# IMS:
# Creating a Manual

**Integrated Management Systems Series**

The Integrated Management Systems (IMS) series of books provides practical guidance and advice on integrating the systems operating within an organization. The IMS series provides a framework into which additional management systems can be incorporated.

Each volume is written by an acknowledged expert in the field. The series editor is David Smith of IMS Risk Solutions Ltd, who has been involved in writing management system standards since the early 1990s and is himself the author of a number of BSI books on the subject.

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Integrated Management Systems Series

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# Creating a Manual

*IMS Risk Solutions Ltd.*

**IMS: Creating a Manual**

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# Contents

# 1. Introduction

This book presents an approach to producing a systems manual for a business that has, or plans to have, an integrated management system.

The term 'business' is used here to describe any organization. It does not imply that it is a commercial organization, but refers equally to a government department or a not-for-profit organization, a hospital or a police force.

## About this book

This book provides guidance on preparing a manual for an integrated management system. After covering the preparatory work, the book then provides a sample manual. The book does not attempt to be a manual for the implementation of any specific system or discipline. Other books in this series give guidance on meeting the requirements of a particular standard or discipline as part of an integrated system.

This book does not claim to be a handbook for the integration of existing management systems. It should be read in conjunction with *IMS: Implementing and Operating* and other publications in the series dealing with specific management systems. These books present a framework – the integrated management systems (IMS) framework – that gives a model for encompassing all the common elements of the different management systems. This framework was based on *ISO Guide 72*, which proposed a format that all future management standards should follow.

This framework serves to identify the common elements of such standards and facilitate their incorporation into a unified system. It is equally applicable to any management system, whether or not it is formalized as a management system standard. All such systems have much in common with each other, with the addition of specific requirements relating to the particular system. This framework will accordingly form the model for any

integrated management system irrespective of the different systems or disciplines that are to be incorporated. The framework is reproduced in Appendix 1 and is the basis of the system manual presented here. The use of the framework and the associated process mapping enables a simpler system manual to be employed in that by addressing the elements of the framework, the entire system can be covered. Auditing is similarly simplified.

This book does not address the cultural or management changes that may be necessary to achieve an integrated system. Certain systems have often traditionally been regarded as the 'property' of a section of the business – accounts, purchasing or design, for example. The 'proprietors' of these systems may not find it easy to accept that it is the business-wide system that is important – of which theirs is but a part.

Furthermore, this book is primarily concerned with the management system at an operational level. For the most part, strategic considerations need to be covered separately, although the principles are the same. This is considered further in Chapter 7.

It is hoped that this book will be useful as an aid to producing a manual to serve those systems the business already operates, as well as providing a framework into which additional management systems, or new versions of existing standards (for example, BS EN ISO 9001:2000) that the business wishes to adopt, can be incorporated.

# 2. The principles of a business system

A business will usually have a number of distinct systems, some formal and documented, many informal and frequently unrelated. Surveys suggest that most businesses have six or seven different systems in operation.

As it becomes recognized that these are all part of the activity of running the business, it is clear that this unity of purpose means that there is an advantage to be gained in integrating the systems. The business will probably have manuals or guidelines covering some of its activities – a quality manual, perhaps, or a manual for the accounts. What is now needed is a manual that covers existing formal systems and also allows for the future inclusion of other elements that are not currently part of the formal business system.

## The objectives of a business

Any business must aim to satisfy its stakeholders, as otherwise it cannot survive. In the case of a commercial business, those stakeholders will include customers, owners, employees, neighbours and suppliers – all those whose lives are affected in any way by the activities of the business.

With a public body, or a school or hospital, the same list applies except that the customers are the users of the service and are not necessarily the same people as those who pay for it. The owners may be taxpayers or charities, but they will still need to be satisfied by the performance of the business.

Increasingly, customers and other stakeholders will seek assurance on the way that a business is run and that there is transparency in its operations. Recent scandals in the activities of certain large public companies have served to remind directors of their obligations in this area.

## Continual improvement

For every sort of business, the aim ought to be to achieve continual improvement in the service to stakeholders. While the results will be apparent at the macro level, overall improvement will in general be achieved only by improvement of individual elements within the business. There may be the occasional case when overall improvement is obtained at the top level by, say, acquisition or refinancing, but such instances are rare. The opportunity for improvement at the detailed level is always present.

The normal process of achieving continual improvement is by application of the 'plan-do-check-act' (PDCA) cycle. Each element of the business is:

- examined and improvement planned (where possible);
- put into operation; checked to see that it is working; and
- reviewed with the aim of further improvement. This is considered in more detail in Chapter 6.

Improvement can usually be carried out only in respect of individual processes within the business (or occasionally within linked groups of processes). For it to be done effectively the processes within the business need to be identified and their relationship established.

# 3. Identifying the business processes

Modern management systems tend to be constructed around processes rather than procedures. The identification of processes and their relationship with each other is often an essential requirement – for example, it is a requirement of BS EN ISO 9001:2000. Even if not obligatory, it is a useful thing to do.

## The meaning of 'process'

A process is often defined as the mechanism whereby an input is converted into an output. However, as is often the case with definitions, this is not particularly helpful or informative. Often, the term is defined in a manufacturing context – but this is not adequate either.

The objective of any business is to add value to its inputs to meet the needs of its customers, and a process is any activity that forms part of that sequence of adding value. Entering an order or answering an enquiry are both processes, but so is answering the telephone call, which may be the start of either activity. There is an input – in this case a telephone call – and somebody does something, or something happens, that produces an output. This output would probably be the input to the next process in the sequence.

At a high level, one may regard activities such as marketing, budgeting or design as processes, but each of these will in practice be a collection of many other processes. The fundamental activities of the business – whether making and selling a product, making sick patients healthy again, or educating a child – can be regarded as processes, which will break down through numerous levels to such basic activities as answering the telephone. Even the largest business will usually be able to describe its activities in terms of three or four high-level processes.

In the past, quality systems in particular have emphasized the importance of procedures rather than processes. This sometimes leads to confusion between the two, and it is important to distinguish them. A process is any activity that is part of the addition of value, which is the business of the organization.

> Any activity or set of activities that uses resources to transform inputs to outputs can be considered as a process. (BS EN ISO 9000:2000)

A procedure describes how an activity is to be carried out. It is concerned with means and methods rather than inputs and outputs. Along with operating instructions, a procedure describes how a process is to be carried out; it does not define the process.

A simple example is receiving an order from a customer and entering it into the sales system. Initially, the sales clerk may have written the order on an order form, and a procedure or operating instruction would describe how this was to be done. Later, a computer system is installed that enables the clerk to enter the order on the computer. This would require a different procedure to be written. The process, however, would be unchanged – it would still be receiving the order and entering it into the sales system; only the method of order entry has changed. If the computer system enables the clerk to do things that they could not do before, such as checking stock availability or giving the customer a firm delivery date, then these are new processes.

If a business has a good set of procedures, these can be useful in helping to define the processes, but the distinction between the two must be kept clear. Procedures or operating instructions may still be needed to describe how the process is to be carried out, but they will not define the process. It will be found to be useful if specific (rather than general) procedures or operating instructions carry a reference to the process to which they refer.

Businesses have traditionally tended to have an organizational structure that is vertical – that is, based on functions within the business – and this is still largely the case. The initial stages of an enquiry or placing an order will typically come within the responsibility of a sales function, headed perhaps by a sales director. This is followed by the allocation of the order by production planning and the execution by a production or operations function headed perhaps by an operations director. This will be typically followed by despatch, transport, invoicing and collection, each with its separate functional management. For example, the same procedures, but with different titles, will apply to a hospital, school or police station.

In contrast, the sequence of processes within a business is essentially horizontal, cutting across the vertical structure from the first inputs to finally

reaching the customer. This is largely the value of approaching the business through its processes rather than the traditional functional approach – it is seen as a whole, not as a series of separate compartments. This does not imply that there is any need to change from the functional management organization, which may still be appropriate. The structure will need to recognize, however, that the integrated system of the business is not restricted by a vertical management structure and that the system manager, for example, will have a responsibility that cuts across all traditional functions.

Once the processes involved in the business have been codified and mapped, the application of the requirements of any specific management system can easily be seen. This is the case whether in relation to quality or occupational health and safety, for example, or to the organization's accounting system, sales, personnel or any other. They all finally relate to processes and can be addressed accordingly.

The production of a process map is in itself a rewarding exercise, quite apart from the subsequent uses to which it can be put. It portrays what the business is about in total, rather than the particular section or function with which the individual is concerned. It therefore serves to remind everyone of how their activity fits into the overall company objectives, and is accordingly invaluable in building a team rather than a departmental attitude. One large quarrying company, for example, distributes its process map throughout all its quarries and manufacturing operations, with the local activities highlighted to show their place in the overall business activities.

The identification of processes within a business not only enables a programme of continual improvement to be carried out, but it also permits the application of risk analysis to each element of the business. This is increasingly recognized as an essential element in business management, and the subject is considered in more detail in Chapter 4. Many failures in businesses are the result of failing to appreciate that there are risks associated with any activity. For too long, businesses worked on the unstated assumption that tomorrow would be just like today, except that things would progressively get better. Too many companies have recently experienced a rude awakening from this attitude. It is not only the spectacular event that can spell the downfall of a business; it is more likely to happen as a result of smaller unconsidered events, such as political changes, or exchange rate fluctuations, or technical or fashion developments. The identification of these risks, and a programme to manage those that present a significant threat to the success of the business, is essential. It is increasingly demanded by stakeholders and not only the owners of the business, but customers, employees and suppliers to be assured that risks are identified and managed.

## Process mapping

The process approach described in this book enables all these functions to be covered.

Initially, all processes in the business need to be identified level by level until all are covered, showing how each relates to the other processes with which it is associated.

There are various ways in which the processes can be recorded and portrayed. The important thing is that the procedure is formal in accordance with a consistent convention. For most purposes, it may be found that process mapping using activity sequence flow charts is the most appropriate. A simple example – making a cup of tea – is shown in Figure 3.1.

The other decision to be taken is where to start – that is, whether to work top-down or bottom-up. It is tempting to start at the top, as top-level processes can be easily defined, often by just one person. The difficulties that then arise are in driving the process down throughout the business, maintaining momentum while involving increasing numbers of people at each stage.

For most organizations, the bottom-up approach is preferable. This enables the people who actually carry out the process to do the mapping (after brief training). This has a number of benefits:

- the results are likely to be more accurate;
- a lot of work can be carried out in parallel;
- each process points to the next, so the picture builds up without omissions;
- perhaps most important of all, the workforce is involved in the operation and will come to appreciate their place in the activities of the business. As an aid to fostering a team attitude it can be invaluable.

For a business where the number of processes is not great (and this has nothing to do with the size of the business – some of the largest concerns may be simple in process terms), a manual system applying the conventions in Appendix B to the sample system manual (see Chapter 8) can be used. For more complex businesses, a computer-based system (there are many packages available) may help to make the task more manageable.

Whatever system is adopted, it is essential that each process can be seen in relation to those that come before and after, and that all processes within the business can be covered. At least conceptually it must be possible to construct a single process map covering the whole business.

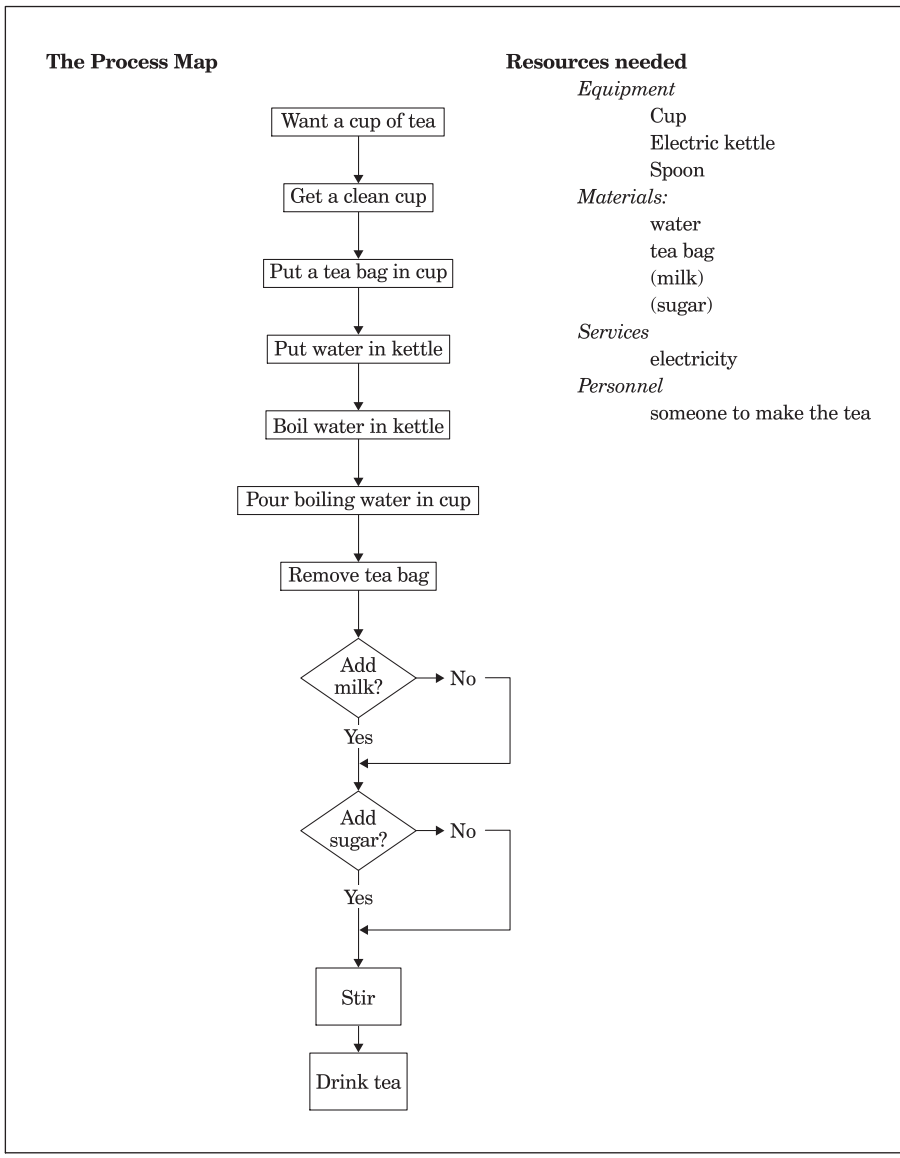



*Figure 3.1 Process mapping using activity sequence flow chart*

To keep the relationship between processes clear, a system of numbering the processes should be devised that will apply throughout the business.

This should be the responsibility of the system manager, as should supervision of the entire process-mapping activity.

Note that the process map as portrayed in Figure 3.1 is not the same as a critical path diagram. The processes will be the same, but the order in which they are carried out may be different, with some taking place in parallel. When making a cup of tea, it is sensible to put the water in the kettle and put it on to boil before putting the tea bag in the cup. If a critical path diagram of a process exists this can equally be taken as a basis for the process map.

The process map should be regarded as a business resource, not the property of any department or series of departments. The results should be freely available to every manager or person in a managerial position throughout the business.

Each process recorded should show the inputs needed to achieve the process. These will include resources such as plant, buildings, services, equipment, personnel and skills. Other inputs may be purchases or other supplies from outside the business, and/or the outputs from other processes within the business. These should be formally recorded in a uniform style, again ideally as part of a computer-based database, and the information regarded as a business resource.

It is important to record which of the input resources are used exclusively in the performance of that particular process, and which are used in common with other processes (this could include, for example, buildings, services or computer systems). This is significant when considering the risks attached to each element and what should be done about them.

The objectives of each process should also be recorded, together with the name and title of the manager responsible for the process and the means of monitoring the process (including methods of measurement and recording the results of the process). Existing procedures and process layouts may provide much of this information. An example is shown in Figure 3.2.

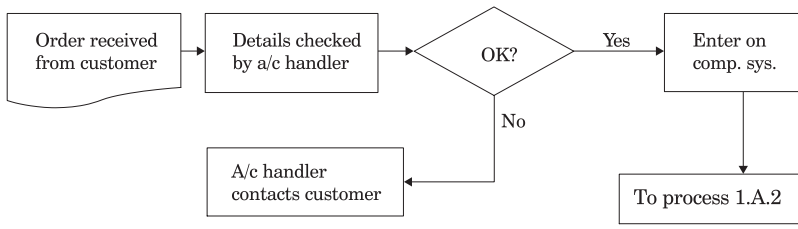
## Dimensions of a business system

The areas of a business most frequently covered by formal systems are:

- (product) quality;
- occupational health and safety; and
- environment.

Process Reference 1.A.1.

Order Receipt and Handling




**Input, realization and output**

**Resources needed**

*Facilities and Equipment*

A safe environment
Sales office and services*
Telephone*
Computer/internet*
Fax machine
Printer

* denotes shared resource

*Materials*

Paper

*Personnel*

Sales assistant, account handler

*Special requirements*

*Manager responsible*

Sales Office Manager

*Required output*

Order entered on computer system

*Figure 3.2 Example of process mapping*

In a comprehensive business system, the following departments or functions are also likely to be covered, although the list will vary according to the size and nature of the organization:

- human resources (personnel);
- costing;
- finance;
- sales;
- marketing;
- customer satisfaction;
- public relations;
- purchasing and supply;
- distribution;
- information (including information security);
- regulatory affairs;
- corporate affairs.

# 4. Risk analysis

The next stage is to analyse the risks attached to each process.

This is a subject that frequently causes difficulty, but in concept it is simple; most of the problems arise through the terminology used.

For each process you need to ask the following questions.

- What could go wrong?
- What would be the effect if it did go wrong?
- How likely is it that it will go wrong?
- Are the seriousness and the likelihood that something will go wrong such that something needs to be done about it?

That is all that there is to risk analysis. The subject is dealt with in more detail in this chapter, but there is one important point that should be made now: it is not only things going wrong that should be considered, but things going right. The closure of a particular market may have major implications, but so may the opening of a market that has been closed – as with, for example, Russia and China. The advent of new materials (for example, plastics and ceramics) or new techniques (CNC machining and antibiotics) may pose a threat to traditional methods, but may also open up new opportunities in both methods and products.

The risk analysis of each process is at the heart of the business system. Most organizations that fail do so because they have not considered the dangers to which they are exposed or, equally important, have failed to recognize opportunities that have presented themselves.

This approach is sensible in all organizations, but in many it is a non-negotiable regulatory requirement – for example, in health and safety or food safety.

## Identification of aspects

The process of risk assessment consists of three stages. The first is to identify those things that could go wrong – or right. Then the consequences of such an occurrence need to be considered, and the likelihood that it will happen.

Each process will depend on certain critical factors on which the successful conclusion of the process depends. These are known as aspects. These aspects may include the availability of certain services (such as electricity, telephones or computers) or a certain specialized piece of plant, or the availability of an operator with particular skills, and so on. The question to be asked is 'what could go wrong which would prevent the process being carried out successfully?' Remember that although aspects are frequently referred to as 'hazards', this implies that their effect is always damaging. This is not the case. The effects may be beneficial just as they may be damaging. The hazard terminology is appropriate only in such areas as health and safety or food safety, where the risk is always downside. The more general question is not 'what could go wrong?' but 'what might change that would affect this process?'

In our simple example of making a cup of tea, the aspects that could go wrong and the effect that they have on the output are shown in Table 4.1.

*Table 4.1 Risk analysis – making a cup of tea*

| Aspect | Impact | Likelihood | Risk |
|---|---|---|---|
| Cup not available (lost, broken, cracked) | No tea | 2 | High |
| Kettle not available (not tested, broken) | No tea | 1 | Low |
| Spoon not available | Little | 1 | Low |
| Water not available | No tea | 1 | Low |
| Tea not available | No tea | 1 | Low |
| Milk not available | Sub-standard tea | 1 | Low |
| Sugar not available | Sub-standard tea | 1 | Low |
| No trained personnel | No tea | 1 | Low |

### Aspects to be considered

Examples of aspects to be considered include the following.

***Marketing:***

- technical obsolescence;
- competitors' activities;
- social changes;
- fashion changes;
- quality failure;
- loss of reputation.

***Financial:***

- inflation/interest rates;
- exchange rate changes;
- economic failure of overseas supplier or country.

***Sales:***

- civil unrest or war in customer territory;
- loss of consumer confidence;
- market saturation.

***Purchasing and supply:***

- financial failure of supplier;
- supplier quality problems;
- unrest or war in supplier country.

***Plant and equipment:***

- fire or flooding;
- power failure;
- machine failure;
- new technology.

***Personnel:***

- shortage or loss of essential skills;
- strikes;
- social or population changes.

## Risk assessment matrix

A simple matrix to give a measure of the risk attached to a process is shown in Figure 4.1 and in Appendix F to the sample manual in Chapter 8.

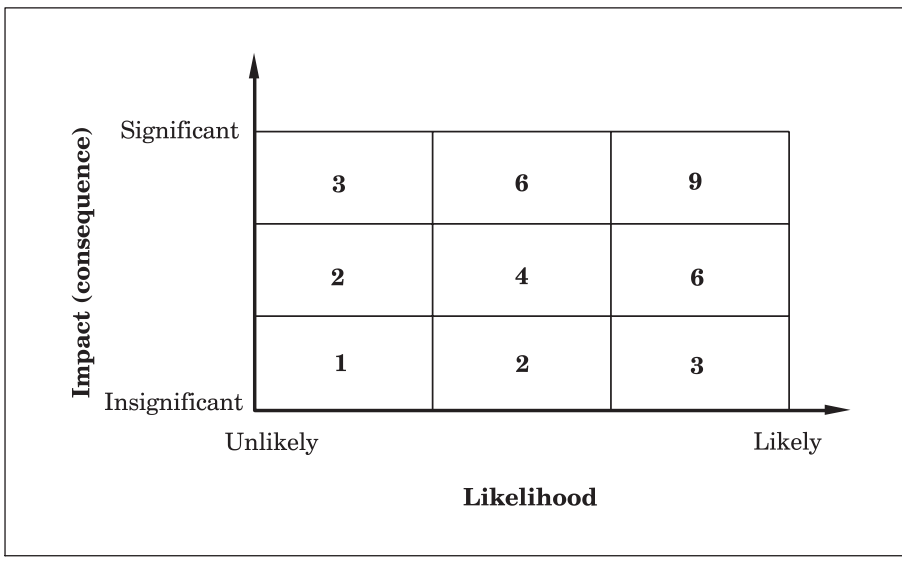



*Figure 4.1 Risk assessment matrix*

Any method of grading can be used, but the temptation to make a more elaborate or precise system (for example, using scales of 1 to 10 instead of 1 to 3) should be treated with caution. Risk measurement can never be an exact science and the assessment must be qualitative rather than quantitative. The essentials are that a distinction is made between those risks that represent a serious threat in any of the dimensions of the system that need immediate attention, and those that, while not tolerable, do not need attention with the same degree of urgency.

It must also be remembered that duration is an important element of an impact. Most businesses could survive a failure of a telephone system that lasts only half an hour, but perhaps not one that lasts several days.

A distinction also needs to be made between those impacts that have a serious effect on that process, and those where the impact is on the whole business, the environment or the world. While this is common sense, it can be obscured if a mechanistic approach is taken to the subject.

## Risk analysis example

Table 4.2 is a simple example of the application of risk analysis to a process that arises in one form or another in almost any business.

*Table 4.2 Risk analysis example*

*Order receipt and handling process Ref: 1.A.1*

***Dimensions of the system***

A. Quality
B. Operational health and safety
C. Environment
D. Customer satisfaction
E. Sales and marketing
F. Costs/financial
G. Human resources

| **Aspects** | **Dimensions affected** | | | | | | | **Impact** |
|---|---|---|---|---|---|---|---|---|
| | *A* | *B* | *C* | *D* | *E* | *F* | *G* | |
| 1. Sales office unavailable (fire, unsafe) | | | | X | X | X | X | (Shared) |
| 2. Telephone system failure | X | | | X | X | X | | (Shared) |
| 3. Computer system failure | X | | | X | X | X | | (Shared) |
| 4. Fax machine failure | X | | | X | X | X | | Process fails |
| 5. Sales assistant absent | X | | | X | X | X | X | Process fails |

*Manager responsible: Sales Office Manager*

*Note:* Where resources are to be shared with other processes, it is clear that the impacts need to be considered in conjunction with those attached to the other affected processes.

***Proposed control measures***

| **Aspect** | **Control measures proposed** | **Cost** | **Time to implement** | **Risk reduction planned** |
|---|---|---|---|---|
| 1. | (Shared resource) | | | |
| 2. | (Shared resource) | | | |
| 3. | (Shared resource) | | | |
| 4. | Buy spare fax machine | £300 | 1 week | 99% |
| 5. | Train reserve assistant | £1,000 | 6 weeks | 95% |

## Risk assessment

Once these aspects or hazards have been identified, the next stage is to determine which of the dimensions would be affected – for instance, would it affect the quality of the output, damage customer service, prejudice the health and safety of employees or have damaging cost effects?

Having identified the aspects and the dimensions in which they would have an effect or impact, the next stage in the risk assessment is to determine how serious the impact would be. Could it be a small discharge of non-toxic fumes, or a Bhopal? Would it result in a few identifiable substandard products or a complete product recall? Would it halt production for a few hours, or for weeks and months? While it is not feasible to attribute specific values to such effects, they can at least be graded on a scale from 'slight' to 'disastrous' or 1 to 10 or even 1 to 100. There needs to be some way of expressing the degree of seriousness in a uniform way.

The third element of risk assessment is to assess how likely the event is to happen. This is a matter of judgement, common sense and history. If the premises have been flooded in the past, it is not improbable that they will be again. Electricity supplies do fail, as do telephone systems and computers. What would an insurance company charge to cover the risk? Or what odds would Ladbrokes give you? Almost any event could conceivably happen, but some are so unlikely that they can be disregarded. Others will almost certainly happen at some time, but the question is when or how often. Remember that if an event is judged likely to happen once in a hundred years, that means it is just as likely to happen next year as in 50 years' time.

The term 'likelihood' is to be preferred to 'probability' in this context to avoid confusion with the mathematical definition of probability that is concerned with random events.

The combination of the chances that something will happen and the effect, or impact, if it does happen is the measure of the risk. If something is very unlikely to happen and the consequences are not serious even if it does, then the risk is low and can probably be ignored. If it is unlikely, but the consequences would be very serious (as, for example, in the case of Chernobyl), then all possible means will need to be taken to minimize the risk. It can never be eliminated entirely, but all practicable steps must be taken to reduce the likelihood of the event happening and also the adverse effects if it should happen.

In practical terms, most risks will be a combination of things that could well happen with moderately serious consequences for the organization.

Examples of possible aspects (hazards) in various functions of a company were given earlier in this chapter. These are illustrative only, and every organization will have its own aspects. Although aspects are frequently

referred to as hazards, it is important to remember that they can be positive as well as negative. A sharp rise in the price of a raw material may be seen as a hazard, but would a fall in price open up new opportunities for the business, and should contingency plans be made for this too?

It is also important to remember that there is some risk attached to just about everything. Hundreds of people are struck by lightning every year, but we do not spend our time worrying about it. It is unlikely that an aircraft will crash into your building, but if your office is close to the end of a runway of a busy airport the aircraft risk may become one that you wish to consider.

The list of aspects (hazards) identified in respect of each process can now be augmented by the likelihood or probability of the event happening and an approximate measure attributed.

Every process is therefore dependent on a number of essential inputs (aspects), and associated with each of these is a risk element. The analysis will probably show that most of these risks are so small that they can be considered tolerable and no further action needs to be taken. It is likely, however, that one or two risks will stand out as unacceptable.

This leads to the second element in risk management – namely, risk treatment. How can the organization reduce or control the risks so that they become tolerable? For every significant risk, there are probably several possible ways of reducing it to a tolerable level, each with its own implications of cost, effectiveness, ease and speed of implementation and so on.

The aspects (hazards) are initially identified in respect of each process – the responsibility lies with the departmental manager for seeing that this is done. Similarly, the impacts, likelihood and risk will be assessed within the same area, with outside specialist assistance as required. The same group will initially propose and probably decide on the risk treatment actions to be taken.

There are two areas where risk treatment at the departmental level is inappropriate.

First, where several different departments identify the same significant aspects, such as the availability of services (for example, electricity, telephones or computers) it would be inappropriate for each department to come up with its own analysis of these risks and this needs to be carried out at a higher level. The department should, however, register the seriousness of the risk as far as its own activities are concerned, as otherwise that significance may not be fully appreciated. A failure that has only a small impact on each of a number of departments may have a significant impact when considered across the whole business.

Second, at the strategic level, which may overlap with the first – for example, a decision to have a second parallel computer system in operation

to safeguard against failure, or the installation of standby electricity generators. There are other strategic risks that the business may need to consider that do not fit readily into the process map. Such considerations as changes in exchange rates, the likelihood of wars in foreign parts or even the activities of competitors may be of major significance, which should clearly be included as part of corporate governance. While the manual is a suitable vehicle for operational risk analysis, separate arrangements need to be made to ensure that strategic risk management is covered. The subject is considered more fully in Chapter 7.

## Confidentiality

In principle, information about the processes of the business and the risks attached to them should be widely disseminated throughout the business. The more people involved in identifying risks and making suggestions about the best ways of managing them, the more likely it is that the optimum solution will be found, and multi-disciplinary teams are always to be preferred. It is often the non-specialist outsider who can see risks that are not apparent to those closely involved in the process, and who may be able to see solutions that are not obvious to those closely involved.

It has to be recognized, however, that considerations of confidentiality may arise. For commercial reasons, the details of some processes may be a closely guarded secret. The risks attached to certain activities may be such that the information must be kept from competitors or from the public. In these circumstances, the top management needs to restrict any discussion of the issues to a small circle, and ensure that the information is kept out of the company database. Secret processes should still be recorded, but described in such a way as to not reveal sensitive information. The decision to keep certain matters confidential should be taken by the chief executive only and such instances kept to a minimum. There is a tendency for managers to try to keep a lot of information secret when in reality this is not only unnecessary, but also deleterious to the total business.

# 5. Managing the project

In all but the simplest business, mapping all the processes is a major task and one that is not to be undertaken lightly. One may be embarking on a programme that may take years before every activity in the business is covered.

This should not be a deterrent – benefits can be expected to accrue from day one for the following reasons:

- the work can be done in parallel throughout all areas of the business;
- after brief initial training, the work can (and should) be delegated. The more that the process mapping and identification of aspects is carried out by people actually doing the work, the more likely it is to be accurate and kept up to date;
- this involvement of numerous people at all levels throughout the organization is in itself of value in making them aware of the functions of systems throughout the business and encourages a team approach;
- the identification of risks will immediately lend greater security to the operation;
- even the action of process mapping may be instrumental in identifying opportunities for improved efficiency and cost reduction.

The problem is then one of management, planning and training. The first step will be to select a system manager (not necessarily with that title) who will be responsible to the chief executive for the implementation and maintenance of the whole project. Clearly the job is of a different order of magnitude from that of, say, a typical quality or safety manager, although either of these would bring some experience of the techniques used. Whoever is appointed would almost certainly benefit from a short training course on integrated management systems. The principal managers then need to

receive high-level training on the aims and methods of the project, and the way it is to be carried out. Together with the system manager, they will then decide on personnel, timetables, training and anything else that is necessary to turn the plans into a reality.

From then on it should be the responsibility of the system manager to ensure that the project runs according to plan, with the chief executive ensuring that the system manager receives the support and cooperation they need. Progress should be reported regularly at management meetings.

# 6. Continual improvement

## The PDCA improvement cycle

The essence of continual improvement, which must be the aim of any business management system, is to examine all processes at all levels to investigate how they may be improved.

In general, a process will be judged in terms of the value that it adds to the overall activity and hence to the business as a whole. In practice, it is not always easy to measure the added value attributable to a particular process, especially at a low level, and hence the emphasis may have to be on added cost because it is easier to measure.

The first question to ask of any process is what that process is intended to achieve. Is it necessary at all? Why is it necessary? The greatest improvement that can be achieved with any process is to eliminate it entirely, so long as this does not prejudice the overall achievement. In almost any business there will be processes or activities that have grown up by custom and practice, the usefulness of which has long disappeared, but with no one having taken the positive step of stopping them.

Having established that the process is necessary, the next stage is to examine whether it can be done more effectively. This means whether it can be done more economically, or whether it can achieve more. Two or more separate processes can often be combined with considerable cost savings. It should be questioned whether the process has to be done at this location or at this stage in the overall process. Why here? Along with this goes the question of who is doing it and why? The process could be carried out more economically and effectively by a different person, perhaps in conjunction with another process.

The improvement options will often fall into one of three categories.

- Streamlining – can the complexity be reduced? Can the process be removed or combined with another?
- Simplification – can the process be made simpler?
- Is there scope for processes being carried out in parallel rather than serially?

All processes should be examined from the point of view of avoidance of loss (or cost). Although this may be regarded as a negative approach, in practice loss is often easier to identify than increase in added value. The techniques of value engineering, which has the same aims of continual improvement, may prove useful in these studies.

Having decided where improvements may be made, their implementation has to be planned (the plan stage of the PDCA cycle). This planning must include costs and benefits, time for implementation and the impact on not only the dimensions covered by the management system but also on other processes, personnel and departments.

Once the necessary agreement has been obtained (including any necessary authority to spend the money), the improvements can be implemented. This is the do stage of the PDCA cycle.

After the changes have been implemented and have been running for a period of time, checks need to be made to see that the improvements envisaged have been realized. How the improvement is to be measured (whether by cost savings or improved output, for example) should have been specified at the planning stage, along with the period for full implementation after which it is sensible to measure the effects. This is the check stage of the PDCA cycle.

If any of the changes have failed to produce the planned results then these need to be re-examined and the necessary changes made. If all has gone according to plan then arrangements need to be made for repeating the procedure to achieve another round of improvement. This is the act stage of the PDCA cycle.

# 7. Strategic risks

This book has so far been concerned with the activities of risk assessment and continual improvement in the operations of the business.

The top-level managers of the business also have to consider the risks attached to the future of the business as a whole and the appropriate measures needed. It may be argued that these are no different from the analysis of processes, and can be viewed as the same as a risk analysis regarding the activities of the business as a single process at the highest level. This view is tenable, but not helpful.

The activities of the business will depend on certain basic requirements and too often it will be assumed that these will continue unchanging. In more settled times this might have been a reasonable assumption, but in the circumstances of today it is unreasonable.

All the basic requirements of the business should be examined and a risk factor applied to each of these aspects, no matter how improbable a particular risk may appear. Even if so improbable that the risk can be discounted, the risk has at least been identified and considered. If, when considering the likelihood, it is found too difficult to use the 1, 2, 3 scale suggested in Figure 4.1, qualitative terms may be used such as 'practically impossible' and 'very unlikely' at one end to 'very likely' and 'almost certain' at the other.

Many of the risks to be considered were listed in Chapter 4. Most businesses need premises from which to work, whether they are a manufacturing business, shop, hospital or school. Could they survive if the premises were destroyed by fire, flood or earthquake? The answer is not always that they could not survive. Domestic working and call centres, for example, have distributed the activities of many concerns. Some exist only as 'virtual' businesses. The Internet came into being as an attempt to survive the possible destruction of military headquarters. Most businesses, however, will need to consider any significant threat to their premises as a threat to the business. Such a threat could, of course, arise from the environment. Is

the building next door to a nuclear power station, a fireworks factory or a busy airport runway?

If the risks are considered intolerable, a move or even a second location may be decided on. A governing body that did not consider such risks and take action where appropriate could be held to have failed its stakeholders.

In the case of a public limited company it is a requirement in the UK that the directors take cognisance of the risks attached to their business, and only companies that can demonstrate that they do so are eligible to have their shares listed on the London Stock Exchange. Further details of these requirements are given in PD 6668.

Survival is a basic instinct with businesses as well as humans. One of the greatest perceived risks is frequently that of an unwelcome takeover bid. This may be from another public company, or may be a proposal from a health authority to merge hospitals, or the threat of 'reorganization' by a government department. Management effort will often then concentrate on countering this perceived threat. In other circumstances, a business that sees difficult times ahead may go out deliberately to seek acquisition or amalgamation. In determining the approach to be taken, it is the interests of stakeholders in total that should be considered – that is, customers, employees and suppliers, as well as owners. Too often it is the interests of the management that determines the policy and this may not be to the benefit of the major stakeholders.

A further vital element in considering the aspects of the business is often the computer and information systems. While a business may survive the loss of its premises, it is less likely that it will survive the loss of its information and computer systems. A total failure would probably be associated with the loss of premises, but having the system inoperative for a day or two, or the loss of data, could spell the end of a travel agency or a mail order firm and could severely prejudice the effective working of a hospital. The loss of secret information – such as a formula, recipe or even a client list – could mean the end of some concerns.

The requirement is to think of anything that could go wrong – or even anything that could go right. New market opportunities may suddenly emerge (as with, for example, Russia and China) or new materials or techniques could become available that could transform prospects for the business.

In general it is the downside risks that the management will be most concerned to identify. While one can never be sure that everything has been thought of, approaching the task by consideration under a number of headings may at least ensure that the obvious is not overlooked. Such headings might be as follows.

*Strategic risks*

***Marketing:***

- activities of competitors;
- changes in fashion and culture (for example, hats negative, bottled water positive);
- effect of product recalls, and potential loss of reputation;
- market saturation.

***Technical advances:***

- products becoming outdated;
- new methods and equipment needed.

***Structure:***

- political changes;
- hostile share bids;
- conflicts of interest regarding stakeholders.

***Finance:***

- need for new capital;
- changes in interest or exchange rates.

***Political:***

- domestic – changes in legislation;
- war or the collapse of overseas economies or suppliers.

***Staff:***

- social changes;
- skill shortages;
- pay levels.

***Suppliers:***

- quality failures;
- insolvency;
- inability to support growth.

***Organization and culture:***

- is the management structure appropriate?
- is the culture appropriate?

It will be apparent that the subject of risk management is a wide one. It is examined in more detail in another book in this series, *IMS: Risk Management for Good Governance*.

# 8. The manual in practice

This book is intended to portray the kind of system manual that might be used in a business that has, or plans to have, an integrated business management system.

All businesses are different, and any system manual that claims to be common to all would have to be so generalized as to be useless for any practical purposes. This book presents a form of manual that offers a framework capable of incorporating the different elements of the systems operated by the business in a uniform way, and able to be extended to the point where in due course it could be fully comprehensive for that business. It is based on the IMS framework, which is reproduced in Appendix 1, and which has been the subject of earlier books in this series.

It is unlikely that every dimension of a business can be incorporated immediately. In certain dimensions (for example, quality, health and safety, and accounts), formal systems may already exist that can be incorporated readily into the overall manual. Other areas may not be the subject of formal systems and these will have to be developed later. The objective is to produce a framework into which additional dimensions can be readily incorporated. At the same time, it will act as a guide to the formulation of systems in dimensions that have yet to be formally addressed by the business.

Every business is different from every other, and business systems will also be unique in some respect to that organization. However, at the operational level any business system can be regarded as a sequence of processes. These may be processes in a physical sense (in the case of a factory or a hospital), or a series of administrative or clerical processes (as in a service organization or a government department). Inputs will be needed for each process, as will resources to carry out the process and achieve the required outputs. Having a system that identifies these processes and the risks (both positive and negative) associated with them means that a comprehensive picture of the activities of the business can be built up. BS EN ISO 9001:2000 requires that a (quality) system manual

includes the scope of the system (see the note on page 46), the documented procedures established for the system (or reference to them) and a description of the processes of the system and their interaction.

The manual is accordingly based on the following approach:

- Identify processes and map them to show their sequence and interaction. This is described in Chapter 3.
- Identify the inputs, realization and outputs associated with each activity. This should be recorded formally in a standard format, although the details will be different for different types of business and different dimensions within those organizations. For example, those for the accounting function will be very different from those for a production shop or a sales warehouse.
- Apply a risk analysis to each element of those processes in each dimension of the system (for example, environmental or financial). This is the crux of the system. The identification of the risks pertaining to each process can best be done by brainstorming sessions involving management from outside the department directly concerned, as well as those within, using a multi-disciplinary team.

While the identification of processes, inputs and outputs should be made freely available throughout the organization, there may be elements of risk assessment that need to be kept confidential within the business or even within a particular department. This should be very selective. The more people thinking about a particular risk the better, as they are more likely to find the best solution. Any decision to maintain confidentiality on a particular risk should be specifically approved by the chief executive.

In classifying risks, the effect of duration should be recognized. A power failure that closes down a factory for an hour has less of an impact than one that lasts weeks; but for a hospital or a fire service, a service failure of even an hour may be intolerable.

Apply the plan-do-check-act cycle in process improvement. Continual improvement must be an objective of the business and, at the operational level, such improvement must come from the improvement of processes, including elimination. While each process at the lowest level should be examined, this is not in itself sufficient to ensure optimization of the main process. At this level, it is likely that the main processes will cut across traditional functional responsibilities, so several managers may need to work together to achieve a positive result.

Although these procedures will apply to all operational activities of any business, they may not be entirely appropriate to the strategic aspects that need to be considered separately.

A manual is required by BS EN ISO 9001:2000 and is in any case advisable. It does not have to be on paper. A manual on a computer network is ideal so long as it is available to all who need it and is fully under control. The system manager should be responsible for these activities (including keeping the manual up to date). An essential requirement is that the manual reflects what happens, not what the business intends or just hopes for.

There is much to be said for a set format for a system manual even though it may be kept on a computer system. It serves to demonstrate its control and authority and to distinguish it from operating procedures, work instructions or other similar documents.

If the business already has a quality manual, safety manual or similar, it will be important to distinguish them. As the new system manual is compiled and introduced, the existing manuals can be incorporated, but in the initial stages it may be necessary for them to circulate in parallel.

## Sample manual

A sample manual and its appendices are presented here; guidance, alternatives and comments appear in italics.

| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Introduction | | |
| This manual describes and defines the integrated management systems of the ABC Organization; it represents the first level of documentation of the IMS.<br><br>It is supported by documents identifying the processes within the business, their planning, operation, control, performance, assessment and improvement.<br><br>The risks associated with each process are assessed in relation to the different dimensions incorporated within the IMS and, where appropriate, the relevant management standards as follows:<br><br>• product quality (ISO 9001);<br>• health and safety (OHSAS 18001);<br>• environment (ISO 14001);<br>• customer satisfaction;<br>• sales and marketing;<br>• costing and financial;<br>• Investors in People.<br><br>The manual will therefore serve:<br><br>• to show how the dimensions of the system work together to form an integrated whole;<br>• to check that all facets of the operations of the business are included;<br>• as a basis for system audits, assessment and review. | | |
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## Commentary

Whilst in due course it will be intended that the manual covers all the systems in the business, it is not likely that this will be achieved immediately. It is therefore important to make it clear which of the organization's systems are covered by the manual and which are not.

It is traditional for the introductory page of a manual to include a statement from the chief executive giving his authority to it as a requirement.

| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Overall business objectives | | |
| The business of the organization is to:<br>• design, manufacture and sell a range of goods which will enable the objectives of the business to be achieved; or<br>• provide services to our customers which will……..<br>The objectives of the business are to:<br>• give complete satisfaction to our customers and wherever possible to exceed their expectations;<br>• satisfy the requirements of all our stakeholders;<br>• continually improve our processes and so improve the (cost) effectiveness and profitability of the business. | | |
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**Commentary**

It is not essential for the manual to include statements such as these. It may be considered that everyone who works for the business knows what it does, and that the objectives are bland and obvious in the 'motherhood and apple pie' category. It is, however, desirable that if the manual is intended to be truly comprehensive, then all activities are covered. Many businesses have in the course of years started activities that, for example, are ancillary to the main activity – in transport, servicing, or financial services – which need to be brought within the ambit of the comprehensive system.

In following the requirements of certain management system standards – for example ISO 9001 – it has been possible to restrict the scope of the application to the extent that certain parts of the business are excluded. In the early stages of compiling a complete business system, it may be wished to limit the scope similarly; bear in mind that in the dimensions of health and safety or environmental management it is not permissible to limit the scope in any way.

| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Policy | | |
| The organization has a policy that is regularly reviewed to ensure that it remains appropriate to the business. It will be communicated to all employees and others as appropriate. It will include a commitment to comply with all relevant requirements and to continually improve the effectiveness of the management system.<br>**Statement of the policy of the organization**<br>It is the policy of the ABC Organization to:<br>• give satisfaction to all our customers and other stakeholders, wherever possible meeting and exceeding their expectations;<br>• comply with all legal requirements and the particular codes of practice relevant to our activities;<br>• maintain management systems that will achieve these objectives and seek continual improvement in all our systems and activities;<br>• provide all the resources of equipment, trained staff and any other requirements to enable these objectives to be met.<br>Signed…… | | |
| Issue No: | Issue Date: | Page Ref: |
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### Commentary

Specific manuals always have a statement of policy because you need to say what you intend to do before specifying a system to do it. There is not the same need in the case of a comprehensive systems manual, but different dimensions of the system may require a policy statement relating to a specific standard that is to be satisfied, and it would not make sense to include a policy statement referring only to that standard.

| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Process overview | | |
| (For a manufacturing company)<br>Sales–Production–Delivery–Accounts<br><br>(For a service organization)<br>Enquiry–Agreement–Realization/output–Accounts | | |
| Issue No: | Issue Date: | Page Ref: |
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| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Operational control | | |
| The organization will identify all roles, responsibilities, authorities and their relationships within the business to ensure its efficient and effective operation.<br><br>The system manager is responsible for ensuring that such identification is made and kept up to date by the responsible manager in each area. The top level of roles and responsibilities is shown in Appendix A.<br><br>The chief executive will ensure that the roles and responsibilities of the senior level of the organization are fully defined and that this information is available throughout the organization. At lower levels, the responsible managers will make this information available. | | |
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**The ABC Organization System Manual**

Subject: Process identification and mapping

All processes within the business will be identified and mapped, showing their sequence and interaction. This will be done at the number of different levels necessary to show the overall picture of the business of the organization at the highest level, and the specific process at the lowest levels. The map at the highest level appears on page 0 of this manual *(see page 35 of this book)*.

Activity sequence flow charts will be used for the purpose of mapping, using the conventions detailed in Appendix B *(or alternatively refer to the computer program to be used)*. The resulting process maps will be recognized as a company resource and filed as part of a database *(on the computer system)*. A standard and consistent format will be used throughout the organization.

For each process the following will be identified and recorded:

- the manager responsible for the process;
- the objectives of the process;
- the resources (including information) necessary to support the process in terms of inputs, process realization and outputs (these will include facilities, materials, equipment and personnel) – this should be recorded in standard format as shown in Appendix B *(or from the computer program)*;
- the results, which will be regarded as a resource of the organization and incorporated in the central database *(on the computer system)*;
- the means of monitoring the process;
- the risks, aspects and impacts of each element of the process on each of the dimensions covered by the system (for example, quality, health and safety, or finance) as specified in Appendix C.

It is the responsibility of the departmental manager to ensure that all processes within their area are mapped. It is the duty of the system manager to ensure that boundary processes between departments are contiguous, and to index and coordinate the process records.

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**Commentary**

In general, the processes should be published throughout the organization. If the chief executive so decrees, only then should the process be regarded as confidential for reasons of commercial secrecy. In such cases the processes should still be recorded, but in such a way as to not reveal the sensitive information.

| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Risk control | | |
| Each manager responsible for a process will report to their senior manager the risks identified that:<br>• are regarded as tolerable;<br>• need urgent action, together with what action is proposed;<br>• need action over a period of time, together with what action is proposed.<br>Proposed actions should include details of:<br>• costs;<br>• resources needed;<br>• time scales;<br>• degree of risk reduction. | | |
| Issue No: | Issue Date: | Page Ref: |
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| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Continual improvement | | |
| The manager responsible for each process will regularly review that process to assess how it might be improved. Improvement will normally be measured by increase in added value. It may be achieved by elimination of the process, so long as the output is unaffected.<br><br>This will be done using the plan-do-check-act procedure described in Appendix D.<br><br>In assessing possible improvements, due account will be taken of other processes affected by any change.<br><br>Where a proposed change affects a subsequent process that is the responsibility of a different manager, both must approve the change and the system manager informed.<br><br>Improvements to an individual process not affecting other processes in a different area of responsibility may be carried out by the manager responsible without reference to anyone else, subject to agreed budgetary constraints.<br><br>In addition to the examination of each individual process, each manager will examine the total activities for which they are responsible to investigate possibilities for improvement.<br><br>The system manager will arrange periodic meetings between managers of different sections to assess the opportunities for improvement across the system. | | |
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| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Appendix A. Roles and responsibilities | | |
| **Organization chart**<br><br>The organization of the business is as follows:<br><br>*(Insert your company's organization chart here.)* | | |
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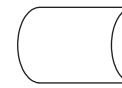
**The ABC Organization System Manual**

Subject: Appendix B. Process mapping conventions

In the mapping of processes within the business, the following conventions will be used: *(alternatively, refer to the computer program to be used)*

Unless specifically agreed with the system manager, activity sequence flow diagrams will be used.

| | | | |
|---|---|---|---|
| Activity |  | Connector |  |
| Documentation |  | Data storage |  |
| Decision point |  | Start/finish |  |

Etc.

| | | |
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| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Appendix C. Dimensions of the business system | | |
| The dimensions of the business system are currently as follows:<br>• (product) quality;<br>• occupational health and safety;<br>• environmental;<br>• human resources;<br>• costing;<br>• finance;<br>• sales;<br>• marketing;<br>• customer satisfaction;<br>• purchasing and supply;<br>• distribution;<br>• etc.<br>*(Include only those dimensions that are to be brought within the scope of the integrated system.)* | | |
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| **The ABC Organization System Manual** |
|---|
| Subject: Appendix D. PDCA improvement cycle |

It is an objective of the business to achieve continual improvement in all its activities.

Every manager will examine each process for which they are responsible and carry out a risk assessment. Following the implementation of the required control measures, the process will be examined to see how it can be improved. Improvement is measured in terms of increased added value, reduced cost or reduced adverse impact on any of the dimensions of the business management system.

**Plan**
Proposals will be detailed and costed, along with the required period of implementation, and the effects planned and how the results will be measured. Where necessary, approval of senior management will be sought.

**Do**
When any necessary approval has been obtained, the improvement measures will be implemented.

**Check**
After the improvement has been implemented for the period specified in the planning stage, it will be audited as specified in the planning stage. The results will be reported to the senior manager.

**Act**
The senior manager will review all processes within their area of responsibility and discuss with their operational managers the improvements achieved and how the next round of improvement should be targeted.

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| **The ABC Organization System Manual** | | |
|---|---|---|
| Subject: Appendix E. Identification of aspects | | |
| For each process, the aspects will be identified. (An aspect is any feature of a process upon which the successful outcome is dependent.)<br><br>The impact of each aspect will be identified and stated, specifying the dimension(s) affected and the severity of the impact.<br><br>This is the responsibility of the manager responsible for the process. | | |
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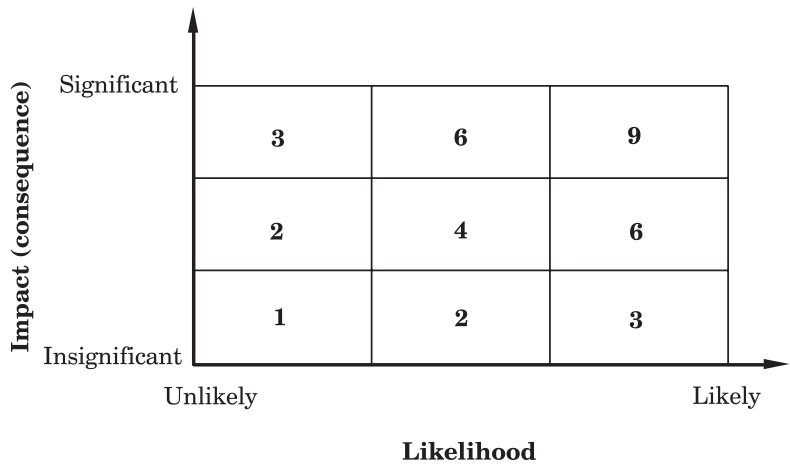
| **The ABC Organization System Manual** |
|---|
| Subject: Appendix F. Risk assessment matrix |

The following matrix will be used to assess the risks attached to a specific aspect on a scale of 1 to 9:

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| **The ABC Organization System Manual** |
|---|
| Subject: Appendix G. Reporting of risks and risk control |
| For each process, the aspects identified will be recorded in accordance with Appendix E and the risks in respect of each aspect assessed in accordance with Appendix F<br><br>The risks will then be listed and categorized as being:<br><br>• tolerable;<br>• requiring control measures;<br>• demanding immediate attention.<br><br>For each risk there will then be recorded:<br><br>• the degree of urgency;<br>• the control measure(s) proposed;<br>• the cost of the proposed measure(s);<br>• the time to implement;<br>• the risk reduction to be achieved.<br><br>The responsible manager will decide on the action to be taken in each case, and will implement and monitor it. |
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# 9. Case study: Harry's Hot Dogs

When Harry was made redundant he decided to open a hot-dog stall. There was a site available in the car park of a retail park, and a suitable stall was for sale due to the retirement of the previous owner. He agreed to buy the existing stall together with its equipment. The stall had until now sold only hot drinks and filled rolls, but Harry thought that hot dogs would have more appeal. He decided that his business would sell hot drinks and hot dogs – that was all.

Harry started by listing all the things he would need. The lock-up stall was already there, and he could take over the rental agreement for the site. Electricity was available for lighting, but the heating and cooking would be done with bottled gas. There was no mains water available, so that would have to be brought in containers and the waste water taken away for disposal.

He would need a cooking hob, frying pan, various cooking utensils and kettles. He would also need a washbasin and cleaning materials, containers for fresh water and some for waste water. Some of these items were available from the previous owner, the others he bought. He decided to use paper cups, plates and napkins, with disposable plastic knives and spoons to save washing up, but that meant that bins would be needed for the waste.

Obviously, Harry needed to arrange supplies of the consumables he was going to sell – the sausages, rolls, onions and milk that would be needed daily, and the tea, coffee and so on that could be bought less frequently. These he could get from a cash-and-carry warehouse nearby, collecting in his van on his way to the site each morning.

He would need a cash till and a supply of change. He would also need arrangements for using the night safe at his bank to deposit his takings on his way home at night.

He would need a new fascia and posters for the stall to tell people what he was selling and what the prices were. He talked to a printer and they designed the posters, having decided on the name 'Harry's Hot Dogs'.

Finally everything was ready and Harry opened his stall. To start with, customers were few, which gave him the chance to sort out the best way of working, but trade soon picked up and Harry found himself very busy. At certain times of the day things were quiet, but at others he was so busy that he feared he was losing sales through slow service. He was also working a long day, as the shops were open late into the evening, but there was a significant demand first thing in the morning as the shop staff arrived. He needed an assistant and so he hired John.

John was intelligent and helpful, but he had no experience of this kind of work and found himself getting confused by Harry's descriptions of how the business worked. He decided to make notes. To start with, he made a list of all the things that were needed. When he came to the things that had to be done, he found it easier to show them diagrammatically and constructed a number of flow charts, as shown in Figures 9.1 to 9.6. He went through these with Harry to make sure they were right.

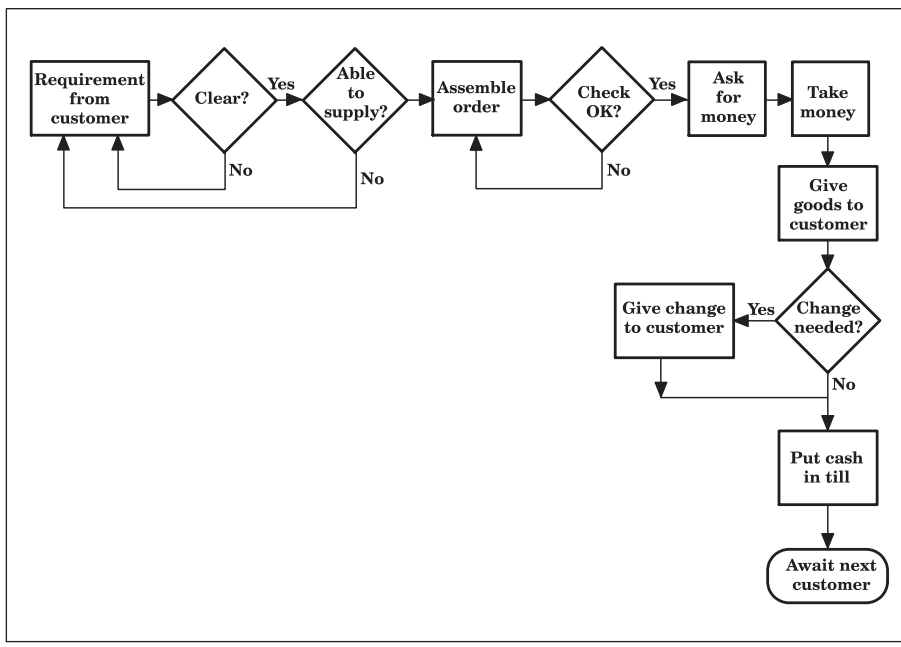


*Figure 9.1 Order from customer*

Also on the site was a stall belonging to a friend of Harry's that sold tea, coffee and filled baked potatoes. This was having a difficult time. First, customers started to complain that they had become ill after eating the product (apparently a refrigerator had failed, affecting some of the fillings)

and there had been complaints from the environmental health authorities about the fumes coming from the oven. Shortly after that a fire in the stall forced it to close completely.

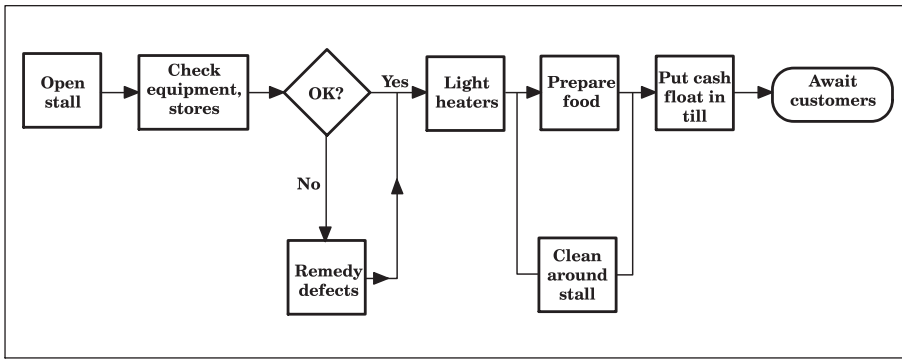


*Figure 9.2 Daily start-up*

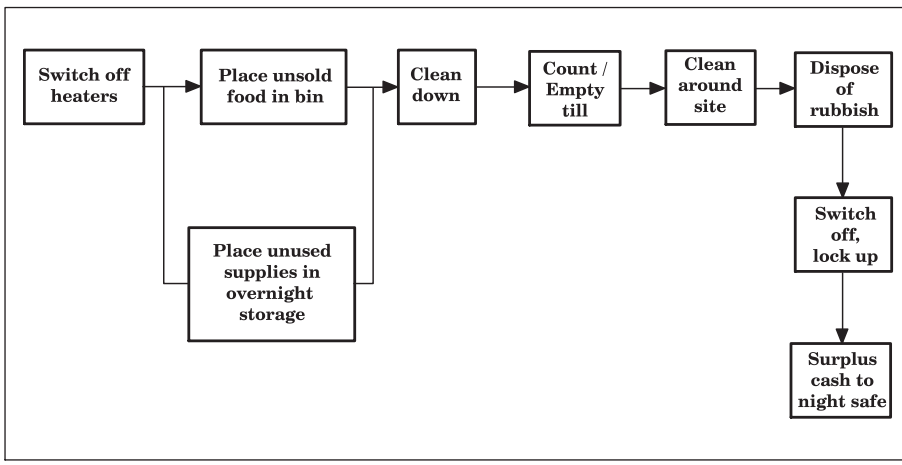


*Figure 9.3 Daily close-down*

This made Harry think about the risks involved in his business. By now it was very successful and he wanted to make sure that nothing similar would happen to him. He got together with John and they went through John's list of processes, thinking of all the things that could go wrong; how likely they were to happen and how serious it would be if they did; and what they could do to try to prevent them. The results of their deliberations are shown on page 55. They then made the changes that they had agreed,

bought the additional equipment and so on, at which point they knew their business was now much more secure.

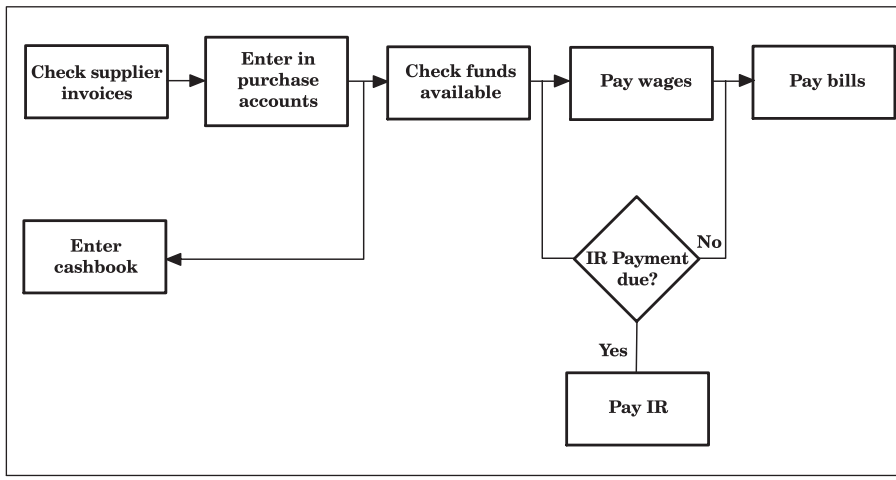


*Figure 9.4 Weekly schedule*

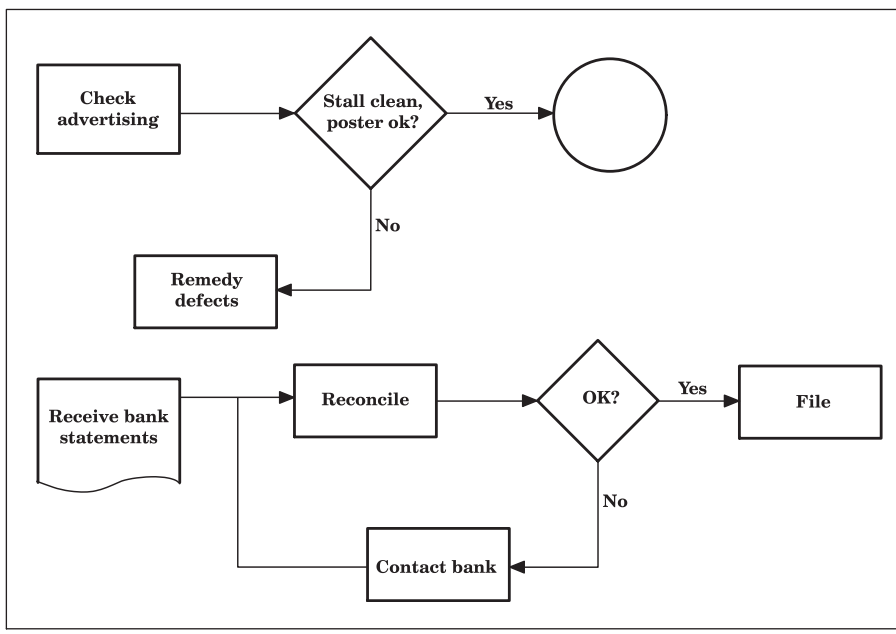


*Figure 9.5 Monthly schedule*

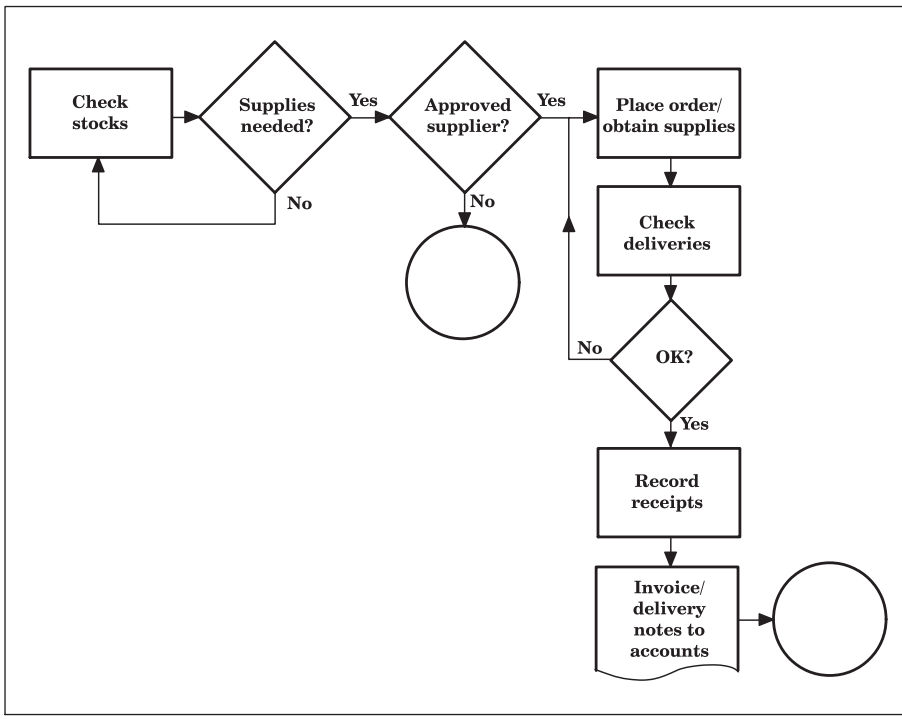


*Figure 9.6 Obtaining supplies*

Harry was happy with the way things were going until one morning he received a letter from the owners of the site on which he worked. They said that all the other users of the site had decided that in order to raise their profile and reputation, they would work towards certification to the principal management system standards in respect of quality, environment and occupational health and safety. If he wished to continue operating on the site, they would expect him to do the same.

Harry's first thought was that this would be impracticable for a business such as his, and that he had better start looking for another site. He discussed the problem with John, who took a different view. John knew about BS EN ISO 9001, BS EN ISO 14001 and OHSAS 18001 because he had met them in his previous job. He had also read about integrated systems, and knew that he could get hold of a basic system manual that would save him starting from scratch and that he could modify to suit the business. Only a simple high-level system manual would be needed, as the flow charts themselves would for the most part demonstrate adherence to the standards. The work that he and Harry had done in compiling process flow charts and in risk assessment meant that he was sure that as a

business they were doing all the right things. All that was needed was to check the processes against the specific requirements of the standards, upgrading their practices where required.

Harry was dubious about being able to do this, but agreed to give John a free hand, promising him that if he were successful he would take him into partnership.

John started by getting hold of a number of useful books that would help him to understand the standards and how they should be applied. All these he got from his local library. The books not only gave him the outline he needed for his manual, but included pointers to where specific requirements in the standards might mean that additions were needed. He already had a loose-leaf binder in which he kept all the flow charts, risk analyses, supplier details and so on that he and Harry had drawn up. He made a label for the front saying 'System Manual'.

They needed a policy statement, which they wrote together, following the pattern in one of the books that he had borrowed. When it was done they thought it sounded good, so they had two copies printed and framed, one for each end of the stall.

To start with they went through the requirements of ISO 9001:2000. John found that the basic manual he had adopted covered most of these. The documentation requirements were mostly adequate, but some additional records would need to be kept. There was no difficulty about the management responsibility, resource management or product realization – all these were dealt with by the process charts he had drawn up. He could explain why design and development did not apply, any more than customer property. The only measurement involved was the temperature of the refrigerator. In short, it was easy for him to fill in the few gaps that would enable him to demonstrate compliance. The system needed to be audited to make sure that they were sticking to the rules and the system was working adequately. Harry and John agreed to do this together. They also agreed that they would meet out of hours occasionally to discuss how the business and the system were working, what problems had been met and how things might be improved – this would be management review.

Happy that they could meet the requirements of ISO 9001:2000, John then started to look at ISO 14001 and OHSAS 18001. Having been through the quality standard, he found that many of the requirements were already covered and that the remainder were largely met by the flow charts. There were a few procedures that needed to be written, but these caused no problems.

In a few months, John had the system written down to the point that he could tell Harry to contact his landlords and tell them that he was ready to be assessed against the standards along with the rest of the site. The

landlords were impressed because none of the larger organizations on the site had achieved the same state of readiness. Harry pointed out, however, that the smaller and simpler an organization is, the simpler it is to operate to an integrated system. The proprietor of a one-man business tends to have an integrated management system almost by definition and the use of process flow charts and risk analysis avoided lengthy descriptions of procedures.

At this point, Harry was approached by an old friend of his, Alan. Alan said that he too wanted to set up a hot dog stall similar to Harry's on a site some miles away. He admired the success with which Harry had developed the business and wanted to do the same. Having no experience of the trade, he wondered if Harry would help him on a consultancy basis, with possibly a shareholding. Harry was delighted to be able to help. He passed over work that he and John had done in defining the processes of his own business, the requirements and the risks. He formed it into an operating manual, adding other useful information such as approximate costs, sources of supply and contact names, which gave Alan all the information he would need.

In the event, Alan's venture proved successful, and he and Harry combined to set up a number of similar stalls, all operating to the same systems.

*Case study: Harry's Hot Dogs*

| Resources | Aspect | Impact | Risk | Control Measures |
|---|---|---|---|---|
| ***Equipment*** | | | | |
| Stall | Not available (fire, etc) | Process fails (long term) | 1 | Insure |
| Cooking hob | " | " (short term) | 1 | None |
| Fry pan | " | " " " | 1 | None |
| Work surfaces | Contaminated/damaged | " " " | 1 | None |
| Utensils, materials | Not available | " " " | 1 | None |
| ***Consumables*** | Not available | Process restricted/fails | 2 | Arrange new suppliers |
| ***Services*** | | | | |
| Electricity (lighting) | Not available | Process restricted | 2 | Obtain emergency lighting |
| Bottled gas | Not available | " | 1 | Alternative suppliers |
| ***Manpower*** | | | | |
| Proprietor | Not available (illness, holiday) | Process restricted (short term) | 2 | Arrange with another stallholder |
| Assistant | Not available | Process restricted | 2 | None |
| ***Environment*** | | | | |
| Site affected | Not accessible (flooded, polluted) | Process fails | 1 | Insure |
| ***Occupational Health & Safety*** | | | | |
| Fire | Extinguishers u/s | Process fails, possible injury | 2 | Check extinguishers, Fire Blankets, first aid box, telephone |
| Electrical Fault | Shock, short | Personal injury, fire | 2 | Install ELCB Inspect and test wiring regularly |

# Appendix 1. IMS framework

| | *Elements* |
|---|---|
| **0 Management system** | 0 The organization should establish, document, implement and maintain a management system and seek to continually improve its effectiveness.<br><br>The organization should:<br>a) identify the processes needed for the management system and their application throughout the organization<br>b) determine the sequence and interaction of these processes<br>c) determine criteria and methods needed to ensure that both the operation and control of these processes are effective<br>d) ensure the availability of resources and information necessary to support the operation and monitoring of these processes<br>e) monitor, measure and analyse these processes, and<br>f) implement actions necessary to achieve planned results and continual improvement of these processes. |

*Appendix 1. IMS framework*

| | *Elements* |
|---|---|
| **1 Policy** | |
| 1 Policy and principles | 1 Top management should ensure that the overall policy:<br>a) is appropriate to the organization<br>b) includes a commitment to comply with all relevant requirements and continually to improve the effectiveness of the management system<br>c) provides a framework for establishing and reviewing objectives<br>d) is communicated, where appropriate, and is understood within the organization, and<br>e) is reviewed for continuing suitability. |

*Appendix 1. IMS framework*

| | *Elements* |
|---|---|
| **2 Planning** | |
| 2.1 Identification of aspects and risks | 2.1 The organization should establish a process for identifying those aspects of its operations which need to be controlled and/or improved in order to satisfy the relevant interested party(ies). This includes research and design. Where appropriate, legal requirements should be identified. |
| 2.2 Selection of significant aspects to be addressed | 2.2 The organization should establish a process for prioritizing its aspects, so that those that would have a significant impact are readily identified for control measures where this is appropriate. |
| 2.3 Objectives and targets | 2.3 Top management should ensure that the objectives, including those needed to meet requirements for product and/or service, are established at relevant functions and levels within the organization. The objectives should be measurable and consistent with the policy. |
| 2.4 Identification of resources | 2.4 The organization should ensure the availability of adequate human, infrastructure and financial resources. It should determine and provide the resources needed:<br>a) to implement and maintain the management system and continually improve its effectiveness, and<br>b) to enhance satisfaction by meeting requirements. |
| 2.5 Identification of organizational structures, roles, responsibilities and authorities | 2.5 The organization should identify the roles, responsibilities, accountabilities and their interrelationships within the organization as far as needed to ensure effective and efficient operation. Top management should ensure the responsibilities and authorities are defined and communicated within the organization. |
| 2.6 Planning of operational control | 2.6 The organization should identify those operations and activities that are associated with the identified significant aspects in line with its policy, objectives and targets. The organization should plan and develop the process necessary for effective implementation of the operational control measures. |
| 2.7 Contingency preparedness for foreseeable events | 2.7 The organization should establish and maintain a process for identifying and responding to any potential emergency situation. The process should seek to prevent and mitigate the consequences of any such occurrence. |

*Appendix 1. IMS framework*

| | *Elements* |
|---|---|
| **3 Implementation and operation** | |
| 3.1 Operational control | 3.1 The organization should ensure arrangements are in place at the operational level that ensure that:<br>a) the objectives and requirements for the product/services are being met<br>b) the necessary processes, documents, and resources specific to the product/service are provided<br>c) the necessary verification, validation, monitoring, inspection and test activities specific to the product/service are instigated<br>d) the records needed to provide evidence of the realization processes meeting requirements are produced. |
| 3.2 Management of human resources | 3.2 The organization should ensure that the personnel carrying out activities on its behalf should be competent on the basis of appropriate education, training, skills and experience to enable them to undertake all their duties.<br><br>The organization should:<br>a) evaluate the effectiveness of the actions taken<br>b) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives. |
| 3.3 Management of other resources | 3.3 The organization should determine, provide and maintain the infrastructure needed to achieve its objectives. Infrastructure includes, as applicable:<br>a) buildings, workspace and associated utilities<br>b) process equipment (both hardware and software), and<br>c) supporting services (such as transport or communication). |
| 3.4 Documentation and its control | 3.4.1 Documentation requirements<br>The management system documentation should include:<br>a) documented statements of the policies and objectives<br>b) a manual describing the working of the management system (see 3.4.2 below)<br>c) documented procedures that are required by specific standards<br>d) documents needed by the organization to ensure the effective planning, operation and control of its processes, and<br>e) records required by any specific standard.<br><br>Note 1: Where the term 'documented procedure' appears, this means that the procedure is established, documented, implemented, controlled and maintained.<br>Note 2: The extent of the management system documentation can differ from one organization to another due to:<br>a) the size of organization and type of activities<br>b) the complexity of processes and their interactions, and<br>c) the competence of personnel. |

| | |
|---|---|
| | Note 3: The documentation can be in any form or type of medium.<br><br>3.4.2 Integrated management system manual<br>The organization should establish and maintain a manual that includes:<br>a) the scope of the management system, including details of and justification for any exclusions<br>b) the documented procedures established for the management system, or reference to them, and<br>c) a description of the interaction between the processes of the management system.<br>3.4.3 Control of documents<br>Documents required by the management system should be controlled. Records are a special type of document and should be controlled according to the requirements of those specific standards covered by the IMS.<br><br>A documented procedure should be established to define the controls needed:<br>a) to approve documents for adequacy prior to issue<br>b) to review and update as necessary and re-approve documents<br>c) to ensure that changes and current revision status of documents are identified<br>d) to ensure that relevant versions of applicable documents are available at points of use<br>e) to ensure that documents remain legible and readily identifiable<br>f) to ensure that documents of external origin are identified and their distribution controlled, and<br>g) to prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.<br>3.4.4 Control of records<br>Records should be established and maintained to provide evidence of conformity to requirements and of the effective operation of the management system. Records should remain legible, readily identifiable and retrievable. A documented procedure should be established to define the controls needed for the identification, storage, protection, retrieval, retention and disposal of records. |
| 3.5 Communication | 3.5 The organization should determine and implement effective arrangements for communication:<br>a) between the various levels of the organization as appropriate to their needs<br>b) for receiving, documenting and responding to relevant communication from external interested parties. |
| 3.6 Relationship with suppliers and contractors | 3.6 The organization should formalize its arrangements for those who supply and contract their services, both internal and external, which have an impact on the organization's performance. |

*Appendix 1. IMS framework*

| | *Elements* |
|---|---|
| **4 Performance assessment** | |
| 4 General | 4 The organization should establish and measure the characteristics of the product and/or services to verify that requirements have been met. This should be carried out at appropriate stages of the process in accordance with the planned arrangements. |
| 4.1 Monitoring and measurement | 4.1 The organization should establish and maintain arrangements to monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have a significant impact. This should include the recording of information to track performance, relevant operational controls and conformance with the organization's objectives and targets. The organization should establish and maintain a process for periodically evaluating the performance against stakeholder requirements. |
| 4.2 Analysing and handling nonconformities | 4.2 The methods used for analysing performance should demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, corrective action should be taken. Evidence of conformity with the acceptance criteria should be maintained and recorded. |
| 4.3 Management system audit | 4.3 The organization should establish and maintain a programme for periodic management system audits to be carried out, in order to determine whether or not the management system:<br>a) conforms to planned arrangements for the management system<br>b) has been properly implemented and maintained, and is being adhered to.<br>The audit programme, including any schedule, should be based on the results of risk assessment of the organization's activities, and the results of previous audits. The audit arrangements should cover the scope, frequency, methodologies and competencies, as well as the responsibilities and requirements for conducting audits and reporting results. Wherever possible, audits should be conducted by personnel independent of those having direct responsibility for the activity being examined. |

*Appendix 1. IMS framework*

| | *Elements* |
|---|---|
| **5 Improvement** | |
| 5.1 Corrective action | 5.1 The organization should establish a process for defining responsibility and authority for implementing action to eliminate the cause of nonconformities in order to prevent recurrence. Corrective actions should be appropriate to the effect of the nonconformities encountered.<br><br>A process should be established to define requirements for:<br>a) reviewing nonconformities (including stakeholder comments)<br>b) determining the causes of nonconformities<br>c) evaluating the need for action to ensure that nonconformities do not recur<br>d) determining and implementing the action needed<br>e) recording the results of action taken, and<br>f) reviewing corrective action taken. |
| 5.2 Preventive action | 5.2 The organization should establish a process for defining responsibility and authority for implementing action appropriate to the risk. |
| 5.3 Continual improvement | 5.3 The organization should continually improve the effectiveness of the management system through the use of the policy, objectives, audit results, analysis of data from monitoring and measurement, corrective and preventive actions and management review. |

*Appendix 1. IMS framework*

| | *Elements* |
|---|---|
| **6 Management review** | |
| 6.1 General | 6.1 Top management should review the organization's management system at planned intervals to ensure its continuing suitability, adequacy and effectiveness. This review should include assessing opportunities for improvement and the need for changes to the management system, including policy and objectives.<br>Records from management reviews should be maintained. |
| 6.2 Review input | 6.2 The input to management review should include information on:<br>a) results of audits<br>b) stakeholder feedback<br>c) status of preventive and corrective actions<br>d) follow-up actions from previous management reviews<br>e) changes that could affect the management system, and<br>f) recommendations for improvement. |
| 6.3 Review output | 6.3 The output from the management review should include any decisions and actions related to:<br>a) improvement of the effectiveness of the management system and its processes<br>b) improvement related to stakeholder requirements, and<br>c) resource needs. |

# Appendix 2. Meeting the requirements of specific management standards

The purpose of this book is to provide a format and method of approach to creating a system manual to serve the needs of an integrated business management system.

It is not intended to enable the user to obtain certification against any particular management system standard. While the principles remain unchanged, certain specific additions may be needed to ensure that every requirement of the standard is addressed to the satisfaction of the auditor from the certification body.

As pointed out in the Introduction, the book is intended to be used in conjunction with *IMS: Implementing and Operating* and, in particular, with the framework included in that book. Every clause in that framework will relate to processes that will form part of the total process map of the business. The framework is drawn up in general terms that may require additions and amplification. *IMS: Implementing and Operating* recognizes this in that in each section there are noted 'specific additional requirements of particular standards'. These detail particular requirements relating to BS EN ISO 9001:2000, BS EN ISO 14001:1996 and OHSAS 18001:1999. Even for a particular standard, the precise requirements may depend upon the activities of the business involved (for example, the elements of ISO 9001 relating to design).

To ensure that the manual will be judged to satisfy the requirements of a particular standard, the procedure should be to:

- examine the standard and determine the processes involved in meeting its requirements;
- check that each of these processes is identified in the process map of the business;

- ensure that each process has been subjected to the analysis described in the manual and hence that the requirements of the standard are being met.

In practice, it will be worthwhile arranging a discussion with the auditor representing the certification body at an early stage. The attitudes of different auditors differ widely, and the newer generation of auditors is more likely to accept that the framework covers the spirit and essential provisions of the standard than those of a more traditional background requiring the precise wording suggested by the standard. This will be particularly advisable if a combined assessment is being carried out covering more than one standard at a time.

If it does not prove possible to obtain guidance from the assessor in this way, advice from a consultant may prove a rewarding investment. An assessor frequently finds that the client has carried out a lot of unnecessary work through a misunderstanding of what the standard is asking.

# References


### 1. BSI Integrated Management System series

Smith, D (2001) *IMS: The Framework*, London: BSI
Smith, D (2002) *IMS: Implementing and operating*, London: BSI

### 2. British Standards publications

BS EN ISO 9000:2000, *Quality management systems – Fundamentals and vocabulary*
BS EN ISO 9001:2000, *Quality management systems – Requirements*
BS EN ISO 14001:1996, *Environmental management systems – Specification with guidance for use*
OHSAS 18001:1999, *Occupational health and safety management systems – Specification*
PD 6668:2000, *Managing Risk for Corporate Governance*

### 3. International Standards publications

ISO Guide 72 (2001) *Guidelines for the justification and development of management system standards*