

**Triple bottom line space: productivity paradoxes in FM**

PRICE, I.

Available from Sheffield Hallam University Research Archive (SHURA) at:

<http://shura.shu.ac.uk/3769/>

---

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

**Published version**

PRICE, I. (2011). Triple bottom line space: productivity paradoxes in FM. In: 10th EuroFM Research Symposium: Cracking the productivity nut, Vienna, 24-25 May 2011. (Submitted)

---

**Copyright and re-use policy**

See <http://shura.shu.ac.uk/information.html>

## Triple bottom line space: productivity paradoxes in FM

Full name: Ilfryn Price

Affiliation: Centre for FM Development, Sheffield Business School, Sheffield Hallam University, Sheffield UK

Email address: [i.price@shu.ac.uk](mailto:i.price@shu.ac.uk) (corresponding author)

Telephone: +44 114 225 4032

Full names of other authors: Colin Beard, Ian Ellison and Fides Matzdorf

Affiliation: Centre for FM Development, Sheffield Business School, Sheffield Hallam University, Sheffield UK

Email address: via above

### ABSTRACT

**Purpose / Theory:** To argue that the ‘productivity nut’ means cracking FM thinking rather than external measurements. FM is not sexed-up building services engineering – it should return to its roots and consider how it impacts on particular businesses. ‘Nut’ has an old European meaning of ‘profit’ and FM’s challenge is to recapture that sense. The FM ‘nut’ is the advantage, or profit, a facility generates: the High German ‘nutzen’. ‘Nut’ is also colloquial English for ‘head’. The process offered requires ‘doing in the current FM nut’, i.e. finding new language and measures to express results.

**Design/methodology/approach:** The argument is illustrated by reference to an ongoing action research project that challenges the conventional guidelines applied to the management of academic workspace in the UK.

**Findings:** It illustrates the ‘cost of cheap’; the downside of the search for building efficiency rather than business productivity.

**Originality/value:** In a sense the case is not original in that it exemplifies what has been called for many times already. It does however demonstrate the startling combination of business benefits, cost saving and carbon reduction achievable when a workspace / place is approached from a business rather than a building perspective.

### Keywords

FM Performance Measures: Triple bottom line; Productivity; Workspace

## 1 INTRODUCTION

The theme for this year’s conference was billed as “cracking the productivity nut” as if, somehow, that was a challenge to FM. Our point is that, rather than being an external ‘nut’ to crack, the challenge is inside the heads, the ‘nuts’, of FM.

The argument can be encapsulated by considering different meanings of the word ‘nut’. According to the Oxford English Dictionary it has three that are relevant. One is the seed pod,

the nut that needs cracking if the metaphor is taken at face value. Another meaning, now obsolete but once common across large parts of Europe, is:

*In sing. and pl. Use, advantage, profit. [Cognate with Middle Low German nütte, Old High German nuzz<sup>3</sup>, Old Icelandic nyt (also in sense 'produce'; usually in plural nytjar), Old Swedish nyt, nytta, nytte (Swedish nytta), Old Danish nyt, nyttæ (Danish nytte) < the Germanic base of NOTE n.<sup>1</sup> Swedish and Danish forms with -tt- are perhaps after Middle Low German nütte. Compare NUT adj.<sup>1</sup>, NITTE v.]*

In modern High German, the equivalent word is 'Nutzen', having the wider meanings of benefit, use or advantage.

A third colloquial English meaning is 'head', as in remarks such as "the finance module of the programme is doing my nut in"; that is, "it is challenging my prior knowledge or making me think very hard".

Reframing the conference theme in this way, the authors' argument is firstly that FM should consider the older meaning and think of the use that a particular facility is intended for, hence the advantage it grants those who occupy it, or the profit (nut) it helps generate. Profit is, of course, too narrow a word. Other indicators of service may be necessary and we are actually pursuing 'nutzen': the German expression of the combination of profit and benefit for which other linguistic traditions still lack a representation.

The process may 'do an FM's nut in', i.e. challenge conventional thinking. Productivity is not synonymous with efficiency. Twenty-six years ago Goldratt and Cox (1985) first produced what arguably became the most widely read management book of the last century. It told the story of the fictional Alex Rogo, given 90 days to improve the profitability of his plant, or to see it closed down. At first he could not understand the problem. The plant had invested in robots and their cost per unit of production was seen as low. Their 'efficiencies', as they called measures of production volume, were high, but they were simply producing inventory to the point where they were failing to ship orders to customers. Overall productivity, measured as total outputs over total costs, was low. Their narrative of high efficiency blinded them to seeing the problem of low productivity.

Here, concisely, or so to speak, in a nutshell, one sees the difference between productivity and efficiency. The productivity of an operation is the ratio of the profit generated, or other output, to the total cost of production. Efficiency, on the other hand, is a localized measure, and maximizing the apparent efficiency of every step of a process does not necessarily lead to overall productivity, if what is produced is not sold or otherwise delivered.

Goldratt's was one of a number of responses to the perceived threat to western manufacturing posed by what became known as 'Lean'; the manufacturing systems developed first in Japan (Womack, Jones and Roos, 1991). Other critiques were more conventional but rarely produced sensational changes in productivity (Tranfield and Akhlaghi, 1995), in part because business clung to concepts of control through standardisation and direct scrutiny, rather than through the social systems of the organisation, the conventional wisdoms and the discourses (sensu Saussure and Derrida) which generated them (Price, Ellison and Macdonald, 2009).

FM fell into the same trap. While Becker *et al.* (1994) could distinguish business-driven and cost-driven workspace projects and show that the former delivered greater productivity than the latter, notional cost and planning efficiencies dominated FM practice. As Peters (1992) wrote "*space management may well be the most ignored — and most powerful — tool for inducing*

*culture change, speeding up innovation projects, and enhancing the learning process in far-flung organizations. While we fret ceaselessly about facilities issues such as office square footage allotted to various ranks, we all but ignore the key strategic issue — the parameters of intermingling.*" Empirical proof of that statement has since been published (Haynes and Price, 2004; Haynes, 2005)

Drawing lessons from high performing businesses, Tranfield and Akhlaghi (1995) echoed Peters' call arguing that FM performance measures should relate facilities to business indicators. It follows logically that there cannot be a universal performance measure. To take a simple example, the business success of a hospital, a university or the headquarters of a bank will not be revealed by the same indicators. So why should we expect universal indicators of FM's productivity in those different contexts?

Unfortunately, as FM developed, and despite similar calls from other academic pioneers of the subject<sup>1</sup> (Nutt, Becker, Duffy, Worthington, Alexander, Price, Roberts, Thompson, Grimshaw, Hinks), the dominant thinking in FM remained concerned with judging claimed 'productivity' by what were actually indicators of efficiency. Cost issues predominated, but claims to increase productivity by such issues as loss of downtime were also, in fact, concerned only with efficiency. Goldratt (op cit) teaches us that loss of time at a non-bottleneck resource does not impact overall throughput. The UK in particular saw the rise of movements to standardize the benchmarking of facilities costs via elaborate codes. Practices from the benchmarking of commercial offices were translated for various government departments. For example, the Department of Health (DoH) developed an elaborate system ~~called~~ called the Estates Return and Information Collection (ERIC). The funders of higher education sponsored a similar Estates Management System (EMS) for UK universities, backed by elaborate guidelines for the supposedly efficient management of the estate.

ERIC, EMS and their ilk asked FMs to report large amounts of often spurious information which was, in practice, irrelevant to the strategic management of the estate and its assets. As Goodhart's (1974) Law would predict (Pidd, 2005), the information content of such systems decayed – to the extent that cost per square metre became the headline indicator of efficiency, and the estates concerned accumulated too much low quality accommodation (Price, 2007, Price and May, 2008).

Figure 1 illustrates the point. In the UK it seems likely that government policy is to shift funding of university teaching further toward a fee-based model. The figure shows the research and teaching income of universities in the UK, normalized according to the size of the non-residential estate. The red line links the best performers, and the others are weighted in the best possible light (cf. Pinder and Price, 2005; Matzdorf, 2010). The relative productivity can be scaled off along the blue line. The example indicated (the organisation represented by the red box on the blue line) has approximately 30% more building stock than its income would seem to justify. Not all of this is necessarily wasted but the diagram should raise business questions. The excess capacity, relative to income, in most institutions is glaringly apparent. In a world where the estate has an impact on student choice (Price et al., 2003), the comfort of those who thought their low cost per m<sup>2</sup> estate was efficient may be about to be rudely shattered!

---

<sup>1</sup> The citations are not intended to be specific but rather indicate the collective works of these and other individuals

Matzdorf (2010) presented to EUROFM an extension of this approach by **contrasting comparing** the productivity, i.e. the income per unit area, of selected departments within universities. The case reported below extends that comparison. As Matzdorf showed, business schools tend to have a relatively high income per unit area. They attract relatively affluent clients and are not, in general, intensive users of space compared to, say, science based subjects. The case contrasts one business school - from one of the more efficient performers at both an institutional level in the above sample and a departmental level – with an exemplar of modern business practice.

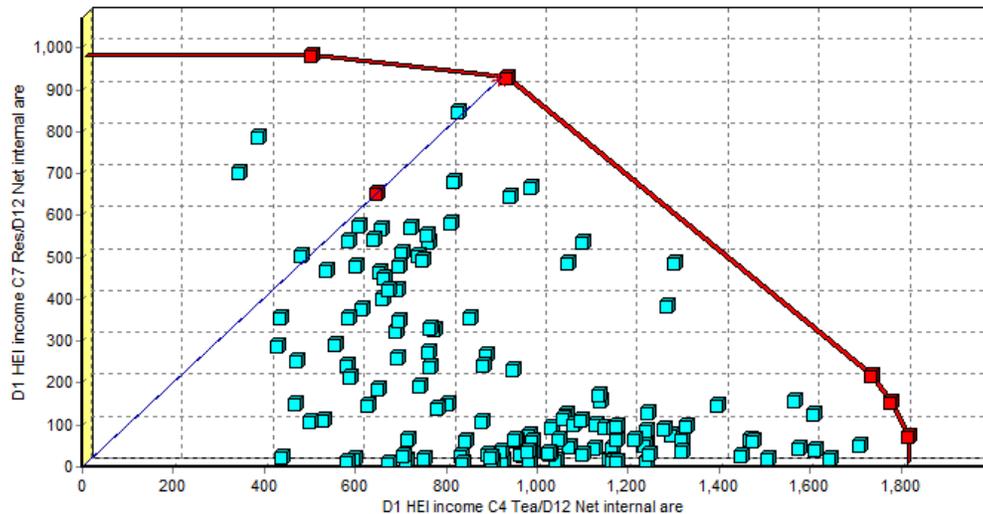


Figure 1 Income per m<sup>2</sup> of UK Universities

## 2 ECHQ AND BUSINESS SCHOOL X

The chosen exemplar is the headquarters (HQ) building of the global surveying practice EC Harris. The building fit-out was completed in 2006 as a response to a number of strategic challenges, especially a desire to differentiate the practice as “the built asset consultancy”. Its derived benefits include: an increase in available billable hours, an increase in staff satisfaction, retention and recruitment, and an increase in commissions and margins as well as a ca 33% cost and carbon reduction per head compared to the firm’s previous HQ. It operates at around 25% less cost per supported member of staff than the average corporate HQ in London and challenges prevailing design priorities in a number of ways (Beard and Price, 2010), including a complete emphasis on facilitating intermingling. It currently supports over 900 staff from 545 workstations; an occupation efficiency around twice that of supposedly vaunted examples of new European HQs such as Microsoft’s HQ at Schiphol Airport. The occupiers, who regarded the building as a paradigm shift in 2006, are already seeing it as dated compared to what could be achieved (personal communications to the authors). It is an example of shifting the inner ‘nut’, i.e. rethinking the fundamental assumptions about a facility, and achieving a dramatic increase in both business productivity and, by some indicators, facilities efficiency. It was a business-driven project from start to finish.

Business School X is in a university generally recognized in the UK as having one of the most efficient processes for space management. In the summer of 2009 the authors were asked to respond to the assertion that the school's main building was full to capacity. We responded in three ways. The first, a comparison of income earned per square metre (using the method described by Matzdorf, 2010), cannot be published for reasons of confidentiality. The second, a comparison with ECHQ is described here. The third, a comparison of different spaces with strategic aspirations, is likewise too sensitive for publication at this stage. However the second, on its own, illustrates the point. Table 1 contrasts occupation density and space usage in the two buildings. To explain, as requested by an anonymous reviewer, ECHQ simultaneously uses less overall space per supported employee but also provides a much larger proportion of the overall space as shared, whether accessible to clients or not. By designing around a key business activity, intermingling, the totality of the space achieves an efficiency which BSX cannot match. We cannot, in this instance, compare productivities: the two organizations are different. We can argue that a building designed to enhance productivity also achieves a step change in efficiency.

	<b>XXHQ</b>	<b>BSX w/o teaching</b>
<b>Total Net Internal Area m2</b>	5839.53	5130.54
Workstations provided	545	383
FTE Staff supported	800	355
m2 per staff member	6.49	14.45
m2 per work station	10.71	13.4
<b>Public space</b>		
% Client access	20	7.34
<b>Staff space</b>		
% Informal Interaction	4	1.85
% Staff Meeting	6.53	1.59
% Total Meeting	10.53	3.44
% Work stations and / circulation	69	89.23

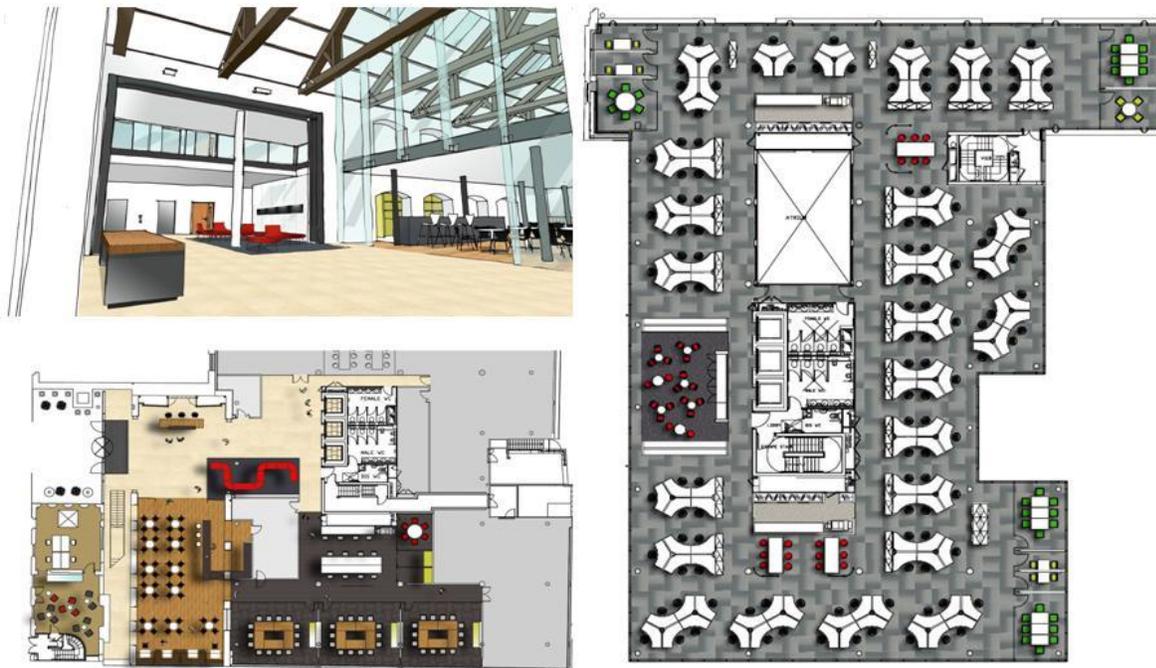
**Table 1 A comparison of space consumption in ECHQ and BSX. (FTE = Full Time Equivalent)**

BSX has, as one would expect in a university, a significant stock of teaching accommodation (lecture theatres, teaching rooms and space for postgraduate students) which was excluded from the comparison. ECHQ obviously encourages flexible working with the result that while the net space per workstation is only some 30% less than in SBX the space required per staff member is over 50% less. The priorities afforded to different kinds of space are also different (Figure 2). Fully 20% of the Net Internal Area (NIA) of ECHQ is space accessible to clients or collaborators of various kinds. It includes a café-bar, various meeting facilities and a **small** conferencing suite.

The accessible area (dubbed 'landside' in analogy to airports) is finished and managed to a high standard. The 'airside' behind a security barrier is laid out to be open and flexible with a design that subconsciously recaptures some of the feel of the *bürolandschaft* offices of the 1960s. Even so, space for both formal and informal meeting is generous. In contrast the SBX design privileges, to use a word prevalent in contemporary organisational theory which stems from modern French philosophy, workstations, offices and corridors: it concentrates on the components rather than the whole. The result is a considerable net waste of space and a building

that is badly fragmented; that is, it does not make it easy to exchange ideas and information between different groups. By contrast ECHQ illustrates that when space planning starts from the perspective of better supporting business goals, it is possible also to achieve far greater efficiency and saving of net cost and carbon.

The growing international movement for corporate social responsibility (CSR) is increasingly calling for triple bottom line (Elkington, 1998) reporting: i.e. that companies report not only on their financial performance but also their ecological and social impact. A workspace such as ECHQ, while it is business-led in the classic sense of Becker et al. (1994), or a lean asset (Price, 2007), also genuinely demonstrates that it can make a triple bottom line contribution, hence the designation in this paper's title. As Figure 2 below illustrates, the overall result incorporates a shift of emphasis away from a concentration on individual settings towards a higher proportion of shared space, some of it semi-public in the sense of accessibility to the firm's clients and strategic contacts.



**Figure 1** The concept in ECHQ. A variety of high quality, client-accessible space in front. Open but unregimented desking with a variety of meeting space behind. Despite having ca 50% more staff than workstations, the building is rarely full.

In the final review session which ended the EuroFM 2009 research conference in Amsterdam, one of the facilitators (Nenonen) suggested that FM needed to identify, and counter, the “cost of cheap”. This is essentially the argument that local cost optimization, efficiency, does not yield the best results for business or society. The argument of this paper, and the demonstration by example, is that FM will not crack the productivity ‘nut’ (sense 1) as long as its collective ‘nut’ (sense 3) is focused on cost not ‘nytte’ or ‘Nutzen’ (sense 2). The wider question, not addressed, is why FM deteriorated into this situation, despite repeated urging to the contrary from many influential pioneers of the subject.

## ACKNOWLEDGMENTS

We are grateful to E C Harris, especially Bob Calver and Colin Stuart, but also to Craig Murray of TSK Salford, for their helpful suggestions. The research was funded by Sheffield Business School.

## REFERENCES

- Beard, C. and Price, I. (2010). [Space, conversations and place: lessons and questions from organisational development](#). *International Journal of Facility Management*, **1** (2). accessed 10 Feb 2010
- Becker F., Quinn, K.L., Rappaport, A. J. and Sims W. R. (1994). *Implementing innovative workplaces - organizational implications of different strategies*. Cornell University, International Workplace Studies Programme,
- Elkington, J. (1998), *Cannibals With Forks: The Triple Bottom Line of 21st Century Business*. Oxford, Capstone.
- Goldratt E. and Cox J. (1985), *The Goal*, Aldershot UK, Gower.
- Goodhart C. A. E. (1974), Public Lecture at the Reserve Bank of Australia.
- Haynes B. (2005), *Workplace connectivity: a study of its impact on self-assessed productivity*, Sheffield Hallam University, PhD Thesis
- Haynes B. and Price I., (2004), Quantifying the complex adaptive workplace. *Facilities*, **22** (1/2), 8-18.
- Matzdorf, F. (2010), Benchmarking the business performance of departmental space in universities. In: *European facility management conference 2010: 9th EuroFM research symposium*, Madrid, 1-2 June 2010
- Peters T. (1992), *Liberation management: Necessary disorganization for the nanosecond nineties*. Macmillan, London..
- Pidd M. (2005), Perversity in public service performance measurement, *International Journal of Productivity and Performance Management* Vol. 54, No 5/6, pp. 482-493
- Pinder, J. and Price, I. (2005). [Application of data envelopment analysis to benchmark building outputs](#). *Facilities*, **23** (11/12), 473-486.
- Price, I. (2007). [Lean assets: new language for new workplaces](#). *California management review*, **49** (2), 102-118
- Price, I., Matzdorf, F., Smith, L. and Agahi, H. (2003). [The impact of facilities on student choice of university](#). *Facilities*, **21** (10), 212-222.
- Price, I. and May, D. (2008). [Lean healthcare assets challenge FM performance measurement conventions](#). In: *European Facility Management Conference 2008, 7th EuroFM Research Symposium*, Manchester, June 10
- Price, I., Ellison, I. and Macdonald, R. (2009). [Practical post-modernism: FM and socially constructed realities](#). In: *European facility management conference: 8th Euro FM research symposium*, Amsterdam, June 16-17

Tranfield D. and Akhlaghi, F. (1995) Performance measures: relating facilities to business indicators, *Facilities*, Vol. 13 No.: 3, pp.6 - 14

Womack J. P., Jones, D. T. and Roos, D. (1991), *The machine that changed the world: The story of lean production* New York, NY: Harper Perennial.