Journal of Theoretical and Applied Information Technology
31st August 2017. Vol.95. No.16

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

THE STRATEGIC ROLES OF INFORMATION SYSTEM: A CASE OF SMALL MEDIUM ENTERPRISES

[1] WILSON WIYATNO, [2] TOGAR ALAM NAPITUPULU, [3]EDI ABDURACHMAN

[1]Former Student, Master in Information Systems Management, Bina Nusantara University, INDONESIA

[2]Assoc. Prof., Master in Information Systems Management, Bina Nusantara University, INDONESIA

[3]Prof., Master in Information Systems Management, Bina Nusantara University, INDONESIA

E-mail: [1]wilson.wiyatno@gmail.com, [2]tnapitupulu@binus.edu, [3]EdiA@binus.edu

ABSTRACT

Information system is not only a support or tool for enterprise, but it has also plays strategic role, a new weapon to enhance business competitiveness. Development of small medium enterprises in Jakarta, Indonesia is very fast, that it makes intense competition between small medium enterprises. This research aims at finding the impact of information system strategy on business competitiveness among small medium enterprises moderated by technology dependency. Questionnaires are distributed to low to top level management of small medium enterprises in Jakarta. Data are analyzed using Structural Equation Model with Partial Least Square method. The result proves that there are significant effects of information system strategy on business competitiveness of small and medium enterprises. Hence, IS/IT strategy does contribute to enhancing competitiveness of small and medium enterprises. The contribution however varies between 57 to 67 percent from the four Business Balanced Score Card perspectives. It was also found that there are no significance differences between technology dependent enterprise and non-technology dependent enterprise on the impact of IS/IT strategy on competitiveness of the SMEs.

Keywords: *Information System Strategy, Business Competitiveness, Small Medium Enterprises, Technology Dependency, Partial Least Square*

1. INTRODUCTION

In this era, information system has become strategically important and plays strategic role in business. Dimitrios et. al, (2013) states that information system function should not be only seen in its classic role as support or tools for the company, but also be used to play strategic role for exploiting IS-based competitive advantages.

Indonesia, especially in Jakarta, there are substantially large number of Small Medium Enterprises (SMEs). SMEs in Indonesia are growing fast. SMEs in Indonesia give big contribution to creating job employment. These contributions have made SMEs become one of the key sectors in enhancing Indonesian economy. In the period of 2011-2012, SMEs in Indonesia grew as much as 2.41% from total of 55.206.444 units (which composed by of Micro Businesses as much as 54.559.969, Small Businesses as much as 602.195 and Middle Businesses as much as 44.280) to total of 56.534.592 units (which composed by of 55.856.176 Micro Businesses, 629.418 Small Businesses, and 48.997 Middle Businesses) (Cooperative and Small Medium Enterprises Ministry of Indonesia, 2016).

Just like any business, the small medium enterprises need information system strategies in order to enhance their business competitiveness. On the other hand Nicholas Carr (2003) states that IT does not matter anymore strategically. Information technology (IT) is like utility that every enterprise should have, but none of them are more competitive relative to the other because the way they use utility. In other words, utility cannot be used as competitive weapon. Of course, other researchers think otherwise. However, this assertion has not been tested empirically. The small medium enterprises management needs to know if information system strategies have impact in dealing with business competitiveness.

The objectives of this research are identifying the impact of Information System Strategies on Business Competitiveness for the Small Medium Enterprises in Jakarta, measuring the impact of Information System Strategies on Business Competitiveness for the Small Medium Enterprises

Journal of Theoretical and Applied Information Technology
31st August 2017. Vol.95. No.16

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

in Jakarta, and analyzing the Technology Dependency as moderating in studying the impact of Information System Strategies on Business Competitiveness for the Small Medium Enterprises in Jakarta.

It will benefit the small medium enterprises to consider about developing their Information System Strategies in order to deal business competitiveness with their competitors. As the small medium enterprises consist of small enterprises and medium enterprises, the scope or the object of this research is only limited to medium enterprises. The result of this research is only valid for the small medium enterprises in Jakarta, Indonesia. The result is may not be alike in any other region outside Jakarta, Indonesia.

2. LITERATURE REVIEW

2.1 IS/IT Strategy

Historically, IT management has consisted of two distinct components, i.e., application development aligned with infrastructure applications, and IT operations aligned with infrastructure operations. Before exploring this concept further, it is important to a clearly define the term "infrastructure" as it is used in this report. The most common, overarching definition of infrastructure is "all things IT" — including applications, hardware, software and support. In this report, since there are no current terms to define these groupings, we will further subdivide infrastructure into two parts (Mack and Frey, 2002):

- Infrastructure applications, which includes all processes that involve creating, changing or repairing applications that directly define a business process, such as customer relationship management (CRM), general ledger, procurement or database design.
- infrastructure operations, which includes all processes that change, support or maintain desktops, servers, mainframes, networks, operating systems, middleware and databases.

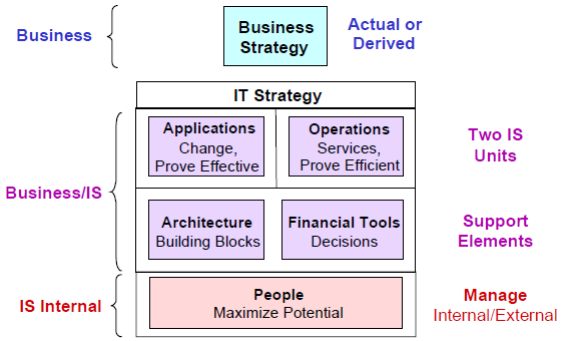

Figure 1: Gartner IT Strategy Model

With an organizing concept for the IT strategy established, we now need a model or framework to discuss its development. Figure 1 depicts the complete model called Gartner IT strategy model, that balances business strategy input, IT strategy support elements and the IT strategies themselves. This model can be used to measure Information System Strategies by creating indicators characterizing the main building blocks of the model. Depicted in this model are the six main building blocks of IT strategy development (Mack and Frey, 2002).

2.2 Business Competitiveness

To measure business competitiveness, one of method is balanced scorecard. The balanced scorecard is a strategic planning and management system used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals.

The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics, collect data and analyze it relative to each of these perspectives:

1. The Financial Perspective
2. The Customer Perspective
3. The Internal Business Perspective
4. The Innovation & Learning Perspective.

2.3 Technology Dependency

The change of environment becomes important factor in business. The biggest factor to change the development of business is technology. Every day, new innovation and technology are found to enhance business process. Utilization of this technology should not be wasted by a company that

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

uses technology advances for the growth of the company. There is a need for time efficiency and resulting cost businesses need to implement the latest technologies. Therefore, companies need to adopt technology to help meet community needs optimally and efficiently, and able to enhance its competitiveness.

Because of these factors, the enterprises in this era consist of two types, which are technology dependent/oriented enterprises and non-technology dependent/oriented enterprises. Technology dependent enterprise is enterprise that uses technology to run all their business process. Without technology, the enterprise cannot run their business. Non-technology dependent enterprise is the opposite, the technology is just a support/tool, the enterprise can run their business with/without technology.

3. THE METHODS

This research objective is to finds the relation between information system strategy and business competitiveness of Small Medium Enterprises in Jakarta. The relation is moderated by Technology Dependency as moderating variable. The problem of the research can be formulated into a conceptual model or theoretical framework in the following figure.

Figure 2: Research Framework

The model depicted in Figure 2 is further formulated in terms of the following four mathematical regression equations:

$$Y_1=\beta_{10}+\beta_{11}X_1+\beta_{12}X_2+\beta_{13}X_3+\beta_{14}X_4+\beta_{15}X_5+\beta_{16}X_6+\varepsilon_1 \ldots \ldots\ldots\ldots (1)$$

$$Y_2=\beta_{20}+\beta_{21}X_1+\beta_{22}X_2+\beta_{23}X_3+\beta_{24}X_4+\beta_{25}X_5+\beta_{26}X_6+\varepsilon_2 \ldots \ldots\ldots\ldots (2)$$

$$Y_3=\beta_{30}+\beta_{31}X_1+\beta_{32}X_2+\beta_{33}X_3+\beta_{34}X_4+\beta_{35}X_5+\beta_{36}X_6+\varepsilon_3 \ldots \ldots\ldots\ldots (3)$$

$$Y_6=\beta_{40}+\beta_{41}X_1+\beta_{42}X_2+\beta_{43}X_3+\beta_{44}X_4+\beta_{45}X_5+\beta_{46}X_6+\varepsilon_4 \ldots \ldots\ldots\ldots (4)$$

Where, Y_1, Y_2, Y_3, Y_4 are the four perspectives of the Business Balanced Score Cards as measurement of competitiveness, i.e.,

Y_1 = financial perspective,

Y_2 = customer perspective,

Y_3 = internal business perspective,

Y_4 = innovation and learning perspective.

Independent variables X_1, X_2, X_3, X_4, X_5, X_6 are the six aspects of information system strategy, i.e.,

X_1 = business strategy alignment aspect,

X_2 = application related aspect,

X_3 = operations related aspect,

X_4 = architecture related aspect,

X_5 = financial tools related aspect,

X_6 = people related aspect.

Parameters β_{ij}s are the coefficient of the regressions corresponding to equation i and independent variable j, to be estimated and ε_i are the error term corresponding to equation i.

The research question or the hypothesis as to whether implementation of IS/IT strategy in small and medium scale enterprises has an impact on business competitiveness (or to answer whether IT does matter or not) will be answered using the figure that explain the contribution of the model (equations 1 through 4) in explaining the variation in Y_i, (the dependent variables), or the *R-square* statistics. Hence the "matter-ness" will be answer in terms of degree of matter-ness. Also, this degree of matter-ness will be answered from the four perspectives of the Business Balanced Score Card.

Furthermore, this degree of matter-ness will be looked at from the various aspects of IS/IT strategies. For example we will be able to answer question such as which of the six aspects of the IS/IT strategy that significantly affects the competitiveness of the small and medium scale enterprises. This will be answered by looking at the *p-value* corresponding to the particular coefficient of regression, β_{ij} – the i^{th} perspective of the competitiveness – and the j^{th} aspect of the IS/IT strategy. In this research we will use significant level α = 5%. Hence, the rule is that if *p-value* is

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

less than α for a particular β_{ij} then we conclude that the corresponding aspect of the IS/IT strategy is significantly affecting the business competitiveness, or the the variable is a relevant aspect to be considered in improving or maintaining competitiveness of the business.

The variables in model above are unobservable variables or latent variables, which will then they can be measured by creating three indicators/statements or operational variables to represent them. The operationalization of these variables then is given measurement scale using Likert Scale from 1 to 5 for each operational variable.

Data will be collected using questionnaires distributed to the sample of this research population. Questionnaire is one of best media to collect data because there are questions and respondent can answer with scale (Sugiyono, 2013). The population of this research is all Small Medium Enterprises in Indonesia, Jakarta that implement IT as a strategy in their business. Medium enterprises are selected because of their capability in using IT as strategy rather than small enterprises. A manager/executive of those small medium enterprises will be questioned using questionnaire. Only a person is chosen from a small medium enterprise because the result of the answer from a person will be same with the others.

In this research, questionnaire is given to respondent with some ways: sending email to respondent, giving directly to respondent, interviewing via telephone with respondent, and making online questionnaire and give the link to respondent. From the calculation of sample that should represent the population, sample size used in this research is 150.

Analysis method used is Structural Equation Model with four equations representing the structure as given above. The statistical estimation technique used is Partial Least Square (PLS) using the software SmartPLS. Partial Least Square, a form of structural equation modeling (SEM), can provide much value for causal inquiry in communication-related and behavioral research fields (Gaskin, 2014). PLS-SEM (also called PLS path modeling) is primarily used to develop theories in exploratory research. It does this by focusing on explaining the variance in the dependent variables when examining the model.

4. RESULTS AND DISCUSSION

One hundred and eighty research questionnaires were distributed to various Small Medium Enterprises in Jakarta. 141 people fill and send back the questionnaire. After cleansing the questionnaire, 15 questionnaires are found not filled completely. Then, number of data used in this research is 126 records. Respondents in this research are Top Level Management/Executives and Middle Level Management/Managers. If they cannot fill the questionnaire, their staff can replace them to fill the questionnaire.

Composite reliability for each indicator to the targeted variable is indicated by outer loading. The indicators are valid if the value of outer loadings are greater than 0.7 (Joseph Hair, 2014). Validity test shows that the value of outer loadings for indicators of each variable in financial perspective model and the others are greater than 0.7. It means that these indicators are valid to measure their variables.

Internal consistency reliability is measured by value of composite reliability and average variance extracted. Variables are reliable if the value of composite of reliability is greater than 0.7 and value of average variance extracted is greater than 0.5 (Joseph Hair, 2014). Reliability test shows that the composite reliability values of each variable in financial perspective and the othes model are greater than 0.7. Values of average variance extracted are also greater than 0.5. It means that these variables are reliable.

To answer the first research question, to check whether there is a positive impact between information system strategy (IS/IT strategy) on the business competitiveness, is measured by looking at the *R-square* or the coefficient of determination value for each Balanced Score Card (BSC) perspective which also measure the goodness of regression**.** Coefficients of determination are the values that explain the percent variation in the BSC perpespectives (the dependent variables) by the model, meaning the incorporation of the IS/IT aspects in the models. The result or the *R-Square* are shown in following table (Table 1):

Table 1: R Square value

Model/Equation	R Square
Financial Perspective	0.629263
Customer Perspective	0.605685
Internal Business Perspective	0.670155
Innovation & Learning	0.578917

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

From the table, it can be seen that information system strategy can explain 62.92 % variation ini the competitiveness of the small and medium enterprices from financial perspective. Similarly, 60.56% of the variation in the SMS's competitiveness is explained by IS/IT strategy from customer perspective. As for competitiveness from internal business perspective is explained by 67.01%; and finally, the impact of IS/IT strgegy on competitiveness from innovation & learning perspective is explained by 57.89%. It can be then concluded that IS/IT indeed does matter and have effect on competitiveness with the respective degree of contribution accordingly.

The next question is which one out of six aspects or building blocks of IS/IT strategy has an impact on the competitiveness of the SME's business, each and for every perspective of the Balanced Score Card, that is, financial, customer, internal business, and, innovation and learning perspectives. This can be done by comparing the *p-values* of each parameter βs of the regression equation relating the independent variable on dependent variable. If the *p-values* is less than 0.05 significance level, it means that the relation is significance between the independent variable and dependent variable (Joseph Hair, 2014). The result is shown in following Table 2.

Table 2: p-values of Financial Perspective Model

Variables	Financial Perspective P - Values
Application	0.0000000
Architecture	0.0001200
Business Strategy	0.0000014
Financial Tool	0.0000018
Operation	0.0000952
People	0.0000526

P-values of each variable in financial perspective model is less than 0.05 significance level; it means there is a significant impact between all building blocks or aspects of information system strategy on business competitiveness looking from financial perspective.

Table 3: p-values of Customer Perspective Model

Variables	CustomerPerspective P - Values
Application	0.00000005
Architecture	0.00002456
Business Strategy	0.00094175
Financial Tool	0.00002154
Operation	0.00007237
People	0.00005032

From customer perspective, since *p-values* of each variable in model is less than 0.05 significance level; it means there is a significance impact of information system strategy in all aspects or building blocks on business competitiveness (see Table 3).

Table 4: p-values of Internal Business Perspective Model

Variables	Internal Business Perspective P - Values
Application	0.00000001
Architecture	0.00000373
Business Strategy	0.00000091
Financial Tool	0.00000457
Operation	0.00000002
People	0.00008004

Since all *p-values* of variables in the internal business perspective model are less than 0.05 significance level, it means there all aspects of IS/IT strategy are having significant impact on business competitiveness (Table 4).

Table 5: P-values of innovation & learning perspective model

Variables	Innovation & Learning Perspective P - Values
Application	0.0000007
Architecture	0.0000522
Business Strategy	0.0000000
Financial Tool	0.0271862
Operation	0.0000152
People	0.0000000

P-values of each variable in innovation & learning perspective model is less than 0.05 significance level, it means there is a significance impact of information system strategy on business competitiveness from all aspects or building blocks of IS/IT strategy from innovation & learning perspective (Table 5).

With the P – values analysis, all null hypotheses are rejected. It means there are impacts of all aspects or building blocks of information system strategy on business competitiveness for all perspectives of BSC.

To answer the third research question, to measure the value of each independent variable, and compare the impact of each independent variable on dependent variable, path coefficient is used. If

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

path coefficient is greater than 0, it means the impact is positive between information system strategy and business competitiveness (Joseph Hair, 2014).

Table 6: Path Coefficient of Financial Perspective Model

Variables	β-Parameter, Financial Perspective
Application	0.346602
Financial Tool	0.267174
Business Strategy	0.262506
People	0.251056
Architecture	0.242809
Operation	0.214222

For the financial perspective model, the path coefficient values of each variable are greater than 0, it means there is positive impact between information system strategy and business competitiveness. The largest impact is from variable application, and the smallest impact is from variable operation. The values in the table are sorted from largest to smallest (Table 6). Financial Tool aspect follows after Application sounds appropriate since this is from financial perspective, even though we would expect this would come first.

Table 7: Path Coefficient of Customer Perspective Model

Variables	β-Parameter, Customer Perspective
Application	0.333572
Financial Tool	0.277805
People	0.256646
Architecture	0.248623
Operation	0.233908
Business Strategy	0.197179

For the customer perspective model, the path coefficient values of each variable are greater than 0, it means there is positive impact between information system strategy and business competitiveness. The largest impact is also from variable application, and the smallest impact is from variable business strategy. The values in the table are sorted from largest to smallest (Table 7). Application aspect comes first from customer perspective also in line to the role application which is mostly to ease the ensuring customer satisfaction, hence improving competitiveness.

Table 8: Path Coefficient of Internal Business Perspective Model

Variables	β-Parameter, Internal Business
Application	0.351552
Operation	0.310809
Business Strategy	0.269928
Architecture	0.258977
Financial Tool	0.219128
People	0.216657

For the internal business perspective model, the path coefficient values of each variable are greater than 0, it means there is positive impact between information system strategy and business competitiveness. The largest impact is from variable application, and the smallest impact is from variable people. The values in the table are sorted from largest to smallest. Operation aspect comes second after application is in line with the important contribution of smoothness of operation on internal process and satisfaction of the internal stakeholders for the competitiveness of the business.

Table 9: Path coefficient of innovation & learning perspective model

Variables	β-Parameter, Innovation & Learning Perspective
People	0.333781
Business Strategy	0.286522
Application	0.275515
Operation	0.233474
Architecture	0.231309
Financial Tool	0.124498

For the innovation & learning perspective model, the path coefficient values of each variable are greater than 0, it means there is positive impact between information system strategy and business competitiveness. The largest impact is from variable people, and the smallest impact is from variable financial tool. The values in the table are sorted from largest to smallest. Again, People aspect of IS/IT strategy comes first follows by alignment with Business Strategy aspect, are both in line with the intended role of IS/IT strategy to support innovation perspective of competitiveness.

To answer the third research question, to check whether there is significance difference between technology dependency and non-technology

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

dependency of the SMEs on the impact of information system strategy on the business competitiveness, it is measured with technology dependency as a moderating variable. After being ran by Smart-PLS the *p–value* of technology dependency are generated. If *p–value* of moderating effect between information system strategy and business competitiveness are less than 0.05 significance level, it means there is a moderating effect by technology dependency (Joseph Hair, 2014).

Table 10: Moderating Effect of Financial Perspective

Variables	Financial Perspective *P-Values*
TD to Application	0.32039
TD to Architecture	0.33316
TD to Business	0.46330
TD to Financial Tool	0.08468
TD to Operation	0.17520
TD to People	0.14089

From the financial perspective model, it can be seen that the values of all *p–values* are greater than 0.05, it means there are no significance difference between technology dependent enterprise and non-technology dependent enterprise (Table 10).

Table 11: Moderating effect of customer perspective

Variables	Customer Perspective p - *Values*
TD to Application	0.32450
TD to Architecture	0.42239
TD to Business	0.41961
TD to Financial Tool	0.31413
TD to Operation	0.43361
TD to People	0.38431

From the customer perspective model, it can be seen that the values of all *p–values* are greater than 0.05, it means there are no significance difference between technology dependent enterprise and non-technology dependent enterprise (Table 11).

Table 12: Moderating Effect of Internal Business Perspective

Variables	Internal Business Perspective
TD to Application	0.27174
TD to Architecture	0.47062
TD to Business	0.30793
TD to Financial Tool	0.36441
TD to Operation	0.32207
TD to People	0.33098

From the internal business perspective model, it can be seen that the values of all *p–values* are greater than 0.05, it means there are no significance difference between technology dependent enterprise and non-technology dependent enterprise (Table 12).

Table 13: Moderating Effect of Innovation & Learning Perspective

Variables	Innovation & Learning Perspective
TD to Application	0.35279
TD to Architecture	0.42544
TD to Business	0.41853
TD to Financial Tool	0.26168
TD to Operation	0.41642
TD to People	0.48101

From the innovation and learning perspective model, it can be seen that the values of all *p–values* are greater than 0.05, it means there are no significance difference between technology dependent enterprise and non-technology dependent enterprise (Table 13).

5. CONCLUSION

From the research result, this research finds the linear relation between information system strategy and business competitiveness and effect of technology dependency as moderating variable. Information system strategy is measured by Mack and Frey framework: six building Blocks for creating real IT strategies. It consists of 6 components: business strategy, application, operation, architecture, financial tool, and people. Business competitiveness is measured balance with Kaplan and Norton's balanced scorecard. There are 4 perspectives which are: financial, customer, internal business, and innovation & learning.

After analyzing data with Structural Equation Model: Partial Least Square method, these are some summary:

- All indicators/questions that measure variables are valid and reliable, it means these indicators can be used to measure variable value properly. It is indicated by value of outer loading/loading factor and average variance extracted.
- *P–values* are greater than significance level of 0.05, 24 null hypotheses are rejected; it

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

means there are impact between information system strategy and business competitiveness.

- Path coefficient of each regression model is greater than zero, it means there are positive impact between each aspect or building blocks of information system strategy on business competitiveness.

- Technology dependency as moderating variable does not have significance difference in affecting the impact of IS/IT strategy on competitiveness of the SMEs businesses, it means for the small medium enterprises, there are not impacted on business competitiveness whether they are technology dependent enterprise or non-technology dependent enterprise.

REFRENCES:

[1] Arslan, N. and Tathdil, H. (2012). Defining and Measuring Competitiveness: A Comparative Analysis of Turkey with 11 Potential Rivals. International Journal of Basic & Applied Sciences, XII(2).

[2] Asemi, et al. (2011). The Role of Management Information System (MIS) and Decision Support System (DSS) for Manager's Decision Making Process. International Journal of Business and Management, VI(7).

[3] Baltzan, P. & Phillips, A. (2010). Business Driven Technology, 4th. Boston: McGraw-Hill Irwin.

[4] Benjamin, P., Lowry, & Gaskin, J. (2014). Partial Least Squares (PLS) Structural Equation Modeling (SEM) for Building and Testing Behavioral Causal Theory: When to Choose It and How to Use It. IEEE Transaction on Professional Communication, LVII.

[5] Carr, N. G. (2003). IT Doesn't Matter. Cambridge: Harvard Business Review.

[6] Cooperative and Small Medium Enterprises Ministry of Indonesia. (2013). Perkembangan Data Usaha Mikro, Kecil, Menengah (Umkm) Dan Usaha Besar (Ub) Tahun 2011 – 2012, [Electronic version]. Available: http://www.depkop.go.id/berita- informasi/data informasi/dataumkm/?eID=tx_rtgfiles_download&tx_rtgfile s_pi1%5Buid%5D=9 [2016, June 15].

[7] Dimitrios, N. K., Sakas, D. P., & Vlachos, D. S. (2013). The role of Information System in Creating Strategic Leadership Model. Procedia – Social and Behavioral Sciences, LXXIII.

[8] Fink, D. (2010). Information Systems Success in Small and Medium Enterprises: An Evaluation by Australian Public Accountants. Australasian Journal of Information System, IV(1).

[9] Gaskin, J. (2015). "Interaction Moderation", Gaskination's Statistics. http://youtube.com/Gaskination [2016, August 2]

[10] Gaskin, J. (2016). "Partial Least Square", Gaskination's StatWiki. http://statwiki.kolobkreations.com [2016, August 1].

[11] Haque, I., (1995), "Technology and Competitiveness" Chapter 2 in Trade, Technology and International Competitiveness, the World Bank.

[12] Indonesia Country Presentation. (2013). SMEs Development in Indonesia. Ankara: Indonesia Country Presentation.

[13] Kaplan, R. S. and Norton, D. P. (1992). The Balanced Scorecard – Measures that Drive Performance. Cambridge: Harvard Business Review.

[14] Laudon, K. C., and Laudon, J. P. (2005) Management Information Systems: Managing the Digital Firm. Available: http://www.inc.com/encyclopedia/managemen t-information-systems-mis.html [2016, June15].

[15] Mack, R. and Frey, N. (2002). Six Building Blocks for Creating Real IT Strategies. Stamford: Gartner Research.

[16] Nazari, M. Z. & Nazari, H. R. (2013). Management Information Systems and Business. International Journal of Information Science and System, II(1), 1-8.

[17] Nowduri, S. (2014). Management Information Systems Research for Small and Medium Enterprises: A Sustainability Perspective. International Journal of Software Engineering and Its Applications, VIII(8).

[18] O'Brien, J. A. & Marakas, G. M. (2011). Management Information Systems,10th Edition. New York: McGraw-Hill.

[19] Portougal, V. & Janczewski, L. An information system for operations management: Co-ordination and integration. Industrial Management + Data Systems: XCVIII(8), 356-361.

[20] Quan, J., Hu, Q., & Wang, X. (2005). IT is not for everyone in China. Communication of the ACM, XLVIII(4), 69-72.

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

[21] Sari, T. (2011). Pemanfaatan Teknologi Informasi Dan Pengaruhnya Terhadap Kinerja UKM (Usaha Kecil Menengah). Surabaya: Fakultas Ekonomi, Sekolah Tinggi Ilmu Ekonomi Perbanas.

[22] Sekaran, U. & Bougie, R. (2010). Research Methods for Business: A SkillBuilding Approach. United Kingdom: John Wiley & Sons Ltd.

[23] Sugiyono. (2013). Metode Penelitian Kuantitatif Kualitatif dan R & D. Bandung : Alfabeta.

[24] Zafar, A., et al. (2015). Role of Information Systems in KSA Small and Medium Enterprises (SMEs). International Journal of Advanced Research in Computer and Communication Engineering, IV(5).