EXPLORING THE BROKERAGE POTENTIAL OF FACILITIES MANAGER IN HOSPITALS

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Facilities management is about integrating knowledge from different functional groups to support the core business of an organisation. The research described in this paper explores the proposition that Facilities Managers should act as information brokers in hospital organisations. Using a case study approach, it presents a social network analysis of a group of non-clinical support services within a Sydney Metropolitan hospital. The relative position of the facilities manager within the social network is highlighted in relation to different functional departments. The results indicate that the facilities manager was positioned strategically within the communication network structure which facilitates identification of inter-disciplinary opportunities between diverse support functions. It is concluded that there is significant potential for Facilities Managers to perform an important brokerage role between different functional departments in hospital organisations.

Keywords: brokerage, communication, facilities management, hospitals, networks analysis.

INTRODUCTION

It is well established that Facilities Managers should perform a multidisciplinary role, connecting different functional groups in an organisation (Nutt and McLennan 2000, Grimshaw 1999, Then 1999, Alexander 1996). A facilities manager should communicate with different parts in an organisation to ensure that effective solutions to facilities-related problems are brokered across different functions to serve its core corporate goals (Akhlaghi 1996).

While the brokerage role of the facilities manager has been recognised, it has never been rigorously explored. To this end, the aim of this paper is to explore the proposition that the need to integrate a wide range of functional groups in a hospital creates brokerage opportunities for facilities managers.

BEYOND TECHNICAL EFFICIENCY

An effective FM strategy should fit an organisation's goals and objectives. It is argued that when this is achieved, an organisation can improve performance through realisation of higher return on capital assets and/or cost savings from facilities and services expenditure. This focus, however, is property centred and concentrates on achieving "technical" efficiency. Increasingly, organisations are realising that the effective management of internal social structures can also contribute significantly to higher efficiency (Bartlett and Ghoshal 2002, Eisenstat, Foote, Galbraith and Miller 2001, Leenders and Gabbay 2001). However, Cross and Prusak (2002) argue that although managers are aware of the importance of social structures, there is very little

understanding of how they should function in the best interests of organisational efficiency.

Barrett's (2000) model (see figure 1) provided some insights into this problem by depicting the importance of relationships within the facilities management (FM) process and the dynamics that may arise out of the linkages formed with diverse parts of an organisation.
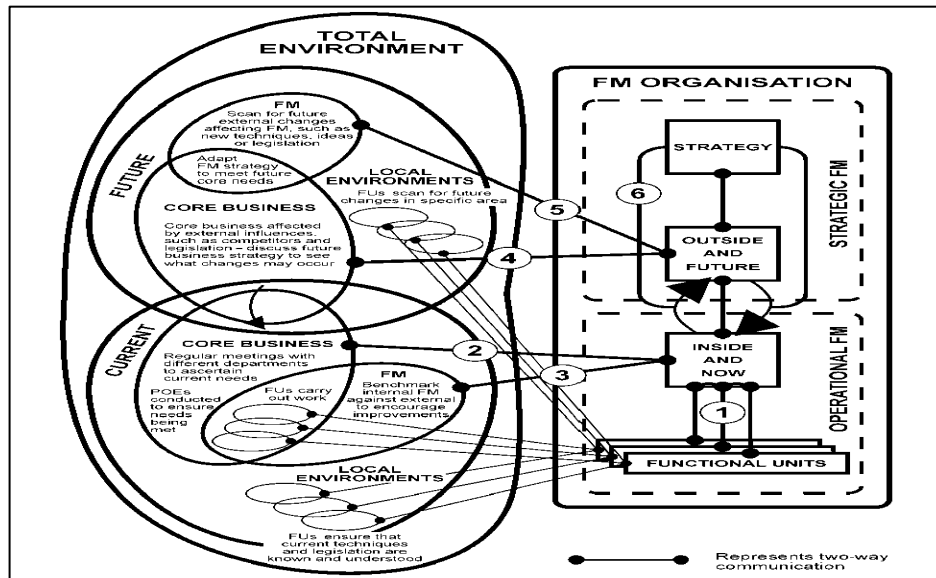

Figure 1 Generic FM Model. Source: Barrett (2000)

The idea that connecting disparate groups can add value suggests that the facilities manager's brokerage role is a form of "intrepreneurial" activity. An "intrapreneur" is someone inside an organisation who is constantly looking to develop new ideas and attempting to convert them into value adding opportunities (Pinchott 1985). This is in contrast to a coordinating role which integrates known communication paths with an aim to unite effort. It has long been known that employing coordinating mechanisms to achieve unity of effort among different work groups is important because of differentiation and specialisation of work activities (Lawrence and Lorsch 1967). However, to coordinate by pulling together discrete units is different from brokering units. According to Malone and Crowston (1994), coordination refers to the management of dependencies between activities where the relations between the groups and their dependencies are known. In contrast, brokerage involves the need to integrate different and "unknown" disconnected groups who do not necessarily have the need to feed their output into each other's activities. The distinction between a coordinator and a broker is important here because brokerage actions within an organisation can contribute value by synthesising multidisciplinary knowledge, thereby identifying unexpected opportunities that otherwise may never come to light.

METHODOLOGY

In order to explore brokerage opportunities in hospitals, a case study of a hospital in the Sydney Metropolitan area was undertaken. A case study approach is more focused on processes than outcomes (Yin 1994, Burn 2000) and, given that the focus of brokerage is on social dynamics, it was ideally suited to this research.

A suitable single site hospital organisation was identified which had recently been re-structured to incorporate a FM ethos. This hospital is a major tertiary referral hospital with an operating capacity of about 770 beds. It serves approximately 1.5 million people in its catchment area and offers comprehensive medical, surgical, orthopedic, rehabilitation, obstetric and pediatric services. In terms of the FM services offered, a broad range of non-clinical support services is provided. Although the case study organisation did not use the title 'Facilities Manager' to describe the activities of those responsible for the management of FM services, in effect these individuals were deployed as facilities managers.

Barrett's (2000) generic FM model and Okoroh et als' (2001) classification of healthcare FM services provided a framework for identifying social network actors. Six different categories of non-clinical support functions were identified; namely; estate management services, environmental management services, hotel services, site support services, business support services and space management support services (See Table 1).

Some of the network actors identified through the above categories are not directly link to the Facility Directorate Unit. For instance, Laundry and Linen Services is a separate entity that also supplies its services to other external organisations. Information Technology and Purchasing and Supply Services are not under the responsibility of the Facilities Directorate unit and they report to different directors. Although the network actors identified fall under the ambit of facilities management, the approach used to illuminate the FM communication structure actually reveals a network which has not been designed using officially prescribed communication channels. Hence, without obtaining this communication network it will be difficult to establish the potential to broker.

Each head of the departments identified in Table 1 were given a questionnaire designed to collect social-metric data to trace their communication network relating to FM issues. The main reason for adopting this approach is that it enables the respondents to include all medium of communication as against focusing into one mode of communication (for example, communication using Intranet). Furthermore, the questionnaire was designed with different columns that capture different types of information. One column asked each respondent to indicate the names of key contacts from other departments with whom they communicated on FM matters. Another column asked respondents to indicate their frequency of communication with their contacts using a scale of 1 to 5 (infrequent to very frequent). This allows the frequency of the communication ties to be keyed into a matrix numerically thus representing the strength of communication between the departments. The communication structure is then established using this matrix and the strength of communication ties between the nodes is reflected through different thickness, representing different level of frequency.

Table 1 Service categories and departments identified for inclusion into network.

Services Category	Services	Acronyms Name of Departments
FM Directorate	Directorate Unit (Facilities Manager)	FM_Dir
Estate management services	Maintenance Repairs Energy Management	MaintOps EnergyMgt
Environmental management	Environmental Service	EnvServices

services	Fire Safety	FireSafety
Hotel services	Food and Catering Service	FoodServices
	Laundry and Linen Service	LinenSvc
Site support services	Security	Security
	Telecommunication	Telecommunication
	Portering	Portering
	Accommodation	Accommodation
Business support services	Transport	Transport
	Information Technology	InfoTechDept (ITD)
	Purchasing and Supply Service	SupplyServices
Space management support services	Facility Planning	FacDevtUnit
	Facility Development	
	Space Management	

Once a network structure is defined as shown in Figure 2, the measures to be discussed in the analysis section are applied to analyse the network. This is achieved using a software named UCINET (Borgatti, Everett and Freeman 2002). The results generated were subsequently used to identify the brokering potential and positions of each department within the communication network.
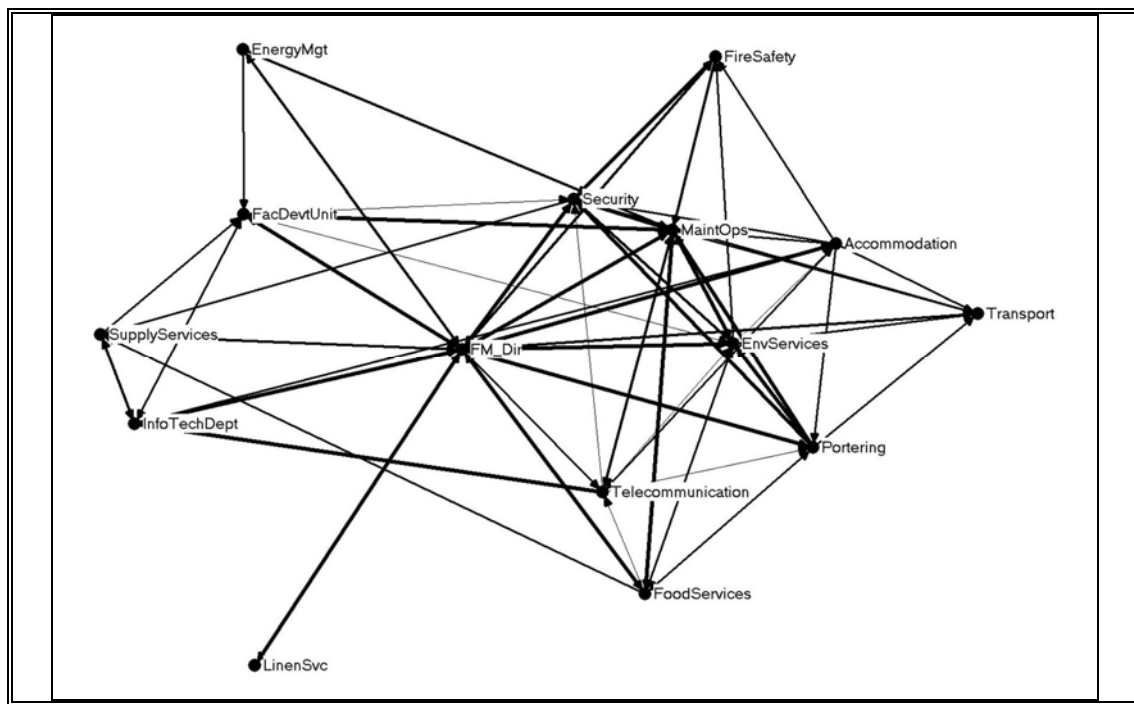
Figure 2 Communication network of the different departments.

ANALYSIS

Auditing Communication Network
Many analytical methods are available in the field of communication research. One particular method which is suitable for analysing patterns of communication is Social Network Analysis (SNA). SNA is a quantitative method of analysing patterns of

interaction (eg. communication network) and is complementary to the systems perspective (Scott 1991). This method is becoming popular for mapping relationships inside an organisation and it provides a variety of measures for analysing the relationship mapped. For example, SNA can reveal who goes go who for advice, who are peoples' key contacts, which members are gatekeepers to the flow of information, and where disconnections to the flow of information exist. In essence, SNA provides a powerful means to unscramble the complexities of a network structure. In particular, it enables us to delve into the relationship between different service functions in a hospital and thereby illuminate the brokerage potential of the FM function. In this research, two SNA measures were used to explore brokerage potential, namely; "degree" and "betweenness" centrality.

Degree and Betweenness Centrality

The concept of centrality is defined as a structural attribute of a network member and measures the contribution of a network position to the importance, influence, and/or prominence of a network member (Freeman 1979). Underpinning centrality measures are three variants of centrality known as degree centrality, betweenness centrality and closeness centrality. To explore brokerage potential, degree centrality and betweenness centrality measures are most useful. *Degree centrality* measures the number of communication ties sent and received by a network member. It is thus possible to measure the in-degree and out-degree to indicate whether a member is a receiver or source of information respectively. Centrality also reveals to the analyst which member or set of members in a network is most visible. Thus, a member with a large degree is often described as being in direct contact with many others, acting as a hub for information flow, and occupying a crucial and central role within a network. In contrast, members with low degree centrality are peripheral to the network and at times may be relatively isolated from the rest of the network members.

Betweenness centrality refers to the extent to which a network member lies between other network members in the flow of information or resources.   A network member with high betweenness centrality is in a strategic position to act as a broker linking members who are otherwise unconnected. A member with high betweenness centrality can also be regarded as a gatekeeper for information or resources. This suggests that a network position with high betweenness centrality has an ability to create opportunities for exploitation of information and control benefits. Betweenness centrality hence indicates the potential to brokerage.

RESULTS AND DISCUSSIONS

Degree Centrality

The degree index in Figure 3 indicates that FM_Dir (refer to Table 1) has the highest in–degree and out-degree centrality. FM_Dir is the most active and prominent network member. Figure 3 also indicates that FM_Dir has many incoming ties (i.e. receiving information) with other department as well as outgoing ties (sending out information). This result shows that FM_Dir appears to be a bridge in connecting the different departments which otherwise would become gaps in the communication network.
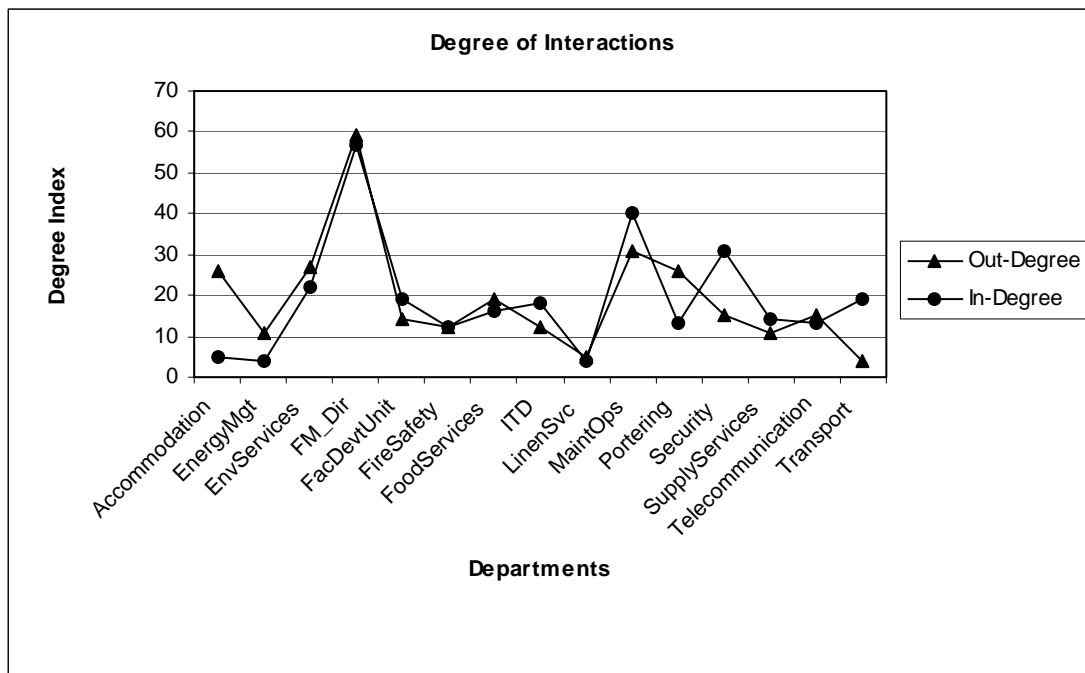
Figure 3 In-degree and out-degree of departments.

MaintOps (the maintenance operations department) is in a similar situation. This department is relatively central in the communication network given that one of their critical roles is in ensuring the continuous operations of health care facilities. For example, any malfunctions in building equipment and facilities will need the urgent assistance of this department.

The results also show that Accommodation has a major difference between its in-degree and out-degree value. This difference signifies that Accommodation has a contrasting level of interaction in terms of incoming and outgoing of information. Accommodation's relatively high out-degree reveals that it is active in seeking interaction with other department but is not prominent (i.e. less incoming ties) within the communication network. One possible reason is Accommodation's need for many other departments to support its own function in meeting the housing needs of the hospital's staff. Hence the need to communicate actively with other supporting services. At the same time, the contribution of Accommodation is not directly toward the main healthcare operations and is considered peripheral to the delivery of health services. This in turn could have contributed to its low in-degree since other departments will seek lesser interaction with this department in the delivery of non-clinical support services.

According to Freeman (1979), a network member with relatively high degree centrality is one who is in the thick of the action. Conversely, a member with low degree centrality is considered peripheral in such a manner that the network member may become isolated from the rest. The results in Figure 4 indicate that FM_Dir and MaintOps both possess high percentage share of the communication network structure obtained. This complements the highly central status obtained by both departments.
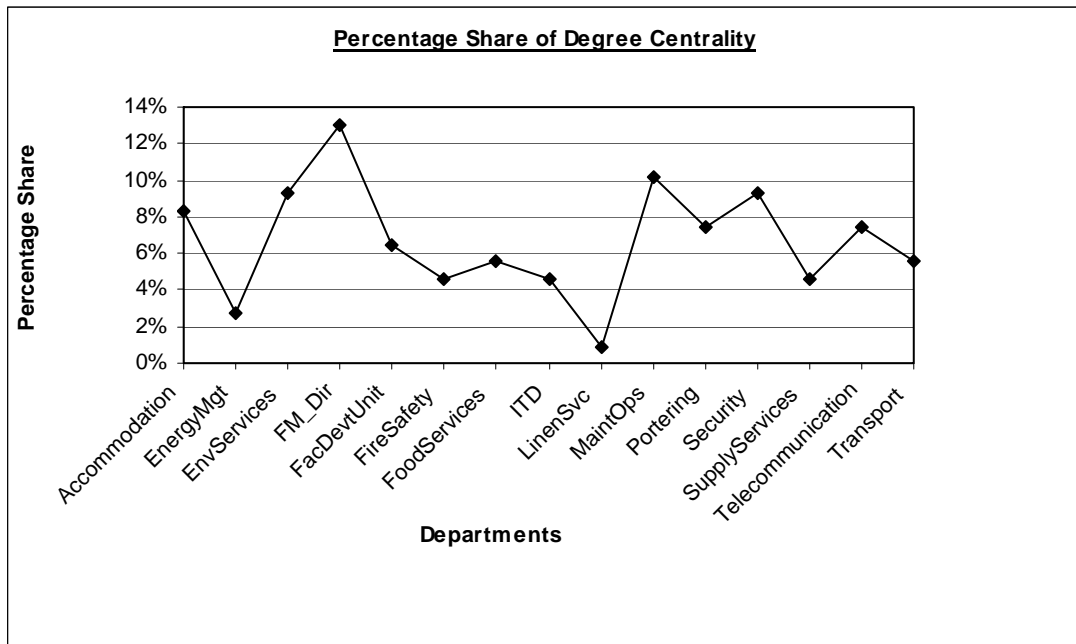
Figure 4 Percentage share of the communication network.

The result for FM_Dir and MaintOps is also in part due to the relatively larger share of the network comparatively to the rest. In addition, the relatively peripheral network members are EnergyMgt and LinenSvc. Both departments are located in different locations outside the main hospital campus and are isolated from the frontline operations. This suggests that both departments could be relatively isolated in the network because of their physical proximity to the hospital front line operations.

Betweenness Centrality
In terms of the results in Figure 5, the high betweenness value obtained by FM_Dir indicates a strong potential to broker the other departments. This is because FM_Dir lies on the path of information flow between departments. It is hence critical that FM_Dir is efficient in controlling the flow of information and knowledge. For example, if FM_Dir is unable to cope with information demands or is faced with information overload, a bottleneck situation may result and this is inefficient to the delivery of FM services. Nevertheless, if the strategic position in the network is capitalised and viewed as an opportunity to broker information and knowledge from different departments, better value may be created when problems in one area are solved by solutions provided by another.

In addition, the network should be leveraged to promote collaboration between other functional groups external to this network and improving communication and information flow through recognition of the brokerage action. At the same time, managing the social structure of FM processes improves the network's capability to respond to changes influencing health delivery by eliminating and bridging disconnects within the network structure which may be overlooked inside a hospital.
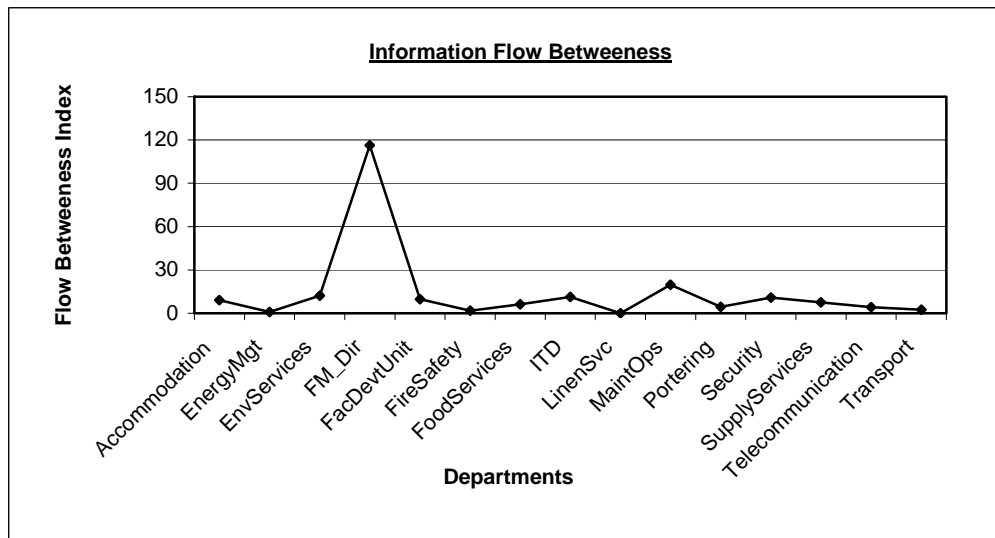
Figure 5 Betweenness value in the flow of information

CONCLUSION

The aim of this paper was to explore the brokerage potential of facilities managers in hospital organisations. This paper had demonstrated through a case study that the brokerage potential for a facilities manager in a hospital is high. Although this is only a single case study, the results of this research suggest that the facilities manager has an important role to play in integrating information and knowledge across different functional groups.

The facilities manager in this case study was positioned strategically within the communication network structure providing a unique opportunity to add value to core business objectives through the identification of inter-disciplinary opportunities between diverse support functions. The key in releasing this value-adding potential is to recognise and manage this boundary-spanning role effectively.

It is thus proposed that facilities managers should be more proactive in identifying opportunities that emerge in inter-disciplinary work. At the same time, hospital administrators should appreciate the important entrepreneurial role which the FM function can play.

REFERENCES:

Akhlaghi, F. (1996), "Editorial Comment", Facilities, vol.16.

Alexander, K. (1996), Facilities Management: Theory and Practice, E&FN Spon, London.

Barlett, C. A. and Ghoshal, S. (2002), "Building Competitive Advantage Through People", Sloan Management Review, vol.43, pp.34-41.

Barrett, P. (2000), "Achieving strategic facilities management through strong relationships", Facilities, vol.18 (10/11/12), pp.421-426.

Borgatti, S.P., Everett, M.G. and Freeman, L.C. (2002), Ucinet 6 for Windows [Computer Software], Harvard: Analytic Technologies.

Burn, R. B. (2000), Introduction to Research Methods, 4th Edition, Longman, Australia.

Cross, R. and Prusak, L. (2002), "The People Who Make Organizations Go - or Stop", Harvard Business Review, vol.June 2002, pp.5-12.

Eisenstat, R., Foote, N., Galbraith, J. and Miller, D. (2001), "Beyond the business unit", The McKinsey Quarterly, vol.1, pp.54-63.

Freeman, L. C. (1979), "Centrality in social network: A conceptual clarification", Social Network, vol.1, pp.215,239.

Grimshaw, B. (1999), "Facilities management: the wider implications of managing change", Facilities, vol.17 (1/2), pp.24-30.

Leenders, Roger Th A. J. and Gabbay, Shaul M. (2001), Social capital of organizations, JAI, New York.

Malone, T and Crowston, K (1994), "The Interdisciplinary Study of Coordination", ACM Computing Surveys, vol.26.

Nutt, B and McLennan, P (2000), Facility management : risks and opportunities, Blackwell Science, Oxford.

Okoroh, M I, Gombera, E J and Wagstaff, M (2001), "Adding value to the healthcare sector - a facilities management partnering arrangement case study", Facilities, vol.19 (3/4), pp.157-163.

Pinchot, G. (1985), Intrapreneuring : why you don't have to leave the corporation to become an entrepreneur, Harper & Row, New York.

Scott, J. (1991), "Social network analysis -A handbook", Sage Publications Ltd, London.

Then, S (1999), "An integrated resource management view of facilities management", Facilities, vol.17 (12/13), pp.462-469.

Yin, R K (1994), Case study research: design and methods, Second Edition, Sage Publications, Thousand Oaks CA.