

2 *Organising Corporate Computing: A History of the Application of Theory*¹

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The phone rang, 'I've taken a new job!'

It was Dan, letting his co-author-to-be know he had left his role as manager of corporate executive development and moved to a new role as manager of quality and training in the data processing department. His associates thought this was a step backward, but he wanted to 'do something', not just 'be somebody'.

This was the opportunity. While the data processing department was functioning relatively well and was perceived to be one of the better DP shops in Southern California, there were problems looming that could not be ignored. Costs were escalating as more million-dollar mainframes would be required to carry the load and more people required to build the applications. The organisation had grown to nearly 600 employees and still they were not able to keep up with demands from their corporate customers for more and better services. New technologies were pressing – on-line systems, complex networks, personal computing. The rate of change was accelerating, and managers were finding it more and more difficult to manage. There was duplication of effort and tasks that 'fell between the cracks'. Conclusion: the primary problem was 'management'.

Dan was told, 'Our managers just don't know how to manage people. They're more oriented to bits and bytes.'

Although it was (and is) a popular stereotype that computing people (or engineers, or scientists) can't manage, Dan thought the problem went deeper.

He told Catie, 'I liked that seminar you gave with Elliott Jaques last year and suggested we bring you in to help train our managers. The department manager agrees. How about it? This might be a chance to try some of his ideas.'

'Sure, but are you sure training is the issue? What do you want them trained to do? What is the work of a manager?'

Thus began an eight-year odyssey, during which time 'data processing' became 'information services', and later 'communications and computing services'. The layers of management were reduced from eight to four; Smith became general manager, organisational effectiveness and later left the corporation to become a consultant, while Burke continued as external consultant to the department. During this time the organisation stratified its structure, created

1 This work was carried out during the 1980s through early 1990s as computing departments were moving from mainframe systems to client-server and networked personal computing, from in-house development of applications to purchasing systems from external vendors.

2 Systems Leadership

new systems to support the structure, and trained its people to use stratification and its new systems as management tools.

The results can be summarised in Table CS2.1 and Figure CS2.1, which provide a quantitative measure of success. These do not, however, tell the whole story of success. There were people who were hurting and squashed in an over-layered hierarchy; they have been liberated to do work that is challenging and fulfilling. They now have real career paths in both technical and managerial roles; their capabilities that have been unleashed and are being used not only in the corporation but also in churches, schools and communities.

Table CS2.1 Growth

Demand for Service

| | 1980 | 1990 | Change |
|---|-------------|-------------|----------------|
| Terminals | 1 200 | 6 300 | +425% |
| PCs | 0 | 7 600 | – |
| CPU Power [MIPS] | 18 | 377 | + 1 900% |
| Data Storage | 30 | 1 100 | +3 600% |
| On-Line Transactions (Thousands per Day) | 437 | 1 400 | +320% |
| Production Systems | – | 5 695 | +95% over 1988 |
| Average Bills/Month | – | 5.1M | +13% over 1988 |

7 per cent Average Annual Growth Rate in Information Services (I/S) Head Count 1980–1987

Not that everything is wonderful or perfect today. It is not. There is much work still to do, but things are much better than the day we started – for the people, the department and the corporation. Not long ago the then-vice president of communication and computing services looked at the organisation chart as it existed in May 1984, just before we began. He laughed and said, ‘We sure couldn’t be doing what we are today with that!’

It’s true, but it has not always been easy. We have had setbacks as well as successes, but throughout it all we (consultants and managers) have learned. We learned to apply Jaques’ theory of organisational structure and then to expand on it. We learned how to build systems to support the structure, and most importantly we learned and have taught a whole new vocabulary of management.

This vocabulary is, perhaps, Jaques’ most powerful contribution to the field of management. Without clear (shared) concepts, it is impossible to develop and test hypotheses about what works, what does not, and why. The lack of such clarity leads to confusion among the workforce, recurring management fads that are quickly discarded and the felt need for another re-organisation where we centralise or decentralise, add layers to the hierarchy or remove them, move from independent business units to shared services or the reverse. Turmoil is continuous, and each ‘new’ solution does not seem to make things any better, just different. Using the concepts of stratification and systems leadership, the managers of communication

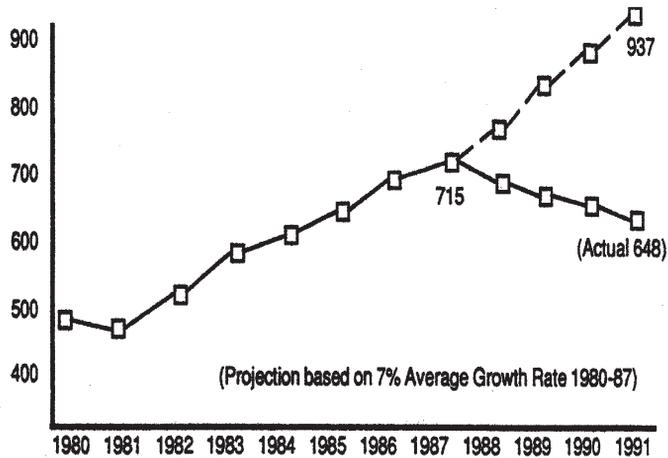


Figure CS2.1 Projected versus Actual Growth of I/S Department Employees

and computing services could analyse what appear to other managers to be difficult and confusing issues and do it with ease. They are, and are perceived to be, good managers; the best of them are moving up in the corporation.

What did the theories contribute to this result? What have we learned from eight years of experience? More than we can say in a single case study, but perhaps there are a few things that would be of use to others who embark on a similar venture. Our insights fall into two categories:

1. Introducing new management theory and practice into an organisation.
2. Computing/information services – why efforts to apply information technology so often go wrong and what can be done about it.

Introducing and implementing theory

THE CEO MUST OWN THE PROJECT

Jaques always worked with the CEO of the organisations that implemented stratified systems theory. Much of his theory development was done in conjunction with involved CEOs, particularly Wilfred Brown of Glacier and Roderick Carnegie of CRA Ltd. We have also had experience with CEOs at work levels below that of the CEO of a major corporation, and they too have been able to introduce stratification. The key element is not the level of work, but that the CEO is accountable for the whole organisation and has the authority to change structure, systems and whatever else is necessary to implement new ways of doing business.

Our project suggests that within a level VII corporation, the head of a level V division or business unit may also be able to 'own the project' and introduce this approach to organisation. It is not easy, and as the project progresses existing corporate systems may grate on new systems that must be introduced if the changes are to remain viable. Nonetheless, our experience has been that managers leading organisational units at level V may have enough autonomy to stratify their organisation and make it stick.

Introducing change at any other level within a corporation appears not to be workable. We had excellent success introducing these ideas in the corporate secretary's department with 32 positions in the same organisation as the computing department. Our research showed that the corporate secretary role required work at level IV, and when several layers of hierarchy were removed (and 10 people moved to other roles in the corporation), not only did the office provide better service to shareholders and the corporation, but the immediate savings were US\$303 000 dollars and the savings over four years were projected to be US\$1 679 000. Productivity was improved from one shareholder service employee per six million shareholders to one employee for 9 300 000, a 55 per cent improvement. Most importantly the people were in jobs that allowed them to use their full abilities, and job satisfaction soared. Unfortunately, without support from the CEO, a new secretary was appointed and she dismantled the completed work as a child would dismantle an intricate toys he did not understand.

Where a manager in a level IV role is part of a larger entity, they simply cannot make the changes required to implement stratification based on our experience in several parts of the corporation. People in roles at levels III and IV are more likely to be exposed to new ideas through seminars, classes and reading in the management literature, but no matter how enthusiastic, their primary role must be that of introducing the ideas to the accountable manager with enough authority to go forward.

THE ACCOUNTABLE MANAGER MUST 'DO THE WORK'

No lasting organisational change takes place until the accountable manager (whether CEO or head of the level V business unit) learns the theory and is able to apply it in his own work. The theory must become his analytical tool and its implementation his way of doing business. He can use consultants and his subordinates to teach him the theory, gather and analyse data, but only he can put it into practice.

This became clear when the manager of information services retired and a new department head took over. The first department head had supported the ideas, even adopted some of them, but he never fully understood them or used them. The manager who followed had implemented the first significant change to a stratified organisation when he created a large (200-person, three-shift operation) level III unit. The output of the unit became highly reliable, there was increased employee satisfaction with the way things were running and many managerial problems vanished.

This experience not only made the new theory credible, it gave the manager a much deeper understanding that he could apply elsewhere. His first step to improve the department when he took over was to learn the theory in preparation for teaching it, in depth, to his subordinates.

Later these subordinates were to teach it to their subordinates with the help of the external consultant. One was rather reluctant to do this. The night before the six-day training workshop, the department manager (by this time a vice president) called him to find out why he had not met with the consultant to prepare. His response, 'Well, what if you don't really believe in it?'

'Then I think we better have a meeting in my office first thing in the morning.'

The manager attended the workshop. Later he asked to be removed from role and was given a role for which he was much better suited and where he reports he is enjoying his work again.

At each workshop for his subordinates-once-removed in level III roles, the vice president kicked off the presentation with a statement of his management philosophy and why he

was using stratification theory as the basis for his organisational structure. He made clear that learning the material was not a matter of belief and it was not an option. This was, in his judgment, a better way to manage. He found it a useful analytic tool, and he wanted his managers to become fluent in the use of the tool. He was willing to help anyone who did not want to use this approach find other employment in the corporation, but within the I/S department this was the way they would conduct business. Until that time a number of managers had thought this was just another flavour-of-the-month, something that would pass as had many other fads.

For most of the managers in roles at levels III and at IV, stratification and the systems concepts developed in conjunction with it became valued tools. The theory explained their experience and allowed them to articulate it clearly. They could use it to analyse organisational problems that before had seemed more a matter of personality than an organisational issue to be corrected. Those who were involved in the design of systems for corporate clients used knowledge of the theory to identify the right level of the client organisation for making key decisions.

Stratifying the organisation liberated many from the stifling effects of too many layers of management. Some managers and employees who had been perceived as 'difficult,' learned they were 'OK'. Even where the roles were not in perfect alignment or the placement of people in roles was not optimal, those who understood the theory could see what was happening. This made the situation bearable while it lasted, and in most cases led to changes that were perceived as significant improvements, especially for the most able people who had previously been the most constrained.

SYSTEMS NEED TO BE CHANGED AT THE TIME THE STRUCTURE IS CHANGED OR BEFORE

When we began the process, we did not understand the critical importance of the systems of resourcing and control. Key among these are job titles, compensation structure, and performance management (assigning tasks, reviewing task performance and overall work performance, evaluating work performance with its link to pay).

As has been discussed by Macdonald, Macdonald and Stewart, the mythologies that drive behaviour are shaped by systems (Macdonald, Macdonald and Stewart, 1989). When changing a level V organisation within a level VII corporate structure, these systems are provided by the corporation and reinforce the old ways of doing things. Initially, the managers changed the structure of the organisation and later were persuaded by their consultants and their experiences that new titles were necessary to reinforce the structure. These became 'I/S titles' while the 'real titles' were still used for all documentation that went outside the department. While this workaround was practical, it still left doubt in many people's minds as to the seriousness of changes being introduced.

The corporate remuneration system had 12 salary grades that in 1984 neatly fitted into four work levels.² This allowed an easy transition to the new structure, but to this time, a person's salary grade was still more important than their work level, especially at the lower levels. Again, this diminished the perceived commitment to stratification. Over the eight years of the project, there has been 'grade creep'. As a result, there is a perceived mis-alignment between salary grades and work levels that is difficult to correct given the corporate systems.

² There was another structure for non-exempt and union roles, which overlapped the salary grade structure. This caused some difficulty, but the situation was manageable.

The linking of the evaluation of individual work performance to pay created other problems. During the first three years of the work, the linkage between pay and individual performance was at best loose, and more accurately non-existent. While promotions were said to be based largely on performance, the highest paid people at any level were usually those who had been in role the longest – a seniority system with some lip-service to the value of performance.

This was changed beginning in the fourth year and led to considerable satisfaction on the part of most managers and employees. Later there were many trials and tribulations as the corporate human resources department developed new systems that were in serious conflict with the I/S structure and management processes. Finally, in year seven, a system designed to support a stratified structure and to allow excellent management practices was implemented. That the I/S department was allowed to do this, and that its systems were seen as a potential model for the corporation, attests to the stature gained by the vice president of I/S due in part to corporate perceptions of the management practices he instituted.

We now believe that structural change, which may be a first step in overall organisational change, needs to be accompanied (in parallel if possible) with major human resource systems changes. Such changes should be an essential part of the early planning of any change process. Our approach, to change the structure and then to train people about the theory and their roles, relationships, accountabilities and authorities is not adequate. It may be that a lot less training would be necessary if the appropriate systems were in place to teach and reinforce behaviour on a day-to-day basis. Even where poor management practices continue, the combination of a requisite structure and reinforcing systems will make poor performance visible and therefore correctable.

INSIDER/OUTSIDER – TWO CONSULTANTS ARE HELPFUL

The outside consultant should be an expert on theory who can bring objectivity to the analysis that may not be available to the insider. The outsider's analysis is unlikely to be acceptable, however, unless there is an inside consultant, an employee directly subordinate to the accountable manager who can interpret the analysis and make it usable in the context of the subject organisation.

It is the insider and the outsider working together who are in a position to take the theory and tailor an application to fit the particular situation of the subject organisation. Both should also work with the accountable manager to ensure their interpretation of the organisation is part of the application process, but the accountable manager has many other tasks. Once the accountable manager sets the direction, the insider and the outsider will devote many hours to the process of application. Knowing the theory is not enough.

In the early stages of the project where there are still many questions as to whether stratified change is a good idea, the outside consultant, not knowing the organisational culture as intimately as the insider, may say things in ways that are misperceived. The insider can interpret and prevent miscommunications from sidetracking the project.

New ideas always raise new questions that need to be answered on the spot. The outside consultant cannot be there at all times, and managers may assume the theory cannot deal with the immediate problem. This can lead to the false assumption that the theory fails at this point. The inside consultant is far more likely to be present to answer questions when they are asked, thus avoiding a lot of confusion.

The outsider is useful for saying the 'hard' things that no one wants to hear and can be used to test the ideas. If the outsider fails the test, they are easier to reject and remove than a

valued insider. Such a test occurred for us about a year into the project. In the current study, after three years, preliminary analyses had been done, recommendations had been made, but nothing seemed to be happening. One of the 'general managers'³ asked, 'Well, are we going to get off the dime or not?'

Unbeknownst to Burke, Smith set up a 'kill the consultant' day. The idea was to beat up these ideas and, if necessary, the consultant, to see if there were flaws that suggested they should not go forward. Smith led the attack, confident that Burke, having been beat up by experts in Australia, would be able to answer all questions. This allowed the insider to build credibility through his support of the sceptics on the management team while the outsider built credibility by being put to a real test.

At this meeting they 'got off the dime' and set up a committee of three 'general managers' to study how the Department should be reorganised. This group met early in the morning and came to be known as 'the breakfast club'. For years after, all organisation development teams were known as 'breakfast clubs' even though none of the others met for breakfast.

CONSULTANTS OR MANAGERS – WHO SHOULD DO THE DETAILED WORK OF ORGANISATIONAL DEVELOPMENT?

While consultants may carry out the initial work of scanning the organisation to indicate how it might look if it were stratified, once a decision is made to go forward and implement the theory, there is another crucial decision to make as to how to proceed.

If an organisation is in serious trouble and needs to change rapidly, the CEO with a few trusted subordinates and the consultants may 'push the organisation through a template'. If they understand the theory and have people on the team who know the business, we believe they may get the organisation 85 or 90 per cent 'right'. The problem will be the credibility of the analysis and the trauma of change to an organisational structure that is not well understood except by the few who do the analysis. The 10–15 per cent that is 'wrong' may undermine the entire effort.

A second approach is to have consultants come in and do a detailed analysis of the work, recommend a stratified structure that is then modified, if necessary, by the accountable manager, adopted and implemented. This can be done relatively quickly and, assuming the consultants know what they are doing, accurately. The analysis may still lack something in credibility since 'outsiders' may be perceived as not really understanding 'our' business. Even more important, however, the implementation may run into difficulty because the managers who have to work within and use the new structure will have little deep understanding of its logic and its purpose. Training in theory is no substitute for using theory.

Due more to necessity than foresight,⁴ the authors took a third approach, one we would recommend except in crisis situations. Although it was slow, it appears to have had the effect of solidifying the use of the theory. Theory has not been imposed, nor is it a subject of belief. It is simply a way of doing business. This third way is to teach managers the theory and let them build the models, gather the data and make the recommendations. This process allows managers to use the theory, to understand it from the inside out and thus be able to manipulate it as part of their management practice. There were complaints about the 'endless'

3 The title 'general manager' was later adopted for managers in stratum IV roles. The title was not yet in use, but the people involved were in de facto stratum IV roles.

4 We were influenced by the CRA experience where they had done something similar (using managers on OD teams) and most particularly by Karl Stewart who had worked out the logic of OD methodology during his time at Hamersley Iron.

process of OD, but it is striking that many of the 'best' managers in the perception of their peers and their superiors have served on OD teams.

This is not entirely a fair comparison because many of these people were selected for OD teams based on their high capability; they would be good under most circumstances. Still they, and their managers, believe they are better for having had the OD experience. Certainly it is the cadre of managers with this experience who have carried the load in introducing the new structure, modifying it as necessary, and introducing the systems that are necessary to support it. They, and now virtually all members of the department, realise that OD is not an event but a process. Stratified systems theory is not a recipe book, but an analytical tool.

Computing/information services

WORKING AT THE WRONG LEVEL

If there is one constant in all our observations⁵ of the management of computing operations and applications development, it is that most failures arise from assigning the work at the wrong level. This is true in both client/user departments as well as the I/S operation.

Computing applications are typically developed for a 'user' – an organisation or work group that wishes to automate some of its business processes. In the early days of corporate computing (1960s and 1970s), this usually involved automating some aspects of level I work. High-level executives did not see computing as a particular concern of theirs, so overseeing such work was left to lower level employees in the user organisation – often those with experience in the process – and to the 'experts in computing'.

Too frequently this led to the automation of existing business processes without consideration of whether the process or some of the steps in the process were even necessary. Computing people were trained to ask about the 'requirements' of the automated system and to suggest opportunities for improvement, but too often their suggestions were seen as interference rather than as helpful. A senior supervisor of meter reading – a meter reader for ten years, then a trainer of meter readers and finally a supervisor of meter readers with 25 years' experience – is not, we would argue, the best person to oversee the automation of the meter reading process. Such a person will ensure that nothing changes, except that now it is done using a computer.

As markets become more competitive, as growth and opportunities to use information technology as a competitive strategy have increased, high-level executives have not, in our judgment, adequately understood the complexity of the tasks required to effectively implement new information technologies. Top corporate executives still do not have much experience with computers and prefer to leave it to others (even while grouching about the cost, timeliness and quality of the products they are getting).⁶

The result has been people in levels II and III roles overseeing the work of computing people working in levels II and III roles. Although some people in these roles were highly

⁵ We have had the opportunity to observe directly and to read about many computing organisations and the results of their practices, so are drawing on more than just our experience in one organisation.

⁶ This situation where the top corporate executives do not understand and to some degree fear computing is rapidly changing as a younger generation, accustomed to using computers, takes over. We are betting that as information becomes a critical corporate resource that CEOs will start to rise from information services departments just as they rose in earlier times from manufacturing or sales, or more recently from accounting or law.

capable and could see the possibilities for changes in the way the business was carried out, they were not authorised to make such changes. Of course many could not even see the possibilities, nor should that be expected from persons in levels II and III roles.

Where corporations want to get significant systems improvement, our analysis suggests they would do well to have employees in level V roles designing their corporate business systems. Once good systems are designed, the person in a level V role should then oversee the development of computerised information systems, some of which need to be developed by people in level IV roles. More frequently today, the person in the level V role will oversee the implementation of an enterprise system purchased from a vendor. In either case, there is much more high level work in computing than has been appreciated.

There is also much more ADO (aided direct output) work (Jaques, 1976: 252–256) – where a high-level computing analyst/designer works with a business client to develop a computer application. The analyst/designer may work alone or have a few subordinates who assist him or her with the work.

We can report one experience that seems to typify both the problem and the solution. A team that grew to more than 20 employees with multiple layers of management was given the task to build a computer system required by a regulatory agency and to have it operational in two years. After 18 months, the work had bogged down and the department ‘hotshot’ (who was at that time in a relatively low-level role despite his acknowledged ability) was asked to see if he could help solve the problem. He reported back that the design was flawed, and ‘you couldn’t get there from here’.

The company faced millions of dollars in fines if the system was not in place by January 1. The ‘hotshot’ said he thought he could design a workable system and if allowed to select the right people who would be willing to work a lot of overtime, he could get it done in the four months remaining to deadline. He and a team of six brought the system in on time and it worked flawlessly. One person of high capability with a small team of assistants accomplished in four months what a much larger group had failed to accomplish in more than 18 months. Information technology systems will continue to fail until high-level capability is applied both on the business (user) side and the information technology (computing) side.

ESSENTIAL BUSINESS FUNCTIONS ARE MISSING

When we began work in what was then termed data processing, virtually all the roles were focused on production. There were some sustaining (maintenance) roles, but these were mostly at level II. Technical support, which involved both maintenance and improvement, was being carried out by many roles. Until Smith came into the department, however, there was no high-level role focused entirely on improvement. One of the ironies noticed almost immediately by both authors was the lack of automation in the data processing department itself. We saw systems managed on 3X5-inch cards, budgets done on adding machines! Individuals built systems for personal use, but no one had the task of building information systems for the data processing department.

An early change was to create a support services division to sustain and improve a number of departmental functions – computing, facilities, budgets, purchasing, and later training. A very senior and respected general manager took over the division and set about changing how things were done. In his first year, a strong earthquake struck just before 8.00 am within a mile of the data processing centre. The General Manager (GM) support services directed all

⁷ Other data processing centres in the same area were down for weeks, in one case more than a year for major construction. The GM can’t take credit for the structural soundness of the data processing centre, but he received much credit for the way things were handled in the quake’s aftermath.

activities and I/S was up and running by second shift at 4.00 pm.⁷ A month later a major fire consumed temporary trailers that were offices for over 100 members of the information services staff. The trailers and everything in them burned to the ground. As the first fire companies arrived, the GM was on the phone arranging for office space, new computer linkages and other facilities for these employees. At 8.00 am the next day, everyone had a desk and most had personal computers or terminals attached, ready to work.

Less dramatic were the day-to-day systems improvements instituted when this 'mundane' work was moved up to what we believe is the right organisational level. In the year following the earthquake and fire, the corporate management committee started asking other departments to take a look at the way I/S was presenting its budget, 'It seems to work a lot better'. The purchasing people went from handling a few dozen personal computer orders to handling several hundred, including all hardware, configurations and software and delivering them to corporate clients – not an easy task and still not handled perfectly, but without the systems created by the GM, it would not have been possible to handle it at all.

There is still a need to create more roles in level IV and in level III to support the vice president and the general managers in their work of improving the way the department does business. Such roles have been created in the technical area, but there is much work to be done in the systems and organisation area and these roles are not yet in place in all divisions (level IV organisations). Still the structural models provide a map that has allowed us to point out where there are missing roles, thus allowing managers to perceive their organisation in a new way and to change it to accomplish key tasks, especially improvement tasks.

TECHNICAL/PROFESSIONAL CAREER PROGRESSION

Over the years there has been much lip service to having 'dual-career pathways' to the top of the organisation. The need for high-level technical/professional work was recognised, but the reality has been that to move up beyond Level II in the organisation, you had to become a manager.

Stratification has allowed managers to become clear on the need for high-level professional work up through level IV where there are presently two such roles in the I/S department.⁸ There are more than a dozen such roles in level III. These are people who are 'doing the work', not managing the work of others.

The key distinction, however, is that with few exceptions, there is no 'dual-career' ladder. I/S department employees are expected to move up the corporate hierarchy through a series of roles, some of them managerial, some professional (independent contributor). Improvement roles require people of high capability, preferably the ability to move to the next higher work level. This means that the best unit manager (at III) may be selected to be the principal project adviser (also at III) creating systems to improve the processes of the division. Moving into this improvement role is considered a step toward promotion to general manager (at IV).

Working to improve the systems, while knowing that one day you may have to manage with them, is excellent preparation for management. There are other comparable roles at level II that prepare one for managerial roles at level III while at IV such roles as the GM support services and the GM organisation are excellent preparation for advancement to department head. The key point is that people who work to improve the organisation's technical, systems

⁸ By the time this chapter is published there may be two more such roles since the vice president recognises the need for them. They have not been filled because there is no individual available at this time with the right combination of knowledge, skills and capability.

or human processes, should have to live with and manage the systems they build. There is no such thing as a wholly technical solution as long as the solution must be operated by humans.⁹ Recognising and using the cross-linkages between the managerial and technical/professional career ladders is essential.

COMPUTING ORGANISATIONS CAN BE HEADED AT MANY LEVELS

The literature on computing management does not discriminate between computing organisations headed at level II, III, IV, V or VI. We found that the demands placed on the information services department we worked with required that it be headed at level V. Many large computing operations are headed at level IV. The call in the information technology management literature for chief information officers seems to us to be a recognition that the opportunities for the strategic use of information technology are increasing and that it is necessary to recognise the resultant increase in complexity of work by moving up the role of the head of data processing. This could be a move from level IV to V; in some cases from level V to VI.

It is also possible to place an information technology organisation at level IV within a strategic business unit. In some business units, information technology will be placed in a level III unit, subordinate to a IV support services division. (The unit building information systems for the I/S department is led at III in the support services division at IV.) All of these are valid ways to organise computing services. It all depends on the work you wish to accomplish.

This may be obvious, but we have found much of the literature on the design and management of information technology organisations does not discriminate between work to be done at different work levels. It is assumed information technology work and outputs will be similar whether the organisation is structured at VI, V, IV or III. Much disappointment could be avoided if this were understood by executives trying to get 'something' done by their computing people.

Problems we have encountered

Over the years we have encountered many problems, surely more than we can even remember today. As we dealt with them we were supported by Elliott Jaques and many others who generously gave of their time and shared their experiences to help 'dig us out'. There are, however, three problems we think are worth sharing, none of which we have entirely solved, one of which we believe needs urgent attention.

GETTING THE RIGHT PEOPLE IN ROLE

We believe the ability to fill a role effectively is a function of knowledge, technical and social skills, energy and desire to do the work, and mental processing ability. When the structure is clear and the roles are well defined, we have found that managers are very good at selecting appropriate people for role, but sometimes they feel pressure to deny their better judgment.

One difficulty occurs when stratification is first introduced. Often there are people in roles that appear to be essentially the same as the new roles created under stratification. Therefore

⁹ This point was driven home by Colonel Roderick MacDonald during his year long defence fellowship in Southern California, 1990-1991.

even the best managers may select someone for a role that appears to be a slight modification of the role they are already holding. The result we have found is that some people remained in roles that were a full level above their current capabilities.

This caused problems – key work did not get done, and it caused confusion regarding why this was so. One interpretation was that stratification did not work. Things got worse instead of better. Some managers found themselves overwhelmed in their new roles and blamed it on the organisation structure. They were fine before, but now they had too many subordinates.

Another interpretation was that certain people were not up to the new roles. Their more able subordinates arrived at this conclusion far sooner than their managers, causing considerable cynicism: ‘Isn’t it strange, the entire organisation was changed and so were all the roles. Why haven’t any of the people been changed?’

Over time, we found some flaws in our structural analysis and these have been corrected as they were identified. Sometimes the work changes, requiring structural change as an ongoing process. There were, however, and still are, a number of people in role who are not able to handle the role. We have found that over time, roles tend to migrate toward the capability of the person who fills them. Within limits constrained largely by managerial attention, individuals are able to move their roles upward or downward as much as one full level; in both cases this causes organisational strain and strife. Even when managers recognise the problem, they have not found it easy to change the people.

In our situation, only the strong determination of the vice president has prevented deterioration of the structural design. This can only be a temporary expedient, however, because the organisation is failing at certain critical points. As of this writing it is not clear that what we believe are necessary changes in personnel will, in fact, be made by the accountable managers.

This failure to place the right people in role had other consequences. One person in a level III role has complained he should be in a IV role. ‘I’m doing the same work as Joe [who is in a IV role]. Therefore I should be in a IV role too.’ The first statement was correct: the conclusion was not. Joe too should have been in a level III role, but this could not even be discussed or explained by the consultants due to ethical constraints regarding what it is proper to discuss about people in the organisation.

COMPLEXITY OF TASKS

The descriptions we have to date of the complexity of work (our own derived from Jaques, Stewart, Macdonald, Stamp and others in the field) are a confused amalgam of descriptions of how people think and the tasks that people who think like that are expected to carry out.

When managers have a project to be carried out, it is not entirely clear what the level of work of the project (or task) is. What is the level of work to design and construct a new customer service information system? Does it require someone who can handle level IV complexity? III complexity? V complexity? The answer is not clear, and we pose the question to indicate that the lack of an answer is a real problem for managers who are using the stratified approach to organisation. This issue needs urgent attention.

DOING IT ALL AT THE SAME TIME

The rigour, clarity and tested experience with stratified systems as a structural theory of organisation led us to accept Jaques’ conclusion that structure is the best place to begin when undertaking the process of organisational development. We now believe it makes just as much

sense to begin with systems leadership theory. In any case, there is need to implement systems and structural changes at virtually the same time if that is at all possible.

We did not have systems models available when we began: we have had to build them as the organisational development project progressed. This has meant delays and difficulties. It has also meant that we have devoted much more effort to training (with sometimes limited effectiveness) than might have been required had we had everything ready to go at once.

To this time we still have not been able to provide adequate training in the theory to people in levels I and II roles – just to give them an understanding of the logic and how the structure and systems are meant to impact them. This has caused, and is causing, considerable anxiety and as a result making the managerial work of managers in roles at levels III and at II more difficult.

We have established the role, accountabilities and authorities of the sponsoring manager (manager-once-removed), but there has been little training for the managers who fill these roles (everyone at levels V and IV, some at level III). As a result, career development focused on individuals is not well developed. Staff development (looking at the overall staffing of the department from the organisation's perspective) is also lagging.

We don't have a solution to this problem. We only note that it would be good to get all these processes underway in a concerted fashion. Our inability to do this has made life more difficult for the department's managers, but they had to work with worse situations in the past and are seeing progress even though we are far from our desired goals.

Conclusions

In recent years, management has been a hot topic. Books on management have made the bestseller list. The advice is endless; the promises are great. Most managers have tried to apply many theories and in many cases with some success: too often, however, the promise is greater than the reality. Managers are justifiably sceptical when someone says, 'We have a better way.'

We believe the biggest obstacle to change in organisations is the perception that 'We're doing the best we can.'

'I've hired and promoted the best people I can find. They're doing the best they can do. How can you say we can do better?'

A fair question, and not one that is easy to answer. For the managers in the information services department, they have now answered the question for themselves. Defective organisation structures impede good people; while it is true good people can make almost any organisation work, they require a lot of energy for non-productive purposes. Poorly designed systems make it impossible for even the best people to do the best of which they are capable.

Buckminster Fuller noted that when your ship goes down, a piano lid will serve as a lifeboat. Nonetheless, if you were designing a lifeboat, you would not produce a piano lid (Fuller, 1969). Too many of our organisations resemble piano lids rather than being designed for their intended purpose.

Whether your organisation manufactures or mines, designs information technology or satellites, is a business or a government agency, the principles of stratification work. They are not easy to apply, nor are they a quick fix; organisation development has a lot in common with von Clausewitz's description of war: 'Everything in war is very simple, but the simplest thing is exceedingly difficult.'

Elsewhere we have written:

Stratified Systems Theory may appear to be simple, even simplistic, on first encounter. The apparent simplicity, however, is deceptive. As one gains experience with these ideas the surface simplicity gives way to a deeper complexity. This makes the theory much more useful to practicing managers who must deal with the complexity of human relations, new technologies and rapidly changing organizational environments, but it also makes it far more difficult to learn the concepts and to master their use.

(Burke, Macdonald and Stewart, 2004)

Stratified systems theory and the process of application, however, are the basis for long-term improvement in organisational functioning. Out of this base one can then effectively apply theories of quality, leadership and systems to allow managers to use the structure most effectively. We hope this report of our experiences enables others to use the theory more effectively, and perhaps, with a bit less difficulty.

Bibliography

Burke, Catherine, Ian Macdonald and Karl W. Stewart (2004), *The Work of Management*.

Fuller, R. Buckminster (1969). *Operating Manual for Spaceship Earth*. New York: Amereon Publications, reprint.

Jaques, Elliott (1976), *A General Theory of Bureaucracy*. London: Heinemann.

Jaques, Elliott (1989). *Requisite Organization*. Arlington, Virginia: Cason Hall Publishers.

Macdonald, Ian, Roderick Macdonald and Karl W. Stewart (1989), 'Leadership: A New Direction', *British Army Review*, December 1989.