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The Use of Communication and Information Technology Innovation Among Micro, Small and Medium Enterprises

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Abstract:
Innovation has significantly contributed to the transformation of organizations. The current research aims to determine the level innovation of communication and information technology that was employed by micro, small and medium sized corporations. The research respondents consisted of 100 micro, small and medium corporations, who were registered as active operated in the Industry, Trade and Cooperatives Office of Yogyakarta Municipality, Indonesia. The findings of this research demonstrated that micro, small and medium sized corporations innovated by employing communication and information technology in the operation of their businesses. The research discovered that 93% of the MSMEs (Micro, Small and Medium Enterprises) promoted their products using the internet, while 86% viewed innovation to be an important facet of their business. Furthermore, the smartphone was utilized by 100% of the MSMEs, to support the operations of their businesses.

Keywords: organization's innovation; micro, small and medium enterprises; communication and information technology use.

1. Introduction

The success of a corporation's strategic human capital and its aptitude for innovation has been a vital subject in business competition. Jime´nez-Jime´nez and Sanz-Valle (2008) identified that the competitive advantage of a corporation could be developed by a corporation's ability to organize their human resources and to innovate. Recently, there has been an increase in the number of HR and innovation studies which have emerged to examine and identify the factors which have triggered and led to an organization's innovation [1].

The term innovation can be defined as the process of altering an organization's dominant business model, defining or redefining positions within the market, and initiating or enhancing products and processes [2]. Humans have been principal contributors to innovation in corporations. Human's capacity to use innovation has been necessary to stimulate processes and systems in innovation. Indeed, innovation would have never taken place if humans did not exist. It has been found that, when the capabilities of individuals and corporations are employed constructively to establish changes, small or large innovations will be exhibited.

The definition of innovation adopted by this research was: the use of communication and information technology by MSMEs, in the performance of their daily business activities. Innovation has been seen as strategic tool to grow and enhance a corporation's institutional, organizational, managerial, technological (software (applications used in business) and hardware (technological equipment)) and cultural capabilities, skills, and knowledge on organizational systems. The term includes capabilities of future and current management teams. The growth of MSMEs have been the current national tower of strength in the face of globalization, which has become more and more prominent recently. MSMEs have been compelled to adjust to their surroundings as a result of present day trends gravitating towards digital, social and mobile technologies. This present study intends to determine the types of innovation developed by MSMEs and will examine the level of innovation adopted by MSMEs, specifically with regards to the use of communication and information technology. Moreover, this study will attempt to determine the role that strategic human resources play in helping to realize the use of innovation in MSMEs and the

development of future innovation.

2. Review of Literature

2.1 Organizational Innovation

Innovation is vital for a corporation to keep up with developments in their surroundings and to ensure that it remains competitive. Innovation deals with new products and services, production methods and procedures, production technology, and administrative changes. Two key factors are indicators that successful innovation, namely the ability of the organization to be creative and the ability to manage complex processes successfully, turn creative ideas into reality [3]. Human Resources is a prime factor which needs to be taken into account by organizations in the implementation of innovation in their daily operations [4].

Becker and Matthews [5] asserted that there were a few facets of innovation. The first facet referred to something new for a corporation. The new development may not necessarily have been new to a profession or trade, but it was new for a corporation at a specific point or period in time. The second referred to new changes within an organization. Nevertheless, the changes didn't necessarily have to be significant. The organization prepares for the future with continuous innovation. It referred to the skills and aptitudes available to carry out greater things, or produce something unique. The third facet related to the significance of the outcomes of innovation. Innovation shouldn't only relate to the generation of new ideas for corporations, but it should also create commercial value for corporations. Factors such as innovation management processes, strategy, and corporation resources could assist with producing innovative outcomes. The fourth facet referred to the ongoing value of innovation, and was not specific to economic gains. The value could include financial, social and even environmental results which could be favorable for an organization.

From this definition, Becker explained that there was a potential relationship between successful innovation and human resources. If the difference aspects mentioned above were taken in to account, Becker noted that there was a correlation between effective innovation and the role of strategic human resources. Corporations should be able to learn swiftly and progressively, continue innovating, and take fresh strategic steps faster towards innovation [6].

2.2 Role of Strategic Human Resources and Organizational Innovation

It is believed that strategic human capital plays a role in all innovation processes because firstly, a corporation's capabilities were embedded within its employee's intellect, ideas and creativity [7-9]. Furthermore, the development and implementation of innovation within an organization required the support of its employees [10, 11]. The role of strategic human resources determines the innovation policy that will be applied by the company, that is related to business operations, as well as the company's strategy to be superior to competitors [12]. A plethora of studies (Jiang et al. 2012; Jime´nez-Jime´nez and Sanz-Valle 2008; Tan and Nasurdin 2011) have indicated that there was a direct relationship between innovation and human resources. Sanders, Moorkamp [13] carried out a research which demonstrated that satisfaction of employees with their activities, more specifically with work climate influence and job descriptions, had a direct correlation with innovative conduct and actions.

2.3 MSMEs Innovation in Indonesia

The government has continued to invest significant effort and time to enhance its role as a regulator, motivator, stimulator and facilitator, of creating an atmosphere conducive to innovation [14]. The ASEAN Economic Community according to Stiles and Kulvisaechana [15] poses a number of challenges for MSMEs in Yogyakarta, which needs to be tackled. Nevertheless, it is clear from the present state of affairs, that not all MSME corporations are prepared for the challenges. Therefore, it is necessary role and function of research institutes and universities, which are constantly encouraged to synergize strengthen the innovation support power. Especially in organizing training and introduction of new technologies for strengthening innovation.

The truth of the matter is, MSMEs products from Yogyakarta have effectively enterered foreign market. It has been suggested by a number of economists that MSMEs in Yogyakarta are always ready to face the challenges ahead, although there are some obstacles faced, such as insufficient capital and relatively limited technology.

It was found that prior to 1990, 36% of MSMEs in Special District of Yogyakarta (*Daerah Istimewa Yogyakarta*) had been established. Furthermore, between 1990 and 2000, 33% were established and a remaining 31% were established between 2000 and 2010. The findings demonstrated that there was an ongoing development of MSMEs. In addition to this, according to Disperindagkop (Office for Industry,

Trade and Cooperatives), the MSMEs areas of business have been segmented into agriculture, non-agriculture, workmanship and miscellaneous businesses. Products such as tofu, *tempe*, *bakpia*, *geplak*, *kerupuk*, nata de coco, and an assortment of breads and cakes within the agricultural industry. On the other hand, roof tiles, wooden and bamboo furniture, *gamelan*, paintings on animal skins and batik paintings as well as wall decorations fell within the non-agricultural industry.

The presence of the communication and information technology era has stimulated MSMEs to innovate and use communication and information technology to promote their goods on the internet. Data from survey of Indonesian Internet Service Providers Association collected has illustrated that around 132.7 million people within Indonesia were internet users, out of the 256.7 million people that resided in Indonesia. The Ministry of Cooperatives and MSMEs has asserted that MSMEs should adjust to present changes in the environment by using the internet as a tool for their media marketing. Indeed, as many as 44 million MSMEs have the capacity to utilize information technology. The government has also been fully supportive of the creation of a digitally based Indonesian economy through online MSMEs. Thus, it is anticipated that MSMEs can successfully compete in the domain of e-commerce.

Unfortunately, the level of innovation in the field of communication and information technology, implemented by MSMEs in Indonesia, has been considerably needy. AMI Partners, a research establishment, drew attention to the fact that only 20% of MSMEs used information technology. MacGregor and Kartiwi [16] recorded that the use of communication and information technology of a MSME can be hindered by its own organizational characteristics. There are four factors that influence the adoption of an innovation, either by members or parts of an organization, namely: 1) innovation itself, 2) communication channels, used to disseminate innovation, 3) time, and 4) where the innovation is introduced [17].

The adoption of innovation has a complex meaning, because it involves the decision-making process, which is influenced by many factors for accepting new ideas. Adoption of innovation is part of corporate strategy, so in the process of adoption of innovation, adequate information is needed. Furthermore, the adopter candidate will seek information from relevant sources of information and fit the company's needs [18]. Rogers mapping five categories of adopters. The first category is called the *innovator*, they are risk takers and pioneers who lead the way. They can adopt despite high levels of uncertainty about innovation at the time of adoption, and are willing to accept occasional setbacks when a new idea proves unsuccessful. The second group is known as the *early adopters*, those who boarded the train early and helped spread the word about innovation to others. The third group is the *early majority*. They are convinced to be adopted by early adopters and innovators, and perhaps deliberate for some time before fully adopting this new idea. Their innovation decision period is relatively longer than the early adopters and innovators. The fourth group is *late majority*. They approach innovation with caution and wait to ensure that adoption is in their best interest. As a result, they do not adopt it until most others have done it. The fifth group is called *laggards*. They are very skeptical and refuse to adopt until they are really needed [19].

3. Researh Method

The research can be described as qualitative in nature. A quota-based sampling method was used on 100 MSMEs in Yogyakarta, Indonesia. The research stages are as follows: a) identify the existence of innovations that have been done by MSMEs, especially the utilization of information and communication technology; b) surveys and interviews, in relation to the steps MSMEs have undertaken and possible potential innovations by MSMEs; c) tabulation and data analysis

4. Research Results

4.1 Characteristics of the Respondents

The respondents within this research consisted of MSMEs located in 13 districts of the municipality region. The total percentage of the respondents for each district was: Danurejan (14%), Gedongtengen (8%), Gondokusuman (6%), Gondomanan (3%), Jetis (10%), Kotagede (14%), Kraton (5%), Mantrijeron (4%), Mergangsan (5%), Ngampilan (6%), Tegalrejo (8%), Umbulharjo (13%), and Wirobrajan (4%).

Once the field survey was conducted, the characteristics of the respondents were segmented into categories of business, number of staff, and tenure of the MSMEs. Table 1 demonstrates the segmentation of the characteristics. Table 1 illustrates that 38% of respondents dealt with food (38%), followed by 32% which were in the craftsmanship industry. It was also found that a 50% of the respondent MSMEs had 3 to 6 employees working in their businesses.

Table 1: Characteristics of Respondents

The Characteristic of MSMEs Scope	(%)	Number of Staff	(%)	The Sample Age (Years)	(%)
Food	38	<3	38	< 5	24
Clothing	22	3 - 6	50	5 - < 11	62
Creative Industry	32	7 - 10	6	11 - < 16	6
Cellular	2	11 - 13	2	16 - < 20	4
Printing & Photocopy	6	≥ 13	4	≥ 20	4
TOTAL	**100**		**100**		**100**

It was also found that 62% of MSMEs had been established between 5 to 10 years. The result illustrated that a majority of MSMEs had been in business for considerable lengths of time. Indeed, a mere 24% of MSMEs had set up their businesses for less than 5 years.

4.2 Innovation equipment available

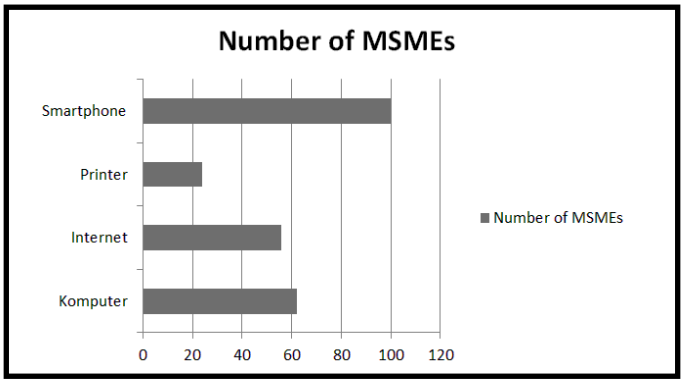

Figure 1: Percentage of MSMEs using innovation equipment

Figure 1 presents an illustration of the utilization of technological equipment by MSMEs. The research also examined the various forms of innovation equipment, that were accessible to MSMEs in Yogyakarta. The equipment included smartphones, printers, the internet and computers. It was discovered that 65% of the 100 respondents in the study possessed computers, while 56% utilized the Internet. Moreover, 24% owned printers and 100% employed smartphones in the operation of their daily business. The results demonstrated that all MSMEs utilized a smartphone when they carried out corporate activities.

4.3 Discerning the use of organizational innovation by MSMEs

The respondents of the study were asked a number questions related to organizational innovation, which referred to the use of communication and information technology. The queries were:

a. Is the factor organizational innovation important in the management of business?
b. Is the factor organizational innovation required in the management of business?
c. Is the factor organizational innovation supportive in the management of business?
d. Is factor organizational innovation, capable of improving their business performance?

Table 2: Innovation in the Management of Business

Innovation determinant	Count of MSMEs	Percentage (%)
Determinant of Innovation factor		
Important	86	86
Un important	10	10
Not know that	4	4
The need of innovation		
Need	88	88
Not necessary	8	8
Not know that	4	4
Supporting factor		
Supporting business	92	92
Not supporting business	6	6
Not know that	2	2
Driver factor		
Enhancing performance	94	94
Decreasing performance	4	4
Not know that	2	2

Table 2 outlines the survey results. It was found that MSMEs in Yogyakarta felt that organizational innovation through the use of communication and information technology was a significant factor in the management of their businesses. Indeed, 86% of the MSMEs agreed with this notion. Nevertheless, 10% of the MSMEs said that innovation was not significant, and 4% were not aware that innovation was a significant factor. It was also found that 88% of the MSMEs asserted that they required innovation through the use of communication and information technology in the management of their business. In addition to this, 92% of the MSMEs stated that organizational innovation supported the management of their business. Finally, 94% of the MSMEs believed that organizational innovation enhanced the performance of their businesses.

The above findings demonstrated that organizational innovation thorough the use of communication and information technology played a significant role in the management of business. Organizational innovation motivated corporations to run their enterprises more effectively. The enhanced efficiency in business operations was especially useful in the era of globalization which required swift reactions to the consistently altering business surroundings.

4.4 MSMEs Use of Social Media and the Internet

The MSMEs respondents used the Internet to market their goods and services.

Table 3: MSMEs use of the Internet Media

The use of internet media of MSMEs	Count of MSMEs (%)
The marketing of Product	93
Market information	89
Design search information	86
Communication with customer	75
Communication with partner	57
Online order	54
Online transaction	50
Communication with partner	36

The MSMEs have used the internet to promote their goods, interact with business contacts, clients and suppliers, to ease the process of online agreements and orders and to locate knowledge on their markets and products. Essentially, the internet was used to support the operation of the MSME's businesses.
Table 3 provides detail on the level of internet usage by MSMEs. It was found that 93% of the MSMEs used the internet to market their products. This was followed by 89% of MSMEs that used the internet to unearth market knowledge and 86% that used the internet to search for design information.

Table 4: The percentage of MSMEs that use Social Media

The use of social media by MSMEs	Count of MSMEs (%)
Facebook	68
Instagram	58
WhatsApp	42
Line	16
Twitter	5
Bukalapak	5

Table 4 outlines the level of social media usage of MSMEs. From Table 4, it can be seen that Facebook was used by 68% of the MSMEs in the promotion of their products, while 58% utilized Instagram, and 42% utilized WhatsApp. The remaining respondents employed Twitter, Line and Bukalapak.

4.5 Training and workshop attendance of MSMEs on the use of communication and information technology.

It was determined that several stakeholders played a role in empowering the use of communication and information technology for MSMEs. The stakeholders included NGOs, tertiary education establishments, the government, as well as a number of other entities.

Table 5: Training/Workshop Attendance of MSMEs

The organization of Workshop or Training	Percentage of MSMEs Attending Training/Workshop
Government	60
Individual	52
Social community	4
Student	8
Others	12

At the time the research survey was carried out, 60% of the MSMEs confirmed their attendance to training conducted by the government on the use of communication and information technology. Moreover, 52% confirmed that they took part in communication and information technology workshops taught by individuals. Table 5 illustrates these findings.
It's important to note that, the term 'other parties' used in this research referred to the groups who arranged trainings on areas not previously mentioned. The groups included 'Tamansiswa' Small and Medium Enterprises, Association of Businesswomen and State-Owned Enterprises.

5. Discussion

Organizational innovation has played a vital role in the continued existence of corporations. The phrase innovation has been defined as the way MSMEs use communication and information technology in the performance of their business operations [20]. The findings of this research have demonstrated that the majority of respondents of this research utilized the computer to operate their businesses. The results also illustrated that a majority of MSMEs were conscious of the significance of technology and its impact on transforming processes within their corporations. Indeed, the computer eased the management of processes such as writing letters, keeping record of financial affairs and producing financial statements. Furthermore, it also assisted with processes relating to data calculation, employee salaries and the creation of MSME profiles on media website. Finally, technology facilitated access of MSMEs to the internet as well as the launch of MSME product designs and websites.
The smartphone was the most successful method of interacting with various stakeholders as it was used by all MSMEs. Up to date smartphones could even be used as micro-computers as they had multiple

designs which served a variety of purposes. The smartphones could be used to locate market and product design information as well as be used as a tool for clients, business associates and suppliers to interact.

The findings of this research have identified that 92% of MSMEs used the internet to promote their goods and support the ongoing existence of their business operations. The findings were in line with the findings of a study conducted by Das and Das [21], that the use of the internet by MSMEs has resulted in a number of benefits which included the facilitation of interactions between business associates, clients and suppliers, easing online transactions and locating new knowledge about markets and product design; study by Srivastava, Franklin [22] which identifies key levers, tools and managerial systems that can be used to build and maintain core corporate competencies, with high technology to facilitate a more innovative and collaborative 21st century corporate culture. It will also create a more dynamic and responsive organization that is far more adept, building unique resources and capabilities, which can then be leveraged to create new market opportunities with high competitive entry barriers.

6. Conclusion

The research intended to determine the types of innovation developed by MSMEs and examine the level of innovation adopted by MSMEs, specifically with regards to the use of communication and information technology. Descriptive statistics were used to examine the data collected in this research. The data on MSMEs was then segmented in to: area of MSMEs, category of business, number of staff and the number of years an MSME had been established.

The findings of this study indicated that organizational innovation was embedded by MSMEs through the use of communication and information technology. The finding was further exemplified by the high level of ownership and use of computers, the Internet, printers and smartphones by the MSMEs. Furthermore, the very fact that innovation existed in the management of business demonstrated that a majority of MSMEs viewed innovation to be vital in the operations of their business and enhanced their business functions. It is necessary to stimulate permanent change and innovation, following the speed and dynamics of the market [23], because innovation is considered one of the vehicles that drive prosperity [24, 25].

It was discovered in this research that the use of social media and the internet significantly assisted with the promotion of their goods and the identification of new knowledge relating to markets and product design. In addition to this, it facilitated interactions between business associates, clients and suppliers, and eased online transactions and order processes.

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