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Supporting The Business Process.

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The business process is increasingly topical as more and more companies become interested in initiatives such as 'business process reengineering.' But what is it really all about? And what are the implications for I.T? The authors have worked with companies that are at the forefront of process oriented working. They argue that a discipline of process engineering, backed up by advanced modelling and support technologies, can help businesses in a competitive environment

What's going on?

Think of any office in any business and the chances are that you will picture a number of people around desks. They may be writing reports, perhaps using computers, or on the telephone, talking, drinking coffee, tapping keyboards or writing notes. What is fundamental to our research is the way in which people work, not just as individuals but as teams coordinating with each other towards the achievement of some goal.

The word 'process' is one which you may have come across a lot recently. Certainly there are increasing numbers of user groups with interests such as 'business process reengineering,' and 'business process redesign.' Moreover the Management In The 1990s initiative [SM90] encourages businesses to use I.T. in a way which enables the adoption of innovative business processes.

What can all this interest in processes give us? Our experience suggests that a process orientation can help to produce:

- A better quality product
- Increased efficiency
- Increased effectiveness
- Reduced costs
- Increased process flexibility
- Improved staff satisfaction (work can be made more flexible and interesting)

and I.T. can be designed to deliver what the business actually wants!

Furthermore we see a concern for the process as an ongoing activity, a part of management in fact. That is why later in this article we introduce the notion of a 'process engineer.'

There are a number of impressive case studies associated with the interest in business process. The most often cited are probably those described by Michael Hammer [Ham90]. These include the memorable case of Ford accounts payable who achieved a 75% head count reduction through process redesign facilitated by a new I.T infrastructure. Case studies undertaken by the authors with BT, ICL and others have shown the benefits of building process models to help in decision making, analysis of objectives, evolution or redesign of processes and the specification of support.

How I.T. can contribute.

It is worth making some fundamental points at this stage. First, we can make the relationship between management and I.T. much closer if the I.T. is explicitly designed to serve the process. Secondly, it is essential that ways are found to keep I.T. attuned with changing business objectives. The authors have come across many cases of I.T. systems locking in working practices in a way which prevents managers from implementing changes. A typical scenario is "We'd like to change the way in which we do X, but it would involve a change to the system, and that would take too long." Process change is therefore a major issue for I.T. developers. Nearly all business processes change, and trends suggest that they will have to be increasingly flexible and responsive. It is therefore somewhat nonsensical for I.T. to claim to support the business process if that I.T. is not easy to change.

The I.T. industry is aware of the value of process working. There are already products on the market which claim to be process oriented. Others may not use the process label but are concerned with the coordinative rather than functional aspects of business life, and hence are of interest here. We will introduce 'process enactment technology' and 'workflow.' Other terms used to describe these products include 'process technology' and 'coordination technology'.

The PROCESSWISE Integrator was launched by ICL last year. It can be described as a 'process enactment technology.' That is, it is capable of enacting a complete business process by distributing work to users, passing completed work on, and providing necessary tools and applications. Each user has a workstation which features a role agenda. By selecting a role (e.g. 'Managing Accounts Team'), he or she is then presented with a list of actions that can be undertaken. Selection of an action (e.g. 'Prepare Team Bulletin'), will bring to the user all the necessary tools and communication channels for it to be carried out. One of the most interesting features of PROCESSWISE is that it can claim to explicitly support change. It has its own language, Process Management Language (PML), and this language allows for user roles to be modified locally by coding in new behaviour.

Process WEAVER is an enactment technology with a functionality broadly similar to that of PROCESSWISE. It is based upon a Petri net modelling capability. It is currently being used or evaluated in a number of organisations including Citibank, the European Space Agency and the Software Engineering Institute.

Workflow packages coordinate the flow of work between users of a system according to defined rules. These rules can reflect organisational procedures (e.g. documents for

approval go to ‘manager’) and workload considerations (e.g. next insurance application goes to the clerk with least to do). The Ovum report on workflow software [Ovu92] describe some very impressive case studies of their use.

Ovum has predicted that all major office systems suppliers will have a workflow product in their portfolio by the end of this year. There are many interesting packages already available. Among the leaders is FCMC whose StaffWare product incorporates text processing and design tools for describing processes. NCR have a new product, ProcessIT, which provides a workflow capability for their advanced Cooperation open systems environment. Others include Hewlett-Packard’s WaveFlow and ImageFlow from Recognition Equipment.

Introducing Process Engineering.

The competitive economic climate requires that businesses are flexible, well managed, cost-efficient and produce high quality products. These requirements are not likely to go away! This is one reason why we believe that a discipline of process engineering may be very valuable. By process engineering we are referring to the methods and tools which will help businesses design, maintain and change their processes. Thus we see process engineering as part of the continuous management activity of businesses. This is different to the thrust of ‘business process reengineering’ which is typically a project undertaken once. Case studies have established the need for and value of continuous process awareness. They have shown that it is feasible that managers will use output from process analysis to assist in decision making. We are working on the development of tools and methods for process engineering and anticipate that I.T. systems will continue to become more process oriented and flexible.

We venture that a process engineer of the future will need....

- the ability to categorise the process of interest
- the ability to succinctly describe process behaviour.
- a method for redesigning processes
- the tools to describe, analyse and evaluate processes
- the ability to select and design the right I.T. support.

We are working on the provision of...

- a theory of process
- a classification system for processes
- suitable notations for process descriptions
- a method for process analysis and design
- a tool set to support this - the Process Modeller’s Workbench (PMW)

Case studies have been an invaluable element in the development of the Process Analysis and Design Method (PADM) to match the real needs of business. Many

business consultants today claim to model processes but most notations used are deficient in many respects, and do not form part of a well-structured method. Also they do not consider the dynamic nature of processes, the need for an organisation to perform its own process evolution or the provision of tools for an organisation to use. The PADM is designed to cover all phases of process redesign, from process definition, through capture of the baseline process, process evaluation, and target process design through to requirements definition for IT systems to support the process. In support of this method the PMW toolset is being developed. This uses an Activity Diagram (AD) notation which was specifically designed to be easy to use and yet rich enough to convey important details of processes. Currently as the authors write this article there are non-specialists using the AD to model their own processes.

Using the PADM in a current case study we have been able to describe the way people work and relate their outputs to the process objectives. Mismatches between the individual or group outputs and the greater process objectives have been resolved. There has also been the opportunity to introduce concurrency of activities to the process thereby removing some duplication of effort. As part of the continuing evolution of the process efforts are being made to define applications necessary to support new work tasks. It is anticipated that these may in time be incorporated into an I.T. based coordinative framework.

About the authors.

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