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**THE INFLUENCE OF INTELLECTUAL CAPITAL AND INNOVATION CAPABILITY
ON PRODUCTIVITY OF CIVIL SERVANTS IN EDUCATION SERVICES
OF PALEMBANG CITY**

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ABSTRACT

The purpose of this study was to empirically examine the effect of intellectual capital and innovation capability on civil servants productivity. The population of this study was civil servants who worked at Education Services in Palembang City totaling 65 people, the number of respondents used was 40 civil servants. The analysis technique used to process primary data is multiple regression with the Ordinary Least Square approach. The estimation results conclude that intellectual capital and innovation capabilities have a positive and significant effect on the productivity of civil servants at Education Services in Palembang City. This shows that the increase in intellectual capital and innovation capability will have an impact on increasing the productivity of the civil servants at Education Services in Palembang City. Variations in intellectual capital and innovation capabilities are able to explain variations in civil servants productivity by 40.80 percent and the rest is explained by other variables outside the model.

KEY WORDS

Intellectual capital, innovation capability, productivity.

The civil servants as the main element of human resources in government organizations has an important role in determining success of governance and development (Pertiwi, 2017). As one of the most important components, civil servants professionalism is often questioned. The role, function and position of civil servants greatly determines the success or failure of government development programs, therefore it is necessary to improve civil servants ability to achieve high work productivity. Every organizational activity that is carried out to achieve certain goals by carrying out these activities is called productivity. An employee can be said to be productive if he is able to produce goods or services as expected in a short or appropriate time (Rajashree, 2013).

In a government agency it is necessary to have employee productivity to achieve the goals set. Optimal employee productivity is the desired expectations of the agency. Productivity success in an organization is influenced by the management and empowerment of resources including human resources. Increased employee productivity is expected to achieve organizational goals (Hasibuan, 2011). Intellectual capital is a factor that results from the interaction between competence, commitment and job control. Employees who have high competence will be able to empower their resources optimally to achieve organizational goals (Alwi, 2001). Well-managed intellectual capital will increase employee productivity, in the perspective of human capital, workers who have high knowledge, ability, skills and experience have contributed significantly to work productivity (Snell and Dean, 1992).

Human resources are the drivers of creativity and innovation within a company which increase the company's reputation and profits over a long period of time (Handoko, 2001). The capability of innovation as the ability to innovate by generating new ideas by combining, changing or implementing existing ideas in ways that have not been previously thought of. The capability of innovation contributes greatly in an organization because innovative

behavior of workers is able to provide new ideas. Chang, Lee (2007) states that innovative behavior is a thing that has a major contribution in increasing productivity.

The paradigm shift in the administration of government from being centralized to being decentralized has implications in relations with regional governments, both provincial and city / district governments. In this context, the role of the central government and the provincial government becomes increasingly limited in providing direct services to the community, but the role becomes greater in supervising the delivery of various services carried out by the district / city government. Thus, the role of local government increasingly vital in serving the community, therefore local governments must be able to explore the potential of regional economic resources so that level of community welfare increases.

South Sumatra Province consists of 13 districts and 4 cities that continue to work to improve the performance of regional government. One of the performance can be seen from the results of the examination of the Supreme Audit Agency (BPK) during the period 2010 to 2013 WDP opinion (Fair With Exceptions), in 2014 to 2016 increased to WTP (Fair without Exception). In 2010, only one area was declared WTP by BPK, namely Palembang City, while the other was declared WDP. Until 2016 there was still one region declared by WDP, namely North Musi Rawas Regency, while the other was declared WTP (BPK Representative of South Sumatra, 2017).

The performance of regional government implementation can also be seen based on the results of the South Sumatra Province, the Government Evaluation on the Implementation of Local Government (ELPPD). In 2018 the best regional government was achieved by the Musi Rawas Regency Government, and even ranked in the top 10 of the best districts in the Sumatra Region. The ranks in the administration of regional governments are respectively: Musi Rawas Regency, Ogan Komering Ilir, Muara Enim, Musi Banyuasin, Lahat, Ogan Ilir, Ogan Komering Ulu, Banyuasin, East OKU, South OKU, while for sequential cities are Palembang, Prabumulih, Pagaram, and Lubuklinggau. The ELPPD results are inseparable from the role and performance of the apparatus in working and serving as community servants. The Education Services in Palembang City is one of the government agencies that is tasked with carrying out governmental tasks in education. At present the number of civil servants registered at Education Services in Palembang City is 65 people, consisting of heads of offices, secretariat, kindergarten teacher education, early childhood education programs and community education, primary school, Junior high school, section chief, and staff.

According to some experts, a very strong correlation between intellectual capital and work productivity, as expressed by Pertiwi (2017), Sukri (2015), Wijayanti (2014). Related to Saunila's study (2014), Chiesa et al. (2009), and Godener and Soderquist (2004) argue that measurement of the development at innovation capabilities can not be diagnosed only from its development, but also as a driver for learning and implementing new and different ways of working. At present there is a tendency that innovation capabilities / capabilities are not only seen from the input and output approaches in currency units, but are also measured by the outcome or impact approach (Nilsson et al, 2010; Adams et al, 2006).

One factor of the low productivity civil servants in Indonesia is the problem of intellectual abilities. There are many factors that become an element of an employee's intellectual capital, one of which is the competency possessed. According to Setyawan (2012). According to Kao (2007), some economists believe that innovation is very important, is not only driving the welfare of the organization, but also the State. Without innovation, the state tends to be less competitive and less attractive to investors, including the community .astiti (2013) in her research results there is a very strong correlation between the level of education with motivation to innovate and even Rahim states that educational innovation can give birth to new innovation education that has an impact on the ability to develop innovations that will lead the country to become more competitive.

Research on intellectual capital and labor productivity, previously quite a lot was done and in general research was carried out relating to the work productivity of educational institutions and companies (Fitrisah et al., 2016); Indah and Riza (2012), Rousilita (2012), Chen et.al (2014), Marfuah and Ulfa (2014). There are also those who carry out research on

employee productivity in government, but only seen from the perspective of factors that affect work productivity, the effect of employee placement, work discipline, working hours, employee development on employee performance (Pertiwi, 2017), Sulaeman (2014), and Wijayanti (2014).

Research on intellectual capital and innovation capabilities on civil servants productivity has not do more. This research was conducted to examine the intellectual capital and innovation capability on civil servants productivity by using the explanatory survey method. Testing the hypothesis in this study is to use empirical data and through descriptive analysis of the characteristics of respondents, dimensions and research variables as well as quantitative analysis using regression analysis with the Ordinary Least Square (OLS) approach.

LITERATURE REVIEW

Mali's opinion (2011) that: "Productivity is a measurement of how much resources are used together in an organization to complete a collection of results." (inputs) all of which are views of improving the quality of employees desired or needed in order to achieve company goals. Understanding productivity can be formulated as the effectiveness of producing output (output) divided by the efficiency of using inputs.

Labor productivity is influenced by several factors both related to the work force itself and other factors, such as level of education, skills, discipline, attitude and work ethics, motivation, nutrition and health, income level, social security, work environment, work climate, technology, production facilities, management and achievements (Raquel, 2012). Tiffin and Cormick (in Sutrisno, 2009), said that the factors that influence work productivity can be concluded into two groups, namely the first factors that exist in individuals, namely age, tempramen, individual physical condition and motivation, second, existing factors outside the individual, namely physical conditions such as light or lighting, rest periods, length of work, wages, form of organization, social and family environment.

Productivity is influenced by factors such as the state of the economic environment such as world trade, interest rates, exchange rates, conditions such as rising or falling prices, quality, distribution capabilities and the level of competition, the level of environmental changes such as technological, social and economic developments, human resource conditions such as the attitudes, style and commitment of people in the organization, the reward system in aspects of finance, psychology, and justice, the state of information includes the relevance, simplicity, and timeliness and state of technology used such as the design of its facilities, methods, systems and techniques (Blois , 1985).

Intellectual capital is a product of the interaction between competence, commitment (Ulrich, 2017), and work control (Burr and Girardi, 2002). Intellectual capital is the virtual assets of an organization that can be used to create value for organizations through a combination of human capital and structural capital . The concept of intellectual capital from Ulrich, Tjakraatmadja, and Stewart only focuses on the dimensions of human capital and has not yet included the dimensions of structural capital. Competence and commitment to the concept of intellectual capital from Ulriach and Burr & Girardi are included in human capital because competence and commitment exist and are inherent in the employees themselves.

Organizational capital and customer capital as part of intellectual capital from the concept of Sole, Brooking and Motta, Pike and Roos, Horibe, Bukowitz, and Joia enter into structural capital according to the concept of intellectual capital from Bontis et al., Fitz-enz, and Edvinsson because of capital structurally related to internal organizations and external organizations (with customers) and entered in the dimensions of job control according to the concept of intellectual capital from Burr and Girardi because the competence and commitment that exist in employees will be able to create value for the organization if supported by providing job control or adequate work autonomy to employees. At the individual-level analysis unit, intellectual capital is formed from the interaction between competency components, organizational commitment, and job control.

Innovation according to Schumpeter (2013) is as a new combination of the factors of production created by entrepreneurs and the thought of innovation is an important driving force (critical driving force) in economic growth. The Schumpeter innovation concept involves product innovation, process innovation, market innovation, the use of raw materials and obtaining these raw materials by means of and innovation in organizations. As for the typologies of innovation in the public sector according to (Halvorsen, Thomas, et al. 2005) are as follows: (1) a new or improved service, for example health at home, (2) process innovation, for example changes in the process of providing services or products, (3) administrative innovation, for example the use of new policy instruments as a result of policy changes, (4) system innovation , is a new system or fundamental changes from existing systems by establishing new organizations or new forms of cooperation and interaction, (5) conceptual innovation, is a change in outlook, such as integrated water management or mobility leasing, (6) radical change of rationality, what is meant is a shift in the general outlook or mental matrix of employees of government agencies.

Halvorsen further explained that innovation itself can be categorized as follows: first, Incremental innovations — radical innovations. This innovation is related to the level of authenticity (novelty) of the innovation itself. In the industrial sector, most innovations are incremental improvements. Second, top-down innovations — bottom-up innovations. This is to explain who is leading the behavior change process. Top means higher management or organization or hierarchy, while bottom refers to workers or civil servants and decision makers at the unit level (mid-level policy makers). Third, Needs-led innovations and efficiency-led innovation. The process of innovation initiated has solved the problem in order to improve the efficiency of services, products and procedures.

Research by Ohueri, Enegbuma, Wong, Kuok, & Kenley (2018) on the Labor productivity motivation framework for Iskandar Malaysia shows that effective management, proper construction practices, financial incentives, ongoing training and development, and a safe work environment are motivational strategies that are most significantly positively affects construction workers. Chaturvedi, Thakkar and Shankar (2018) conducted a study of Labor Productivity in Construction Industry: An Evaluation Framework for Causal Relationships. The results of the study provide a quantitative labor productivity assessment framework for evaluating the causal relationships among factors affecting labor productivity in the construction industry. Pertiwi Study (2017) on the Effect of work discipline on the productivity of civil servants' work at the Office of Industry, Trade, Cooperatives and SME in East Kalimantan Province. The results showed that the variables of work discipline and work productivity have a positive relationship with labor productivity.

Based on the problem formulation that has been described, the theoretical and empirical reviews above can be formulated a hypothesis in this study:

1. Intellectual capital has a positive influence on productivity of civil servants productivity at Education Services in Palembang City;
2. Innovative capability has a positive effect on the productivity of civil servants at Education Services in Palembang City.

METHODS OF RESEARCH

This research was conducted at Education Services in Palembang City with respondents being the civil servants working in the Education Service. The data used in this study are primary data obtained by distributing research questionnaires. Determination of the number of respondents using the Slovin formula with a population of 65 civil servants recorded at Education Services in Palembang City, obtained a sample of 40 people consisting of the secretariat, kindergarten teacher education, early childhood education programs and community education, primary school, Junior high school, section chief, and staff. Analysis technique used in this study is Ordinary Least Square (OLS) by testing the model (classic assumption test), testing the research instrument using the validity and reliability test. Data processing using multiple regression methods was carried out by researchers using the SPSS program. Estimation models use variables X_1 and X_2 as

independent variables and Y variables as dependent variables. The equation of relationship in moderated regression analysis is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + e_i$$

Where: X_1 = Intellectual Capital; X_2 = Innovation Capability; Y = Productivity; β_0 = Constant, β_1 dan β_2 = Regression Coefficient; e_i = Error Term.

RESULTS AND DISCUSSION

The research questionnaire was tested for validity and reliability with results that showed the instruments in the valid and reliable categories to be used as research instruments. The estimation model has tested classical assumptions as a prerequisite in multiple regression analysis. The estimated results of the influence of intellectual capital and innovation capability on civil servants productivity are as follows.

Table 1 – Results of Multiple Linear Regression

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	11,991	5,095		2,354	,024
	Intellectual Capital	,393	,124	,518	3,169	,003
	Innovation Capability	,059	,168	,057	3,349	,000

a. Dependent Variable: Productivity

Source: Processed Data, 2020.

Based on the results of statistical calculations as in table 1, we get the moderated regression equation as follows:

$$Y = 11,991 + 0,393X_1 + 0,059 X_2 + e_i$$

Where: X_1 - Intellectual Capital; X_2 - Innovation Capability; Y - Productivity.

Estimation results that coefficient for Intellectual Capital (X_1) variable is 0.393 and has a positive relationship, which means that when intellectual capital variable rises, the productivity variable will also increase by 0.393 with a probability value of $0.003 < 0.05$ degrees of error by 5% so that it is statistically significant and influences productivity.

The coefficient value for the Innovation Capability variable (X_2) is 0.059 and has a positive relationship, which means that when the need for innovation capability increases, the work productivity variable will increase by 0.059 with a probability value of $0,000 < 0.05$ less than the degree of error of 5% so that statistically the innovation capability variable has a significant effect on the variable productivity.

F test is done to see the effect of independent variables on the dependent variable together or as a whole. The parameter is if the F-calculated value is greater than the F-table value or the F-calculated probability value is smaller than the alpha value (α), then it can be said that overall the independent variables in the model significantly influence the dependent variable. The following table is the results of the F-Test below:

Table 2 – Results F Test

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1876,749	2	938,375	12,733	,000 ^b
	Residual	2726,851	37	73,699		
	Total	4603,600	39			

a. Dependent Variable: Productivity

b. Predictors: (Constant), Innovation Capability, Intellectual Capital

Source: Processed Data, 2020.

Based on Table 2, the calculated F value of 12.733 and the significance value of 0.000, then the F table is calculated with df 1 (number of free variables as much as 2) and df 2 (number of samples 40-2-1) with a significance level of 0.05, the value obtained is 3.25. Describe that $F_{count} > F_{table}$ with a significance value below 0.05. Thus, H_0 is rejected, which means that the variables of Intellectual Capital and Capability of Innovation have a significant effect on Productivity.

T test is used to determine whether the independent variable partially influences the dependent variable or not. Table 1 shows that the t-variable intellectual capital to productivity was 3.369 with a t-table value of 0.6811, a significance of 0.003 less than 0.05. Based on the decision criteria $t_{count} > t_{table}$ ($3.369 > 0.6811$), it means that H_0 is rejected, meaning that intellectual capital influences productivity. As for the variable capability of innovation on productivity of 3.349 with a t-table value of 0.6811, the significance of 0.000 is less than 0.05. Based on the decision criteria $t_{count} > t_{table}$ ($3.349 > 0.6811$), it means that H_0 is rejected, which means that the Innovation Capability variable influences productivity.

The coefficient of determination (R-squared) illustrates the ability of the regression model in explaining the variation of the dependent variable, while values outside the coefficient of determination ($1 - R^2$) are explained by other factors outside the research analysis model. Following the table below is the test result of R^2 determination coefficient.

Table 3 – Test Results for the Determination of the Marketing Performance Model Coefficient

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.638 ^a	.408	.376	8,585

a. Predictors: (Constant), Innovation Capability, Intellectual Capital

b. Dependent Variable: Pproductivity

Source: Processed Data, 2020.

The R-square value in the regression equation is 0.408 or 40 percent, meaning that the variation of the independent variables used in the intellectual capital model and innovation capability is able to explain 40 percent of variation than the productivity variable, while the remaining 60 percent is explained by other variables not included in the this research model. The positive and significant effect of intellectual capital on the productivity of civil servants of Education Services in Palembang City shows that human capital reflected by the ability, skills and knowledge of civil servants will have an impact on increasing civil servants productivity. Likewise, the capability of innovation that reflects the ability of innovation and elaboration with visionaries, and the authenticity of thinking in new things will have a positive impact on increasing civil servants' productivity.

CONCLUSION

Based on the results of estimates and analyzes conducted regarding the effect of intellectual capital and innovation capabilities on civil servants productivity in Palembang City, it can be concluded as follows:

1. Intellectual capital has a positive and significant effect on the productivity of civil servants at Education Services in Palembang City. It means, the higher intellectual capital owned, the higher the productivity of civil servants at Education Services in Palembang City;
2. The capability of innovation has a positive and significant effect on the productivity of civil servants at Education Services in Palembang City. This means that the higher the innovation capability possessed, the higher the productivity of civil servants at Education Services in Palembang City, and vice versa;
3. The coefficient of determination which is valued at 0.408 shows that 40.80 percent of the variable intellectual capital and innovation capability affect the productivity of civil servants at Education Services in Palembang City.

The findings in this study provide some recommendations for the Education Services in Palembang City as follows:

1. The Education Services must be able to determine the right strategy by considering intellectual capital owned by civil servants both in terms of human capital and structural capital false so that it can provide stimulation to civil servants at Education Services in Palembang City.
2. Every civil servants needs to improve the quality of intellectual capital, such as the ability to maximize expertise, the ability to utilize available assets or infrastructure, skills, knowledge and capabilities.
3. Considering that this research has limitations, for further research it is necessary to include variables other than intellectual capital and innovation capabilities which are thought to affect the productivity of civil servants, such as health, civil servants demographics, and job mutations variables.

REFERENCES

1. Adams, E. Jr., Hershaure, J., & Ruch, W. (2006). *Productivity and Quality-Measurement as a Basis for Improvement*. New Jersey: Prentice Hall.
2. Alwi, S. (2001). *Manajemen Sumber Daya Manusia: Strategi Keunggulan Kompetitif* (1st Ed). Yogyakarta: BPFE.
3. Badan Pemeriksa Keuangan Provinsi Sumatera Selatan (BPK Sumsel). (2017).
4. Blois, K. J. (1985). *Productivity and Efectiveness in Service Firms*. In Foxall, G. (editor): *Marketing in The Service Industries*. pp. 43-60.
5. Burr, R., & Girardi, A. (2002). *Intellectual Capital: More Than The Interaction of Competence x Commitment*. *Australian Journal of Management*, 77-78.
6. Chang, S., & Lee, M. (2007). *A study on relationship among leadership, organizational culture, the operation of learning organization and employees' job satisfaction*. *The Learning Organization*, 14(2), 155 – 185.
7. Chaturvedi, S., Thakkar, J. J., & Shankar, R. (2018). *Labor productivity in the construction industry. Benchmarking: An International Journal*, 25(1), 334–356.
8. Chen, T. Y., Chang, P. L., & Yeh, C. W. (2014). *A study of career needs, career development programs, job satisfaction and turnover intensity of R & D. Personnel, Career Development International*, 9(4), 424-437.
9. Chiesa, V., et al. (2009). *How Do Measurement Objectives Influence The R&D Performance Measurement System Design?: Evidence From A Multiple Case Study*. *Management Research News*, 30(3), 187- 202.
10. Fitriyah, T., Habbe, A. H., & Mediaty. (2016). *Pengaruh Intellectual Capital terhadap Produktivitas dengan Employee Stock Option Plan sebagai Variabel Moderasi*. *Simposium Nasional Akuntansi XIX Lampung, 20--23 September 2016*.
11. Godener, A., & Soderquist, K. E. (2004). *Use and impact of performance measurement results in R&D and NPD: an exploratory study*. *R & D Management*, 34(2), 191.
12. Handoko, H. 2001. *Manajemen Personalia dan Sumberdaya Manusia*. Yogyakarta: BPFE.
13. Halvorsen, T., & et al. (2005). *On the Differences between public and private sector innovations*. Oslo: Public Report.
14. Hasibuan, M. S. P. (2011). *Manajemen Sumber Daya Manusia, Dasar dan Kunci Keberhasilan*. Jakarta: CV. Haji Mas Agung.
15. Indah, F., & Riza. F. (2012). *Pengaruh Intellectual Capital Terhadap Kinerja Keuangan Perusahaan (Studi Empiris Perusahaan Lq 45)*. *Jurnal Dinamika Akuntansi*, 4(1), 1-12.
16. Kao, R. W. Y. (2007). *Enterpreneurship A World Wealt Trip Creativition and Value Adding Process*. Singapore: Prentice Hall.
17. Mali, P. (2011). *Improving Total Productivity: MBO Strategy for Business, Government and Non For Profit Organization*. New York: John Wiley and Sons.
18. Marfuah., & Ulfa, M. (2014). *Pengaruh Intellectual Capital Terhadap Profitabilitas, Produktivitas dan Pertumbuhan Perusahaan Perbankan*. *Jurnal Ekonomi dan Bisnis Islam*, IX(1).
19. Nilsson, J., & Ostrom, T. (2010). *Packaging as a Brand Communication Vehicle*

- (Unpublished Thesis). Lulea University of Technology, Swedia.
20. Ohueri, C. C., Enegbuma, W. I., Wong, N. H., Kuok, K. K., & Kenley, R. (2018). Labour productivity motivation framework for Iskandar Malaysia. *Built Environment Project and Asset Management*, 8(3), 293–304.
 21. Pertiwi, P. (2017). Pengaruh Kompetensi, Independensi dan Profesionalisme Terhadap kualitas Audit. *Jurnal Ekonomi*, 21(3).
 22. Rajashree, D. (2013). Impact of Training on Employee Efficiency: A Comparative Study International. *Journal of Management and Social Sciences Research*, 3(4).
 23. Raquel, S. (2012). The concept of perceived value: a systematic. *Marketing Theory*, 7(4), 427– 451.
 24. Rousilita, S. (2012). Pengaruh Intellectual Capital terhadap Profitabilitas, Produktivitas dan Penilaian Pasar pada Perusahaan yang Go Public di Indonesia pada Tahun 2005-2007 (Unpublished Thesis). Universitas Tarumanagara, Banjarmasin.
 25. Saunila, M. (2014). Intangible aspects of innovation capability in SMEs: Impacts of size and industry. *Journal of Engineering and Technology Management*, 33, 32–46.
 26. Schumpeter, J. (2013). *The Theory of Economic Development. An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*. USA: Harvard U.
 27. Setyawan, A. A. (2012). Pengembangan Knowledge Management di dalam Organisasi Bisnis. *Manajemen Usahawan Indonesia*, 5, 14-20.
 28. Snell, S. A., & Dean, J. W. (1992). Integrated Manufacturing and Human Resource Mangement: A Human Capital Perspective. *Academy of Management Journal*, 35, 467-504.
 29. Sulaeman, A. (2014). Pengaruh Upah dan Pengalaman Kerja terhadap Produktivitas Karyawan Kerajinan Ukiran Kabupaten Subang. *Jurnal Trikonomika*, 13(01), 91-100.
 30. Sutrisno, E. (2009). *Manajemen Sumber Daya Manusia*. Jakarta: Prenada Media Group.
 31. Ulrich, D. (2017). A New Mandate for Human Resources. *Harvard Business Review*, 1(68).
 32. Wijayanti, M. (2014). Produktivitas Kerja Pegawai Negeri Sipil Pada Badan Kepegawaian Daerah (BKD) Kabupaten Indragiri Hulu. *Jom FISIP*, 2.