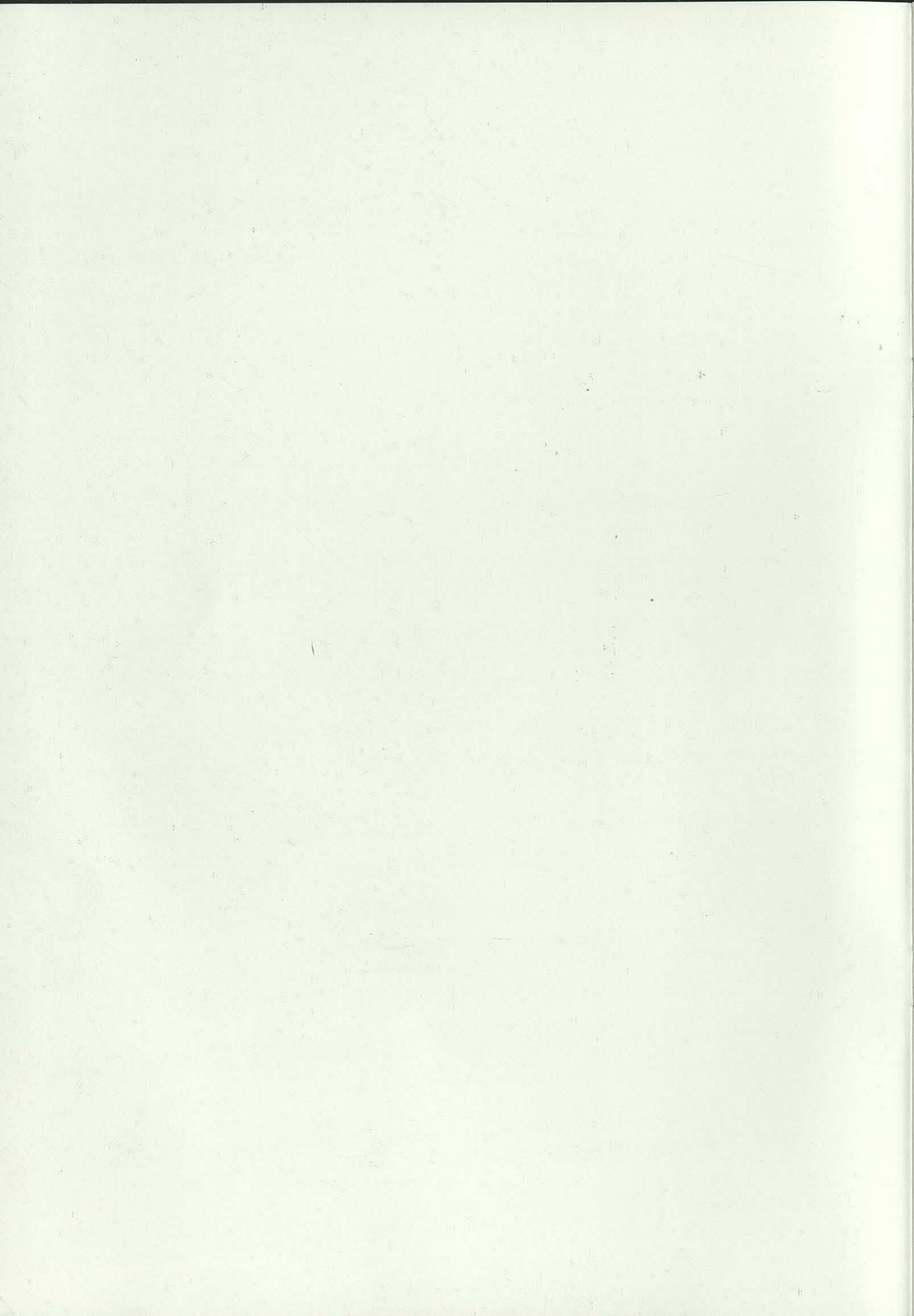


Staffing the Systems Function





BUTLERCox
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Staffing the Systems Function

Management Summary
Report 71, September 1989

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Staffing the Systems Function

Management Summary

This document summarises the main management messages from Foundation Report 71, published in September 1989. The full report is available to members of the Butler Cox Foundation.

Every organisation has access to the same resources, in terms of the technology, the tools, and the people it requires to run its systems. Yet, there are enormous differences in the performance of systems departments. Productivity varies greatly, staff turnover varies greatly, and perhaps most importantly, the standing of the systems department within the organisation varies greatly. These discrepancies can generally be traced back to the way in which staff are managed. Since the real value of any investment in information technology (IT) will derive from the people who are employed to provide systems services, rather than from the technology itself, the onus is on management to create an environment in which systems staff can excel and can make a greater contribution to the success of the business.

The current and continuing shortage of skills, the need for new combinations of skills, and the difficulties of planning for appropriate staff to meet the needs of a demanding and changing business environment will have profound implications for the way in which organisations recruit, motivate, and manage systems staff in the future. There are no universal solutions to the problems of staffing the systems function. Much will depend on the circumstances, the needs, and the nature of each individual organisation. The problems are, however, so severe, and the potential repercussions on business so far-reaching, that they are worthy of serious attention by senior management.

Our research has identified the actions that can be taken to alleviate the staffing difficulties being experienced by many Foundation members. They are listed overleaf in Figure 1 and the management implications of each are described in this document. The full research report contains detailed discussion on each of these areas.

Staff, not technology, are the systems function's most valuable asset



Ensure that roles are clearly defined

Providing an information systems service for an organisation is no longer the sole responsibility of the systems department; *users* of information systems are taking on more and more of this responsibility themselves. As this trend continues, users will need to acquire more technical skills, and systems staff will require more business skills, so that they can communicate effectively with systems users and understand the business context in which computer systems are operating. From now on, the key to the successful application of IT will be for the systems department and users to work as equal partners.

Four broad roles are emerging for systems departments, which will define the kinds of skills that systems staff will require:

- The *technical services* role includes providing data communications, defining standards and interfaces, providing technical support, and monitoring technical developments. Some of the traditional technical skills will

Figure 1 Checklist of actions that can be taken to alleviate the staffing difficulties being experienced by many Foundation members

- | | |
|--|---|
| <ul style="list-style-type: none"> — Ensure that the respective roles and responsibilities of systems and user staff are clearly defined. — Link the systems staffing plan to the business plan, paying more attention to personality factors and flexibility in planning future staff requirements. — Widen the sources of potential recruits and encourage staff transfers to and from business units. — Adopt a marketing approach when recruiting staff, and improve the process of selecting candidates by making greater use of personality tests. Do not delegate the responsibility for recruiting to personnel specialists. — Pay attention to matching a job to the job holder's aspirations. — Make explicit career-development opportunities available for systems staff (particularly by providing lateral development opportunities) and use training to develop a stronger business-orientation and | <ul style="list-style-type: none"> better management skills throughout the systems department. — Enhance the levels of motivation in systems staff by using goal-setting and feedback techniques. — Motivate staff by adopting performance-related payment systems. — Use external services, where this is cost-justified, to complement internal staff resources. Ensure that internal staff are equipped to manage and use these services effectively. — Recognise that the productivity and effectiveness of the systems function depend on the people-management skills of the systems management team. Ensure that the IT-management team is equipped to focus on people issues. — Attend to people issues by adopting a people-oriented management style. |
|--|---|

be less in demand than they have been, but new technical skills will be required. So, too, will a business orientation, because staff here must be aware of the critical nature of providing a first-class service.

- The *development-support* role is concerned primarily with developing and maintaining core applications — those that are essential to the day-to-day operation of the business. Here, there will be a continuing need for highly skilled technicians.
- *Business support* includes end-user computing, office technology, and business-product and service development. Non-technical skills are becoming as important as technical skills in this area, and the ideal staff are 'hybrid' people who can contribute equally to both.
- *Business services* is an emerging role in some large organisations, and is concerned with integrating systems and business-unit planning and customer services. Those performing this role do not require technical skills.

Figure 2 illustrates the broad types of skills required for each of the four roles.

Link the systems staffing plan to the business plan

The changing relationship between the systems function and the business, and the different skills mix required, will make it more difficult to predict the numbers of staff that will be

needed. Systems managers need to be aware of this so that they can plan to have the right staff in place to meet development needs. Human-resources planning for the systems function will therefore have to be linked more closely with the business-planning cycle. The annual budgeting cycle, for example, will provide specific timetables and indicate requirements for particular staff resources. At the strategic level, the feasibility of business plans will depend to some extent on the likely availability of staff.

These essential linkages between business and systems-staff planning are illustrated in Figure 3. The process should make it possible to produce forecasts for the numbers of staff likely to be required for the 'families' of jobs within a broad role. The results should be reviewed annually to assess progress towards goals, to revise future plans, and to provide a rolling one-year plan of action.

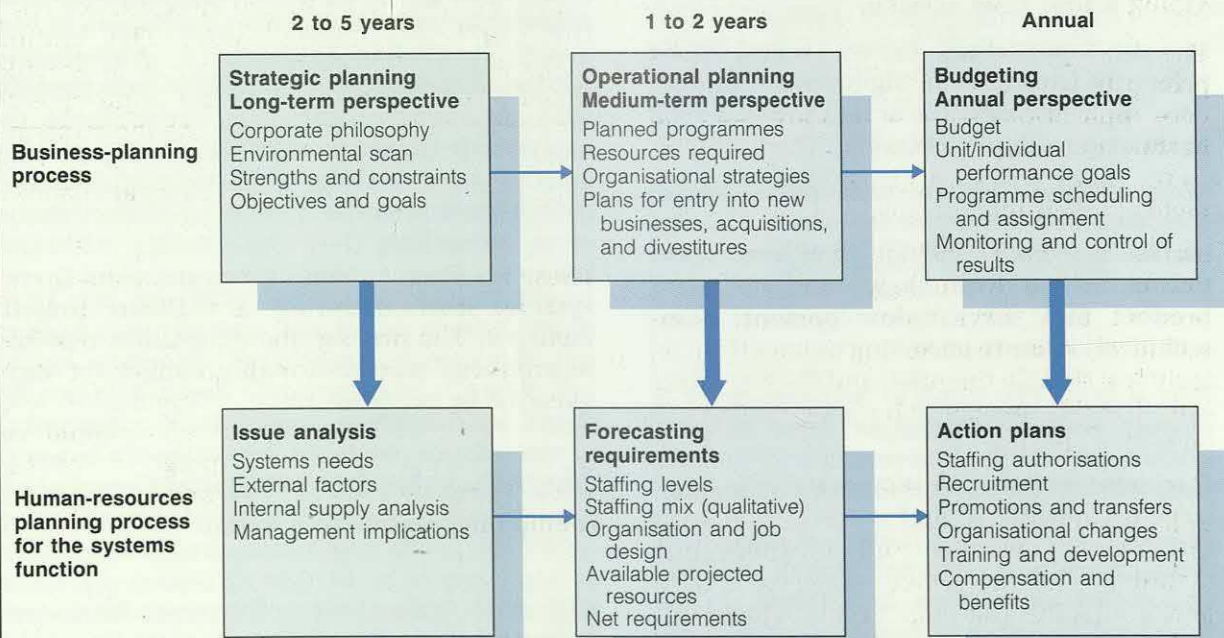
Widen the sources of potential recruits

Traditionally, staff being recruited for the systems department have been assessed primarily to confirm that they have the required level of technical skill. With the new emphasis on the links between the systems function and the business, it will be more important to assess whether potential recruits have the appropriate personality characteristics to operate in an environment where they will have to market their skills and services to the business, and to work in partnership with the business.

Figure 2 Each of the roles of the systems department requires a different emphasis on particular skills and knowledge

Skill/knowledge	Role of the systems department			
	Technical services	Development support	Business support	Business services
Technical skills	✓✓✓	✓✓	✓	
Project-management skills		✓✓✓	✓	
Organisational knowledge			✓✓	✓✓✓
Marketing/selling skills		✓	✓✓	✓✓✓
Change-management skills		✓✓	✓✓✓	✓✓✓
Interpersonal skills	✓	✓✓	✓✓✓	✓✓✓
People-management skills	✓	✓✓	✓✓✓	✓✓✓
Business knowledge	✓✓	✓✓	✓✓✓	✓✓✓

Figure 3 For human-resources planning to be effective, it must be linked with the different levels of general business planning in the organisation



(Source: Cascio W F. *Managing human resources*. 2nd edition. London: McGraw-Hill, 1989).

Personal characteristics are more difficult to assess than technical skills, and systems managers will initially need help from specialists. The effort is worthwhile. Organisations that now include personality measurement in the recruitment process have gained considerable benefits. By concentrating on the behaviour characteristics required for com-

petent performance, and relying on in-house ability to train staff in the technical requirements of the job, an organisation will be able to draw on a much wider source of recruits.

There will, however, continue to be shortages of certain technical skills. Indeed, demographic changes, which mean that there will be fewer

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young people entering the job market, will tend to make the situation worse. At the same time, a larger proportion of the people needed to create successful IT-based solutions in the future will need no detailed knowledge of IT. The systems manager should therefore begin now to expand the sources from which he or she has traditionally drawn recruits. The following possibilities should be considered:

- *Non-technical graduates:* Several Foundation members have successfully recruited non-technical graduates and developed their careers in systems. Increasingly relevant are business-oriented degree courses that contain a high proportion of systems work.
- *Women:* We found no overt bias towards employing men or women in systems roles during our research. The recruitment and in particular the retention of women could, however, be improved by offering flexible terms of employment, career breaks, part-time working, and homeworking.
- *School leavers:* Several members have successfully recruited school leavers into their systems departments, by developing strong links with local schools. Significant resources need to be invested in training, but strong loyalties develop as a result.
- *Older people:* Older recruits merit serious consideration. In industries where the age barriers are being removed, employers report that older employees are more reliable, and because they have fewer personal commitments, more flexible.
- *Part timers:* The trend to part-time work is already well established in some industry sectors, and there is no reason why systems managers should not consider this option too.
- *Internal transfers:* Systems management should encourage a two-way flow of staff into and out of the systems department. In the short term, movement into the department will help the systems department to work in partnership with the user community. In the longer term, systems staff will provide an ideal resource for positions in functional areas of the business.

Adopt a marketing approach to recruitment

In the competitive market for systems staff, it is simply no longer enough to place con-

ventional advertisements in the computer press and expect large numbers of suitable candidates to reply. Recruitment campaigns should therefore actively market both the organisation and the jobs on offer to potential applicants.

The experience of one Foundation member illustrates the importance of knowing how to reach the right audience for a recruitment campaign, and understanding what is likely to attract them to a particular vacancy. This company launched a two-month campaign, centred on the theme of 'involvement', which had been identified as the main feature that attracted existing systems staff to the company. Advertisements were placed in a wide range of media, from the national and computer press to posters at railway stations. Special literature about the company, the jobs, and the prospects was prepared for interested candidates. By adopting a marketing approach to recruitment, the systems department filled its 80 vacancies at a time when other organisations were having trouble simply getting potential applicants to respond to advertisements.

Although personnel specialists can provide valuable advice and assistance, it is inappropriate to delegate the recruitment process entirely to them. The marketing approach to recruitment requires that potential recruits be given something they can identify with and relate to. Recruitment campaigns must therefore be coordinated by a full-time project manager from the systems department who has recruitment objectives and a budget for each vacancy to be filled.

Match jobs to people's aspirations

High staff turnover rates often result from over-selling a job to an applicant. Attention must therefore be paid to ensuring that the right 'type' of person is put into a job. An effective way of doing this is to match a job's motivating potential with an individual's need for growth. The motivating potential of a job is derived from five measurable job dimensions: skill variety, task identity, task significance, personal responsibility, and work feedback. Research has shown that, measured in this way, the motivating potential of a systems manager's job is significantly greater than that of a traditional program-maintenance job, for example.

Different people also have different needs for accomplishment, learning, and developing, and for being stimulated and challenged. This need can be measured on a 'growth-need strength' scale. The key to individual motivation and productivity is to match an individual's growth-need strength with a job's motivating potential.

Provide career-development opportunities

If career planning exists at all in systems departments, it is frequently restricted to succession planning for managerial posts. Promotion opportunities have traditionally been based on technical performance, and centred around applications development work. What is required is a structured framework of suitable career opportunities for everyone, recognising the potential value of both technical and non-technical skills, and rewarding both equally. The first step towards providing a more rewarding career structure is to recognise the wider roles that are emerging for the systems department, and to encourage movement within the wider organisation. A suggested pattern of career 'trajectories' to replace the traditional vertical progression is illustrated in Figure 4. This pattern allows maximum lateral movement between roles during the early years, and equal opportunities for career advancement within roles.

Staff will, of course, have to be educated and trained for their new jobs in this more flexible career structure. Peter Keen, director of the Washington-based International Center for Information Technology, suggests that three types of education are required, which have to be tailored to the individual's role and career path. He calls these 'maintenance' (to prevent skills from deteriorating over time), 'development' (to enable an individual to move ahead in a chosen career), and 'innovation' (to further personal growth), and it is to the latter two that systems managers must now pay more attention. These are the kinds of training that will prove to be important for success in systems organisations seeking to foster a better working partnership with the business.

Motivate staff by setting goals and providing feedback

A common characteristic among those systems departments with lower than average staff

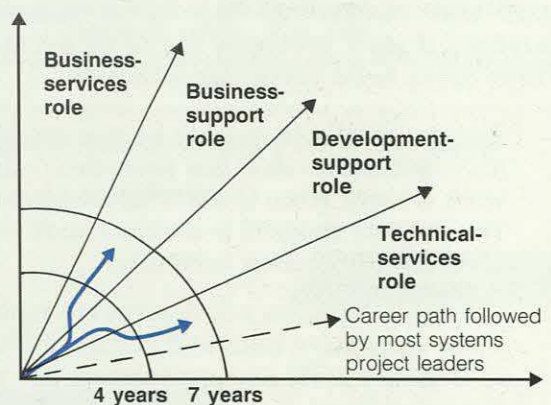
turnover rates is that they set their staff clear objectives and provide them with timely feedback on their performance. The objectives must be agreed in advance with the individual, and they must be measurable.

Jobs that enable the individual to receive performance feedback naturally and quickly are intrinsically more motivating than other types of jobs. The work of many systems staff is such that it may be several months before, for example, the quality of a system design can be judged accurately. Systems managers therefore need to find ways of providing systematic and timely feedback to their staff. One company with a highly efficient systems development department prepares work-assignment briefings for the next 10 to 20 days for programmers, and 30 to 40 days for systems analysts. Each assignment is formally appraised on completion.

Introduce performance-related payment systems

Although high salaries can initially attract recruits, there is no evidence that high pay can motivate staff and reduce turnover rates. A better way of attracting and motivating staff is to use carefully and fairly administered

Figure 4 During their early years, staff should be able to explore the different roles before deciding on their ultimate career 'trajectory'



- 0 to 4 years: The individual has plenty of room to explore career trajectories
- 4 to 7 years: The individual needs to build on basic skills and grow into a role category
- After 7 years: It is extremely difficult to move across role boundaries

(Source: Keen, P G W. *Roles and skills for the IS organization of tomorrow: an ICIT briefing paper*. London: International Center for Information Technologies, 1987.)

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performance-related pay schemes. To be effective, such incentives must, however, be related directly to improvements in personal performance. The characteristics of successful schemes are that:

- The payments must be timely and linked to short-term goals and must be kept separate from normal salary payments.
- The payments must not be awarded as a matter of course. In particular, they must not be awarded for average performance.
- The performance goals must be mutually agreed and realistic.

Use external services to complement in-house staff

The continuing shortage of some technical skills, and the fluctuating demand for in-house services means that it makes sense to use external services to complement in-house staff. There are three main options: to use contract staff, to use packages as an alternative to bespoke developments, and to use the services of a facilities-management supplier.

It is increasingly attractive to employ external contract staff who can either provide specialist skills or can be used for routine, non-urgent work that would otherwise divert skilled in-house staff from more important work. However, the relationship between in-house staff and contractors has to be managed carefully if staff problems are to be avoided. Three areas need particular attention:

- Systems staff will quickly be demotivated if they believe that the most interesting work is being given to external contractors. The projects assigned to contract staff must therefore be chosen carefully.
- Employee relations will deteriorate rapidly if the respective roles and responsibilities of in-house staff and contractors are not clearly defined.
- In-house staff should gain some benefit from working alongside contract staff. Efforts should be made to transfer the specialist skills of contractors to in-house staff, and permanent staff should, where appropriate, be given the opportunity to expand the scope of their own jobs by supervising the work of contract staff.

Increasingly, many systems functions will be making greater use of packages as an alternative to employing in-house development staff. The use of packages will, however, have significant staffing implications, because a different mix of skills is required.

Some organisations will be prepared to sub-contract all or part of their systems function to a facilities-management company. The main benefits are that the systems department is isolated from the skills shortage, and that the price of providing a systems service to the organisation is predictable. Another advantage of facilities management is that such services can be used to cope with organisational upheaval or technical changes. There are also staffing implications, however. Often, many of the existing staff are transferred to the facilities-management company, and this transfer has to be handled carefully. It is also essential to establish a good working relationship between the remaining in-house staff and the facilities-management supplier.

Ensure that the systems management team is equipped with people-management skills

In the systems area, staff have traditionally been promoted to management positions on the basis of their technical skills, with the result that systems staff generally have little regard for the people-management skills of their superiors. The role of systems management is becoming increasingly complex; it is not a role into which all technical staff naturally grow. Far greater attention should be paid to potential management capability, and staff should have these skills developed before they take on systems management responsibilities; other systems staff will continue to make better use of their skills in non-managerial roles. Figure 5 shows the situation that can easily develop if insufficient attention is paid to this issue.

Adopt a 'people-oriented' management style

Keeping people highly motivated and productive is, above all, a question of leadership. As the role of the systems department becomes more complex, different leadership styles will be required, depending on the nature of the

organisation and the role of the systems function. David Bradford and Allan Cohen, the authors of *Managing for Excellence*, have defined three leadership styles — technician, conductor, and developer. Figure 6 shows that each is appropriate in different circumstances, although, in practice, a combination of styles will usually be required.

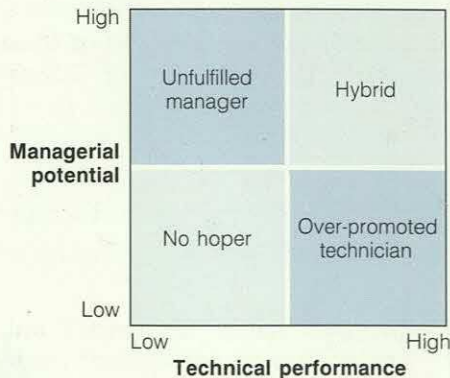
The background of many systems managers means that they naturally tend to the technician leadership style. However, as Figure 7 shows, a wholly technician style is not appropriate for any of the four broad roles for the systems department. Instead, the emphasis should be on the conductor and developer styles of leadership, which are much more people-oriented than the technician style.

The conductor style provides subordinates with more autonomy than the technician style. The manager is removed from technical work and is concerned more with planning and control. It is appropriate where the work of many independent subordinates needs to be coordinated. With the developer style of leadership, the role of the manager is to combine inspirational direction-setting with demands for high performance. The main management task is to build a team in which common objectives are shared and organisational and individual needs can be reconciled.

The ways of achieving a people-oriented management style are often described in such

Figure 5 Staff promoted to management roles in a vertical career structure are often unsuited to the task

Staff with average technical performance are unlikely to be given the opportunity to show their full managerial potential, while staff who are good technicians are likely to be promoted to positions for which they have insufficient managerial ability.



(Source: Recruiting and retaining information technology personnel. INTRO UK Ltd, 1989.)

Figure 6 The relevance of leadership styles will depend upon the work environment

Work environment	Leadership style		
	Technician	Conductor	Developer
Subordinates work independently	✓		
Subordinates do simple tasks	✓		
The environment is stable	✓	✓	
Subordinates have limited technical knowledge compared with that of the boss	✓	✓	
The commitment of subordinates is not needed for success	✓	✓	
Subordinates do complex tasks		✓	✓
Subordinates require considerable coordination		✓	✓
The environment is changing			✓
Subordinates have a high level of technical knowledge			✓
The commitment of subordinates is necessary for excellence			✓

✓ Indicates the situation where the particular leadership style is appropriate

(Source: David Bradford and Allan Cohen. *Managing for Excellence*. London: Wiley, 1984.)

Figure 7 Each of the roles of the systems department will tend to favour a certain style of leadership

Role of the systems department	Leadership style		
	Technician	Conductor	Developer
Technical services			
Development support			
Business support			
Business services			

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terms as “management by walking about”, and “caring for the whole person”. Regardless of the terminology, the aim is to create an environment where staff are motivated and productive, where they feel part of a team with common objectives, but at the same time, know that their individual efforts will be appreciated and acknowledged.

The actions set out above will help to create such an environment. Implementing them, however, requires substantial investments of time and money. Without these investments, it will not be possible to staff the systems function so that it can satisfy the new and changing demands being made by the business.

Staffing the
Systems Function



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