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Nader Ale Ebrahim
Samsuddin Ahmed
Salwa Hanim Abdul Rashid
Zahari Taha



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Virtual Teams: A New Opportunity to Develop a Business

Nader Ale Ebrahim¹, Shamsuddin Ahmed², Salwa Hanim Abdul Rashid³ and Zahari Taha⁴

^{1, 2, 3}*Department of Engineering Design and Manufacture,
Faculty of Engineering, University of Malaya*

⁴*Faculty of Manufacturing Engineering,
University Malaysia Pahang*

Correspondent author email:
alebrahim@perdana.um.edu.my

Abstract—Virtual teams give many advantages to organizations, including increased knowledge sharing and improve organizational performance. Virtual teams have altered the expectations and boundaries of knowledge worker's interactions and make a new opportunity to develop the business. In this paper, we present summary results of an online survey. The online questionnaire was emailed by using a simple random sampling method to 356 Malaysian manufacturing small and medium –sized Enterprises (SMEs). The findings of this study show that SMEs in Malaysia are gaining to use virtual teams, and it can be concluded that virtual teams provide a new platform for developing the business in SMEs. Based on the study, we suggest avenues for future research that are important to advancing our understanding of virtual team effects on business growth.

Keywords—Collaboration, virtual teams, SMEs, Entrepreneurship, Business development, Survey

1 Introduction

The importance of small and medium-sized enterprises (SMEs) in economic growth has made them a central element in much recent policymaking (Hoffman, Parejo, Bessant, & Perren, 1998). SMEs are a major part of the industrial economies (Eikebrokk & Olsen, 2007). SMEs seem to be appropriate units to behave like network nodes because of their lean structure, adaptability to market evolution, active involvement of versatile human resources, ability to establish sub-contracting relations and good technological level of their products (Mezgar, Kovacs, & Paganelli, 2000). SMEs have advantages in terms of flexibility, reaction time, and innovation capacity that make them central actors in the new economy (Raymond & Croteau, 2006). Gassmann and Keupp (2007) found that managers of SMEs should invest less in tangible assets, but more in those areas that will directly generate their future competitive advantage (e.g., in R&D to generate knowledge, and in their employees' creativity to stimulate incremental innovations in already existing technologies). One very important trend to enable new knowledge creation and transfer in and to SME's is the development of collaborative environments and networks to increase their innovation capabilities as a single unit but also the capabilities of the network as a whole (Flores, 2006). Virtuality has been presented as one solution for SMEs aiming to increase their competitiveness (Pihkala, Varamaki, & Vesalainen,

1999). Virtual teams reduce time-to-market (May & Carter, 2001). Lead Time or Time to market has been generally admitted to being one of the most important keys for success in manufacturing companies (Sorli, Stokic, Gorostiza, & Campos, 2006).

In this paper based on review of recent articles, at the first step provides a primary definition of virtual teams and its relationship with SMEs; next, the research methodology and data analyzing, described and lastly a guide line for future study evolved. It is argued that virtual teams provide a new platform for developing the business in SMEs.

2 Virtual teams and SMEs

Gassmann and Von Zedtwitz (O. Gassmann & Von Zedtwitz, 2003) defined “virtual team as a group of people and sub-teams, which interact through interdependent tasks guided by common purpose and work across links strengthened by information, communication, and transport technologies.” Another definition suggests that virtual teams are distributed work teams whose members are geographically dispersed and coordinate their work, predominantly with electronic information and communication technologies (e-mail, video-conferencing, telephone, etc.) (Hertel, Geister, & Konradt, 2005). Among the different definitions of virtual teams the following concept is one of the most widely accepted definitions (Ale Ebrahim, Ahmed, & Taha, 2009c): “virtual teams are small temporary groups of geographically, organizationally and/ or time dispersed knowledge workers who coordinate their work, predominantly with electronic information and communication technologies in order to accomplish one or more organization tasks” (Ale Ebrahim, Ahmed, & Taha, 2009b).

To survive in the global economy SMEs have to improve their products and processes exploiting their intellectual capital in a dynamic network of knowledge-intensive relations inside and outside their borders (Corso, Martini, Paolucci, & Pellegrini, 2003). If small firms want to make a step change in their technological and innovation base, they may have to rethink their approach to cooperation (Hanna & Walsh, 2002). Despite the widespread publicity of information technology, the application of Internet technology to upgrade and enhance the product design and business operation by most enterprises, especially for the small and medium sized enterprises, is still at its infancy (Zhan, Lee, Cheung, Kwok, & Gu, 2003). The use of ICTs can be considered as key factors for innovation and entrepreneurship. ICTs are a must for SMEs to innovate (Redoli, Mompó, García-Díez, & López-Coronado, 2008). It is especially urgent for SMEs to construct a service platform of networked to speed up the product development process (Lan, Ding, Hong, Huang, & Lu, 2004). SMEs have lack of capital investment for systematic use of information, developing organization processes and technology development (Ale Ebrahim, Ahmed, & Taha, 2009a). Three out of the eleven organizations used the intranet for knowledge identification. This indicates that organizations, especially SMEs, do not fully exploit the potential benefits of IT for growth. Levy et al. (2003) state that SMEs are knowledge creators but are poor in knowledge retention. They need to be proactive in knowledge sharing arrangements to recognize that knowledge has value and the value added is derived from knowledge exchange (Egbu, Hari, & Renukappa, 2005).

3 Methodology

Data for this research is gathered from the desk study and a survey. A web based questionnaires is designed and distributed between Malaysian manufacturing SMEs. Based on these data some interpretations and formulation of the link between virtual teams and SMEs performance to develop the business is explored. Advanced statistical methods and analysis are carried out to examine the effect of virtuality on SMEs outputs.

4 Data Collection and Analysis

The objective of the survey was to examine test a proposition that “Using virtual teams in SME is leading to SME’s growth and developing the SMEs business”. To reach the objective of this research a questionnaire was developed. In order to collect data an online questionnaire has been sent to relevant SMEs in Malaysia. The rapid expansion of Internet users has given web-based surveys the potential to become a powerful tool in survey research (Sills & Song, 2002). Denscombe (2006) findings encourage social researchers to use web-based questionnaires with confidence and the data produced by web-based questionnaires is equivalent to that produced by paper-based questionnaires. Other authors emphasized that the data provided by Internet methods are of at least as good quality as those provided by traditional paper-and-pencil methods (Deutskens, de Ruyter, & Wetzels, 2006; Gosling, Vazire, Srivastava, & John, 2004).

The main sampling target was managing director, R&D manager, new product development manager, project and design manager and appropriate people who were most familiar with the R&D issue in the firm. Table 1 summarized online survey data collection. Out of 356 respondents 74 (20.8%) firms responded to the questionnaire completely and the rest answered it partially. The response rate was satisfactory since accessing the managers is usually difficult. Only 42 SMEs were met the criteria of this research so the rest of responded deducted from analysis.

Table 1 Summarized online survey data collection

Numbers of emails sent to Malaysian Firms	2068
Total Responses (Click the online web page)	356
Total Responses / Received questionnaire (%)	17.2
Total Completed	74
Total Completed / Received questionnaire (%)	20.8

Table 2 illustrates the frequency of using virtual teams among the sample Malaysian SMEs. The result shows that 33.3% SMEs employed virtual teams.

Table 2 Frequency of using virtual teams

	Using Virtual Team		Total
	Yes	NO	
Count	14	28	42
%	33.3%	66.7%	100.0%

The hypothesis “using virtual teams in SME is positively related to SME’s business growth’ is formulated as:

$H_0: \mu_1 - \mu_2 = 0$, there is no significant difference between the SMEs outcome that using virtual teams and were not using.

$H_1: \mu_1 - \mu_2 \neq 0$, there is a significant difference between the SMEs outcome that using virtual teams and were not using.

The Fisher’s Exact Test by using SPSS is employed for analyzing the test. The results in Table 3 show that the p-value is lower than 0.05 (significant level); hence the null hypothesis rejected. In short, it can be concluded that there is a significant difference between the SMEs outcome that using virtual teams and do not use virtual teams. Therefore, virtual teams provide a good opportunity to SMEs in order to develop the business.

Table 3 The Fisher’s Exact Test results

Country	Test	Value	Exact Significant. (2-sided)
Malaysia	Fisher's Exact Test	8.315	0.022
	Number of Valid Cases	42	

5 Conclusion

The findings of this study show that SMEs in Malaysia are gaining to use virtual teams. We find that there is a significant difference between the SMEs outcome that using virtual teams and the one that do not employ virtual teams. Applying virtual teams in SMEs is a foundation of high-growth SMEs. Competitive advantage, which once belonged exclusively to the large firms, is now becoming available to SMEs through geographically open boundaries created by the virtual teams.

Benefiting from the cross functional virtual teams beyond the organizations or countries are vital for SMEs. While some studies have been conducted on model usage in large companies, applications within SMEs remain largely un-documented. Future research should concentrate on this gap and find a collaborative tool for SMEs that are geographically dispersed. Such the collaborative tool should virtually link SMEs, so that the participating members focus on their specialized tasks yet also can share their knowledge and experience (information resources) to generate agile manufacturing environments and enterprises.

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