

BENCHMARKING CORPORATE REAL ESTATE: FUNDAMENTALS OF MEASUREMENT

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ABSTRACT

Benchmarking of corporate real estate performance is an essential tool in the efficient management of assets to support the core business. Many of the performance indicators used to measure property are based on the area of the property occupied. The disparity that exists in the methods of measuring office properties hampers the comparison of properties on a global scale. This paper explores the extent of measurement differences that exist between Australia, Europe and the UK.

This paper demonstrates that differences in the methodologies applied to the measurement of office accommodation can lead to discrepancies in the range of 3% or 4% for a typical multi-tenanted office floor. This research demonstrates the need for caution in comparing benchmarks based on area and further illustrates the need for the development of a global standard for measurement.

Keywords: Benchmarking, measurement, net lettable area, margin of error

INTRODUCTION

The phenomenal growth in the corporate real estate discipline reflects the recognition that property is a valuable and important strategic asset. It must be managed to enhance and enable the functions of the core business to be undertaken competitively. Growth in the field of corporate real estate has resulted in considerable effort being placed in trying to measure both quantitatively and qualitatively how efficiently and effectively these facilities services are being delivered. This article examines one of the fundamentals of benchmarking the property process, the basis on which we compare buildings and, in particular, focuses on the comparability of these measures from country to country.

BENCHMARKING PRACTICE

Benchmarking in its modern form has its origins largely attributed to the Xerox company when, in the late 1970's, the company started to compare manufacturing costs at the unit level with those of its major competitors. This was an attempt by Xerox to compete with its ever-increasing competitor base and to identify why many of its USA costs were significantly higher than those in Japanese plants (Massheder and Finch, 1998).

The measurement of performance in order to manage and improve processes is, however, not a new concept. Lord Kelvin, over a hundred years ago, said, '*When you can measure it and express it in numbers, you know something about it; when you cannot, your knowledge is of a meagre and unsatisfactory kind*'. These words have been

echoed by many and, in current terminology, are often expressed in a form such as: *'You cannot manage what you cannot measure'* (Goldin, 1998).

Benchmarking is more than just measurement; it involves the process of comparing current practice with some perceived higher level of performance within the area under study or within an area of endeavour removed from the instigating organisation, but one which broadly provides a comparable outcome. Spendolini (1992) provides a sound working definition of benchmarking as *'Benchmarking is a continuous, systematic process for evaluating the products, services or work processes of organisations that are recognised as representing best practices for the purpose of organisational improvement'*. He goes on to suggest that performance benchmarking may be categorised to two distinct facets. The first concentrates on measurement of the organisation through a series of common metrics which are compared from one situation to another. The second facet examines more closely the processes involved in design, manufacturing and marketing, and the analysis of these practices. The application of benchmarking to facilities and corporate asset management has largely focused on the first concept with the development of appropriate metrics by which to compare properties. It is inevitable that researchers, in attempting to compare facilities, do so in a quantitative manner and employ metrics of performance that may easily be quantified against a common standard.

The majority of the metrics used to measure property performance are cost-centred, although some quality rating systems exist. Douglas (1996) concludes that facilities performance measures allow managers to evaluate performance:

- for property portfolio review, acquisition or disposal purposes,
- to highlight where a building is lacking in performance,
- to help prioritise maintenance or remodelling works,
- to provide identification or early warning of obsolescence in buildings, and
- to assist in achieving value-for-money from building assets by aiding identification of performance achievements as well as failures.

The range of metrics put forward to achieve this performance measure relates largely to operating costs determined on either a per metre squared basis or per person.

Two recent studies have set out to identify the appropriate metrics for facilities performance, one in the UK and the other based in Asia. Both studies provide a suggested range of property metrics. The UK study offers a series of business, building, portfolio, acquisition and disposal metrics upon which to measure performance. These metrics range from simple operating costs to space use comparisons and to costs of disposal and vacancy rates (Massheder and Finch, 1998). Analysis of these metrics shows that of the thirty-nine measures investigated, eighteen are directly related to the floor area of the office occupied. The remaining metrics relate to the level of staffing or to the total revenue received.

The study conducted into facilities management benchmarks in the Asia Pacific region (Ho et al, 2000), provides a ranking of one hundred metrics applied within the region. The research shows that the top ten metrics were found to be those with a financial implication, with the top ranking measure being total facility costs. Other top ten items included costs of maintenance, cleaning, refurbishment and replacement. The only non-

financial item was the ratio of gross floor area to usable floor area. It is evident from this ranking that facilities managers place a high emphasis on being able to monitor expenditure on facilities. From this study, it follows that, in order to benchmark between different facilities, these financial measures of performance must be related back to the property in terms of a rate per metre or rate per staff member. Of the next twenty items of facilities management measurement ranked, nine were measures of financial performance while four related to space occupied. Each of these thirteen metrics have to relate once again directly to the area of space occupied if they are to be compared across different facilities.

A similar review of facilities management metrics was undertaken in the Asia Pacific region and within China. In this study, a series of metrics were identified for ranking by organisations within the region (Wang, 1998). The activity-based benchmarks used in this study were divided between commercial and operational activities and over fifty percent of the metrics used were directly related to the amount of space occupied and were generally expressed as a percentage of floor area.

Thus it is evident that, in order to effectively benchmark facilities management activities, it is necessary to have a common measure upon which to base the comparison. It is also apparent from studies undertaken that a significant proportion of these measures relate to the area of the building occupied. Of the corporate real estate data published by trade and professional associations for comparing efficiency in the use of facilities, nearly all rely on comparing factors on a per metre square of occupied space basis. Australian examples of this benchmark data include the Facilities Management Association's Benchmarking Studies (FMA, 1999, 2002), and the Property Council of Australia's Operating Cost Benchmark Series. In the UK, examples include the Office Density Study (RICS, 2001) which measures the amount of space used by various business activities. The Investment Property Databank (IPD) Occupiers Property Databank, a benchmarking database in the UK, provides corporate occupiers with a comprehensive range of metrics against which to measure their facility's performance and upon which to base strategic property decisions. Many of these metrics relate costs and business performance to the area of building occupied (Gibson, 2000).

In the USA, benchmarking of facilities, both at the operational level and at the corporate strategy level, are frequently related to the area of space occupied. The common benchmarks adopted relate the cost of service provision per unit of area occupied or relate some measure of staff or business productivity per unit of area (O'Mara, 1999).

THE MEASUREMENT OF SPACE

The benchmarking of corporate real property as established above is, to some extent, structured around metrics that are based upon the area of space occupied. The studies referred to, however, generally do not define what is meant by the area or space occupied; they simply refer to a cost or other measure per square metre. If a definition of the area is provided, it is either in terms of gross floor area or net area. The most common basis of measure for the corporate sector, with its greatest expenditure within the commercial office market, is a measure of lettable area, more commonly referred to as the Net Lettable Area (NLA). This is the basis upon which rental rates are determined and leases established and thus is a generally well understood and easily ascertained unit of measurement.

To some extent, it is irrelevant how the measurement of space is undertaken when relating a cost of occupation from one facility to another. So long as all facilities within a benchmarking exercise are measured in a consistent way, then there is true comparability; the basis of measurement is 'apples with apples'. The only time that a benchmarking exercise will lose a level of credibility is when there is introduction of a number of variations. This is the case when the comparison of benchmarks begins to stretch beyond a single jurisdiction. The comparison of property performance beyond a single country is a rapidly growing phenomena, as business becomes more globally focused. Corporations own and manage facilities around the world and therefore are increasingly trying to compare performance from country to country on a common basis.

The need for commonality on a global scale has been recognised for some time. In terms of business and its utilisation of real estate, common methods and definitions are established; for example, the establishment of global accounting standards and valuation methodologies by the International Valuation Standards Council. These standards aim at providing this commonality of definitions. Yet one simple area of disparity that affects real estate across a broad spectrum is the lack of any international standard method of measuring the space within offices. This lack of a common method will distort property valuations and investment returns as much as it will serve to distort the benchmarks used in comparing corporate property performance.

The definition of net lettable area varies considerably around the developed world. In its broadest terms, the meanings are common in that the definitions refer to the internal area excluding external walls. The problem lies within the small print as to how to determine precisely where on a wall to measure and what parts of common areas are within the lettable area and which are excluded. The variance from one country to another can be quite significant.

In Australia, the widely accepted method of determining NLA is that published by the Property Council of Australia (PCA). The current method of determining NLA is detailed as '*The net lettable area of a building is the sum of its whole floor lettable areas*' (PCA, 1997). The definition goes on to further define what is and is not included within the defined area. The defined area is assumed to include items such as structural columns and engaged window mullions, but to exclude lift lobbies, tearooms and cupboards which are provided as standard facilities in the building. The definitions provide an easily understood set of rules for a surveyor to accurately measure the floor area.

The USA has a number of published methods of measuring property areas that are used to benchmark corporate real estate. These include those provided by the American Institute of Architects, the International Facilities Management Association and the Building Owners and Managers Association (FM Datacom, 1998). Europe has a series of published rules for measurement. The problem exists that there are at least sixteen different methods of measurement. There are not just differing methodologies between countries, but sometimes between individual cities. In an attempt to rationalise the problem within continental Europe, a new European Code of Measurement is being established for use in office buildings. This new European code, however, differs from the methodology used in the UK and to that noted above for Australia. The European draft code defines office buildings in terms of lettable area, which is further divided into

primary, restricted and secondary areas. The code also rounds to the nearest centimetre all measurements, a provision which does not exist in the other methods under consideration.

The UK method of determining NLA, or as it is termed in the UK, Net Internal Area (NIA), is defined in the RICS Code of Measuring Practice (RICS, 2001b). This defines NIA as '*the useable area within a building measured to the internal face of the perimeter walls at each floor level*'. The code goes on to provide considerable guidance as to which elements of the building are to be included and which are to be excluded, arriving at a measurement of lettable space.

There is a considerable level of agreement between the methods used in each country. In reviewing in more detail the methodologies used in Europe, the UK and Australia, these similarities reflect a commonality in their origins. Indeed, the Australian code acknowledges as a source, the RICS standard. In general, each of the three codes excludes common areas, fire stairs, lift lobbies, common corridors, escape routes and similar structures. There are, however, some minor differences as set out in Table 1.

Some of the more significant differences relate to the way in which perimeter walls are dealt with. The European and UK codes measure at floor level to the face of the wall excluding skirtings. The Australian code takes its measurement from the dominant portion of the wall, which can be the window surface if this is greater than fifty percent of the total surface area of the wall; otherwise, it will be the wall surface as in the UK and European methods. Thus, in many modern offices in Australia, the depth of the windowsill will be included for the entire perimeter. The treatment of protrusions is another principal area of difference. Internal columns and window mullions are included in Australia and excluded in Europe and UK, while cupboards and tearooms opening into the tenancy are excluded in Australia, yet included in the UK.

Table 1: Comparative Measurement Methods

Item	Australia	Europe	UK
Measure at Level	Dominant Proportion	Floor	Floor
Columns	Include	Exclude	Exclude
Engaged Mullions	Include	Exclude	Exclude
Engaged Columns	Include	Exclude	Exclude
Fireplaces/Chimney Breasts	No reference in method	Chimney Excluded	Exclude
Ducts	Exclude	Exclude	Exclude
Skirtings	Exclude	Exclude	Exclude
Partitions Internal	Include	Include, except load bearing walls	Include except if a dwelling conversion
Inter-tenancy Wall	Mid Point	Wall Face	Wall Face
Wall to Common Corridor	Outer Face	Inner Face	Inner Face
Hose Reel	Include	No reference in method	Exclude
Cupboard opening In	Exclude	Include if tenants	Include
Tea Room	Exclude	No reference in method	Include if open to tenancy

One of the major areas of discrepancy occurs when floors within an office building are subdivided. The European and UK methodologies tend to see each tenancy as a separate entity and thus measure to the internal face of the tenancy wall. In Australia, the presumption seems to be with the lessor in that inter-tenancy walls are measured at the mid-point; the total area being included when the tenancies are summed. Similarly, where a subdivided tenancy adjoins a common corridor, the UK method measures to the inner face, whereas the Australian method measures to the outer or corridor side of the wall. All three methods include the area occupied by tenant's partitions, with the exception of the UK, where these partitions are excluded if the building is a converted residence and the walls are of solid construction.

The European method of measurement includes a further complication in that it divides the net area into prime, restricted and secondary use areas. All three methods have a minimum height for inclusion within the calculation of 1.5m. However, the European method also defines as restricted use areas, space with between 1.5m and 2.3m clear height. Secondary use areas, under the European method, are those used for purposes such as dining rooms, gymnasiums, washrooms and tearooms. Thus in comparing European measures, the extent to which the three defined areas are included within the final measure has to be determined.

The differences between the three methodologies may seem quite minor in the scheme of a large tenancy. The width of a windowsill or a party wall, the area taken up by a column or a cupboard are only a matter of a few centimetres in size and may not seem to greatly affect the total lettable area. But small differences in measurement technique may, when summed and applied across a large office complex, amount to a significant

difference. Distortions in the method of determining area will be carried into benchmarks and calculations based on the area of the property.

COMPARISON OF MEASUREMENT METHODS

In order to compare the three methods of measurement accurately, it would be necessary to undertake detailed surveys of office buildings and to apply each of the codes to the same space in order to derive an accurate measure of the differences. This approach is very time consuming, wasteful of resources and impractical. It is therefore unlikely that in any benchmarking exercise, the variance in measurements between countries would be taken to this level of accuracy.

An alternative and less costly approach to comparison between measurement methods is to undertake a desktop evaluation utilising detailed construction plans or the survey plan for the property. This method of plan-based evaluation can focus on the principal areas of difference between the three codes in order to derive a measure of difference between them. The difference determined between one code and another may be expressed as a percentage difference of the NLA. Having derived a measure of variation for any given space, this can then be readily applied to any given metric for that space, adjusting it to a truly comparable common basis of measurement.

It is obvious that the greatest difference between one code and another is going to be where the greater number of differences occurs within the single property. Therefore, given the additional differences applied to subdivided floors, the greater margin of difference will be found where floors in a property are split into a number of sub-tenancies. The second largest area of difference occurs in buildings with large window areas, such that the dominant area, in terms of the Australian code, is the window. This is further increased where the window area is supported by perimeter columns or window mullions as these are included. Also the difference in the treatment of tearooms in the UK code can result in significantly higher floor areas. Common tearooms to each floor, opening to the tenancy are included in NIA, thus affecting relatively small tenancies which contain such a tearoom to a greater degree.

The extent to which the variation between measurement codes occurs can only be determined on a building-by-building basis. However, in order to illustrate the extent to which buildings may vary, and thus to provide an indication as to the quantum of error which might occur in applying metrics from country to country, a plan-based comparison of a limited range of typical modern Australian office buildings was undertaken.

The three different codes, when applied to this range of typical floor plates, provided differing levels of variance. In the case of large, whole floor tenancies, the variation was frequently negligible where the wall surfaces used are common between the three methods. Where the dominant area in the Australian code differed from the wall surface used in other codes, a variation of between one and two percent occurred across a typical whole floor.

As expected, the variation between measurement techniques is found to be much larger when considering multi-tenanted floors. The differences between codes is much more significant. Typical 1000m² floors, subdivided into smaller tenancies in the range of

100m² to 200m², had variations in the range of 1.5% to 3%. The greater the number of subdivisions and the smaller the individual tenancies, the larger the variation between codes can become. The range of properties considered provided variances of up to 3%, and even as high as 4.8% in one case.

What is evident from this study is that there exists no simple or single measure of difference. Every property is unique and the percentage of variance is determined by a range of factors.

CONCLUSION

The benchmarking of corporate real estate is essential to the successful provision of supporting property services. In order to continuously improve the quality and efficiency of real estate provision, accurate comparison of metrics between facilities is required for the process. The growth of globalisation also means that benchmarking between countries is becoming increasingly important in making accurate investment and divestment decisions on behalf of corporations. A major element in comparing properties is the efficiency or cost on a per square metre basis, and the foundation of such metrics is the measurement of the area under consideration.

This study has shown that differences in the codes of measurement between Europe, Australia and the UK may lead to significant differences in the calculation of lettable area. The variation between codes in smaller tenancies can amount to over four percent of the total lettable area. It follows that in calculating any metric based on net lettable area, there is a potential error of this magnitude introduced, purely due to the code of measurement, before any further sampling errors may be added. It is also true that errors of this magnitude occur in comparing one investment with another. A variation of three or four percent is a significant variation in rental or capital value terms.

The answer to this problem is simply to adopt a single method of measurement. Until a single method is established, corporate asset managers will not be able to accurately compare properties globally unless they go to the considerable expense of measuring each asset in terms of several codes. It is thus logical to adopt a single global standard to facilitate benchmarking.

This objective may not be an easy one to attain, given that many landlords would not be keen to see their NLA and their income reduced by three or four percent, or the capital value of their asset reduced by the same factor. The loss though is only apparent, it is not real, in that the change in area is only a book change. Landlords should be assured that they will be compensated by the level of rents charged.

The problem is that some real losses may occur in any transition from one code to another. As the market slowly adapts to the changed methodology, landlords, particularly in Australia, will experience a net reduction in net lettable floor area, particularly of multi-tenanted buildings. Nevertheless, these losses should be outweighed over time by the benefits of a single global standard. In the meantime, corporate real estate managers should be aware that differences exist when comparing facilities from one country to another and should be cautious in using comparisons in other than a very general way due to the potential for inaccuracies in measurement.

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