

The Impact of Core Competencies of IT Professionals on Business Success in Malaysia

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Abstract

The purpose of this research is to examine the impact of core competencies (Business Knowledge, Market Awareness, Leadership and Entrepreneurship) of IT professionals on business success. The research includes review of key concepts, theories and existing empirical research to outline key competencies that creates impact to business success. This research adopts positivism paradigm with deductive approach using explanatory research design. The research also adopted non-probability sampling focusing IT middle management in Malaysia group from multiple sectors with a sample size of 147 to examine the impact of defined competency on business success. The research findings outline Business Knowledge and Market Awareness as the most appropriate and have significant core competencies for IT professional to achieve business success. Overall research with the support of literature study, existing published empirical research using underlining theories and data analysis of the research evidently prove Business Knowledge and Market Awareness competency should be focused in the Malaysian IT context. Conversely Leadership and Entrepreneurship competency derives low significant impact against business success whereby researcher has justified the cultural and racial differences are one of the reasons of the negative correlation using relevant studies in Malaysian context. Researcher also suggested Leadership and Entrepreneurship requires awareness in Malaysia to address the globalization in future. This research

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finding contributes Malaysian organization to address the gaps and fuel up IT department competency model to increase IT productivity which relatively increases overall business productivity to promptly address aggressive business competition.

Keywords: IT, IT professional, Competency, Business Success.

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Introduction

Research Background

Over the years, the emergence of competencies studies has switched the researchers to focus on the relationship between competencies and business success or namely organisation performance from various perspectives by introducing solid theories to ensure it creates feasible values to the organization. The mentioned theories includes Wernerfelt (1984) Resource-based View Theory outlined building organisational resource's capabilities, Makridakis (1996) Core Competency Theory describes building core differentiator over the business competition; Teece, et al. (1997) Dynamic Capability View Theory is about building dynamic capabilities to endure relevance over the changing demand and environment and Mastrangelo, et al. (2004) Enduring Leadership theory defines personal and professional leadership.

Although all the above discussed theories has empirically tested and proven to generate substantial benefits by several researchers in multiple context including IT (Petts, 1997; Bharadwaj, 2000; Zahra, et al., 2006; Gonza'lvarez-Gallego, et al., 2010; Liang, et.al, 2010; Pérez-López & Alegre, 2012; Lidija & Lahonik, 2016; Baczynska, et al., 2016) yet it does only describe from one single point of dimension which is inadequate to address the current aggressively competitive business market nature.

The aim of the research is to examine core competencies of IT Professional to support core business success.

Research Objectives

- I. To examine the impact of *Business Knowledge Competencies* on Business Success
- II. To examine the impact of *Market Awareness Competencies* on Business Success
- III. To examine the impact of *Leadership Competencies* on business success
- IV. To examine the impact of *Entrepreneurship Competencies* on business success

Research Questions

- I. What is the impact of *Business Knowledge Competencies* on business success?
- II. What is the impact of *Market Awareness Competencies* on business success?
- III. What is the impact of *Leadership Competencies* on business success?
- IV. What is the impact of *Entrepreneurship Competencies* on business success?

Literature Review

Definition of Key Concepts

Table 1: Definitions of Key Concepts

Authors	Concept	Summary of Definition
Boyatzis (2008)	Competency	Competency is a fundamental feature of an individual capability which associates with performance.
Gruban (2003)	Competency	Ability to use knowledge and other competences, essential for successful and efficient achievement of a planned task, operation, goal recognition, or performance of a role in the business process.
Draganidis & Mentzas (2006)	Competency	Competency is a blend of tacit and explicit knowledge, performance and skills that produces potentials for effectiveness in task performance.
Bassellier & Benbasat (2004)	Business Knowledge	Business knowledge is a capability of recognizing business objectives, goals, core competencies and understanding on factors that determines business success.
Petts (1997)	Market Awareness	Understanding on organization's perceived position and knowledge on the overview of the competitor's key strength and weakness in the market place.
Schumpeter (1949)	Entrepreneurship	Innovator that drives the competitive advantage of human capability over out-performing rivals, pro-activeness, risk taker, new market creator, new product creator embedding creative actions
Mastrangelo et al. (2004); Mastrangelo et al. (2014)	Leadership	Personal leadership described as personal attributes that includes expertise, trust, caring, sharing, & ethics. Professional leadership describes formal leadership attributes that sets direction, creates vision and mission, coordinating processes and procedures, people and infrastructure.

Marrelli (1998); Khan & Ramachandran (2012)	Competence & Business Success	Competencies are measurable human capabilities that are required for effective work and organization performance.
Hersh (2015)	Business Success	Business success is defined as an organization that addresses customer requirement, achieve expected financial return, expected performance and dynamically adapts to changing environment.

Review of Conceptual Framework and Hypothesis

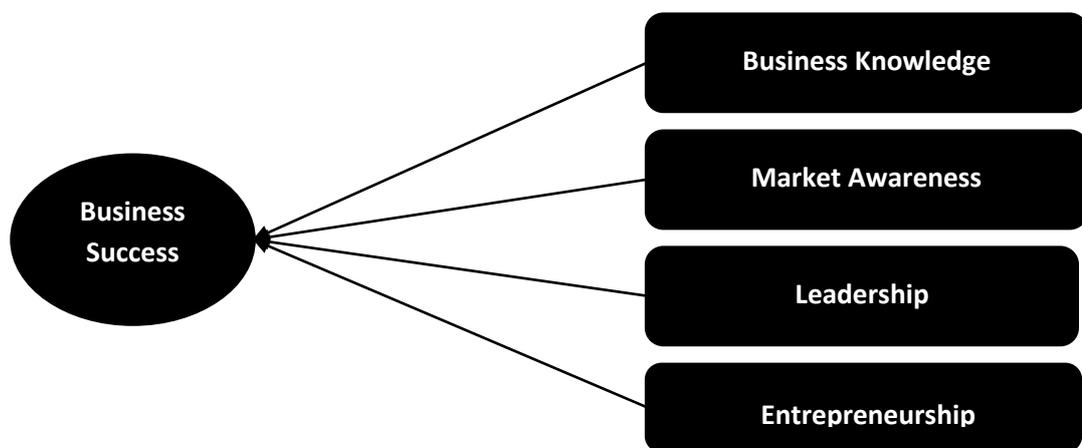


Figure 1: Conceptual Framework of Competencies that impacts Business Success

As per the detailed relevant theoretical and theoretically adopted empirical research review, researcher has abstracted the most appropriate independent variables namely Business Knowledge, Market Awareness, Leadership and Entrepreneurship that impacts the dependent variable namely Business Success. The abstracted independent variable will be further justified in the formulation of hypotheses which directly proves the face validity and theoretically support the research topic.

Formulation of Hypotheses

Business acumen should not be undervalued and it is a key competency in order to achieve business success (Petts 1997; Bharadwaj, 2000; Schelfhout, et al., 2016). Business acumen is a capability of recognizing and understanding the business nature and sector the organization ventured in (Pérez-López & Alegre, 2012). Added Pérez-López & Alegre (2012) that organizational knowledge is critical success factor to achieve organizational effectiveness and competitiveness (Gold, et al., 2001). Embedding business acumen into IT professionals who are well competent with technical IT competency enable to foster and translate business demand into relevant and valuable IT solutions be it internally for the organization or end client externally Pérez-López & Alegre (2012). IT professionals able to recognize the level of promptness of the organization required with good understanding of the business to face the market

competitiveness by continuously improving IT knowledge, IT infrastructure and IT operations capabilities in order to support overall business competitiveness in the volatile market condition (Bharadwaj, 2000; Zahra, et al., 2006; Pérez-López & Alegre, 2012). According to Sonteya & Seymour (2012) that organizational knowledge also emphasizes on the business performance in terms of understanding of financial positions and the risk factor that the organization currently or foreseen to face. Researcher conducted by Bassellier & Benbasat (2004), and Pérez-López & Alegre (2012) highlighted business financial position versus business performance understanding helps IT professional to priorities the right digitalization to adopt to address business condition so that business able to balance IT investment and other business investment to attain business success (Bharadwaj,2000). To achieve that, Antonucci (2010) recommended employees required to be aligned with latest business vision, mission and strategy in order to translate to relevant departmental delivery. Pérez-López & Alegre (2012) mentioned that IT professional with sufficient understanding of business able to cultivate innovations in delivery of differentiating solutions which relatively enhances business performance (Egbu, et al., 2005; Chatzoudes, et al., 2015) Based upon these discussion, this research study hypothesizes that;

H₁: *Business acumen has a significant impact on Business Success.*

Market awareness is key competence to achieve business success (Liang, et al., 2010). Petts (1997) communicates that Pro-activeness in obtaining market direction enables wider view on customer demand which provides foresight and readiness to adapt new market requirement (Petts, 1997). Added Nath et al. (2010) that market awareness highlights the brand recognition position in the market to enable company's ability to achieve superior position and business success. Moreover, market awareness activates market responsiveness by having full awareness of competitor's strength, weakness (Benzing, et al., 2009) and the dynamic of competition trends (Liang, et al., 2010; Kozlenkova, Samaha, & Palmatier, 2014). Wade & Hulland, (2004) described that market awareness competency enable an organization to adjust the capacity of the organization based on the volatily changing of IT technology. Furthermore, research by Hulland, et al. (2007) supported that without the market knowledge and awareness, IT organization may not produce valuable solution to the business that generates revenues. Breznik & Lahovnik,(2016) further explains that, marketing awareness provide IT team to produce or adapt to the right technology that able to meet customer demand promptly and also able to predict the future market expectation and strategies (Benzing, et al.,2009). Irrelevant IT investment is proven to lead to invaluable business solution which does not produce expected return on investment and may tarnish the brand reputation of the organization in producing irrelevant product or poor services delivery which loses market share in the market competition (Lioukas, et al., 2016; Bharadwaj, 2000). Finally, marketing awareness may offer potential area for the business to build competitiveness and kept sustainable to survive in the aggressive market condition to achieve sustainable business success (O'Cass & Sok, 2013; Chin, Lo, & Ramayah, 2013; Kozlenkova, Samaha, & Palmatier, 2014). Based upon these discussions, this research study hypothesizes that:

H₂: *Market Awareness Competency has a significant impact on Business Success*

Leadership is a key competency that is foundational skill required by all level of employees to be leading organization to achieve business success (Mastrangelo, et al., 2004; Campion, et al., 2011; Mastrangelo, et al., 2014). Lack of leadership competencies impacts organizational performance and competitiveness which dues to poor direction and motivation to work towards shared common purpose (Barnard, 1968; Mare Teichmann, et al., 2013) and alignment internally within IT and Business (Mastrangelo, et al., 2014; Morden, 1997; Breznik & Lahovnik, 2016). According to Burns (1978), leadership enables extensive influence over followers which activates collaboration and team work internally and externally through clear direction to achieve organization's success criteria (House & Dessler, 1974; Peters & Austin, 1985; Kotter & Heskett, 1992). Further supported by McGregor (1960) that organization success is achieved by leaders by creating win-win situation for all stakeholders despite any changes in a positive environment (Densten, 2012). Densten (2012) further elaborates that leadership competency creates an ability to nurture and initiate development opportunities to others (e.g. knowledge sharing) at any level of organization hierarchy. Leadership also highlight the great importance of communication and engaging stakeholders (Likert, 1961) with positive influencing and persuasion (Trevino, et al., 2000) by providing clear direction and openly shares concerns and ideas (Katz & Kahn, 1966). According to Breznik & Lahovnik (2016) leadership emphasizes to harmonize the technological (technical) and management, marketing, innovation (non-technical) competency in order to achieve business success. On Salleh & Sulaiman (2013) perspective, in Malaysian context of culture and heritage tradition, leadership is perceived which ways of thinking had strong influence from elder person which best described as the followers are educated to not question or raise concern on the decision taken by a leader by just following the given instructions. This situation may create a barrier for an organization as a whole to practice leadership which is one of the challenges for Malaysian organizations in practicing leadership in achieving business success (Salleh & Sulaiman. 2013)). Salleh & Sulaiman (2013) also added the upcoming leaders in Malaysia are seen to take baby step to change the tradition paradigm into more casual and engaging by embedding personal and professional leadership at all level of organization as described by Mastrangelo, et al. (2014). Based upon this discussion, this research study hypothesizes that;

H₃: Leadership Competency has a significant impact on Business Success

Entrepreneurship competencies have high degree of relationship on business success by identifying new opportunities, innovative problem solving, continuous improvement and risk takers and ability to handle uncertainty business environment (Zahra et al., 2006; Gibb, et al., 2013; Baczynska, et al., 2016). There are numbers of empirical research proved that there is a significant correlation between entrepreneurial competency and business success (Karami, et al., 2006; Coy, et al., 2007; Eggers, et al., 2013; Mohamad Radzi, et al., 2017). According to Jasra, et al. (2011), entrepreneurial nature has the capability to recognize the potential opportunities/ return on investment (ROI) and transform those desires into feasible business activity towards business success. Entrepreneurial competency also willingly to take calculated risk to support creativity and innovations and demonstrate efforts to be outstanding among competitors despite uncertainty situation (Karami, et al., 2006; Coy, et al., 2007; Peris Bonet, et al., 2011; Eggers, et al., 2013). According to Ariff & Abubakar (2003) in Malaysian context the Entrepreneurship mind-set has been divided along racial historical background which is

due to the emergence of race focusing only specific economic activity. Historically there is tradition where Malays the majority of the population race in Malaysia focuses on agriculture, Chinese race the second largest population focuses on trading, entrepreneurship and Indian race focuses on plantations Ariff & Abubakar (2003). This historical racial practices and economic tradition situation might leads to an undistributed understanding and acceptability of entrepreneurship concept over the generalization. However, Ariff & Abubakar (2003) and Mohamad Radzi, et al. (2017) do highlight over the social restructuring, modernization, migration the social differences on entrepreneurship beginning to change and will take some times to take effect to have acceptability across all races. Based upon this discussion, this research study hypothesizes that;

H₄: *Entrepreneurship Competency has a significant impact on Business Success*

Research Methodology

Population & Sample Size

The research targets Malaysian based private multinational companies which include Consultancy, Oil & Gas, FMCG (Fast Moving Consumer Goods) and Information & Communication Technology (ICT) industries. A total of consolidated population of 1000 middle management employees approximately are working in the selected industry. The research applies Sampling Error Formula of 95% confidence interval with 5% sampling error to define the fair sample size (Creswell, 2011). Based on Fowler's, (2009) Confidence Ranges on Sampling size highlighted by Creswell (2011) and Krejcie & Morgan (1970) the appropriate percentage of sample size out of the overall middle management population size of 1,000 will be 200 (20%) approximately. To achieve the calculated sample size a ratio was applied in each of the company's population to achieve the expected sample size (Saunders, et al., 2007). Research also collected data from various industries and selected an industry who works with multiple industry to achieve better generalization (Saunders, et al., 2007; Creswell, 2011). Researchers also balance out of the data collection from well matured managers and young managers to capture the two-different managing style and insight on the competencies.

Data Collection Method

Researcher adopts questionnaire/survey technique to collect quantitative primary data (Grafton et al., 2011; John D., 2016) which is time efficient to gather data in quick turnaround and cost effective (Suphat S., 2016). To correlates the research philosophy, Quantitative research is embedded to target precisely the research questions, examine the hypotheses with the identified independent variables to obtain measurable and quantifiable data (Creswell, 2011). Quantitative research also allows the research to get broader evaluation of targeting larger population to test the hypotheses and provide statistical results which is generalized and precise to understand the relationship between the variables within shorter timeline and cost (Suphat S., 2016). Added Marley (2016) the larger the sample size the greater the data accuracy with less biases, uncertainty and provide strong justification for the examining hypotheses.

Survey was administered through printed survey. Researcher also ensured the form is easily responded by adopting simplistic nature which takes less than 5-10 minutes in average to respond to the given questionnaire. Researcher has chosen survey/questionnaire method to collect data from large population, with minimal cost and easily been converted to quantitative form to perform numerical analytics to draw factual insights. Both online and paper based survey includes proper introduction of the research topic which provides basis understanding of the topic, action required from participants and the standpoint of participants in responding to the questionnaire (Fink, 2003; Bell, 2005). Researcher also invited participants to participate through online invitation, face to face conversation and town hall presentation to ensure the survey collects valid and accurate data on the IT professionalism in Malaysian context from well experienced participants. Researcher also selected few companies from various industries to obtain all-rounder view to examine the hypotheses and concept which will be more generalized and feasible to apply in multiple industries (Saunders, et al., 2007). As overall, researcher has gained good responds rate by achieving 147 responds out of 200 targeted populations.

Data Analysis Plan

To assist the analytics process, researcher has adopted SPSS (Statistical Package for

Social Science) version 21 tool to analyse the quantitative data to produce factual insights using scientifically proven mathematical algorithm embedded in the SPSS tool (Field, 2009; Arkkelin, 2014). SPSS Amos tool also used to test fitness of the model using confirmatory factor analysis to better understand the variables and their relationships each other (Field, 2009).

Result Analysis & Findings

Reliability

Researcher has used SPSS tool to generate the reliability results using Cronbach's alpha model which is commonly used by many researchers to measure the reliability of a variable based on the collected data (Rosenthal & Rosnow, 1991; Tavakol & Dennick, 2011). According to Hair, et al. (2010) the accepted Cronbach's alpha coefficient should achieve at least 0.7 and above to represent best fit of internal reliability. There is two level of reliability test conducted which includes combination all the data collected for both independent and dependent variable and followed by reliability test by variable.

Table 2: Reliability Analysis SPSS Result

Type of Variables		Number of Items	Cronbach's Alpha
All Variables	All Variables	18	0.960
Dependent Variable	Business Success	3	0.851
Independent Variable	Business Knowledge	4	0.916
	Market Awareness	4	0.912
	Leadership	4	0.949
	Entrepreneurship	3	0.939

Confirmatory Factor Analysis

Measurement model validity

Initial Result

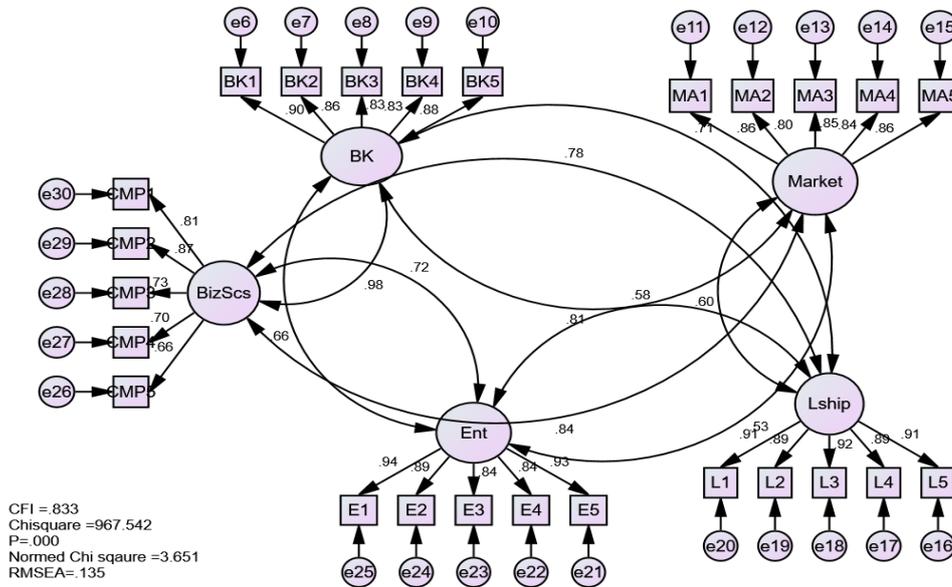


Figure 2: SPSS AMOS initial Result

Improvised Result

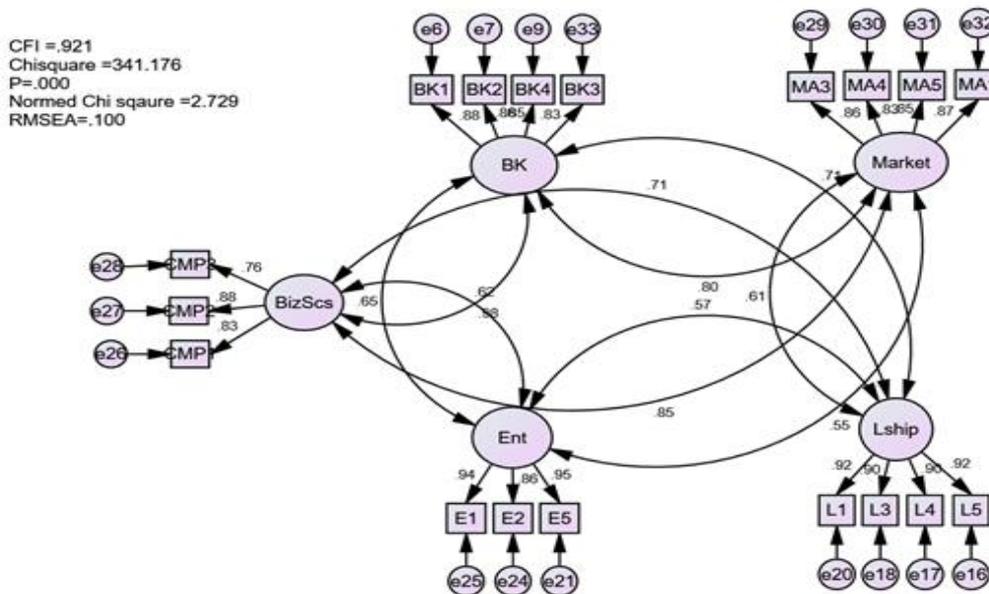


Figure 3: SPSS AMOS Improvised Result

The diagram above is the Confirmatory Factor Analysis (CFA) Model validity generated using SPSS AMOS tool. Based on the initial CFA model development, the chi square of the model is 967.542 with a degree of freedom of 265 with an associated p-value of 0.000 which produces slightly weak model with a Comparative Fit Index (CFI) of 0.833 and Root Mean Square of Approximation (RMSEA) of 0.135. Hair, et al. (2010) elaborates the acceptable threshold for Comparative Fit index (CFI) is 0.90 and above. As for the Root Mean Square of Approximation (RMSEA) the suggested model fit suggested by Hair, et al. (2010) was 0.08 and below, however Schermelleh-Engel et al.(2003) 0.1 and below also acceptable for a fair fit model. Addressing the initial model result, researcher has made some improvement in tweaking the initial model by removing some items which amazingly improvised the overall result of Comparative Fit index (CFI) is 0.921 which is way higher than the suggested threshold with fairly acceptable fit model Root Mean Square of Approximation (RMSEA) threshold of 0.1 (MacCallum, et al., 1996). Examining the cause of the Root Mean Square of Approximation (RMSEA) value hitting the border of fit model threshold, researchers (Kenny, et al., 2015) argued that models with small degree of freedom and small sample size can produce large RMSEA value by concluding in the scenario researcher should depend or compute the RMSEA. Further supported by Taasobshirazi & Wang (2016) that researcher is not encouraged to report RMSEA when the sample size is smaller than 200 when combined with small degree of freedom which tends to incorrectly result in rejection. According to Kenny, et al. (2015) the best practice researcher should adhere in data analytics is not to rely to one indicator in determining the fitness of model also supported by MacCallum (1990) that there is no one prime model fit index to be litmus test of a good fitting model. In conclusion, based on the improvised result of RMSEA of the model still falls within acceptable threshold which evidently can be further improved with the increase of sample size as per justified multiple researchers as discussed above.

Table 3: CFA initial vs improvised SPSS AMOS Result

	Initial Model	Improvised Model
CFI	0.833	0.921
Chi Square	967.542	341.176
Normed Chi Square	3.65	2.729
RMSEA	0.135	0.100

Construct Validity & Convergent Validity

Table 4: Standardized Direct Effect Analysis SPSS AMOS result

Item	Business Success	Entrepreneurship	Leadership	Business Knowledge	Market Awareness
CMP1	.833				
CMP2	.883				
CMP3	.758				
E1		.939			
E2		.861			
E5		.954			

Item	Business Success	Entrepreneurship	Leadership	Business Knowledge	Market Awareness
L1			.918		
L3			.897		
L4			.897		
L5			.922		
BK1				.883	
BK2				.864	
BK3				.831	
BK4				.847	
MA1					.872
MA3					.857
MA4					.826
MA5					.845
AVE	0.68	0.84	0.83	0.73	0.72

The table above shows the list of the standardized factor loadings of the measured variables for each defined construct. Hair, et al. (2010) contends that the standardized factor loading estimates should be at least 0.50 to establish construct validity. Hair, et al. (2010) also highlighted that the perfect estimate of 0.70 or higher represents greater construct validity. Based on the table above the factor loadings for each construct achieved loading estimates of higher than 0.5 suggesting an ideal construct validity state of each construct. The table above also has the values calculated for Average Variance Extracted (AVE) by the loadings of each construct. Hair, et al. (2010) mentions that the AVE of loading estimates should achieve at least 0.5 and higher to confirm convergent validity. Based on the calculated AVE value for each construct, it is confirmed that the entire defined construct has achieved convergent validity. According to Hair, et al. (2010), the construct should also achieve face validity prior to any theoretical testing such as Confirmatory Factor analysis. The research has comprehensively conducted face validity through deep dive of each construct's relevant theories and related empirical research to gain theoretical understanding of construct and sub content of the construct in Chapter 2 of this research.

Nomological Validity

Table 5: Correlations Analysis SPSS AMOS result

Relationship			Estimate
Business Success	<-->	Business Knowledge	0.984
Business Success	<-->	Entrepreneurship	0.622
Market Awareness	<-->	Entrepreneurship	0.547
Market Awareness	<-->	Leadership	0.607
Business Knowledge	<-->	Market Awareness	0.803
Business Knowledge	<-->	Entrepreneurship	0.649
Business Success	<-->	Market Awareness	0.853
Business Success	<-->	Leadership	0.715

Business Knowledge	<-->	Leadership	0.714
Leadership	<-->	Entrepreneurship	0.574

Hair, et al. (2010) further highlights that research constructs must have Nomological validity. Nomological validity is tested by evaluation the correlation between constructs. Based on the construct correlations table generated by SPSS Amos evaluation, Nomological validity is evidently established with an acceptable correlation estimate which explains a sensible measurement theory.

Discriminant Validity

Table 6: Discriminant Correlation Analysis SPSS AMOS result

Relationship			AVE	Square of correlation	Discriminant Validity
Business Success	<-->	Business Knowledge	0.71	0.97	No
Business Success	<-->	Entrepreneurship	0.76	0.39	Yes
Market Awareness	<-->	Entrepreneurship	0.78	0.30	Yes
Market Awareness	<-->	Leadership	0.84	0.37	Yes
Business Knowledge	<-->	Market Awareness	0.73	0.64	Yes
Business Knowledge	<-->	Entrepreneurship	0.79	0.42	Yes
Business Success	<-->	Market Awareness	0.70	0.73	No
Business Success	<-->	Leadership	0.76	0.51	Yes
Business Knowledge	<-->	Leadership	0.78	0.51	Yes
Leadership	<-->	Entrepreneurship	0.84	0.33	Yes

Discriminant validity is determined by comparing the AVE and the square of the correlation. According to Fornell & Larcker (1981) if the AVE is greater than square of correlation shows a good discriminant validity. Based on table above, as overall there is good discriminant validity in the construct correlations. There is one construct correlation (Business Success- Business Knowledge & Business Success- Market Awareness) noted a negative discriminant validity which explains there is an overlapping among the variables. As overall the finding of discriminant validity confirms good correlations of establishing the theoretical underpinning of the framework.

Regression analysis

Model Fitness

Table 7: Regression R square & Adjusted R square Analysis SPSS result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.897 ^a	0.805	0.799	0.24179	2.146
a. Predictors: (Constant), Leadership, Market Awareness, Entrepreneurship & Business Knowledge					
b. Dependent Variable: Business Success					

According to Hair, et al., (2010) linear regression test examines the goodness of fit model of research model through the measuring the coefficient of determination of R square value and adjusted R square value. Hair, et al. (2013) mentioned social science recommends 60% or 0.6 of the total variance of R square as satisfactory boundary also supported by Zygmunt & Smith (2014). However, there are researchers argued that the R square determination is not the only the indicator to conclude fitness of the model as it does have theoretical aspects and supports (Moksony, 1990). Based on the table above, the evaluation of the regression achieves 81% of determination of R square and 80% of adjusted R square which falls within the satisfactory range of fitness model. This also explains that 80% of the dependent variable namely Business Success is being impacted by the independent variables which includes Business Knowledge, Market Awareness, Leadership and Entrepreneurship. In conclusion, the research model has achieved good fitness model which able to derive effective result based on the statistical researcher's recommendation (Hair, et al., 2010; Hair, et al., 2013; Zygmunt & Smith, 2014).

Table 8: ANOVA Analysis SPSS result

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	34.179	4	8.545	146.161	0.000 ^b
	Residual	8.302	142	0.058		
	Total	42.481	146			
a. Dependent Variable: Business Success						
b. Predictors: (Constant), Leadership, Market Awareness, Entrepreneurship & Business Knowledge						

Regression Testing

Owen (1991) classifies that analysis of variance (ANOVA) is statistical test to examine the distinction among dependent variable (Business Success) and independent variable (Business Knowledge, Market Awareness, Leadership and Entrepreneurship). Further supported Hair, et al. (2010) the differences among variables is key to determine the defined regression model is statistically significant. The acceptable range of the significance or p value (Sig. value) is 0.05 and below to achieve fair variable significance (Hair, et al., 2010). Based on the table above the p value (.Sig value) recorded 0.000 which falls within the acceptable range and the impact on Business Success (dependent variable) is proven statistically significant.

Table 9: Regression Significance Analysis SPSS result

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.424	0.176		2.415	0.017		
Business Knowledge	0.521	0.061	0.549	8.557	0.000	0.334	2.991
Market Awareness	0.308	0.051	0.334	5.992	0.000	0.444	2.251
Entrepreneurship	0.020	0.041	0.024	.497	0.620	0.567	1.764
Leadership	0.066	0.043	0.079	1.521	0.130	0.507	1.971

Researcher Fisher (1958) has suggested the *P* value (Sig. value) act as informal index of coefficients used to examine the significance and the hypothesis. Further supported by Cramer & Howitt (2004) that the acceptance of hypothesis can be determined by measuring the *P* value (Sig. value) in the coefficients summary and the *P* value (Sig. value) is suggested within the range of 0.05 and below to evidently prove to have significant impact. Therefore, *P* value (Sig. value) above 0.05 is considered failed hypothesis in having low significance level and *P* value (Sig. value) towards 0 to have high significant impact (Cramer & Howitt, 2004). Based on the given threshold below table is created based on the coefficient summary generated using SPSS tool in the above table.

Table 10: Hypothesis Analysis SPSS result

Hypotheses	Significant (P<0.05)	Acceptance	Interpretations
H1: Business Knowledge Competency has a significant impact on Business Success	0.000	Accepted	Significant as the generated <i>p</i> value is less than 0.05 which indicates positive impact on Business Success
H2: Market Awareness Competency has a significant impact on Business Success	0.000	Accepted	Significant as the generated <i>p</i> value is less than 0.05 which indicates positive impact on Business Success
H3: Leadership Competency has a significant impact on Business Success	0.130	Rejected	Not Significant as the generated <i>p</i> value is more than 0.05 which indicates low significant impact on Business Success

H4: Entrepreneurship Competency has a significant impact on Business Success	0.620	Rejected	Not Significant as the generated p value is more than 0.05 which indicates low significant impact on Business Success
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Based on the hypotheses evaluation in the above table, it is evidently proven that Business Knowledge and Market Awareness have significant impact on Business Success which is highly applicable as the core competencies for IT professionalism in Malaysia context. Entrepreneurship and Leadership has recorded low significant impact on Business Success for Malaysian IT professionalism context.

Discussion

Based on the research result, it is evidently proven that Business Knowledge has significant impact on business success in the Malaysian IT context through the hypothesis testing with the acceptance of 55% of beta coefficient and 0.00 p value which describes the strong significance impact on business success. This research result also aligned with Core Competency theory (Makridakis, 1996) and based on the empirical research conducted using the theory by Petts (1997) and Baczynska, et al. (2016) which describes business knowledge on the nature and current condition is the core competency to add competitive advantage of an organization. In addition, the result also relevant based on the Resource based view theory (Wernerfelt, 1984) and related empirical research that focuses human resources or organization's employees requires core business knowledge regardless the stream they are serving in the large organisation to achieve business success (Liang, et al., 2010; Bharadwaj, 2000). Authors that focused IT industry specifically such as Bharadwaj (2000), Liang, et al. (2010) and Pérez-López & Alegre (2012) highlighted that an organization may have technically sound IT team and good allocation of IT investment however they business success may not materialized without core business knowledge on the business nature, business performance, risks, financial position and internal & external client requirements in order to translate relevant IT solutions which is valuable to the organisation.

Market Awareness competency is one of the competency accepted to have significant impact on business success through the hypothesis testing based on the research conducted with the achievement of p value of 0.00 . This result also supported from the theoretical perspective as per highlighted in the Core competency Theory (Makridakis, 1996) and Dynamic Capability (Teece, et al., 1997). Based on Core Competency theory, which is focused to tackle the competitive business environment, describes market awareness is important to address the right solution which adds competitiveness for the organization (Makridakis,1996; Wang, et al., 2004; William & Chris, 2008). Further supported by Dynamic Capability view theory that market is very dynamic and volatile, it is key to have constant focus and awareness on the emergence of market to establish relevant solution which meets customer demand (Teece, et al., 1997; Lidija, 2014). Empirically focusing IT context Breznik & Lahovnik (2016) has highlighted that both IT technology advancement and market advancement are two separate entity, IT

professionals should prioritize business market emergence in adopting right IT technology emergence to create good value to the core business success.

Leadership competency based on the hypothesis testing it is rejected under the basis of low significant impact on business success. Leadership competency is highlighted from theoretical perspective under Enduring leadership model proposed by Mastrangelo, et al. (2004) as the key qualities that an employee should be skilled in order to deliver quality result in terms of personal and professionalism. Mastrangelo, et al. (2014) also evidently proved the leadership impact on organization success empirically comparing both low performing and high performing organization. However the result gained from this research does make sense based on argument highlighted by Salleh & Sulaiman (2013) that Malaysian culture and tradition view on leadership that only applicable for the superior and subordinates are considered as the executors which does not require leadership qualities which is contradictory against the theory and empirical research conducted in the Europe and US continents which has more acceptance on leadership qualities individually across all layers of organization.

Entrepreneurship competency is one of the competencies rejected under the hypothesis testing of the research with low significant impact on business success. Entrepreneurship competency is promoted using Dynamic Capability view theory Baczynska, et al. (2016) which represents the nature of being innovative, problem solver, risk taker, ability to deliver under uncertainty and looking deliverable from return on investment. Empirically using Core Competency theory author Baczynska, et al. (2016) & Zahra, et al. (2006) has proven entrepreneurship has strong impact on organization performance in the out of Malaysian context. However, in Malaysian context, Ariff & Abubakar (2003) has highlighted that the understanding or believes of Entrepreneurship is not widely established across the population due to historical racial economic background. It is highlighted that Chinese population has longer presence in enterprising whereas Malay the biggest population and Indians the third biggest population has low presence (Ariff & Abubakar, 2003) which may have interpreted through the data collection and results overall low significant level of impact on business success Overall, the result does make sense on Malaysian IT context yet could be a gap in Malaysian IT industry to address in future.

Conclusion & Recommendation

Conclusion

As overall, this study outlines the empirical evidence about the relationship between core competencies of IT professional should be focused along with technical IT competency and business success in Malaysia's IT industry context. This research defined and examined four main objectives as discussed constructively below;

The first objective of the research is to examine the impact of *Business Knowledge competency* on Business Success. Based on both literature and empirical research findings and examination, it can be concluded that Business Knowledge has strong positive impact on Business Success in the Malaysian IT context. Based on data analysis conducted, it is clearly revealed that Business Knowledge has positive correlation on Business Success

which also interrelated with literature and empirical research. Business Knowledge is clearly a mandatory competency that IT professional required to be competent in an organisation to translate organisation business nature, direction, vision and strategy into valuable and relevant IT deliverables.

The second objective of the research is to examine the impact of *Market Awareness competency* on Business Success. Based on both literature and empirical research findings and examination, it is conclusive that Market Awareness has strong positive impact on Business Success in the Malaysian IT context. The research has, also, analytically proven using collected data which derives Market Awareness positive correlation against business success. It is evidently proven that competent IT professional on Market Awareness able to support core business success by flexibly adapt changing market demand promptly by adopting most appropriate technology emergence.

The third objective of the research is to examine the impact of *Leadership competency* on Business Success. Based on both literature and empirical research findings and examination, it is conclusive that Leadership has no significant impact on Business Success in the Malaysian IT context. Leadership competency found to be well accepted theoretically and empirically out of Malaysian context, however based on data collected focusing Malaysian IT population it is found that leadership is not the key competency that determine business success. The analytics findings of showing leadership having no significant impact correlates with one of leadership studies conducted in Malaysia which describes leadership across all layers of an organisation contradicts Malaysian cultural believes which perceives leadership as one single superior commands that delegates direction, therefore leadership competency produces negative correlation against business success.

The final objective of the research is to examine the impact of *Entrepreneurship competency* on Business Success. Based on both literature and empirical research findings and examination, it is conclusive that Entrepreneurship has no significant impact on Business Success in the Malaysian IT context. Entrepreneurship competency analytically describes negative correlation against business success. The negative analytical result does makes sense out of a similar outcome was highlighted in one of the entrepreneurship study conducted in Malaysian context which describe entrepreneurship in Malaysia does not completely scattered among all the races which has lack of understanding in the population.

In conclusion, all four objectives of the research are met through the research exploration and findings; outlining Business Knowledge and Market Awareness is the most appropriate core competency for IT professional to support core business success. Entrepreneurship and Leadership competency may not be accepted now in Malaysian IT context; however there is scope of focus in future addressing the Malaysia's transition towards globalisation and competitive market.

Recommendation

This research was conducted to examine the impact of competency on business success. Based on the conclusion of the research, it is recommended that Business

Knowledge and Market Awareness have high significance impact in determining business success for IT professionals to support core business. Identification is just part of process yet embedding business knowledge and Market Awareness plays important role in materializing the defined success. As part of the implementation Business Knowledge & Market Awareness competency, organization should conduct business introduction to IT professionals as part of on-boarding process including business nature, vision, mission, current business position, market position, competitors, business differentiation and business financials targets. This approach may set an expectation for IT professionals on top of their technical job descriptions. As business condition and direction changes as per volatile market demand, an organization should conduct quarterly or ad-hoc town hall across organization to keep them updated on the upcoming changes and areas of business focus. This platform provides benefits to all the employees to raise their queries on the new changes and will provide better understanding of all the department expectation working towards to the new changes for IT professional to overhaul the IT solution based on the requirements. Business Process owner and IT Business Process professional should work hand in hand with IT solution architect and solution deliver in order to translate business requirement into relevant business solution which directly support business success. IT support team also plays important role in supporting business continuity in sustaining the business success. Malaysian organization may also consider in cultivating Leadership and Entrepreneurship competency in the organization culture especially global organizations to add more competitiveness and aligning organization's global performance and expectation.

Research Limitation

There are few research limitations identified throughout the research. The research's initially targeted population was 200 people and gained actual response of 147 from certain sector to achieve targeted research timeline. Even though a fair response rate was achieved yet it is still considered small in sample size which may not completely visualize generalized view on the multidimensional research topic on competency. The research also collected data from IT middle management group which may only gain IT management point of view and does not describe core Business management expectation on IT. The research is also limited in investigating only 4 competencies required by IT professional that impacts business success. Competency is having very huge corresponds which might have other relevant competencies that impacts business success apart of the selected 4 competencies in this research scope.

Future Research Direction

As highlighted in the research limitation, the future research direction should focus on large population size to have multiple industries to be included in with more time to be spend on data collection achieve good generalization. Future researcher also should balance data collection from IT management point of view equally with business management point of view which gives broader and accurate result in examining a competency's impact on business success. As the competency topic is very complex and multifaceted according to business nature, future research considers conduct extensive secondary research investigating multiple management studies compared to this research and conduct qualitative data collection by interviewing industry, sector and work stream

experts to subjectively understand their view and gaps in the IT talents instead of concluding only based on quantitatively through survey method. This approach may outline other relevant competency IT professional need to focus that has significance on core business success.

References

- Antonucci, Y. L. (2010). Business process management curriculum. In *Handbook on Business Process Management 2*(pp. 423-442). Springer, Berlin, Heidelberg.
- Ariff, M., & Abubakar, S. Y. (2003). Strengthening entrepreneurship in Malaysia. *Malaysian Institute of Economic Research, Kuala Lumpur*, 1-22.
- Arkkelin, D. (2014). Using SPSS to Understand Research and Data Analysis. Psychology Curricular Materials, Book 1.
- Baczyńska, A. K., Rowiński, T., & Cybis, N. (2016). Proposed core competencies and empirical validation procedure in competency modeling: confirmation and classification. *Frontiers in psychology*, 7, 273.
- Barnard, C. I. (1968). *The functions of the executive* (Vol. 11). Harvard university press.
- Bassellier, G., & Benbasat, I. (2004). Business competence of information technology professionals: conceptual development and influence on IT-business partnerships. *MIS quarterly*, 673-694.
- Bell, J. (2005). Doing your research project. Berkshire. *Open University Press. Berridge, KC & Kringelbach, ML (2008) Affective neuroscience of pleasure: reward in humans and animals, Psychopharmacology*, 199, 457-480.
- Benzing, C., Chu, H. M., & Kara, O. (2009). Entrepreneurs in Turkey: A factor analysis of motivations, success factors, and problems. *Journal of small business management*, 47(1), 58-91.
- Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: An empirical investigation. *MIS Quarterly*, 24(1), 169-196.
- Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of management development*, 27(1), 5-12.
- Breznik, L., & Lahovnik, M. (2016). Dynamic capabilities and competitive advantage: Findings from case studies. *Management: journal of contemporary management issues*, 21(Special issue), 167-185.
- Burns, J.M. (1978), *Leadership*, Harper and Row, New York, NY.

- Campion, M. A., Fink, A. A., Ruggeberg, B. J., Carr, L., Phillips, G. M., & Odman, R. B. (2011). Doing competencies well: Best practices in competency modeling. *Personnel psychology*, 64(1), 225-262.
- Chatzoudes, D., Chatzoglou, P., & Vraimaki, E. (2015). The central role of knowledge management in business operations: Developing a new conceptual framework. *Business Process Management Journal*, 21(5), 1117-1139.
- Chin, C. H., Lo, M. C., & Ramayah, T. (2013). Market orientation and organizational performance: The moderating role of service quality. *Sage Open*, 3(4), 2158244013512664.
- Coy, S. P., Shipley, M. F., Omer, K., & Khan, R. N. A. (2007). Factors contributory to success: A study of Pakistan's small business owners. *Journal of Developmental Entrepreneurship*, 12(02), 181-198.
- Cramer, D., & Howitt, D. L. (2004). *The Sage dictionary of statistics: a practical resource for students in the social sciences*. Sage.
- Creswell, J. W. (2011). *Research design: Qualitative, quantitative, and mixed methods*.
- Densten, (2012). Leadership: Current Assessment and Future Needs, the Oxford Handbook of Personnel Psychology, Ed. by S. Cartwright, C. L. Cooper, Oxford, pp. 93-120.
- Draganidis, F., & Mentzas, G. (2006). Competency based management: a review of systems and approaches. *Information management & computer security*, 14(1), 51-64.
- Edgar, W. B., & Lockwood, C. A. (2008). Developing Core Competence Related Theory: Working Paper Series--08-06.
- Egbu, C. O., Hari, S., & Renukappa, S. H. (2005). Knowledge management for sustainable competitiveness in small and medium surveying practices. *Structural survey*, 23(1), 7-21.
- Eggers, F., Kraus, S., Hughes, M., Laraway, S., & Snyckerski, S. (2013). Implications of customer and entrepreneurial orientations for SME growth. *Management Decision*, 51(3), 524-546.
- Field, A. P. (2009). *Discovering statistics using SPSS*. London, England: SAGE. 3rd Edition.
- Fink, A. (2003). *The Survey Handbook*. (2nd edn). Thousand Oaks, CA: Sage.
- Fisher, R. A., (1958). *Statistical Methods for Research Workers*. Oxford University Press.

- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50.
- Fowler, F. J. (2009). *Survey research methods* (4th Ed.). Los Angeles, CA: Sage.
- Gibb, A., & Price, A. (2014). A compendium of pedagogies for teaching entrepreneurship. *International entrepreneurship educators program*.
- Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. *Journal of management information systems*, 18(1), 185-214.
- González-Gallego, N., Soto-Acosta, P. & Trigo, A. (2010), ICT Effect on Supply Chain Performance: An Empirical Approach on Spanish and Portuguese Large Companies
- Grafton, J., Lillis, A. M., & Mahama, H. (2011). Mixed methods research in accounting. *Qualitative Research in Accounting & Management*, 8(1), 5-21.
- Gruban, B. (2003). Competencies: which lasts for four decades. *Finance*, 168/1596, str. 19.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate data analysis: Pearson new international edition*. Pearson Higher Ed.
- Hair, J., Black, W., Babin, B., and Anderson, R. (2010). *Multivariate data analysis* (7th ed.): Prentice-Hall, Inc. Upper Saddle River, NJ, USA.
- Hersh, B. (2015). Business Success: The Doing Definition. [ONLINE] Available at: <https://goo.gl/vna6Or>. [Accessed 3 October 2016].
- House, R. J., & Dessler, G. (1974). The path-goal theory of leadership: Some post hoc and a priori tests. *Contingency Approaches to Leadership (Carbondale, Ill.: Southern Illinois University Press, 1974)*, 29-55.
- Hulland, J., Wade, M. R., & Antia, K. D. (2007). The impact of capabilities and prior investments on online channel commitment and performance. *Journal of management information systems*, 23(4), 109-142.
- Jasra, J., Hunjra, A. I., Rehman, A. U., Azam, R. I., & Khan, M. A. (2011). Determinants of business success of small and medium enterprises. *International Journal of Business and Social Science*, 2(20).
- John, D. (2016). Research Methodology: Positivism Research Philosophy. [ONLINE] Available at: <http://research-methodology.net/research-philosophy/positivism/>. [Accessed 16 December 2016].

- Karami, A., Analoui, F., & Korak Kakabadse, N. (2006). The CEOs' characteristics and their strategy development in the UK SME sector: An empirical study. *Journal of Management Development*, 25(4), 316-324.
- Katz, D. & Kahn, R.L. (1966). *The Social Psychology of Organizations*, John Wiley and Sons, New York, NY.
- Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The performance of RMSEA in models with small degrees of freedom. *Sociological Methods & Research*, 44(3), 486-507.
- Khan, K., & Ramachandran, S. (2012). Conceptual framework for performance assessment: competency, competence and performance in the context of assessments in healthcare—deciphering the terminology. *Medical teacher*, 34(11), 920-928.
- Kotter, P.J. & Heskett, L.J. (1992), *Culture and Performance*, Les Editions d'Organisation, Paris.
- Kozlenkova, I. V., Samaha, S. A., & Palmatier, R. W. (2014). Resource-based theory in marketing. *Journal of the Academy of Marketing Science*, 42(1), 1-21.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.
- Liang, T. P., You, J. J., & Liu, C. C. (2010). A resource-based perspective on information technology and firm performance: a meta-analysis. *Industrial Management & Data Systems*, 110(8), 1138-1158.
- Likert, R. (1961), *New Patterns of Management*, McGraw-Hill, New York, NY.
- Lioukas, C. S., Reuer, J. J., & Zollo, M. (2016). Effects of information technology capabilities on strategic alliances: Implications for the resource-based view. *Journal of Management Studies*, 53(2), 161-183.
- MacCallum, R. C. (1990). The need for alternative measures of fit in covariance structure modeling. *Multivariate Behavioral Research*, 25(2), 157-162.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological methods*, 1(2), 130.
- Makridakis, S. (1996). Factors affecting success in business: management theories/tools versus predicting changes. *European Management Journal*, 14(1), 1-20.
- Marley, S. (2016). Select Statiscal Services: The Importance and Effect of Sample Size. [ONLINE] Available at: <https://select-statistics.co.uk/blog/importance-effect-sample-size/>. [Accessed 6 December 2016].

- Marrelli, A. F. (1998). An introduction to competency analysis and modeling. *Performance Improvement*, 37(5), 8-17.
- Mastrangelo, A., Eddy, E. R., & Lorenzet, S. J. (2004). The importance of personal and professional leadership. *Leadership & Organization Development Journal*, 25(5), 435-451.
- Mastrangelo, A., R. Eddy, E., & J. Lorenzet, S. (2014). The relationship between enduring leadership and organizational performance. *Leadership & Organization Development Journal*, 35(7), 590-604.
- McGregor, D. (1960). *The Human Side of Enterprise*, McGraw-Hill Inc., New York, NY.
- Mohamad Radzi, K., Nor, M., Nazri, M., & Ali, S. M. (2017). THE IMPACT OF INTERNAL FACTORS ON SMALL BUSINESS SUCCESS: A CASE OF SMALL ENTERPRISES UNDER THE FELDA SCHEME. *Asian Academy of Management Journal*, 22(1).
- Moksony, F. (1990). Small is beautiful. The use and interpretation of R2 in social research. *Szociológiai Szemle, Special issue*, 130-138.
- Morden, T. (1997). Leadership as competence. *Management Decision*, 35(7), 519-526.
- Nath, P., Nachiappan, S., & Ramanathan, R. (2010). The impact of marketing capability, operations capability and diversification strategy on performance: A resource-based view. *Industrial Marketing Management*, 39(2), 317-329.
- O'Cass, A., & Sok, P. (2013). Exploring innovation driven value creation in B2B service firms: The roles of the manager, employees, and customers in value creation. *Journal of Business Research*, 66(8), 1074-1084.
- Owen, A. (1991). Empirical likelihood for linear models. *The Annals of Statistics*, 1725-1747.
- Pérez-López, S., & Alegre, J. (2012). Information technology competency, knowledge processes and firm performance. *Industrial Management & Data Systems*, 112(4), 644-662.
- Peris Bonet, F., Rueda Armengot, C., & Ángel Galindo Martín, M. (2011). Entrepreneurial success and human resources. *International Journal of Manpower*, 32(1), 68-80.
- Peters, T. and Austin, N. (1985). *A Passion for Excellence: The Leadership Difference*, Random House, New York, NY.
- Petts, N. (1997). Building growth on core competences—a practical approach. *Long Range Planning*, 30(4), 551-561.

- Rosenthal, R., & Rosnow, R. (1991). *Essential of Behavioral Research: Methods and Data Analysis*. Second Edition. McGraw-Hill Publishing Company, pp. 46-65.
- Salleh, K. M., & Sulaiman, N. L. (2013). Malaysia leadership competencies: A model for effective performance. *International Journal of Human Resource Management and Research*, 3(2), 63-70.
- Saunders, M., Lewis, P., & Thornhill, A. (2007). Research methods. *Business Students*.
- Schelfhout, W., Bruggeman, K., & De Maeyer, S. (2016). Evaluation of entrepreneurial competence through scaled behavioural indicators: Validation of an instrument. *Studies in Educational Evaluation*, 51, 29-41.
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of psychological research online*, 8(2), 23-74.
- Schumpeter, J. A. (1949). *Economic Theory and Entrepreneurial History in Essays on Entrepreneurs, Innovations, Business Cycles and the Evolution of Capitalism*, Clemence RV (1989).
- Sonteya, T., & Seymour, L. F. (2012). Towards an understanding of the business process analyst: An analysis of competencies. *Journal of Information Technology Education: Research*, 11(1), 43-63.
- Suphat Sukamolson, S. (2016). Fundamentals of quantitative research. Semantic Scholar: Fundamentals of quantitative research, [Online]. 1, 11. Available at: <https://pdfs.semanticscholar.org/336b/6928c8ee7f3fac6bbeb1e0e1769169c447f7.pdf> [Accessed 8 December 2016].
- Taasoobshirazi, G., & Wang, S. (2016). The performance of the SRMR, RMSEA, CFI, and TLI: An examination of sample size, path size, and degrees of freedom. *Journal of Applied Quantitative Methods*, 11(3), 31-39.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, 2, 53.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, 18(7), 509-533.
- Teichmann, M., Parts, V., Kerikmae, T., Murdvee, M. & Pevkur, A. (2013). Heuristic Model of Non-technical Competences for Engineers. Department of Industrial Psychology, Tallinn Law School.
- Trevino, L. K., Hartman, L. P., & Brown, M. (2000). Moral person and moral manager: How executives develop a reputation for ethical leadership. *California management review*, 42(4), 128-142.

- Wade, M., & Hulland, J. (2004). The resource-based view and information systems research: Review, extension, and suggestions for future research. *MIS quarterly*, 28(1), 107-142.
- Wang, Y., Lo, H. P., & Yang, Y. (2004). The constituents of core competencies and firm performance: evidence from high-technology firms in China. *Journal of Engineering and Technology Management*, 21(4), 249-280.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic management journal*, 5(2), 171-180.
- Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management studies*, 43(4), 917-955.
- Zygmunt, C., & Smith, M. R. (2014). Robust factor analysis in the presence of normality violations, missing data, and outliers: Empirical questions and possible solutions. *The Quantitative Methods for Psychology*, 10(1), 40-55.