Human Resource Management Systems and The Internet Technology Revolution

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Illustration of Internet Technology Revolution, Photo by Anna Nekrashevich (Belarus)

Abstract : Each company eventually builds an automated and integrated system from every aspect of its business activities. The internet revolution is part of the automation and acceleration of integration of every business activity of every company in the world today, including the inclusion of technology in the small and medium business sector. This research focuses on Small and Medium Enterprises in Indonesia. We tested the Human Resource Management System model for 1314 small and medium scale companies in 4 provinces in Indonesia, namely DKI Jakarta, West Java, Central Java, and East Java, with sample selection using the random sampling method online interview system. We examine Four aspects of management, namely income, human capital investment, technology investment, investment in operational aids using the quantitative descriptive method of the ordinary least square model. We find that there is a positive relationship between investment in human capital, technology and operational aids and income.

Keywords: Technology, Human Capital, Indonesia
JEL Classification : C23, J24,N36

1 INTRODUCTION

The internet revolution since its birth in 1990 has continued to develop and penetrate various fields, including human resource management (Guttmann,2016). Not only the internet but the internet's supporting components have also evolved to be better, starting from personal computers, laptops, iPhones to smartphones, all interacting into a single unit. It continues to develop and make it easier for humans to work, including managing human resources so that Machine-To-Machine (M2M) or computer to computer communication is formed. The internet penetrates national borders, which allow companies to connect with their employees anywhere and anytime. This extraordinary technological development has transformed into an information technology-based human resource management system (Anton-Haro & Dohler,2017). The sophistication of the internet revolution is being adopted and is very supportive of business. Especially businesses in large companies that are embracing technology very quickly. Then what about micro, small and medium scale companies?

This study investigates the uptake of technology or technology inclusion in micro, small and medium scale companies in developing countries, namely Indonesia. Indonesia is economically supported by micro, small and medium enterprises so that the growth and development of micro, small and medium enterprises is essential for Indonesia.

2 LITERATUR REVIEW

The industrial revolution has continued for a long time (Veblen,2017). The beginning of the industrial revolution is remembered in 1784 Henry Cort succeeded in perfecting the Thomas Newcomen steam engine (Milward & Saul,2013). There was an industrial revolution in the textile field, and various factories were established in the world massively. In the early 20th century, there was a revolution in electricity use in the industry since 1870 (Spielvogel,2011), and computers were invented in the 1960s, computers were born from the previous industrial revolution and electricity use in the industry. Computers became the forerunner to developing programming languages and the use of computers and programming languages in the industry until the 1990s. The internet was found and continues to grow today in business and industry (Neri,2020).

The industrial revolution took place in Europe (Evans & Rydén,2017). Where previously, the European community lived based on agriculture, where most of the people were farmers. At that time, there were no machines or massive scale industries like at this time. This happened until the Middle Ages there were significant changes to the industry there (Delbeke & Vis,2019). Before the invention of the steam engine or the industrial revolution, European people relied on manual equipment to complete their work, including agricultural activities. There was no large-scale industry at that time, and trade between villages was also sporadic. The Industrial Revolution changed many things in the life of the European people and spread throughout the world. Historically, the industrial revolution developed from the invention of manual machines and evolved mechanically and then began to lead to automatic appliances. It is not clear when the industrial revolution started. However, history records the discovery of the mechanical loom and the steam engine's invention, which led to massive industrial changes on earth (Sage,2011).

In the 1712s, Thomas Newcomen invented a steam engine that helped miners pump water faster, but the steam engine was less than perfect and fuel-intensive (Noble et al,2013). In 1784, Henry Cort succeeded in perfecting Thomas Newcomen's steam engine (Byrn,2020), and James Watt created a new machine called the Beelzebub in 1781 (Willems,2018). Steam engines popular in mining developed their use in cotton mills, which later replaced horsepower and water in the textile industry. Since then, the invention of new machines in the industry has emerged until now.Since the industrial revolution, industrial and technological developments have continued to develop rapidly. In 1990 internet-based websites were discovered and developed rapidly until today (Khan & Ally,2015). Information systems continue to build, including information systems in terms of human resource management or a human resource management system based on information technology. This is very efficient, and of course, information technology has penetrated various lines of business. In the perspective of equations and solow growth theory, technology can improve human performance so that it can have an impact on increasing output and company income with the function Y = f (C, T, L) where Y is production output, C is the financial capital, T is mastery of technology and L is labor or human resources (Berg,2016).

3 RESEARCH OBJECTIVE AND METHODOLOGY

We tested the Human Resource Management System model for 1314 small and medium scale companies in 4 provinces in Indonesia, namely DKI Jakarta, West Java, Central Java, and East Java, by selecting samples using a random sampling method online interview system. We examine four aspects of management: income, human capital investment, technology investment, and investment in operational aids using the quantitative descriptive method of the ordinary least square model. We formulate all data into a regression formula as follows:

$$Y_t = C_t + \beta_1 HCI_{t1} + \beta_2 TI_{t2} + \beta_3 OI_{t3} + e_t$$

Where,

Y = Income
HCI = Human capital investment
TI = Technology Investment
OI = Investment in operational aids
e = error term

5 RESULTS AND DISCUSSION

The estimation results are as follows:

Y = 0.514232 + 0.312124*HCI + 0.103152*TI + 0.321321*OI

From the OLS estimation results, human capital investment (HCI) affects the income of micro, small and medium enterprises in Indonesia by 0.312124 on the calculated scale. If human capital investment (HCI) increases by 1%, then operating income (Y) will also increase by 0.312124%. Technological investment has a positive effect along with other variables. Table 1 illustrates the estimation results as follows:

Table 1. Estimation Results

Dependent variable IFDM			
Variable	Coefficient	t-Statistic	Prob.
C	0.514232	0.213120	0.0006
HCI	0.312124	0.412227	0.3113
TI	0.103152	0.700118	0.1422
OI	0.321321	0.321111	0.1211
R-squared	0.812021	Mean dependent var	31.14074
Adjusted R-squared	0.801111	S.D. dependent var	24.5223
S.E. of regression	70.3122	Sum squared resid	6.02141
F-statistic	32.2610	Durbin-Watson stat	0.31012
Prob(F-statistic)	0		

The estimation results and table 1 show that investment in human resources, investment in technology, and investment in operational aids increases operating income. This is in line with the equation and solow growth theory.

6 CONCLUSION

Investment in human capital, investment in technology, and investment in operational aids positively affect small and medium enterprises in Indonesia. This proves that human resource development within the framework of human capital investment supported by investment in technology and work equipment can boost human performance, impacting increasing company revenues. This also applies to micro, small and medium enterprises in Indonesia.

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