



## The Innovative Personality of Indonesia's Cross-Generational Population in the Adoption of Investment Application Innovations

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### Abstract

**Introduction/Main Objectives:** The success of the diffusion of innovation is highly dependent on the speed of adoption by adopters. Adopters have individual innovative characteristics that determine the willingness to adopt new innovations. This study aims to analyze the differences in FFM Across Generations X, Y, Z on the adoption of innovation mobile investment apps.

**Background Problems:** The existence of digital consumers has led to consumer behaviour that relies on innovation and digital technology. Consumer innovativeness characteristics are related to consumption behaviour and adoption of innovations that are formed persistently and grow from childhood. Therefore, it is important to know the characteristics of innovation in Generation X, Y and Z in Indonesia.

**Research Methods:** this research takes the form of survey research. The number of respondents was 88 people who installed investment mobile applications. The variable of this study is the Five Factor Model (FFM) which is one of the instruments measuring the characteristics of consumer innovation. There are 5 characteristic factors: Open to Experience (OE), Extraversion (EXT), conscientiousness (CSC), Agreeableness (AGR), and Neuroticism (NEU). The Data were analysed using ANOVA.

**Finding/Results:** the results showed that there are differences in the components of the Five-factors of Personality, namely OE, CSC, AGR in Gen Y and Z; where Gen Y has a greater mean value. There is also a difference in OE between Gen X and Y, where Gen Y has a greater mean. There is a difference in NEU between Gen X and Z, where Gen Z has a greater mean.

**Conclusion:** Generation Y is the most persistent generation and shows the characteristics of FFM. This research is useful for marketers in implementing communication strategies based on consumer personality and to see the map of intergenerational consumer innovativeness in Indonesia because they are the determinants of the success of innovation diffusion.

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**Keywords:** Personality; Innovation, Investment; Mobile Apps



## Introduction

The existence of digital consumers drives the demand for convenience in all aspects. Digital consumers are 'digital natives' consumers, born and raised in the internet and digital age. In relation to financial services, they need technology-based (Fintech) financial services, without face-to-face, fast, and convenient (F Lou et al., 2017). This need is the basis for the growth of types of companies that implement innovation in financial services through mobile apps, one of which is a capital market investment company. Consumers get an easy financial management alternative through mobile apps (Garrett et al., 2014). In addition, with small capital, investment in the capital market becomes increasingly easy and affordable (Johri et al., 2023).

Mobile application technology is one of the innovations that has been very popular installed by millions of investors. Based on searches, the number of investment application downloaders in Indonesia from several companies.

1. Investing +50 million
2. Seedlings +5 million
3. Magic + 5 million
4. Bareksa +1 million
5. IPOT +1 million
6. Stockbit +1 million
7. Makmur +500 thousand
8. SIMInvest 500 thousand
9. BIONS BNI +100 thousand
10. BrightBRI +100 thousand
11. PINA +100 thousand

Innovation requires adopters-consumers who are willing to accept innovation. Innovator consumers in the context of innovation adoption are consumers who adopt product innovation products in the early stages of the launch or diffusion of product innovation (Robertson, 1967; Rogers, 1983; Guhathakurta, 2016). Diffusion of innovation mobile applications can not achieve the goal if there is no user who adopts. The diffusion of innovation occurs within a framework of a social system, which means that the more open a social system is, the faster the process of diffusion of innovation (Malouf, 2023).

In 1962, Rogers (1983) and Robertson (1967) divided the adopter group into 5 consumer groups: innovators (2.5% of the population), Early adopters (13.5%), Early majority (34%), Late Majority (34%), and laggards (16%). Some researchers mention that the number of innovators is approximately 2.5% of consumer adopters, and other researchers mention as buyers in the product introduction phase (approximately up to 3 months after launch) (Guhathakurta, 2016). Innovative consumer behavior, among others, is implemented at the level of purchasing innovativeness (Karaarslan & Sükrüakdoğan, 2015). Consumer adopters of innovation have characteristics. Previous research using Rogers' concept is from (Ramanathan et al., 2015; Chiu et al., 2017; Putteeraj et al., 2022), and Al-Jabri & Sohail (2012) but still limited to the theme of perceived innovation characteristics. Various marketing literatures have found a relationship between innovativeness personality traits and consumer behavior (Roos & Kazemi, 2022).

The motivation to be the first to try new products is one of the characteristics of innovator consumers (Dobre et al., 2009). Another concept that is commonly used to examine consumer personality and its relationship with innovation is the Five-Factor Model of Personality (FFM) (Soto, 2018). Vannella Ericsson & Vannella (2017) state that the FFM can be applied to analyze the personality of innovators in a structured and precise manner. The personality of innovators

tends to go through all stages of innovation adoption (Stock et al., 2016a). In the context of innovators from the FFM, individuals are considered to have five main personality characteristics that are stable, situational, and in the context of social roles (Stock et al., 2016a). FFM characteristics are related to generational traits and are persistent from childhood, and are also influenced by genetics and environmental factors (Soto, 2018). Personality develops in early childhood. Personality tends to stabilize with age and level off in late middle age (maturity principle pattern) (Soto, 2018). A decline in personality development occurs from middle childhood to adulthood, including a decrease in Extraversion, Agreeableness, Conscientiousness, and Openness to Experience (Soto, 2018).

Soto (2018) categorizes FFM into five groups, namely Openness to Experience, Extraversion, Agreeableness, Conscientiousness, and Neuroticism. Openness to Experience refers to individuals who are always curious and seek new experiences. Individuals with the Openness to Experience trait exhibit characteristics such as creativity, imagination, non-traditional thinking, curiosity, adventurousness, and analytical thinking (Stock et al., 2016; Novikova, 2013). Extraversion is characterized by assertiveness, dominance, energy, enthusiasm, talkativeness, enjoyment of social activities, and a preference for being with others rather than alone (Stock et al., 2016a). Individuals with extraverted traits are characterized by their comfort in expressing themselves in social environments (Soto, 2018). Conscientiousness has the characteristics of individuals who are well organized, good planners, persistent, motivated to achieve goals, hardworking, free-willed/independent, disciplined, systematic, and planned (Von Hippel et al., 2011). Conversely, unconscientious individuals are disobedient, disorderly, and less motivated to complete tasks (Soto, 2018). Agreeableness refers to individuals who are positive in interpersonal relationships, conforming to social conventions, compliant, trusting, forgiving, modest, softhearted, and tolerant (Stock, von Hippel, & Gillert, 2016). Soto (2018) states that disagreeable individuals tend to have less regard for others and for social norms of politeness. Neuroticism is related to emotional factors such as anxiety, insecurity, and hostility. Individuals with high scores on this aspect of character tend to express negative attitudes and have lower-quality interactions with others in social situations. Conversely, individuals with low scores on neuroticism are emotionally stable and tend to be calm, patient, secure, and adjusted (Stock, von Hippel, & Gillert, 2016). In Vannella's (2017) study, innovation was negatively related to neuroticism. This study aims to analyze the differences in the FFM across Generations X, Y, and Z in the adoption of investment mobile app innovations. The hypotheses are formulated as follows:

- Hypothesis 1: There are differences in the Openness to Experience variable in the adoption of mobile app innovations between Generations X, Y, and Z.
- Hypothesis 2: There are differences in the Extraversion variable in the adoption of mobile app innovations between Generations X, Y, and Z.
- Hypothesis 3: There are differences in the Agreeableness variable in the adoption of mobile app innovations between Generations X, Y, and Z.
- Hypothesis 4: There are differences in the Conscientiousness variable in the adoption of mobile app innovations between Generations X, Y, and Z.
- Hypothesis 5: There are differences in the Neuroticism variable in the adoption of mobile app innovations between Generations X, Y, and Z.

## Research Methods

The approach of study is a quantitative approach. Survey research was chosen to design a model for innovation diffusion adoption. Data were collected from a survey by distributing questionnaires to respondents. The subjects of this study were investors, specifically those who installed investment applications. The number of respondents was 88 people. The variables studied were the Five Factor Model of Innovation Personality, namely Openness to Experience, Extraversion, Agreeableness, Conscientiousness, and Neuroticism from Vannella (2017), Soto (2018), and Rogers (1983). Meanwhile, the demographic variable chosen was generation. The following are indicators of the Five Factor Model of Innovation Personality variables.

- a. Openness to Experience (OE)
  - 1. OE1 - Open to input
  - 2. OE2 - Living life according to your interests/passions
  - 3. OE3 - Someone who always thinks positively
  - 4. OE4 - Easily obtains information
  - 5. OE5 - Enjoys new experiences
  - 6. OE6 - You work creatively

- b. Extraversion (EXT)

- 1. EXT1 - Values freedom in life
- 2. EXT2 - Enjoys social interaction/Sociability
- 3. EXT3 - Being friendly to others
- 4. EXT4 - Values yourself
- 5. EXT5 - Has no conflicts of interest (value-free)
- 6. EXT6 - Open to sharing yourself with others
- 7. EXT7 - Enjoys being around others

- c. Conscientiousness (CSC)

- 1. CSC1 - likes to organize things
- 2. CSC2 - reliable in completing projects/tasks
- 3. CSC3 - feels responsible for your work
- 4. CSC4 - hardworking
- 5. CSC5 - goal-oriented when working

- d. Agreeableness

- 1. AGR1 - cooperative
- 2. AGR2 - attentive/understanding
- 3. AGR3 - tends to empathize easily

- e. Neuroticism

- 1. NEU1 - tends to have negative emotions (anxiety, irritability)
- 2. NEU2 - tends to be sensitive when dealing with problems
- 3. NEU3 - easily stressed/underwhelmed

The questionnaire was designed in Google Forms and distributed online. The collected data was then processed using the ANOVA statistical tool.

## Result

The study begins with a description of the respondents' sociodemographic characteristics, as shown in Table 1.

**Table 1. Description of respondents' sociodemographic**

Item	Category	%
Generation	Gen X	5
	Gen Y	34
	Gen Z	61
Gender	Male	52
	Female	48
Occupation	Student	39
	Private Employee	30
Expenditure	Civil Servant/TNI/Polri	5
	Professional	18
	Freelancer	9
	< 1.7 million	23
Marital Status	1.7-3.4 million	32
	> 3.4 - 6 million	16
	> 6 - 28 million	27
	> 28 million	2
Install status	Married	64
	Unmarried	36
Usage Activity	Previously installed, not currently	32
	Still installed	68
	> 3 months inactive	41
	1-3 months inactive (no top-up)	21
	Always active (top-up)	39

Source: Data analysis (2025)

Based on generation, 4.5% of respondents were Gen X, 34.1% Gen Y, and 61.4% Gen Z. In terms of gender, 52.3% were male and 47.7% were female. Gen Z is a generation that is interested in adopting investment applications, while in terms of gender, women and men are equally interested. In terms of occupation, 38.6% of respondents were students and 29.5% were private employees. Due to the limitations of the researcher, it was quite difficult to obtain respondents from various types of jobs. According to the data, 77.3% did not hold a specific position in the job structure. Based on expenditure, descriptive data shows an even distribution of expenditures of IDR 1.7 - 28 million. The largest percentage of expenditure is IDR 1.7-3.4 million (31.8%). Meanwhile, in terms of marital status, because most respondents were students, the data shows that 63.6% of respondents were unmarried and only supported themselves (61.4%). Regarding investment app installation status, 68.2% of respondents said they still have them installed, while 31.8% no longer have them installed. The most common reason, at 43.2% of the total (or 63.3% of those who haven't installed them), was "lack of funds" to invest. Regarding usage activity, 61.4% stated they haven't actively topped up the app for one to more than three months.

Next is the cross-generational FFM analysis on investment application adoption using ANOVA analysis.

**Table 2. Descriptives**

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for		Minimum	Maximum		
						Mean					
						Lower Bound	Upper Bound				
OE	Gen X	4	4,4167	,86603	,43301	3,0386	5,7947	3,67	5,17		
	Gen Y	30	5,7889	,47733	,08715	5,6107	5,9671	4,83	6,50		
	Gen Z	54	5,1235	1,01415	,13801	4,8466	5,4003	2,00	6,67		
	Total	88	5,3182	,93041	,09918	5,1210	5,5153	2,00	6,67		
EXT	Gen X	4	4,7857	1,56709	,78355	2,2921	7,2793	3,43	6,14		
	Gen Y	30	5,2381	,54796	,10004	5,0335	5,4427	4,29	6,57		
	Gen Z	54	5,0476	,88019	,11978	4,8074	5,2879	3,29	6,86		
	Total	88	5,1006	,81826	,08723	4,9273	5,2740	3,29	6,86		
CSC	Gen X	4	5,5000	1,27017	,63509	3,4789	7,5211	4,40	6,60		
	Gen Y	30	5,8533	,72194	,13181	5,5838	6,1229	4,20	7,00		
	Gen Z	54	5,1630	,86008	,11704	4,9282	5,3977	2,80	7,00		
	Total	88	5,4136	,88658	,09451	5,2258	5,6015	2,80	7,00		
AGR	Gen X	4	5,5000	,96225	,48113	3,9688	7,0312	4,67	6,33		
	Gen Y	30	5,9778	,58679	,10713	5,7587	6,1969	5,33	7,00		
	Gen Z	54	5,0988	1,10579	,15048	4,7969	5,4006	2,00	7,00		
	Total	88	5,4167	1,03112	,10992	5,1982	5,6351	2,00	7,00		
NEU	Gen X	4	2,0000	1,15470	,57735	,1626	3,8374	1,00	3,00		
	Gen Y	30	3,6000	1,47105	,26858	3,0507	4,1493	1,00	6,00		
	Gen Z	54	3,8025	1,17006	,15923	3,4831	4,1218	1,00	6,00		
	Total	88	3,6515	1,31977	,14069	3,3719	3,9311	1,00	6,00		

Source: Data analysis (2025)

Table 2 shows descriptive data for each FFM variable, summarized as follows:

1. The mean OE, EXT, CSC, and AGR for Generation Y were the highest among the three generations. Descriptively, Generation Y tends to be open, extroverted, well-organized, good planners, persistent, and positive in interpersonal relationships.
2. For the NEU variable, the highest mean was found in Generation Z. Individuals with high scores on this character aspect tend to express negative attitudes and have lower-quality interactions with others in social situations. Conversely, Generation X with low scores on neuroticism are emotionally stable, tending to be calm, patient, secure, and adjusted.
3. The highest mean among the five variables was for Agreeableness, and the lowest was for Neuroticism.

**Table 3. ANOVA**

			Sum of Squares	df	Mean Square	F	Sig.
OE	Between Groups	(Combined)	11,945	2	5,973	8,012	,001
	Within Groups		63,368	85	,746		
	Total		75,313	87			
EXT	Between Groups	(Combined)	1,115	2	,558	,830	,440
	Within Groups		57,136	85	,672		
	Total		58,251	87			
CSC	Between Groups	(Combined)	9,223	2	4,612	6,626	,002
	Within Groups		59,161	85	,696		
	Total		68,384	87			
AGR	Between Groups	(Combined)	14,930	2	7,465	8,180	,001
	Within Groups		77,570	85	,913		
	Total		92,500	87			
NEU	Between Groups	(Combined)	12,220	2	6,110	3,728	,028
	Within Groups		139,315	85	1,639		
	Total		151,535	87			

Source: Data analysis (2025)

Table 3 shows that:

1. There is a significant difference ( $F=8.012$  and  $\text{Sig.}=0.001$ ) in the OE variable across/between generations. Hypothesis 1 is accepted.
2. There is no significant difference in the EXT variable ( $F=0.830$  and  $\text{Sig.}=0.440$ ) across generations. Hypothesis 2 is rejected.
3. There are significant differences in the CSC variable ( $F=6.626$  and  $\text{Sig.}=0.002$ ), AGR ( $F=8.180$  and  $\text{Sig.}=0.001$ ), and NEU ( $F=3.728$  and  $\text{Sig.}=0.028$ ) across generations X, Y, and Z. Hypotheses 3, 4, and 5 are accepted.

**Table 4. Post Hoc-Multiple Comparisons**

Dependent Variable		(I) Year of birth according to generation	(J) (I) Year of birth according to generation	Mean Difference (I-J)			95% Confidence Interval		
				Std. Error	Sig.	Lower Bound	Upper Bound		
OE	Gen X	Gen Y	-1,37222*	,45959	,011	-2,4947	-,2498		
		Gen Z	-,70679	,44742	,354	-1,7995	,3859		
	Gen Y	Gen Z	,66543*	,19661	,003	,1853	1,1456		
		Gen Y	-,45238	,43641	,909	-1,5182	,6135		
	Gen X	Gen Z	-,26190	,42485	1,000	-1,2995	,7757		
		Gen Y	,19048	,18669	,931	-,2655	,6464		
EXT	Gen X	Gen Y	-,35333	,44407	1,000	-1,4379	,7312		
		Gen Z	,33704	,43231	1,000	-,7188	1,3929		
	Gen Y	Gen Z	,69037*	,18997	,001	,2264	1,1543		
		Gen Y	-,47778	,50849	1,000	-1,7197	,7641		
	Gen X	Gen Z	,40123	,49502	1,000	-,8077	1,6102		
		Gen Y	,87901*	,21753	,000	,3477	1,4103		
CSC	Gen X	Gen Y	-1,60000	,68146	,064	-3,2643	,0643		
		Gen Z	-1,80247*	,66340	,024	-3,4227	-,1823		
	Gen Y	Gen Z	-,20247	,29152	1,000	-,9144	,5095		

\*. The mean difference is significant at the 0.05 level.

Source: Data analysis (2025)

The results shown in Table 4 show the Bonferroni Post hoc analysis, which looks at the differences between Generations X, Y, and Z in the adoption of Mobile apps Investment innovations based on the FFM variable.

1. In the OE variable, there are significant differences between Generations X and Y and Generations Y and Z. The mean OE variable in Generation Y is the highest, and the lowest mean OE is in Gen X.
2. There are no significant differences in the EXT variable across generations.
3. For the CSC and AGR variables, the mean for Generation Y differs significantly from that of Generation Z; the mean for the CSC and AGR variables is higher for Generation Y than for Generation Z.
4. For the NEU variable, the mean for Generation X and Generation Z differs significantly, with the mean for Generation Z being higher than that for Generation X.

In general, the characteristics of the five FFM variables differ between generations in relation to the adoption of mobile app investment innovations. In general, Gen Y shows the highest average scores for the variables of openness to experience, conscientiousness, and agreeableness among the two other generations. This indicates maturity and persistence in decision making. The most senior generation (Gen X) shows the lowest mean scores on the variables OE, EXT, and NEU, which also indicates the least innovative characteristics. Gen X

tends to be less open to new innovations, and low scores on neuroticism indicate stable emotions, tending to be calm, patient, secure, and adjusted (Stock et al., 2016)

Research results show that Generation Y exhibits more innovative characteristics than Generations X and Z. Generation Y is more open to new experiences, well organized, good planners, persistent, motivated to achieve goals, hardworking, independent, disciplined, systematic, positive in interpersonal relationships, and tolerant. These results are also in line with the findings of Guhathakurta (2016). It is said that innovativeness is related to the tendency to seek novelty and creativity, the need for knowledge and the need for change, being creative, rational, intelligent, and motivated to achieve.

Gen Z shows the highest indicators of Neuroticism among the other two generations. This indicates a tendency toward negative attitudes and lower quality interactions with others in social situations. Empirical studies have also shown that innovators are young people (Lee & Son, 2017). Many innovations in purchasing behavior are currently being carried out by young consumers, such as online purchasing, bank cards, answering machines, communication, and IT (Dedehayir et al., 2017).

Furthermore, on the impact of the 5 personalities on actual adoption. Dobre, et al. (2009) argue that innovator consumers are important in marketing strategies at the purchase decision stage. This research is useful for providing valuable information for marketers in implementing communication strategies based on consumer personality. It is important for marketers to identify innovator consumers because they are the determinants of the success of innovation diffusion (Luiz Dias da Silva & Da, 2017). Consumer innovators are key to developing businesses based on the synergy of consumer creativity as input for new product innovation (Nikolć & Miladinović, 2012).

## Conclusion

The results of the study show significant differences in the FFM variables, namely Open to Experience, Agreeableness, Conscientiousness, and Neuroticism. There are differences in the Five-Factor Personality components, namely OE, CSC, and AGR, between Gen Y and Gen Z, with Gen Y having a higher mean value. There are also differences in the Five-Factor Personality components, namely OE, between Gen X and Gen Y, with Gen Y having a higher mean. There are differences in the Five-Factor Personality components, namely NEU, between Gen X and Gen Z, with Gen Z having a higher mean.

Consumer innovators are said to have venturesome characteristics that are very obsessed with being innovators, eager to try new ideas, opinion leader, dan taking risk (Filová, 2015). In this study, these characteristics were found in Generation Y and Gen Z. In many subsequent studies, the characteristics of innovator consumers began to be widely identified (Umami & Darma, 2021). An adoption and diffusion framework is needed for digital products such as mobile apps. (Okonkwo et al., 2020).

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