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Full Length Research Paper

Critical factors for new product developments in SMEs virtual team

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Small and medium enterprises (SMEs) are considered as an engine for economic growth all over the world and especially for developing countries. During the past decade, new product development (NPD) has increasingly been recognized as a critical factor in ensuring the continued survival of SMEs. On the other hand, the rapid rate of market and technological changes has accelerated in the past decade, so this turbulent environment requires new methods and techniques to bring successful new products to the marketplace. Virtual team can be a solution to answer the requested demand. However, literature have shown no significant differences between traditional NPD and virtual NPD in general, whereas NPD in SME's virtual team has not been systematically investigated in developing countries. This paper aims to bridge this gap by first reviewing the NPD and its relationship with virtuality and then identifies the critical factors of NPD in virtual teams. The statistical method was utilized to perform the required analysis of data from the survey. The results were achieved through factor analysis at the perspective of NPD in some Malaysian and Iranian manufacturing firms (N = 191). The 20 new product development factors were grouped into five higher level constructs. It gives valuable insight and guidelines, which hopefully will help managers of firms in developing countries to consider the main factors in NPD.

Key words: Survey findings, new product development, factor analysis, virtual team.

NTRODUCTION

New product development (NPD) is widely recognized as an essential property of the firm (Lam et al., 2007). Life cycle of products is decreasing every year and the customer demand, on the other hand, increased dramatically. With the need to respond quickly to customer requirements, increased complexity of product design and rapidly changing technologies, selecting the right set of NPD is critical to long-term success of the firm (Chen et al., 2008). Obviously, due to SMEs limited technical and financial capability, the situation will be even more severe for small and medium enterprises (SMEs) than large organizations (Mi et al., 2006). However, virtuality has been presented as a solution for SMEs to increase their competitiveness (Pihkala et al., 1999). The creation of a virtual team is an opportunity to reduce the time in reduce the time in marketing the new products and respond quickly to market demands. May and Carter (2001) in their case study of a virtual team working in the European automotive industry have shown that increasing communication and collaboration between geographically distributed engineers, automaker and supplier sites, which make them get benefits are better quality, lower costs and reduce time to market (from 20 to 50%) for a new vehicle product.

The ultimate objective of all NPD teams is their superior marketplace success of the new product (Akgun et al., 2006). Specialized skills and talents required for the development of new products often lie (and develop) locally in pockets of excellence around the company or even worldwide. Therefore, companies have no choice but to disperse their new product units to access such dispersed knowledge and skills (Kratzer et al., 2005). The successful NPD requires companies to develop routines and practices to collaborate with suppliers, customers and employees of the cross-functional internal (Mishra and

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Shah, 2009). Consequently, companies find that the internal development of all technologies necessary for new products and processes are difficult or impossible. They must increasingly acquire technology from external sources (Stock and Tatikonda, 2004). Virtualization in NDP has recently begun to make serious progress due to developments in technology-virtuality in NPD now is technically possible (Leenders et al., 2003). Virtual NPD in SMEs is in its infancy in developing countries, and little research has been done on the introduction of the NPD in SMEs through a virtual team. So, we formed the topic that is somewhat lacking in the literature as a research gap.

The main objective of this paper is to present a model of critical factors of NPD in small and medium enterprises in developing countries. The rest of the paper is organized as follows:

The main concepts of new product development; reviews recent study on the relationship between NPD and virtuality; explores the importance of SMEs; presents the relationship between SMEs and virtual team; describes the research methodology; presents data collection, data analysis and discussion; and finally, it concludes the paper with some perspectives.

WHAT IS NEW PRODUCT DEVELOPMENT (NPD)?

The literature provided a number of definitions for what constitute a new product development (NPD). Product development definition is used by different researchers in slightly different ways (Ale Ebrahim et al., 2009b). Generally, it is the process that covers product design, pro-duction system design, product introduction processes and start of production (Johansen, 2005). Loch and Kavadias (2008) in the “Handbook of New Product Development Management” define NPD to “consists of the activities of the firm that lead to a stream of new or changed product market offerings over time. This includes the generation of opportunities, their selection and transformation into artifacts (manufactured products) and activities (services) offered to customers and the institutionalization of improvements in the NPD activities themselves”. According to the product development and management association (PDMA) glossary for new product development in the PDMA tool book 3 for new product development (Griffin and Somermeyer, 2007), NPD was defined as “the overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product. Also, it is frequently referred to as product development”. Krishnan and Ulrich (2001) defined “product development as the transformation of a market opportunity and a set of assumptions about product technology into a product available for sale”. NPD has been described in a general form and there is no specified definition for new product development of SMEs virtual team in developing countries, which mean what is NPD, in SMEs virtual team, supposed to be in developing countries? This paper aims to extract the main factors of NPD in selective cases.

NPD AND VIRTUALITY

Given the complexities involved in organizing face-to-face interactions among team members and the advancements in electronic communication technologies, firms are turning toward employing virtual NPD teams (Badrinarayanan and Arnett, 2008). However, information technology (IT) improves NPD flexibility (Durmusoglu and Calantone, 2006). Ozer (2004) discussed that the internet facilitates and improves collaborations and thus increases the performance of new products. Given the resulting differences in time zones and physical distances in such efforts, virtual NPD projects are receiving increasing attention (McDonough et al., 2001). The use of virtual teams to develop new products is growing rapidly and can be dependent on organizations in maintaining a competitive advantage. On the other hand, competitive strategies are forcing companies to deploy their NPD resources globally, thus making collocated NPD teams prohibitively expensive and logistically difficult to manage (Susman et al., 2003). Susman et al. (2003) noted that research will increasingly focus on geographically dispersed NPD teams as their number will grow faster than collocated NPD teams. McDonough et al. (2001) argued that NPD teams are growing very fast, whereas virtuality affects the creative performance of NPD teams (Leenders et al., 2003). For example, Cisco has created the Cisco Collaboration Centre of Excellence to achieve its vision. Despite this industry attention, much is not yet understood about how to effectively collaborate virtuality to facilitate NPD (Susman and Majchrzak, 2003).

Some studies (Martinez-Sanchez et al., 2006) emphasized the challenges and difficulties experienced by virtual and conventional (for new product development) teams, which were not significantly different, although greater than the challenges and difficulties experienced by the in-house teams. NPD in SME’s virtual team has not been systematically investigated in literature. As a consequence, literature only, has not shown significant differences between traditional and virtual NPD in general. However, this paper aims to bridge this gap.

SMALL AND MEDIUM ENTERPRISES (SMES)

SMEs are a major part of the industrial economies (Eikebrokk and Olsen, 2007) and their survival and growth have therefore, being a prominent issue. The contributions of SMEs to employment and the countries’ gross domestic product (GDP) are highly significant

(Kotelnikov, 2007). Acs et al. (1997) argued that small firms are indeed the engines of global economic growth, whereas small and medium enterprises (SMEs) play an important role in promoting economic development. Many economists believe that the wealth of nations and the growth of their economies strongly depend on the performance of their SMEs (Schröder, 2006). In many developed and developing countries, small and medium-sized enterprises (SMEs) are the unsung heroes that bring stability to the national economy and help buffer the shocks that come with the boom and bust of economic cycles. SMEs also serve as the key engine behind equalizing income disparity among workers (Choi, 2003).

SMEs seem to be appropriate units when behaving like network nodes because of their lean structure, adaptability to market evolution, active involvement of versatile human resources, ability to establish a sub-contracting relation and good technological level of their products (Mezgar et al., 2000). In light of the above, SMEs have advantages in terms of flexibility, reaction time and innovation capacity that make them central actors in the new economy (Raymond and Croteau, 2006).

SMEs definition

There are many accepted definitions of SMEs and the classifications vary from industry to industry and from country to country (O'Regan and Ghobadian, 2004). Table 1 illustrates a summary of SMEs definition in the manufacturing sector of selected countries. In most countries that are listed in Table 1, the definition is applicable to all sectors of the enterprises. Different countries adopt different criteria such as employment, sales or investment for defining small and medium enterprises (Ayyagari et al., 2007). At present, there seems to be no consensus on the definition of SMEs (Deros et al., 2006). In the absence of a definitive classification, an agreement has developed around the European Commission (EC) criteria for SME classification (O'Regan and Ghobadian, 2004). This definition adopts a quantitative approach emphasizing "tangible" criteria, employee numbers (up to 250 employees), turnover and balance sheet statistics (Tiwari and Buse, 2007). While turnover and balance sheet statistics are part of the criteria, the overriding consideration in practice appears to be an employee number based. Even if all three criteria were afforded equal consideration, it could be argued that the definition fails to take into account the attributes of a modern day small firm than to the medium-sized firm. The case studies employed here are SMEs in the Malaysian and Iranian manufacturing sector, which are chosen according to the EC definition of SMEs (Figure 1).

SMEs and virtual team

Past literature often hypothesized that SMEs were not innovated formally in recognized ways, and that they made much more extensive use of external linkages (Laforet and Tann, 2006; Hoffman et al., 1998). However, the SME is not a scaled-down version of a large company. It has different characteristics that distinguish it from large corporations and can of course change across different countries and cultures. Moreover, they are generally independent, multi-tasking, cash-limited and based on personal relationships and informality, as well as being actively managed by the owners, highly personalized, largely local in their area of operation and largely dependent on internal sources to finance growth (Perrini et al., 2007). To survive in the global economy, SMEs have to improve their products and processes by exploiting their intellectual capital in a dynamic network of knowledge-intensive relations inside and outside their borders (Corso et al., 2003). So if small firms want to make a step change in their technological and innovational base, they may have to rethink their approach to cooperation (Hanna and Walsh, 2002). SMEs need to focus on core competencies for efficiency matters; however, they need to cooperate with external partners to compensate for other competencies and resources. This is especially the case in the field of new product development, where SMEs face specific problems in comparison to large firms (Pullen et al., 2008).

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 et al., 2003). The SMEs are one of the sectors that have a strong potential to benefit from advances in information and communication technologies (ICTs) and the adaptation of new business modes of operation (Miles et al., 2000). The use of ICTs can be considered as key factors for innovation and entrepreneurship; however, it is a must for SMEs to innovate ICTs (Redoli et al., 2008). More so, It is especially urgent for SMEs to construct a service platform of network to speed up the product development process (Lan et al., 2004). Collaboration is particularly critical when SMEs are involved with the aim of developing new products (Romero et al., 2008).

The success of developed countries can be attributed to factors relating to the emergence of new business technologies and cultures, such as virtual technology. This constituted the soft-technology complex that provided the environment for innovation and the effective application of technologies (Zhouying, 2005). Developing countries are, on the other hand, characterized by the absence of soft technology and limited abilities to make effective and efficient use of the technologies they obtain through a variety of transfer mechanisms, and to innovate and compete in the global market. Many SMEs have difficulties achieving successful innovation, despite having significant investment in research and development (O'Regan et al., 2006). Gassmann and Keupp (2007) found that managers of SMEs should invest less in tangible

Table 1. Definition of SMEs in the manufacturing sector of selected countries (Adopted from Ale Ebrahim et al., 2009a).

Country	Category of enterprise	Number of employee	Turnover	Other measure
European Commission (EC) criteria	Small	10 - 50	Less than € 10 (13.5 USD) million turnover	Balance sheet total: Less than € 10 (13.5 USD) million balance sheet total
European Commission (EC) criteria	Medium	Fewer than 250	Less than € 50 (67.6 USD) million turnover	Balance sheet total: Less than € 43 (58.2 USD) million balance sheet total
Indonesia	Small	5 – 19		Annual value of sales of a maximum of IDR1 billion (110,000 USD)
Indonesia	Medium	20 – 99		Annual value of sales of more than IDR1 billion, but less than IDR50 billion (5.5 million USD)
Iran	Small	Less than 10* Less than 50**		
Iran	Medium	10 - 100* 50 - 250**		
Japan		Less than 300		¥100 (1.1 USD) million assets
South Korea		Less than 300		
Malaysia	Small	5 to 50	Between RM 250,000 (75,000 USD) and less than RM 10 (3 USD) million	
Malaysia	Medium	50 to 150	Between RM 10 (3 USD) million and RM 25 (7.5 USD) million	
Philippines	Small	10 - 99		Between PHP 3 - 15 million (66,000 -330,000 USD) asset
Philippines	Medium	100 - 199		Between PHP 15 - 100 million (330,000 - 2.2 million USD) asset

*USD selected as a reference currency and the conversion is approximate.

assets, but more in those areas that will directly generate their future competitive advantage (for example, in R&D to generate knowledge, and in their employees' creativity to stimulate incremental innovations in already existing technologies). Moreover, the web-because of its easy access to large numbers of potential customers at reasonable cost may especially aid smaller companies that have not enjoyed the same national reach or financial resources as larger companies for market research (Buyukozkan et al., 2007). Levy et al. (2003) state that SMEs are knowledge creators but are poor in knowledge retention. They need to be proactive in knowledge sharing

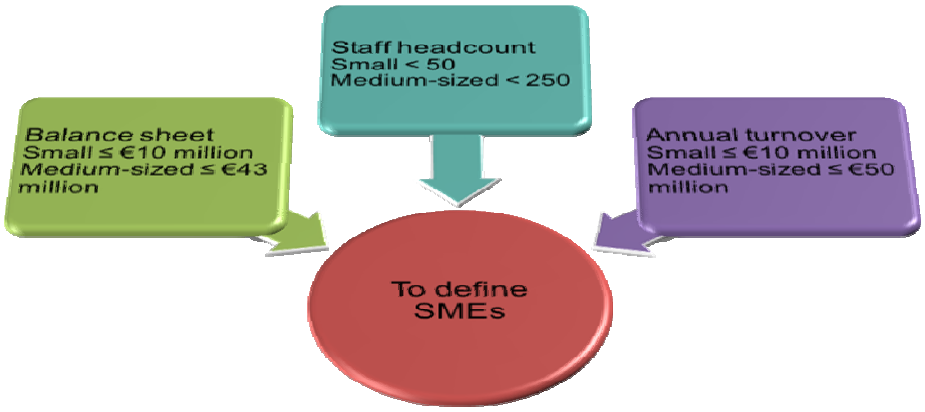

Figure 1. European Commission (EC) criteria for classification of SME (used in this research).

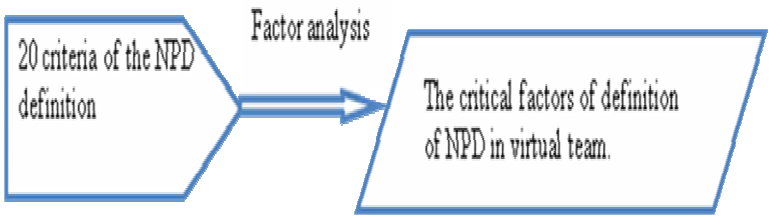

Figure 2. Research framework.

knowledge sharing arrangements in order to recognize that knowledge has value and that the value added is derived from knowledge exchange (Egbu et al., 2005).

RESEARCH METHODOLOGY

This research applied a statistical approach based on factor analysis and research framework (Figure 2). Factor analysis is a technique that attempts to identify underlying variables or factors that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance that is observed in a much larger number of manifest variables. It is also suitable for analyzing the patterns of complex, multidimensional relationships encountered by researchers (Fathian et al., 2008).

Based on the main factors in NPD, 20 questions were derived from the literature review and an online questionnaire was designed. To help disentangle the concepts of new product development in the virtual team of SMEs, 20 individual criteria were asked from respondents (Table 2). These criteria have been grouped together through factor analysis to form the critical factors of NPD in virtual teams. The respondent asked a series of questions such as NPD 1: “Based on your organizations, is a new product/process development the use of things already known (reverse Engineering)? “

Data collection

The research target was manufacturing SMEs in Malaysia (M) and Iran (I) that are using the virtual team in their organization. In order to understand the viewpoints of SMEs on NPD, an online questionnaire has been sent to relevant SMEs in both countries. The rapid expansion of internet users has given web-based surveys the potential to become a powerful tool in survey research (Sills and Song, 2002). Denscombe (2006) findings encourage social researchers to use web-based questionnaires with confidence, and the data produced by web-based questionnaires are equivalent to that produced by paper-based questionnaires. Other authors emphasized that the data provided by the internet methods are, at least, of good quality as those provided by traditional paper-and-pencil methods (Deutskens et al., 2006). However, minor differences occur between the two survey methods. Online respondents provided more improvement suggestions (Deutskens et al., 2006) which tended to be slightly longer than those from the paper version. As a result, the differences are not statistically significant (Denscombe, 2008).

The main sampling target was the managing director, R&D manager, the new product development manager, project and design manager and appropriate people who were most familiar with the NPD in the firm. For better understanding, the questionnaire has been prepared into different languages, that is, English and Persian. Consequently, the Iranian respondents could select either English or Persian version of the questionnaire. A total number of 3,625 e-mails have been sent to relevant SMEs and 686 of them clicked the online web page and answered the questionnaire. Out of 686 respondents, 190 SMEs responded completely and the rest answered partially. Table 3 summarized the online survey data collection. Only 121 firms met the criteria of SMEs definition in this research, so the rest of the respondents deducted from the factor analysis. A cross-tabulation descriptive statistics was employed to find the frequency and relationship between the country and

Table 2. Criteria (20) of the NPD.

Question	Criteria
NPD1	The entire R&D activities
NPD2	The use of things already known (Reverse Engineering)
NPD3	Making use of existing technologies (Adaptation)
NPD4	Increase efficiency of product
NPD5	Meet the role and regulation
NPD6	Improvement in product functionality/quality
NPD7	Improvements in elements of product technologies
NPD8	Major innovation in product technologies
NPD9	Major innovation in products as a whole
NPD10	Creation of new product concepts
NPD11	Improvement in the product process
NPD12	Reduction in quality problems
NPD13	Surprise or delight customers
NPD14	Replacing products that are phased out
NPD15	Extending product range
NPD16	Reducing production lead times
NPD17	Gaining new markets or market share
NPD18	Reducing labour costs
NPD19	Reducing material consumption
NPD20	Reducing energy consumption

Table 3. Summarized online survey data collection.

Numbers of e-mails sent to Malaysian (M) SMEs	Numbers of e-mails sent to Iranian (I) SMEs	Total e-mails sent to SMEs	Total responses (click the online web page)	Total responses/ sent (%)	Total completed	Total completed/ sent (%))	Total completed/ received (%)
2068	1557	3625	686	18.9	190	5.2	27.7

virtuality as illustrated in Table 4.

Data analysis

In the case of reliability analysis, Cronbach's (1951) alpha was employed to measure the internal consistency of the 20 factors. A reliability test was carried out to ensure that the research finding have the ability to provide consistent results. Cronbach's alpha for the 20 NPD factors was found within acceptable limits and was found to be 0.926, which means that there was a high reliability for the designed questions. In order to conclude whether the partial correlation of variables was small, the authors used the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Chi-square test of sphericity (Fathian et al., 2008). Table 5 summarized the results of KMO, which is 0.863 and the significant value of Bartlett's test in less than 0.05, which

Table 4. Cross-tabulation between country and virtuality.

			Virtuality NPD		Total
			Yes	No	
Country	Iran	Count	50	18	68
		% within country	73.5	26.5	100.0
	Malaysia	Count	19	34	53
		% within country	35.8	64.2	100.0
Total		Count	69	52	121
		% within country	57.0	43.0	100.0

Table 5. KMO and Bartlett's test results.

Kaiser-Meyer-Olkin measure of sampling adequacy		0.863
Bartlett's test of sphericity	Approx. chi-square	961.993
	df	190
	Sig.	0.000

means there was a good correlation.

An exploratory factor analysis was conducted on 20 NPD factors using a principle component analysis with a varimax rotation and an Eigenvalue of 1 as the cut-off point (Akgün et al., 2008) and an absolute value of a factor loading that is greater than 0.5 (Fathian et al., 2008). The items and their factor loadings, after exploratory factor analysis, Eigenvalue and percentage of variance explained, appear in Tables 6 and 7. The 20 factors were grouped into five higher level constructs, which had an Eigenvalue greater than one.

DISCUSSION

The authors attempted to identify and named the confirmed factors based on the principle of being concise without losing clarity of meaning. After extracting the higher level constructs, variables with higher loadings are considered more important and have greater influence on the name of selected reduced factors. The names and contents of five derived factors are discussed.

Factor 1

It consists of NPD 17 to 20, which are “gaining new markets or market share“, “reducing labor costs”, “reducing materials consumption” and “reducing energy consumption”, respectively. This factor is named “process features”.

Factor 2

It consists of NPD 4, 5, 12 and 13, which are “increase efficiency of product”, “meet the role and regulation”, “reduction in quality problems” and “surprise or delight customers”, respectively. Since NPD 12 has higher loading (0.794), this factor was named “customer demand“.

Factor 3

It consists of NPD 2, 3, 7 and 15, which are “the use of things already known (reverse Engineering)”, “making use of existing technologies (adaptation)”, “improvements in elements of product technologies” and “extending product range”, respectively. This factor is named “technology features”.

Factor 4

It consists of NPD 6, 8, 10 and 11, which are “improvement in product functionality/quality”, “major innovation in product technologies”, “creation of new product concepts” and “improvement in the product process”, respectively. This factor is named “innovative process”.

Factor 5

It consists of NPD 1, 9, 14 and 16, which are “the entire R&D activities”, “major innovation in products as a whole”,

Table 6. Factor analysis results.

Component	Initial Eigen values			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	9.683	48.417	48.417	3.370	16.851	16.851
2	1.643	8.214	56.631	3.022	15.108	31.959
3	1.202	6.011	62.641	3.012	15.058	47.017
4	1.112	5.558	68.200	2.934	14.670	61.687
5	1.000	5.001	73.201	2.303	11.514	73.201
6	0.812	4.061	77.262			
7	0.767	3.837	81.099			
8	0.605	3.026	84.125			
9	0.546	2.729	86.854			
10	0.465	2.324	89.178			
11	0.400	1.998	91.176			
12	0.342	1.712	92.888			
13	0.322	1.609	94.497			
14	0.229	1.145	95.642			
15	0.225	1.123	96.764			
16	0.212	1.061	97.826			
17	0.149	0.746	98.572			
18	0.108	0.538	99.110			
19	0.091	0.455	99.565			
20	0.087	0.435	100.000			

Extraction method: Principal component analysis.

Table 7. Rotated component matrix sorted by size.

	Component (Cronbach's alpha) t				
	1 (.850)	2 (.821)	3 (.749)	4 (.790)	5 (.735)
NPD19	0.792	0.134	0.248	0.218	0.019
NPD18	0.762	0.287	0.232	0.103	0.227
NPD20	0.715	0.250	0.325	0.142	0.135
NPD17	0.515	0.364	-0.052	0.282	0.343
NPD12	0.278	0.794	0.313	0.155	0.203
NPD4	0.238	0.784	0.135	-0.288	0.069
NPD5	0.203	0.754	0.345	0.105	0.237
NPD13	0.379	0.462	0.280	0.275	0.453
NPD7	0.144	0.141	0.721	0.512	0.089
NPD2	0.372	0.218	0.706	0.148	-0.002
NPD3	0.169	0.258	0.670	0.165	0.219
NPD15	0.130	0.296	0.653	0.220	0.457
NPD10	0.149	-0.059	0.322	0.721	0.228
NPD8	0.186	0.205	0.332	0.710	0.040
NPD6	0.206	0.393	0.136	0.668	0.041
NPD11	0.528	0.308	-0.016	0.580	0.171
NPD14	0.126	0.117	0.542	0.267	0.649
NPD9	-0.016	0.237	0.180	0.546	0.604
NPD16	0.569	0.034	0.090	0.170	0.591
NPD1	0.380	0.335	0.114	-0.133	0.569

Extraction method: Principal component analysis; Rotation method: Varimax with Kaiser Normalization.

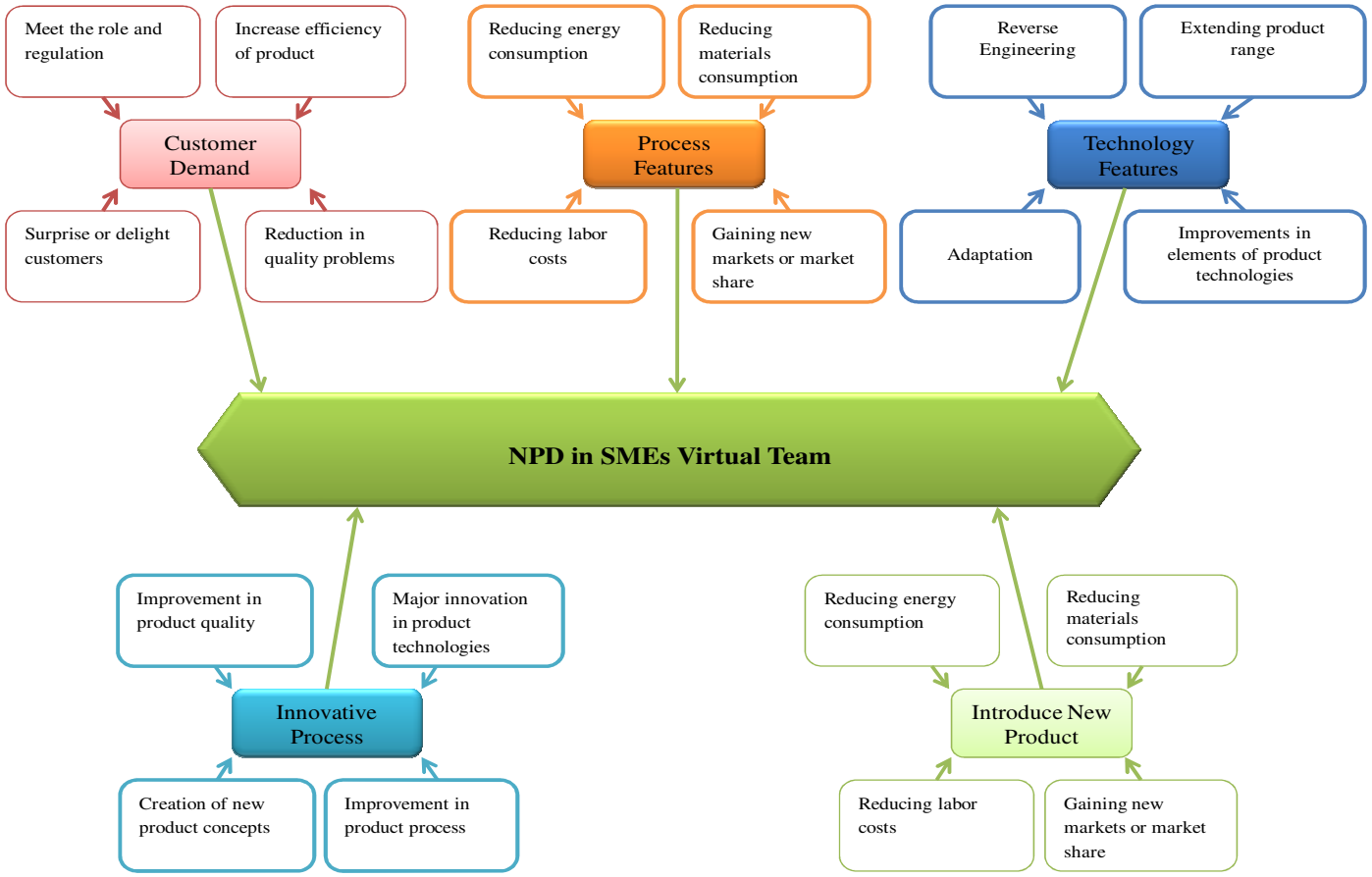

Figure 3. A conceptual model of NPD in SMEs virtual team (based on research results).

"replacing products that are being phased out" and "reducing production lead times", respectively. Since NPD 14 has been a higher loading (0.649), this factor was named "introduce new product".

All the aforementioned factors are summarized in Figure 3. This new conceptual model is based on data analysis of the survey findings. The conceptual model provides an overview of NPD understanding in SMEs (the ones which are familiar with virtuality) of some selected developing countries. Although more than half of the respondents are working on virtual team bases for new product developments, the virtual team application in SMEs is still in infancy. Slightly, more than 80% of the SMEs have not received an e-mail invitation to participate in an online survey (Table 3).

SMEs, especially in developing countries, severe from the lack of resources and manpower (Ale Ebrahim et al., 2009a) and as a result, the ability to consistently select the best factors to investigate, is therefore, vitally important to firms in the said countries. Hence, the manager of NPD team in SMEs has to optimize the new product process. This new conceptual model works as a tool to help a manager of the NPD team to focus on the major and important issues in NPD process, which lead to an increase in the efficiency of the procedure for new products. For academic researchers, this study contributes to a theoretical understanding of the factors that promote the diffusion of NPD in SMEs.

Conclusion

Factor analysis provides direct insight into the interrelationships between 20 variables and reduced it to five components. The first factor which is "process features" and which is a combination of "gaining new markets or market share", "reducing labour costs", "reducing materials consumption" and "reducing energy consumption", is more important than the rest four factors. So managers of firms in developing countries should consider the main factors in NPD. Customers demand (people) and technology features are respectively important after process issues. Therefore, going along with

Ebrahim et al. (2009c) recent research, people and process are more important in the virtual team than about technology.

Table 3 shows slightly, that above 18% of SMEs have received the online survey e-mail invitation. So it can conclude that most SMEs in the selected developing countries are still developing a new product in the traditional way, and they are not adopted with new information and communication technologies. As virtual NPD in SMEs is in its infancy in developing countries, it seems to be a necessary start for the introduction of the virtual team in the SMEs. The first step is perceived as NPD in this new environment, which is explored in this study.

This study is probably the first to present a conceptual model for the NPD issue in SMEs of the selected developing countries. The future research needs to investigate the model and verify it by a larger sample of SMEs from different sectors, since this study was limited to the manufacturing sector. In a larger sample, it is possible to compare the results between Iran and Malaysian SMEs.

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