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Malaysia SME ICT During Economic Turbulence

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Abstract. Malaysia's Small and Medium Enterprise is moving towards a connected and digitalized economy where business landscapes are constantly changing and improving the way we work. However during the period of uncertainty, drastic action of being market follower just to satisfy client's need without documented industry best practice may leads to wastage spending. Product centric evangelist harping for a bigger sale could trigger over specification of the wish-list than the actual needs. Current practise on prioritizing tangible ICT investment as a strategic competitive tool instead of business process improvement may require a complete paradigm shift. On the same context, reprioritizing infrastructure investment during scarce resource may unstable operation can also be considered as unwise decision.

Keywords: economic, framework, ICT, infrastructure, Malaysia, SME, turbulence.

1. Introduction.

The global market of uncertainty has greatly impacted the way business should operate amidst trade liberalization in connected and digitized economy [1]. "Despite the global economy showing signs that it has recovered from the recession, it is still 'unacceptably poor,' which could lead to a 'double-dip' plunge and that it will be a continuing recession…." Paul Krugman, 2008 Nobel Prize [2]. Various events such as mentioned below have already triggered the need for business continuity have greatly send SME recouping resources.

- Earthquake in Sumatra effects Malaysia [3]
- Malaysia food & fuel $ skyrocketing [4]
- Asean markets fall [5]
- Supply chain and Fukushima Worries [6]
- ICT Infrastructure Scavenging [7]

Small and Medium Enterprise (SME) is known for being limited in various resources, ranging from financial to expertise. Being small does not always mean intangible to market sensitivity. With the abundance of ready cash flows during economy surplus, many enterprises are embarking on massive but glaring capital expenditure. However, during the gloomy economic downturns, further ICT investment becomes second to none. During the sluggish economic period, the hostility of the environment becomes a battle field between various departments competing for the available scarce infrastructures have made SMEs rotting. ICT infrastructure will face severe downturn, lack of growth, reluctance on further investment due to long term uncertainty caused by economic turbulence. While many traditional enterprises slipped into stagnation mode during the turbulence period; high performance achievers viewed ICT as a growth engine.

While visible infrastructure products as being traditional been seeing to produce immediate deliverables, this only to a certain extent proven to be a Non-Sustainable strategy now [8]. Carr from Harvard University has also derived that ICT has been transformed into a commodization investment that is part of the everyday

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life in business [9]. Being a commodity item, careful planning of what to buy, when and at what quantity plays at vital role here.

Transitioning into a knowledge network economy, Malaysia's SME today are better informed about ICT development and the business derived by digitization. Product comparision with case implementation is globally available at the click of mouse. Therefore single sided consultation from the traditional supplier may not cover the lesson learned from nationwide competitors inside a documented industry best practise.

The success of ICT implementation are dependant on various factors such cost and time which can be a subjective comparison from enterprise to enterprise witin the industry. [8] Therefore a fair and validate tool of benchmarking is required for where each company's business gearing is measured. Such comparision should indicate various scenarios and specification to be applied.

2. Literature Review

2.1. Industry Viscosity

The rise of virtual enterprise has redefined new business terminology as below [10]:-

- Telecommuting – Employees use a remote terminal to access back their office systems to perform standing transaction as if they were in the physical office.
- Hot Desk Environment – Individual desk are abandoned and employees arriving at work are allocated a desk for the day which they can access their system locally for security reasons.
- Hotelling – Employee spend much of their time with client or branches and using facilities like a normal hotel.
- Virtual Teams – Employees collaborate closely but physically located in a variety of location.

Although SME being relative smaller in both user based and ICT infrastructure, this does not mean low technology adoptions. With competition going "bit and byte", enterprise today must have the minimum specification to stay sustainable. However, being small also mean SME do not benefits from use of bulk procurement. This could lead to over specification that goes against fundamental of investment. With limited resource to tap the expertise, SME are often in the dilemma of wanting to adopt technology but faced obstacle in implementing technology.

2.2. Economic Turbulence

Past literature on the following definition that can be applied during an environment of ITconometric paradox [1]:-

- Munificence, where the external IT landscapes contribute to the organisational behavior. This is where uncontrolled statutory push for compliances. [11]
- Hype, where the expected market status which has been unproven that could lead to resources wastage. This is where over-specification breads white elephants. [11]

Applying the lesson learned from United State of America, Canada [12] and Korea [13] on how ICT can actually affect the way business operate when faced with uncertainty in order to increase ICT productivity [14], Malaysia's SME must now have readily available framework for ICT utilization [15].

2.3. Existing Framework

The current available framework such as Information Technology Infrastructure Library (ITIL), Open Group Architecture Framework (TOGAF), Federal Enterprise Architecture (FEA) were developed years ago for the "green field" western environment instead of the "battle field" [16][17][18][19][20]. These visionary frameworks focus mainly on enterprise environment and service management while are shy in the need for barebone infrastructure practice by SME. With limited resources, bigger frameworks are more complex in implementation and therefore put SME in a confidence trap of adoption suitability.

2.4. Research Questions

To overcome these shortfalls and present a more helicoptic view of actions needed, the following research questions were constructed [1]:-

- What are the areas, department or processes that are critical during an economic turbulence?
- When will we consider urgent ICT specification and when will we consider important network specification?
- What are the resources needed to implement such new network specifications and what are the potential barriers to successfully implement such framework?
- What are the appropriate the management's strategies and capabilities needed?
- How can the enterprise benchmark the effectiveness of the framework implementation?

3. Methodology

To validate the existence of the research questions, a pilot survey was conducted among peoples with professional background spread among ICT, business and engineering. The survey consists of 11 questions to identify the utilization of ICT during an economic uncertainty. Respondent is required to rank according to a Likert Scale of 1-5, where 5 is considered highly critical and 1 least critical. From the total of 50 forms distributed, only 30 were considered usable.

4. Findings

From the survey data obtained, it was found that most Malaysian SME are customer driven centric while side lining internal expertise developments as shown in Fig. 1. This was derived from fact that most of the SME's founders are themselves considered an expert in their field before venturing in business. Innovation investment will open more doors for value creations. Operations are geared towards centralised and deskbound with focus on bottom line driven expectation while slacking in mobility and this will entice greater customer satisfaction. This can be reflected in their oversight on the importance of communication while striving to fulfill customer expectations.

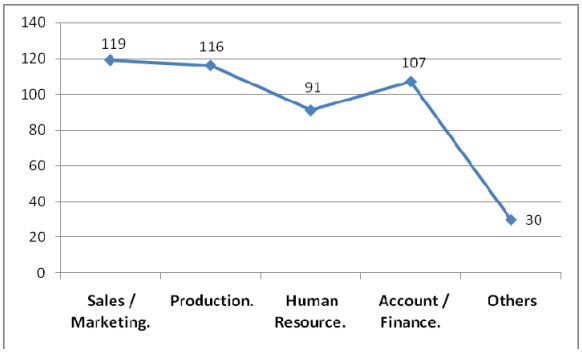

Fig. 1. Department ranking.

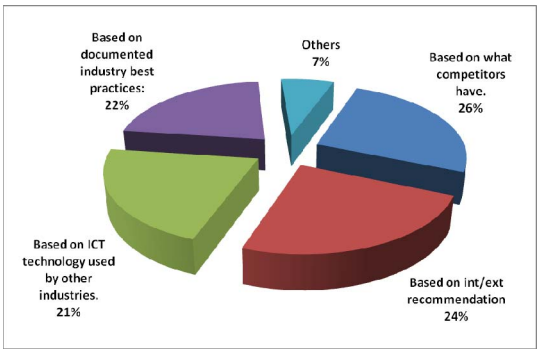

Fig. 2. New requirement source.

Most capital investments were focus on tangible assets like hardware and software while backroom consultation services are paid less importance. Product centric evangelist have always projected unrealistic growth for clients, tends to over specify the product specification, leading to under utilized ICT infrastructure for the SME.

Without the use of documented guideline on industry best practise implementation as shown in Fig. 2 while envy competitor's new ICT gadgets, SME are walking on thin lines. Most of them are pure followers of what their peers are implementing where successes are over glorified while failures are swept under the carpets. Without documented information that could lead better analysis, lessons were not learned and benchmark was unfairly compared.

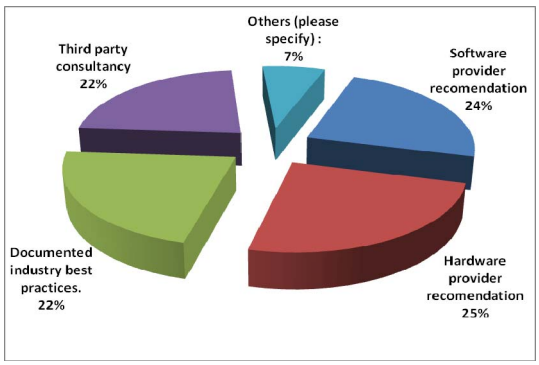

Fig. 3. Recommendation source.

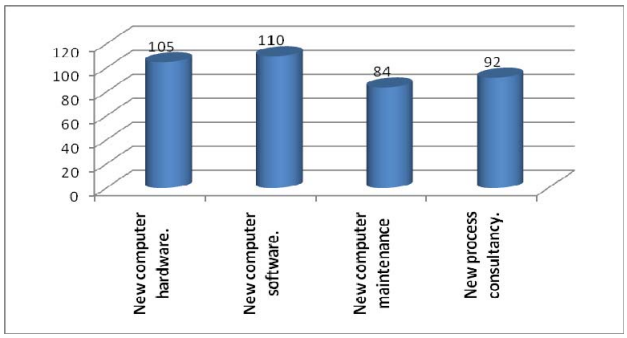

Fig. 4. ICT competitive tools

During the normal environment while having stagnant growth of knowledge acquisition and the reluctant of sourcing for external advisory as shown in Fig. 3. They are unable to provide new services or differentiate themselves in the competition while continue to use hardware and software as shown in Fig. 4. However during the time when the environment is uncertain, SME tends to just reverse the same formula for deciding which segment of ICT to reduce investment, where only the tangible items like hardware and software are reprioritize first as shown in Fig. 5.

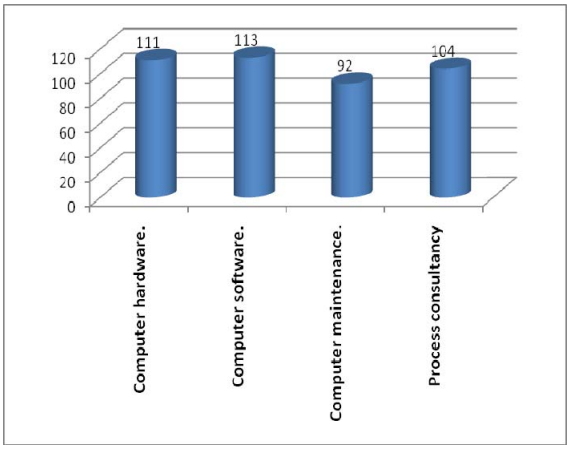

Fig. 5. Reduce ICT tools during uncertainty.

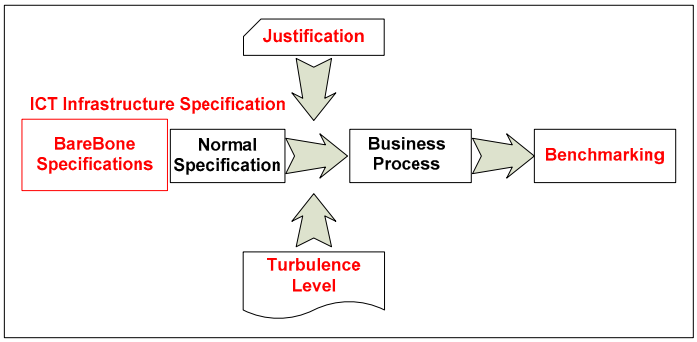

Fig. 6. Preliminary Design Framework. [1]

5. Conclusion

As proven above, many SMEs are still considering tangible investment like hardware and software to be the pivotal point for strategic advantage for shinny day and also a stumbling block during rainy day. Expertise development and lack of documented industry best practice has actually dragged Malaysian SME to benchmark the ICT experience among their remote peers. This survey have validated that Malaysia's SME are still prioritizing tangible ICT infrastructure as the driver of performance. However is contradicting with available literatures that support the need to emphases on business process rather tangible infrastructure. The findings also concluded that scatter piecemeal information are not supporting the competitive development of SME.

Without been categories as Dr Doom, the potential of crisis happening are unavoidedable that can be use to allighten us on our shortcoming. This is a crossroad to build sustainable competitive advantages. It is therefore crucial for Malaysia's SME to create a specialise framework for SME during an economic turbulence as shown in Fig. 5. Reduce ICT tools during uncertainty. Fig. 6 that identify new sources of inclusive growth for the whole industry to benefit. Further research should be carry out to identify the critical component of the proposed framework to uplift the industry especially in the area of identifying the components inside the turbulence matrix. These cause and effect relationship may formulate an action plan for SME to react during the crisis environment.

6. References.

[1] Joseph, Ng P.S. et al. (2011), Energizing ICT infrastructure for Malaysia's SME competitive during economic

turbulence, SCOReD 2011, Putrajaya, Malaysia. pp. 328 – 332.

[2] Galvez, J. K., (2011), US Unemployment to hit Ceiling in 2011 Access on 06/08/2011, http://www.startupbizhub.com/us-unemployment-to-hit-ceiling-in-2011.htm

[3] BeritaMetro, (2011), Earthquake in Sumatra effects Malaysia , Access on 22/07/2011 http://beritametro.net/tag/earthquake-in-klcc/

[4] Khor, M., (2011), High food prices cause for concern, Access on 22/07/2011, http://thestar.com.my/columnists/story.asp?file=/2011/2/7/columnists/globaltrends/8013733&sec=globaltrends

[5] Mahalingam, E. and Lee, L. (2011), Asian Market Fall, Access on 12/10/2011,http://biz.thestar.com.my/news/story.asp?file=/2011/7/26/business/9171382&sec=business

[6] Nigel Thomas, N., (2011), Nikkei in Tokyo Drops 1.1%; Supply Chain and Fukushima Worries, Access on 22/07/2011 http://www.123jump.com/market-update/Nikkei-in-Tokyo-Drops-1.1;-Supply-Chain-and-Fukushima-Worries/43659/

[7] Collapse Network, (2011) Access on 04/09/2011 http://www.collapsenet.com/free-resources/member-submitted-news/Member-Submitted-Breaking-News/news-topics/infrastructure-scavenging_c176_m147/

[8] Brown, I., (2008), Investigating the Impact of the External Environment on Strategic Information Systems Planning : A Qualitative Inquiry, SAICSIT 2008, 6-8 October Wilderness Beach Hotel, Wilderness, South Africa, pp. 8-15.

[9] Carr, N. G. (2003), IT Doesn't Matter, Harvard Business Review (May). pp. 41-49

[10] Yoger, S. E., (1997) Everything's Coming Up Virtual, Crossroads, Volume 4 Issue 1 (September 1997) pp. 20-24.

[11] Burrows, P., (2001), The era of efficiency, Business Week, June 18, pp 92-98.

[12] Kwon, Dowan and Watts, Stephanie, (2006), IT Valuation in Turbulent Times, Journal of Strategic Information 15 (2006), pp. 327-354.

[13] Choe, J. M., (2003), The effect of environmental uncertainty and strategic application of IS on a firm performance, Information & Management v40, pp 257-268

[14] Jin, N., (2007) A study of Information Technology Adoption for Small and Medium Sized Enterprises Strategic Competitiveness, Wireless Communication, Networking and Mobile Computing, WICOM 2007, September, Shanghai, China, pp. 21-25

[15] Joseph, Ng P.S., (2012), Hibernating ICT Infrastructure during Rainy Days, Journal of Emerging Trends in Computing and Information Science, V3 N1 Jan 2012, pp. 112-116

[16] Arraj, V., (2010), ITIL The Basics, White Paper May 2010, Official Accreditor of the OGC ITIL Portfolio: – APM Group.

[17] Kneller, M., (2010), White Paper September 2010, The Stationary Office.

[18] Sante, T. V. and Ermers, J., (2009), TOGAF™ 9 and ITIL® V3, Two Frameworks Whitepaper, The Stationary Office.

[19] Sessions, R., (2007), A Comparison of the Top Four Enterprise-Architecture Methodologies, Access on 04/09/2011 http://msdn.microsoft.com/en-us/library/bb466232.aspx

[20] Xansa, A. C. et al., (2007), An Introductory Overview of ITIL® V3, A high-level overview of the IT INFRASTRUCTURE LIBRARY, itSMF Ltd.