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Socio-Technical Aspects of Quality and Productivity in SMEs

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SOCIOTECHNICAL ASPECTS OF QUALITY AND PRODUCTIVITY IN SMES

by

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Small- and medium-scale enterprises (SMEs) are a very heterogeneous group. They include a wide variety of firms—village handicraft makers, small machine shops, restaurants, and computer software firms—that possess a wide range of sophistication and skills, and operate in very different markets and social environments. Their owners may or may not be poor. Some are dynamic, innovative, and growth-oriented; others are traditional “lifestyle” enterprises that are satisfied to remain small.

The statistical definition of SMEs varies by country, and is usually based on the number of employees or the value of assets. The lower limit for small-scale enterprises is usually set at 5 to 10 workers and the upper limit at 50 to 100 workers. The upper limit for “medium-scale” enterprises is usually set between 100 and 250 employees. Since statistical definitions vary, it is very difficult to compare size distributions across countries. However, one should not be overly concerned about the lack of consistency in employment-based SME definitions, since the number of employees, viewed in isolation from the size of markets or the economy, may be misleading. Moreover, other characteristics of the firm, such as the degree of informality or the level of technological sophistication, may matter more than the number of employees as a segmentation factor.

QUALITY AND PRODUCTIVITY

The two important terms play a major role in survival and growth of SMEs operating in a very competitive environment. Their surrounding issues that need to be addressed and discussed include applications of existing tools, invention and development of new concepts, and determination of suitability for new techniques from outside sources. Social interaction in conjunction with technical realization of quality-productivity tools provides framework for organizational growth. There have been several new and emerging findings, practices, and management within the context of organizational productivity and quality. Given the volatility in economy and business environment, this convention provides a great opportunity and venue for presentation and exchange of ideas among academia’s, researchers, and practitioners.

It is the responsibility of our industrialists, owners, and investors to shape up the culture of their organizations for this quality-productivity revolution.
This has been discussed in detail in the forthcoming pages under:

1. Human Resource Development
2. Evaluating the impact of intervention
3. Return on training investment
4. Elements of quality practice
5. The current quality improvement activities.
6. Accomplishments and remaining Hurdles

HUMAN RESOURCE DEVELOPMENT

RD is an integrated area of study of the developmental practices of organizations so that they may achieve higher levels of individual and organizational effectiveness. It is widely acknowledged that within an organization, whether a large enterprise or a SME, this single most important factor can very easily undermine all efforts at achieving the organization’s goals and mission. The best products/services, the most efficient work systems, and the latest technology cannot on their own spell success for an organization. The human factor is needed to maximize the benefits that are inherent in them in the most productive manner possible.

The recognition of the pivotal role of human resources in improving productivity has led many managers of SMEs to devote more attention to the development and motivation of their people through HRD. It provides opportunities to enhance the key competencies of the individuals to perform their present and future jobs. This is accomplished through training, on-the-job learning, coaching, or other means.

TENTATIVE SCOPE AND METHODOLOGY

- Conceptual framework for HRD;
- Creating an institutional framework for HRD in SMEs;
- Work culture and productivity in SMEs;
- IT training for SMEs;
- Future challenges for HRD in SMEs.

TRAINING NEEDS ANALYSIS

A Training Needs Analysis (TNA) helps SMEs to plan for the future. It answers questions like, How are we performing now? And what do we need to do to improve?

On a macro level, a TNA clarifies employees' skill gaps and learning needs. It assesses current performance levels and helps formulate new HRD initiatives. On a micro level, a TNA determines the nature of particular performance problems, root causes and ways to address them.
WHAT IS ANALYZED?

Depending on the focus, a TNA can include a thorough exploration of:

a. organizational aims, objectives and culture.
b. what's happening Vs what should happen?
c. the nature and complexity of the desired organizational change.
d. the people involved, tasks and work procedures.
e. employee skill gaps and root causes of problems.
f. customer or employee feedback.
i. relevant performance data and statistics
j. employee incentives, rewards and motivation
k. available time, tools and resources.

EVALUATING THE IMPACT OF INTERVENTION

Evaluating the impact of interventions on SME performance can benefit from the use of a logical framework that clearly defines the program’s objectives, and links activities and inputs to outcomes and impact. A logical framework for an SME assistance program is shown in Figure, using as an example a training program designed to help SMEs adopt and use quality management systems. The program’s “output”—what are measured in most program evaluations—is simply the number of trained workers leaving the program. But the more important results to measure are the changes in enterprise behavior and processes that lead to improved product quality and subsequently to higher profitability and sales. Measuring the ultimate economic impact of the intervention requires going a step further, to the impact beyond the enterprise itself. For this, it is important to deal with issues of attribution (e.g., were increased sales due to the training, or to growth in aggregate demand?) and additionally (e.g., did the subsidy cause additional firms to train, or did it merely reduce the cost of training to firms that would have trained anyway?).

Figure: Logical Framework for Impact Evaluation
In agreement with other recent studies, this paper suggests that the overall business environment is the most important determinant of SME competitiveness and growth, as well as a necessary condition for the success of targeted assistance programs. Necessary reforms to improve the business environment go beyond macroeconomic and structural adjustment to the alleviation of microeconomic and institutional constraints that discriminate against small firms and reduce their growth and competitiveness.

**RETURN ON TRAINING INVESTMENT**

Since the early 1990s, ROI and cost-benefit studies which demonstrate the bottom-line contribution of training has received increased attention in the literature and promotion as ‘the ultimate level of evaluation’. Such approaches have resulted from the inability of conventional accounting systems to provide adequate data for decision-making and planning about training resource use. This approach has also encouraged the view that training is an annual cost item, rather than an investment (Employment Services Unit, Deakin University 1997). Phillips (1991) explains that the term ROI originates from the finance and accounting field. His definition and formula for calculating ROI is provided as given below.

Philips calculated ROI using program benefits and costs. The benefit/cost ratio (BCR) is the program benefit divided by the cost.

\[
\text{BCR} = \frac{\text{program benefits}}{\text{program costs}}
\]

He suggests that the most appropriate formula for evaluating training investment is net program benefits divided by cost. The ratio is usually expressed as a percentage when the fractional values are multiplied by 100.

\[
\text{ROI (\%)} = \frac{\text{net program benefits} \times 100}{\text{Program costs}}
\]

The net benefits are the program benefits minus program costs. The ROI value is related to BCR by a factor of one. Consequently a BCR of 22.45 is the same as an ROI value of 145 per cent. Applied to training the investment part of the formula refers to capital expenditure for equipment, materials and facilities plus initial development or production costs.

An ROI on training investment of 50 per cent indicates that costs were recovered and an additional 50 per cent of the costs are reported as earnings. A training investment of 150 per cent indicates that the costs were recovered and an additional 1.5 multiplied by costs is captured as earnings.

As an example, Philips notes the ROI achieved by one company for an 18-week literary program. The program cost $38233 and benefits (Productivity and Quality) were valued at $321600. The ROI for this program was

\[
\text{ROI \%} = \frac{321600 - 38233 \times 100}{38233} = 741\%
\]

For each dollar invested the company received $7.41 in return after program costs have been fully recovered.

This approach to calculate ROI is advocated by Philips because the same formula and concept are used for other business investment decisions. He advocates an ROI minimum of 25 percent for training initiatives.
MEDIATING FACTORS THAT INHIBIT AND ENHANCE ENTERPRISE RETURNS ON TRAINING

Factors that enhance returns on training Studies consistently highlight the need to consider training decisions and practices as a unified cluster of activities in a highly inter-related set of enterprise activities. As a result of a review of papers on the business practices of enterprises, that the economic benefits to companies were greatest when innovations in management practices were integrated with employee training and empowerment programs. All these indicate that:

The productivity benefits of training would be enhanced, and in many cases can only be achieved, when training is integrated with other aspects of their organizations and/or when the organizations made use of other sustainable competitive advantages. These studies advise that enterprise returns on training are greatest when training provision aligns with:

- enterprise approaches to technology, given the interdependence between training and technological change
- reinforcing human resource policies and practices (especially incentives such as promotion, profit sharing, team-based pay, performance pay and bonuses), together with recruitment policies and practices and feedback systems
- work organization and work practices, such as the scope of the workers’ activities, their decision-making roles, and access to accurate and timely information
- corporate objectives and operating requirements, including production strategies
- low employee turnover
- senior management commitment, including the business philosophy, skills and experience of owners/managers
- supervisory support and involvement

In addition to addressing the connection between the training system and other enterprise systems, research evidence indicates that the benefits of training may be maximized by:

- ensuring that appropriate employees participate in training
- using a wide, but integrated and reinforcing, range of skill formation approaches, including individual development plans and the provision of learner support via mentoring, coaching, training information systems and training resource centers
- integrating language, literacy and numerical training with other training
- ensuring close and effective links between on- and off-the-job training and other skill development opportunities
- providing a mix of general and specific training
- providing training at a time and in a form which addresses business and employee needs
- completion of train the trainer programs by supervisors
- ensuring employee access to effective recognition of prior learning programs

FACTORS THAT INHIBIT RETURNS ON TRAINING

If training innovations aren’t complemented by changes in technology, work organization and human resources practices, then training may have little impact on individual and organizational performance. Wolf (1996), Wooden and Baker (1996), Catts et al. (1996), Robinson and Robinson (1995, 1989), Rummler and Brache (1995), Mitchell (1994) and Billett (1998) all identify critical factors which impact negatively on training investment. These factors include:
lack of employee incentive to apply learning on-the-job.
lack of appropriate job design and work experience opportunities to complement training.
training which is not up-to-date, relevant and appropriate.
lack of complementary training for senior and middle managers.
a weak training support and performance monitoring capability within the enterprise, resulting from a lack of supervisor involvement and lack of management commitment

To overcome these inhibiting factors, Mitchell (1994) advocates the use of an instrument to assess the organization’s ability to foster the application and use of training in the workplace. Stolovitch and Maurice (1998) also highlight the waste of training expenditure that may result from the inappropriate selection of training as a solution, or insufficient consideration of complementary and mutually reinforcing interventions:

Training is often the cure of choice for a range of performance gaps whose causes have little, if anything, to do with skill/knowledge deficiencies. Its implementation, consequently, yields little to no effective results. It follows, then, that there should be no expectations of a positive ROI from training (p.10). Citing a number of research findings (Baldwin & Ford 1998; Broad & Newstrom 1992; Ford & Weissbein 1997), Stolovitch and Maurice (1998, p.11) highlight that less than 20 per cent of training is actually transferred to workplace performance.

ELEMENTS OF QUALITY PRACTICE

MEs while going for elements of quality practice must memorize TQM as defined by Dexter A. Hansen:

Total = Quality involves everyone and all activities in the company.
Quality = Conformance to Requirements (Meeting Customer Requirements).
Management = Quality can and must be managed.

According to current theory and practice, the efforts to achieve quality can be divided into six elements:

1. Professional knowledge and skill that lie at the foundation of most deliverables.
2. Quality engineering with its statistically grounded methods for collecting and analyzing data about products and processes in order to identify and locate sources of defects and devise solutions.
3. Quality management, meaning the setting of quality objectives and designing and implementing of organizations and practices to make things happen.
4. The economics of quality meaning, the effects quality has on customer choice and ensuring competitiveness.
5. The transcendental, spiritual aspect of quality that may appear as quality oriented organizational culture and “quality spirit” visible in acts of quality beyond requirements and rewards. The aesthetic and moral sentiments affecting customers’ and citizens’ choices are also included.
Quality philosophy, a systematic, fact and experience based intellectual effort to define quality specifically for certain deliverables in certain markets, and estimate its competitive significance. Quality philosophy aims to integrate the various elements into a working whole.

**Principle 1  Customer focus**
Organizations depend on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer expectations.

**Principle 2  Leadership**
Leaders establish unity of purpose and direction of the organization. They should create and maintain the internal environment in which people can become fully involved in achieving the organization’s objectives.

**Principle 3  Involvement of people**
People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organization's benefit.

**Principle 4  Process approach**
A desired result is achieved more efficiently when activities and related resources are managed as a process.

**Principle 5  Systems approach to management**
Identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives.

**Principle 6  Continued improvement**
Continual improvement of the organization’s overall performance should be a permanent objective of the organization.

**Principle 7  Factual approach to decision making**
Effective decisions are based on the analysis of data and information

**Principle 8  Mutually beneficial supplier relationship**
An organization and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value

*Source: International Organization for Standardization*

**BENEFITS OF QUALITY MANAGEMENT SYSTEMS FOR SMES**

When comparing Small and Medium Enterprises (SMEs) with large companies the obvious advantage of SMEs is that they are quite often family-related businesses with a Director at its head, who is usually the owner as well. Consequently, he/she is directly motivated to lead the company to prosperity, to satisfy his/her old and to attract new Clients/Customers.

The informality of the management of such a business gives it further advantage. The Director (owner) gives oral indications on who does what and how (based on a Plan-Do-Check-Act management loop developed by Deming). While he/she gives constant guidance, checks and controls the quality of the product/service, the others follow his/her instructions.

In general, all businesses have an established way or system of conducting business. As explained above, in a small company informality is quite effective, however, it is rarely documented. Quality management system standards like ISO 9001:2000 identify those features that can help a business consistently meet its customers’ expectations.
Experience shows that SMEs in the same trade may have almost identical procedures and the same Quality Management System. ISO 9001:2000 specifies requirements for a quality management system so that it can be used for internal application by organizations, for certification or for contractual purposes. It focuses on the effectiveness of the Quality Management System in meeting customer requirements and customer satisfaction.

**Excellence quality models for implementing Quality in practice** Regardless of sector, size, structure or maturity, organizations need to establish an appropriate management system in order to be successful. The **EFQM Excellence Model** is a practical tool to help organizations achieve this by measuring where they are on the path to Excellence, by helping them understand the gaps and then by stimulating solutions.

The EFQM Model is a non-prescriptive framework that recognizes that there are many approaches to achieving sustainable excellence. Within this non-prescriptive approach there are some Fundamental Concepts that are expressed below.

The arrows emphasize the dynamic nature of the model. They show that innovation and help to improve enablers that in turn lead to improved results. The Model’s nine boxes, shown above, represent the criteria by which an organization’s progress towards excellence can be assessed. Each of the nine criteria has a definition, which explains the main points of that criterion. To develop the high level meaning further each criterion is supported by a number of sub-criteria. Sub-criteria pose various questions that should be considered in the course of an assessment.

Based on the EFQM Excellence Model the one of a local company developed a policy that focused on Quality. They have acquired a dynamic profile with excellent prospects in a very competitive field. This has been achieved through the use of highly specialized equipment of advanced technology, the proficiently trained personnel and first-rate associates, as well as the implementation of contemporary management methods.

**Nationwide and regional Quality Award Systems**
Governments should recognize the achievement of enterprises that have an excellent quality management as a way to encourage future strategies that would contribute to the improvement of competitiveness in the entire business community.

The quality awards are very successful tools. The European Quality Award for SMEs and the Malcolm Baldrige National Quality Award in the USA, for example have proved to be a prospective means to increase quality. Applying for a quality award brings several benefits for enterprises. Entrepreneurs will concentrate more on activities, will meet a tight schedule, and will write a succinct description of the organization in terms of its activities. Further significant benefit is the feedback report, which is prepared by a team of independent assessors. The feedback report provides key messages at an overall and criterion level.

To receive the SME Award, the enterprise needs to show that its approach to Quality Management had contributed significantly to satisfying the expectations of its customers, employees and other stakeholders.

THE CURRENT QUALITY IMPROVEMENT ACTIVITIES

A. INTRODUCTION

It is widely recognized that quality improvement activities are essential part for manufacturers in order to secure their competitive edges in the market and achieve exports. And an endowment of competitive suppliers in many industry types is considered one of the necessary business climates to attract foreign direct investments.

Three kinds of surveys were conducted on SMEs’ current quality improvement activities in Pakistan. They are a survey on Surgical instruments manufacturing/Sports goods Manufacturing, leather products, chemical/plastic products in the areas of Gujranwala and Sialkot by our study team.

As the results of those surveys, a number of the SMEs in Lahore vicinity have been undertaking quality-improvement programs: for instance, by contracting with private consultants and recruiting quality-control experts. Quality improvement primarily involve the introduction of 5-S programs (the five S’s: seiri, seiton, seiso, seiketsu, shuukan; Japanese terms synonymous with workplace order, cleanliness, and routine) and problem-analysis tools.

According to survey on quality control in July-August 2002, SMEDA, PIQC, IQSAS and some other organizations and universities are providing seminars and/or training courses. The participants organizations have certain complaints regarding applications of subjects taught, without industrial practices and experiences related to our industry. The foreign case studies presented in courses have no link with our industry, culture and geographical conditions.

These are major problems due to that many of the SMEs do not include those courses in their staff training programs because those courses are not capable of fully satisfying their practical needs.

B. HUMAN RESOURCES

According to the survey out of 39 sample SMEs only 45 % exhibits only one employee in charge of quality improvement activities, 35% have no one responsible for quality improvement activities and the rest have more than one person in charge.
Seventy percent of the sample SMEs have to train their personnel committed to quality improvement tasks. Nevertheless, at present only 25% of them are involved in some kind of training programs.

C. QUALITY IMPROVEMENT ACTIVITIES

In general, the use of organizational techniques by the sample SMEs is scare and the proportion of enterprises using relatively complex techniques is small. Besides, the implementation of such techniques is, in some cases, partial and limited only to some phases of productive process. It should be noted that in most cases, the SMEs started using these techniques just in 2001. These being their first advance in the quality improvement field, with an aim at maintaining themselves in the market through new operation procedures.

A strong heterogeneity exists among these SMEs as shown by the fact that almost just 4% of them use less than 20% of the studied eight indicators\(^1\) and ten techniques\(^2\). The most used techniques are: "Problem- analysis tools", "Preventive maintenance", "Quality circles". On the other hand, techniques such as JIT, TQM and KAN-BAN are used by less than 5% of the SMEs.

According to the survey product and/or service quality control activities\(^3\) carried out by 66 manufacturers that answered the questionnaire survey do not substantially differ, since the percentage of manufacturers that implement each activity range between a maximum 8.3% and a minimum 4.4%. However, the higher percentage relate to the inspection and testing of finished products and products in process. On the other hand, design verification is the control activity with the lowest percentage. This is not surprising, since when the companies identified their weakness, a considerable number of them pointed out design as a weakness.

There is a clear trend towards carrying out a detective quality control aimed directly at the products. In most of the companies no preventive controls are performed and the activities carried out are not aimed at establishing a standard quality system, but rather at a specific control of the products.

D. HIRING EXTERNAL INSTITUTES TO IMPROVE PRODUCT QUALITY

35 percent of the sample manufacturers hired external institutes during the last fiscal year. They hired mainly consultants working exclusively in the area of quality improvement.

\(^1\) The indicators are the following: "Average delivery terms", "Productivity evolution", "Waste percentage", "Proportion of discarded final products", "Stock rotation", "Percentage of rework time", "Evolution of processing products", "Other indicators".

\(^2\) The techniques and quality norms of interest are the following: "Problem-analysis tools", "Preventive maintenance", "Quality circles", "Processes statistical control", "Mode analysis and failure effect", "Cells production", "Just in time", "ISO 9000", "TQM" and "Kan ban".

\(^3\) The quality control activities: “Document which defines quality policy”, “Document which defines the responsibility, authority”, “Executive review of the quality system at the specified intervals”, “Preparation of the quality manual”, “Preparation of the documented procedures”, “Preparation of the quality plan”, “Documentation of the procedures for controlling and verify design”, “Design verification to conform to user needs and requirements”, “Inspection and testing of incoming goods”, “In-process inspection and testing”, “Final inspection and testing”, “Maintenance of inspection, measuring and testing equipment”, “Control of nonconforming products”, “Documentation of the procedures for implanting corrective action”, “In-house quality auditor".
many of the small manufacturers surveyed also sought external support from independent professionals, particularly engineers. (but mostly was about transition ISO9001:2000)

65 % of the respondent manufacturers admit that their companies need external organization to support quality improvements.

e. OBTAINING THE ISO 9000 CERTIFICATE

SMEs, which have the ISO 9002 certificate, many of these have not the system as per required by QMS. They are on the mercy of local Consultants that are deteriorating the status of ISO 9000. Due to these facts certificate has become just a piece of paper and they think that to obtain this is not a big task. Apart from that they highlighted that they this system has benefited us.

F. OBSTACLES AND REQUIRED ASSISTANCE

Fifty nine percent of those, which have some obstacle to conducting quality improvement activities among the sample 39 SMEs, mention that the shortage of financial resources is the major obstacle. Other obstacles are the difficulties in changing SMEs culture and the lack of adequate institutional support.

Twenty eight percent of the sample manufacturers mention that there is a need of training services in order for them to go for continual improvement. Twenty percent of the samples want the subsidies for consultant fees and 17% want the subsidies for training fees, in connection with the training services. In addition, 18% of them require the assistance in information services and 17% of them require the assistance through an in-house quality auditor.

ACCOMPLISHMENTS AND REMAINING HURDLES

A. ACCOMPLISHMENTS

A few of the surveyed SMEs have been undertaking intensive quality-improvement programs since 1999: for instance, by contracting with private consultants and recruiting quality-control experts. Quality improvement primarily involves the introduction of 5-S programs (the five S’s: seiri, seiton, seiso, seiketsu, shitsuke; Japanese terms synonymous with workplace order, cleanliness, and good habit).

These respondents that involve the introduction of 5-S programs, quality self-control systems and SPC in plants have demonstrated impressive gains in terms of lowered rates of defective products and heightened productivity. In fact, over the past five years, some have even succeeded in decreasing their defect rates to one-tenth of the past rates.

A substantial part of the sample SMEs still subject their final products to little more than visual checks or inspections that rely only on venire micrometers and other unsophisticated instrumentation. Clearly, top management executives at such enterprises have plenty of room to show a stronger commitment toward supporting their quality improvement activities with appropriate assistance from quality control organizations or consultants.

B. REMAINING HURDLES
A substantial part of the sample SMEs noted that seminars and training courses conducted by organizations are not capable of fully satisfying their practical needs. On the other hand, many of the quality control personnel responded that they would participate in the seminars and training courses led by institutions or instructors with good home work about local practices and culture even if they had to damage to find time. These responses suggest that quality control organizations need to improve the content and quality of their services.

SMEs in our country scattered nationwide. Different regions have different types of SMEs depending on their resources, which SMEs use for material. Sometimes, these SMEs form an essential part of the claims from raw materials to the market, be of foreign or domestic. Under the circumstances, limited quality of materials/parts in regions tends to result in limited quality of the final products after being processed/assembled in SMEs. Thus, establishing a national network capable of assisting SME quality improvement activities in an efficient manner remains an important issue.

Despite the expressed desire for quality improvements, a substantial number of SMEs do not have the financial resources to hire outside consultants, which effectively implement training programs and other quality improvement activities. Providing financial assistance to such enterprises thus counts as yet another challenge.

The SMEs which have already cut their defect rates by impressive margins will nevertheless still find themselves pressed to push those rates further to the right and trim their product costs if they intend to stay on top of the global competition. To that end, they must move to enlarge and reinforce their existing quality-control systems and pursue all-out modernization drives aimed at replacing outdated plant facilities.

BEYOND RHETORIC: BUSINESS PROCESSES, SYSTEMS AND SOCIO-TECHNICAL DESIGN

Recent critical assessments of the quality movement have highlighted the fact that TQM can be interpreted as a management philosophy which is characterized by certain principles, practices and techniques whereas, in the case of BPR, the same conclusions cannot be drawn given:

(1) the mix of more or less innovative concepts that are its essence;
(2) the way in which rhetoric prevails over quality and theoretical consistency in proposals put forward by reengineers;

In our opinion, distancing oneself from the Utopia of more or less radical reengineering, carried out in a perfectly malleable organizational machine, means reflecting on the real meaning of the concept of business process.

The definition of business process usually adopted (for an overview see Harrison, 1995), that is, of a structured set of activities designed to produce a specific output for a specific customer or market (Davenport, 1993, p. 5) is, essentially, a reformulation of the classic concept of workflow”, which is understood to be the set of sequences of activities which represent the functioning of an organization. The reason why the term “process” instead of “workflow” tends to be used is generally explained by the fact that the focus of attention ought to be shifted from economic efficiency (usually associated with workflow) to organizational effectiveness and to focus on output and on the customer. However, the substance remains the same.

In order to study the concept in greater depth and to clarify it, some authors have set themselves the problem of identifying fundamental typologies of processes. For example, Earl and Khan (1994)
have outlined the following categories: network processes (which go beyond the boundaries of the firm and involve both customers and suppliers), management processes (through which resources are planned, managed and controlled), core processes (vital for the firm’s functioning and which directly affect the external customer) and support processes (which have internal customers and which are, effectively, the back-office of the core processes). But is not conceptually reconstructing a firm by means of its management, operating and support processes the same as the traditional breakdown of the system-organization into its fundamental sub-systems? Does the only difference not lie in the substitution of the concept of system (which does not appear to be particularly innovative)?

Here it is useful to recall that the idea of a transformation process is central to the concept of system and is also fundamental when describing the specific class of systems created by humans – the class of human activity systems. Checkland (1981, pp. 109-21) distinguishes human activity systems from other classes of systems with which human beings interact as follows:

- natural systems, whose origins lie in the origins of the universe and which are as they are as a result of the forces and processes that characterize the universe itself;
- designed physical systems, which are physical artifacts, designed for a specific end;
- designed abstract systems which are the conscious and ordered product of the human mind – these are, in themselves, abstract even if they have been incorporated in some type of physical artifact;
- human activity systems which are “less tangible systems than natural and designed systems. Nevertheless, there are clearly observable in the world innumerable sets of human activities more or less consciously ordered in wholes as a result of some underlying purpose or mission” (Checkland, 1981, p. 111).

Thus, what is a business process if not a conceptual model used to represent human activity systems (Maull et al., 1995)? However, in the world of (re)engineers business processes would seem to belong to the class of designed physical systems and not to that of human activity systems given the assumption that a natural isomorphism exists between the sequence of operations predicted in a flowchart and situated action which constitutes the reality of cooperative work.

The direct consequence of conceptualizing processes as flowcharts is an implicit assumption that the problem of process innovation can be faced using the hard engineering approach of systems engineering and systems analysis which are both based on a systematic rational search for the best means/system of tackling problems and objectives, which are assumed to be clearly and objectively defined as technical specifications.

Bringing the concept of business process back into the compass of the notion of system and, in particular, the fact of recognizing that it is none other than a conceptual model which seeks to describe a specific class of systems – human activity systems – has important consequences for the problem of analyzing processes and for methodologies for intervention. When analyzing processes it is important to recognize that such analysis must be based on an ongoing dialogue with the actors involved in the process and on a, necessarily, “multiperspective” representation (Kawalek, 1991), in so far as both the various dimensions of the activity system (the logical structure of the process, interactions between roles, the objects manipulated within the process) must be included and, in a parallel cultural study, the elements necessary for analyzing the “social system” and “political system” must be identified (Checkland and Scholes, 1990, p. 44).

As regards the problem of intervention, given that the processes are conceptual models of business sub-systems, it is clear that the problem of redesigning them is, as Leavitt (1965) demonstrated over 30 years ago, no different from the more general problem of organizational change, which latter
consists of the complex search for mutual adaptations between tasks, structure (communications, authority and workflow systems), people and technology. Thus it is also clear that (re)designing a process poses a socio-technical problem, and it is well-nigh impossible to understand where the real difference lies between BPR and the approach to the analysis and design of production processes developed at the Tavistock Institute, if not in the fact that the (re)engineers seem to have ignored the ethical problems posed by the search for a delicate equilibrium between productivity and satisfaction, between technical and economic questions and social questions.

CONCLUSIONS

1. Quality represents a new strategic philosophy of enterprise management in the increasingly globalized world based on the overall commitment of management and employees towards customer satisfaction and the continuous improvement of products, production, services and management.

2. Quality is an integral part of international competitiveness worldwide.

3. The implementation of the ISO 9000 and ISO 14000 series of standards by enterprises can be regarded as one of the key elements towards the improvement of business performance, competitiveness, as well as a means to enter the world market.

4. The participation in national and international quality awards and competitions can increase the quality of the products of SMEs and the quality of the country’s economy.

5. The certification of quality systems allows enterprises to show that they fulfil the requirements of globalize market economies.

6. The significance of quality management is increasing because of the lack of quality control and assurance systems, the lack of accreditation and certification procedures, poor conformity marks and labeling, and outdated standardization. Such hindrances are considered as major potential and unnecessary technical barriers to trade, especially concerning international competitiveness and globalization.

7. It is important to emphasize that SMEs in this region have to meet the challenges of globalization and the new knowledge-driven economy. The use of Quality Management Systems and Schemes can be the most effective means of overcoming their difficulties.

8. Governments can promote quality awareness and help SMEs in safeguarding the required quality through National Quality Assurance Schemes.
AUTHOR’S SYNOPSIS

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