Feedforward for improved performance of facilities

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Abstract:
The paper reports on progress with research into the continuous processes of handover and proving the performance of buildings, and the development of practical, standard web-based tools for the effective feedforward of knowledge, the transfer of risk and assignment of responsibility for performance, on behalf of the occupants, through the whole life of a building.

The paper reports on progress with the initial stages of the work in the Feedforward project, which takes an action research approach, and focuses on one aspect of the link between facilities and business performance - the measurement of workplace productivity. The first phase of the project has reviewed recent UK research into workplace productivity, has evaluated available survey tools and has conducted a series of best practice case studies of practical applications in leading office-based organisations.

The paper introduces the business context, describes the research context and methodology and provides a critical review of workplace productivity research. It presents a review of recent UK research and an evaluation of workplace productivity survey tools, describes the best practice cases and draws early conclusions and recommendations for the continuation of the project and for future research.

Keywords: Facilities performance, business performance, stakeholders, whole life, evaluation tools

Introduction

A business context

As organisations seek greater flexibility, they are reconsidering their approaches to providing workplaces to support the effectiveness of their workforce, and seeking to introduce 'new ways of working' to improve business performance. This is leading to a fundamental review of the role of property assets, to the development of integrated workplace strategies and has put greater emphasis on managing business risk through effective performance management. For example, two leading UK companies, have recently withdrawn from major new building projects, and have chosen to restructure their property departments, and develop flexible working practices, and facilities management strategies to meet their changing business needs.

Changing work settings to improve occupants' overall productivity and health, requires all aspects of the work environment to be examined in combination to ensure that efforts to improve the work setting deliver the expected gains, and also that they are not defeated by unexpected and unwanted side effects.
A recent industrial tribunal has highlighted the potential difficulties associated with introducing new ways of working in organisations. The tribunal considered a case of constructive dismissal, arising out of a claim by a research worker, that the imposition of a requirement to ‘hot desk’, induced stress, which in turn led to clinical depression, and ultimately to the researchers resignation from an untenable position.

This emphasises the importance of evaluating the performance of the workplace as a whole. Many decisions, made at corporate level, are justified by improvements in productivity and, for knowledge workers in particular, it involves qualitative as well as quantitative factors that often prove difficult to rigorously define and measure.

Organisational issues, such as corporate culture and motivational factors, have the predominant effect on performance. Facilities and the environment must be in keeping with the corporate culture and not directly disrupt motivational factors (eg reward, responsibility, job security). Price (2001) suggests that the link to organisational culture, widely made in the knowledge management arena, is beginning to be appreciated in the workplace design arena. He believes that the business value of workplace initiatives is best considered as part of the wider question of managing and measuring knowledge work. Changes in workplace may enable changes of culture but only, perhaps, if they are accompanied by changes in managerial thinking and belief systems.

Ultimately decisions on the quality of the workplace demand informed judgement. Although there are no studies that can reliably predict the returns on such facilities investments, the evidence that a better work environment promotes better performance is compelling. Productivity improvement is commonly the justification for enhancements to the work environment. It would seem reasonable to assess the benefits of such expenditures by measuring changes in the productivity of the workers affected. Does the benefit justify the cost?

**Making the business case**

There is now much greater recognition of the importance of these business issues in the United Kingdom, and a combination of growing corporate awareness and active promotion by the Government is creating the climate for innovation and performance improvement. As Leaman (2002) has indicated, the UK Government has funded studies to foster a better understanding of the links between building and business performance and has included post-occupancy evaluation in its research plans. It is promoting performance indicators of all kinds (including sustainability and design quality) and has amended building regulations to include requirements for recording and communicating performance.

A business case for facilities management can be made in a number of different ways. The most common approach has been to make the case on grounds of efficiency, based on the ability to control and reduce costs or, alternatively, to improve the return on fixed assets.

Facilities managers have concentrated on reducing the office cost per employee and increasing the occupancy per square metre of office space without sufficient regard to the impact that this might have on people’s performance and the all-factor
productivity of their organisation (Oseland and Bartlett, 1999). This emphasis on the office as an overhead cost has divorced consideration of the potential contribution to output from the equation.

However, facilities can be considered as a factor of production. Whole life ratios such as 1:5:200 - capital, operational and staff costs - have been computed and demonstrate the importance of staff satisfaction (BRE 2001). Other (unsupported) studies indicate a leverage ratio of 1:10:100 between the total cost of providing office space, staff costs and operating costs and the value of staff output.

Facilities can make a prime contribution to improving the effectiveness of individuals and teams, and to enhancing productivity. The importance of a building and support services in supporting the effectiveness and productivity of office workers has been underplayed, largely because of the lack of suitable tools and available evidence to support the business case.

**Workplace performance appraisal**

Facilities performance can be defined in three main ways:

- **Business performance** (strategic) concerned with the extent to which facilities support, or can be adapted, to meet the changing needs of an organisation’;
- **Process performance** (tactical) concerned with effectiveness in terms of quality, value and risk;
- **Operational performance** (operational) concerned with efficient and economic service delivery;

Three key questions flow from definition of performance at these levels:

- **Performance** – how well do the facilities support the organisation’s business goals?
- **Process** – how well are the facilities management team, and its outsourced suppliers integrated, as measured against their ability to manage within budget and a pre-defined programme, and the ability to meet the organisation’s business goals?
- **Product** – how well the facilities achieve a pre-defined fitness for purpose and do the systems, elements and components work?

Tried and tested tools and techniques exist for measuring the product and process, for example help desks, but there are few methods available for effectively matching business performance with facilities performance. However, feedback on the ‘business’ is as important as feedback on buildings, if not more so.

Tools that provide this feedback should contribute to assessing and managing the business risks associated with occupying buildings and delivering the services that support primary activities. Many of the organisations in the FM Foundation network use business excellence models, a balanced scorecard approach and use process mapping techniques to improve business performance. The tools used by sponsors, clients, users and facilities managers (the ‘demand chain’), in construction, maintenance and operational processes, must be consistent with other business and
management tools used in the organisation and be capable of integration with the organisations business processes.

Evidence from CFM research, drawn from amongst the Foundation membership (eg from major building projects in Powergen, Merrill Lynch, Standard Life and Boots) suggests that the representatives of the ‘demand chain’ are still not as closely involved in construction processes as suggested and recommended. The briefing process is inseparable from business planning and the boundary between the two is fuzzy yet often they are treated as being distinctly different. Project teams lead the change and then leave the stage. Post occupancy evaluation is rarely undertaken. Therefore continuity of decision making about building performance is rarely assured.

Responsibility for the performance of a building is passed amongst developers, owners, occupiers and operators (‘stakeholders’) in an ad hoc way, and further changes occur throughout the life of a building. Although some evaluation tools are beginning to emerge, there is no general framework to support the systematic organisation and transfer of building performance information.

To ensure that facilities add value to the organisation, more emphasis should be placed at the strategic level, on business performance and the contribution to excellence. In order to make the business case for improving the built environment and the quality of support services in organisations, facilities managers require practical tools that link facilities performance to key business performance measures. These tools must recognise the human, social and cultural dimensions of the workplace and enable an assessment of their impact on performance. Whole life processes for facilities must be developed and integrated with the business processes of the host organisation.

**Productive workplaces**

These business considerations of Facilities Management are reflected in the programme of action research undertaken by CFM on behalf of its membership. The programme of research, agreed by the membership, addresses three key themes - productive workplaces, innovative workplaces and sustainable workplaces (CFM, 2001). The research framework has also been adopted by EuroFM for development of its research forum and activities and for the open research symposium held at Salford University in May 2002.

The issues dealt with in this paper fall within the productive workplaces theme, which focuses on two key research questions:

- What is the impact of the quality of environment and support services on organisational effectiveness and business success?
- What contribution do facilities make to organisational success and how can we identify the value added through effective facilities management?

Facilities management aims to provide facilities and environmental conditions that meet the business needs and improves productivity. This theme explores issues relevant to optimising productivity within the facilities life cycle, whilst supporting business needs effectively, efficiently and economically. It covers a range of business
topics including the nature of workplace productivity, organisational culture, workplace environment, 'fitness for business', work/life balance and 'a great place to work', and raises associated research issues.

The research theme considers what productivity is and the work environment in which it takes place. It considers how the workplace is designed, how it functions, and how it is measured, as well as the health and performance of the people who use it. It also looks at ways of enhancing this environment to boost productivity and control facilities costs.

Within this overall research theme, a long-term action research project is in progress called 'High Performance Workplace'. Companies participating in the Financial Forum are collaborating in the project and have identified key aspects of the workplace that impact on shareholder value. For each aspect output factors and performance measures are being developed.

Within the long-term project, a specific study, the 'Feedforward' project, investigates how case study organisations measure workplace productivity. The work recognises that productivity is only one of several measures of organisational performance, and it is not necessarily the most important one.

Research methodology

Each research project adopts a well-developed research methodology involving inter-related streams of work and using a mix of research methods. Case studies and a series of project meetings, workshops and conferences provide the focus for the research effort.

Preparation for each case study will include site visits, interviews and communication by phone, email and through the CFM’s website. Data collection involves collation of documents and any survey data that is available, followed by structured interviews with key personnel and focus groups. The case material is collated and analysed using a standard descriptive model for presentation at a workshop.

Each case study is presented at an evaluation workshop, involving the participation of FM Foundation member organisations, organised as clusters of ‘stakeholders’ to represent the interests of owners, occupiers and operators of buildings. The workshops allow the group to evaluate the case study from different perspectives and provide the opportunity to share the knowledge and experience.

Additional reflective workshops consider the results of the case studies and ‘best practice workshops. Undertaking a series of case studies enables comparison of the results in a cross-case analysis to assess if there are any lessons and trends that can be deduced.

Case material, results and reports are made accessible to the participants in the project on the CFM web-site, with the permission of the host organisation. A project web page enables discussion of issues raised and encourages the sharing of experience.
High performance workplace

The overall aim of the high performance workplace project is to support members in their efforts to add value to their client business (and where possible, to demonstrate contribution to shareholder value) by:

- Creating a framework to enable understanding of the ‘value imperative’ and components;
- Using analysis tools (research case studies / benchmarking) to share knowledge;
- Delivering new knowledge to members in ‘business-ready’ form, for ease of implementation.

The purpose of a ‘high performance workplace’ is to significantly enhance the output of any occupying organisation. The challenge set by participants in the project is to demonstrate ‘best value’ in FM. The ‘value imperative’ - increasing shareholder returns

The research is founded on a number of basic assumptions:

- the member organisations of the CFM Financial Forum (within the bounds of individual budget restrictions) intend to provide a high performance workplace that will significantly enhance the output of their business units in office space;
- before embarking on (or perhaps on completion of) any major project to provide a high performance workplace a company will wish to set out a performance framework and measures with which to gauge the success of the project;
- for business units currently operating in office space, intending to provide a high performance workplace, it will be important to understand, analyse and improve the performance of churn management.

Two initial research streams have been identified - measuring workplace performance and churn and space management performance. The focus in the projects is on output, and the measurement of effectiveness and not just efficiency.

For the purposes of the project, ‘workplace performance’ is defined as 'the analysis, measurement and understanding of the output generated by the physical workplace (space and services), and the management of the workplace, that contributes in some way to the performance of an occupying organisation’.

Early discussions have identified the typical outputs of a ‘high performance workplace’ as:

- Staff retention / attraction
- Comfort
- Risk (Safety, Health, Environmental, Security & Workplace)
- Speed / minimum disruption
- Creative thought
- Communication / minimum interference
- Corporate image/brand'

Measurement of workplace performance requires the development of a performance framework and key performance measures with which to analyse the success of a high performance workplace and to benchmark against other workplaces using the same measures.
The focus must be on understanding the key performance measures used to gauge success, and delivering a framework for use in all similar situations for example:

Q. Where a facility is known to attract/retain staff, how is this measured?
Q. Where the FM strategy aims for maximum comfort (heat, light, sound, ergonomics), how is this measured?
Q. Where risk (safety, environmental, security, etc.) is a corporate measure, how is this managed?
Q. Where the speed of change (e.g., form/re-form teams) with minimum disruption is key, how is this measured?
Q. Where it is known that a facility was designed, and is managed in a way, to stimulate creative thought, how is the success measured?
Q. Where corporate image/branding is clearly on the FM agenda, how is success measured?

Each of these questions are addressed through a standard case study approach involving:

• Definition of the ‘workplace performance’ project/problem/issue;
  (eg could be a new building, capital project, or management initiative)
• Data from the business (such as sickness, staff surveys, leavers interviews, recruitment data, cost of business operations, down-time spent dealing with premises issues);
• How this data was used to support a ‘business case’ for the workplace performance project;
• How this data was used to measure post-implementation success of the project;
• Critical success factors, and key performance measures; and
• Lessons for others to learn

Feedforward project

The aim of the Feedforward project is to evaluate productivity improvements in case study organisations, to record and assess the impact of the workplace productivity projects and to share methods for measuring and benchmarking productivity.

The objectives of the project are:

• to make available techniques for measuring facilities performance that is linked to business performance and, also, to demonstrate the potential contribution of facilities to business success;
• to further the understanding of relationships between people, work processes and work settings within an organisation through ‘best practice’ workshops and project conferences, involving stakeholders in the workplace and experienced senior facilities managers;
• to provide a framework, associated tools and practical guidance for the measurement and organisation of facilities performance, linked to business performance information;

A series of six case studies on workplace productivity are planned as part of a three-year research project with members of the FM Foundation. Initial case studies focus
on organisations with experience in performance measurement, and which have undertaken specific initiatives and projects to improve workplace productivity.

**Workplace productivity research**

To provide a foundation for the research, a review of literature has been undertaken and a 6d framework created for considering workplace productivity. The framework recognises the need to consider all six dimensions - organisation, people, work processes, settings, service quality and time - in any workplace appraisal.

For purposes of the research workplace productivity is defined as - 'the relationship between the outputs produced during a given period of time and the inputs consumed to create them - for example, the value of the goods and services produced compared with the value of the resources (e.g. labour, capital, energy and materials) used' 

There has been a considerable body of recent work in workplace productivity in the United Kingdom. Major studies have been reported in the past three years, including:

Office Environment Study (BRE/Building Use Studies, 1990)
PROBE (Leaman et al, 1997)
Office Productivity Initiative (Oseland and Bartlett, 1999)
University of Reading/Workplace Comfort Forum (Clements-Croome and Raynsford, 2000)
Post Office Holdings.

Each of these studies has been analysed and critically appraised as part of the research. A summary version of the research report will be available at the conference.

Oseland's (1999) review of this research and other field studies indicates quite large effects of the environment on productivity. It is generally accepted that typically the workplace design and operation can have up to 15% effect on performance (Wyon, 1993; Brill et al, 1984). 'The (Office Productivity Network) survey suggests that there is potential benefit in facilities managers proactively addressing the output effects of individual facilities and elements in the office. The survey indicates that productivity improvement of up to 13% is potentially accessible – the average proportion of staff time being wasted'.

The majority of this research effort research has sought to link human productivity and quality of the indoor environment. There is a long history of research addressing the impact that the environmental conditions such as lighting, ventilation have on people's health, and could contribute to sick building syndrome, there is now clear evidence of the relationship between a good working environment and improved productivity amongst staff. There has been much less attention paid to organisational structure and culture, as well as social and personal factors that impact on people's performance.

Markus (2001), whilst applauding the effort to find out how people feel about their physical environment and the means of controlling it, criticises the exclusion of 'other
issues of built space which are known to affect personal and organisational well-being, perhaps to an even greater degree than the physical environment'. Markus goes on to suggest that to discover these broader relationships, 'one would have to pursue research and appraisal methods in which inextricable matters are left in their knitted together form, and in which it is analysis which teases out the power of individual factors'.

**Workplace productivity survey tools**

Through this work, and spin-off consultancy activity, there is now an increasing battery of workplace productivity survey tools available. The research has sought to evaluate current breed of tools for assessing workplace productivity.

In particular, five questionnaire-based, survey tools have been assessed in detail:

- **Probe Occupant Questionnaire** (Building use studies) - for all-round building performance work with an equal emphasis on building services, facilities management and architectural aspects;
- **Overall Liking Score** (Levermore/ABS) - surveys occupants opinions on how much or little they 'like' their working environment and the importance they place on each factor;
- **Office Productivity Survey** (Office Productivity Network and UMIST) - occupant survey of physical conditions. Assessment of the workplace and its impact on staff satisfaction and performance;
- **Workplace Evaluation Survey** - surveys user perceptions of office environments. Self-assessment of the effect of the office environment upon performance at work;
- **Workplace Effectiveness Appraisal** (AWA) - measures the perceptions that users have of workplace aspects that effect their performance. To establish how well the workplace supports professional workers in performing their roles. It assesses the effectiveness of the physical environment, the services provided to the workplace and the technology supporting the individual;

A number of these tools are derived from the same base set of questions, structured primarily around environmental conditions and control, and using similar rating scales. A critical appraisal of present breed of tools is being undertaken, and has already highlighted some key deficiencies for evaluating the workplace:

- Focus on individual - fail to recognise increasing team and project work;
- Simplistic view of the workplace - concentrate on physical environment, inadequate consideration of other factors;
- Underplay importance of personal, social and cultural issues;
- Space dimension underdeveloped;
- Insufficient account of IT and support services;
- Changing nature of work - need for a better understanding of the nature of knowledge work (knowledge work archetypes);

It is clear that this breed of tools is an inadequate basis for the increasing complexity of office, and assumes a working environment and conditions that have long since been superceded, even in the least adventurous organisational settings.
A summary of the research report of the appraisal of the survey tools will be available at the conference.

Best practice workshops

First stage of the project has identified practical examples of the use of these tools in initiatives aimed at improving workplace productivity. Case studies are being conducted to capture and evaluate the experience, assess the use of survey tools, share best practice and generate discussion.

A pilot case study of the University of Salford was conducted as a demonstration of the case study methodology and to test-run a best practice workshop. The case study report and minutes of the workshop have been published and made available to participants on the project web-site. These reports will be publicly available as a complete set once the project has been completed.

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Table 1 Best Practice Case Studies

An update of the work and an indication of findings will be presented at the conference.

Conclusions

All dimensions of the 6d framework are undergoing fundamental change:

- Changing organisations - eg networked organisations
- Changing nature of work - eg knowledge work, team work
- Changing expectations of users - eg work-life balance, expectations of service
- Assimilation of new technologies - eg ICE technologies
- New concepts of service - eg service experience, infrastructure management
- Shortening business cycles - eg agile organisations

The climate of corporate awareness and government sponsorship in the UK provides a golden opportunity to make a significant contribution to business effectiveness; Current practice is naïve and misguided - but support the effort and build on the enthusiasm; However, lack of vision and understanding, fragmented processes and inadequate tools will continue to blight progress; Need to develop new tools for evaluating, using workplace performance appraisal methods and advanced internet technologies; An action research approach, using case studies and best practice workshops can address the innovation challenge through learning partnerships.
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