as shown in Figure 1.

Cultural capital is the set of socially distinctive skills, knowledge, practices and tastes that is enacted in fields of consumption through art, food, interior, décor, clothing, hobbies and sports (Holt, 1998). Possession of cultural knowledge and competencies allows individuals to enact distinctive modes of consumption tastes and practices (Holt, 1998; Rojas et al., 2004). It exists in three main forms which will be contrasted later: embodied as implicit practical knowledge, skills and dispositions; objectified in cultural objects; and institutionalized in official degrees/diplomas certifying the embodied form; typically accumulated via family upbringing, formal education and occupational culture (Bourdieu, 1984, 1986; Holt, 1998).

Cultural capital volume is determined by the individual's and their father's, for patriarchal-oriented families, education and occupation (Holt, 1998).

Social capital is the aggregate of an individual's durable membership and reach within groups, from networks of family, friends, acquaintances and organizational affiliations (Bourdieu, 1984, 1986). It encompasses civic engagements and social connectedness featuring norms, policies and social trust built upon reciprocity (Putnam, 1995). The volume of social capital depends on factors including the size and diversity of the network of connections and how effective the individual can mobilize the network towards a goal (Bourdieu, 1986).
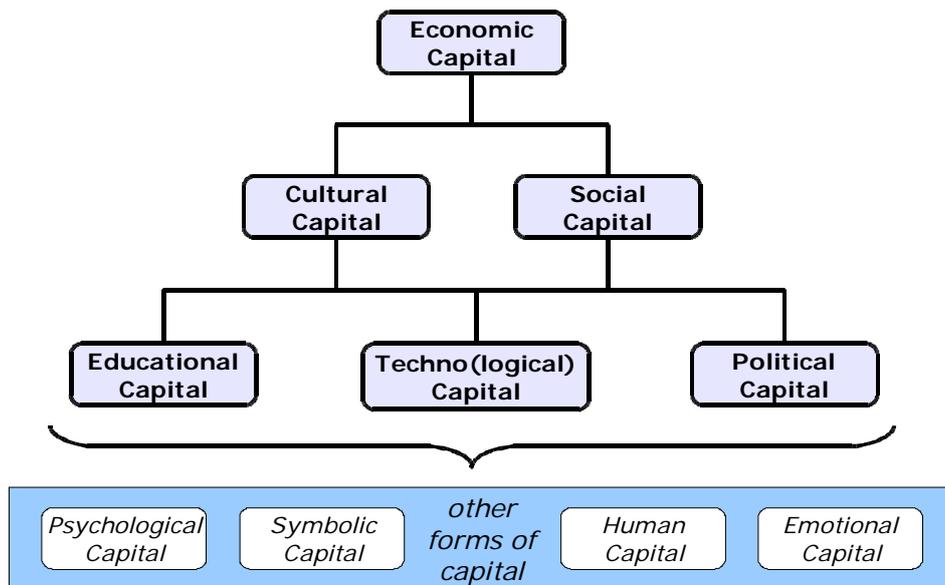

Figure 1. The social structure of a consumer's economy (primary capitals in bold)

Three additional capital resources primary to understanding a technology consumer are: educational, technological and political capitals (Ting, Dawson, and Dubelaar, 2005; Ting, Dubelaar, and Dawson, 2005). **Educational capital** is formal education, knowledge and skills that promotes the foundation of life-long learning including critical thinking, effective communication and problem solving (Callan and Finney, 2002). Because of its long hysteresis and path to acquisition, even the same qualification can contribute to remarkable differences economic, cultural, social, technological and political capitals (Bourdieu, 1984) High volume of educational capital typically "leads to economic benefits, citizenship, personal empowerment, and quality of life" (Callan et al., 2002, p26).

Technological capital is of great interest especially in understanding technology adoption, consumption and diffusion. It is a product of techno-dispositions and techno-competencies acquired via knowledge, skills and awareness of technology, especially IT (Dubelaar et al., 2003; Rojas et al., 2004). The ability to use technology for transformation and improvement of the organization's or individual's position depends on technological capital (Bourdieu, 2005; Rojas et al., 2004). Volume is determined by factors including an individual's occupation, education and their respective technology usage levels, as well as technical competencies and awareness (Dubelaar et al., 2003; Rojas et al., 2004).

Political capital is the organizational memberships, networks, structural positions, attitudes and influences of an individual that builds capacities to participate and engage in politics or movements on all levels (Fuchs, Minnite, and Shapiro, 1999). It entails democratic norms, voting willingness, activism not only for the individual but their willingness to extend participation to others (Booth and Richard, 1998). Volume is measured by factors including their political intensity and engagement that sponsors political or movement activism (Sullivan, Borgida, Jackson, Riedel, and Oxendine, 2002).

Other forms of capital include psychological (Goldsmith , Veum , and Darity Jr., 1997), symbolic (Bourdieu, 1984), human (Schultz, 1961) and emotional (Gendron, 2004) capitals. These derivatives of the six primary capital resources (see Figure 1), were considered secondary in supplementing our understanding of the social structure of a consumer's economy in technology adoption and consumption. Because each individual possess a unique portfolio capital resources, it also defined the individual's unique perception, taste, tendency, behavior and sense of the world in their technology adoption and

consumption. Looking through the lens of an individual's portfolio of capital resources provide a novel insight into understanding the individual consumer and how their capital resources influence how they experience and use technology that contributes to the overall diffusion of technology.

METHOD

To illustrate how capital resources influence individual's IT adoption and consumption practices, this paper presents an illustrative narrative of three mobile ICT consumers, in particular Personal Digital Assistants (PDAs) or smart-phones (PDA with mobile phone). The three informants highlighted for comparison possessed a contrasting high, medium and low cultural capital resources, based upon Holt (1998) and existing research on capital resources with . This preliminary result forms part of a larger empirical research study involving in-depth semi-structured interviews, that prompted story-telling narratives, and device demonstration-observations with twelve PDA/smart-phone consumers. Informants were evenly mixed in gender, age groups between 20s and 50s, occupations ranged from electrician to engineers to social worker, and educational levels from vocational to doctorate, and recruited from a range of channels including student population, PDA interest groups and organizations, thus they varied across capital backgrounds to provide a rich mix of responses. Informants were prompted to recount their device adoption stories as well as issues surrounding their positive and negative usage patterns. Observations were made regarding their familiarity, distractiveness with and their devices' equipped levels. In this paper, responses were cross correlated only against the three informants' cultural capital, one of three core capital resource shown to influence consumption distinction (Bourdieu, 1984; Holt, 1998), whilst the larger research proposes new literature-derived capital resource indexes and correlates them with their consumption experiences with technology.

Some cultural capital forms and dimensions will be contrasted between the selected informants with contrasting levels of cultural capital resource. Such comparisons illustrate why the capital resource framework can reveal new perspectives on individual's characteristics that shape their approach to what technologies they adopt and consume and more intriguingly, why and how they use technologies in their lives.

PRELIMINARY RESULTS: A TALE OF THREE DIFFERENT CULTURAL CAPITAL CONSUMERS

Nikki's (High Cultural Capital, HCC) first PDA was provided by her previous employer as a business tool. Being a young engineer with technical interests, she "*thought that* [the PDA] *was the most fantastic idea*" and "*cool*". She carried it with her everywhere to organize her busy professional and social life, eventually allowing it to take "*control of my life*". She experienced the "*convenience*" of a digital assistance to help keep a "*track of my life*" and the negative emotions associated with technology over-reliance, including "*treating people* [especially friends] *like appointments*".

At similar age with similar education and occupation, Zach's (Medium Cultural Capital, MCC) first PDA was also employer supplied. However, Zach's consumption experience of his "*inherited*" "*stylish*" PDA differed to Nikki's experience because of their contrasting cultural capital resource owing to upbringing differences. Nikki's privileged social milieu, especially influenced by her father's achievements, supported her higher accumulation and reproduction of cultural capital compared with Zach (Holt, 1998). Both used their device to take notes and organize their schedules, but Zach's experience was limited by the difficulties he faced with device-computer synchronization which influenced his opinion of PDAs. Zach's encounter was surprising for a technically proficient computer user who commented that his PDA was "*not a very complicated one*" functionally, but was "*a little bit hard to use*".

The young engineers' PDA consumption was compared with Grant, a mature community development officer, possessing Low Cultural Capital (LCC) resources. Self-confessed, in his "*secondary life*", "*I'm a geek... I like gadgets and technologies and it's attractive*", his interests was sparked from an original attempt to study engineering before discovering personal satisfaction working for his community. Subsequently, his four PDA adoption and consumption became "*personal choice*[s]" with scarce employer support. Grant was surprisingly revealed to be a PDA innovator, whilst Nikki and Zach were PDA imitators, contrary to innovators being typically socio-economically and culturally wealthier (Rogers, 2003). Although Grant enacted as an innovator, his consumption practice nevertheless embodied a LCC consumer.

Embodied and institutionalized cultural capital

Cultural capital is distinctively expressed by the cultural elites (HCCs), like Nikki, via socially scarce consumption marked by aesthetic and interactional styling (Holt, 1998). However, cultural elites in advance capitalist societies are increasingly securing distinction by practice rather than through objects (Bourdieu, 1984; Holt, 1998) to emphasize unique embodied tastes and actions via implicit knowledge, skills and dispositions. They utilize consumer objects, including technologies, beyond its functional purposes, but as mediums to accumulate and enhance valued knowledge and skills to further build their leverage within the field and cultivate the embodied cultural capital through time investments into self improvement learning.

Nikki's initial over-reliance of her PDA that dictated appointments in her life were followed by a more sophisticated and mature consumption practice through greater self actualization. Utilizing her high accumulated embodied cultural capital characterized by cultured knowledge and skills, Nikki overcame difficulties with the use of her second PDA in managing her life and appointments in a forward-looking and controlling rather than a technology-controlled manner. Instead of being dictated by appointments, Nikki's PDA consumption practice reversed to empowering her life to make appointments that suited her schedule:

> Nikki (HCC): "[It] *doesn't create a very good impression if you just say, oh I don't know* [if I'm free but] *I'll get back to you. Much better where you can say, also if you're trying to pin someone down, like if it's through the* [girl] *guides* [being a guide leader] *and someone's trying to weasel out of doing training... then I can say... well, when would suit you to do this training with me. I can do this day, this day, this day or this day, which one can you do?*"

On the contrary, the cultural capital masses (MCC and LCC individuals), like Zach, tend to emphasize taste of necessities (Bourdieu, 1984): the functional or simply being organized. Zach's PDA/smart-phone was "*a purely communication device. To store your information you receive from others*" whilst Grant's PDAs remained predominantly as "*convenience*" and "*reminder*" tool. The devices served as a utilitarian tool to facilitate Zach's and Grant's desire to maintain order and routinized lifestyle, commonly associated with LCC individuals (Holt, 1998). In fact, the new incorporation of the phone functionality in Zach's second PDA/smart-phone shifted his consumption focus from an organizational tool to predominantly just a phone, thus reducing his usage breadth and limiting opportunities for Zach to consume broadly and distinctively to accumulate cultural (and possibly technological) wealth. "*I normally use it for the phone... just for the phone functionality…I may sometimes read emails on my PDA but... it's not* [a] *major thing* [that] *I want…* [it's a] *secondary thing... auxiliary* [function]". Zach and the cultural masses prefer routines and instructions whilst cultural elites emphasize creative approaches to consumption and are more adaptable, holding broader preferences and applications (Holt, 1998). What further certifies the existence, reinforcement and refinement of Nikki's higher embodied form of cultural capital is the institutionalized form of cultural capital via her official degree from an institution known to attract other cultural elites compared to Zach whose degree was from a trade-applied focus institution (Bourdieu, 1984; Holt, 1998).

Materialism versus idealism, objectified form of cultural capital

Consumers of different levels of cultural capital reveal contrasting motivations and emphasis for technology/PDA extravagance. HCC may consume luxurious and scarce goods but through tastes and cultural understanding or idealism rather than economic extravagance. Nikki (HCC), like many average income HCCs, chose not to emphasize extravagance through functionality-abundance or price with her second PDA adoption, "*oh there were some on the market at the time that I think were aimed more at kids that wanted something cool*". Instead she demarcated her preferences through lifestyle suitability by adopting a basic PDA she could maximize in usage to organize her life, "*it was just perfect. Wasn't too fancy but... had a lot of good features and I really wanted*". Being a technology enthusiast and engineer, Nikki succumbed to 'technology envy' initially but her envy was easily allayed by the knowledge, skills and disposition she could draw from her high cultural resource when she suggested that LCCs adopt the latest and greatest toy that material wealth can buy to compensate for lack of cultural wealth:

> Nikki (HCC): "*I know in my heart I don't really need it and I can't stand buying something and then not use it... but I look at them and I admire them and I go and drool in shops and think 'Oh look at that one, that's really cool'... I'm probably also realistically enough to think I'm not going to use that and though it's nice to have the latest toy... you could also look a bit like a... technology wanker where you're just buying the latest thing... to make yourself look cool... you're compensating*".

Contrast to HCCs, cultural masses tend to acculturate through the consumption of material extravagance where economically feasible (Bourdieu, 1984). Grant confirms "*I bought things you know that are extravagant*" when referring his enthusiasm to adopt fancy technologies extending to large LCD TVs and digital video recorders symbolize luxury and abundance. Being an innovator, adopting these luxuries early allowed him to enjoy its benefits "*now*":

> Grant (LCC): "*Something like the PDA, I think I get enough value and use and benefit out of* [it]*... for the need of spending money on... I mean there are other things like large screen TV or... video recorder or whatever... where you couldn't justify in that sense but you get pleasure out of it*".

Grant admitted that he adopts technology based upon emotional rather than rational motivations. "*Sometimes the emotional outweighs the intellectual aspects*". If he was "*really wealthy… I might rush out and buy one* [the newest iPhone]*... the day it's released*", even though he admitted "*I have not a lot of interest in a smart-phone*" compared with his PDA. Grant

successfully upgraded his PDA "*because it was... better... not necessarily because I needed to replace it*", illustrating LCCs search for material abundance in their technology consumption.

Even LCCs with higher incomes than HCCs tend to exhibit preference for material abundance and luxury (Holt, 1998).. Although such preferences are not as easily accessible for lower income LCCs, especially in traditionally high cultural objects such as art or cuisine, however preferences for extravagant mobile ICT are much more attainable. Such technologies have become so widespread in our society and sufficiently affordable that almost any LCC can ostentate extravagance simply by adopting the fanciest smart-phone. HCCs thus do not necessarily adopt certain high cultured brands or the most expensive models, rather they adopt the brands and models the masses adopt with similar material object requirements. For example, Zach's second smart-phone was specifically chosen to be small, handy and one with a plethora of functionalities:

> Zach (MCC): "*The one I currently have... it's more complicated. It's running a Windows CE on a PDA. You can do all sort of all sort of things, it has the ability to view the Word, Excel... documents and... use it as a navigation tool if you have the GPS attached to it. It's basically... a small computer*".

Zach also reveal that whilst his smart-phone had the potential to replace many of his desktop computing tasks, he would nevertheless predominantly use it only for its simple phone functionality, suggesting 'function-gluttony' motivated adoption but not utilized during consumption.

Bourdieu's (1984) cultural capital objectified in consumption objects, serves as status signals that implies an individual's distinctive practices. LCCs believe that consuming objects signal economic power with group consensus can guarantee cultural capital production. Technology gadgets can enhance their image, "the degree to which use of an innovation is perceived to enhance one's image or status in one's social system" (Moore and Benbasat, 1991, p195). Thus LCCs tend to overtly display their material possessions in an attempt to signal or buy achievements and cultural resource wealth. For example, Grant openly discussed his enjoyment from displaying his material and technical possession and achievement to his peers, typically possessing similar capital resource levels, which further enhances the image he presents: "*Oh yeah... I enjoy* [shows others his PDA] *that every so often... with gadgets... the interest depends on when and how much* [inquisitions]".

Interestingly, Nikki initially emphasized the objectified cultural capital in PDA/technology, "*it was my toy that I used to say 'look everyone, look how cool this is, look what it does'*". However she later shifted her emphasis with her second adoption choosing to maintain modesty and individual achievement of being organized. Zach also displayed to his peers his PDA with positive responses "*excellent... they think it's good*".

CONCLUSION AND FURTHER WORK

This paper introduced the social structure of a consumer's economy, composing of an individual's portfolio of economic, cultural, social, educational, technological capital and political capital resources. It offers a novel framework beyond simply demographics or innovativeness to provide a unique and deep insight into understanding the fundamental characteristics that makes us individuals and influences the way we perceive and experience technology adoption, consumption and diffusion.

Preliminary results confirms that the cultural masses (LCCs and MCCs) focus on extravagant feature-packed technologies that allow them to demonstrate their value for abundance and luxury whilst cultural elites (HCCs) focus on using acculturated embodied and institutionalized capital to demonstrate cosmopolitan and practice distinction in how they consume technology rather than what they consume. HCCs can use their knowledge and skills to overcome adoption and consumption difficulties, such as over-reliance, whilst MCCs and LCCs with less internal capacity to overcome setbacks in a constructive manner for future adoptions. Technology enthusiasts like young engineers Nikki (HCC) and Zach (MCC) differs markedly in their perception and approach to mobile ICTs, even though they are of similar age, education, occupation and income, because they differ in their acculturated volumes of cultural, economic, social, educational, technological and political capitals. Thus understanding the social structure of a technology consumer's economy framework can assist manufacturers to develop customized technologies with targeted type, functionality and complexity for marketers to customize marketing strategies and IS practitioners to develop successful technology infusion into the workplace.

Although this paper provided preliminary results on just one of the three core capital resources, cultural capital, it has built a fresh platform for future discussion and investigation. Only a contrast of three informants were presented in this paper, which forms part of a larger project that investigated how capital resources and volumes can influence the individual experiences with paradoxes of technology of twelve PDA/smartphone consumers. What will be further investigated with the social structure of the consumer's economy framework is the analysis and cross correlation of all informants with the six primary capital resources, as part of the larger study. Some propositions to be investigated in the larger study and beyond include:

P$_1$. *High social capital consumers with wide and mixed social networks will be better informed on technology and consumption prior to adoption than low social capital consumers.*

P$_2$. *High political capital consumers with high activism political capital will influence their peers more on what technologies to adopt rather than being influenced by others.*

P$_3$. *High technological capital consumers with more technology knowledge and awareness, both positive and negative, will consume restrictively rather than consume the wide smorgasbord of technology.*

P$_4$. *Individual's portfolio of capital resources are constituted of mixed rather than uni-volume of capital resources.*

Ultimately, this research will provide a better understanding of how people consume emerging ICTs in terms of their individual capital resources and this understanding will assist designers and marketers of new technologies to develop and promote personal ICTs which reflect consumer requirements.

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