Journal of Applied Systems Analysis Volume 16, 1989

LEVELS OF WORK: NEW APPLICATIONS TO MANAGEMENT IN LARGE ORGANISATIONS

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BACKGROUND

All organisations show stratification into levels of management associated with some form of accountability between individuals or groups working at these levels. Consultancy research over many years has frequently revealed the existence of too many, or less often too few, levels of management. Confusion about the work expected at each level in the organisation is common. Such mistakes present as intractable day-to-day problems and complaints like 'too much red-tape', 'failure to implement policies', 'understaffing and overwork', 'role confusion', 'line and staff conflict', 'insufficient delegation', 'duplication of decisions' and so on. Research confirms that clarification of the levels of management required by an organisation is essential for its own vigour and for the morale and development of its personnel.

The levels of work scheme was first devised by Elliot Jaques [12] in collaboration with Wilfred Brown [5], and has since been investigated and developed by Rowbottom and Billis [30,31], Billis [3], Kinston and Rowbottom [25] and others. A popular exposition was provided by Evans [9]. Jaques's emphasis has been on the *time-span of discretion* of the longest task in any role, together with the (subjective) mental processes involved in work at each level. Rowbottom and Billis, by contrast, have emphasised the (objective) work output or differential response to need at each level — in other words the differing nature of the *mission* at each level (Kinston [18]). All authors emphasise dramatic qualitative shifts in the nature of work as one moves from level to level.

The theory has been created and developed through an iterative scientific inquiry process, with an emphasis on critical scrutiny of concepts, and validation through long-term testing with organisations. It has been used in consultancy projects and workshops for some thousands of managers and professionals in several countries including the U.K., U.S.A., Australia, Netherlands, Singapore, and South Africa. Applications have been made in diverse fields including industry and commerce (Jacques [12]; Brown [5]), social services (Rowbottom *et al.*, [32]; Billis *et al.*, [4]), health services (Jaques [13]; Kinston and Rowbottom [23]; Kinston, [20]), the armed forces (Stamp, [35]), voluntary agencies (Billis, [3]) and the civil service (Jaques, [11]).

Practising managers rapidly take to the theory and experience it as helpful in clarifying their situation. By contrast, academics have felt no such pressure to give the theory the attention it deserves. A major difficulty for them lies in the fact that empiricism needs to give way to design: i.e. applying the theory usually requires involvement with the organisation and opens up existing problems in its hierarchical structure.

This paper is based primarily on findings from the 20-year action-research and organisational consultancy programme to improve organisation and management in the U.K.'s National Health Service (NHS) cited above. The NHS has the stupendous task of operating as a unified enterprise providing a comprehensive range of health services for a population of over 55,000,000. It is the largest employing organisation in Europe, with around 1,000,000 staff and an annual budget of over £20 billion (in 1986-87). Over the years, we have worked with thousands of staff of all kinds and at all levels using a method of research which is collaborative analytic and systemic (Jaques [10]; Rowbottom [29]; Kinston [16].

We will first summarise the theory, then use examples from the NHS to illustrate

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the basic approach, and finally show that viewing the levels as part of a matrix of management has led to clarification of many practical issues.

The Level of Work Approach in General

Work can be looked at in two ways — as a mental activity of intending, planning and acting; or as a social obligation to produce a real-world output. Psychologically, work involves "a combination of continuous intuitive mental activity and action, within a framework set by conscious perceptions and ideas" or plans (Jaques [12], p. 117). Socially, work involves carrying out some definite project within a certain specifiable time. In *A General Theory of Bureaucracy*, Jaques used both conceptions and proposed that there were at least seven qualitatively distinct levels or strata of abstraction in organised work which had progressively increasing time horizons (see Figure 1). Time-span of discretion was the principal objective characteristic of the levels.

Rowbottom and Billis [31] also suggested seven levels of work but defined work at different levels in terms of progressively more complex types of mission, the mission being defined in terms of a response to social or external need. Their ideas are essentially an elaboration of Jaques's theory (cf. Figure 1). Although Jaques's time-span conception of levels, being quantitative, appears simpler and more general, managers frequently prefer verbal descriptions of their responsibilities, possibly because they can more readily identify with these.

A basic summary of the theory is all that is possible here. Many of the ideas will resonate in the reader familiar with organisations. It is worth noting that, although some form of levels approach is widely understood and accepted, there is no other comparable theoretical effort to describe and understand levels. Many management texts imprecisely identify a few neighbouring levels, but never the total framework. Beer's model of 5 levels [1,2] is the closest attempt, but he fails to tie his levels to some easily recognisable feature of work. His definitions of the levels and of 'higher management' are too non-specific to be useful in the design of organisations.

The strength of the theory, as currently propounded, is that it grapples precisely with three important components of organised work: accountability, varying complexity of tasks, and differences in a person's capacity to do work. The different levels of work can be directly translated into different managerial levels (levels of management, levels of responsibility); and the theory explains why full managerial authority is possible between individuals one level apart, and problematic between individuals at the same level. 'Managerial' here is defined as the right to assign tasks and responsibilities to subordinates, to set the framework of policies, rules or procedures within which they must work, and to appraise all aspects of their performance and act on this (Jaques [12]).

Managerial authority, as defined above, can only be meaningfully exercised if there are qualitatively distinct changes in complexity and scope of work from level to level. As time-span of the task increases and the required output becomes more complex, the demands for mental information processing also increase; and this is probably a correlate of individual calibre or work capacity. The work capacity of people, as expressed within organisations, typically increases during life, and individuals tend to follow one of a series of characteristic career progression trajectories through progressively more demanding jobs at higher and higher levels until they realise their potential (Jaques [12] Ch. 10; Stamp [35]). In general, the greater the calibre, the earlier more responsible work is taken on and the later full potential is reached. Common observation reveals that individuals whose work does not demand involvement within large organisations, for example chess-players or mathematical physicists, may express their ability (potential) at an early age.

Defining the Levels

The essential insights and much of the description which follows derives from the

Jaques [12] Level of Abstraction	Time Span	Level [or Stratum]	Rowbottom and Billis [31] Mission or Response to Need
?	?20-50 yr	7	Metafield coverage
Institution-creating	10-20 yr	6	Multifield coverage
Intuitive theory	5-10 yr	5	Field coverage
Conceptual modelling	2-5 yr	4	Comprehensive provision
Imaginal scanning	1-2 yr	3	Systematic provision
Imaginal concrete	3mth - 1 yr	2	Situational response
Perceptuo-motor concrete	1 dy - 3 mth	1	Prescribed output

FIGURE 1: The seven strata or levels of work formulated in two different ways. Note that Jaques postulates possible additional levels of work.

work of Rowbottom and Billis. The mission at each level has two components: first the primary expectation at that level, and then the nature of the response to that expectation. Examples of work at each level will be provided from the NHS and other organisations. Further examples are available in the source references.

Level 1: Prescribed Output

The mission at Level 1 *is to deal with individual demands or requirements which (if legitimate) are to be taken at face value*. The label is based on the fact that in work at this level *the end-product can be specified beforehand so far as is at all significant*. Examples of L-1 work include: reception work, portering, typing, repairing a machine, walking a patient, taking a temperature; as well as unskilled work such as cleaning windows. The tasks are concrete and taken one at a time. Work is done on demand or following a prescription, i.e. the L-1 task does not include the responsibility for deciding whether the output is really needed. The desire to keep prescriptive control of client assessment and minimise personal judgements in social security payments in the UK is organised by providing detailed regulations and an L-1 service at client contact. So in summary: *the response is direct concrete action provided in a given acceptable style, and as prescribed in advance either in general or in the specific case.*

The time scale of tasks is of the order of hours, days or weeks with a probable maximum of three months. Insofar as any work is completely routine — e.g. in the NHS: basic physical care of people, tasks exactly as prescribed by doctors, procedures learned in training — it could be performed at this level. Hence aides to health professionals work at L-1. L-1 work is not mechanical, because skill, judgement and knowledge are required; nor is it purely technical because the exercise of sensitivity and development of appropriate attitudes may also be important.

Level 2: Situational Response

The mission at Level 2 *is to deal with requirements or needs of individual cases or problems in pre-specified types of complex open-ended situations*. The label is based on the fact that in work at this level, *precise decisions about the amount and type of response have to be determined according to an assessment of the 'real' needs of the particular situation being handled*. Tasks are still concrete, but many may be handled simultaneously, and the time scale for completion of the longest task may be between three and twelve months. The response is provided within a given framework and in a given acceptable style, and may or may not require subsequent use of L-1 staff. Examples of L-2 work include: handling breakdowns; assessing the care needs of an individual patient; dealing with a distressed client; coping with a subordinate's complaints. Such tasks are required in most forms of professional practice (e.g. registered nurses, physiotherapists, social workers, architects, accountants) and in first-line management (e.g. running a ward, supervising domestics, managing an office of secretaries).

Level 3: Systematic Provision

The mission at Level 3 *is to deal with the demand generated by flows of cases or problems of given types; in other words, a service workload as directly manifest*. The label is based on the fact that the necessary response is *to develop and introduce systems to handle a fluctuating workload and to use any available staff and facilities with maximum efficiency*. New methods and procedures must be considered, but they are typically chosen from what is given and generally accepted. Examples of L-3 work include: setting up an in-service training programme, developing a new procedure for dealing with a particular illness, implementing changes generated by long-term plans or higher-level policies. The L-3 task does not include responsibility for developing services not currently being provided. Analysing the present situation, developing a new system, negotiating its introduction and ironing out problems leads to a typical time scale of one to two years. Specialist and operational services within any large organisation need to operate at L-3 with job titles like Departmental Manager, Principal, Head, Chief, and Superintendent. Nursing, works and personnnel staff in a large hospital each require to be organised into one or more Level 3 departments. Each specialist medical consultant in the NHS is also expected to work at this level. L-3 work is required to run any business which has its own systems for responding to short-term market demands, but this level will not be sufficient in a turbulent environment, or if there are major changes in technology. Management consultants, who are expected to provide new systems within client organisations, must work at least at Level 3.

Level 4: Comprehensive Provision

The mission at Level 4 *is to deal with imbalances and gaps in a given range of services which meet the needs of a given social territory*. Services not currently provided are a concern, hence the label. The services and needs themselves are of some conventional or agreed kind. The response involves *assessing the needs in a given manner; planning, costing and negotiating new developments; undertaking any necessary restructuring of services and roles; and implementing changes using given management control methods*. The time scale for planning, implementing and evaluating extends to two to five years. Such development is always associated with changes in many parts of the organisation and at the same time crosses many disciplines or occupations, in other words it is *general* in nature. The typical titles are General Manager or Director. Examples of L-4 work include: providing a full range of nursing services in a teaching hospital; providing a range of non-hospital health services for a large community (150,000 people). Many public companies operate at L-4 and can institute new services but only in a conventional way. In

the larger industrial enterprises (operating at L-5) the production, marketing and development divisions may each operate at L-4. Research organisations, policy development organisations and think-tanks whose chief outputs are practical ideas, strategies or designs need to provide a basic output at L-4 (if not L-5).

Level 5: (Single) Field Coverage

The mission at Level 5 *is to deal with needs of some general but given kind throughout some given social territory using given conceptions of possible service.* The general field of need will be pre-defined (e.g. health care, education) as will many of the component needs and services. The necessary response involves *structuring the needs and services for the social territory and shaping the agency or firm to meet these.* Fulfilment of the most complex L-5 tasks may take five to ten years. An L-5 organisation, the largest to which operating firms may grow, can interact with its environment and slowly reshape its identity by defining and negotiating boundaries with neighbouring institutions.

NHS posts set up at L-5 include General Managers in all but the smallest Districts who must provide comprehensive health services to a given population of about 250,000; Treasurers in large Districts with a budget of £70-100 million (1987) who must manage subordinate staff at L-4 in areas like financial management, financial services and audit; Regional Personnel Officers who must oversee manpower planning and personnel provision and practices for 30,000 staff. The exact type, range and extent of services to be provided have to be negotiated with other agencies, which for a District General Manager in the NHS might include other Districts, private and voluntary sector organisations, and local authority social services.

Level 6: Multi-Field Coverage

The mission at Level 6 *is to cover a cluster of discrete operating entities in the same territory or in multiple territories using given conceptions of needs or services.* The response involves primarily *developing principles and frameworks for general application and dealing with coordination and boundary issues affecting the different operating entities.* If within a larger L-7 entity, the L-6 mission is *to ensure that the guidelines developed lead to a realisation of the conception of needs or services devised at L-7, and to adapt these higher level requirements to particular circumstances.* The example in the NHS is the Region (and the Regional General Manager) which is responsible for 10-15 Health Districts with a total population of about 3 million. An L-6 organisation, which is in the form of a conglomerate or group of L-5 companies or agencies, ensures that its L-5 entities mesh but it does not otherwise develop a fully integrated vision. Similarly, a scientist working at L-6 may operate with and integrate multiple disciplines, but without necessarily producing a new higher-level synthesis.

Level 7: Total Coverage

The mission at Level 7 *is to define, concretely or abstractly, the nature of needs-to-be-met, services-to-be-provided, and problems-to-be-tackled in the total field of concern, and to decide what is to be regarded as 'acceptable' or 'given' or 'agreed' at any lower level.* The task is performed in the NHS by politicians, the Secretary of State for Health and his Junior Ministers. Permanent Secretaries who advise them also need to work at this level. A university vice-chancellor at L-7, may face many departments at L-5, agglomerated in faculties at L-6 as convienient. Multinational holding companies at (L-7) control groups (L-6), which divide up the world as convenient, each group with operating subsidiaries (L-5) in various countries. The L-7 response therefore includes: *creating the L-6 and L-5 entities;*

institutionalising conceptions of services, methods and styles; and setting the overall priorities, policies and constraints within which all lower levels must operate. An L-7 organisation pursues an abstract and integrated vision, and can exert a major force on its environment. This is the largest size to which an organised entity logically can grow.* Attempts to weld together L-7 organisations into a super (quasi-L-8) organisation, as in the U.K. civil service, result in incoherence and lack of control (Jenkins *et al.* [15]).

Application to the NHS

We now proceed to describe findings from our fieldwork in the NHS where work-level analysis has been applied and developed to such matters as: designing the main tiers in the NHS (Kinston and Rowbottom [23]; Kinston [17]; Rowbottom and Billis [31]; Kinston and Rowbottom [26]); strengthening nursing management (Kinston [20]); improving paramedical organisation (Kinston *et al.* [21]; Øvretveit *et al.* [27]; Øvretveit [28]); involving medical staff in management; introducing better cost-control; creating information systems; improving workload management; enhancing quality of care; developing planning processes; recruiting and training staff. In each case, uncertainties or confusion about level-of-work issues have led to poor patient services, staff demoralisation and the waste of vast amounts of time, effort and money. In all examples, organisational change designed using the levels-of-work framework has been implemented, at some point or other, to good effect. Substantial publications such as those noted above have been provided for the field.

Before proceeding we need to orient the reader to the recent history of the NHS. We will illustrate the work-levels approach as we do so, drawing on our research on the macrostructure of the NHS, that is to say the mission of the top tiers in level-of-work terms.

The 1974 reorganisation of the NHS was seriously flawed, in the event, because it provided for more levels in the organisation than there were distinct levels of work to do. Four territorial tiers were designed — National, Regional, Area, District. Fieldwork using the levels-of-work framework suggested that the National level would handle Total Coverage (L-7), and the Regional level Multi-field coverage (L-6). However, Field Coverage (L-5) proved problematic. Many Districts attempted to work at L-5 leading sometimes to competition with Areas. In other cases Regions attempted to work at L-5, also frequently leading to competition with Areas. The result, as documented in our fieldwork at the time, was endless delays and excessive duplication in decision-making, interference from one level to the next, unclear terms of reference, and an inability to implement policies. These problems rapidly led to the setting up of a Royal Commission which confirmed our empirical findings (Royal Commission on the NHS [33,34]). The Report's pragmatic recommendations tallied with our theoretical conclusion, and the Government followed them up by removing the Area tier and, in effect, assigning the L-5 role to Districts. The re-organisation that followed was implemented in 1982 and included a decision to set up Units as the prime subdivision within Districts.

Analysis using the level-of-work framework now indicated the appropriate assignment to the territorial tiers to be: National . . . L-7, Region . . . L-6, District . . . L-5. Units would then be expected to carry out Comprehensive Provision (L-4), but were not typically territorial. Although elimination of a territorial tier of management was a step in the right direction, there were no level-of-work guidelines, and as a result most Districts were left as they were following 1974. Some were too small to function effectively at L-5, and this encouraged Regions to do

* We therefore doubt the existence of higher levels of work in organisations associated with still longer time-spans as suggested by Jaques [12, p. 327; 14, p. 79]. However higher levels of capability may possibly exist.

the L-5 work for them. As a result, Regions failed to operate properly at L-6 and the Districts that could work at L-5 suffered excessive interference or neglect. This confusion combined with other factors meant that Units were typically not set up to operate at L-4, despite national guidance which pointed in this direction (DHSS [6]). Sometimes the Units were too small, sometimes their task was too incoherent, and sometimes they were staffed with personnel of too low a grade. Most Unit Management Teams were not permitted by the District-level Heads of the various disciplines to work corporately, even though this is essential at L-4.

Despite the opportunity of the 1982 reorganisation, lack of explicit design resulted in dysfunction at every level. As a result, a further inquiry was set up and it recommended (correctly) the establishment of the 'general management' function down to Unit level (DHSS [8]). This recommendation led to widespread consolidation of Units into viable L-4 entities, and pushed many Districts into actually functioning at L-5. This restructuring has been widely regarded as a successful development. Nevertheless, there are still a few Districts so small that they must operate at L-4, a few Districts so large they must operate at L-6, and Districts where some or all Units are not able for one reason or another to operate fully at L-4.

In the sections to follow, we describe detailed aspects of work at each level. The degree of disruption to an organisation caused by failure to specify the level of work desired will become more evident.

A New Matrix of Management

The matrix of management which we now introduce, and the associated systematic findings and formulations, are here published for the first time. A matrix can be constructed with the work-levels as the rows and essential or common components of work as columns (Figure 2). Each cell needs to contain a precise formulation. A complete row defines a coherent mission or role for an individual (or tier, or team or department — as appropriate to the situation). Not assigning work and authority as defined in the row would be predicted to lead, potentially, to individual discontent and organisational disruption: a state of affairs repeatedly revealed in our research. A complete column defines exactly how the whole system must operate to ensure that one particular aspect of work is effectively handled.

Not devising the organisation in this way would be predicted to lead, potentially, to system dysfunction. Again, this has been repeatedly confirmed in our fieldwork.

Defining the Levels | **Aspects of Work and Management**

Needs to be met	Responses to be made	Level	Resource management	Information handling	Planning	Priority settting	Evaluation	Quality control	Workload control	
		7								
		6								
		5								
		4								
		3								
		2								
		1								

FIGURE 2: The matrix of management. The cells can be completed with precise formulations.

Work at any level can be defined generally in terms of effort to change the external world using available means. A common cause of confusion is due to misconceived attempts to convey the sense of higher level in jobs by using vague terms, such as planning or executive, applicable to work in general. The matrix on the one hand posits the existence of the same *basic components or aspects* of work at every level (e.g. resource management, information handling, planning, priority setting, evaluation, quality control, workload control, training), whilst on the other hand it clarifies that *the way these components manifest at different levels varies*

greatly (e.g. budgets are a tool required for resource control at certain levels but not at others). In other words, our assumption is that any aspect of work and its management can be located within an appropriate cell or column of this extendable matrix.

The research task that has been pursued within the NHS in recent years has been to clarify how various of these components or aspects of work specifically mainfest at each level. We will present these findings with illustrations. The descriptions follow the columns of the matrix so that the systemic character of the levels of work model may be highlighted.

We now report briefly on four main areas of management where substantial and tested findings have recently emerged: resource management and the associated issues of cost control and budgeting; information handling; planning, priorities and evaluation; and balancing demands for greater quality of care against demands for increased throughput.

Resource Management: Cost Control: Budgets

The NHS has recently been attempting to develop more sophisticated methods to control costs and ensure value for money. These initiatives have not been as successful as they might have been. This is partly due to a confusion of three separate conceptions: *resource management*, *costing systems*, and *budgeting*, and partly due to lack of clarity about level-of-work issues. On close scrutiny, the two confusions can be seen to be related. There has been a failure on the one hand to identify the need for resource management and cost control at *all* levels, while realising on the other hand that costing systems and budgeting are only appropriate at *some* levels.

Fieldwork in several NHS Districts over the last few years, reinforced by a programme of national seminars, has enabled the application of the work-levels approach to determine exactly what arrangements are appropriate. The results in brief are as follows.

At L-1, the resources to be used are the individual worker's own time and skills together with any allocated materials and equipment. Cost control here means not wasting or misusing time or materials or damaging or misusing equipment. It is of no help to the individual worker to have his own time or the physical items he uses specified in financial terms. Occasionally, there might be a need for information about the cost of certain categories of item. Any money provided is no more than a petty cash float.

At L-2, the resources to be used are also the person's own time and skills and allocated physical items or facilities (and this applies at all higher levels), but in addition there may be assistants. The most effective use of the time of such subordinates is a factor in cost control. Furthermore at this level, the manager or professional may have stocks of materials to care for, and would be expected to make an economic choice amongst available materials or equipment. There is often a responsibility to sanction immediate expenditure or activities leading to expenditure. Cost control depends on higher level policies and rules to guide these decisions and use of information about the unit cost of items. There is nothing gained, however, by converting all time or materials into financial terms (i.e. forming budgets). Ward sisters at L-2, for example, cannot effectively control the work flowing into the ward or the use of materials required by prescriptions of medical consultants, and therefore providing them with budgets for their work is unsatisfactory. Ward sisters, who have been given budgets in some Districts, report that the paperwork is cumbersome, unhelpful, and distracting from their main responsibility: coordinating nurses in the practical care of patients.

At L-3, the resources to be used now comprise a mini-organisation which includes a particular set of trained people, equipment and premises. The manager is typically expected to deal with fluctuations in workload and staff availability, and so must

be allowed to control the use of extra staff time (overtime, temporary staff) and be expected to train staff and introduce new methods. Varying workload usually affects the amount of materials used, and staff travel required. Methods also affect the equipment and materials to be used, and training required. At this level, although the exact pattern of variation of demand may be unknown, the average level of service and likely nature of contingencies can be precisely indicated. So it is appropriate to estimate costs for a year in advance on the above items, and then to monitor expenditure as the year progresses. Because the manager has the authority to take action to alter the acceptance of work by L-2 and L-1 staff, he can affect the costs directly related to the workload and can realistically be expected to keep within budgets for these over an annual period. However, many of the other costs of the enterprise, local authority rates or taxes for example, are irrelevant to the L-3 manager and these should not be his budgetary responsibility. Other costs such as that for fixed staff are given by higher decisions, not easily variable, and of too great import for institutional development and overall cost-control to be fully delegated.

The *efficiency* of an organisation depends on how effectively and how economically concrete resources are deployed through time. Hence, an important implication of the above analysis is that the level on which efficiency is most dependent is precisely L-3. All lower levels can have their specific inputs and outputs directly determined at L-3. Higher levels can set a framework which facilitates or inhibits efficient use of existing resources, but cannot make those decisions which produce maximum efficiency in practice. Cost control at higher levels is therefore typically achieved by cuts in financial allocations which means cuts in staff and services.

At L-4, where service reduction and increase must be planned and implemented in detail, it is essential to take into detailed account what might be done, as well as what is actually being done. Resources therefore include both the most concrete, actual buildings, and the most intangible, goodwill; and both what is most convertible, money, and what is least convertible, the environment. There is typically a large staff of many hundreds if not thousands, a range of premises and facilities, and allowances for all associated running expenses and minor capital expenditure. All aspects of all activities need to be converted into financial terms so far as this is possible. In public services like the NHS, staffing is usually the biggest single cost and must be viewed in terms of an 'establishment' of various posts at various grades into, around and out of which all individuals are seen as potentially movable. Not surprisingly, because L-4 is the primary level for detailed service planning, it is the primary level for detailed budgeting.*

In this conception, L-5 managers should not be seen as delegating budgets to Level-4 managers, because operating budgets are inherent in L-4 work. In many NHS Districts prior to the Griffith re-structuring, the L-5 officers did not allow operating budgets to be held at L-4 and in seeking to tighten their grip, actually lost control of the organisation. Agendas became over-long, and relatively minor expenditure decisions were excessively delayed because the top officers inevitably lacked knowledge of details.

The L-5 manager typically controls a complete organisation and must therefore control all expenditure both capital and revenue, whilst allowing for foreseeable contingencies. His planning is typically based on *aggregates* of operating budgets

* Categorising expenditure takes us into issues beyond the scope of this paper [24]. Briefly, we suggest that L-4 management control requires 'operating budgets' which usually contain a number of 'budget subdivisions' (often called 'heads' or 'sub-heads'). The L-4 staff can be termed the 'prime budget holders' and require defined authority to make virement of moneys between operating budgets. Certain operating budgets, primarily those where expenditure alters with fluctuation in workload, can then be further delegated to L-3 managers who may not overspend or make virement, but do need the authority to move money between the subdivisions of operating budgets. For certain purposes the L-4 manager may combine related operating budgets to form a 'budget aggregate'. Combining all operating budgets forms a 'total budget'. Our research indicates that in the absence of such conceptions, accounting systems which satisfy finance staff are often introduced, instead of budgeting systems to aid line-managers.

with detailed costings left to L-4 managers. The budgetary responsibility in public services like the NHS is primarily to meet cash limits, and to ensure that a proper budgetary structure and financial regulations are developed for the organisation as a whole. Limits set by higher authorities on particular budget aggregates (e.g. expenditure on management, expenditure on a care group) must be adhered to and translated into locally applicable policies.

At L-6 in the NHS, the primary responsibility is the allocation of finance provided by the National level to a given group of Districts according to National policies. As a result there is also the responsibility for controlling total expenditure in those Districts. Financial allocations may be used to encourage Districts to develop their services in accord with given policies, and to prevent uneconomic duplication of services amongst Districts. Financial guides, related to budget aggregates, are developed with the same purpose.

At L-7 the resources to be directly manipulated are again primarily financial. The allocation and use of resource at lower levels is handled through setting general policies, priorities and guidelines for detailed application at L-6. In the NHS, the finances are agreed by the Cabinet and the Treasury. Here the total expenditure on activities at all levels must be controlled. The grand total budget for the distribution in the NHS is determined by political factors, and limited by competition with other sectors of the economy such as defence and social security. Whereas L-6 is cash-limited, the Ministerial level can, and periodically does, obtain supplements during the year for specific purposes. Recent examples include extra finance in 1986 for the AIDS epidemic, and an extra £100 million in early 1988 in response to a public outcry over cuts in services. In addition, there is control of what is tolerable and desirable in regard to budgeting practices, auditing and so on. The attempt to strengthen budgeting and resource management is recent: until the mid-1970s expenditure in the NHS generally was largely unconstrained, and expenditure on general practitioner services is still open-ended.

Handling Information

Substantial fieldwork and seminar discussion with NHS staff have contributed to an understanding of how the information needs of an organisation are best handled at each level. In recent years, there has been a major initiative to improve management information in the NHS [7]. However, again the needed distinctions between requirements at different levels of the NHS have been vague. Consequently, a misleading image of a complete unified database for the NHS with a unified mode of presenting information has unhelpfully developed. As a result, lower-level managers unwillingly collect and try to use information which is irrelevant to their concerns, are blocked from collecting information which they *do* need, and sometimes enter data which is wholly invalid.

In considering the vast topic of information in organisations from a levels perspective, it is necessary to distinguish: (a) substantive needs for information, (b) responsibilities for developing and implementing the systems which shape and structure this information and (c) responsibilities for running and maintaining information-processing facilities (hardware and software). In what follows we shall illustrate the levels approach by saying something about each of these without attempting to be complete or comprehensive.

At the lowest level, L-1, information requirements are only those which are directly relevant to the task in hand. As technology improves, computer terminals will often serve as a source of information. Any presentation of information is usually best done by word of mouth or through simple forms. L-1 staff are commonly responsible for input of given data to given systems. At L-2, information needs become more complex. Details of individual cases or situations and their history must be collected and kept available. Written records are frequently kept, using a format which is pre-specified or determined by professional training.

Patients' case notes are an obvious example. Crucial information on the quality of case handling and hence on the quality of health care delivered resides here. Verbal reports are still important, but written memoranda are now increasingly used and simple tables or graphs in relation to particular cases may be useful for communication or review of work. Computerisation of total case notes (as opposed to basic case data) is typically inappropriate, because notes need to be idiosyncratic to the staff member in charge and tailored to the unique situation or patient. However rapid access via computer terminals to information held in the larger system is often useful in dealing with individual cases or particular problems. L-2 staff typically contribute to decisions about coding of relevant categories within such higher level systems.

At L-3, it is essential to have statistics which are detailed and specific, and on both a regular and an *ad hoc* basis, in relation to such things as: demand, activity, quality indices, staffing, material usage, incidents and variable costs. Regular feedback of results from any new operating procedures must be arranged, and information about service breakdowns obtained. Production of detailed reports with tables and charts is usually required; and direct analyses and explanation of tabulated information is expected. Comparisons with previous years and current trends must often be checked; and implied priorities may be calculated from the work done. Specific information systems must be developed and data collected and collated specially to meet these local needs, in addition to whatever may be available from a central information facility. Typically, information in central databases in the NHS is both insufficiently detailed and too late to be used effectively at this level. Hence every L-3 manager nowadays requires immediate access to computing facilities. At this level information, once set in context, may indicate the action required without needing significant explanation or interpretation. Information required at L-3 must fit the actual situation precisely, and straitjacketing managers with categories useful in centralised databases, but which do not fit local realities, must be avoided.

L-4 managers must take a more abstract and analytic approach to the same categories of information used at L-3, reducing detail and considering comprehensive summaries. In the NHS, as in most organisations, detailed information on need as well as demand is desirable for L-4 planning, but its collection is typically difficult and expensive. Categories for the complex statistical and comparative analyses required at L-4 now need to be compatible across the Unit and often across the District and Region. With the aid of specialist staff assistants working at L-3 and L-2, L-4 managers introduce new information systems, using information already being collected by their L-3 line-managers, information available from central sources, and information specifically collected by L-1 staff. Computerisation is essential at this and higher levels. Attention must be given to analyses of various expenditure heads, to financial comparisons, to costings in various dimensions, and to priorities implied by expenditure. Lengthy complex reports are often needed, with tables and graphs and accompanying explanations. At this level, argument begins to develop about what counts as information, which information is really important, and how information should be analysed and presented.

L-5 work demands further selection, analysis and summarising of information from lower levels under the usual headings (finance, activities, manpower and so on). This enables the manager to keep track of progress in the organisation overall in its L-4 sub-divisions. Specific *ad hoc* or qualitative information on any matter is still possible by zooming. The political and boundary-setting aspect of the work at L-5 points to the need for information on public views and needs, and on the activities and policies of local agencies or firms with which the organisation must cooperate or compete. The L-5 manager has headquarters departments of finance, planning, and personnel led by L-4 specialist staff officers. These provide him with information and assist him in developing and implementing District-wide policies and plans in relation to information management and information technology. At

this level, reports need to be primarily narrative, that is to say quantitative information is subsidiary to the way it is interpreted and presented. Frequently, therefore, detailed information, as conceived and produced at lower levels, is best relegated to report appendices.

At L-6 information about activities is highly generalised because regular zooming into precise detail is not possible. Comparative information on the L-5 subsidiaries and details related to specific L-6 initiatives and L-7 policies will typically be required. In the NHS, District information at L-3, L-4, and L-5 is selectively culled for those figures which are useful for comparison between Districts and for deciding financial allocations. The Region must produce narrative reviews backed by complex statistical analyses and graphical representation for the National level. Region also needs to coordinate certain aspects of information systems and information policies across Districts. It may also carry out or commission research or surveys and act as an information resource or provide information assumptions for Districts.

L-7 is the ultimate arbiter of the priority to be accorded to information collection and various types of information system to be used within the organisation. In the NHS, all recent initiatives on performance indicators, financial information and information data sets have been driven by the national level. L-7 itself requires a selection of financial and service information in the L-5 agencies, and this is provided by L-6. The Secretary of State for the NHS also needs information on the views of the public in general, of relevant pressure groups, of professional associations and of the NHS authorities, and this is organised by the civil service. Narrative analyses are typically produced using available statistics highly selectively in relation to any area of interest.

Planning: Priorities: Evaluation

Planning has been well-established in the NHS over the past decade, whereas priority setting and evaluation are more recent and still controversial concerns. As regards planning, consultancy and seminar research have been carried out by our group in relation to planning at various levels of the NHS over many years. As regards priority-setting, our fieldwork has been carried out more recently mainly with top management in Districts. [18]

To examine planning and associated topics it is more natural to start from the highest level. At L-7, goal-setting and planning are the supreme tools. This is the level at which the organisation's guiding values are articulated, at which the mission is formally set (in the NHS by legislation), and at which L-6 or L-5 agencies are created to ensure pursuit of that mission. At this level any general idea or approach which is believed relevant to the existing agencies can be introduced. Such new ideas or approaches cannot be directly implemented — they must be structurally implanted. The L-7 task is, in a phrase, that of *institutionalising conceptions*. Furthermore the main priorities for the whole enterprise must be set here. As regards evaluation, criteria may be defined for use at lower levels including what is to be accepted as custom and practice. The evaluation process is carried out by annual review of information provided by the L-6 agencies or by instigating special inquiries.

At L-6, frameworks and guiding principles to assist L-5 agencies in implanting the L-7 conceptions must be developed. General strategies are required to coordinate developments in the various L-5 operating agencies whether these have been initiated from below or above. Review of the agencies is subsequently needed to ensure that L-7 conceptions and priorities are indeed being realised — whatever other activity may be going on. Blockage in implementation, especially due to difficulties which cross L-5 agencies, must be tackled. In the NHS, L-6 priorities concern the ordering of central L-7 initiatives to suit Regional needs and programmes.

At L-5, the main local priorities must be set in the light of both L-7 and L-6

policies and plans, and the local community situation and organisational requirements. Strong and specific operational strategies must be developed with a typical timescale of up to 10 years. These plans shape and structure the Agency and require broad financial allocations, but this does not constitute service planning as most managers think of it. L-5 plans aim to provide a planning framework for service planning in the sense of development of detailed time-targeted individually costed schemes and projects. Agency policies must also be developed for reviewing more detailed annual and biennial operational plans, and for evaluating services. In the NHS, L-5 planning and review has frequently been lacking in Districts and Region's attempt to provide these frameworks do not meet with great success because of their distance from operations. [26]

In order to develop and implement actual changes in services, a deep and detailed appreciation of concrete realities of all sorts is required. This is only possible at L-4, which is one level above the systems of provision. As noted above, only at L-4 can plans be detailed and carefully costed. Priorities always need to be set among existing services and between these and new developments which aim either to meet gaps in expected provision, or to comply with higher level directives. L-4 generates the main criteria for service delivery, and specifies the level of service and the resource inputs needed to meet these. L-4 is therefore concerned with effectiveness and extent of service and is the natural level for setting up evaluation systems within the agency.

At L-3, planning concerns policies and priorities internal to some particular service being provided, and makes up the initial phase in introducing any complex new system. Developments in provision are required as new methods emerge, and old methods become obsolete. Planning is also required for handling the workload and for staff training and development. Such planning inherently demands specification of quality aims and standards, as well as methods and procedures. In addition, there is the detailed planning required for the implementation of changes programmed at L-4. Evaluation here typically focuses on efficiency.

Within the NHS, the basic expectation of the medical consultant posts is L-3. However, our findings are that consultants do not generally recognise themselves as having the planning and evaluation duties just described. Given a severe weakness in L-3 management in nursing as well [20], inefficiency is inevitable. Also weakness at L-3 means that evaluation and control of L-2 and L-1 staff is inadequate.

L-2 planning is primarily about handling the individual case. Typically there is a case-load, and each case must be assigned a priority according to given criteria and in the light of the situation. L-3 managers evaluate the performance of their L-2 staff in general and by looking at the handling of particular cases. The evaluation of case handling in the clinical area is often referred to as clinical audit, and typically requires the use of peer review. Note, however, that neither L-2 clinicians nor L-3 specialist managers have the authority or the resources to perform scientific evaluations; and this has been a source of confusion in the NHS. Staff at this level, whatever their socialisation in the scientific approach, are not required to prove all treatments by strict scientific test before they use them. Their job is to keep up-to-date and competent in providing treatments which are generally *believed by their profession* to work.

L-1 planning involves the ordering of the hour, day or week so that tasks can be carried out with a given priority. L-1 output is evaluated by the line-manager involved. Any new services only become actualised as staff at L-2 and L-1 learn new methods and work new systems. Developments often follow their own suggestions or complaints; and these are potent evaluative tools.

Balancing Quality of Care and Workload

In recent years, managers in the NHS have been pressed by the national level to produce a higher quality of care as well as an increased output. Both these objectives

are worthy: the former aligns with professional aspirations, the latter with the new ethos of efficient management; and the public are concerned with both. However, there are obvious difficulties in working both better and faster at the same time. The necessary balancing of quality and quantity (or pace) is part not only of management but more generally of all productive work, and it produces an emotional tension which must be gripped. We therefore deliberately applied the levels-of-work scheme to determine exactly what was involved in meeting these conflicting objectives. In so doing we learned something about the issue of morale and motivation within organisation. The findings below have been tested in national seminars and workshops.

At L-1, the aim is to provide a good output rate to the quality specified. In the NHS, this means carrying out set procedures, providing basic personal care according to instructions, and dealing sensitively, helpfully and courteously with patients and relatives. Workload must be carefully controlled by higher levels because the required quality is closely specified. Too much work results in a backlog or in output that is unacceptable. Too little work results in staff waiting about. L-1 staff working at their own natural pace and sticking to given rules and standards have little scope to alter either throughput or quality. They experience satisfaction and develop good attitudes to working if the flow of tasks and standards expected suit them, and become dissatisfied and negative if there is a mismatch.

At L-2, the aim is to manage a handleable caseload at a given standard. In the NHS, health care is directly delivered at L-2, and professional staff make clinical assessments and carry out treatment within given or accepted frameworks. In doing this, they develop professional relationships with specific patients, recognise and deal with any patient's inability to look after himself, and handle breakdowns in arrangements for care delivery or in the physical environment of the patient. The workload of L-2 professionals is an assigned caseload in the wards, clinics or community. Such staff must allocate due time and attention to each patient using clinical judgement to prioritise within given policies, and without neglecting or favouring any particular patient. Staff at L-2 have significant scope to affect quality in the individual case, but usually far less scope to alter overall throughput. Because the lighter the load the greater the opportunity to provide a higher standard of care, professionals complain vociferously about increased workloads. In the NHS, they often over-work to meet the demands of patients rather than reduce standards. Professionals work best in teams, and team spirit appears essential for handling the quality-workload tension.

L-3 is the key level for setting up systems which ensure day by day balancing of quality and workload in relation to fluctuations in staffing or demand. At L-3, concern with quality of care means ensuring that subordinates are suitably proficient, and that specific professional or technical standards and methods used by them are satisfactory and up-to-date. Quality of care and its control needs to be designed into systems. Quality at any particular time may be directly influenced by restricting workload and setting priorities. At all times the quality of care must be kept above some basic minimum (below which the charge of negligence would be valid), but it is rare that standards can truly be described as 'excellent'. Ensuring that the best possible is being achieved with available resources, and developing an acceptance of that, is crucial to maintenance of morale. Systematic work in mobilising resources, in actively managing demand, and in the allocation of resources is central to this task.

The responsibility at L-4 is with the general level of service in terms of quantity and quality. Average throughput or workload is a prime concern, but demand not currently met or needs for new services for which there is no current demand, have to be considered as well. Similarly, there is a concern for general levels of quality and for protecting basic minimum standards by switching resources even if this means reducing quality elsewhere. It is therefore necessary to create a general service ethos with which all staff can identify. At this level a desired throughput

may be specified, and, as noted above, here is where services are evaluated systematically. One of the most important responsibilities, as regards quality of care, is ensuring that there is a viable L-3 line-management structure manned by individuals competent to perform such work.

At L-5, the distance from the daily realities of operation is great. At this level, concern for quality is expressed by limiting the range of existing or potential services in keeping with total resource and higher level requirements. There is also the need to set main priorities for service development, and to rule on the political acceptability of any marginal or problematic provision by lower levels. In the NHS, although actually-achieved quality and throughput must now be largely left in the hands of others, the L-5 manager should develop a philosophy of management that puts the patient first, and should by his behaviour, policies, structures and conventions generate an enduring culture in this regard.

At L-6 and L-7, quality and workload tensions are experienced indirectly — through public outcry, powerful lobbies, and government initiatives. In the NHS, we note that the response is both in terms of general initiatives (e.g. staff training, waiting lists) and highly targeted efforts (e.g. cervical cytology).

CONCLUSION

The present paper has briefly summarised levels of work theory and has discussed an extended application to a complex organisation, the U.K.'s National Health Service. The general approach is represented by a matrix, extendable in one dimension, in which any given aspect of work or management can be located. A number of aspects (columns) have been systematically explored to see how they relate to each of the seven different work levels (the rows). The aspects examined were: resource control, information handling, planning, and the quality-workload balance. Other aspects of management might be chosen and studied in the same way.

Managers need brief explicit recommendations rather than the full picture. Some of the specific messages we have been feeding back to the NHS with good effect in relation to the material in this paper are as follows. (1) Cost control is everyone's business, but there are distinctive responsibilities and tools at each level of the NHS which are currently being ignored. For example, bugeting is a special tool for L-4 work. Delegation of certain budgets and budgetary responsibilities is possible to L-3 managers, but no further. (2) Attempts to produce a single unified integrated database suitable for all managers at all levels in the NHS are failing and must fail because they ignore distinctive needs and responsibilities at each level. (3) In planning, the NHS has a general weakness at L-5 and L-3 with the resultant intrusion of L-6 and L-4 (respectively) into matters which are too detailed for them to handle effectively. (4) The inevitable tensions between quality and workload in the NHS must be handled by each level accepting its own tension and facing its responsibilities, rather than dumping untransformed and hence unmanageable demands on staff at lower levels.

The approach is therefore validated externally by the way that practising managers take to it and use it to resolve their problems; and internally by the consistency and coherence of the formulations. Although the emphasis throughout has been on the NHS, the logic of the framework and the generality of the formulations suggest that the findings should be widely applicable to organisations and work of varied types with only slight modifications.

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