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Project Quality Management for Small and Medium Enterprises (SMEs) in Trade

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ABSTRACT

Managing project quality is becoming focal issue in major enterprises as popular quality programs from International Standard Organization (ISO) such as ISO9000 certification processes gain momentum. Large organizations as well as small-medium enterprises (SMEs) seem to implement this program, albeit for varied reasons. In this paper, we have reported the findings from an action research project conducted in SMEs who are implementing quality management. The findings indicate that external pressures such as regulations, competition and perceived success – defined on their own parameters, may be the drivers and the certification does not necessarily result in better performance. We are in the process of developing a cost-effective guideline/framework – based on this research, for SMEs involved in the certification process. In addition, the results are aimed at informing academia as well as certification bodies of specific concerns with SMEs.

INTRODUCTION

With the widespread development of Information Systems projects, the notion of managing quality within organizations has received much attention in the recent decade (Rao et al. 1996). Catering to this underlying need, many forums have developed standards for implementing quality processes and some of them include ISO certification, Six Sigma initiatives, Malcolm Baldridge National Quality Award (Garvin 1991) and the capability maturity model or CMM (Marchewka 2003; Rao et al. 1996). Many organizations – especially in the manufacturing and services sector (Laframboise 2002) are forced to comply with quality standards such as ISO 9000 certification (Wiele et al. 2000; 2001).

Most quality management research assumes that quality management practices are beneficial to all organizations on a global level (Smith et al. 1994). However, as studies indicate (Brown et al. 1998), quality initiatives have not always been successful, especially with Small to Medium Enterprises (SMEs). With failure rates as high as 67 percent indicated after having quality programs in place for 2 years (Training and Development 1992; Smith et al. 1994), their applicability to SMEs have been questioned by many researchers (see Reed et al. 1996; Sitkin et al. 1994).

Literature is still nascent on the applicability of quality management standards to SMEs and much of the focus is on best practices that are pro-standardization. Lately, guidelines have been made for SMEs by the certification bodies (ISO Bulletin 2002). There is however, neglect of SMEs as key players, or the organizational context within which the standards need to be adopted namely, small businesses (Chau and Turner 2002). The actual intentions for implementing quality standards are perhaps overlooked. Our action research project was set in this premise, driven by the question: *Are the available Project Quality Standards applicable to SMEs?* We report our findings in this paper.

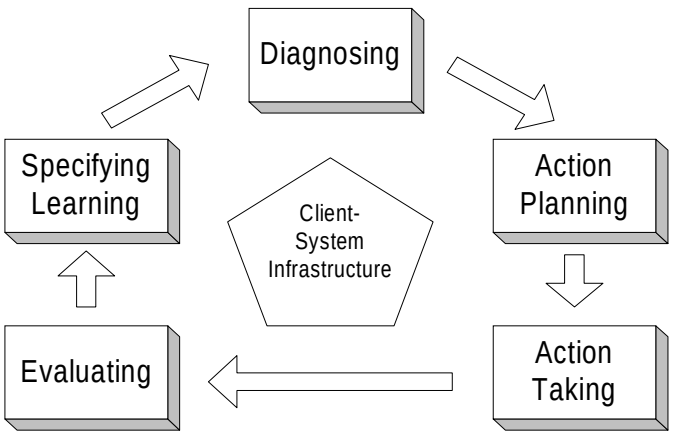
THE RESEARCH FRAMEWORK

Our research was based on the post positivist philosophical approach of Action Research – which embraces the principles of participation, reflection, empowerment and emancipation of groups interested in improving a social condition (Berg 2004). Action research is described as a spiral of activity: plan, act, observe and reflect (Kemmis and McTaggart 1988). The iterative process (see figure 1) requires researchers and practitioners working together in diagnosing a problem and learn by reflecting on past cycle (Susman 1983).

Many distinctive types of action research have been found in the literature such as the three modes – technical, practical and emancipating (Grundy, 1988); three types – technical collaborative, mutual collaborative, enhancement approaches (Holter and Schwartz-Barcott, 1993); three types – scientific –technical view of problem solving, the practical deliberate action research, critical emancipating action research (McKernan 1991). Collapsing the similar categories, Berg (2004) has derived a technical/scientific/collaborative mode, a practical/mutual collaborative/deliberate mode and an emancipating/enhancing/critical mode.

We have chosen the "practical/mutual collaborative/deliberate mode", where the researcher and practitioner come together, collaboratively identify problems and issues, underlying causes and possible interventions (Holter and Schwartz-Barcott, 1993; 301). The key researcher and practitioners (in this case SMEs) assessed the situation, reached a mutual understanding – enabling a 'practice oriented' (Grundy 1988:357) approach, aimed at improving practice and service delivery of the practitioner. The communication flow begins with the researcher and facilitator working collaboratively – then

Figure 1: The cyclical process of action research (Susman 1983).



flowing from the practitioner (facilitator) to the group of stakeholders. The "hermeneutic circle" allows the researcher to play an active part in the change process and influence it, by being included in the evaluation process (Avison et al. 1999).

The key researcher in this case was able to engage actively with SMEs to understand issues regarding PQM implementation. The design of this type of action research creates a more flexible approach in that it embraces a greater concern for empowering and emancipating stakeholders working with the practitioner. However, this gain in flexibility is reduced to certain degree of precise measurement and control over interpretations, interactive communications and detailed descriptions (McKernan, 1991). Nevertheless, this is not the primary goal of this mode, as it is rather aimed at understanding practice and solving immediate problems. It was considered that this approach is dependant on change agents (both researcher and practitioner) who influence the processes and as they leave the system, the iterative process may cease (Berg 2004). However, the biases developed by this approach were well documented, thus to a certain extent making the research an asset for future use.

The researchers involved were able to go through the iterative cycle, influence project quality management decisions and facilitate change management within the SMEs involved. However, the findings reported in the paper are rather concise due to restricted space and confidentiality issues. A descriptive framework aimed at future research is being developed.

DEFINING THE CONTEXT

With globalization, most companies are organizing their practices as projectised ventures (Marchewka 2003). For the purposes of this paper, we define organizations as SMEs and quality management practices as Project Quality Management (PQM). We also use 'quality management' or simply 'implementing quality standards' in this paper interchangeable, broadly defined as under.

The Project Management Body of Knowledge defines PQM as the… *process required to ensure that the project will satisfy the needs for which it was undertaken. It includes all activities of the overall management function that determine the quality policy, objectives and responsibility and implements them by means of quality planning, quality assurance, quality control and quality improvement, within the quality system*… (Rao et al. 1996).

Our action research study focused on SMEs based in the trade sector with the most applicable quality standard appearing to be ISO (Brown and Wiele, 1998). ISO was officially formed in 1947 with delegates from 25 countries to facilitate the international co-ordination and unification of industrial standards (Wiele et al. 2000; 2001). It is a defined set of standards for companies to conform to and was considered to be the basis of ensuring quality output. ISO has become a system leading national standards institutes from 145 countries working in a partnership with international organizations, governments and industry, business and consumer representatives. It is not owned or managed by any one national government, but has multiple member organizations.

ISO standards are specific to a particular product, material, or process and a set of standards make up the ISO 9000 and ISO 14000 families. The standards were revised in 2000 and are now called ISO 9000:2000, focusing on 8 management principles that provide a framework for organizations in managing quality as provided in the table (refer ISO Bulletin 2002; Wiele et al. 2002). A certificate is given after a successful audit as proof to show that the organization meets the relevant standards. For organizations whose business process ranges from design through to development, as well as production, installation and service the relevant certification is ISO 9000. However, ISO does not conduct audits or issue certificates. If an organization aspires to get certified, it has to study the guidelines and requirements, identify gaps, correct them and then call on a third party called the registrar to audit its quality management system. If the registrar is satisfied, it will issue the certificate (ISO Bulletin 2002; Wiele et al., 2002).

The evidence in literature suggests that the ISO certification is market driven (Seddon 1997; Wiele et al. 2000, 2001, 2002). It has become a *quasi* condition of being in business and for being successful. The popularity of ISO is evident from the number of ISO 9000 series certificates issued worldwide (Marchewka 2003). Once several organizations have certification in one country, there is a snow balling or pyramid selling effect as competitors are forced to do likewise in order to comply.

Studies show that for the 160 ISO 9000 certified organizations in Australia (Chau and Turner 2002) - the main reason for getting the certification was to increase market share and also efficiency. In the UK, a survey by Lloyds Register Quality Assurance in 1994 reported a highly favorable action with benefits including valuable public relations and marketing tools; increased ability to bid for contracts; few customer audits and help for entry into international markets (Marchewka 2003). However, there are organizations that can fulfill ISO requirements by describing their key processes. There is an increasing need for self-assessment in organizations (Rayner and Porter 1991).

PQM INITIATIVES FOR SMES

The major driving force for SMEs seeking certification is that large organizations are forcing their suppliers - who are mainly SMEs to comply with the standard, especially in the European market. However, the applicability of certification – especially ISO for SMEs has been debated in many forums (Rayner and Porter 1991; North et al. 1998; Brown and Wiele 1998). The ISO bulletin (2002) itself suggest that SMEs do not play a leading role in either making or using standards, due to their organizational and financial position. It is often the market pressure or regulations that impose the use of standards and establishment of quality management systems upon SMEs. Large customers of SMEs - often multinationals – demand the conformity of products and standards, with the establishment of quality management systems. Governments and Trade Chambers also impose safety and environmental standards for SMEs to follow. Among exporters, international or European standards are used to gain access to foreign markets.

There have been specific training initiatives organized by agencies such as European Space Agency jointly with its Innovation Programme sponsors **LIFT** (**L**inking **I**nnovation, **F**inance and **T**echnology) (ESA 2001). A series of courses are offered to SMEs, among which the Quality Assurance course takes prime importance, as it provides basic understanding of PQM to SMEs. The Bremen's Quality Management Model is one of the innovative coaching approaches to efficiently introduce QM systems in SMEs in accordance to ISO 9000 (AIB 2003). With minimized external support, most tasks are executed by the company staff, with experts supporting the companies with guidelines and their experience. The SME is subsequently able to apply and maintain the introduced methods independently. This 'learning by doing' approach with strong participation between and within SMEs seem to be a success with more than 140 SMEs in Germany completing the process and three more countries – India, Brazil and Poland – taking on its application.

Some studies show that SMEs are disappointed by ISO 9000 certification as a non-certified company was awarded contracts by a customer who required them to be certified (Brown and Wiele 1998). This has lead to disillusionment with ISO 9000 as there seem to be high costs involved in the certification process. By contrast, North et al. (1998) introduced the notion of informal quality management process in SMEs, without adopting ISO 9000. Two factors are elicited by Brown (1999) that quality management is top driven in SMEs and has considerable reliance on the expertise /judgment of individual employees to deliver quality. Quality onus seems to be driven by the owner of the SME (Brown 1999).

PQM AND SMES - THE ACTION RESEARCH STUDY

From our background research as cited in the previous sections, it became evident that the impact of PQM implementation on SMEs is rather high in Europe. Therefore, we chose to do our action research study within a rural location in Germany, more specifically three trade businesses classified as SMEs.

Some of those SMEs were also part of a wider investigation on SMEs and project management – making them an ideal context given the trust and relationship established between the key researcher and the practitioners.

Table 1: Structure of the SMEs

Business	SME 1	SME 2	SME 3
Trade	Telecommunication	Steelworks	Carpentry
No of Employees	9	27	14
Key person involved	Owner's Spouse	Manager	Owner
Characteristic	Owner founded, relative young business, emphasis on training of employees, Innovative, Trade as well as Retail, urge for expansion	Traditional, established, Government contracts, well structured processes, reputable, production on site	Second Generation, recently taken over from father, new ideas, new technologies, innovative, production on site, educated

RESEARCH RESULTS AND DISCUSSION

The key researcher had an established communication with the SMEs as practitioners and was able to influence and facilitate the process of action research. Initial discussions and joint discovery of problems associated with ISO certification was possible, resulting in a reflective process. The motivations and issues connected were elicited through discussions.

The main motivation for all three businesses was success – as determined by their own parameters. However, the definition of success has not been uniform across these businesses. One obvious interpretation of success was *financial success* in terms of earnings or profit. Interestingly, for others success was also the notion of being able to provide better service to customers than their competitors or produce better quality products – impacting not just the customer but also employees, suppliers and other stakeholders.

A not to be underestimated motivation for SMEs in Trade sector, to engage in project quality management and especially the ISO 9000 certification process, is that many larger corporations as well as the government service require certification to issue contracts. So many SMEs have to comply with this requirement and get certified. In some trade sectors, certification is rather a mandatory requirement - to be allowed to perform certain tasks such as the installation of security systems. There seems to be a distinct correlation between quality management and business success. During this research, we found that the three SMEs had very similar customer bases in that all three were working with private customers, government and in cooperation with larger enterprises. Their main competition was other SMEs, except for one which was directly competing with large businesses on a day to day basis. However all of these businesses were established in their respective fields and had a strong customer base.

As is typical for SMEs, all of them were owner driven – meaning that the main input on enterprise strategy or long term planning came from the owner. The owner is a *patriarch* - who had his eye on the financial situation as well as on the employees. He takes the role of instructor for the apprentices and assumes the major responsibility for others as coworkers. Since the trade business is owned by him - any expenditure related to his private financial situation and therefore, any investment undertaken was very conscientious. None of the three SMEs had created a special department for quality management and the implementation / monitoring was assigned to the person in charge of production. However, the necessity for implementing quality was motivated by varied factors or rather viewed different by all three SMEs.

For the first SME, quality standards served as a distinguishing factor to its competitors. The certificate was expected to show that this business operates to the highest possible standards and therefore will perform a better (*and possibly more expensive job*) than its competitors. Quality implementation was viewed as necessary to enable this SME to compete with large organizations — as customers were likely to trust reputed, large organizations with higher profile than them. Therefore, ISO 9000 was successfully implemented, audited and certified - with certification visible on all business communications and advertisements.

For the second SME quality management was a viewed as a means of structuring the way the business operated, facilitating transparency – among partners. The main drivers were the financial benefit and the knowledge that quality implementation will result in improved production, better customer service and reduced complaints. However, there was no motivation to get an ISO certification as it was not a legal requirement and it was not considered beneficial for the business to spend the extra funds in obtaining a certificate. Moreover, it was also perceived that the customer base will not improve because of this certificate – and the business already had an established reputation for delivering high quality products. The ISO 9000 was being used a guideline for improving production quality and facilitating transparency in business processes.

Table 2: Analytical framework

Categories	Concepts	Data from SME1	Data from SME2	Data from SME3
Environment	**Customers**	Public/ Government/ Businesses	Public/ Government/ Businesses	Public/ Government/ Businesses
	Competitors	Larger businesses and other SMEs	Other SMEs	Other SMEs
Organizational Context	**Structure of the Firm**	Owner driven	Owner driven	Owner driven
Quality Context	**Role of Quality Standards**	Distinguishing factor	To please partners	Innovator
	Quality Dept structure/staff	No Dept Owner	No Dept Manager	No Dept Owner
	Quality policies and practices	ISO 9000 certified	ISO 9000 as guideline	ISO 9000 as process
Conditions for adopting standards	**Articulating of the need for standards**	Necessary to get contracts	Assists business processes	Innovative and might draw customers
	Formulating PQM initiatives	Success*	Success*	Success*
Adopting PQM standards	**Implementation**	ISO 9000	Not planned	In progress
	Reflection on operations and structure	Defines business processes	No impact	To be seen in future research

The third SME viewed quality implementation as a measure to be innovative in its field. There was the notion that cooperating businesses as well as the governing body would enforce certification in the not too distant future. Getting involved in quality management was certain to be auxiliary to the production process and there was a good chance that the actual certification will assist in winning new customers. The actual certification process had been started and the business was finding it challenging to comply with the documentation requirements because of the additional workload that is difficult to stem for an SME. Future research may show as to what extent the implementation and the certification have assisted the business in its goal and if it was financially advantageous.

CONCLUSIONS

The literature review and existing studies suggest that there are many standardization initiatives in place and available for SMEs. However, from our action research, the emergent factor seem to be that SMEs do not implement quality for 'quality' purpose, but rather for other benefits such as gaining financial reputation, for marketing themselves, showing transparency of processes within, complying with regulations and overall gaining a perceived competitive edge over competitors. Although PQM implementation had different motivations for each of the SMEs studied – there appeared to be a common thread – 'success' as defined by their own varied parameters.

During the Study it emerged that ISO 9000 was most applicable standard for these SMEs in trade, and therefore, we restricted our study to this standard. However, from the findings, we are skeptical about the validity of this standard for SMEs within the trade sector. There appears to be no direct correlation between quality certification and being a high quality performer. The compliance with ISO 9000 documentation may not necessarily result in enhancing the performance of SMEs who engaged in the certification process.

On another note, the implementation guidelines as set out by ISO 9000 may be useful for SMEs, but perhaps a bit overpowering. Most of them may not have the manpower and economic viability to absorb the costs of implementation and therefore, it would be more suitable to have a set of regulations or guidelines that are more applicable to SMEs with less emphasis on documentation, especially in this context. This would enable SMEs to focus on project quality relevant processes without the expenditure of complying with ISO 9000 regulations. We form the following preliminary hypotheses based on this research:

h_0 Quality management is beneficial for projects in SMEs
h_1 Compliance with ISO 9000 will not provide a cost-benefit to SMEs over time.

Subsequently, we intend to do a quantitative study to further validate our hypothesis and build on those results as well as the current research, to develop a framework for (cost) effective project quality management implementation for SMEs.

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