

Identification of Actors and Factors in the Digital Entrepreneurial Ecosystem: The Case of Digital Platform-Based MSMEs in Indonesia

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ABSTRACT

This study aims to identify the actors and factors in the Digital Entrepreneurial Ecosystem and analyze the role of these actors and factors in the digital transformation setting of Digital Platform-Based MSMEs in Indonesia. This study employed a qualitative method with a descriptive analysis approach and contextual techniques. The research was conducted by observing and analyzing information regarding the research topic. Data were collected through literature and document study with interactive analysis and triangulation techniques. Based on the research results, it can be determined that actors in the digital entrepreneurship ecosystem that support the digital transformation of MSMEs based on digital platforms consist of the Government, Digital Entrepreneurs, Telecommunication Operators, Universities, Business Incubators, and Research Institutions, Digital Consumers, Banking, Digital Society, and Investors. The factors involved in the digital entrepreneurship ecosystem consist of explicit legitimacy & implicit norms, digital platforms, infrastructure, digital content, Fintech, digital literacy, and digital ecosystem. Suggestion provided from this research, digital entrepreneurs (MSMEs) should take advantage of every opportunity to gain digital literacy skills, digital financial literacy, and digital content which is useful and supports the sustainability of MSME businesses in an increasingly advanced and competitive digital era.

Keywords: Digital Entrepreneurial Ecosystem, Digital Entrepreneurship, Digital Platform-Based MSMEs, Indonesia's Digital Entrepreneurial Ecosystem.

1. INTRODUCTION

Digitalization has been perceived in almost all life aspects and has succeeded in diminishing various conventional businesses, which in turn are believed to be the mecca of life, both socially and economically (Media Digital, 2021). Digitalization offers unprecedented opportunities for micro, small and medium enterprises (MSMEs) entrepreneurs (Li et al., 2016; Chan et al., 2018) amid competition in a highly dynamic environment (Chan et al., 2018; Cenamor, Parida, & Wincent, 2019). In the last decade, technological trends such as mobile services, social media, cloud computing, Internet of

things, big data, and robotics (European Commission, 2017) endorse the creation of new business ventures and digital start-ups. In light of this, digital technology is a driver of entrepreneurial activity (von Briel et al., 2018) and manifests itself in various forms such as digital products or services (Lyytinen et al., 2016), digital platforms (Tiwana et al., 2010), tools or digital infrastructure (Aldrich, 2014), digital artifacts (Ekbia, 2009), or service innovations enabled by Internet of Things (Kuester et al., 2018; Elia, Margherita & Passiante, 2020). In response to this, numerous MSME entrepreneurs utilize digital platforms to improve their business (Li et al, 2016). Digital platforms are technologies that enable companies to homogenize, edit, and distribute data on an unprecedented scale (Yoo, Henfridsson, & Lyytinen, 2010). Digital platforms play a central role in many corporate value propositions by enabling them to leverage information management (Cenamor, Rönnerberg Sjödin, & Parida, 2017) in order to compete in the digital platform ecosystem (Subramaniam, Iyer, & Venkatraman, 2018; Cenamor, Parida, & Wincent, 2019).

In Indonesia, by the same token, the development of the digital economy presents its own challenges for MSMEs, which are the cornerstones of the country's economic drive (Pressrelease.id, 2021). MSMEs are spinning wheels of Indonesia's economy resulting in one leading sector as it notably grows and increases from year to year. Transformation efforts into digital form are one of the unequivocal steps by the government to facilitate MSME actors to adapt and survive in the current digital era (Nabilla J. Amanda, 2020). Widodo Muktiyo (2020), the Director General of Information and Public Communication (IKP) of the Ministry of Communication and Information (Kominfo) expressed that MSME products in digital media platforms are more likely to be purchased by those who browse the internet. In addition, Member of Commission I of the Indonesian House of Representatives, Hillary Brigitta Lasut (2020) revealed that MSMEs will boost Indonesia's digital industry if the MSMEs' potential can be channeled through digital platforms and electronic commerce (kominfo.go.id, 2020). The government expects that MSME actors are able to compete on a large scale regardless of many obstacles encountered in the digital transformation process (Nabilla J. Amanda, 2020).

This drawback occurs due to MSMEs' lack of ability to exploit digital technology, in marketing their products and for other purposes. Furthermore, limited infrastructure and an inexperienced workforce remain obstacles to the development of the national digital economy. Rudy Salahuddin (2021) affirms that a challenge of digitizing MSMEs in Indonesia is poor digital literacy, financial literacy, and digital financial literacy. The results of the National Survey on Financial Literacy (SNLK) administered by the Financial Services Authority (OJK) discovered that the level of Indonesian financial literacy in 2019 was 38.03 percent. This figure is far below neighboring countries such as Singapore, Malaysia, and Thailand. Collaboration between the government and digital industry players is expected to overcome the challenges, foster the development of the digital economy, and improve the performance of national MSMEs (Pressrelease.id, 2021). Moreover, other obstacles that must be solved by MSMEs include MSME actors who are still constrained in the production capacity of goods. Unfortunately, many MSMEs fail in the digital market because they cannot fulfill the demands of the digital market (Suwarni, et al, 2019; Arianto, 2020)

Facing these various issues, digital platforms have a significant role in encouraging and creating new opportunities as well as expanding and facilitating entrepreneurship (Kenney & Zysman, 2015; De Marco, et al, 2019). MSMEs business

may take advantage of digital platforms to manage interactions by focusing on informal interactions to discover novel knowledge and build new relationships (Lin & Lin, 2016; Li et al., 2017). Informal outreach facilitates voluntary connection, diverse knowledge, and the latest outcomes (Xu et al., 2017) so as to utilize opportunity identification, market adaptation, and long-term performance enabled by network capabilities (Cenamor, Parida, & Wincent, 2019). To ensure the sustainability of MSMEs according to digital platforms to be able to compete, a business environment concept is necessary that supports the dynamics of network relationships in the digital platform industry. The concept of a network-rich environment is referred to as an ecosystem (De Reuver, Sørensen, & Basole, 2018). The interrelation between digital platforms and ecosystems leads to a digital platform ecosystem, hereinafter referred to as a 'digital ecosystem' (Nambisan & Baron, 2019).

A digital ecosystem is defined as a distributed, adaptive, open socio-technical system, with self-organizing, scalability, and sustainability properties inspired by natural ecosystems (Briscoe, & Marinos, 2009; Stanley & Briscoe, 2010). A digital ecosystem comprises independent entities such as individuals, organizations, services, software, and applications that share one or more missions, and focuses on the interactions and inter-relationships within (Li, Badr & Biennier, 2012; Purbasari, Wijaya & Rahayu, 2021), which are intertwined by a common interest in the development of digital technology to accomplish product or service innovation (Selander, L., Henfridsson, O., & Svahn, F, 2013). Furthermore, the digital ecosystem is the core of the Digital Entrepreneurial Ecosystem framework, which was first introduced by Sussan and Acs (2017). Through the incorporation of digital ecosystem and entrepreneurial ecosystem literature, the concept of Digital Entrepreneurial Ecosystem (DEE) is a brand new framework to guide understanding of entrepreneurship in the digital era, especially digital entrepreneurship in the wider digital platform context, users, and institutions (Sussan, F., & Acs, ZJ, 2017; Song, AK 2019; Purbasari, Wijaya & Rahayu, 2021). The digital entrepreneurship ecosystem (DEE) has a pivotal role as an accelerator to gather a wide network of heterogeneous and geographically dispersed stakeholders in the ultimate goal of providing support for the startup design and formation process, including digital platforms (Elia, Margherita & Passiante, 2020). A healthy and productive digital entrepreneurship ecosystem has a relatively stable form of organization, thus its stakeholders may accomplish an effective distribution of labor and business integration, in the absence of a central or authority, in contrast, an unorganized digital entrepreneurship ecosystem will eventually flop. DEE regulates various actors without formal authority (Li, Du & Yin, 2017).

Various literature describes actors and factors and their role in the digital entrepreneurship ecosystem. Sussan and Acs (2017) review the citizenship quadrant of digital users with norms and social participation and the digital market with digital infrastructure and entrepreneurial agents therein. The digital entrepreneurship ecosystem includes the entire components of actors and factors that support the entrepreneurial process in the ecosystem. Unfortunately, to date, research on digital entrepreneurship ecosystems has found little understanding of the interdependence between ecosystem components and their evolutionary dynamics (Mack & Mayer, 2016; Elia, Margherita & Passiante, 2020). Besides, Song (2019) states that there has been little discussion yet about the Digital Entrepreneurial Ecosystem so that there are limited results of Digital Entrepreneurial Ecosystem framework, especially the actors and factors involved (Purbasari, Wijaya & Rahayu, 2021). Hence, research on mapping and identifying actors

and factors and their roles are essential so that the locus of each actor and factor as well as the network binding them in the digital entrepreneurship ecosystem can be studied further.

This study aims to identify the actors and factors involved in the digital entrepreneurial ecosystem and analyze their roles in the digital transformation of digital platform-based MSMEs in Indonesia. This identification is significant to do as it is applicable to maximize collaboration in digital transformation acceleration and develop the quality of digital platform-based entrepreneurship in Indonesia.

2. LITERATURE REVIEW

2.1 Digital Entrepreneurship (DE)

Digital entrepreneurship has influenced entrepreneurship by means of changing the locus of entrepreneurial opportunity (Autio, 2017; Nambisan, 2017), process (Giones & Brem, 2017), and creating boundaries (Nambisan, 2017) to stimulate new business formats that are different. (Hair et al., 2012; Ngoasong, 2015; Tandon, et al., 2020). Several factors have driven the development of DE encompassing entrepreneurial action (Sambamurthy, et al., 2003), strategic agility (Errajaa et al., 2013; Sambamurthy et al., 2003), digital options (Dutot et al., 2014), and entrepreneurship (Dutot & Van Horne, 2015; Tandon, et al., 2020). As stated by Davidson & Vaast (2010), digital entrepreneurship covers three interconnected types of entrepreneurship; business entrepreneurship, knowledge entrepreneurship, and institutional entrepreneurship. Digital entrepreneurship is a multi-faceted phenomenon that contains those three types. Business entrepreneurship is a category in which new ventures are established. It is the most popular type of entrepreneurship in the literature. Knowledge entrepreneurship involves teaching opportunities based on information and knowledge to create a knowledge base connected with the domain and pursue new ventures of this knowledge base. Consultants, journalists, and academics are instances of knowledge entrepreneurs. Institutional entrepreneurship is defined as the activities of actors who have interest setting and utilize resources to construct new institutions or modify existing ones. As an example, the wake of e-commerce platforms, such as Amazon and Alibaba, has created a new form of the retail market, which is institutional entrepreneurship. Davidson & Vaast (2010) argue that successful digital entrepreneurship must combine business, knowledge, and institutional opportunities (Li, Du & Yin, 2017).

Digital entrepreneurship is recognized as the process of creating digital value for entrepreneurship by the means of various socio-technical digital enablers to support the effective acquisition, processing, distribution, and consumption of digital information. This definition can be expanded and applied to certain types of businesses such as nascent businesses and digital entrepreneurs. Digital entrepreneurship is the reconciliation of traditional entrepreneurship with new approaches to creating and carrying out business in the digital era (J.M. Sahut et al., 2019).

2.2. Digital Entrepreneurial Ecosystem (DEE)

Digital entrepreneurial ecosystem is an ecosystem where digital entrepreneurship emerges and develops. Ecosystem facilitates the integration of resources and supporting elements beyond the enterprise level, making the digital entrepreneurial ecosystem important for the success of digital entrepreneurship (Spigel, 2015). If digital entrepreneurship is an individual's characteristic, DEE is an environment where various

resources and elements can be integrated to facilitate the digital entrepreneurship process, as a collective (Li, Du & Yin, 2017).

In the opinion of Spigel (2015) in the regard of the entrepreneurial ecosystem (EE), a digital entrepreneurial ecosystem (DEE) is a combination of social, political, economic, and cultural elements in an area that supports the development and growth of innovative start-ups pursuing new business opportunities organized by digital technology. This description separates DEE from EE built on digital platforms, such as E-commerce platforms (Avgerou & Li, 2013; Cui et al., 2016; Leong et al., 2016) and crowdfunding platforms (Burtch, Ghose, & Wattal, 2013; Zheng, Li, Wu, & Xu, 2014). DEE is a meta-organization since its stakeholders, such as digital entrepreneurs, investors, incubation centers, and research institutes, form a synchronized network in the absence of any working relationship among them (Du et al., 2018).

The digital entrepreneurial ecosystem as a setting is a highly diverse, multi-actor, and multiskilling phenomenon (Brown & Mason, 2017), which comprises a number of stakeholders' interactions incorporated in network, learning, and business-oriented implementation processes that may occur either in physical or digital settings. A wide variety of actors can be brought into the Digital entrepreneurial ecosystem, such as potential customers and suppliers, universities and research centers, social and cultural operators, institutions and policy-makers, large corporations, startups and innovative entrepreneurs, experts and professionals, investors, and talent pools. (Isenberg, 2010; Cohen, 2006). The digital entrepreneurial ecosystem is prompted by the dynamic and institutionally embedded interaction between entrepreneurial attitudes, abilities, and aspirations of individuals, which drives the resource portion through the creation and operation of new ventures (Acs et al., 2014; Elia, Margherita & Passiante, 2020).

2.3 Digital Platform

A digital platform is defined as a set of shared services and architecture that serve to deliver complementary offerings (Parker, Van Alstyne & Choudary, 2016; Tiwana, Konsynski & Bush, 2010). Digital platform provides abundant opportunities for entrepreneurs which involve the development of complementary products and services (Zahra & Nambisan, 2011). Such digital platforms (and entailed ecosystems) are frequently distinguished by the role of a single company, the platform leader, in building modular platforms and in synchronizing value creation and value delivery (Gawer & Cusumano, 2002; Nambisan & Sawhney, 2011). The potential for new ventures to enrich specialization while counteracting their production, marketing, and distribution capabilities explains the fascination of digital platforms as an entrepreneurship venue (Zahra & Nambisan, 2011; Huang et al., 2013; Nambisan, 2016).

Two elements are deemed relevant to the definition of a digital platform as follows (De Marco, et al, 2019):

1. The nature of the digital platform innovation, namely company's product/technology, characteristics of the innovation process, the nature of the network, and the collaboration activities;
2. Design and development of prevailing business models – the alternative on how to generate revenue from the platform "who sells to whom" development of an appropriation strategy.

3. RESEARCH METHOD

The analysis of this research is departed from data regarding the government's attempts to digitize MSMEs in Indonesia which have proven to be the cornerstone of the country's economy. Technological development encourages MSMEs to immediately engage in the digital world to be able to compete and be sustainable. Needless to say, the government cannot stand alone. As a Digital Entrepreneurial Ecosystem, it is critical to identify each actor and factor participating in order to optimize the desired outcomes of stakeholders within the ecosystem.

This study aims to identify the actors and factors in the Digital Entrepreneurial Ecosystem and analyze the role of these actors and factors in the digital transformation setting of Digital Platform-Based MSMEs in Indonesia. This study employed a qualitative method with a descriptive analysis approach and contextual techniques. The research was conducted by observing and analyzing information regarding the research topic. Data were collected through literature and document study with interactive analysis and triangulation techniques. The data collected are secondary data from literature studies and documentation in the form of journals, government documents, books, online news, and websites related to the concept of digital entrepreneurship, digital entrepreneurial ecosystem, MSMEs data, and digital platforms in Indonesia and other data relevant with the study.

4. RESULTS AND DISCUSSION

4.1 Digital Entrepreneurial Ecosystem and Digital Platform-based SMEs in Indonesia

Over the last few years, the Indonesian Government has attempted various efforts to realize the potential of Indonesia's digital economy (Yusuf, 2021a). Given the results of previous research conducted by Purbasari, Wijaya & Rahayu (2020) regarding Digital Entrepreneurship in Indonesia explain that the Indonesian government in previous years had stimulated the emergence of digital platform-based entrepreneurship to face the digital industry. According to research conducted by Google with Deloitte Access Economics concerning digital technology and Indonesia's economy that digital involvement in micro, small and medium enterprises (MSMEs) may increase Indonesia's gross domestic product by 2%. This growth is compulsory for Indonesia to become a middle-income country by 2025 (sorotan.media, 2015). Teten Masduki (2020) as Minister of Cooperatives and Small and Medium Enterprises states that cooperatives and micro, small and medium enterprises (MSMEs) must transform into a digital ecosystem (Adyatama, 2020). Referring to the Ministry of Cooperatives and SMEs, currently, there are 10.25 million MSME actors who are connected to digital platforms, and 16 percent or around 10.25 are engaged in the digital ecosystem (merdeka.com, 2021). To support the acceleration of MSME transformation into digital platforms in Indonesia, all components, including industry, government, society, academics, and media must participate (Bisnis.com, 2021).

Considering this priority, the need to identify actors and factors in the digital entrepreneurial ecosystem and their role in supporting the acceleration of the digital transformation of digital platform-based MSMEs in Indonesia is imperative. The following will elaborate on the results of the identification and roles of actors and factors in Indonesia's digital entrepreneurial ecosystem as well as their analysis.

4.2. Analysis of Identification of Actors and Factors in the Digital Entrepreneurial Ecosystem and Their Roles in Digital Transformation of Digital Platform-Based MSMEs in Indonesia

4.2.1 Analysis of Actor Identification

According to the identification process of actors in the Indonesian Digital Entrepreneurial Ecosystem through documentation and literature studies, the following are results obtained:

4.2.1.1 Government

4.2.1.1.1 Ministry of Communication and Informatics (KOMINFO)

The Ministry of Communication and Informatics is one of the government actors who have a major role in enforcing the success of platform-based MSMEs digital transformation in Indonesia. The role to accelerate digital transformation is performed through the following four policies:

1) Development of equitable and quality telecommunications and information technology infrastructure.

Quality telecommunication and informatics infrastructure will be the ground for digital transformation. Therefore, Kominfo has determined the construction of the Palapa Ring a major project that must be completed. This project is categorized into 3 stages of network development consisting of backbone, middle-mile, and last-mile. In the backbone network, fiber optics have been constructed on a national scale of 348,442 kilometers throughout Indonesia. In the middle-mile network, the government extends the construction of fiber-link, microwave-link, and satellite networks. In the last-mile network, Indonesia, at present, has 479,125 Base Transceiver Stations built by the Ministry of Communications and Informatics in collaboration with cellular operators to promote mobile broadband networks (Suryadinata, 2020). Moreover, for infrastructure development, Kominfo has attempted to accelerate the implementation of 5G telecommunication network services. To this day, the Indonesian government has been simultaneously structuring frequency to accelerate the 5G implementation which will be completed in 2021 (Shofa, 2020). As per the opinion of Johnny G. Plate (2021), the Minister of Communication and Informatics, 5G technology broadens economic opportunities that can be utilized by the community through digital space. The Minister of Communication and Informatics is optimistic that the 5G telecommunications network will bring positive impacts on the domestic economy, especially from the digital economy sector (Yusuf, 2021b). Also, Kominfo has built a National Telecommunication Monitoring Center to ensure the quality of telecommunication services that reach all regions in Indonesia (Suryadinata, 2020).

2) Digital Ecosystem

This policy is a development of supporting technology to accelerate digital transformation. The government focuses on building a safe, healthy, and organized digital ecosystem through policy-making in various aspects of technology development and utilization (Suryadinata, 2020). The Ministry of Communications and Informatics is reconstructing the management of frequency spectrum, analog switch off (ASO), infrastructure distribution, and strengthening digital ecosystem regulations. In respect of ASO, the efficiency of digitizing national broadcasting has entered the socialization stage and is ready to be implemented in November 2022. Strengthening regulations in the

digital ecosystem, the government has stipulated derivative rules from the Job Creation Law in Government Regulation (PM) Number 40 on Post, Telecommunication, and broadcasting (kominfo.go.id, 2021). As previously stated by Johnny G. Plate, Minister of Communication and Informatics (Menkominfo) (2021), the government has taken extra steps in carrying out transformative infrastructure development to create a capable digital ecosystem (kominfo.go.id, 2020). Government support in developing digital MSMEs is manifested in providing easy licensing so that connectivity as the principle for digital MSMEs will be well-established. The development of digital MSMEs is also supported by the digital MSME Training Program. This program is aimed at assisting MSME actors so they are able to switch to digital platforms for business activities. In 2021, the Coordinating Ministry for Maritime and Investment Affairs expects that there will be approximately 30 million MSMEs out of 60 million MSME units that possibly enter the digital ecosystem (Arianto, 2020).

3) HR Empowerment

Kominfo identifies human resource development and talents as a prerequisite that must be attained in digital transformation. Kominfo has prepared knowledge development and digital literacy programs. In the development of human resources and digital talent, three types of expertise will be provided. First, Basic digital skills conducted through the Digital Literacy National Movement (GNLD) Cybercreation, Intermediate digital skills in Digital Talent Scholarship (DTS) training, Advanced skills in the Digital Leadership Academy (DLA) training stimulus. Meanwhile, three programs will be implemented to prepare human resources in the digital economy ecosystem. Those three programs include the Go-Online MSME Movement and Go-Online Farmer and Fishermen, the 1000 Digital Startup National Movement, and the Nexticorn (The Next Indonesian Unicorn) Program (Suryadinata, 2020). To encourage the development of human resources and digital talent, Johnny G. Plate (2021) as the Ministry of Communication and Informatics expressed that he would issue 4 digital literacy modules. Boni Pudjianto (2021), Directorate of Informatics Empowerment of the Directorate General of Informatics Applications, the Ministry of Communications and Informatics, revealed that this module is expected to be a reference to stimulate public digital participation, encourage the development of public knowledge in the ICT and digital sectors, foster the level of digital transformation literacy in new technology utilization, enrich the repertoire of Indonesian digital literacy, and be useful as a learning instrument to improve the competence of the Indonesian community in four years to come (Yusuf, 2021c).

4) Primary Legislation and International Collaboration

For all the aforementioned policies to run according to plan and be maintained, Kominfo strives to compile primary legislation in telecommunication, information, and data protection settings. Presently, Kominfo and the Indonesian House of Representatives are discussing the Draft Bill concerning Personal Data Protection (PDP) and the Job Creation (Omnibus Law) in the Post, Telecommunications, and Broadcasting Sector. Representing the Indonesian Government, Kominfo is actively involved in various international forums, such as International Telecommunication Union (ITU) 2019; World Economic Forum (WEF) 2020; Digital Economy Task Force (DETF) G20 2020; and the ASEAN-China Year on Digital Economy Cooperation 2020. On top of that, primary legislation is supported by a package of economic policy and Presidential Regulations regarding the e-Commerce roadmap. Mira Tayyiba (2021), the Secretary General of the Ministry of Communication and Informatics grouped the Presidential Regulation on e-Commerce roadmap into three principles. First, the establishment of digital sovereignty

and independence. In this matter, the Ministry of Communication and Informatics enforces personal data protection and cross-border data flow policies. Also, Kominfo is building a National Data Center to support the One Data Indonesia policy, integration, interoperability, and data consolidation of central and local governments (Suryadinata, 2020). Second, the creation of a clean, healthy, and ethical digital space. Kominfo is arranging guidelines for the implementation of the Electronic Information and Transaction Law as well as efforts to upgrade digital literacy to emphasize the digital ethics of culture safety. To prevent false news from circulating in the digital space, Mira Tayyiba (2021) asserts that Kominfo provides content filters on the internet with the purpose of controlling negative and harmful content for consumers and the state in order to create a better digital space. Third, the creation of a fair playing field. In the data utilization and protection, the Ministry of Communications and Informatics has compiled instruments; from the ITE Law, Government Regulations on the implementation of electronic system and transaction stipulated in Government Regulation Number 71 of 2019, and Regulation of the Minister of Communication and Informatics Number 5 of 2020 on private Electronic System Operator (PSE) scope. The Personal Data Protection Bill is currently being reviewed with the Indonesian House of Representatives (Yusuf, 2021a).

4.2.1.1.2 Ministry of Finance & Directorate General of Taxes of Ministry of Finance

Other government elements involved in the Digital Entrepreneurial Ecosystem in Indonesia are the Ministry of Finance and the Directorate General of Taxes, the Ministry of Finance. Adi Budiarmo (2020) as Head of the Financial Sector Policy Center, Fiscal Policy Agency, Ministry of Finance, stated that the Ministry of Finance has created a digital economic ecosystem model that joins platforms, logistics, payment systems, and data to foster digital industry activities (Puspaningtyas, 2020). The Ministry of Finance has implemented a number of digital economy support programs, such as reviewing laws and regulations, distributing non-cash social assistance, developing the Credit Information System Program (SIKP), Ultra Micro financing, and retailing Government Securities online (Suryadinata, 2020).

4.2.1.1.3 Coordinating Minister for Economic Affairs, the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM), & Deputy of Supervision of the Ministry of Cooperatives and Small and Medium Enterprises

The Coordinating Minister for Economic Affairs, the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM) & the Deputy of Supervision of the Ministry of Cooperatives and Small and Medium Enterprises are government representatives engaged in the Digital Entrepreneurial Ecosystem in Indonesia. Some of the policies made by this ministry comprise:

1) Provision of communication infrastructure facilities

Airlangga Hartarto (2021) as the Coordinating Minister for Economic Affairs expressed that the preparation of the communication facility will be carried out in the form of 4G infrastructure and the procurement of fiber optic cables. The government also encourages multifunctional satellites since, in some areas, such as the eastern region, it is more effective and efficient to use satellites. Further, the government has prepared a data center to support the one map policy and one data policy as well as encourage the movement of cloud data center from Singapore to Batam, Indonesia. With regard to the digital special economic zone arranged in Batam, the government has prepared 420

Megawatt of electricity for the data center operation, thus data integration will not encounter any obstacles in terms of electricity supply (Idris, 2021)

2) Development of National Strategy (Stranas) for Digital Economy

The Coordinating Ministry for the Economic Affairs in collaboration with the Indonesian FinTech Association (AFTECH) is developing the National Strategy (stranas) for the Digital Economy. AFTECH, which is a forum for Fintech industries in Indonesia, welcomed the planning of the national strategy, and both parties signed a cooperation agreement for the National Digital Economy Development through the Utilization of Digital Financial Services as an effort to digitize MSMEs by means of innovation and digital financial service technology, such as digital payments, online loans, aggregators, innovative credit scoring, financial planning, insurtech, e-KYC, and project financing. This agreement is expected to be the fundamental idea, coordination, and synergy of both parties in developing digital financial services. Moreover, this collaboration looks forward to increasing education related to the digital financial services industry and technology in the digital economy ecosystem setting. Following the enactment of this collaboration, indeed, it anticipates it will influence digitalization and increase the competitiveness of local MSMEs (Pressrelease.id, 2021). Stranas consists of four pillars, namely first, human resource development, especially digital talents in science and technology fields. Second, a strong digital and physical infrastructure to increase economic flows and create job opportunities. Third, regulations and policies that enforce in form of bureaucracy cut to reduce innovation barriers. Fourth is research and digital innovation to create added value to the industry and encourage economic transformation (merdeka.com, 2021).

3) MSMEs Digital Hero Program

The Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM) invites young innovators to support the MSMEs digitization program through the MSMEs Digital Hero program. MSMEs digital heroes will act as a trigger, empowering, having a robust brand, and being able to aggregate Micro and Small businesses to participate in digital platforms or international markets (exports). By the involvement of young innovators, it will encourage the millennial generation to cooperate in digital entrepreneurship which makes the digital transformation of MSMEs more rapid (Arianto, 2020).

4.2.1.1.4 Ministry of National Development Planning (PPN)

The government under the aegis of the Ministry of National Development Planning (PPN) has designed a roadmap for 25 years of digital transformation in Indonesia starting from 2020 with the main focus in the next five years is the development of Human Resources (HR), followed by the acceleration of digital infrastructure development and the development of digital ecosystems (Faiz, 2020)

4.2.1.2 Digital Entrepreneur

Other actors that are inseparable from the Digital Entrepreneurial Ecosystem in Indonesia are digital entrepreneurs including digital platform-based entrepreneurs or SMEs. The following explains the conditions and roles of digital entrepreneurs in the Digital Entrepreneurial Ecosystem.

1) The digital platform utilization by MSMEs actors in Indonesia has shown a notable increase. There are 10.25 million MSMEs actors who are currently connected to digital platforms and 16 percent or around 10.25 are linked to the digital ecosystem

(merdeka.com, 2020; Arianto, 2020). Following the development of MSMEs digitalization, Indonesia's digital economy in 2025 will become the largest in Southeast Asia. Therefore, digital MSMEs increasingly need to consider production quality, production capacity, and digital literacy so that businesses operating in the digital realm can compete and survive (Arianto, 2020).

2) According to Nailul Huda (2021) as Head of Indef's Center of Innovation and Digital Economy, related to the merger of Gojek-Tokopedia (GoTo) as a digital entrepreneur, it is expected to be able to bring funding and increase the size of Indonesia's digital economy (Wulandhari, 2021). Gojek and Tokopedia (GoTo) are considered to be valuable for the MSMEs sector. Rendy Manilet (2021) from the Center of Reform on Economics (CORE) deems this merger will gradually be the game-changer, from the conventional economy into digital. Changes in economic patterns will also occur in the trade sector. It is integrated with a large GoTo ecosystem along with its mass users. This shift may affect the movement of the digital economy ecosystem as a unity. Along with the increasing size of the digital economy ecosystem, MSMEs are able to expand the scope of the sales market. It will help solve MSMEs' issues, namely marketing and market access. In GoTo services, there are financing services, as a result, there is an opportunity for GoTo to assist MSMEs in terms of easy-to-access financing provision (Yusuf, 2021a; Wulandhari, 2021)

4.2.1.3 Telecommunication Operator

The telecommunications operators in the Digital Entrepreneurial Ecosystem have a strategic role. Infrastructure development, particularly 4G BTS which has started to reach all regions of Indonesia, will not only strengthen network quality but also encourage the growth of new services that have the potential to increase revenue. In 2018, telecommunication operators in Indonesia experienced negative growth of -7.3 percent. To his day, Telkomsel has gained 170 million subscribers, 55 million subscribers of XL Axiata, Indosat Ooredoo with 50 million users, 15 million users of Smartfren Telecom, and Hutchison Tri with 15 million subscribers. Given the DBS Report, Indonesia is now obtaining the highest growth in revenue data in ASEAN. Further, GSMA Intelligence revealed that cellular connections in Indonesia are dominated by 4G (44 percent) in 2018 and the percentage will increase to 79 percent in 2025. In other words, 4G BTS are ready to transform to 5G (republika.id, 2020). Given all the potential of these telecommunications operators, it is expected that they can accelerate the digital transformation of Indonesian MSMEs.

4.2.1.4 Universities, Business Incubators, and Research Institutes

Universities as a catalyst for the development of the digital industry through research and technology have a pivotal role in the Digital Entrepreneurial Ecosystem of the MSMEs digital transformation in Indonesia. According to Sofian Effendi (2018), the Vice Chairman of the Indonesian Academy of Sciences (AIPI), it is essential to build universities as a catalyst for the development of the digital industry through education, research, and innovation. Jumain Appe (2018) as Director General of Strengthening Innovation of the Ministry of Research, Technology and Higher Education affirmed that the tri dharma (three principles) of higher education must cooperate with the industry 4.0. Universities and research and development institutions need to synchronize various research results of the development and application of technology through innovation management institutions (Ika, 2018). Bambang Brodjonegoro (2020), the Minister of

Research and Technology/National Research and Innovation Agency (Kemenristek/Brin) disclosed a similar opinion urging universities to digitalize Small and Medium Enterprises (UKM) so that MSMEs can compete in electronic-based trade, thus the role of universities is highly demanded. Furthermore, universities are expected to be able to create affordable technology for MSMEs (Putra, 2020). It emphasizes the fact that to facilitate MSME actors to adapt to digital technology, stakeholders such as universities, business incubators, and research institutions have to support it (Hutabarat, 2020).

4.2.1.5 Digital Consumer

Changes in consumer trends and behavior, especially amid the pandemic limiting physical interaction and reducing activities outside the home have been demonstrated to provide greater opportunities for MSMEs that are already connected to the digital ecosystem (Newswire, 2020). According to Kravchuk (2021), the digital economy potential is entailed by the character of devoted consumers (Intan, 2021). Teguh Supangkat (2021), the Deputy Commissioner of Banking Supervision of the Financial Services Authority (OJK), revealed the same opinion that amid the pandemic there was a shift in consumer behavior. The pattern of community transactions that were previously physical economy changed into a virtual economy. According to data of Statistics Indonesia, there was an increase in online shopping activity by 42 percent during the pandemic and it continues to increase. Digital transactions in Indonesia, both banking and several payment systems through mobile banking, are rising (Santia, 2021). Adreas Agung Bawono (2020) added that online consumer behavior through various social media facilities in meeting their daily needs must be quickly adapted by MSME actors through business digitalization (Newswire, 2020). It determines the significant role of digital consumers in driving the transformation of MSMEs in the digital ecosystem.

4.2.1.6 Banking

In addition, the banking industry has a prominent role in the Digital Entrepreneurial Ecosystem in Indonesia. As expressed by Ryan Kiryanto (2020), the Chief Economist of PT Bank Negara Indonesia (Persero) Tbk or BNI, digitalization in the development of MSMEs has been conducted by BNI in form of digital applications with a big database. BNI as one of the largest banks in Indonesia has proceeded to transform into digital banking, including services for MSME actors provided in the Clustering Program. The service is developing a digital loan application to process loans on a massive scale. The digitalization development carried out by BNI also supports the development of MSMEs through a digital technology-based clustering program. It is expected to assist in accelerating credit distribution in the People's Business Loan (KUR) program. It records that the distribution of BNI KUR program with a clustering scheme in 2019 has reached Rp 5.9 trillion, which has facilitated more than 94 thousand MSMEs actors throughout Indonesia (Intan, 2020).

Additionally, the Government, Bank Indonesia (BI), and the Financial Services Authority (OJK) pay immense attention to the digital economy development in Indonesia. Various attempts continue to be conducted by the government, BI, and OJK to accelerate the digital economy. Since the launch of blueprint for the Indonesian payment system in May 2019, BI has continued to encourage digitalization, including the release of the QR Indonesian Standard (QRIS) Code. QRIS is used to support the Indonesia Made Proud National Movement. Besides, BI will soon launch BI Fast Payment for the retail payment segment, replacing the Bank Indonesia National Clearing System (SKNBI). By means of

this system, the digital transaction will be more accessible because it is available in real-time, for 24 hours. BI has also implemented the Open Application Programming Interface (API) standard to facilitate collaboration, especially between banks and financial technology (fintech) companies, in order to create an inclusive financial services ecosystem. Open API is an application program that allows companies to be integrated between systems (system to system). Likewise, OJK has issued a roadmap for digital financial innovation 2020-2024 as an effort to accelerate financial and economic digitalization. As a forefront regulator, OJK continues to strive to ensure that the digital financial system is well implemented so that the financial services industry remains stable and convenient. Digital finance is sought to be able to empower economic actors, especially MSME actors with easy access to finance (Aziz, 2021).

4.2.1.7 Digital Society

The digital era is indivisible from the role of the digital community or the online community. In an effort to develop digital MSMEs, synergy among online communities is entailed because they are who will determine the success of a product and service that has become public attention. Online communities are users of various social media platforms who actively interact with each other digitally in cyberspace. A digital society or online community encompasses several classifications. The classification forms several terms in accordance with their role in amplifying and disseminating digital messages or content. The roles in digital society include buzzers, influencers, and followers. In social media, buzzer is synonymized as an account that acts to disseminate, campaign, and broadcast messages or digital content anytime to other users to influence or amplify the message or content. Meanwhile, influencers are social media accounts that have a very strong influence on their followers so that these accounts are able to encourage and influence followers to act as they desire. According to character, followers are social media accounts that follow the behavior of influencer and buzzer accounts. Along with these three categories of digital society, MSMEs must be able to synergize in presenting creative content. By way of presenting creative content, it can automatically attract the online community's attention to participate in retailing their products. Moreover, the synergy that can be developed is using resellers. This technique is an effort to invite netizens of the millennial generation to engage in reselling products produced by MSMEs. The millennial generation has a wide range of friendship nodes. With this synergy, it is assumed that the marketing of digital MSME products will increase (Arianto, 2020). In other words, the digital community can support the acceleration of the MSMEs digitalization transformation via MSME product promotion in digital platforms, create attractive and creative content from MSME products, consume and resell MSME products (Purbasari, Wijaya & Rahayu, 2021).

4.2.1.8 Investors

The government has made several breakthroughs to facilitate investors and accelerate the development of the digital economy (Yusuf, 2021a). One of them is the venture capital company of BRI Ventures as a state bank, which officially announced the strategic investment to support 13.5 million digital-based MSMEs in Indonesia. The encouragement is distributed to MSMEs in Bukalapak ecosystem. Nicko Widjaja, the CEO of BRI Ventures (2021), affirmed that this program is part of BRI Ventures' commitment to encourage financial inclusion in Indonesia and create sustainable MSMEs empowerment. This effort is also part of the strategic funding activity by the Indonesian

unicorn, Bukalapak. Therefore, this strategic investment in collaboration with Bukalapak is essential because it is in line with the BRI Group's mission; to support MSMEs and help to accelerate digital penetration in Indonesia (Fitriani, 2021).

4.2.2 Analysis of Factor Identification

Based on the factor identification of the Digital Entrepreneurial Ecosystem in Indonesia through documentation and literature studies, the following results are obtained:

4.2.2.1 Explicit legitimacy & implicit norms

Explicit legitimacy and implicit social norms enable internet users to participate in a digital society while supporting entrepreneurial activities, either as producers or consumers (Sussan & Acs, 2017; Song, A. K. 2019). Explicit legitimacy and implicit norms denote that users participate in digital society by observing open rules. As aforementioned, the government as a policymaker is also responsible for designing explicit legitimacy and implicit norms in the digital platforms in Indonesia. Efforts by the Government, coordinated by the Coordinating Ministry for Economic Affairs, strive to make Indonesia the largest Digital Economy Country in Southeast Asia by 2020 as manifested in the form of a guide to digital platform trading called the Indonesia e-Commerce Roadmap. One of its supporting policies is the e-Marketplace (Safe Harbor) Protection Policy. The e-Commerce platform provider is a legal subject of the Information and Electronic Transaction Law, which is an electronic system operator who is responsible for the operation of a reliable and safe electronic system. However, e-Commerce platform providers are also vulnerable to digital abuse by accounts that are prohibited to merchants/account users so that Platform Providers can be deemed as being involved in such unlawful acts (kominfo.go.id, 2016).

Following that action, the Ministry of Communication and Informatics issued a policy in the form of a Circular of the Minister of Communication and Informatics of the Republic of Indonesia Number 5 of 2016 on Limitations and Responsibilities of Platform Providers and Merchants in E-Commerce using User Generated Content Platform. The purpose of this policy is to provide guidelines for Platform Providers or Electronic System Operators and Merchants on the limitations and responsibilities in Electronic Transactions in the form of e-commerce (electronic commerce) using user generated content. The purpose of this policy is to provide legal protection for platform providers and merchants, as well as platform users by ensuring their respective limitations and responsibilities in conducting trading activities through electronic systems (Purbasari, Wijaya & Rahayu, 2021). In addition, this policy is important to guarantee digital rights that reflect human rights and laws that allow citizens to exploit digital technology and protect their privacy concurrently (Acs, Z.J et al., 2020).

4.2.2.2 Digital platforms

Many Indonesian digital platforms emerging offer all kinds of innovations that facilitate various activities; from online transportation, travel, to e-commerce companies have also stimulated the digital economy in Indonesia. Digital platforms help Indonesia's creative products to be able to compete at national and international levels. The use of digital platforms is considered the key for business actors to keep innovating and expanding. The positive impact of digital platforms on entrepreneurship can be found in promoting innovation, creating job opportunities, increasing productivity both socially and

economically, thus becoming a priority for governments in various countries (Shane & Venkataraman, 2000; Caniago, 2020; Purbasari, Wijaya & Rahayu, 2021)

The transformation of a digital platform is commonly performed by MSMEs in the trade and food-beverage sector, in which the majority of Indonesian MSMEs are actively engaged. It indicates that the availability of digital platforms plays a major role in restoring MSMEs (Faiz, 2020).

In Indonesia, several digital platform businesses have succeeded in achieving high investment values, both as decacorns and unicorns; Gojek, Grab, Tokopedia, Bukalapak, Halodoc, and Ruangguru (Ramadhan, 2020). Panji Wasmana (2020) states that digital platforms may continue to be developed along with the growth of the ecosystem of each company's business activities. Along with digital platform technology, each company provides maximum business results as it can use technology to create a faster, dynamic, and personalized user experience (Fauzan, 2020; Purbasari, Wijaya & Rahayu, 2021).

4.2.2.3 Infrastructure

Johny G. Plate (2021), the Minister of Communication and Informatics (Menkominfo), noted that in order to maintain and encourage improvement in the national economy, a step considered is to carry out transformative infrastructure development. The Indonesian government is simultaneously structuring frequencies to accelerate 5G implementation (Shofa, 2020). Indonesia experiences challenges related to infrastructure due to a very large area and geographical barriers as an archipelagic country. Nevertheless, following the construction of the Palapa Ring which has begun in 2019, it is expected that it will be able to entirely connect all cities and regencies in Indonesia with fiber optic cables (kominfo.go.id, 2019). Also, the Government has constructed a data center to support the one map policy and one data policy and encourage the movement of cloud data center from Singapore to Batam, Indonesia. With respect to the digital special economic zone established in Batam, the government has allocated 420 MegaWatt of electricity for the data center operation, hence data integration will not experience obstacles in terms of electricity supply (Idris, 2021).

4.2.2.4 Digital Content

The development of digital-based SMEs in Indonesia must regard many things, especially digital content or creative content. As in the digital era, content is the main principle to compete. Without creative content, it is evident that the development of digital-based SMEs is difficult to produce significant results. MSMEs actors must be encouraged to be able to understand the character of the digital setting and recognize creative content in digital marketing (Arianto 2020). Indeed, the MSMEs development in Indonesia is constrained by product management issues (packaging and branding) and marketing techniques. Thus, it requires certain techniques to create creative content in product packaging and branding. As a consequence, when retailed in social media and marketplaces, it attracts consumers (Amelia, et al, 2017; Arianto, 2020). However, MSMEs actors must acknowledge that digital content or creative content on the current platform is regulated. Prohibited content on digital platforms includes (Purbasari, Wijaya & Rahayu, 2021):

- a. Goods and/or services that contain negative content (pornography, gambling, violence, and goods and services that violate laws and regulations)
- b. Goods and/or services without trade license in accordance with statutory provisions

4.2.2.5 Fintech

The use of electronic money continues to grow as shown by the increase in the amount of circulated electronic money and the volume as well as nominal of electronic money transactions. Adi Budiarto (2020) conveys that the government provides support in several methods, such as through policies, regulations, infrastructure provision, financing support, MSMEs digitalization, consumer protection, and human resource development (Puspaningtyas, 2020).

As a tangible manifestation of encouraging the development of the digital economy and the MSMEs digitalization in Indonesia, the Government is collaborating with the Indonesian FinTech Association (AFTECH) to develop the National Strategy (stranas) for the Digital Economy, namely the Development of the National Digital Economy through the Utilization of Digital Financial Services. This collaboration is expected to increase education related to the digital financial service industry and technology, in the digital economy ecosystem setting, and bring impact on digitalization as well as prompt the competitiveness of MSMEs (kemenkeu.go.id, 2021). Budi Gandasoebrota (2021) explains that AFTECH is committed to supporting the MSMEs digitalization through innovation and digital financial service technology, such as digital payments, online loans, aggregators, innovative credit scoring, financial planners, insurtech, e-KYC, and project financing. Digitalization increasing access to various financial services as well as correlation with the digital economy ecosystem may aid national MSMEs to survive and grow at this time (Pressrelease.id, 2021; Nasori, 2021).

4.2.2.6 Digital Literacy

Semuel (2021), the Director General of Informatics Applications revealed that digital literacy plays an important role in the digital transformation process. In line with that, Boni Pudjianto (2021), the Director of Informatics Empowerment of the Directorate General of Informatics Applications of the Ministry of Communications and Informatics stated that digital literacy is the key to be part of the digital nation for Indonesia (Yusuf, 2021a). Given the results of a literature survey conducted by the Ministry of Communications and Informatics in collaboration with Siberkreasi and Katadata in 2020, discovered that Indonesia's digital literacy index was 3.47, on a scale of 1 to 4. It implies that the digital literacy index of the Indonesian people is below good (Irso, 2021). Therefore, in 2021, the Ministry of Communications and Informatics in forces with Siberkreasi, Facebook, WhatsApp, and ICT Watch will continue the digital literacy roadshow program. Through this activity, it is expected that in the future there will be more collaboration between various parties and cross-stakeholders in order to increase public awareness and digital skills through various innovation initiatives. In addition, as previously discussed, the Ministry of Communications and Informatics has launched 4 digital literacy modules. The four references in the preparation of the digital literacy curriculum include Digital Skills, Digital Safety, Digital Ethics and Digital Culture. Meanwhile, 3 (three) frameworks in developing programs for the community component comprise Digital Society, Digital Economy, and Digital Government (Yusuf, 2021a).

4.2.2.7 Digital Ecosystem

The digital ecosystem was established by the Government hoping that it would be an incentive for entrepreneurs, especially in MSMEs, to innovate and transform digitally. MSMEs must take advantage of programs designed by the Government to optimize

innovation in business units in accordance with the development of consumer behavior (Faiz, 2020). The MSMEs digitalization is necessary due to changes in consumer trends and behavior that limit physical interaction and reduce activities outside the home and has been evidenced to provide greater opportunities for MSMEs that are engaged in a digital ecosystem (Newswire, 2020). In that way, the MSMEs development in the digital era will be more significant.

5. CONCLUSION & RECOMMENDATIONS

Based on the research results, it can be determined that actors in the digital entrepreneurship ecosystem that support the digital transformation of MSMEs based on digital platforms consist of the Government (Ministry of Communications and Informatics (KOMINFO), Ministry of Finance & Directorate General of Taxes of the Ministry of Finance, and Coordinating Ministry for Economic Affairs, Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM) & Deputy for Supervision of the Ministry of Cooperatives and Small and Medium Enterprises), Digital Entrepreneurs, Telecommunication Operators, Universities, Business Incubators, and Research Institutions, Digital Consumers, Banking, Digital Society, and Investors. The factors involved in the digital entrepreneurship ecosystem consist of explicit legitimacy & implicit norms, digital platforms, infrastructure, digital content, Fintech, digital literacy, and digital ecosystem.

Suggestion provided from this research, especially for government actors, is to immediately expand access to investment since digital platform-based MSMEs require a combination of both domestic and foreign investment sources. Barriers to access to investment can reduce the SMEs' potential to develop. Furthermore, the government is suggested to prepare regulations to control export-import activities, especially if deviations are found. To add more, digital entrepreneurs (MSMEs) should take advantage of every opportunity to gain digital literacy skills, digital financial literacy, and digital content which is useful and supports the sustainability of MSME businesses in an increasingly advanced and competitive digital era. Further research may examine the interaction patterns between actors and factors involved in the digital entrepreneurship ecosystem that support the MSMEs digital transformation based on digital platforms with a network theory approach, A to F theory from Trías de Bes & Kotler, and other relevant approaches.

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