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Connectivity, cost-efficiency, community and collaboration

The value of co-locating on a health campus

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Abstract

Purpose – This paper aims to increase understanding on how co-locating in a multi-firm campus setting could be of value to healthcare organizations.

Design/methodology/approach – The paper presents a qualitative case study of two health campuses in Finland. The data comprises interviews with different organizations operating on the campuses, complemented by onsite observations, and analysis of archival data.

Findings – Based on the empirical analysis, the value of co-locating as perceived by the organizations operating on campus is grouped into four categories: connectivity, cost-efficiency, community and collaboration (or the "four Cs").

Research limitations/implications – The study does not aim at statistical genaralizability but rather seeks to draw analytical generalizations based on identified empirical regularities. The developed value framework, the four Cs, contributes to current scholarly knowledge on location strategies.

Practical implications – Furthermore, the managerial implications of the four Cs entail a new twofold role for property management: the traditional facilitator role, which is suitable for delivering the two tangible values of connectivity and cost-efficiency, and the modern era integrator, a community builder that is able to deliver community and collaboration.

Originality/value – Previous literature on healthcare facilities has focused on the technical performance of the buildings, while previous literature on the collaborative value of co-location has studied mainly single-firm corporate campuses. This study uniquely explores the potential value of health campuses, where different private, public and third sector organizations co-locate.

Keywords Collaboration, Community, Property management, Healthcare, Co-location, Campus

Paper type Research paper

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1. Introduction

Healthcare facilities are undergoing a major transition, and traditional hospital buildings are becoming obsolete, as new treatment methods and increased specialization of service providers requires integration of resources from multiple organizations (Okoroh *et al.*, 2001). At the same time, campuses and business parks, where different organizations co-locate, have gained popularity. By definition, campuses host several buildings, which are located close to one another, and use joint resources, such as electricity grid or parking amenities.

Both campus co-location and healthcare facilities have received moderate research attention previously. Based on previous literature, corporate campuses are mainly seen valuable as a way of improving cost-efficiency (Green and Lazarus, 1988), enforcing the culture and identity of an organization (Latshaw, 2000; Airo, 2014), and supporting social interaction and knowledge sharing among individuals (Becker *et al.*, 2003; Appel-Meulenbroek, 2010). Meanwhile, in the context of healthcare facilities, performance and maintenance management of facilities have been seen especially important (Abdelbaset and Hegazy, 2013; Enshassi and El Shorafa, 2015; Lavy and Shohet, 2009; Yuhainis *et al.*, 2013). Despite the increasing attention towards both research areas, previous literature on the value of co-location has studied mainly single-firm corporate campuses, while previous literature on healthcare facilities has focused on the technical performance of hospital buildings.

Therefore, this study will focus on combining the two separate research areas through addressing the less discussed management issues of multi-organization health campuses. More specifically, the study addresses two research questions:

RQ1. How do healthcare organizations perceive the value of operating in a multi-firm campus setting?

RQ2. How should a multi-firm campus facility be managed to achieve said value?

The study uniquely addresses health campuses, where not only private but also public and even third sector organizations co-locate. Two existing health campuses from Finland are used as cases in this in-depth qualitative research.

The remainder of the paper is structured, as follows: Section 2 presents previous research on the two separate literature streams of co-location and healthcare facilities as a theoretical background for the research. Research method, cases, data collection and evaluation of research validity are presented in Section 3, entitled Study design. Section 4 presents the empirical analysis and summarizes the key findings, and Section 5 discusses the findings further. Section 6 provides conclusions and recommendations for future research.

2. Literature

Corporate campuses, where a single company operates multiple business units on the same site, are the most common form of co-location and have also been the most researched. Green and Lazarus (1988) studied corporate educational campuses as early as 1988, listing a number of benefits experienced by the owner-occupiers of corporate campuses, including cost-efficiency, and the ability to tailor the facilities to their individual needs. Site setting, size, meeting rooms, catering services and recreational facilities were among the facility-related items to consider (Green and Lazarus, 1988). Latshaw (2000) presented a similar list of items to consider; however, she emphasized

the significance of corporate culture in planning a campus, along with the notion that the facility should always fit the organization, not the other way around. Becker *et al.* (2003) also studied the social implications of co-location and found that employees appreciated the chance encounters created by physical proximity, rather than viewing them as interference. In fact, the encounters allowed building a trust and sense of belonging, which would then enable collaboration on campus (Becker *et al.*, 2003). Appel-Meulenbroek (2010) suggested that the potential value of co-location lies in knowledge sharing. Sailer (2011) likewise studied the relationship between physical workplaces and organizational behaviour and found that facilities that enable spontaneous encounters are key in promoting knowledge sharing, and that co-location also tends to foster creativity (Sailer, 2011). Jaitli and Hua (2013) address the sense of belonging on a campus and argue that for the workplace to support the employees' sense of belonging and community, the workplace physical attributes needed to be of relevance to said employee. In other words, for the employee to appreciate the physical surroundings, they not only had to find the facilities suitable for their work but also first think that a good work environment is of importance.

The sense of belonging is closely linked to corporate culture and identity, for which the facilities also bear meaning. Becker *et al.* (2003) submit that the physical facilities on a campus are representative of the respective company culture, and that the employees appreciate a strong architectural branding. This resonates with Airo (2014) who found that, due to their academic identity, academics felt their workplace should reflect the academic tradition. As a consequence, a new business park setting located off campus was less pleasing to the academics, even though the physical facilities were considered more comfortable than the previous facilities on campus (Airo, 2014).

Meanwhile, facilities management within the field of healthcare is particularly complex (Shohet, 2003), and previous literature has largely focused on the technical, maintenance and performance management. Several studies have developed frameworks for the performance and maintenance management of healthcare facilities (Abdelbaset and Hegazy, 2013; Enshassi and El Shorafa, 2015; Shohet and Lavy, 2004a, 2004b; Lavy and Shohet, 2009; Yuhainis *et al.*, 2013). Research comprises suggestions for suitable performance indicators such as occupancy levels, building age or level of outsourcing of maintenance personnel (Shohet, 2003). The potential of outsourced FM services to improve patient experience and create cost savings was studied by Okoroh *et al.* (2001), while Liyanage and Egbu (2008) focused on performance measurement of the housekeeping service in healthcare facilities. The performance indicators and parameters included in these studies are all quantitative and quite heavily motivated by either cost-efficiency or risk management. As an example, Shohet and Lavy (2004a) propose an integrated facilities management model and develop three key groups: maintenance management, performance and risk management, and energy and operations. A newer study introduces additional categories of asset and organizational management of the maintenance organization, with indicators related to the level of outsourcing and organization structure (Shohet, 2006).

While recognizing the need for a more strategic facilities management model, Shohet and Lavy (2004b) define facilities management as measures aiming to optimize the cost-efficiency and performance of a building to support the core organization. Strategic support to healthcare organizations could, however, go beyond the technical performance of the building. One of the rare less technical studies of healthcare facilities

management, Oommen *et al.* (2008) discuss the recent shift to open plan offices. The universal shift is taking place in healthcare facilities also and affects healthcare professionals. The study suggests that health service managers should carefully consider the effects of workplace design to workplace satisfaction and productiveness, as healthcare professionals might not be prepared for the shift (Oommen *et al.*, 2008).

3. Study design

As the phenomenon under investigation is rather unknown and lacks well-established theory, this research uses a qualitative research approach (Edmundson and Mcmanus, 2007). Furthermore, a case study method was chosen to engage in an in-depth analysis of the subject of study in its real-life context (Yin, 1994). The qualitative research approach in general, and the case study method in particular, enables the researchers to explore the phenomenon of co-location in detail and detect the associated underlying influences (Johnson and Onwuegbuzie, 2004; Edmundson and McManus, 2007). In other words, the goal of this research is to gain new insight and refine existing understanding of campus co-location. This study is explorative in nature and seeks to obtain detailed and strong empirical evidence of the two cases. First and foremost, it seeks to identify empirical regularities within and across the cases (Amaratunga *et al.*, 2002). The attempt is to create new theory through analysing these regularities within and across cases, using different data sources and related literature (Eisenhardt, 1989). Statistical generalizability or generalizability beyond the context of the study is not the aim of this study. In fact, as also Yin (1994) points out, the studied phenomenon and unique context of the study may not even exist in real-life without one another. Instead, this study draws analytical generalizations as defined by Miles and Hubermann (1994) and Curtis *et al.* (2000) and thus aims at contributing to both the existing scientific body of knowledge, and current practice.

Two health campuses were chosen for investigation. The limited number allows for the collection of rich empirical data and in-depth analysis. On the other hand, two cases provide stronger empirical evidence than a single case, as well as enable controlling variation in the empirical context (Eisenhardt, 1989). Theoretical sampling was used to select campuses that are sufficiently similar, yet have distinctive characteristics. Next, the two selected cases are described in detail.

3.1 Cases

The cases include two health campuses in Finland: Campus A is located in the capital Helsinki, and Campus B in the Northern city of Oulu. Both campuses are specialized in rehabilitation healthcare, but only Campus A hosts a hospital. The campuses are also of different sizes and ages, but share some of the same key organizations, including a foundation that is a real estate owner on both campuses (hereinafter "the Foundation"). The case campuses are presented briefly in the following.

Campus A dates back to the 1940s, when it was developed to provide comprehensive care for injured the Second World War veterans. The full service chain included healthcare, rehabilitation and vocational training for those who could not return to their pre-war occupation. While the customer segment has changed over the years, the campus still hosts an orthopaedic and rehabilitation hospital, imaging services, rehabilitation aid providers and educational services for the physically disabled. Campus facilities include two main buildings, service facilities and a parking lot. All

facilities on campus are owned by the Foundation, which maintains the onsite hospitals and vocational schools. Since the Foundation divested their prosthetic aid manufacture, import and sales unit in 2013, the campus has been developing into a multi-firm campus, where different organizations from the rehabilitation field operate. Currently, in addition to the internal organizations, three external healthcare organizations have facilities onsite, and a fourth one uses onsite operating rooms. The campus is located some 5 km from Helsinki city centre in an area with many other health sector organizations within a 1 km radius. The area is well accessible through both private car and alternative transit.

Campus B dates back to the turn of the century, when different organizations in the Oulu region, including the Foundation, the city of Oulu, the local university hospital and third sector organizations representing patients with disabilities, started visioning a full service rehabilitation campus. As a result, the campus quite uniquely hosts both public and private organizations, as well as third party organizations. The campus was first developed in 2004, and a second building was constructed in 2008. The third and newest building on campus is a parking structure from 2013. The buildings have shared ownership between the Foundation, the city of Oulu and the local university hospital. Altogether 16 organizations, from the health and wellbeing sector, operate on campus. Joint facilities include meeting rooms, and a social space with recreational sauna facilities. The two buildings are connected via a connecting corridor, and the campus boasts having open access within the campus with no locked doors. The campus is located some 2 km outside the city centre by a major highway. Several other organizations from the healthcare sector are located in the same neighbourhood. Details about the campuses and their organizations are shown in Table I.

3.2 Data collection and analysis

The main data for the study comprise 29 semi-structured interviews of organizations on both case campuses. All organizations currently operating of the two campuses were contacted, and 20 of the total 23 organizations agreed to be interviewed. Altogether, 28 informants represent different organizations from the public, private and third sectors. Several informants from the key organization, the Foundation, were included in the interviews, and one informant was interviewed twice due to their significant role and knowledge of both case campuses. Most informants represent the executive or senior management level in their respective organizations. A list of informants with their role and organization is included as Appendix 1 to this paper.

The informants were asked to describe their experiences from operating on the campus. The researchers loosely followed an interview guideline, with themes ranging from past and current operations to key stakeholders and joint activities on campus. The attempt was to give the informants a chance to freely reflect on their relationship with the campus and the other organizations, and the researchers were careful not to inflict their own vocabulary, professional jargon or any foreign concepts upon the informants. Additionally, some specific questions about e.g. the campus amenities were asked for clarification. All interviews were conducted face to face during site visits between October 2014 and March 2015. The interviews ranging from 60 to 90 min were recorded and transcribed. Several researchers were present in each interview, and at least one of the authors of this paper was always present. All informants were very co-operative and

Characteristic / Case	Campus A	Campus B
First developed	1942	2004
Leasable area	35,000 m^2	8,500 m^2
No. of buildings	Two main buildings	Two main buildings and a parking structure
Ownership	Single owner (the Foundation)	Shared ownership between the Foundation, the city and the local university hospital
Actors	7 actors *Private sector* Orthopaedic hospital Rehabilitation hospital 2 vocational schools, which also operate the onsite restaurant and café Rehabilitation aid manufacturer and importer Rehabilitation aid sale Health care provider (incl. scanning services) *Public sector* Neurosurgery unit of the local university hospital	16 actors *Private sector* Rehabilitation aid manufacture, import and sales Rehabilitation aid (wheelchair) import and sales Hearing aid import and sales Physiotherapy provider Functional therapy provider Occupational health care provider R&D company from the health sector Wellness tourism provider Traditional healing (alternative medicine) provider Catering company operating the onsite restaurant *Public sector* Rehabilitation aid provider of the local university hospital Rehabilitation aid provider of the city Vaccination clinic of the city *Third sector* Association for the physically disabled Rheumatism association
Shared facilities	*Amenities* Restaurant Café Car parking *Health care* Operating rooms Imaging services, X-rays	*Amenities* Restaurant Café Car parking Meeting rooms Social space with sauna (used daily for coffee and lunch breaks, occasionally for social gatherings)

Table I.
Case campus characteristics

helpful, allowing the researchers access to their internal data and even internal meetings. Consequently, the interview data could be complimented with secondary data sources such as archival material (campus layouts, 315 pages of historical documents and marketing material). Additionally, the researchers made observations during the site visits, including 10 interview visits and 5 campus development meetings on Campus A, and four full days spent on Campus B.

The empirical data analysis commenced through first defining the most relevant themes of co-location in the studied context. Previous literature on healthcare facilities and co-location benefits provided initial guidance and directed attention to:

- site setting (Green and Lazarus, 1988);
- shared facilities (Green and Lazarus, 1988); and
- sense of belonging (Becker *et al.*, 2003).

Additionally, the shared customer segment of the case campuses strongly emerged from the interviews outside of the literature review and was therefore included as a fourth theme in the data analysis. The second phase of the analysis comprised manual coding of the transcribed interview narratives. Any comments related to the four themes were manually selected and grouped under the themes. As an example, comments related to the campus location and surroundings were grouped under site setting, whereas comments related to cost savings from operating rooms were grouped under shared facilities and so forth. Both positive and negative comments (i.e. both things the informants appreciated to be well in place, and things the informants were missing) were included in the analysis. In the third phase, these positive and negative comments were classified as value enhancing enablers or value hindering barriers within the four themes, for example "attractive location" is a value enhancing enabler within theme site setting. Finally, the underlying values for each theme were identified as the 4Cs, namely, connectivity, cost-efficiency, community and collaboration.

3.3 Validity of study

The presence of several researchers in every interview provided investigator triangulation and reduced researcher bias. Respondent bias was reduced by selecting informants from all types of organizations operating on the case campuses (Eisenhardt, 1989). The three organizations that were not interviewed represented small organizations with only one or two employees on campus. Data source triangulation was achieved by using secondary data, such as archived material and observations made during site visits, thus further improving the robustness of the findings (Miles and Huberman, 1994). Researcher observations during the numerous site visits and participating in several internal meetings as observers constitute a form of participatory, action-based research method, thus providing methodological triangulation.

4. Empirical analysis and findings

Next, the attributes that were identified to enhance or hinder value creation on campus are presented under the four themes, namely, site setting, shared facilities, sense of belonging and shared customer segment, and connected to the respective underlying values, the four Cs. Each sub-section includes selected quotes from informants to provide descriptiveness. The quotes are attributed to an informant using indexing

"NX", where X denotes the number of informant (for a full list of the informants with the indexing, see Appendix). It is also stated whether the quotes refer to Campus A, B or both.

4.1 Site setting supports connectivity

Attractive location within the city was considered a key benefit on both campuses due to the potential of increased customer flow. Both campuses are located in areas with a range of health and wellbeing activities in the vicinity (within 1 km) from the site. On the other hand, already a 500-800-metre distance to other healthcare collaborators was seen as too far for customers with physical disabilities. Nonetheless, the site setting was seen as an advantage:

> And then there is the location. That is a clear attraction. The location is just great. There is the University Hospital and, everything else around there: the area has so many {healthcare organizations}. (N27, Campus B)

The informants also noted the good parking facilities, and on Campus A, the public transit options. Proper guidance to and at the site was seen as particularly important for the customer group, and on Campus B the informants noted some deficiencies in the signage:

> The signage and guidance is not on a level it should be. There are a lot of people walking around looking lost. And of course we have a lot of elderly people and people with disabilities, it must be hard for them anyway, so we really should have decent signage here. (N5, Campus B)

Another amenity affecting the accessibility to the site was the reception, or lack thereof. Neither campus has a joint campus reception, resulting in customers resorting to ask the person they first meet for directions. On Campus B, the lack of a reception service has led to a peculiar situation where the restaurant also acts as an unofficial information desk for visitors. Moreover, until recently, a member of the catering service controlled and distributed keys to any newcomers.

4.2 Shared facilities deliver cost-efficiency

One of the most commonly perceived benefits of co-location and shared facilities identified in previous literature include cost saving through more active use of spaces. For this study, the possibility to use the joint meeting rooms and social spaces mostly came up in discussions about the shared facilities being underused, as many organizations still prefer their own private coffee rooms. On Campus B, the possibility to rent meeting and conference rooms was therefore advertised externally as well.

Nonetheless, in a health campus setting, the shared facilities may also comprise more specialized facilities and hospital equipment. Specialized healthcare equipment (X-ray, imaging services) and operating rooms on Campus A are particularly beneficial to share due to their high expense and typically low utilization rate. As the head of the local university hospital argued about their collaboration on the campus:

> They {the hospital on Campus A} are superior to everyone as they do a lot of spinal surgery themselves, they have the experience and the equipment and all the resources. I have understood that they have had some low utilisation rates {in the operation rooms} and that they would gladly host this type of clean surgery. So we sort of landed a win-win situation, where everybody benefits from collaboration. (N25, Campus A)

Besides optimizing the use of operating rooms, the cost optimization was only discussed by the real estate owners. Moreover, the history and nature of the foundation-ownership may have affected the previous apparent nonchalance towards minimizing the costs.

> Up until now it has been so that, since the Foundation owns the real estate, it has been the mother hen for all the organisations. So the foundation management has decided who uses which facility. {Deciding} who gets which facility has been kind of forced. It is not like it has been a commercial lease negotiation: "Would you like to rent this facility?", and "What is the rent?"'. No, it has been more like "That is your facility and this is the rent." (N12, Campus A and B)

Additionally on Campus B, the shared ownership of the spaces has caused some problems with space-use optimization. Some organisations had separate lease agreements with the different owners for their spaces, and have found it inconvenient to expand or adapt facilities within campus. On the other hand, this non-commercial approach has likely simultaneously contributed to the sense of belonging and collaboration on the campuses.

4.3 Sense of belonging fosters community

The one feature that came across the most in the informants' stories was what they described as "community feel" or "the spirit of the campus". This sense of belonging was discussed in length through both positive and negative narrative, namely, issues that enhanced or hindered the feeling, and changes along the way: most informants on both campuses reflected that the community feel had been very strong during some period of campus. The identified enablers comprised not only facility-related features but also more abstract attributes such as a shared campus vision. On Campus A, the spirit was noted to arise from the common mission of helping people with disabilities, and the will to serve those customers well:

> And it was really, it was so, it was tangibly strong, the feeling of pulling together. For one reason or another it has now faded, but it is still there. Maybe it arises from this everyday work, you mentioned talent, I would also say loyalty and the will to work with these people that are not the easiest cases. We have such difficult cases here, so where do these people find the everyday spirit and motivation to deal with these cases […] That has to be respected. That is the thing that I most {appreciate} here, that there is something that gives me strength, every day. (N10, Campus A)

On Campus B, informal encounters in joint coffee rooms or the onsite restaurants were appreciated, as they allow spontaneous interaction with others, even outside one's own organization. Campus amenities, the cafeteria in particular, was also thought to create opportunities for informal encounters as many of the site employees had lunch there. The policy of unlocked doors and having free access throughout the campus to each other's facilities was seen as a clear advantage and a unique feature of Campus B that enabled informal encounters and community building:

> It {Campus B} is more than just core and shell. It concretizes in that you have facilities that other tenants can walk across. And it is allowed. It is not like that elsewhere. No, it is completely out of the question to have one tenant passing through another's facility. {Campus B} is built like that, that is the thing there. You have other tenants passing through your space, which allows you to network. (N19, Campus B)

Notwithstanding, after almost 10 years of operation, some organizations on Campus B had started wishing for more privacy. Mainly, the private healthcare service providers had asked permission to limit access to their facilities by locking doors and building interior walls as a courtesy to their customers. This shift in general was thought to intefere with the community feel on campus. In conclusion, only a few informants thought that the facilities and space design were neutral, i.e. that they neither increased nor limited community engagement.

Besides the openness of the layout and chance encounters in the cafeterias, planned social activities were to the sense of belonging and spirit on Campus B. The most memorable events seemed to be the annual Christmas parties, which were no longer held as regretted by many. There had previously been a designated committee with representation from each organization, which organized the parties and events:

> There was a Christmas party with a certain number of people and it was fun. So, I think it reflects that you should have something in common. And it often builds from that it is not in the everday life and all that, but in connection to something else. I think it (Christmas tradition) should have continued, it would have brought people together a little bit. (N5, Campus B)

A key finding on Campus B was that, there was currently an apparent power vacuum: the lack of a strong, charismatic, leader onsite. This vacuum was created after two charismatic leaders working for one of the key organizations had retired recently. Besides dismantling the social activities many informants said that this strongly affected the campus spirit: no one was going around the premises every day, to greet everyone good morning, ask how they were doing, or bring everyone small gifts during the holiday season.

> There are these little things, when we still had N.N. here, they used to organize events, invite people to visit, and show the visitors around campus, introduce everyone: "Here is X.X., their role is this […]." Which I thought was really important, that is something that I still remember. (N6, Campus B)

The new property manager, representing a professional property management service, was described as competent and knowledgeable of the campus issues. However, the property manager was seen as somewhat impersonal for not continuously being present on campus, but rather visiting occasionally. The new property manager role did not include organizing social events or other community engagement, even though many had expected that to be their responsibility. It is therefore reasonable to assume that the "face of the campus" could also be an outsourced service, should the service agreement scope be widened. One clear benefit of having an outsourced service is the impartiality, which might be difficult to achieve if the manager represents one of onsite organizations.

4.4 Shared customer segment drives collaboration

The campus setting with multiple organizations from the same field of business enables providing complementing services and products for a shared customer segment. A wider offering to potential customers, derived from the will to provide a full service chain to the customer, was one of the key reasons for the campus location for many informants. It was also acknowledged that to truly serve the client in the form a full service chain, collaboration between the different organizations was required. Even the presence of competitors was tolerated on campus, as it was thought to increase the offering and thus benefit the customers, and the campus as a whole:

> I would actually see it as positive, if the competitors were a bit closer. That would energize and help people see that there are […] because so often when something awful happens in life and you get hurt in an accident or something, you get stuck with the one solution, so bringing the customer more options and the freedom to choose would be smart. (N11, Campus A and B)

It seemed that many of the organizations were hoping to see the health campuses as sort of a health and wellbeing sector version of shopping centres, where the customers would find everything they need under the same roof, or at least on the same campus. This has to some extent been achieved on Campus B, where several informants noted the customers to benefit from the active collaboration and physical proximity:

> We have, for example, orthotics theme days together, when our staff calls the patients and schedules them, and then we take the clients to the service provider's facilities to make them an orthotics. (N7, Campus B)

Notwithstanding, some admitted that healthcare as a field of business is problematic, as it entails many rather conservative ideals and practices that might hinder collaboration and not directly contribute to customer service or experience:

> I think we have pretty much gone {clinical} practice first, so we have paid a lot of attention to whether the practice has all the necessary instruments there and they suffice the doctor, but we have not thought about the customer, when they come into the room, and how they would be comfortable, or what would be important to them in their situation. (N1, Campus A)

The conservativeness is most visible on the hospital environment of Campus A. As a further example, the current brand relies heavily on the campus' reputation dating from back to the post-war 1940s, as well as on the personal reputation of the orthopaedists of the hospital. The campus hosts a few marketing events annually for rehabilitation professionals, but no events open to the public. There even seems to be unwillingness among the orthopaedists to promote the campus to potential customers, as this has not traditionally been done in the field.

On Campus B, however, a joint campus brand is seen as a valuable marketing niche, which is thought to bring credibility and publicity particularly to the smaller organizations. The campus brand is actively used to attract customers and other external visitors. A small marketing fee is collected from each organization to maintain the brand. Additionally, the campus has a designated marketing team comprising members from volunteers from the different organizations. The committee gathers to plan and update joint Webpages, advertisements and activities, such as open days for potential customers.

4.5 The four Cs: connectivity, cost-efficiency, community, collaboration

Based on the empirical analysis, the features reported by the informants to be of importance when they assessed the value of co-location are suggested to be classified into four value categories: *connectivity, cost-efficiency, community and collaboration*. All of the identified value enhancing enablers or hindering barriers, along with the respective value category and theme, are listed in Table II. The table also denotes whether the enablers and barriers were identified for Campus A, B or both.

Within this value framework, cost-efficiency and connectivity represent traditional and tangible value dimensions that have been widely discussed in previous literature regarding corporate campuses (Green and Lazarus, 1988), as well as company location strategies in general (Christersson and Rothe, 2012). Cost is a

Table II. The four Cs: Cost-efficiency, connectivity, collaboration and community (A and B refer to the case campuses)

Value	Theme	Identified enablers and barriers
Connectivity	Site setting	Enablers
		Attractive location (A&B)
		Adequate parking (A&B)
		Public transport (A)
		Barriers
		Poor signage (B)
		Lack of reception service (A&B)
Cost-efficiency	Shared facilities	Enablers
		Shared meeting rooms (A&B)
		Shared operating rooms (A)
		Shared hospital equipment (A)
		Barriers
		Ownership type and structure (A&B)
Community	Sense of belonging	Enablers
		Shared vision (A&B)
		Restaurants, cafés (A&B)
		Shared social spaces (coffee rooms, sauna) (B)
		Open access campus (B)
		Social gatherings (A&B)
		Barriers
		Locked doors and hallways (B)
		Lack of an integrator (B)
Collaboration	Shared customer segment	Enablers
		Full supply chains on campus (A&B)
		Wider offering to end-customer (A&B)
		Brand and reputation (A&B)
		Joint marketing (A&B)
		Barriers
		Conservative field of business (A&B)

key driver for companies selecting new facilities according to Elgar and Miller (2010) and Leishman *et al.* (2012), while for example Archer (1981) and Abel (1994) emphasize the importance of location even before cost. Interestingly, the informants of this study only discussed these traditionally valued features in passing. Factors related to connectivity rose into the discussion when considered poorly managed, i.e. the informants noted insufficient signage or lack of reception services. Cost-efficiency was mentioned by informants in connection with the high-cost and highly specialized hospital equipment, and not in connection with meeting rooms or recreational facilities as anticipated based on previous literature. Instead, the joint recreational facilities came into discussion in connection with informal encounters on campus: the recreational facilities were thought to promote interaction, which in turn contributed to the sense of belonging and related value category, community. Appel-Meulenbroek (2010) and Sailer (2011) have argued that campus co-location enhances communication, and that informal encounters allow for knowledge sharing and even promote creativity. However, their studies addressed single-firm corporate campuses. It is therefore noteworthy how much the informants placed emphasis on the interaction with others even in the case of a multi-firm campus,

representing a conservative field of business. The reason may lie with the other key finding of this study, namely, the value of collaboration. As Becker *et al.* (2003) noted, community building is a prerequisite to functioning collaboration. The two identified intangible value categories community and collaboration are therefore closely interlinked. The informants of this study saw collaboration, and a little surprisingly even competition, as valuable in providing the customer with a full service and a wider offering. Collaboration was also motivated by the desire to compete with other similar campuses.

5. Discussion

The study set out to learn how healthcare organizations value co-locating on a campus with organizations from the same business sector. The findings indicate that healthcare organizations benefit from the possibility to operate on multi-firm campus for a number of reasons, which form a value framework for co-location: connectivity, cost-efficiency, community and collaboration. The second research question addressed the role of management in achieving the value. This study takes the viewpoint of a professional property manager and focuses on their role in enhancing the value of co-location. For the purpose of detailing the managerial implications, the four Cs are further grouped into two, based on their intangible vs tangible nature. Subsequently, the study suggests a twofold managerial role of the facilitator/integrator. The roles with associated characteristics are detailed in Figure 1.

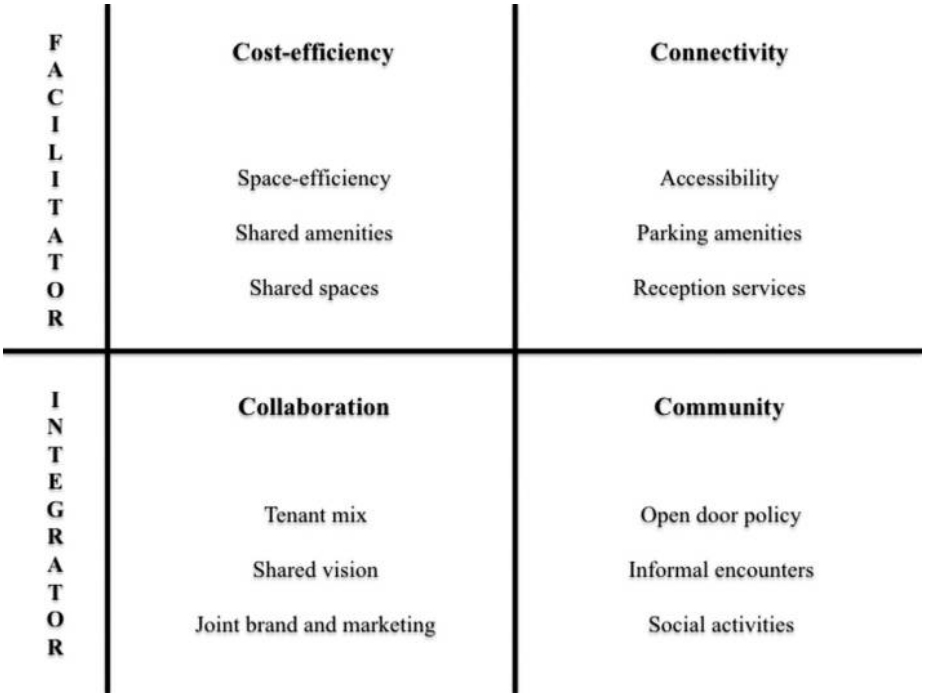

Figure 1.
The dual role of the property manager

Naturally, the traditional management tasks where the property manager acts as a facilitator to the core business continue to be crucial (Figure 1). These measures typically include cost-efficiency improvements such as optimising space-efficiency and utilization, as well as items related to connectivity, such as accessibility or reception services. The facilitator's role tends to rise to discussion when these are neglected or poorly managed. However, the future role of a property manager could be more that of an integrator. The integrator role comprises issues related to collaboration, such as maintaining and marketing a campus brand. Another key component of the integrator role is community engagement, which can be enhanced with welcoming and open space design, as well as organising joint campus activities. The need for an impartial integrator became evident on Campus B after the retirement of two strong community builders who were employed by one of the key organizations onsite. None of the remaining organizations or their staff were willing to take on the duties related to collaboration and community building on campus. Instead, many expected property management to take on these duties, as they had the potential to become an impartial integrator. This empirical evidence supports the notion that community building as an outsourced service could have business potential. Professional property managers and companies should therefore consider adopting the presented twofold managerial role as a facilitator/integrator.

The findings could also entail implications on other stakeholders, such as company top management, HR and corporate real estate professionals. These stakeholders could actively promote collaboration with other campus organizations, i.e. by encouraging employees to participate in joint workgroups or by organizing social events onsite.

6. Future research avenues and concluding remarks

The findings of this study suggest that more managerial attention should be placed on the intangible values of co-location. Understandably, the focus of the property management practice has long been on minimizing cost and ensuring the technical performance of buildings. The suggested extension to the traditional role, with new tasks and responsibilities related to community engagement and collaboration between campus organizations, deserves more research attention. One avenue for further research is to test these findings with a wider sample aiming at statistical generalization.

A successful shift toward the integrator role would generate new business opportunities for professional property managers and property management companies. Furthermore, as the integrator role would also require re-educating property professionals, the shift could carry great potential for education providers. Overall, the field of property management would benefit from ventures into new business areas: the suggested community integrator role is but one example.

References

Abel, J. (1994), "What tenants want and what they will not compromise on when looking for new premises", *Property Management*, Vol. 12 No. 1, pp. 28-30.

Airo, K. (2014), "Academic identities and spatial narratives", *International Journal of Facility Management*, Vol. 19 No. 1, pp. 282-294.

Appel-Meulenbroek, R. (2010), "Knowledge sharing through co-presence: added value of facilities", *Facilities*, Vol. 28 Nos 3/4, pp. 189-205.

Amaratunga, D., Baldry, D., Sarshar, M. and Newton, R. (2002), "Quantitative and qualitative research in the built environment: application of 'mixed' research approach", *Work Study*, Vol. 51 No. 1, pp. 17-31.

Archer, W.R. (1981), "Determinants of location for general purpose office firms within medium size cities", *Real Estate Economics*, Vol. 9 No. 3, pp. 283-297.

Becker, F., Sims, W. and Schoss, J.H. (2003), "Interaction, identity and collocation: what value is a corporate campus?", *Journal of Corporate Real Estate*, Vol. 5 No. 4, pp. 344-365.

Christersson, M. and Rothe, R. (2012), "Impacts of organizational relocation: a conceptual framework", *Journal of Corporate Real Estate*, Vol. 14 No. 4, pp. 226-243.

Curtis, S., Gesler, W., Smith, G. and Washburn, S. (2000), "Approaches to sampling and case selection in qualitative research: examples in the geography of health", *Social Science & Medicine*, Vol. 50 No. 7, pp. 1001-1014.

Edmundson, A. and Mcmanus, S. (2007), "Methodological fit in management field research", *The Academy of Management Review*, Vol. 32 No. 4, pp. 1155-1179.

Eisenhardt, K.M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-550.

Elgar, I. and Miller, E.J. (2010), "How office firms conduct their location search process? An analysis of a survey from the greater Toronto area", *International Regional Science Review*, Vol. 33 No. 1, pp. 60-85.

Enshassi, A.A. and El Shorafa, F. (2015), "Key performance indicators for the maintenance of public hospitals buildings in the Gaza Strip", *Facilities*, Vol. 33 Nos 3/4, pp. 206-228.

Green, W.A. and Lazarus, H. (1988), "Corporate campuses: a growing phenomenon", *Journal of Management Development*, Vol. 7 No. 3, pp. 56-67.

Jaitli, R. and Hua, Y. (2013), "Measuring sense of belonging among employees working at a corporate campus", *Journal of Corporate Real Estate*, Vol. 15 No. 2, pp. 117-135.

Johnson, R.B. and Onwuegbuzie, A.J. (2004), "Mixed methods research: a research paradigm whose time has come", *Educational Researcher*, Vol. 33 No. 7, pp. 14-26.

Latshaw, M. (2000), "Guidelines for corporate campus workplace solutions", *Journal of Corporate Real Estate*, Vol. 2 No. 3, pp. 198-207.

Lavy, S. and Shohet, I.M. (2009), "Integrated healthcare facilities maintenance management model: case studies", *Facilities*, Vol. 27 Nos 3/4, pp. 107-119.

Leishman, C., Orr, A. and Pellegrini-Masini, G. (2012), "The impact of carbon emission reducing design features on office occupiers' choice of premises", *Urban Studies*, Vol. 49 No. 11, pp. 2419-2437.

Liyanage, C. and Egbu, C. (2008), "A performance management framework for healthcare facilities management", *Journal of Facilities Management*, Vol. 6 No. 1, pp. 23-36.

Miles, M.B. and Hubermann, A.M. (1994), *Qualitative Data Analysis: An Expanded Sourcebook*, Sage, New York, NY.

Okoroh, M.I., Gombera, P.P., John, E. and Wagstaff, M. (2001), "Adding value to the healthcare sector – a facilities management partnering arrangement case study", *Facilities*, Vol. 19 Nos 3/4, pp. 157-164.

Oommen, V.G., Knowles, M. and Zhao, I. (2008), "Should health service managers embrace open plan work environments? A review", *Asia Pacific Journal of Health Management*, Vol. 3 No. 2, pp. 37-44.

Sailer, K. (2011), "Creativity as social and spatial process", *Facilities*, Vol. 29 Nos 1/2, pp. 6-18.

Shohet, I.M. (2003), "Key performance indicators for maintenance of health-care facilities", *Facilities*, Vol. 21 Nos 1/2, pp. 5-12.

Shohet, I.M. (2006), "Key performance indicators for strategic healthcare facilities maintenance", *Journal of Construction Engineering and Management*, Vol. 132, pp. 345-352.

Shohet, I.M. and Lavy, S. (2004a), "Healthcare facilities management: state of the art review", *Facilities*, Vol. 22 Nos 7/8, pp. 210-220.

Shohet, I.M. and Lavy, S. (2004b), "Development of an integrated healthcare facilities management model", *Facilities*, Vol. 22 Nos 5/6.

Yin, R.K. (1994), *Case Study Research: Design and Methods*, Sage Publications, New York, NY.

Yuhainis, T., Priyadarsini, R. and Yang, J.R. (2013), "Evaluation of building performance for strategic facilities management in healthcare", *Facilities*, Vol. 31 Nos 13/14, pp. 681-701.

Appendix

The following table contains a full list of informants with campus, description of organization, organization type (public, private, third sector) and the informant's role.

Informant ID	Campus	Organization	Organization type	Role in organization
N1	A and B	A foundation which maintains a vocational institute, orthopaedic and rehabilitation hospitals and a research centre. Real estate ownership on both campuses (hereinafter Foundation)	Private sector	Real Estate Manager
N2	A	Hospital specialized in orthopaedic care and rehabilitation	Private sector	Former CEO
N3[a]	A and B	Manufacture, sales and import of prosthetic aids and equipment	Private sector	Former CEO
N4	B	Restaurant and catering services	Private sector	Service Manager
N5	B	Manufacture, sales and import of prosthetic aids and equipment	Private sector	Regional Manager
N6	B	Physiotherapy service provider	Private sector	CEO
N7	B	Provider of prosthetic aids and equipment	Public sector	Regional Manager
N8	A	Manufacture, sales and import of prosthetic aids and equipment	Private sector	Regional Manager
N9	A	Import and sales of prosthetic aids and equipment	Private sector	CEO & COO
N10	A	Secondary level vocational institute	Private sector	Principal
N11	A and B	Manufacture, sales and import of prosthetic aids and equipment	Private sector	CEO
N12	A and B	Foundation	Private sector	CEO
N13	A	Hospital specialized in orthopaedic care and rehabilitation	Private sector	Board member, CEO (acting)
N14	B	Regional Association of People with Physical Disabilities	Third sector	COO
N15	B	Rheumatism Association	Third sector	COO
N16	B	Import and sales of hearing aid	Private sector	CEO
N17	B	Wellbeing tourism service provider	Private	COO
N18	B	Physiotherapy and occupational therapy provider	Private sector	CEO
N19	B	Real estate company of the local university hospital	Public sector	CEO
N20	B	Real estate service provider	Private sector	Property manager
N21	B	Occupational health care provider	Private sector	Head of unit
N22	B	Wheelchair sales and import	Private sector	Regional manager
N23	B	Foundation	Private sector	Former campus director
N24	B	Biomedical research and development company	Private sector	CEO
N25	A	Neurosurgery unit of the local university hospital	Public sector	Head of unit
N26	A	Secondary level vocational institute	Private sector	Former principal
N27	A and B	Manufacture, sales and import of prosthetic aids and equipment	Private sector	Former HR Manager
N28	A and B	Foundation	Public sector	Former CEO

Note: [a] Informant was interviewed twice for their significant role on Campus B

Table AI. Informants of the study

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Riikka Kyrö is a Postdoctoral Researcher at Aalto University, Finland. Riikka Kyrö holds a DSc (Tech). in Real Estate Economics. Her previous research work has concentrated on the energy consumption and climate change impacts of buildings, and sustainable facility management. Dr Kyrö also has six years of industry experience working with environmental consulting, and sustainability issues in corporate real estate management. Riikka Kyrö is the corresponding author and can be contacted at: riikka.kyro@aalto.fi

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