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(ICCCI)**

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2021 3rd International Conference on Computer Communication and the Internet

(ICCCI)

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Table of Contents

Preface.....	vii
Conference Committee	viii

♦ **Intelligent Image Processing and Method**

EfficientNet Based Iris Biometric Recognition Methods with Pupil Positioning by U-Net.....	1
<i>Cheng-Shun Hsiao, Chih-Peng Fan</i>	
White Balance Color Correction Based on MICRO LED Display Panel.....	6
<i>Shih-Chang Hsia, Chun-Jung Liao</i>	
Three Dimensional Light Detection and Ranging Decoder Design	10
<i>Sheng-Bi Wang, Yu-Cheng Fan</i>	
Improving Face Recognition Using Pre-trained Models for Mask Wearer Images	15
<i>Masaki Hongo, Tomio Goto</i>	
Video-Based Facial Recognition Develop for Accurately Identify People Wearing Surgical Masks	19
<i>Chanate Ratanaubol, Panita Wannapiroon, Prachyanun Nilsook</i>	
Alpha Beta Pruned UNet - A Modified UNet Framework to Segment MRI Brain Image to Analyse the Effects of CNTNAP2 Gene towards Autism Detection.....	23
<i>Nagashree N, Premjyoti Patil, Shantakumar Patil, Mallikarjun Kokatanur</i>	

♦ **Network Resource Allocation and Management**

QoE Assessment of Human Perception of Softness in Networked Haptic Virtual Environment.....	27
<i>May Zin Oo, Yutaka Ishibashi, Khin Than Mya</i>	
UAV-Assisted Resource Allocation Strategy in Energy Harvesting Edge Computing System.....	32
<i>Lijia Tao, Yisheng Zhao, Xinya Xu, Zhimeng Xu</i>	
Towards a Multi-Label Dataset of Internet Traffic for Digital Behavior Classification	38
<i>Wenbin Li, Gaspard Quenard</i>	

Traffic Prediction and Resource Allocation Based on Deep Bidirectional LSTM in Data Center Networks	47
<i>Yonghuai Wang</i>	
Resource Allocation Strategy for Dual UAVs-Assisted MEC System with Hybrid Solar and RF Energy Harvesting	52
<i>Xinya Xu, Yisheng Zhao, Lijia Tao, Zhimeng Xu</i>	
Switching Scheme between Adaptive Viscosity Control and Stabilization Control by Viscosity in Remote Control System with Haptics	58
<i>Lu CHEN, Yutaka ISHIBASHI, Pingguo HUANG, Yuichiro TATEIWA</i>	
◆ Network and Information Security	
Intrusion Detection Method Based on Sparse Autoencoder	63
<i>Yuqi Li, Pan Gao, Zhijun Wu</i>	
Research on Single Sign-on Technology for Educational Administration Information Service Platform	69
<i>Tao Huang, FangMing Guo</i>	
Data Offloading in Heterogeneous Dynamic Fog Computing Network: A Contextual Bandit Approach	73
<i>Yuchen Shan, Hui Wang, Zihao Cao, Kozyrev Yury</i>	
Analyzing Cyber Crimes during COVID-19 Time in Indonesia	78
<i>Abdul Hanief Amarullah, Arthus Josias Simon Runturambi, Bondan Widiawan</i>	
The Architecture Design for Publicizing Digital Competence to Online Job Market	84
<i>Sukosol Wanotayapitak, Kobkiat Saraubon, Prachyanun Nilsook</i>	
Content-Based Technical Solution for Cyberstalking Detection	89
<i>Audrey Asante, Xiaohua Feng</i>	
Built-in Encrypted Health Cloud Environment for Sharing COVID-19 Data	96
<i>Mohammed Y. Shakor, Nigar M. Shafiq Surameery</i>	
A Heterogeneous Graph Attention Network-Based Web Service Link Prediction	102
<i>Wenhui He, Chunhe Xia, Zhong Li, Xiaochen Liu, Tianbo Wang</i>	
◆ Wireless Communication and Technology	
Performance Evaluation on Concurrent Connecting QUIC and TCP Nodes over Wireless LAN	109
<i>Nobuo Aoki, Kohei Okazaki, Hiroyasu Obata, Junichi Funasaka</i>	
An Innovative High-Frequency Wireless Communication Technique Inspired by Multi-Frequency Carrier Signals	117
<i>Prashnatita Pal, Bikash Chandra Sahana, Jayanta Poray</i>	

Security Performance of Public Key Distribution in Coherent Optical Communications Links	123
<i>Mostafa Khalil, Adrian Chan, Kh Arif Shahriar, Lawrence R. Chen, David V. Plant, Randy Kuang</i>	
A Content Prepositioning Using Popularity Prediction in Hybrid Peer-to-Peer Network with Cloud Storage	130
<i>Kazumasa Takahashi, Shinji Sugawara</i>	
A Parameter Optimization Method for Fingerprint-Based Indoor Localization System Using IEEE 802.15.4 Devices	136
<i>Yuanzhi Huo, Pradini Puspitaningayu, Nobuo Funabiki, Kazushi Hamazaki, Minoru Kuribayashi, Kazuyuki Kojima</i>	
VoWiFi Cell Capacity Evaluation Using IEEE 802.11ac for VBR Traffic.....	141
<i>Ayes Chinmay, Hemanta Kumar Pati</i>	
Improved AOMDV Routing Protocol in Manet UAV Based on Virtual Hop.....	146
<i>Mesmin J. MBYAMM KIKI, Ibrahim IDDI, Haruna YUNUSA</i>	
Development of Smart Bus Management System Using NB-IoT	152
<i>Surachet Sangkhaman, Panita Wannapiroon, Prachayanun Nilsook</i>	
◆ Electronics and Signal Processing	
Speech Steganalysis Based on Multi-classifier Combination.....	157
<i>Chenlei Zhang, Junjun Guo</i>	
End-to-End Model Based on RNN-T for Kazakh Speech Recognition.....	163
<i>Orken Mamyrbayev, Dina Oralbekova, Aizat Kydyrbekova, Tolganay Turdalykyzy, Akbayan Bekarystankyzy</i>	
Using Semi-personalized Loudness Difference for Improved Surround Sound Rendered by Headphones	168
<i>Shingchern D. You, Fan-Hao-Chi Fang</i>	
An Efficient RAID6 System Based on XOR Accelerator	171
<i>Ruizhen Wu, Yan Wu, Mingming Wang, Lin Wang</i>	
Enhancing Power Added Efficiency of Doherty Amplifier by Changing Power Ratio of Carrier Amplifier and Peak Amplifier.....	176
<i>Guanyu Mu, Hitoshi Hayashi</i>	
Comparison of Stabilization Control for Writing Characters in Remote Robot System with Force Feedback	180
<i>Ruzhou Ye, Yutaka Ishibashi, Pingguo Huang, Yuichiro Tateiwa</i>	

ViT-GAN: Using Vision Transformer as Discriminator with Adaptive Data Augmentation	185
<i>Shota HIROSE, Naoki WADA, Jiro KATTO, Heming SUN</i>	

♦ **Computer Science and Technology**

A Complex Number-Based Node Ranking Calculation.....	190
<i>Keita Sugihara</i>	

Developing an Acceptance Model for Use with Online Video-Sharing Platforms	194
<i>Ittipat Chinangkulpiwat, Singha Chaveesuk, Wornchanok Chaiyasoonthorn</i>	

Simulation of Tele-Force-Position Sharing System with 1000 Clients Considering MMOG.....	199
<i>Takanori Miyoshi, Ho Duc Tho</i>	

Preliminary Results of a Motion-Based Interactive Game for Supporting Stroke Survivor Telerehabilitation	205
<i>Atiqul Islam, Mark Tee Kit Tsun, Lau Bee Theng</i>	

Redunacny Features Detection and Removal for Simplification of Convolutional Neural Networks	210
<i>Shih-Chang Hsia, Yu-Kuan Yang</i>	

The Use of Communication Technology in Establishing Community Relationships Applied by School Administration Staff, in Relation to Their Education Level and Age	214
<i>Bambang Budi Wiyono, Henny Indreswari, Arif Prastiawan</i>	

CodeHelper: A Web-Based Lightweight IDE for E-Mentoring in Online Programming Courses.....	220
<i>Xiao Liu, Gyun Woo</i>	

Towards Mass Individualized Production: RAMI 4.0 Asset Data Channelling for Manufacturing Value Chain Connectivity	225
<i>Jen Hin Hang, Wah Pheng Lee, Yee Mei Lim</i>	

How Successful in Individual Prosumer Performance in Thailand	232
<i>Arissa Sa-ardnak, Wornchanok Chaiyasoonthorn, Singha Chaveesuk</i>	

Author Index

Preface

After the success of past two ICCCI Conferences, I am pleased to welcome you all to the additional success, the third IEEE International Conference on Computer Communication and the Internet (ICCCI 2021) held from 25th June to 27th June 2021, as a virtual conference. ICCCI 2021 is technically sponsored by IEEE, IEEE Japan Council, IEEE Nagoya Section, ITE and Nagoya Institute of Technology, Japan.

Interests arising from computer communications have been dramatically increasing and becoming more and more important in this modern networking technological era. The world is asking for smarter and more efficient networking solutions for scientist, academics, researchers and engineers.

The objective of ICCCI 2021 is to bring together researchers and practitioners from academia and industry to exchange their challenges and discuss their latest progress and development in this field.

We feel deeply grateful to all that have contributed to make this event possible: authors who contributed papers, the conference committee, the keynote & invited speakers and the diligent reviewers. Through this great event, we trust that you will be able to share the state-of-the-art developments and the cutting-edge technologies in the broad areas of computer communication and the Internet.

The organizing committee including myself truly believes that active participants will find erudite and informative discussions, and will enjoy the opportunity for sharing research results. I hope this success can be evolved into persistent success annually in the future; in this year, there are presenters from all corners of the globe and all major countries.

On behalf of the conference organizing committee, we sincerely hope you will enjoy ICCCI 2021 that will offer you a chance to network with academics and researchers in the field of in computer communication and the Internet.

Have good time during ICCCI 2021.
Best Regards,

Conference Chair- ICCCI 2021
Prof. Yutaka Ishibashi,
Nagoya Institute of Technology, Japan

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How Successful in Individual Prosumer Performance in Thailand

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Abstract—The evolution of technology has affected consumer behavior around the world, including through faster, more frequent data consumption, data comparison, and more self-specific needs. This makes consumers more keenly focused on self-production. The prosumer society is plentiful and focuses on effectiveness. This results in greater quality control problems. The usage of those who do not yet value it are less clear. Workers are not paid for their work, unlike other economies. The prosumer shares their knowledge in a way which is fulfilling. A professional prosumer shares their knowledge with society that makes them proud. The technology usage will help improve individual prosumers' key to success. This study offers a conceptual framework of factors that affect individual prosumer performance. This article synthesizes Technology Cultural Theory (TCT) based on TAM2, Information System Success Model (ISS) based on the IS success model, Prosumer Theory (PT) based on consumer behavior, and Individual Prosumer Performance (IPP) based on individual performance.

Keywords—prosumer, technology, creativity, self-efficacy, individual performance

I. INTRODUCTION

New technologies and discoveries are rapidly developing on a daily basis [48]. The third wave of the internet has a role in all aspects of life [7]. People can communicate via technology wherever they are and at any time, allowing businesses to more easily gain consumer opportunities. Latest digital technologies mainly focus on the use of smartphone technology to improve business performance [18], resulting in the disruption of old consumer habits. Searching for products and ordering them online has a significant impact on the way we purchase goods and services. Consumers are learning new consumption habits and are required to adopt new technologies and various applications [32]. Social transformation has revolutionized consumers into prosumers who can do their own thing [25]. The prosumer was mentioned in the 1980s by Toffler as a combination of 'producer' and 'consumer' [7, 13, 19, 24, 34, 39]. Prosumer behavior is associated with both consumption and production, which is not specifically focused. These innovations can facilitate manual operations [25] and have the opportunity to drive a learning revolution, which has

discussed for decades yet has barely been achieved as of yet [43]. Could prosumer's individual performance drive the learning revolution?

Between 2020-2040, Thailand's population is expected to age with a declining working population from 43.26 million (65 percent) in 2020 to 36.5 million (56 percent) in 2040. Moreover, the proportion of working-age people in Thailand has decreased since 2015, resulting in labor shortages in various sectors. The productivity of Thai workers is relatively low due the lack of skilled labor force, delayed technology development, and a mismatch between skill development and labor market needs. In addition, demographic changes have resulted in many having to care for the elderly. These developments will ultimately affect national and economic policies [10].

Thai government policy is committed to developing Thai people into the 21st century or the digital era by focusing on the learning process and developing the potential of the Thai people at all ages. By applying the principles of human development based on knowledge, creativity, and innovation, the government seeks to instill diverse skills, digital knowledge, and learning for the populace to be self-reliant [40]. Successful individuals of the 3rd wave must be able to take advantage of technology while focusing on outstanding content. They must also recognize the importance of other elements involved and understand the community [43]. The key to successful potential is highly focused on developing individual performance [36]. Prosumer empowerment has a strong correlation between the prosumer and the adoption of the technology [9]. Factors for individual performance also depend on usage and user satisfaction in the theory of information systems success [14]. It directly depends on acceptance of technology and information system success.

This article provides a conceptual framework for the TAM2, IS success models, and consumer behavior regarding which factors influence the performance of individual prosumers. By synthesizing theories based on different categories and independent concepts, each with different meanings and concepts related to individual prosumer

*corresponding author

performance, the literature of TCT, ISS, PT, and IPP is reviewed.

II. LITERATURE REVIEWS

A. Technology Cultural Theory (TCT)

The dynamics of prosumer behavior are evolving as technology continues to expand [33]. Digital technology has greatly changed human lives and added a new dimension to prosumer behavior. Responses to constant change of social and cultural dynamics defines digital consumer culture theory which explains what is conducive to digital. Technology can facilitate joint creation by empowering prosumers. Moreover, technology allows connections to increase, enables access to information, and makes it possible to quickly disseminate information [52]. Technology culture involves technical expertise of digital technology and showcasing cultural differences [1]. The concept of mutual exchange, repetition, and dynamic relationships between digital consumer and digital adoption [9]. Several theories explore new technology acceptance and consumer intentions. The Technology Acceptance Model (TAM) is one such theory which has simulated user technology adoption [20, 38, 41, 56]. TAM was developed by Davis and Venkatesh (1996), with two main factors being defined: Perceived usefulness (PU); and perceived ease of use (PEOU). Both of these factors were found to directly influence the behavioral intentions of adopting new technologies [14, 21, 41, 49].

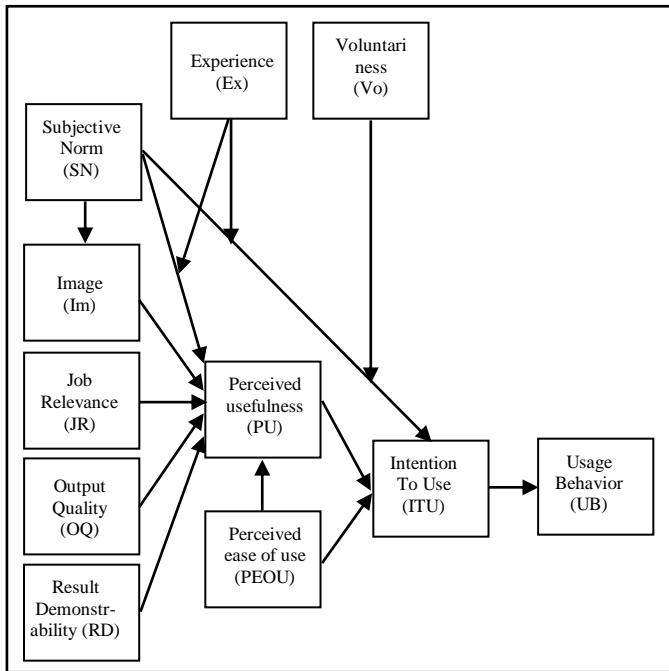


Fig. 1. TAM2 model adapted from Davis and Venkatesh (2000).

The TAM2 model was developed and tested on the basis of TAM by Davis and Venkatesh (2000), which “explains the PU and usage intentions in terms of social influence and cognitive instrumental processes” as shown in Fig 1. The TAM2 model is a more powerful simulation that affects individual performance and is commonly adopted in a culture of community and leadership focused management [14, 23, 49].

Increased presumption is due to individual performance, in which individuals enjoy their activities. It can be seen that many people genuinely enjoy online shopping, using airport self-service kiosks, shopping on e-Commerce websites, and searching and ordering books on Amazon.com. Certain prosumers may be recognized as photographers or bloggers on professional software applications and have a following which can pay for their success and make profit online [24]. These examples show how cultural technology influences prosumer performance.

B. Information System Success Model (ISS)

The performance of successful social behavior depends on the level of individual control that a person has on internal and external factors that could interfere with their intended action [28]. The most commonly accepted Information System Success model is the DeLone & McLean model, a theory that influences individual cultures as shown in Fig 2. System quality (SyQ), information quality (IQ), and service quality (SQ) directly influence user satisfaction (US) and individual performance (IP). Moreover, usage (Ug) directly influences user satisfaction (US), individual performance (IP) [5, 15, 54], Information quality (IQ), and service quality (SQ) which directly influence perceived usefulness (PU) [54]. Individual performance has been considered from a variety of perspectives including individual level factors such as SyQ, IQ, SQ, Ug, US, PU, and IP.

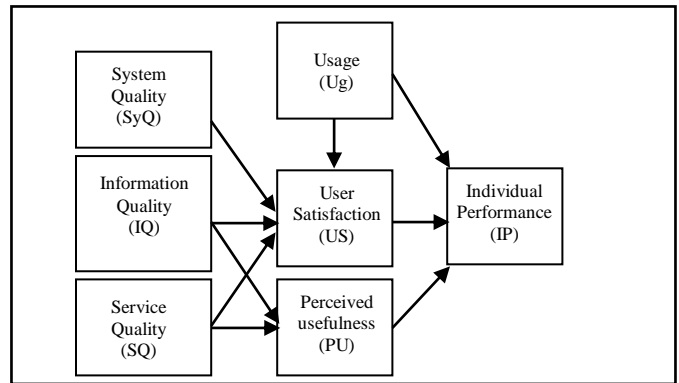


Fig. 2. Adapted from the DeLone & McLean model (1992).

C. Prosumer Theory (PT)

The prosumer concept has developed on the basis of consumer theory. The prosumer is proud of having created their own works and shared their knowledge with the online society [13, 24, 46]. For example, on Facebook a prosumer can decide how to represent themselves and are able to adjust their presentation as required. In addition, many people find Facebook to be a powerful social tool to build relationships and use it to communicate with others [24]. The potential of AI will be recognized by a prosumer culture that values DIY sharing. The response to different AI potential depends on which culture the prosumer adopts [46]. For prosumer technological creativity, the prosumer's creativity and analytical capacity have a significant positive influence on prosumer performance. In simple terms, improving the prosumer's self-efficacy and creativity serve to improve their technological proficiency level, thereby enhancing the prosumer's performance [16].

Some factors are an important relations between creativity, analytical abilities, self-efficacy, and prosumer performance.

D. Individual Prosumer Performance (IPP)

The key to successful performance is a strong focus on developing individual competencies [36]. The potential is the quality and quantity of task performed by the individual's performance [22]. Most individual prosumer performance involves individuals with the necessary knowledge to communicate and do business with one another. The ability to read and write multimedia content on a network can aid the individual's continuous development of specialized knowledge [47]. As individuals are able to produce increased amounts for themselves, the prosumer potential of human self-expression is developed accordingly [46]. The development performance of individual prosumers is the key to long-term success.

The development of the digital prosumer is a new model of capitalism, in which those who work are not paid via income, but are rather rewarded by fame. Furthermore, they are proud of their creations and there is a switch from scarcity to abundance. This focus on effectiveness is greater than efficiency in professional capitalism. For instance on Facebook, a little gain and empowerment can allow people to benefit greatly from being a professional [24]. Prosumers who understand technology, participate in high level product categories and who are thought leaders, active learners, or creators are typically involved in creating value together [52]. Participants can create new opportunities in the social space and are able to overcome geographical constraints through the use of social media [35]. The use of AI gives enables the prosumer to attain a higher level of productivity and capability for AI applications. The level of prosumer self-expression can be empowered with AI applications [46]. Individual prosumer performance has the potential to improve sustain prosumer society.

III. CONCEPTUAL FRAMEWORK

To study the factors that affect individual prosumer's ability to connect, share, and create, this study begins to integrate TAM2, IS success model, prosumer theory and assesses how they affect individual performance. Additionally, the study extends the results by including creativity, analytical capacity, and self-efficacy as mediator variables which directly and indirectly correlate to individual performance, as presented in Fig. 3.

Subjective norms (SN) are those in which the individual perceives community attitudes immediately to influence certain behaviors or can call "view of society" [42]. SN are an assessment of social pressures on individuals regarding whether to practice or follow a particular behavior [29, 37]. SN factors define the most appropriate predictive concepts in two separate elements of the injunctive and descriptive norm components [45]. SNs are determined by normative beliefs and motivation to comply with perceived norms [17]. SN directly influence the use of a system and corresponds to the role of the user. It is possible that some will affect the purpose and use of the other role [5]. Through behavioral investigation or use of intelligent technology, analytical results show that SN positively affects the implementation of smart technology [12].

When consumers become aware of the subject norms held by those who are important to them, those norms come to influence their decision making [53].

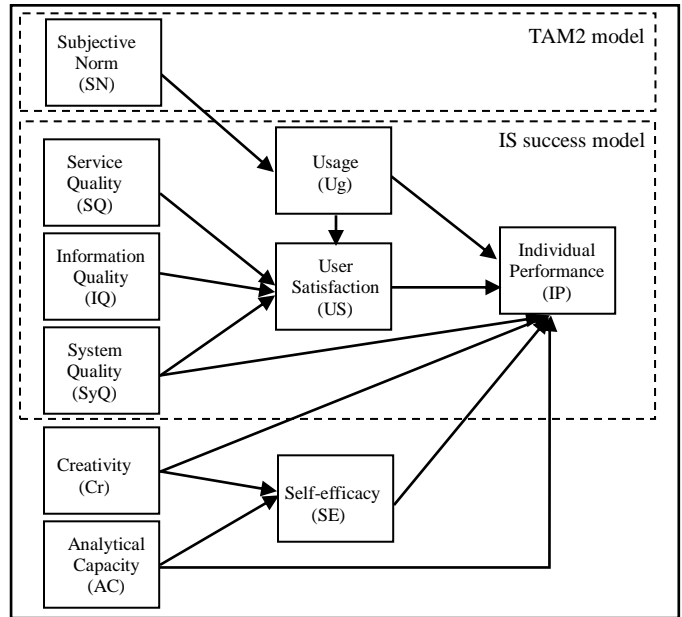


Fig. 3. Conceptual framework of individual prosumer performance.

H1: Subjective norms (SN) positively affect usage (Ug).

Systems quality (SyQ) is a desirable trait which includes ease of use and reliability of the user's system [5]. Information quality (IQ) is the nature of information (system output) that the users expect, i.e., validity and relevance [50]. Service quality (SQ) is the service (organization) characteristic that users expect from what it provides to the user [55]. SQ measures technical success, including usability, availability, reliability, adaptability, and response time (for instance download time) which is a quality issue that system users value. IQ measures the content problems or meaningful success and should be personal, complete, relevant, easy to understand, and secure. SyQ, which is the collective support provided by the service provider, whether support delivered by an IS department, a new organizational unit, or outsourced by a third-party provider. The importance is often greater since users are now our consumers, while poor user support can lead to a reduced consumer base and loss of sales. User satisfaction (US) is an important way to measure customer feedback about a business system and should cover the entire consumer experience lifecycle, from data extraction through purchases, payments, receipts, and services. US and individual performance (IP) impacts measure effectiveness success [8, 15, 55].

The perspective of technology quality includes system quality, information quality, and service quality. It is a factor that influences user satisfaction of information systems and government procurement plans [5]. The factors that affect the performance of individuals when using mobile banking are service quality, information quality, and system quality which affect user satisfaction. The results of one study point to the significant factor of user usage and satisfaction that influences individual technology performance [15]. Analyzing the factors

which affect individual potential suggests that the quality of the system is also a factor that affects individual performance. Determining the cost of improving the level of items in system quality increases the value of performance [8].

H2: Service quality (SQ) positively affects user satisfaction (US).

H3: Information quality (IQ) positively affects user satisfaction (US).

H4: System quality (SyQ) positively affects user satisfaction (US).

H5: System quality (SyQ) positively affects individual performance (IP).

Creativity (Cr) is the capacity for creation [4]. Cr includes exploitation, uniqueness, and outcome [44]. Creativity in technology is a complementary success of creative technology. Technological creativity and integration of different knowledge domains with the creative formation process and the results of model thinking and creativity [27]. Analytical capacity (AC) is the use of information, statistical and quantitative analysis, explanatory and forecast models, and fact-based management to drive decisions and actions [51]. AC is necessary for assessment in IT modernization [30] and is a measure of knowledge absorption to assess the effectiveness of IT implementation [26]. An individual's performance (IP) is the level of success for personal purpose or purpose of the group in which they are located [22]. Creativity positively influences individual performance [6]. The influence of creativity and analytical capacity on individual performance. Creativity and analytical capacity can improve individual performance. Therefore, positive creativity greatly affects individual performance. This is an important factor for improving an individual's work [16].

H6: Creativity (Cr) positively affects individual performance (IP).

H7: Analytical capacity (AC) positively affects individual performance (IP).

Self-efficacy (SE) refers to an individual's degree of self-confidence and is the ability to accomplish specific tasks independently [2]. An individual's faith in their performance influences their choices, ambitions, dedication to specific tasks, and the length of time they take to achieve specific goals when faced with adversity and setbacks [3].

The role of self-efficacy is as a mediator. Self-efficacy mediates a person's creativity, analytical capacity, and task performance. Therefore, improving creativity and analytical capacity directly affects individual performance. More simply, enhancing self-efficacy increases creativity, analytical capacity, and individual performance. There is a significant relationship between personal creativity, self-efficacy, and individual performance. When a person has experience in the field, they become familiar with things that enhance their skills, knowledge, ideas, confidence, and enhance individual performance [16].

H8: Creativity (Cr) positively affects self-efficacy (SE).

H9: Analytical capacity (AC) positively affects self-efficacy (SE).

Usage (Ug) satisfies all user needs [15], which a voluntary use of the system by the user. This is clearly an important factor to understand IS success. Factors are measured by use of the system, ease of use, frequency of use, time of use, number of times that it is accessed, usage patterns, and dependencies [55]. Usage (Ug) measures everything from system visits, to navigation within it, information retrieval, and execution of a transaction. User satisfaction (US) mediates the quality of the overall system and the continued use of the service [15].

A user's usage affects the impact of information systems on user satisfaction, in which good usage is required to increase user satisfaction [5]. The use of business intelligence positively correlates with end-user computing satisfaction. The research results provide clear empirical evidence that a higher degree of computing end-user satisfaction also results in enhanced system usage [11]. System usage and user satisfaction have a significantly positive relationship with each other. Therefore, the higher the rate of system usage, the higher the user satisfaction as well [55]. Regarding the impact of technology usage on higher individual performance [5], those with a higher system usage level have a greater level of individual performance. The usage of intelligent systems can help individuals to work more effectively and improve productivity and decision-making quality [11].

User satisfaction affects how information systems impact individual performance [5]. User satisfaction factors are variables that clearly affect an individual's performance [31]. Higher levels of computer user satisfaction can affect individual performance to a higher degree. The results indicate that if an end user as a high degree of computing satisfaction, their individual performance will improve [11].

H10: Usage (Ug) positively affects user satisfaction (US).

H11: Usage (Ug) positively affects individual performance (IP).

H12: User satisfaction (US) positively affects individual performance (IP).

A person with a higher self-esteem has greater confidence to accept challenges. In contrast, individuals with lower self-efficacy often present that they find it difficult to face different challenges. Self-efficacy enhances creativity, analytical capacity, and individual performance. In particular, by mediating the effects of self-efficacy, creativity, and analytical capacity, it improves individual performance. Regarding the relationship between Cr, SE, and IP, when a person experiences situation in which they are familiar, it will significantly improve their skills, knowledge, ideas, and confidence, meaning that it also increases individual performance [16].

For instance, to use the example a high-end shoe manufacturer, the business receives design ideas from design experts and selects the best designs for manufacture. Those who create winning designs are not entitled to royalty, but their name is displayed on the shoe according to the design. [24]. The participation of those who understand the cultural context

and share creativity with each other are indicators of success within a prosumer culture. Cultural mechanisms are considered to be the most influential participants and can be clearly identified [42]. Being part of the practice community allows participants to connect with others, create creative organizations, and learn or enhance their skills when they engage together using social media [35].

H13: Self-efficacy (SE) positively affects individual performance (IP).

IV. CONCLUSION

This study offers a conceptual framework based on TAM2, IS success model, PT, and IPP, which factors affect individual prosumer performance, and also provides other factors including creativity and analytical capacity. Self-efficacy is a prediction between creativity and analytical capacity that affects individual prosumer performance. Individual prosumer performance depends upon SN, SQ, IQ, SyQ, Ug, US, Se, Cr, and AC. When prosumers produce in accordance with their own interests, they will express their produce ability. Talented individuals will accept the use of technology to increase productivity. Such potential is influenced by a prosumer's belief that new technology is useful and easy to use. Moreover, prosumers who believe that they can create high-value outcomes have personal norms that recognize that an important reference person believes they should be, as well as the perceived particular behavior control. This will result in them being able to use it more conveniently. AI-prosumers can help expand the scope of their expression. When sharing their values, a sense of self-esteem is created among a broad popular community. Production efficiency depends on creativity and analytical capacity. Prosumers constantly develop specialized knowledge to allow them to share creative value. A future study will implement data collection from prosumers using questionnaires and data analysis conducted using a structural equation model created with AMOS.

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Author Index

Abdul Hanief Amarullah	78	Junjun Guo	157
Adrian Chan	123	Kazumasa Takahashi	130
Aizat Kydyrbekova	163	Kazushi Hamazaki	136
Akbayan Bekarystankyzy	163	Kazuyuki Kojima	136
Arif Prastiawan	214	Keita Sugihara	190
Arisa Sa-ardnak	232	Kh Arif Shahriar	123
Arthus Josias Simon Runturambi	78	Khin Than Mya	27
Atiqul Islam	205	Kobkiat Saraubon	84
Audrey Asante	89	Kohei Okazaki	109
Ayes Chinmay	141	Kozyrev Yury	73
Bambang Budi Wiyono	214	Lau Bee Theng	205
Bikash Chandra Sahana	117	Lawrence R. Chen	123
Bondan Widiawan	78	Lijia Tao	32, 52
Chanate Ratanaubol	19	Lin Wang	171
Cheng-Shun Hsiao	1	Lu CHEN	58
Chenlei Zhang	157	Mallikarjun Kokatanur	23
Chih-Peng Fan	1	Mark Tee Kit Tsun	205
Chunhe Xia	102	Masaki Hongo	15
Chun-Jung Liao	6	May Zin Oo	27
David V. Plant	123	Mesmin J. MBYAMM KIKI	146
Dina Oralbekova	163	Mingming Wang	171
FangMing Guo	69	Minoru Kuribayashi	136
Fan-Hao-Chi Fang	168	Mohammed Y. Shakor	96
Gaspard Quenard	38	Mostafa Khalil	123
Guanyu Mu	176	Nagashree N	23
Gyun Woo	220	Naoki WADA	185
Haruna YUNUSA	146	Nigar M. Shafiq Surameery	96
Hemanta Kumar Pati	141	Nobuo Aoki	109
Heming SUN	185	Nobuo Funabiki	136
Henny Indreswari	214	Orken Mamyrbayev	163
Hiroyasu Obata	109	Pan Gao	63
Hitoshi Hayashi	176	Panita Wannapiroon	19, 152
Ho Duc Tho	199	Pingguo HUANG	58, 180
Hui Wang	73	Prachayanun Nilsook	19, 84, 152
Ibrahim IDDI	146	Pradini Puspitaningayu	136
Ittipat Chinangkulpiwat	194	Prashnatita Pal	117
Jayanta Poray	117	Premjyoti Patil	23
Jen Hin Hang	225	Randy Kuang	123
Jiro KATTO	185	Ruizhen Wu	171
Junichi Funasaka	109	Ruzhou Ye	180

Shantakumar Patil	23	Xiaochen Liu	102
Sheng-Bi Wang	10	Xiaohua Feng	89
Shih-Chang Hsia	6, 210	Xinya Xu	32, 52
Shingchern D. You	168	Yan Wu	171
Shinji Sugawara	130	Yee Mei Lim	225
Shota HIROSE	185	Yisheng Zhao	32, 52
Singha Chaveesuk	194, 232	Yonghuai Wang	47
Sukosol Wanotayapitak	84	Yuanzhi Huo	136
Surachet Sangkhapan	152	Yuchen Shan	73
Takanori Miyoshi	199	Yu-Cheng Fan	10
Tao Huang	69	Yuichiro Tateiwa	58, 180
Tianbo Wang	102	Yu-Kuan Yang	210
Tolganay Turdalykyzy	163	Yuqi Li	63
Tomio Goto	15	Yutaka Ishibashi	27, 58, 180
Wah Pheng Lee	225	Zhijun Wu	63
Wenbin Li	38	Zhimeng Xu	32, 52
Wenhui He	102	Zhong Li	102
Wornchanok Chaiyasoonthorn	194, 232	Zihao Cao	73
Xiao Liu	220		