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## Article

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Full Length Article

# Assessing personal disposition of individuals towards technology adoption

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## Abstract

The present study has attempted to explore personal disposition of individuals towards technology adoption through the development of an index named as Technology Adoption Index. For developing the index, exploratory factor analysis approach has been employed on the sample of 1201 responses collected from the residents of 12 different cities in India. Accordingly, the results of the index have indicated significant role of seven personal traits, namely, optimism, innovativeness, self-efficacy, risk taking propensity, habit, social influence and psychological resilience while manifesting personal disposition of individuals towards technology adoption, i.e., the technology adoption propensity of the individuals. Further, an attempt has also been made to explore the socio-economic characteristics of the individuals possessing distinct level of personal disposition towards technology adoption. Accordingly, the results have unveiled that the personal disposition of the individuals towards technology adoption increases with enhancement in their income and qualification but decreases with enhancement in their age. As a measurement tool, Technology Adoption Index can be used as ready-recknor by practitioners for the identification of technology adoption propensity of the individuals. This will facilitate organizations in developing and designing new products and services which can be readily accepted by the individuals.

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**Keywords:** Exploratory factor analysis; Innovativeness; Optimism; Psychological resilience; Technology Adoption Index

## 1. Introduction

Enhanced proliferation of technology into the business operations for providing better quality output to the customers has brought more sophisticated technologies on board (Wood & Moreau, 2006). Although introduction of the latest technologies have aimed at enhancing convenience of the customers, yet researchers have found that not all the customers adopt technology in the same pattern owing to the differences in their personal disposition towards

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technology adoption (Godoe & Johansen, 2012; Limayem, Hirt, & Cheung, 2007; Ratchford & Barnhart, 2011). Considering this, considerable research attempts have been made in the past to explore personal disposition of the customers towards technology adoption. In this regard, Parasuraman (2000) has explored significant role of four personal traits, namely, optimism, innovativeness, insecurity and discomfort in shaping the personal disposition of the customers through the development of TRI. Further, Ratchford and Barnhart (2011), through the development of TAP index, have explored optimism, proficiency, dependence and vulnerability as significant personal traits that manifest the personal disposition of the customers towards technology adoption. Although TAP index (Ratchford & Barnhart, 2011) claimed to overcome the limitations of TRI, yet it has been found that the former index lacks in assessing wider applicability in different settings for which the recent entry of the index in the technology adoption literature may be one of the plausible reasons. Whereas, TRI has shown wider applicability in different contexts and settings (Badri et al., 2013; Godoe & Johansen, 2012).

Both TRI as well as TAP index have been framed on the premises that the personal traits of the customers reflect their personal disposition towards technology adoption. But none of the studies in the literature has examined personal disposition of the customers comprehensively taking into consideration all the plausible personal traits that may play significant role in the technology adoption dynamics of the customers. Even though, different streams of research have highlighted significant role of different personal traits, such as, self-efficacy, habit, etc. in the technology adoption decision of the customers.

Taking this into consideration, the present composition has aimed to explore the contribution of distinct personal traits in the personal disposition of the customers towards the adoption of the technology and the same has been reflected through the development of an index named as Technology Adoption Index (TAI). Accordingly, the next section highlights the existing research in the field of technology adoption followed by the description of the index development methodology. Further based on the results of the index, technology adoption propensity of the individuals and their socio-economic profiling has been analyzed. Finally, the paper concludes with discussion on the findings of the study followed by some probable avenues for the future research.

## **2. Theoretical foundations of the study**

The focus of the present composition is to explore the personal traits which manifest personal disposition towards technology adoption which is nothing but the technology adoption propensity of the customers as explained by Ratchford and Barnhart (2011). Therefore, the review of the literature was focused on the studies focusing on personal traits of the customers. Accordingly, the extensive review of the relevant literature has unveiled numerous personal traits which affect the technology adoption behavior of the individuals in different settings and contexts, e. g., optimism, innovativeness, insecurity, discomfort, self-efficacy, perceived behavior control, social circle, subjective norms, trust, perceived risk, social influence, habit, psychological resilience, etc. All such traits have been scrutinized for the associated applicability, relevance, etc. For instance, perceived behavior control has been criticized based on its conceptual framework and modification has been recommended and considered (Venkatesh, Morris, Davis, & Davis, 2003). Perceived behavioral control has been referred as the perceived ease or difficulty involved in performing behavior (Ajzen, 1991) and it has been found to be inclusive of two factors, i.e, self efficacy and facilitating conditions. As discussed earlier also, self-efficacy is a customer-specific attribute, whereas, facilitating conditions are the factors prevailing in environment (such as, technical support, manual support, etc.) that eases the operation of the technology. Likewise, the personal trait, namely, subjective norm has been criticized on the basis of its narrow scope (Venkatesh et al., 2003). Subjective norms have been found to include acceptance of the technology by the people important to the customers (Ajzen, 1991; Davis, Bagozzi, & Warshaw, 1989). Whereas, social influence has been found to encompass the acceptance of the technology by the reference group to which the customers want to associate (Thompson et al., 1991). Further, social influence has also been found to include impact of technology adoption on the social status of the customers (Moore & Benbasat, 1991). Further, the traits, such as, perceived risk, trust, safety, security, etc. are found to focus on one common aspect, that is, the risk involved in operating the technology.

Accordingly on the basis of the review of all the personal traits explored by researchers at different point of time, seven personal traits have been proposed in the present study for the development of the index. The traits include optimism, innovativeness, self-efficacy, social influence, risk taking propensity, habit and psychological resilience. The review of such studies is presented in forthcoming paragraphs.

## 2.1 Personal traits in Technology Readiness Index and technology adoption propensity index

Parasuraman (2000) has developed an index named as Technology Readiness Index (TRI) which unveils four personal characteristics of individuals having impact on their technology adoption decision including optimism, innovativeness, insecurity and discomfort. In this regard, optimism and innovativeness have been considered as technology facilitators, whereas discomfort and insecurity have been highlighted as technology inhibitors. Since the inception of TRI, many researchers have explored readiness of individuals based on it in different contexts and settings such as e-insurance (Taylor, Celuch, & Goodwin, 2002); e-learning system (Ling & Moi, 2007); self-service technologies (Chen, Chen, & Chen, 2009); e-shopping (Grad, 2012), etc. Besides, studies in the field of technology adoption have also highlighted varied results. Some studies identified significant direct impact of optimism, innovativeness, discomfort and insecurity on the technology adoption decision of individuals (e.g. Grad, 2012; Meng et al., 2010; Shambare, 2013, etc.), while some other studies have discovered significant indirect impact of the four aforesaid constructs on the decision of the individuals to adopt the technology (e.g. Elliott, Meng, & Hall, 2012; Walczuch, Lemmink, & Streukens, 2007, etc.). Further in some studies where the respondents comprised of experienced users, discomfort and insecurity have been failed to exhibit significant impact on the decision of individuals towards technology adoption (e.g. Chen et al., 2009; Chiu, Fang, & Tseng, 2010; Godoe & Johansen, 2012, etc.). Although TRI has been validated in different contexts and settings, yet it was formerly developed based on the propensity of the individuals to adopt online and other automated services (Ratchford & Barnhart, 2011), thereby, limiting its applicability for all kinds of technologies used by individuals like distinct technologies used by individuals for serving their domestic needs. It may be because of the nature of items of TRI. For instance, items depicting optimism as formerly framed by Parasuraman (2000) include “*You do not like the idea of doing business via computers because you are not limited to regular business hours*” has not been found relevant in context of technologies used for domestic purpose like the case of automated home appliances. Not only this, the conceptualization and item construction for the four aforementioned constructs of TRI also involved certain issues. For instance, in case of TRI, the construct of discomfort has been conceptualized as “*perceived lack of control over technology and a feeling of being overwhelmed by it*” (Parasuraman, 2000). But some items in the construct have depicted the presence of facilitating conditions e.g. “*Technical support lines are not helpful because they do not explain things in terms you understand*”, “*There is no such thing as manual for a high-tech product or service that’s written in plain language*”, etc. Such items describe the environmental factors that may affect one’s decision to adopt the technology. Moreover, there also exist overlapping of items in discomfort and insecurity constructs of TRI like “*Many new technologies have health or safety risks that are not discovered until people have used them*” (Discomfort) and “*You do not consider it safe to do any kind of financial business online*” (insecurity). Both these items represent safety issue involved in operating the technology.

Owing to the development of TRI in context to online and automated services and conceptual issues discussed earlier, Ratchford and Barnhart (2011) have developed and validated another psychometric index named as Technology Adoption Propensity (TAP) index. The development of the TAP index was based on the fact that personal traits affect the general tendency of the individuals towards technology adoption and hence, for extending the use of TAP index to wide array of technology oriented services, Ratchford and Barnhart (2011) consider technology in general while developing the index. The index includes four constructs, namely, optimism, proficiency, dependency and vulnerability. Although TAP index has attempted to overcome the limitations of TRI, yet some issues relating to it have also been pointed out by researchers in this case. For instance, in TAP index, proficiency construct has been conceptualized as “*confidence in one’s ability to quickly and easily learn to use technologies as well as a sense of being technologically competent*”. This meaning of proficiency includes self-efficacy as conceptualized by Compeau and Higgins (1995) whereas the items in the construct have depicted “*innovativeness*” as developed by Parasuraman (2000) in TRI such as “*People come to me for advice on technology*”, “*I enjoy figuring out how to use technology*” etc. In spite of the issues associated with TRI and TAP, researchers prefer to use TRI in different contexts and settings for identifying technology readiness among individuals (e.g. Sophonthummapharn & Tesar, 2007; Victorino, Karniouchina, & Verma, 2009; Walczuch et al., 2007, etc.) whereas TAP index, being fresh entrant in the field of technology adoption studies, has not been widely explored in context of technology adoption.

## 2.2 *Self-efficacy and technology adoption behavior of individuals*

Besides, another stream on technology adoption has highlighted that the belief of individuals in their capabilities to use technology on their own also affect their decision to adopt the technology (Agarwal, Sambamurthy, & Stair, 2000; Compeau & Higgins, 1995; Venkatesh, 2000; Wood & Bandura, 1989). This ability, being conceptualized as self-efficacy, has been found to exhibit significant direct impact on the decision of individuals towards the adoption of distinct technologies, such as, web-based information system (Yi & Hwang, 2003), internet banking (Md. Ariff et al., 2012; Johnson & Marakas, 2000; Murphy, Coover, & Owen, 1989), etc. More confidence individuals have in their ability to operate the technology, more likely they are to adopt the technology (Al-Haderi, 2013; Ratchford & Barnhart, 2011). Individuals, who believe that the use of technology is too complex and they are not capable enough to operate the technology on their own without some external support, usually refrain themselves from adopting advance technologies. Conversely, the studies conducted by Venkatesh et al. (2003); Brown et al. (2003); Puschel et al. (2010) and Chau (2001) highlighted that self-efficacy did not play significant role in determining the technology adoption decision of the individuals. The underlying reason stated by the said researchers was that the confidence of the individuals in their ability to use technology did not affect their technology adoption decision in case the individuals either have prior experience in the technology or they perceive the use of technology easy and advantageous (Brown, 2002 and Yu, 2012). However, researchers, such as, Igarria and Iivari (1995); Gist, Schwoerer, and Rosen (1989); Al-Haderi et al. (2013), etc. have explored significant indirect relationship between self-efficacy and technology adoption decision of the individuals.

## 2.3 *Social influence and technology adoption behavior of individuals*

Literature in the field of technology adoption has also highlighted social influence as one of the imperative facets while understanding technology adoption behavior of the individuals. In this context, Baraghani (2008), Chen et al. (2009), Fishbein and Ajzen (1975), Kate, Haverkamp, Mahmood, and Feldberg (2010), Moore and Benbasat (1991), and Thompson (1991) have stated that the belief and the attitude of the group, to which individuals belong or want to be associated, channelizes their decision of adopting the technology. Generally, the individuals who are highly influenced by the people in their social circle (such as, family, friends, acquaintances, etc.) decide to adopt the technology if that technology is acceptable by the people in their social circle (Asch, 1951; Fishbein & Ajzen, 1975; Kate et al., 2010; Venkatesh et al., 2003). Further, the existing body of research has also underlined the fact that the technology adoption decision of individuals depends on the learning of the individual from the group. Individuals who are inspired by the people in their social circle tend to adopt the technology if the people in their social group have adopted that technology (Freeman, 1989; Hartwick & Henri, 1994; Karahanna, Straub, & Chervany, 1999; Lu, Yao, & Yu, 2005; Lucas & Spitler, 1999; Lee, Cho, Gay, Davidson, & Ingraffea, 2003; Mathieson, 1991; Taylor & Todd, 1995). Conversely, the research reservoir has also been found to be embraced of the studies, wherein, social circle of the individuals has been found to exhibit significant indirect impact on the technology adoption decision of the individuals rather than direct impact (Mathieson, 1991; Venkatesh & Davis, 2000; Van Slyke et al., 2007). The underlying rationale uncovered for the significant indirect impact was that the impact of social influence on technology adoption decision of the individuals will prevail in context of mandatory settings rather than voluntary settings. It has been further stated that even if the impact of social influence on the technology adoption decision of the individuals is significant in voluntary settings (Watjatrakul, 2013), this impact will diminish with the increase technology usage of the individuals (Teo and Pok, 2003).

## 2.4 *Risk taking propensity and technology adoption behavior of individuals*

Further, the concern of individuals regarding risk involved in using the technology has also been found to shape their decision towards technology adoption (Bauer, 1960; Peter & Ryan, 1976). Usually individuals tend to evaluate technology against probable risks (like revealing of their personal confidential information to others) in order to ensure that the use of technology will not lead towards any kind of loss (Dowling & Staelin, 1994; Featherman & Pavlos, 2002; Gefen, Karahanna, & Straub, 2003; Md. Mahdi, 2012; Yousafzai et al., 2003). Not only this, individuals also evaluate technology on the basis of the extent to which they can rely on technology and its outcome (Bitner, Ostrom, & Meuter, 2002; Bobbitt & Dabholkar, 2001; Curran & Meuter, 2005; Im, Kim, & Han, 2008;



Meuter, Bitner, Ostrom, & Brown, 2005; Suh & Han, 2002; Vinayek & Jindal, 2011). If the individuals perceive that the risk involved in operating the technology is high, they are found to be resistant in operating the technology (Farzianpour, Pishdar, Shakib, & Md. Toloun, 2014). Not only direct, the relationship between risk taking propensity and technology adoption decision of the individuals is also found to be indirect by the researchers like Abadi, Ranjbarian, and Zade (2012) and Lee, Lee, and Kim (2007). Nevertheless, research work done by researchers like Budnitz (1998); Jarvenpaa et al. (2000) and Pavlou (2003) has also unveiled that the perception of the individuals regarding risk involved in operating the technology did not shape their intentions to adopt the technology. Further, the studies of such kind have explained that the individuals always look for different options and methods to use the technology in cases where they believe that the technology is advantageous for them and even though there is some kind of risk involved in using the technology.

### *2.5 Habits and technology adoption behavior of individuals*

Adding more, the habit of using technologies has also been found to affect the verdict of the individuals regarding technology adoption (Triandis, 1980; Limayem & Hirt, 2003). The tendency of using technology continuously forces individuals to try new and improved technologies (Bergeron, Raymond, Rivard, & Gara, 1995; Thompson, Higgins, & Howell, 1994). Usually, habitual users of technology are more likely to adopt the latest technologies time and again (Jaspersen, Carter, & Zmud, 2005; Kim, Malhotra, & Narasimhan, 2005; Limayem et al., 2007). It may be because the individuals, who are previously using similar or different kind of technology, develop addiction towards using the technology continuously. This addiction makes the use of technology obvious for individuals which, further, induce them to try new and improved technologies. On the other hand, studies have also stated that habit plays no significant direct role in the actual technology adoption decision of the individuals instead such studies have highlighted habit as significant mediator in the relationship between behavioral intentions and actual technology usage behavior (Limayem et al., 2007; Venkatesh, Thong, & Xu, 2012).

### *2.6 Psychological resilience and technology adoption behavior of individuals*

Besides, a different stream of research has identified that the tendency of individuals to bounce-back from any kind of failure or rejection affects their behavior (Othman & Nasurdin, 2011). This tendency has been named as psychological resilience (Block, 1961). Psychologically resilient people have the tendency to get through setbacks or difficulties and they do not transfer the effect of one instance over the other (Coutu, 2002; Luthans, 2002). Such category of individuals is creative and flexible to technology adoption owing to their strong belief system and achievement orientation (Youssef & Luthans, 2007). Thus, they may tend to bounce-back from any kind of technological set back (Luthans, Avolio, Walumbwa, & Li, 2005). Although not examined exhaustively in the field of technology adoption, yet psychological resilience may cause significant impact on the technology adoption decision of the individuals. In this regard, Bakker, Gierveld, and Rijswijk (2006) in their study explored that higher resilience significantly impacts the decision of the teachers towards the adoption of new and improved teaching technologies with the rationale to enhance their teaching practices. Further, it has also been found that that the past experiences of the individuals have significant impact on the current and future use of the technologies (Verhoef et al., 2009). There are individuals who are resistant to use the latest technologies because of the technological failure faced by them earlier (Ajzen and Fishbein, 2005; Bhattacharjee & Hikmet, 2007; Davis et al., 1989; Venkatesh et al., 2012). Conversely, some individuals tend to try new and improved technologies even if they have faced some kind of technology failure earlier. But in such cases, the decision to try new and improved technology depends on the reason (s) for the technological failure encountered by them earlier. For instance, if the fault is on the part of the service provider, the acceptance of technology will depend on the extent to which the service provider will take the responsibility of the failure and take corrective measures (Hart, Heskett, & Sasser, 1990; Hoffman, Kelley, & Rotalsky, 1995). But if the reason for the technology failure is the inability of the customer to operate technology effectively, they may not show any kind of discontentment and may decide to try the same or advanced technology again after learning from their errors (Zeng, Huang, & Dou, 2009). To wrap up, the instances from the literature indicates that psychological resilience may affect the technology adoption decision of individuals but the same needs to be critically and extensively evaluated.

Although the review of literature has pointed out significant role of certain personal traits in the technology adoption decision of individuals, yet much of the studies are found to be context specific like TRI focused on online and automated technologies (Parasuraman, 2000). Moreover, not all the probable personal traits (e.g. habit and psychological resilience) have been extensively explored by the researchers comprehensively in a single study. Adding more to the point, the relative contribution of distinct personal traits has been explored in the relevant literature. Bearing these aforesaid issues in mind, the present study is focused on developing a comprehensive index based on personal traits of individuals manifesting their personal disposition towards technology adoption. Specifically, the present contribution has made an attempt to address the debate relating to contributory role played by distinct personal traits of the individuals in their technology adoption propensity.

### 3. Methodology

The present study has attempted to develop an index named as Technology Adoption Index (TAI). The existing research has pointed out that the personal disposition of the individuals depicts general tendency of the individuals towards technology adoption since the personal disposition comprises of personal traits (Ratchford & Barnhart, 2011). Thus in the present context, technology has been conceptualized as the application of science to serve industrial as well as domestic objectives. Further, due diligence procedure has also been adopted relating to the generation of items. For keeping the focus of the present paper on technology used by individuals at personal and professional life, neither any specific technology has been mentioned nor any item indicated towards a particular technology.

#### 3.1 Conceptualization of constructs and item development

The extensive review of the existing literature has uncovered seven personal traits of individuals which may have significant impact on their technology adoption decision, namely, optimism, innovativeness, self-efficacy, risk taking propensity, habits, psychological resilience and social influence in varying degree. Optimism, with reference to the present study, has been conceptualized as the positive view about the technology and a belief that the use of technology will offer enhanced control, flexibility and efficiency to the individuals for completing their tasks both at domestic as well as professional levels. In the present study a 12 item construct measuring optimism has been developed (e.g. *The use of latest technologies gives me more control over my day to day personal and professional affairs*, *The use of the latest technologies helps me in making necessary changes in my life smoothly*, etc.) referring the work of Parasuraman (2000), Ratchford and Barnhart (2011), etc. The second construct, innovativeness has been defined as the tendency of individuals to be technology pioneer and be the first in their surroundings to use the latest technologies. It has been assessed (e.g. *Other people come to me for advice on the usage and benefits of the latest technologies*, *In general, I am among the first in my social circle to acquire new technology whenever it appears*, etc.) referring the research works of Agarwal and Prasad (1998), Parasuraman (2000), Ratchford and Barnhart (2011), etc.

Further, review of the existing literature also unveiled self-efficacy as another personal traits which may affect the technology adoption decision of the individuals. With reference to the present study, it has been defined as the confidence of the individuals in their ability to quickly and easily learn to use new technologies without any external support. Accordingly, the items depicting self-efficacy ( e.g. *I am able to complete my tasks using the latest technologies if there is someone giving me step by step instructions*, *I am able to complete my tasks using the latest technologies if I have manual for reference*, etc.) have been adapted from the construct developed by Compeau and Higgins (1995) owing to its wider use and validity in different contexts/settings in the technology adoption literature. The next construct, conceptualized as the tendency of individuals to use technologies even if they perceive some kind of risk involved in operating such technologies, has been named as risk taking propensity of the individuals. Accordingly, the prior work done by Davis et al. (1989), Parasuraman (2000), Venkatesh et al. (2003) and Venkatesh and Davis (2000) in the field of technology adoption have been considered ( e.g. *I use the latest technologies even if it makes easy for others to keep a watch over me*, *I use the latest technologies even if I know that I will not be completely compensated against the losses incurred in case of technology failure*, etc.) to frame items for the assessment of risk taking propensity of individuals. Further, habit has been defined as the tendency of individuals to use technology out of learning. For the assessment of items of construct (e.g. *I feel that the regular use of latest*

technologies may make me slave to it, I feel that the regular use of latest technologies may make me addicted to it, etc.) work done by Bagozzi and Dholakia (1999), Kim et al. (2005), Limayem and Hirt (2003) and Ratchford and Barnhart (2011) has been considered. The next construct, that is, psychological resilience has been developed (e.g. *I tend to bounce back quickly and use the latest technologies again even if I had faced some kind of technology failure earlier, It does not take me long to recover from the losses incurred due to the technology failure, etc.*) referring the work of Bartone, Ursano, Wright, and Ingraham (1989), Smith et al. (2008) and Windle, Markland, and Woods (2008). It has been defined as the ability of the individuals to try new and improved technologies after coping successfully with any kind of technology failure faced by them earlier. Lastly, the seventh construct, i.e., social influence has been conceptualized as the degree to which the decision of individuals to adopt new and improved technologies gets influenced by people in their social circle. It has been developed (e.g. *I use the latest technologies as people who are valuable to me recommend me to use it, I use the latest technologies as my friends want me to use it, etc.*) referring the work done by Ajzen (1991), Davis et al. (1989), Fishbein and Ajzen (1975), Malhotra and Galletta (1999), Venkatesh et al. (2003), Venkatesh and Davis (2000), Wu and Chen (2005). Based on these seven aforementioned constructs, an initial battery of 47 items has been developed. All the constructs were measured on appropriately anchored 5-point likert scale ranging from “Never” to “Always” where 1 signifies never and 5 signifies always for positive items and vice-versa in case of negative statements.

Table 1

Selection of sampling units. Source: Central Statistics Office (CSO), <http://indiabudget.nic.in/es2012-13/estat1.pdf>

Categories	States categorized according to PCNSDP	Randomly selected states	Cities with highest GDP in the respective state
A	Maharashtra Andhra Pradesh Uttar Pradesh Tamil Nadu Gujarat West Bengal Karnataka	Maharashtra, Andhra Pradesh, Uttar Pradesh	Mumbai, Hyderabad, Lucknow
B	Delhi Haryana Madhya Pradesh Rajasthan Kerala Bihar Punjab	Delhi, Haryana, Madhya Pradesh	Delhi, Gurgaon, Bhopal
C	Jammu and Kashmir Himachal Pradesh Orissa Jharkhand Assam Chhattisgarh Uttarakhand	Jammu and Kashmir, Himachal Pradesh, Orissa	Jammu and Kashmir, Shimla, Bhubaneswar
D	Tripura Meghalaya Sikkim Manipur Arunachal Pradesh Nagaland	Tripura, Manipur, Arunachal Pradesh	Agartala, Imphal, Itanagar



### 3.2 Sample design

Given the focus of the study on individuals from India who use technology for carrying out their domestic as well as professional activities, the population of the present contribution includes all the residents of India. Accordingly, a representative sample of the residents of India has been collected applying multi-stage sampling approach. For this purpose, statistics pertaining to Per Capita Net State Domestic Product (PCNSDP) at factor cost (current prices) for the year 2012-13 for twenty-seven states of Indian Union (at the time of data collection) as published by Central Statistics Office (CSO) has been considered. All the twenty-seven states have been ranked based on PCNSDP and thereafter, grouped into four categories wherein first three categories comprises of seven states and the fourth category includes six states as depicted by Table 1. From each category, three states have been chosen randomly. Further, out of each randomly selected state, the city with higher gross domestic product (GDP) has been selected for collecting the requisite information. Further, particular attention has been devoted at the time of data collection so that the sample should be representative of the total population of India. For that reason, individuals have been contacted at various places, such as, banks, universities, corporate, etc. so as to capture responses of individuals with diverse socio-economic background and with different beliefs and value systems. The data have been collected during November, 2013 to May, 2014. A total of 1320 number of responses from the 12 selected cities of India have been collected out of which 119 responses have been removed owing to reasons including non-response, incomplete responses, etc. Accordingly, the present study includes usable sample of 1201 individuals.

The socio-economic characteristics of the sample has revealed that majority of the individuals were male (77.9 per cent) belonging to age bracket of 31–40 years (47.9 per cent). Further, majority of them were graduate (52.1 per cent), and employed (78.4 per cent) in different public and private sector organizations with family income ranges between ₹ (Indian Currency) 1,00,000 to 2,00,000 per month (42.2 per cent).

### 3.3 Empirical analysis

#### 3.3.1 Scale refinement

The collected data have been scrutinized against data normality and reliability norms (Krishnan, 2010). Accordingly, the critical evaluation of the nature of 1201 collected responses has depicted that the values of standard deviation for all the 47 measures fall within the acceptable range, i.e., close to one. Moreover, the values of skewness and kurtosis have also been reported to be within the acceptable range of +2 to -2 (Hair et al., 2011). This indicates no suspicion of the outliers and reinforcing the decision to retain all the 1201 responses. Also, an assessment of the reliability of the constructs with “Cronbach Alpha's if item deleted” criterion has resulted into the deletion of two measures from the nine-item construct assessing self-efficacy among individuals. Further, none of the measures representing the rest of the six constructs including optimism, innovativeness, risk taking propensity, habits, psychological resilience and social influence has been identified for the deletion as per the said reliability norms. Also, the measured values of Cronbach Alpha ( $\alpha$ ) for all the aforementioned seven constructs, ranging from 0.860 to 0.972, have been reported above the acceptable prescribed limit of 0.60 as suggested by Donio, Massari, and

Table 2  
Results of exploratory factor analysis.

Factor no.	Name of the factor	Eigen value	Percentage of variance	Percentage of cumulative variance
F1	Optimism	19.928	20.873	20.873
F2	Self-efficacy	4.206	15.118	35.991
F3	Social influence	3.099	9.839	45.829
F4	Innovativeness	2.643	9.745	55.574
F5	Risk taking propensity	2.213	8.107	63.681
F6	Habit	1.538	7.778	71.459
F7	Psychological resilience	1.508	6.617	78.076

Table 3  
Factor loading statistics.

Factor	Factor name	Item	Item description	Factor loadings		
F1	Optimism	S2	The use of the latest technologies helps me in making necessary changes in my life smoothly.	0.812		
		S3	The use of the latest technologies allows me to do the things in the way I wanted to do them.	0.81		
		S1	The use of the latest technologies gives me more control over my day to day personal and professional affairs.	0.808		
		S4	The use of the latest technologies enables me to complete my tasks as per my requirements.	0.802		
		S5	The use of the latest technologies allows me to have control over the activities I wanted to perform both at personal as well as professional front.	0.785		
		S11	I find that I am doing more things now with the use of latest technologies than a couple of years ago.	0.777		
		S8	The use of latest technologies allows me to tailor things according to my own needs and requirements.	0.775		
		S6	I like the idea of using the latest technologies as it provides me with the flexibility of performing the tasks as per my requirements	0.773		
		S12	The latest technologies allow me to perform the tasks more precisely and accurately.	0.772		
		S7	I like the idea of using the latest technologies as it provides customized according to my own purpose.	0.77		
		S10	The latest technologies make me more proficient in carrying out my personal as well as professional activities.	0.766		
		S9	The use of latest technologies allows me to generate problem specific results whenever I need them.	0.764		
		F2	Self-efficacy	I am able to complete my tasks using the latest technologies		
				S23	If I can call someone for help in case I got stuck.	-0.807
S22	If I have seen someone else using it before trying it myself.			-0.797		
S24	If someone else helped me get started.			-0.797		
S26	If I have the built-in help facility for assistance.			-0.764		
S27	If someone show me how to do it first.			-0.763		
S25	If I have a lot of time to complete the work for which that technology is being used.			-0.756		
S28	If I have used similar kind of technology earlier to do the same job.			-0.75		
S21	If I have manuals for reference.			-0.735		
S18	If there is someone giving me step by step instructions.	-0.659				
F3	Social influence	I use the latest technologies				
		S42	As people who inspire me are using it.	0.775		
		S43	As persons who play vital role in my life want me to use it.	0.775		
		S41	As my friends want me to use it.	0.76		
		S40	As people who are valuable to me recommend me to use it.	0.745		
		S44	As my family members want me to use it.	0.72		
		S45	As other persons in my social circle want me to use it.	0.665		

**Table 3** (continued)

Factor	Factor name	Item	Item description	Factor loadings
F4	Innovativeness	S17	The latest technologies allow me to work more in lesser time.	0.874
		S16	I am keen to search about the latest technological developments taking place around me.	0.869
		S15	I keep myself up with the latest technological developments which provide better results with fewer efforts.	0.834
		S13	Other people come to me for advice on the usage and benefits of the latest technologies.	0.822
		S14	In general, I am among the first in my social circle to acquire new technology whenever it appears.	0.821
		S45	As other persons in my social circle want me to use it.	0.665
F5	Risk taking	I use the latest technologies even if		
		S30	It is risky to roll back from it.	0.887
		S29	It may not perform well and appropriate.	0.88
		S31	It is not completely reliable.	0.867
		S28	I know that I will not be completely compensated against the losses incurred in case of technology failure.	0.786
		S27	It makes easy for others to keep a watch over me.	0.75
F6	Habits	I feel that the regular use of latest technologies may		
		S34	Make its use obvious for me	0.851
		S33	Make me addicted to it	0.83
		S35	Make me to use it even if the work can be done effectively without it	0.82
		S32	Make me slave of it	0.795
F7	Psychological resilience	S37	It does not take me long to recover from the losses incurred due to the technology failure.	0.798
		S39	In case of technology breakdown, I usually cope with it very easily.	0.797
		S38	It is not hard for me to recoup when some failure occur, while using the latest technologies.	0.755
		S36	I tend to bounce back quickly and use the latest technologies again even if I had faced some kind of technology failure earlier.	0.738

Passinate (2006) and Nunnally and Berstein (1994). This infers that the data have fulfilled normality as well as reliability norms.

### 3.3.2 Results of exploratory factor analysis (EFA)

The dimensionality of all the seven aforementioned constructs has been validated employing EFA approach (Flynn, Schroeder, & Sadao, 1991; Sabharwal, Soch, & Kaur, 2010). Accordingly, the results of EFA has depicted that the measures of sampling adequacy fall in the acceptable limit zone [KMO=0.959 and Barlett's Test of Sphericity=61,264.047 ( $p > 0.01$ )]. Moreover, item-wise correlation coefficient values are also found to be statistically significant (ranges from 0.60 to 0.90). It implies that the measures assessing the same construct are significantly correlated with each other. Further, the employment of Principal component analysis (PCA) with varimax rotation has highlighted that the value of communalities for all the 45 measures were above the acceptable range of 0.50, thereby, reinforcing the decision of retaining all the 45 measures. Also, seven factor solution explaining 78.076 per cent of the total variance has been finalized based on the latent root criterion (i.e., Eigen value  $\geq 1$ ). The first factor explaining maximum percentage of variance, i.e., 20.873 per cent has been named as optimism which is followed by self-efficacy; social influence, innovativeness, risk taking propensity, habit and psychological resilience with percentage of variance equals to 15.118 per cent; 9.839 per cent; 9.745 per cent; 8.107 per cent; 7.778 per cent and 6.617 per cent, respectively (refer Table 2).

Furthermore, the statistics pertaining to factor loadings has been represented in the Table 3. It depicts that the first construct can be summarized as the belief of individuals that the use of the latest technologies give them more control over their daily activities, thereby, allowing them to make changes according to their requirements and convenience. It also specifies about the belief of the individuals that use of the latest technologies will enhance their efficiency for completing their tasks both at domestic as well as professional life. Thus, this construct has been named as optimism. The next construct has been summarized as the ability of individuals to complete their tasks on their own using the latest technologies without any external support and has been named as self-efficacy. The items adapted from the existing literature focused on external support for operating the technology which indicates low self-efficacy. The same has also been depicted through the negative sign of the factor loadings, thereby, representing inverse relationship between self-efficacy and the items representing the construct. Further, the third construct, named as social influence, has been described as the extent to which the decision of the individuals to adopt new and improved technologies depends on other people in their social circle (such as family members, friends, associates, etc.) who plays vital role in their life. Likewise, innovativeness of the individuals has been identified as the next vital factor affecting their decision to adopt technology. It has been viewed as the inclination of individuals to search for the latest technological developments. Such individuals are generally first among their social circle in acquiring latest technologies whenever it appears. Being innovators, such individuals act as reference source for those who aspire for opinions and information regarding new technology.

Further, risk taking propensity has also been found as one of the significant constructs. It has been referred as the propensity of individuals to use the latest technologies even if it may involve some kind of risk, such as, insecurity, breach of privacy, revelation of confidential information by others, etc. Being high risk takers, such individuals tend

Table 4  
Inter-Factor Correlation, Mean Value and Composite Cronbach Alpha Value.

Factor no.	F1	F2	F3	F4	F5	F6	F7
F1	1	-	-	-	-	-	-
F2	-0.654*	1	-	-	-	-	-
F3	0.598*	-0.656*	1	-	-	-	-
F4	0.591*	-0.441*	0.416*	1	-	-	-
F5	0.195*	-0.133*	0.137*	0.207*	1	-	-
F6	0.485*	-0.499*	0.606*	0.375*	0.048	1	-
F7	0.386*	-0.409*	0.514*	0.223*	0.005	0.503*	1
Number of statements	12	9	6	5	5	4	4
Cronbach Alpha ( $\alpha$ )	3.75	3.22	1.92	3.47	3.79	4.07	2.51

\*Statistically significant at 1 per cent level of significance.

to try new and improved technologies even if the technology is not completely reliable to use and they will not be partially or completely compensated for the losses incurred to them in case of technology failure. Furthermore, the next construct has been named as habits which have been summarized as the belief developed out of the continuous use of technology. The regular use of the technology makes individuals used to it. Such individuals turn out to be technology addicts who develop the tendency of using technology even for those activities that could be performed effectively without using the technology. The seventh construct has been termed as psychological resilience and it indicates the tendency of the individuals to cope with negative resultant of the technology failure faced by them. Psychologically resilient individuals do not carry the burden of past technology failures to their present or future technology usage.

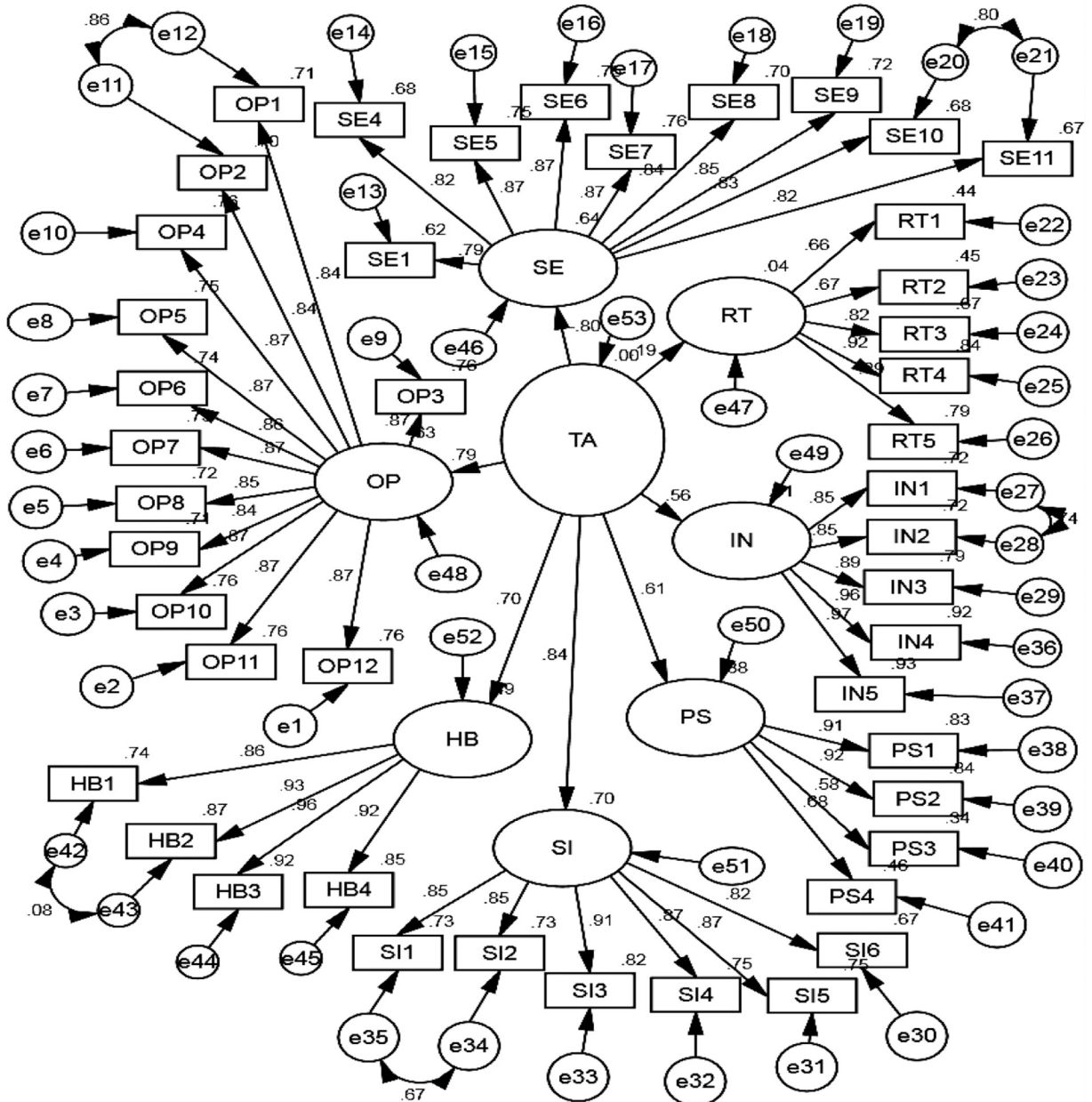


Fig. 1. Standardized coefficients of 7-factor structure of technology adoption.



Table 5  
Computation of indices using exploratory factor analysis statistics.

Construct	Item no.	Factor loadings (a)	Proportion variance (b)	Weight of respective item (c=a*b)	Weight score (d=c of each item/sum total of c) weight score (d=c of one each)	Total weight of construct (e=total of d for each construct)
Optimism	S1	0.808	0.267	0.216	0.065	0.762
	S2	0.812	0.267	0.217	0.066	
	S3	0.81	0.267	0.217	0.066	
	S4	0.802	0.267	0.214	0.065	
	S5	0.785	0.267	0.21	0.064	
	S6	0.773	0.267	0.207	0.063	
	S7	0.77	0.267	0.206	0.062	
	S8	0.775	0.267	0.207	0.063	
	S9	0.764	0.267	0.204	0.062	
	S10	0.766	0.267	0.205	0.062	
	S11	0.777	0.267	0.208	0.063	
	S12	0.772	0.267	0.206	0.062	
Self-efficacy	S18	-0.659	0.194	-0.128	-0.039	-0.4
	S21	-0.735	0.194	-0.142	-0.043	
	S22	-0.797	0.194	-0.154	-0.047	
	S23	-0.807	0.194	-0.156	-0.047	
	S24	-0.797	0.194	-0.154	-0.047	
	S25	-0.756	0.194	-0.146	-0.044	
	S26	-0.764	0.194	-0.148	-0.045	
	S27	-0.763	0.194	-0.148	-0.045	
S28	-0.75	0.194	-0.145	-0.044		
Social influence	S40	0.745	0.126	0.094	0.028	0.169
	S41	0.76	0.126	0.096	0.029	
	S42	0.775	0.126	0.098	0.03	
	S43	0.775	0.126	0.098	0.03	
	S44	0.72	0.126	0.091	0.027	
	S45	0.665	0.126	0.084	0.025	
Innovativeness	S13	0.822	0.125	0.103	0.031	0.159
	S14	0.821	0.125	0.102	0.031	
	S15	0.834	0.125	0.104	0.032	
	S16	0.869	0.125	0.108	0.033	
	S17	0.874	0.125	0.109	0.033	
Risk taking	S27	0.75	0.104	0.078	0.024	0.131
	S28	0.786	0.104	0.082	0.025	
	S29	0.88	0.104	0.091	0.028	
	S30	0.887	0.104	0.092	0.028	
	S31	0.867	0.104	0.09	0.027	
Habits	S32	0.795	0.1	0.079	0.024	0.099
	S33	0.83	0.1	0.083	0.025	
	S34	0.851	0.1	0.085	0.026	
	S35	0.82	0.1	0.082	0.025	
Psychological resilience	S36	0.738	0.085	0.063	0.019	0.079
	S37	0.798	0.085	0.068	0.02	
	S38	0.755	0.085	0.064	0.019	
	S39	0.797	0.085	0.068	0.02	

Table 6  
Personal traits of respondents with high TAP and low TAP.

Constructs	High TAP N=595	Low TAP N=606	t-Value
Optimism	4.40	3.25	943.75*
Innovativeness	3.93	2.53	60.02*
Risk taking	2.08	1.78	24.89*
Habit	4.08	2.89	117.85*
Psychological resilience	4.13	3.47	256.81*
Social influence	3.96	2.83	265.61*
Self-efficacy	2.17	2.86	91.24*

\* $p < 0.01$ .

Table 7  
Profiling of respondents based on their technology adoption propensity.

High technology adoption propensity (High TAP)	
Age	21–34 years (52.5 per cent)*
Monthly family income	Above ₹ 1,20,000 (61.1 per cent)**
Highest qualification	Post graduation (54.7 per cent)**
Low Technology Adoption Propensity (Low TAP)	
Age	34–58 years (54.3 per cent)*
Monthly family income	₹ 1,20,000 and below (61.8 per cent)**
Highest qualification	Graduation and below (52.7 per cent)**

\* $p < 0.05$ .

\*\* $p < 0.01$ .

Further, it is imperative to highlight that all the aforementioned seven constructs are conceptually and empirically different from each other but they all measure the same aspect, that is, propensity of individuals towards technology adoption. The same can also be inferred from low but statistically significant correlation coefficients representing relationship among all the constructs (as represented in Table 4) except for the relationship of risk taking propensity with psychological resilience and habits. Since the relationships are not statistically significant for the two aforesaid cases only, it might not a big concern (Hair, Anderson, Tatham, & Black, 2012).

### 3.3.3 Structural validity of constructs

Further, all the seven personal traits have also been examined for the structural validity. The results of Confirmatory Factor Analysis (CFA) reveal structural validity of all the seven aforementioned personal traits. The values of average variance extracted, factor loadings and convergent validity are found to be above the threshold limit of 0.50 (Hair et al., 2012). Further, the construct reliability is also found to be above the prescribed limit of 0.70 (Hair et al., 2012) and the results of square of inter-construct correlation and average variance extracted have established discriminant validity of the constructs. Also, the model fit indices have confirmed structural validity of the constructs. The values of critical ratio, parameter estimates, GFI, AGFI and CFI are found to fall within the prescribed criterion recommended by Hair et al. (2012) and Hu and Bentler (1999). While the values of CMIN, RMSEA have indicated need of improvements in the model. Accordingly, the theoretical background of the constructs along with model fit indices has been examined and the requisite improvements have been made. The Fig. 1 depicts factor loadings elucidating relationship between the first order constructs, namely, OP, SE, SI, IN, RT, HB and PS and the relationship of all these dimensions with second order factor named as Technology Adoption (TA).

As highlighted in Fig. 1, factor loadings of all the measures assessing the respective construct are above the prescribed criterion of 0.50 (Hair et al., 2012). All the measures have positive and significant relationship with the

respective construct. Further, all the seven dimensions are found to converge into a second order factor named as TA, wherein, all the dimensions (except SE) exhibit positive relationship with TA. The construct of SE has been represented by negative measures owing to which SE has shown negative relationship with the second order construct, i.e., TA.

### 3.4 Development of TAI

To harmonize with the objective of the development of TAI, EFA based methodology has been adopted since it has been considered as the most appropriate methods of endogenously determining weights of the constructs (Sharpe & Andrews, 2012). In the present attempt, the index development methodology outlined by Antony and Rao (2007), Krishnan (2010), Sekhar et al. (1991) and Sharpe and Andrews (2012) has been adopted. The abovementioned methodology adopted for the development of TAI calls for the computation of proportion variance for the seven aforementioned constructs. As the name itself indicates, proportion variance is the amount of variance explained by each construct out of the cumulative variance explained by all the seven constructs. The proportion variance remains same for all the measures representing one construct (Sharpe & Andrews, 2012). Mathematically, it has been expressed as the resultant quotient computed from the division of variance explained by each construct with the total variance explained by all the seven constructs (Antony & Rao, 2007).

*Proportion Variance = Variance explained by each construct / Total variance explained by all the constructs*

For instance, proportion variance for S1 (depicting optimism) =  $20.873/78.076 = 0.2673$

Further computing weight, for each of the 45 measures, is the next step in the process of index development. It is the product of factor loading of each item and its corresponding proportion variance.

*Weight of each item = Factor loading of each item \* Corresponding proportion variance of the Item*

For example, Weight of S1 =  $0.808 * 0.267 = 0.2160$

After computing weight, it is required to determine weight score for each of the 45 measures which has been expressed as

*Weight score = Weight of the item / total weight of all the 45 items*

For example, weight score of S1 =  $0.2160/3.30 = 0.0653$

(Note: weight of all items of the 45-item scale is the sum total of column "c" in Table V).

Since, each construct has been represented by multiple measures (e.g. optimism represented by 12 items), it is required to work out the total weight of each construct. The same has been computed by adding up the weight scores of all the measures representing the corresponding constructs.

As an illustration, total weight of optimism =

$0.0653 + 0.0657 + 0.0655 + 0.0648 + 0.0635 + 0.062 + 0.0062 + 0.062 + 0.061 + 0.061$   
 $+ 0.062 + 0.062 = 0.761$

Likewise, employing the same procedure has resulted into weights equal to  $-0.400$ ,  $0.169$ ,  $0.159$ ,  $0.131$ ,  $0.099$  and  $0.079$  for self-efficacy, social influence, innovativeness, risk taking propensity, habit and psychological resilience, respectively as depicted in Table 5.

The development of composite index, i.e., TAI within the framework of EFA has described the weights portraying varied impact of the aforementioned personal traits on the technology adoption decision of the individuals (refer Table 5). Accordingly, optimism has been divulged as the most influential personal trait manifesting personal

disposition of the customers towards technology adoption with highest weight equals to 0.761 followed by self-efficacy with weight equals to  $-0.400$ . The third influential factor has been identified as the tendency of the individuals to get influenced by people in their social circle (i.e., social influence with weight equals to 0.169). Next to social influence is the ability of the individuals to search for new and improved technologies and try them as and when it appears (i. e., innovativeness with weight of 0.159). Likewise, risk taking propensity of individuals has been highlighted as the fifth significant personal trait with weight equals to 0.131 followed by habit of using technology with weight of 0.099. Besides, seventh personal trait, which has been found to exhibit least but significant role in the personal disposition of the customers, is psychological resilience with weight equals to 0.079.

### 3.5 Assessing technology adoption level of sampled individuals

The present part of the paper has intended to analyze the socio-economic distinction between individuals possessing relatively high/low propensity towards technology adoption (i.e., propensity towards technology adoption). For that reason, TAI scores of the entire 1201 sample have been computed.

For instance, **TAI (for 1st respondent)** = (Average score of respondent on optimism\*weight of optimism) + (average score of respondent on self-efficacy\*weight of self-efficacy) + (average score of respondent on social influence\*weight of social influence) + (average score of respondent on innovativeness\*weight of innovativeness) + (average score of respondent on risk taking propensity\*weight of risk taking propensity) + (average score of respondent on habit weight of habit) + (average score of respondent on psychological resilience\*weight of psychological resilience)

*[Weights of the constructs are the weights generated during the development of TAI (refer "e" in Table V)]*

Based on the TAI scores, respondents have been classified into two categories by employing Z-statistics. Accordingly, respondents with negative Z-scores have been categorized as respondents having low technology adoption propensity (low TAP) while respondents with positive Z-scores comprised of respondents with high technology adoption propensity (high TAP). Further, the employment of t-test (refer Table 6) depicts statistically significant difference between the two categories of respondents based on the seven aforesaid personal traits, namely, optimism, innovativeness, self-efficacy, risk taking propensity, habit, psychological resilience and social influence. The results of t-test have highlighted that the respondents with relatively high TAP are optimistic, innovative and psychologically resilient individuals. Further, such respondents are found to be high risk takers, who develop habits of using the technology and are highly influenced by people in their social circle. Such respondents also found to have confidence in their ability to operate technology on their own without any external support (i.e. high self-efficacy). While, respondents belonging to low TAP category exhibit opposite characteristics on all the seven aforesaid constructs as compared to respondents with high TAP.

Further, analytical insight into the socio-economic distinction between both the categories of the respondents has been made employing Chi-square ( $\chi^2$ ) statistics. Accordingly, the statistically significant  $\chi^2$  values (refer Table 7) have highlighted statistically significant difference between both the categories of respondents on account of their socio-economic characteristics. To elaborate further, the results have stated that majority of the respondents with high TAP are younger in age, i.e. they belong to age bracket of 21–34 years (52 per cent) whereas respondents with low TAP are found to be mature falling in the age bracket of 34–58 years (54.3 per cent). Further, majority of the respondents with high TAP belongs to high monthly family income group, i.e., above ₹ 1,20,000 (61 per cent) whereas respondents with low TAP belongs to comparatively low monthly family income bracket, i.e. income  $\leq$  ₹ 1,20,000 (61.8 per cent). Besides, it has also been identified that majority of the respondents with high TAP are comparatively highly qualified, i.e., they are post graduates whereas majority of the low TAP respondents are found to be either graduates or undergraduates.

#### 4. Discussion and implications

The present composition has endeavored to explore the factors that impinge on the decision of the individuals to adopt technology. Based on the seven personal traits, namely, optimism, innovativeness, self-efficacy, risk taking propensity, habit, psychological resilience and social influence, a 45-item composite index named as Technology Adoption Index has been developed. The TAI developed in the present composition has highlighted significant contribution of seven personal traits of the customers (i.e., OP, SE, SI, IN, RT, HB and PS) in their personal disposition towards technology adoption. Eventhough studied from different perspective and in different settings, these seven personal traits have been found to play significant role in the technology adoption phenomenon of the customers in the relevant literature. The results of TAI comply with the findings of the studies, such as, [Baraghani \(2008\)](#), [Chang and Kannan \(2006\)](#), [Guhr, Loi, Wiegard, and Breitner \(2013\)](#), [Parasuraman \(2000\)](#), [Shambare \(2013\)](#), [Saade and Kira \(2009\)](#), etc. wherein OP and IN have been revealed to cause significant contribution in shaping the personal disposition of the customers towards technology adoption. Further, studies, such as [Hagger, Chatzisarantis, and Biddle \(2001\)](#), [Md. Shoki et al. \(2012\)](#), [Srivastava \(2007\)](#), [Veijalainen \(2003\)](#), [Wan, Luk, and Chow \(2005\)](#), etc. have uncovered significant impact of personal traits, namely, SE, RT, SI and HB either on the behavioral intentions of the customers towards technology adoption or on their attitude towards technology adoption. While, results of TAI indicates that these personal traits exhibit significant role in manifesting the personal disposition of the customers towards technology adoption.

Also, the present study has unveiled significant role of PS in shaping the personal disposition of the customers, thereby, enriching the extant literature in this regard. The concept of PS has not been explicitly studied in the technology adoption literature though studies, such as [Luthans et al. \(2005\)](#) and [Venkatesh et al. \(2003\)](#) have stated that the previous experience of the customers with the technology of same or different kind cause significant impact on their technology adoption decision.

Further, the results have also congregated with the earlier research literature and confirmed that technology adoption propensity of individuals increase with income and qualification but decrease with the progression in their age ([Agarwal & Prasad, 1999](#); [Gilly & Zeithaml, 1985](#); [Hitt & Frei, 2002](#); [Ittersum et al., 2006](#); [Morris, Venkatesh, & Ackerman, 2005](#)). Usually at younger age, individuals are more fervent to try new and innovative technologies owing to their ability of taking risks and recouping from the technology failures. For that reason, younger individuals have higher proclivity towards technology adoption but as the age progresses; the propensity to adopt technology diminishes owing to the establishment of hard-to-change strong belief system developed by individuals over the period of time out of their experience and learning. Unlike age, income of the individuals shares positive relationship with their technology adoption propensity. Income augmentation raises the level of funds available at the discretion of individuals which may raise their risk taking ability and this, in turn, may enhance their technology adoption propensity. On the contrary, the availability of limited financial resources at disposal of the individuals may restrict them to adopt new and improved technologies. Also, the results have highlighted that the propensity of the individuals to adopt technology amplifies with increase in their qualification levels. High qualification strengthens the mental ability and boosts the confidence level of the individuals. Owing to this, individuals perceive new and improved technologies more useful and easy to use and this, in turn, may enhance their propensity towards technology adoption.

The research has various theoretical and practical implications. To the best of the knowledge of the researchers, the present piece of work is amongst very few of its kind in the catalogue of the indices that have focused on the individual specific traits manifesting technology adoption propensity of the individuals. Indeed, TAI is first of its kind to mull over a comprehensive assortment of personal traits after critical examination of the different models and indices developed for exploring the technology adoption behavior of the individuals. It includes some traits (such as, psychological resilience and habit) which have not been investigated extensively earlier with reference to the technology adoption behavior of the individuals. Further, the development of TAI will enlighten the corporate and practitioners regarding the relative impact of different personal traits on the technology adoption propensity of the individuals. Hence, it can be used as a significant tool to get an understanding about the traits which boost more or less the individual's technology adoption propensity. In this way, task of spotting the category of individuals on the basis of their technology adoption propensity will be simplified. Besides, the study also point out that the key to bolster the technology adoption propensity is the positive experience and belief of the individuals and people important to them with respect to technology in general. It may lead towards more acceptance and confidence among



the individuals which may nurture a positive attitude towards specific technology to be used. Furthermore, TAI depicts the general adoption tendency of the individuals towards technology. Hence, its applicability can be extended to various technologies in different contexts and it can be utilized, by the organizations, in some technology specific milieu for the identification of the propensity of the individuals towards technology adoption. Besides, from organizational point of view, the socio-economic profile of the individuals can facilitate the organizations in outlining the marketing strategies for enhancing the acceptability of the technology by the target group. Moreover, it will facilitate the organizations in developing and designing new products and services which can be readily accepted by the customers.

## 5. Limitations and future research

Founding on the premises that the personal disposition of the customers (comprised of the personal traits) towards technology adoption determine the orientation of the individuals towards new/latest technology used by them both at work as well as personal life, the study has made a useful contribution to the existing relevant pool of studies. However, still there are some gaps in the study which calls for its further analysis from some other perspectives. Although TAI has been developed considering technology in general but its validation across different cultures may add more useful insights. It can also be utilized to access the technology adoption propensity of individuals belonging to different regions or areas, etc. Further, TAI has accessed the technology adoption propensity of individuals ignoring the impact of time. So it would be more fruitful to test out whether various personal constituents of TAI remain stable in individuals across different time period? Besides, validation of TAI can also be extended towards some specific type of technology for analyzing the traits which inhibit or exhibit the acceptance of that technology. Further, the cause-effect relationship between TAI and technology attributes (such as, perceived usefulness, perceived ease of use, etc.) may also reveal some crucial understanding relating to the technology adoption behavior of the individuals. Indeed, all such explorations can provide more analytical insight into the technology adoption behavior of the individuals so that intended benefits can be pulled off to the maximum extent with the adoption of the technology.

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