

The New Workplace: friend or foe?

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Introduction

References to the new workplace and new ways of working abound in the international management and design literature, and increasingly in the popular and professional press as well [Reference 1 is a useful overview, 2 and 3 recent examples]. In the face of this, most would not deny the cultural significance of the new office. The new office or workplace - the terms are used interchangeably - usually means some kind of intensification of space use, with higher densities in more open areas, along with greater diversification - greater mixes of activities, plus working away from base. Beneath all the hype there is still suspicion that things may not have not changed as much as the apologists say they have, and that some of the supposed benefits may not be a great improvement on what went before.

Businesses worldwide have already ploughed significant investment into new office concepts. Some of them have tried to evaluate whether or not they have been successful. A few have even published the results, giving clues as to the possible strengths and pitfalls [Reference 4]. This paper draws on some of these studies, and the experiences of the authors, who have been involved in various projects at briefing, design or post-occupancy phases.

The new workplace

What are the things that make the new workplace different? The answer often depends on who is putting the question. Designers stress the benefits of refits which are said to drive down occupancy costs, and replan office space to improve occupant performance - often making optimistic claims for better staff communications and productivity. Managers in corporate companies are often look-

ing not just at occupancy costs and value-added considerations like productivity, but at thornier matters of culture change - perhaps using the design of workspace as a Trojan horse to help introduce new organisational forms - usually hierarchically flatter, and helping people be more communicative. The obvious expression for this - both figurative and real - is the "open" working environment, so that the new office sometimes becomes an expression of culture change. Others may be more sanguine: occupants often think that increased openness and greater communication may mean loss of autonomy and individuality. Facilities managers envisage management headaches ahead. There also may be other things clouding the issue, like redundancies and mergers.

Given these standpoints, the new workplace involves:

- more heightened awareness of business activities being affected by the layout and performance of the working environment [Reference 1, chapter 1];
- greater "strategic" awareness of the importance of buildings as a resource for the organisation as a whole, perhaps stressing their potential value more than costs [Reference 5];
- growing dependence - now almost total - on networking, distributional, storage and retrieval capabilities of information technology [Reference 6];
- more developed emphasis on getting the best out of people at work, especially if their tasks are demanding physically and mentally, critical to the organisation or unduly stressful, risky or dangerous;

- changes in working conditions, with statutory drives for less hours at work, variations to working contracts and instability in labour markets;
- uncertainty in business futures, especially in traditional businesses like banking which are challenged by changes induced by information technology;
- more emphasis on knowledge work, as opposed to other types like administrative or clerical;
- pressures towards more group and project work, with the growing importance of the workgroup;
- more personal freedom and autonomy;
- less time spent at desks, and more in meetings and other activities away from the desk [Reference 7];
- greater mixes of activities;
- more intensive use of space, but also greater diversification, with the relentless trend towards more remote working [Reference 8].

All these are part of the social, technical and economic infrastructure which produce preconditions for change, and then themselves become part of the self-fulfilling processes which reinforce it.

Space planning

One such is the architectural discipline of space planning which first emerged in the early 1970s when early trends were detected [Reference 9] and then subsequently developed more sophisticated business planning tools which helped reinforce them. This also coincided with the boom in strategic management thinking, often associated with authors such as Peters [Reference 10] and later, in a different vein, Porter [Reference 11]. As relationships between business performance and space use became more obvious, the streams of management thinking and design gradually came closer together so that eventually, authors such as Peters [Reference 12] were themselves writing about design, and space planning practices were being merged with business consultancies!

At the simplest level, office space was examined more closely from the perspective of function - producing new definitions of usable, ancillary and support space which made people think harder about workplace provision. For instance, occu-

pancy and interaction were dimensions of increasing importance, as were others such as autonomy. Figure 1 shows how the dimensions of interaction and occupancy produce four basic work setting types, which can be used as a briefing aid for office planning.

Work settings

Within the different settings, individuals carry out tasks with varying degrees of autonomy (Figure 2) - more so with concentrated desk work, much less so with meetings and project work. The new workplace produces physical layout "settings" on these themes of occupancy, interaction and autonomy within the broader context of organisations' culture and business goals. This has also led to new offices with names like Teamspace, Office 2000, Citispace and the Dynamic Office, plus fanciful names like huddle rooms and bullpens to give added corporate individuality, and terminology like den and hive - variations on the themes of autonomy and interaction [Reference 13].

Examples of work settings designed for specific activities include:

Individual tasks (see Figure 3);

Workgroups (Figure 4);

Projects (Figure 5);

Meetings (Figure 6);

Touchdown (Figure 7);

More examples are in Reference 1.

As well as interaction, autonomy and occupancy, a further dimension in the new workplace is complexity. The emergence of space planning went hand-in-glove with the growth of facilities management (indeed, the first UK journal *Facilities* was founded in 1984 by DEGW, the firm which also brought the idea of space planning to Britain). As office activities intensified and diversified, so did the spaces and services required to support them. When organisations moved into new buildings, they often found - sometimes to their horror - that more management was needed than in the past [References 14, 15]. Added complexity was fuelling demand for skilled facilities managers, which rapidly grew as a new profession worldwide [Reference 16] with especially strong bases in USA, Australia, The Netherlands and UK. If organisations were not able to provide such resources, the chances that the building would not work properly were increased, hence the rise in chronic

health problems in offices in the 1980s [Reference 17], and in deep-plan, air-conditioned buildings with higher levels of management dependency, especially in the public sector where resources were more scarce.

Context

Before dealing with workplace performance, the question of context needs to be tackled, at least in an introductory way. When confronted with complex human-physical systems like work settings, it is tempting to take refuge behind statements like: “It all depends on context”. Designers and researchers are especially fond of saying that every case is different or that things are too complex and inter-dependent to generalise properly. This is true to some extent because as yet we have no ready-made theory or model which helps describe buildings in all their richness, including the “foreground” (the building itself and the activities of its occupants) and “background” (the flux of socio-technical change).

Research makes progress by eliminating contextual complexity (laboratory experiments select the “independent” input variables and try to control other “noisy” environmental effects using statistical techniques such as the analysis of variance). Real-world research [Reference 18], however, recognises that outside the laboratory changing contexts are the real object of study, so “controlling” for them does not make sense. Indeed, feedback from a controlled study may itself change the context, making it hard to tell whether the monitoring itself was the cause of any change that might have occurred. Trying to eliminate complication like this may even introduce unintended bias, as may be the case with, for example, laboratory-based thermal comfort research [eg Reference 19]. Often it is extremely difficult to carry out experiments in buildings which involve control groups or double-blind experimentation or similar traditional experimental methods. This is certainly true in workplace evaluation where the use of control groups in “before” and “after” studies is usually, at best difficult, and often practically impossible.

Context is a challenge because;

- hundreds of variables are involved, many of them correlated with each other, so it is usually difficult to know which to choose;

- some are concerned directly with the building, its people and occupying organisation/s, others with the social and technical background which is always subtly volatile, so it can be a challenge to know which variables will be significant in any situation;
- the relative importance of variables can itself change with context; for example, if occupants have more perceived control over their indoor environment, as they often do in naturally-ventilated buildings with openable windows, they are more likely to tolerate less-than-ideal conditions [Reference 20];
- people can be perverse, doing the opposite of what you think they may do, they can lie and even vandalise things when they get frustrated. This often leads to designers and managers treating people patronisingly, preferring to take decisions away from them rather than give them more control [Reference 21].

The best way to deal with these complications is to describe work setting contexts as richly as possible, so that readers can make up their own minds about significance and risk (because people will have different views about what is important). Researchers often try to get round contextual differences by “normalising” their results - that is, converting data onto a common scale which seemingly accounts for intrinsic differences (such as average temperature in dispersed locations). But normalisation usually hides assumptions about how such calculations were made or introduces tiresome hidden complexity for the reader. It is usually best to let context and raw data speak for themselves.

Work settings: do they actually work?

There is no single answer to this, because experience of workplace performance varies considerably, and sometimes it can be hard to tell whether everything has been included in a fully-rounded evaluation. This said, the richer the context, the more chance that things will go wrong.

These are some of the considerations.

- Corporate managers are often keen to promote “project” work settings (see Figure 1) and myopically think that staff actually work as project teams. In fact, many - such as in accounts and software development - spend most of their time on individual tasks and only occasionally need to come together for group consultation. Thus the default work setting for them is still the individual task, not the project. So it makes sense to understand in advance just how much time individuals spend on tasks and important activities. Otherwise, work settings may be created which make activities much harder to carry out because of eg noise and interruption, the bane of many.
- Designers can create apparently inhuman settings on the basis of weakly-developed assumptions about people’s needs. Is it really necessary for telephone call centres, for example, to have large, open-plan layouts set in a big shed, with large screens showing the incoming queue status? Even if they are not, in any one case, particularly bad (it is often difficult to find out), they give the wrong messages about how to treat people in the workplace.
- Exceptions prove the rule. The design and layout of Standard Life's main administrative office, Tanfield House [Reference 22], seemingly has many risk factors associated with ill-health and low productivity. Yet the building has excellent occupant ratings. The clerical work force has relatively predictable requirements which are well met by an assiduous and well-resourced management team. This example is one of several more used in this paper from the Probe series of post-occupancy studies, where performance results are in the public domain.
- Many modern work settings are subject to constant change, so it is often futile to second-guess all requirements. Far better to agree a meaningful set of ground rules and stick to them, allowing workgroups degrees of freedom to make their own mistakes. For example, the setting in Figure 4b was developed over a single weekend by the staff themselves, using local tradesmen in support. The partitioning separated work-

groups from the worst intrusion, while still giving them line-of-sight and line-of-hearing. The workgroup layouts mapped reasonably well onto the existing lighting, heating, cooling and ventilation - sufficient to give occupants enough control to satisfy them. This layout replaced the earlier, more rigid plan (Figure 4a).

What makes people happy with buildings?

Again, this depends on who you ask.

Senior managers can be obsessed with corporate imagery, insisting that the work environment is presented as a positive symbol of their organisation’s culture and aspirations. Corporations, like British Airways, who have made large investments in new buildings, are naturally keen to promote themselves through their workplaces [References 23,24]. Others, like Lloyd’s of London, have ridden the roller-coaster as their commercial fortunes, and that of their buildings, have waxed and waned [References 25,26].

Facilities managers are happiest with buildings which cause them least trouble, so the fewer complaints and interventions, the better. The Elizabeth Fry Building [Reference 27 (Probe)] is one such, well-liked by the building manager because its services operate reliably, deliver the performance required and need minimal intervention. However, an unusual amount of effort was required by the client, the design team and in alterations to the controls before this happy stable state was attained.

Designers often think that because they themselves use buildings, that they understand the needs of users. Lamentably, this is seldom so. Designers know too much about their buildings to be able to adopt the viewpoints of normal users [Reference 21]. However, they often seem not even to have made the attempt.

Designers tend to place undue emphasis on visual qualities - especially space and light, and much less on seemingly mundane things like usability, manageability and comfort. Many designers of renown (eg Alvar Aalto) have produced notoriously unusable objects and buildings - something which baffles people who have to endure them day-by-day. Designers’ professional value systems reinforce these tendencies, so that awards and honours place too much emphasis on aesthetic

and visible features, and not enough on operational considerations.

Designers also tend to think that occupants share their pre-occupation with aesthetics, and indeed this can greatly affect the initial impact of a building. However, in the longer term this will not make up for more dominant concerns about:

- personal control, and whether or not people can create for themselves the environmental conditions they prefer (sometimes perceived as meddling by designers);
- flexibility, adaptability and usability, so that perceived needs are met quickly and with least fuss and forethought;
- rapid remedial action when things go wrong, especially in situations of greatest risk and danger;
- personal self-esteem, so that people are not made to look stupid in the eyes of their peers or subordinates.

Occupants tend to place all these higher than aesthetics, so that some of the best loved buildings in the eyes of occupants have not won architectural prizes (eg., at the time of writing, the Elizabeth Fry Building [Reference 27] or One Bridewell Street [Reference 28] although this has won an Office of the Year Award for facilities management).

People tend to prefer the known and familiar to the unfamiliar, which can make them sceptical of claims made for improvements in new workplaces. Users prefer scruffy or nondescript buildings which properly meet all the things they like, rather than pretty buildings which do not. An example of a well-liked but ordinary building is shown in Figure 4 (neither the building nor occupying organisation are named in this case for commercial reasons).

Contrarily, people will tolerate chronic faults to some extent (like summertime overheating or intrusive noise) if the building pleases them, and perhaps also helps improve their image of themselves and their work, so aesthetics are not dismissed entirely. It is difficult to give named examples here, because building owners are naturally reluctant to release this information, but a number of recent prize-winning buildings fall into this cat-

egory. "Forgiveness" is dealt with further in Reference 29.

Occupant densities: do they matter?

Offices around the world differ in occupant densities by a factor of about three. In Scandinavia, for instance, densities can be three times lower than in Britain; in the Netherlands, Belgium and Germany twice as low. Available data put typical London densities at 14-16.5 sq. metre per person net lettable area, Sydney 14 -15 sq m, Frankfurt, Brussels and Amsterdam 25-27 sq m., and Stockholm 30-35 sq m. but some offices are much more densely occupied.. US densities seem to average 20-21 sq m, but there are considerable sector differences. [References 30,31,32]. Beware: density definitions differ from country to country so comparisons can be unreliable.

Unfortunately, density data are not usually cross-checked with workplace performance statistics, so we do not really know whether higher densities mean better or worse performance.

Recent evidence on new workplace performance from Scandinavia - where densities are lowest [Reference 33 has 20 case studies] - shows uniformly favourable results, but this may not be a direct consequence of density.

Ericsson - the telecommunications company - have studied some of their own projects [Reference 34] and conclude that positive aspects are:

- more co-operation;
- higher accessibility;
- more information exchange;
- more decisiveness;
- higher competence.

The main downside is that it is difficult to work without being disturbed. The feeling of being disturbed is less where the background noise conveys information indirectly which helps people do a better job. Background noise in some contexts can be positive - it masks unwanted interruptions; more commonly, it has the opposite effect by being the source of interruption!

There is little to tell us here whether low occupant densities contribute to these success stories, but they might. Hakfoort and Lie [Reference 30] report that the average amount of space per worker

seems to decline when building size goes up, but their data, in spite of being based on a relatively large sample for building studies of 67, are still inconclusive (see Figure 9).

Our hunch is that there are influential size-density relationships in buildings and, generally speaking, smaller is better. On the basis of own observations (but not yet measured or tested), we think that people may be more tolerant of conditions in smaller buildings because they are more likely to have control over them, so they may be prepared to put up with the inconveniences of higher densities. As buildings get bigger and deeper, going beyond a depth threshold of about 14-15m, occupants tend to have less control (often much less) and subsequently become less prepared to accept what they perceive as poorer conditions (but may in fact be the same or even objectively better!).

In these circumstances, management may have fewer freedoms to improve things because of higher spatial complexity and more intricate management dependencies in larger buildings. Options may also recede as size increases, but one which will usually remain is reducing densities [see also Reference 35]. In smaller buildings, size-density relationships may operate virtuously (that is, the better features like controllability and greater participation re-inforce each other to produce positive benefits such as more tolerance), but in bigger buildings they may work the other way, with unmanageable complexity tending to make things worse.

If bigger buildings are more problematical, what should we do about it?

The short answer is to compensate for things that are taken away [Reference 36]. People prefer smaller, shallower buildings because they usually have more personal control, better views out with a higher chance of having a window seat, and the likelihood of more daylight and fresh air. They like it even more if they have their own room so that they can cut out unwanted interruptions if they so wish, and increase their personal privacy. There are also status issues.

As buildings and their floorplates get bigger, occupants' chances of having some or all of these features declines, sometimes considerably. So success with a new concept can often mean how well the design compensates occupants for what they per-

ceive to be losing (eg control, views out, window seats, their own office). Many new workplaces do not compensate effectively because designers often concentrate on how the space appears and how the workstations fit in geometrically. Examples abound, but this is another area where people are reluctant to release specific information.

Tell-tale symptoms are:

- circulation routes indiscriminately cutting through and dividing workgroups;
- people sitting at desks which are close to circulation routes or other sources of random noise and distraction (photocopiers, kitchens etc.),
- people sitting with their backs to circulation routes and thus feeling unnerved by people approaching from behind;
- windows and views out obstructed by desks, partitioning, cellular offices or blinds left down;
- workgroup layouts that do not allow people to see or overhear their colleagues properly, and conversely ...
- situations where people cannot escape from boisterous intrusions of their colleagues, or worse, nearby people who are not colleagues but doing completely different things;
- poor, unusable or non-existent occupant controls especially over cooling, ventilation, glare and noise (especially when management forbid staff from opening windows which are openable);
- slow or diffident management response to complaints;
- staff who use VDUs for long periods sitting in the poorer locations (eg in the centre of large open-plan areas);
- poor telephone design and ergonomics (with calls hunting around the office, and/or people not being able to tell which handset is ringing);

All of these are symptoms of failure to think through consequences. People are particularly suspicious of managers who do not consult them about change, and designers who do not include occupants in the early planning thereby letting them "own some of the problems". Occupants

like to be included in feedback and feedforward loops when the building is in use (so that they have reasonable control) and in conception (so that they can state their own priorities against competing ones usually from senior managers or designers perceived as autocratic, aloof or lacking common sense). In Britain, these are the rule, not the exception, so many workplace experiments do not fulfil expectations because designers do not take enough care to acknowledge and deal with them.

Facilities management: will it help?

Greater dependence on management - and hence one reason for the rapid emergence of facilities management - is as much a symptom of the problem as the solution, as Figure 10 shows. Most modern workplaces, including the newest, have high management dependency. One London building even has a welcome board in reception which lists the names of the nine facilities management staff who run it! In our experience, the best performing buildings require either well-developed, proactive, skilled, well-resourced facilities management teams, or have been designed to minimise their intervention and to allow occupants to sort out their own problems as much as possible. The good ones do not fall into the trap of thinking that successfully managed complexity is cheap (see Figure 10) by skimping on management. Some, like Telecom NZ, link facilities management formally to human resources on the basis that FM and occupant welfare are intrinsically linked. FM and HR here work together as primary change agents.

However, many managers are obliged to cut costs, leading to considerations which put cost before value. One of the first places they light upon is the facilities management department, which is often still perceived as a cost rather than an enabler or revenue provider. The cut costs / improve performance agenda underlies many decisions to adopt untried technologies and/or their human variants - the new workplace - because these are usually sold as answers to such problems [Reference 37]. Vendor and consultant hype notwithstanding, these approaches are usually only successful in transporting problems from the present into the future, storing up trouble for later.

There is also the self-perpetuating tendency for managers to justify their own existence by creating things to do. The more complex buildings become, the greater the need for a professionalised

management force to run them, and the greater the reliance on these skills [Reference 38]. It makes most sense to create buildings which either have high management-technical dependency, properly resources or minimise dependency with simple technology operating as much as possible in the background with little or no call on management. In our experience, half-way houses between the two are the most troublesome. Buildings tend to be under-resourced on the management side because the client had not realised what would be required. If better resourced, there are then dangers of perceived or actual cost-effectiveness, leading to the inevitable "Why do we need so many people to run our buildings?").

Technology and the new workplace

In reality, most new workplaces are almost completely dependent on the resources of networked information technology. Does this then mean that the best new workplaces are in businesses with information technology at their core? No-one knows just how important cultural and core-business differences are yet, but our hunch is that there is a strong likelihood that they are [Reference 39].

The reason again partly lies with management overheads. Organisations with core business competences in information technology - computer manufacturers, software houses, telecommunication companies, logistics companies and others who have fully internalised information technology into their everyday operations - have an inbuilt advantage when introducing IT-dependent workplace initiatives. This can be especially obvious to those who have to provide support to teleworkers, who will probably not have the skills or wherewithall to maintain and manage their software and network connections remotely by themselves. If IT support skills are already available inhouse, and people can fix most problems for themselves, this will contribute to success. Similarly, if autonomous groups and functions are not dependent on anonymous or empire-building IT support services, or helplessly locked into systems and services which do not properly support their needs, then there is also greater chance of success.

Seemingly small things can make a big difference. For example, if a computer on a desk takes 4-5 minutes to boot after being switched on, the occu-

pant will be most reluctant to let someone else hotdesk at that location during the day. Similarly, if a company does not maintain a standard look and feel to its graphic user interface, the lack of consistency will mean that people will be disorientated, and waste time when logging on to an unfamiliar machine. There are also commonly-experienced difficulties with prolonged wait times, queues and bottlenecks at key periods?

Can generic workplace solutions be successfully adopted worldwide?

Will we benefit most from more standardised solutions or from greater diversity? We see hope in reducing the number of unnecessary variables and seeking out more generic solutions. However, the downside is that standardisation destroys context and diversity and tends to produce widely-accepted, but unyielding, industry norms. [See also Reference 38].

Donald Norman sees standardisation as the last resort: “When all else fails, standardise”! [Reference 21, p. 200]. He is talking mainly about consistency with user-interfaces (Does the hot tap go on the left or the right on the wash basin?) but the advice works on a broader canvas. Standard user interfaces are an obvious boon, but while standardisation avoids annoying mismatches, it can also destroy the very things that makes life interesting, beautiful or different. Once a standard has become well-established it can also stifle innovation (viz: the Qwerty keyboard inherited from typewriters.). Manufacturers have vested interests in promoting their system as the industry standard, getting clients committed to that system and then defending it as the dominant force in the marketplace to wipe out any competition. This often works when background economic and technical parameters are relatively stable, but if parameters change (such as the overnight emergence of microcomputers which threatened IBM’s stranglehold) then obsolescence, inefficiency and loss of market share suddenly threaten.

The same applies to the new workplace. Generic types (like the US quasi-generic office cubicles) have obvious relevance where consensus about norms exists or has been enforced by the market, as in the US. Elsewhere, though, things may seem similar on the surface but actually completely different, with greater diversity of economic infrastructure, technical take-up, social mores and

working habits. Research so far indicates that differences may be more important than similarities (eg Reference 40).

Conclusions: friend or foe?

Much of the existing evidence on the new workplace is inconclusive. Some organisations are extremely coy about releasing anything except results which cast a gloss on their workplace experiments, and, as consultants often go along with this, it is often hard for the independent observer to know whether the full story is being told.

Many seem to be less successful than one is led to believe, often because:

- occupants are not properly consulted in advance, and are therefore suspicious about motives, so tend to be pessimistic and decide from the outset that the experiment will not work;
- the quality of the visual environment can spectacularly improve, but it can be less user-friendly and possibly less comfortable as well, so occupants see outcomes as winning on the swings and losing on the roundabouts, perhaps giving designers and managers the benefit of any doubt that may arise if the aesthetics are excellent; but then ...
- if the new environment is over-hyped, occupants are first enthusiastic but then become quickly disillusioned when the new workplace and/or its management fails to live up to the false expectations created;
- noise is a universal problem, with many having conditions which are generally poor or sometimes appalling, with constant interruptions and distractions, measurable through consequent productivity losses [Reference 41];
- circumstances constantly alter, so sometimes the new workplace may be an “answer” to a problem which has since disappeared or altered beyond recognition;
- businesses are often unclear about what they are trying to achieve, taking refuge behind “flexibility” without understanding what they are asking for, so often they get things they didn’t know they didn’t want!;

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- success may depend much more on infrastructural quality - especially IT and facilities management - than many designers may give credit for;
- success depends on willingness to tackle the management of complexity - the hallmark of successful organisations worldwide - so corporations which tend to be successful at managing complexity will also ultimately be successful at the new workplace;
- context trumps everything, so for different circumstances the foremost questions are concerned with relevance and risk, and the most important consideration - the minimum number of non-negotiable criteria.

Figure 1: Work settings

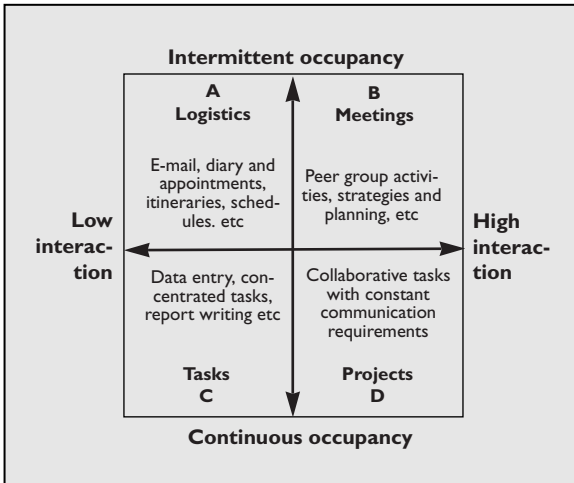
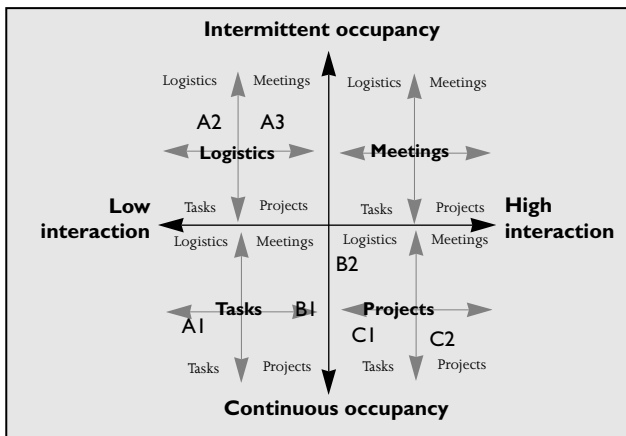


Figure 2: Individuals requirements nested within background work settings



Examples

A1, A2 and A3: teleworker; B1, B2 secretaries in a project setting C1, C2 software development in a project setting

Figure 1 has four types of work setting - logistics, meeting, task and project - made from occupancy and interaction dimensions. These may be thought of as "default" states: that is, in normal circumstances the work setting is designed to fulfil one of these four types. For example, a design office may be predominantly of the project type: that is, intended for high interaction, continuous occupancy, group work with lots of communication between staff.

However, within these four overall settings individuals may have different needs at any one instant. To accommodate this the settings need to be nested; that is repeated again inside each of the four (Figure 2). A1, A2 and A3 show a teleworker who works intensively at home on tasks (A1) and then occasionally needs to touchdown at the headquarters office for meetings (A3), diary appointments, post etc. (A2). B1 and B2 show the needs of a secretary who works with a project team. B1 is a need to carry out tasks away from the team; B2 is working with the team. C1 and C2 is software developer who is working with a team (C2), but on concentrated tasks that require constant access to other team members (C1).

Figure 3: Individual task setting



This is a typical setting for clerical task work in Britain in the mid-1990s.

Figure 4a: Workgroup setting before



At move in, there is a rigid space plan with layouts intended to suit individuals. Storage is rudimentary and used to define corridors. This tries to imitate the previous workplace.

Figure 4b: Workgroup setting after



Six months later the layout was changed (over one weekend by staff supported by local tradesmen) to try to optimise conditions for workgroups.

Figure 5: Project setting



Project setting Tilnet Shane offices, London

Figure 6: Meeting setting



Meeting setting for Schroder Ventures, designed by Tilney Shane.

Figure 7: Touchdown setting



Touchdown setting at IBM Southbank designed by Tilney Shane

Figure 8: Common conditions



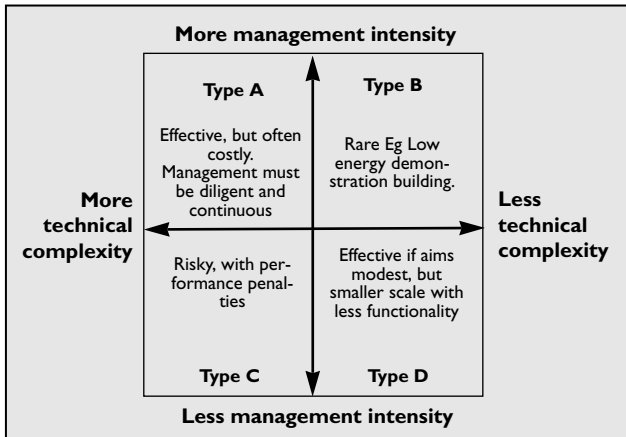
This is a less successful example of a workstation in a British office in the mid 1990s. The occupant's cellular office has been replaced with a workstation next to a noisy circulation route in an overheated area. As well as noise and heat, people commonly have to contend with glare, lack of storage, too little desk space and very poor desk-chair-keyboard ergonomics. No wonder that the verdict was less than complimentary!

Figure 9: Densities

	Less than 1,000 sq m	1-5,000 sq m	More than 10,000 sq m	Totals
More than 30 sq m per person	3	14	4	21
20-30 sq m per person	6	9	8	23
Less than 20 sq m per person	1	10	12	23
Totals	10	33	24	67
Chi Square	8.95			
Chi Square P-Value	0.0624			

Source: Harkfoort and Lie, 1996 This shows how a sample of 67 buildings from London, Brussels, Amsterdam and Frankfurt fall into the respective size (columns) and density (rows) types. The chi-square probability (=0.0624) indicates that the data are nearly significantly different (from the expected scores, given the row and column totals). The authors say that average densities seem to decline as size increases, but, as can be seen, the results are not conclusive.

Figure 10: Successful and unsuccessful strategies



Source: Authors

Generally speaking, strategy types A and D can work well, given their contexts and goals, and types B and C should be avoided if possible. The riskiest is C, where relatively complex buildings are provided with fewer management resources. Often people think that added technology will *reduce* management dependencies, not increase them as is almost always the case. Interdependencies between technical systems means that failures in one area carry over into others, and it is the “carry over” or consequences that require management interventions. For example, chronic ill-health amongst office occupants is often found in buildings of type C.

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