

Process Improvement / Reengineering Integrated In An Organisation's Management Systems

Track: Quality/Process Improvement and Management

LOOKS, Volker¹ (Corresponding Author), WU, Bin²

- 1 BMW Hams Hall Motoren GmbH, Canton Lane, Hams Hall, Coleshill, North Warwickshire, B46 1AN, UK
Phone No.: 0044 1675 460565 E-Mail: volker.looks@bmwgroup.com
- 2 School of Industrial & Manufacturing Science, Cranfield University, Cranfield, MK43 0AL, UK
Phone No.: 0044 1234 754154 E-Mail: B.Wu@cranfield.ac.uk

Abstract

In the current business environment, organisations need to change their operational structures frequently in order to react to and build on changes in the business environment, product and process technology, legal requirements, etc.. To achieve the speed and quality of process designs necessary to keep up with the speed and nature of change, it is required to increase the ability to improve or reengineer existing processes or to design new ones. Current methodologies for process improvement and reengineering need to be more firmly integrated and institutionalised into the management systems of organisations.

This paper will describe the Process Design / Re-engineering process applied in BMW's new UK engine factory and its integration and institutionalisation into the organisation's way of working.

Introduction

The current environment in which manufacturing businesses have to operate is marked by a high degree of uncertainty, arising out of continually changing circumstances. Customer demands on the product and on the way it can be purchased are rising, legislative and regulatory pressures are growing, increasing speed of progress of technical innovations for products and processes and a high level of economic instability have to be managed by organisations (Hammer and Champy, 1990; PA Consulting, 1993; Kidd, 1994; Cooper, 1996, Milberg, 1998; EIU-KPMG, 2000).

In order to flourish in this environment, organisations have to be 'agile', meaning they have to be able to not just react to these developments, but to actually build on the opportunities provided by environmental changes (Goldmann et al, 1995; Kidd, 1995). For this to happen however, an organisation requires certain processes to be in place, it requires certain levels of competence across all levels of the organisation. In short, it requires a fully defined and well-managed business or manufacturing system. (Wu, 1994; Peppard and Preece, 1995; Baumgartner, 1998; Wu, 2000)

During the mid 80s and into the 90s, the market changed to a customer driven market, where certain levels of quality were expected. ISO 9000 and TQM provided some answers to this. Further increase in the speed of change and the increasing competition led organisations to apply Process Improvement processes (Lupienski, 2001) and to undertake Process Re-engineering projects (Hammer and Champy, 1993; Armistead et al, 1996).

Since then, the idea of the process organisation, management by process and so forth have been at the centre of much debate (Armistead and Rowland, 1996; EFQM Report, 1999). Our research suggests however, that not many organisations have fully established and institutionalised Process Improvement or indeed Process Design / Re-engineering processes.

This paper suggests that all improvement processes, from Problem Resolution, Process Improvement and Process Design / Re-engineering, need to be fully established and *institutionalised* in an organisation in order to achieve the levels of agility required in the ever faster changing business environment.

This paper describes how such improvement processes should be integrated into the overall business or manufacturing system, using the integration of a Process Design / Re-engineering process as an example. It identifies the key interfaces to other business processes and it outlines the common issues of Process Design / Re-engineering projects in organisations where such processes are not established and institutionalised and what would change if they were.

The paper is based on research carried out by BMW Hams Hall Motoren GmbH (BMW's new UK engine factory) and Cranfield University. The research draws on the experiences made during the design and implementation of the business processes in the engine factory, and on an industry survey, which investigated the approaches of 25 European based organisations on process management.

Integration Of Improvement Processes

For organisations to be able to operate within the current business environment, they have to have a business or manufacturing system that enables them to:

- identify changes in the business environment and the implications for the organisation early,
- develop the appropriate business or manufacturing strategies quickly,

- implement the strategies through new product introductions or changes to the business or manufacturing system,
- operate the system in a controlled and capable manner.

For a system to be capable of performing the above, it requires the right structure and content. A model of manufacturing systems management and its elements are as depicted below in Wu's Manufacturing Systems Management (MSM) framework (Wu, 2000).

See Figure 1 – Overall Structure and Functional Flow of the MSM Framework

The MSM framework is arranged in a closed loop, where the strategy analysis is fed by the results of operations, where the strategy drives manufacturing system design activities and the latter being implemented and becoming part of operations. Hence, out of the knowledge of the operating system compared to the requirements of the business environment, improvement strategies can be developed and implemented through system design activities.

Integration Of Process Design / Re-engineering Process

Figure 2 shows the Business Process Design / Re-engineering process as implemented in BMW Hams Hall Motoren in order to design all business processes as part of the greenfield site development. It was developed based on the many process improvement and re-engineering methodologies / processes described in academic or consulting work (Haberfellner et al, 1992; Hall et al, 1993; Peppard and Preece, 1995; Armistead and Rowland, 1996; Kettinger et al, 1997, Davenport, 1999).

The case experience demonstrated that the following are key elements to operate the above process:

- a) An appropriate process owner (responsible for the whole life of the process, from design through to the operation)
- b) The Process Design Team (representatives of stakeholders and customers of the processes)
- c) A comprehensive and forceful project management structure with clear and visible process performance measures for the process design.

See Figure 2 – Overview of Business Process Design / Re-engineering Process

But having a process for the design of business processes itself is not sufficient. The process is dependent on a number of other business processes. Integration between all these is of great importance. The logical position of the Process Design / Re-engineering process in the MSM framework and the interfaces to other processes are shown in figure 3.

See Figure 3 – BPD integrated into the MSM Framework

The following describes in brief the key interfaces as depicted in figure 3.

- Point ① - Link to Business Strategy, strategic / customer focus of process
 - Initiation / approval of process design / change
- Point ② - Link to organisation's Management System – documentation of changes

- Point ③
 - Alignment of organisation according to process changes
 - Design of new jobs, competence profiling, etc.
 - Recruitment (int. / ext.) to fill new positions in process
 - Training of all affected people in process and required base competencies
- Point ④
 - Planning, design and implementation of IT applications
 - Implementation of IT infrastructure and hardware
- Point ⑤
 - Specification and procurement of equipment required in new process
- Point ⑥
 - Design and implementation of layout requirements (office space, shop floor space, etc.)

Issues in Process Design / Re-engineering Projects

Based on the experience of process design and re-engineering in the former Rover Group, in BMW's new UK engine factory as well as the findings of the industry survey of process management and literature, the following issues have been identified:

- *Strategic design or re-engineering of business processes* – all too often, the strategy is translated into organisation changes and not into process changes (Ghoshal and Bartlett, 1995), or new 'initiatives' are created, which are in fact new processes.
- *Identification of Process / Project Owners and Design Teams* – The identification of the logically right process owner is often difficult as the selection logic is not established (Hammer and Champy, 1993; Barbitsch, 1996) and political considerations can play a part too (Grint, 1995). Finding people with the right set of skills and experience is another key issue as such people are often considered to be too important and busy to be doing process design work.
- *Project Formation* – A design team has been formed, and now the 'methodology debate' begins. Methodologies are evaluated, one selected and rolled out (Kettinger et al, 1997). But is it understood and will it be adhered to over the duration of the project? Does it tie in to other processes and approaches in the organisation?
- *Process Analysis* – A professional process analysis requires a clear understanding of the scope of the analysis (Davenport, 1999) and analysis competence and technique. All three however are often lacking. A typical deficiency experienced is that analysis is too narrow and too detailed and often focusing on process elements that the team are familiar with. Also, the current process reality in many organisations is still different from the documented one, leading to the need for extensive process mapping.
- *Process Evaluation* – A detailed evaluation of the existing processes, technologies, organisation structures, etc. does not always take place. Questioning of the status quo and the identification of alternative solutions is often not done (Haberfellner et al, 1992).
- *Process Design* – The tendency to concentrate on process elements that the team is familiar with is observed, leading to an imbalanced design solution that is likely to experience problems when implemented. Often the interfaces of the new or changed process to other processes are not looked at and hence not designed. There is also a tendency of process owners to resist adapting their own processes to make the interfaces work. Functions providing specialist support for process design (Systems, Personnel, etc.) are often not aware of and in tune with process design and re-engineering work and often find it hard to understand and interface with the methodology applied. The result can be a lack of support for the design and re-engineering effort.
- *Process Implementation and Maturation* – A typical shortcoming here is that the effort for implementation and roll-out is underestimated, leading to roll-out plans that are very

inadequate. Training design and subsequent training of process users and other affected parties is often insufficient in quality and volume. Subsequent process coaching is sometimes not planned for and the required structures not put in place. Generally, the setting up of new organisational structures to operate a new or changed process takes a long time.

Many of the above are avoidable issues that detract the process design team and the organisation from the real issues, the creative design of processes, the implementation of new technologies, the training and coaching of the organisation in superior process execution. They can be traced back to a lack of maturity in decision making, lack of competence in process design / re-engineering and underdeveloped control structures. In short, the institutionalisation of a Process Design / Re-engineering process is missing.

Only one out of the 25 participants in the survey stated that they had a process improvement or design process fully established. A further 5 stated to be thinking about such a step or are already implementing such a process.

Expected Benefits From Institutionalisation

Through the institutionalisation of a Process Design / Re-engineering process and in conjunction with other process management processes (like documentation and control of an organisation's management system, process audit and review, etc.) the above issues should be reduced, if not eliminated. The implementation and institutionalisation of such a Process Design process in BMW's new UK engine factory shows this to be the case. Figure 4 shows that most stages of the process design process are executed with greater competence and maturity and some tasks are left out completely (like the methodology selection, the extend of team training or organisation preparation) leading to higher quality design and the reduction in process design project duration.

See Figure 4 – Process Design / Reengineering as an Integrated Process

The BMW Hams Hall Process Design process was implemented three years ago, and over time, the following improvements could be noted.

- Faster and more mature identification and quantification of the need for new processes (or change to existing ones).
- More appropriate process owners are identified faster and better process design teams are formed. Greater willingness to join process design teams, larger pool of people with process design experience.
- No methodology debate – the team starts to follow the project templates and to concentrate on the detailed scoping and planning.
- Process analysis and design are aided by the application of a holistic process model ensuring complete analysis and design.
- Growing process design competence, leading to speedier analysis and design phases, smoother implementations, faster maturation and achievement of target performance.
- Easier enrolment of experts from other functions (IT, Personnel, etc).

In summary, it can be said that through the fact that the Process Design / Re-engineering is established, known and institutionalised the quality and speed of process design have improved, increasing the agility or change responsiveness of the organisation.

It is also observed that the formerly undefined and informal network of processes, process ownership and power-structures is becoming formalised through coherent structuring and documentation and clear assignment of process ownership. Hence a defined and true process and process owner network emerges.

Conclusions

For organisations to be agile in terms of their ability to change their business process in line with rising customer expectations, changes in the business environment and new enabling technologies, they require a described, fully implemented and institutionalised Process Design / Re-engineering process.

This process needs to be firmly integrated into the overall business or manufacturing system of the organisation, with clear links to other key processes like strategic management, performance measurement, organisation and people development, IT system delivery, and so forth. The organisation has to establish strong project management and control structures and roles, like Process Owners, Process Design Teams, and it has to develop significant levels of competence in process analysis, design and implementation as well as project management.

If all these are achieved, the organisation will be able to identify the need for change faster, appoint the right people for the process design, plan the project better, carry out a better analysis based on better documented processes, design feasible but challenging processes and implement them in a controlled and professional manner. In short, the quality and the speed of process design or re-engineering increases.

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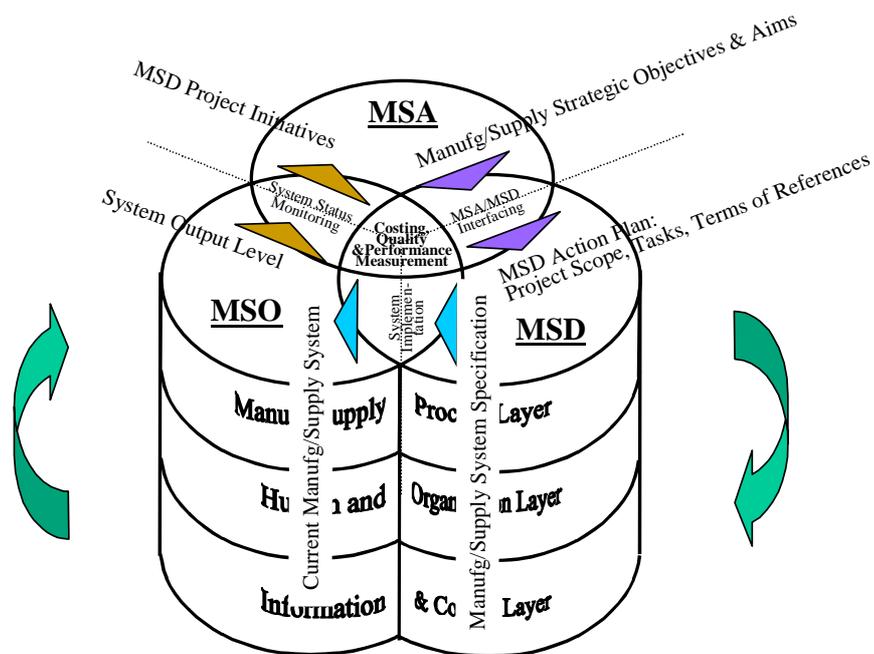


Figure 1

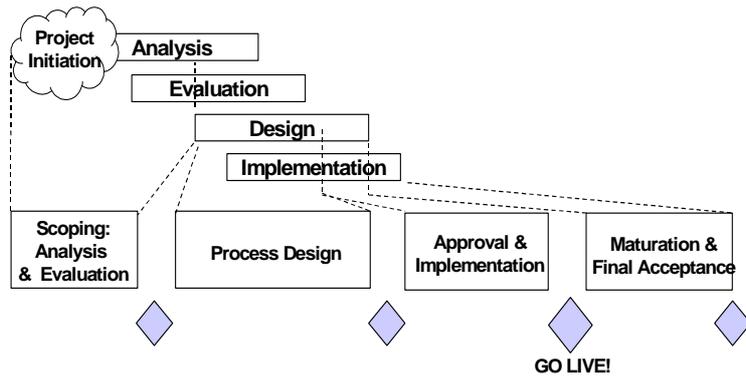


Figure 2

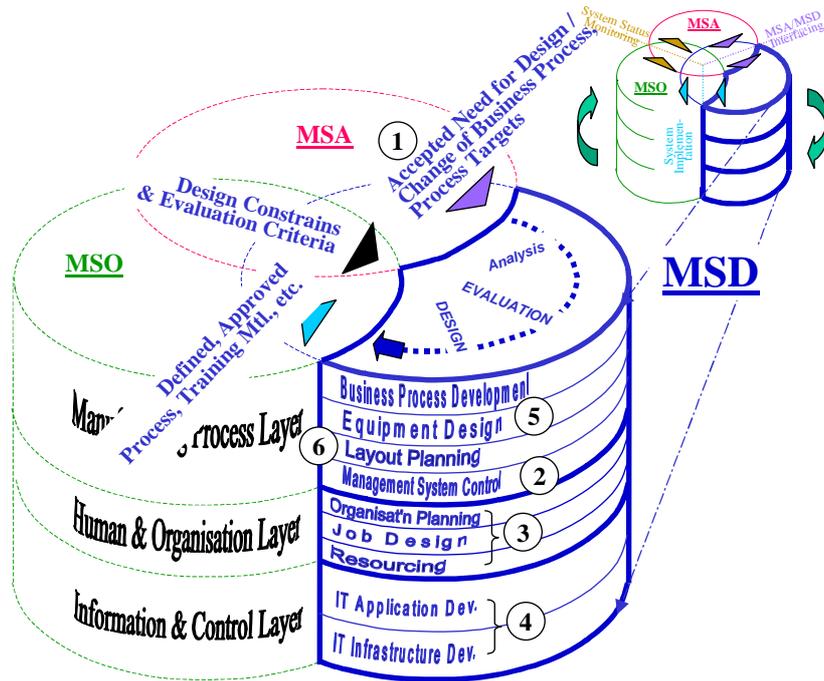


Figure 3

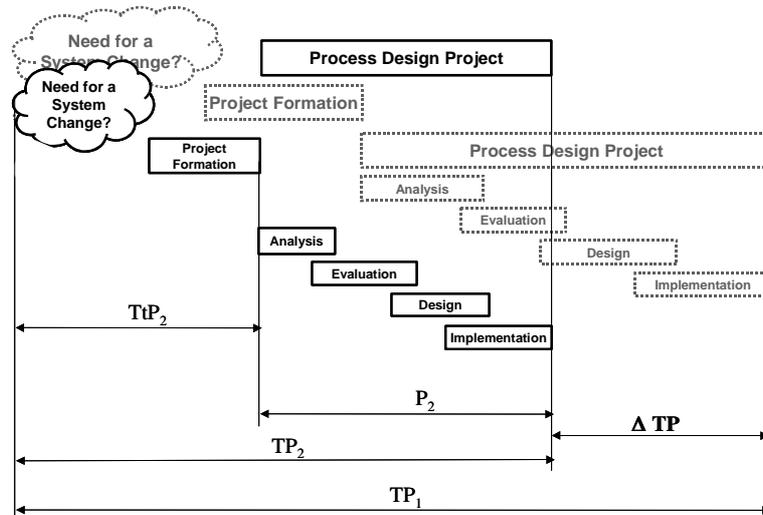


Figure 4