

DIVISION OF COMPUTER SCIENCE

**UPQM : A Framework for Developing a Small Business IS/IT
Strategy**

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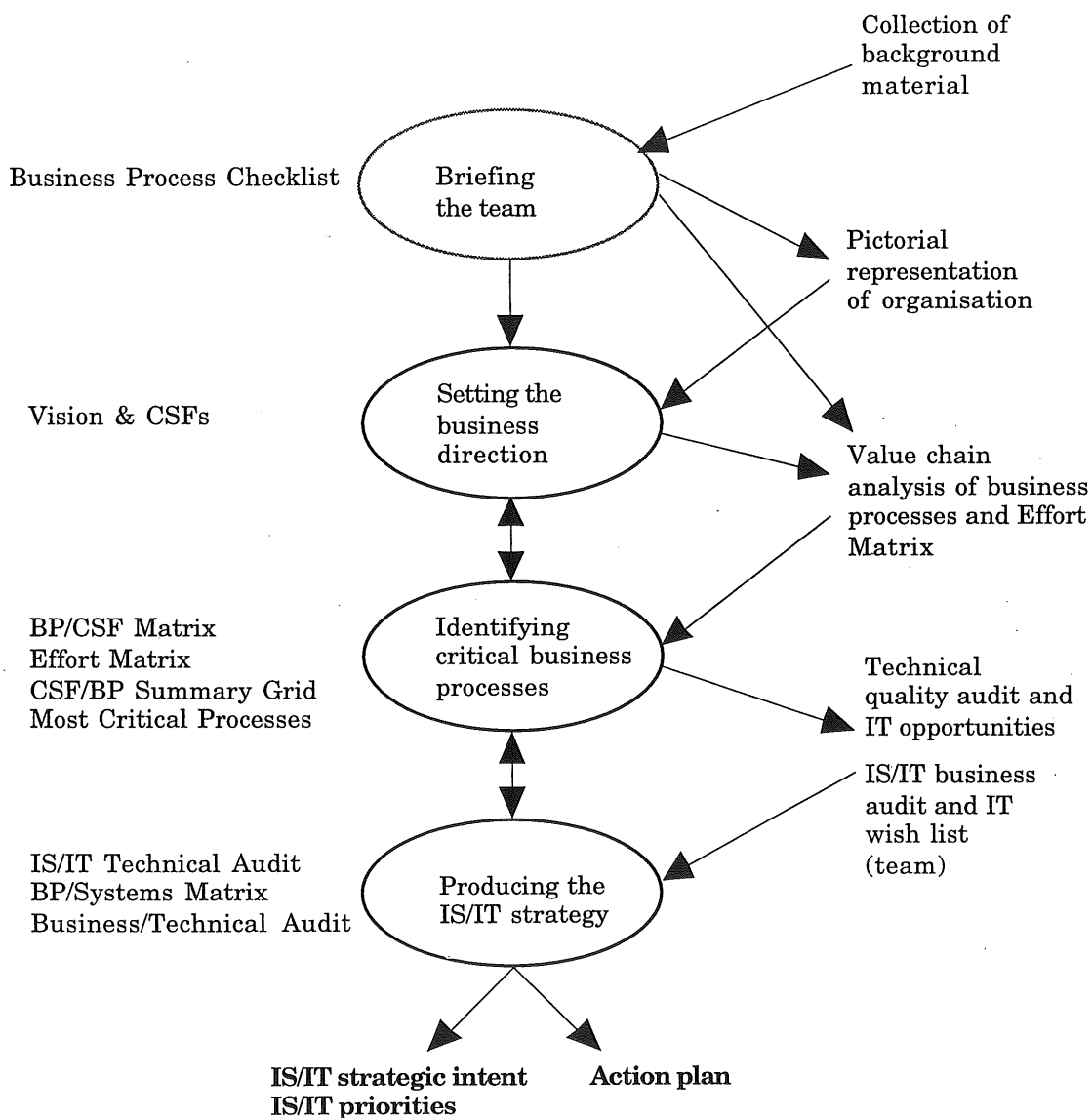


UPQM: A framework for developing a small business IS/IT strategy

UPQM has been developed from Process Quality Management (PQM) (Ward 1990) to meet the needs of small businesses and small business units in preparing an IS/IT strategy. The process is led by a facilitator who may be external or from within the organisation. The facilitator should be familiar with the UPQM before starting the process and should have experience of facilitating. The use of two facilitators can be helpful particularly when the team contains more than 3-4 people. The sponsor should be the MD or senior partner for a small business or the head of a small business unit; it is not the person in charge of IT. The team would normally contain the next level of management although in a small business this may not be clear cut. It is important to ensure that someone on the team is fully conversant with each aspect of the business including any existing IT provision. The team should be kept as small as possible to make it easier to arrange the sessions and reach consensus.

Deliverables

Inter-session tasks



Each session in UPQM is centred around the compilation of a number of documents as described in the following sections. The documents, (termed deliverables in the diagram on Page) which provide the main analysis tools, are listed below. Those that use pre-set forms are shown in the Appendices as numbered below.

- **Business Process Checklist:** the business processes each manager is currently responsible for with the number of people (full-time equivalent) used for each process (Appendix 1)
- **Vision and Critical Success Factors**
- **BP/CSF Matrix:** the business processes which impact on each critical success factor and a quality rating for each process (Appendix 2)
- **Effort Matrix:** the amount of staff effort used on each business process (Appendix 3)
- **CSF/BP Summary Grid:** a scatter-diagram of business processes with critical success factor impacts plotted against process quality (Appendix 4)
- **Most Critical Processes:** those processes which are deemed most critical because they impact on several critical success factors, are not of high quality and/or consume a lot of resources ('big burner' processes)
- **IS/IT Technical Audit:** an assessment of the technical quality of each system (Appendix 5)
- **BP/Systems Matrix:** the support provided to business processes by existing IT systems (Appendix 6)
- **Business/Technical Audit:** a scatter-diagram of business processes with the quality of the business support provided by IT plotted against the technical quality of the IT support (Appendix 7)

The following sections describe the tasks in each session.

Briefing the team (about 1 hour with the sponsor and each team member)

The aim of the briefings is to explain UPQM to each of the team members and get them to 'buy in' to the process. The sponsor needs to be briefed first in order that the team may be selected. Specifically the briefings are an opportunity for the facilitator to gather information about the business in order to prepare provisional versions of documents for the first session (see next section).

In the briefings, the facilitator gathers together existing information about the business such as a mission statement, results from competitive analysis, STEP or SWOT analyses. The Business Process Checklist is discussed with each member of the team by asking the following questions:

- 1 What tasks do you manage and what tasks do you do yourself?
- 2 What is the amount of staff effort (full-time equivalence) put into each of these activities?
- 3 What are the main problems and issues involved in these activities?

Facilitator tasks after the briefings

After the briefing with the sponsor, the facilitator prepares a pictorial representation of the business using a rich picture or system map. This shows the internal links and links with its environment. The representation is enhanced after the discussions with team members

Setting the business direction (2-3 hours)

The aim of this session is to define where the business is going and identify what is necessary to achieve the goals. The first step is to define a mission or vision for the organisation. This involves setting boundaries for the organisation (what sort of business they are prepared to undertake) and assessing where the organisation wants to be in the future. However, it is important that the vision is not just a set of aims but rather a framework upon which strategic decisions may be taken. The vision should contain the overall intent of the organisation, to whom the organisation is accountable (customers, employees, shareholders etc) for what (products, services etc), and, an underlying set of core beliefs or values (the 'why'). As an example, David (1989) quotes an anecdote from the CEO of Porsche: three people are at work on a construction site doing the same work. When asked what they are doing their answers are: 'Breaking rocks', 'Earning a living', 'Helping to build a cathedral'.

The other element in the business direction are the critical success factors (CSFs). These are the limited number of items which must be addressed if the vision is to be accomplished. i.e. the few key areas where 'things must go right' for the business to flourish. 'We need ...' or 'We must....' make useful CSF sentence starters. An ideal number is 5 or 6 each dealing with a single issue. The list is complete when the team agrees 'Yes if we get that, that, that, that and that right we will do it'. This part of the session should start with a review of the pictorial representation drawn up by the facilitator. Reference is made to the vision, past lessons and most importantly the future. The CSFs may be found by brainstorming using post-its to group things that the team believe could have an impact on the achievement of its vision. Another technique is to use scenario thinking to discuss what would happen under various scenarios. Additional techniques which the facilitators may find useful at this stage are SWOT, STEP and Porter's five forces model.

Facilitator tasks after the session

From the information gathered at the briefings using the Business Process Checklist and the results of this session, the facilitator prepares a draft list of business processes structured using Porter's value chain analysis for the BP/CSF Matrix and an Effort Matrix.

Identifying critical business processes (2-3 hours)

The first step is to establish the key business processes. These are series of activities (which may involve several functional areas) which are required for a business to function effectively. The business processes must be sufficient for the business to fulfil its vision. Note the distinction between CSFs which are the 'what' and business processes which are the 'how.' A business process is described by a verb-noun sequence avoiding adverbs and adjectives. The business processes on the BP/CSF Matrix drawn up by the facilitator will be of assistance in clarifying the processes and in identifying missing processes. The Effort

Matrix, again drawn up by the facilitator and amended during this session will help identify 'big burner' processes (those which consume a large proportion of resources).

The next step is central to the analysis phase of UPQM and involves relating CSFs to business processes. The BP/CSF Matrix is completed with a 'x' to indicate those business processes which need to be performed particularly well to achieve a CSF. In completing this matrix many business processes will influence the achievement of a CSF but only the truly critical ones should be marked. Checking that the marked processes are both necessary and sufficient to manage each CSF will reveal new business processes.

The necessary test. - Take each CSF in turn ask 'Which Business Processes need to be performed particularly well for us to be confident of achieving this CSF?' Many will influence a CSF's achievement but judge which are the truly critical ones.

The sufficiency test.- Take each CSF in turn and ask 'If the processes are performed well are they sufficient to manage the CSF'. If the answer is 'no' then new business processes will emerge.

The drawing up of this matrix relies on the wisdom and experience of the team. It is important that it is done quickly; the team should not agonise over decisions but rely on 'gut feelings'.

An analysis section is added to the matrix to help identify the most critical processes. This consists of:

- a count of CSFs on which the process impacts
- a process quality rating based on a five star rating as shown below
 - ***** - Needs no improvement
 - **** - Works well, room for minor improvement
 - *** - Functions, several areas for improvement
 - ** - Process in place but not functioning
 - * - Embryonic
- big burner processes (those which consume large proportion of resources as shown on the Effort Matrix).

The most critical processes (MCPs) are those processes where improvement is required if CSFs are to be managed successfully (and hence the vision achieved). The business processes are plotted on a CSF/BP Summary Grid which maps CSF count against quality rating for each Business Process. Big burners are specially highlighted on the grid. The top left hand part of the grid containing higher risk/higher opportunity processes will be the most critical (these are where the CSF count is high but the quality is low). The big burners should also be considered in identifying MCPs as poor quality in these processes will be proportionally more expensive.

Facilitator tasks after the session

Before the next session the facilitator gathers IT information on the IS/IT Technical Audit. The technical quality of existing IT systems is shown on the matrix using a five star rating (see below) and internal and external links between systems are noted. The information may be provided by an IT manager or the facilitator may have to consult external providers.

The other task is to gather information on IT opportunities. The facilitator should also gather policy relating to IS/IT investment including an existing strategy document if one exists.

Technical quality rating (by stars) is a combination of the following:

- age of the application programmes
- maintenance spent each year
- ease of enhancement
- file technology used
- standard of documentation
- programming language use
- control software employed

Team tasks after the session

Each member of the team assesses using a five star rating (see below) the business quality of the IT support provided by each IT system for their business processes. They also generate, if they are able, an IT 'wish list'.

Business quality rating:

- ***** - Excellent
- **** - Good
- *** - Fair
- ** - Bad
- * - Embryonic

Producing the IS/IT strategy (2-3 hours)

The first step is to consider business process re-engineering particularly for the most critical processes. Ideas for possible changes are drawn from the BP/CSF Matrix. As a result of this step the list of most critical processes may be changed. At this stage any identification of business process re-engineering opportunities will necessarily be tentative but the analysis proceeds with the potential revised business processes.

The IT audit is collated on the BP/Systems Matrix. The overall business quality and technical quality of IT support for each process are rated. The IS/IT Technical Audit is used to provide the latter. A Business/Technical Audit of IS/IT support is provided by a plot showing business quality against technical quality with most critical processes highlighted. Processes with no IT support are included on the plot.

The Business/Technical Audit, BPR findings, IT opportunities and IT wish lists are reviewed in order to define or evolve an IS/IT strategy. The IS/IT strategy consists of a IS/IT strategic intent together with priorities for IS/IT developments. A set of questions is provided to facilitate this discussion. (Appendix 8)

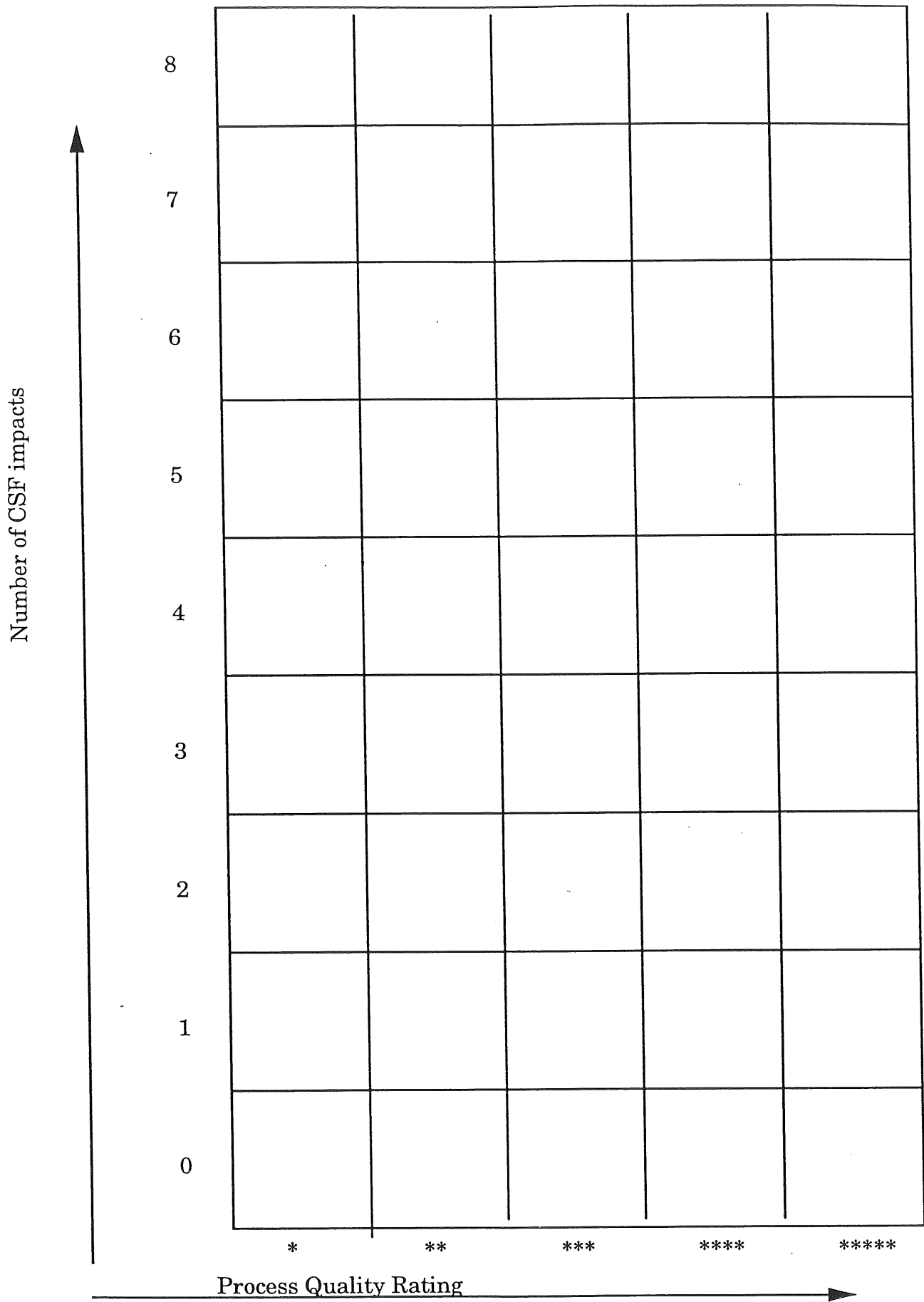
The work in this session will culminate in an action plan. This defines a series of quality improvement projects which may have arisen from considerations of business process re-engineering, from the IS/IT strategic intent or from the IS/IT development priorities. The action plan may contain investigatory projects or improvement projects but should focus upon improving the most critical processes. Responsibilities and a timescale for reviewing the progress of the action plan should be agreed at this session.

BP/CSF Matrix

Critical Success Factors	Business Processes	CF1	CF2	CF3	CF4	CF5	CF6	count	process quality	big burners
		Inbound Logistics	Operations	Outbound Logistics	Sales and Marketing	Servicing				

Effort Matrix

Business Process	Resource Utilisation (full-time staff equivalent)						
	M1	M2	M3	M4	M5	M6	Total
Inbound logistics							
Operations							
Outbound logistics							
Sales and marketing							
Servicing							
Firms' infrastructure							
Human resource management							
Technology development							
Procurement							



CSF/BP Summary Grid

IS/IT Technical Audit

Systems	Finance	Personnel	Marketing	Office Systems	Personal Systems
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Technical audit:

age of application

maintenance costs per year

ease of enhancement

file technology used

standard of documentation

programming language used

control software employed

Internal links

External links

Other Issues

Overall View Of System

BP/Systems Matrix

Systems	Finance	Personnel	Marketing	Office Systems	Personal Systems	Overall View of Business Quality of IT support	Overall view of Technical Quality of IT support
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Inbound logistics

Operations

Outbound logistics

Sales and marketing

Servicing

BP/Systems Matrix

Systems	Finance	Personnel	Marketing	Office Systems	Personal Systems	Overall View of Business Quality of IT support	Overall view of Technical Quality of IT support
Firms' infrastructure							
Human resource management							
Technology development							
Procurement							

Firms' infrastructure

Human resource management

Technology development

Procurement

Business Quality

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Technical Quality

Business/Technical Audit

Questions to facilitate IS/IT strategic intent

How are IS/IT systems to be provided and managed?

- outsourcing?
- central service?
- bought in?
- other?

What is the overall policy for the underlying architectures?

- for hardware?
- for software?

To what extent is data to be:

- centralised?
- decentralised?

What IS/IT facilities are to be provided to individual members of staff?

What training is to be provided for members of staff?

How is IS/IT investment to be financed?

How often will the strategy be reviewed?

Are external links to be catered for?

