

# Differences between business center concepts in The Netherlands

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## DIFFERENCES BETWEEN BUSINESS CENTER CONCEPTS IN THE NETHERLANDS

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### ABSTRACT

**Purpose** - This paper aims to analyze the objectives, tenants, spaces and services of different business center concepts and test whether the existing classifications in literature and in the real estate market draw on significantly different concepts.

**Design/methodology/approach** - After a literature review, data on business centers was collected with a questionnaire among 139 business centers in the Netherlands. The existing business center concepts are examined whether these concepts are significantly different, using bivariate analyses.

**Findings** - The findings of this study give insight into the business center market, the existing business center concepts and their characteristics. Although many similarities were found between the business center concepts, like offered services, social spaces and contractual agreements, findings show that the four business center concepts can be offered in similar objects.

**Originality/value** - New ideas about working and the work environment have caused the business center market to become more differentiated. Some studies have attempted to classify the business center market into several categories or analyzed in detail one specific business center concept. However, these studies did not describe in detail the differences between the concepts. Also there is hardly any empirical research on this sector. This paper addresses gaps in previous research on business centers and demonstrates that there are significant (dis)similarities between the existing business center concepts.

**KEY WORDS** Market research, Classification, Business center sector, Business center characteristics

**PAPER TYPE** Research paper

### 1. INTRODUCTION

Office concepts have changed a lot since the cellular offices in the 1950's (Gottschalk, 1994) and today are still changing because of new ideas about working and the work environment (e.g. Vuokko et al., 2015; Ouye, 2011). Generational differences lead to different work environment preferences, which changes the nature of office design (Joy and Haynes, 2011; O'Neill, 2011). Furthermore, the demand for workplaces has been decreasing, due to the increase of small companies and freelance workers, new (ICT-driven) ways of working, 'footlooseness', telecommunication, and related developments (e.g. Saurin et al., 2008; Ketting, 2014). Developments in the information and communication technologies (ICTs) have led to more fluid and mobile workplaces (Cole et al., 2014). Some aspects of the physical workplaces are replaced by digital technologies. For example, virtual meetings take place through video conferencing or screen sharing technologies (e.g. WebEx, GoToMeeting or Skype) (Passerini et al., 2012). Also, people are increasingly working at a remote location, such as working at home, 'hot-spots' in public venues (e.g. café, restaurant or hotel) or when travelling between two locations (e.g. planes, trains and boats) (Cole et al., 2014).

On the other hand, there is a growing demand for other spaces than a regular workplace in the office itself, such as meeting areas, project spaces and event spaces (Barber et al., 2005; Harris, 2015), because of the increasing social importance of office buildings as a setting for social interactions (e.g. Sykes, 2014; Van Meel and Brinkø, 2014). Enterprises are increasingly demanding office space in multi-tenant buildings through the decreasing need of workspace, the increasing need for flexibility (e.g. Gibson, 2003), increased user comfort and the higher level of services that are offered there (e.g. Barber et al., 2005; Dielemans, 2014). In addition, more and more self-employed people are looking for a work place at a remote location, often in a business center. This

offers them network opportunities, improves the balance between work and private life, and provides access to various facilities (e.g. ICT infrastructure and spaces for meetings or teaching courses) (De Vries et al., 2012).

These changes have given rise to a growth of the business center sector. Also, high vacancy rates of single tenant offices have recently motivated the redevelopment of many of these offices into business centers, thereby fueling additional growth of this sector (Lokhorst et al., 2013). Municipalities increasingly steer on facilitating start-up enterprises, SME's and self-employed people in business centers which offer affordable office space with a low service level (Mensen and Van Rijt-Veltman, 2005). Over the past decades, office space in business centers has been improved and extended with shared facilities and services to create value for both the tenant and the office owner (Peltier, 2001; Harris, 2015). Although business centers as a product have become more branded (Gibson and Lizieri, 1999), the business center sector is still difficult to define. It consists of several distinct types of properties and has traditionally been formed by many different players (Calder and Courtney, 1992). Gibson and Lizieri (1999) observed there is no single business center market, but that it is differentiated by type of tenant, quality of accommodation, services and facilities. With the current trends this is likely to have increased even further. In this study we used an adaptation of the definition of a business center by Calder and Courtney (1992), namely:

*'A building with a number of spaces and possibly some common facilities and/or services, which are offered to multiple organizations'.*

That way we include both new and traditional concepts. Some previous studies classified business centers into subgroups (e.g. Calder and Courtney, 1992; Van den Berg and Stijnenbosch, 2009; Ketting, 2014). These studies mentioned serviced office centers, incubators (managed workspaces) and regular business centers (commercial business centers). However, it is also recognized that new concepts have emerged, based on these types of business center concepts (Ketting, 2014; Parrino, 2013). One of these concepts is the widely discussed notion of 'co-working space', which offers a shared collaborative work environment in a variety of settings (e.g. Moriset, 2014; Uda, 2013; Huwart et al., 2012; Parrino, 2013). Other researchers analyzed in detail one specific business center concept (e.g. Gibson and Lizieri, 1999; Moriset, 2014; Bruneel et al., 2010). However, they did not describe in detail the differences between different business center concepts and the characteristics defining them. Therefore, in this study the business center concepts inferred from the existing literature will be analyzed, that is, regular business centers, serviced offices, co-working offices and incubators.

This paper aims to analyze business center concepts and test if the existing classifications indeed imply significantly different concepts with bivariate analyses. This study draws on a literature review and data collected in the Netherlands, among owners/managers of 139 business centers, using an online questionnaire.

The remainder of this paper is structured as follows. The next section reviews the existing literature on business center concepts. Section 3 describes the data collection procedure and the descriptive statistics of the sample. In Section 4, the results are described. Finally, Section 5 contains the conclusions and a discussion.

## **2. LITERATURE REVIEW**

### *Regular business centers*

Calder and Courtney (1992) defined regular business centers as commercial centers which offer office spaces and some regular common services that are normally found in multi-tenant property (e.g. security or cleaning). Van den Berg and Stijnenbosch (2009) further divided the category of regular business centers into business centers with a low service level, public business centers, large private business centers and small private business centers. This suggests there is not one clear typology of a regular business center. However, the main objective of these business centers is to offer office space and some shared facilities or services (e.g. reception, conference room).

These regular business centers offer office space to a wide range of businesses, such as large enterprises, medium-sized enterprises, small enterprises, start-up enterprises or freelancers. The first business centers, that provided office space and a small set of shared services, appear to have shifted to business centers with a variety of shared services, facilities and support services (serviced offices) (e.g. Troukens, 2001; Bruneel et al., 2010). However, many regular business centers that only offer office space and some facilities or services still remain. There is hardly any research into this business center concept.

### *Serviced offices*

The serviced office market experienced a rapid growth over the past decades (Harris, 2015). The demand for office space shifted from a demand for only office space to a demand for more flexible and adaptable office space

with more support services and managed technology (e.g. teleconferencing, broadband access, web conferencing, or a virtual assistant) (Troukens, 2001).

There are various definitions of a serviced office. Van den Berg and Stijnenbosch (2009) suggested that serviced offices are only available for large enterprises which are financially healthy (because of the high amount of services) and which are looking for a flexible accommodation. On the other hand, Ketting (2014) suggested that serviced offices are aimed at providing flexible accommodation for freelancers. Gibson and Lizieri (1999, p.4) defined a serviced office as 'a fully fitted space on a pay-as you-use arrangement with a range of IT and secretarial services'. Later, Ellis (2013) suggested that serviced offices offer fully equipped and staffed office space on a short-term lease, with shared facilities (e.g. a reception, break areas, kitchens and IT services). Based on the above described definitions on serviced offices, it suggests that there are several types of serviced offices (e.g. WTC Amsterdam or Regus offices).

Overall, a serviced office includes four important elements, namely shared office accommodation, business services, facilities and managed technology (e.g. videoconferencing, broadband access or teleconferencing) (Peltier, 2001). Serviced offices could be used by many different tenants (e.g. start-up enterprises, freelancers, businesses entering a new market, virtual workers, flexible 'corporate' worker or a flex worker between appointments) (Laterveer, 2011). An important benefit of serviced offices is that tenants can fully concentrate on their core business (Price and Spicer, 2002). Troukens (2001) suggested that users can benefit from serviced offices through physical, functional and financial flexibility, the ability to work on the most appropriate location, managed technology and reduced costs (shared services/facilities). However, serviced offices do not support interaction, collaboration and networking among tenants (Fuzi et al., 2015).

### *Co-working offices*

The idea of a co-working office was first derived from a serviced office by Brad Neuberg in the mid-1990s, when he created the 'Spiral Muse co-working community' in San Francisco (Spinuzzi, 2012; Van Meel and Brinkø, 2014). In this type of community, people share facilities or services and participate in activities together. The main difference between serviced offices and co-working offices is that serviced offices do not aim to create a collaborative atmosphere. Currently, there are more than 3.500 co-working offices around the world with more than 160.000 members (Global Workspace Association, 2014). Co-working offices have become a global phenomenon (Sykes, 2014; Moriset, 2014) and are still growing in popularity, through changes in technology, attitudes towards work and the 'new shared economy' (Green, 2014).

Co-working offices offer a community-driven environment with services and activities that stimulate relationships and collaboration among tenants (Fuzi et al., 2014; Sykes, 2014). A co-working office is not just a physical space, but it is a community of likeminded people with trust and collaboration among tenants (Huwart et al., 2012). Van Meel and Brinkø (2014) agreed with this definition and suggested that a co-working place stimulates a sense of community, collaboration and synergies among people. Co-working increases knowledge sharing between entrepreneurs. Entrepreneurs are more productive in co-working offices and collaboration in co-working spaces could lead to synergies among entrepreneurs (Deijl, 2011).

Fuzi et al. (2014) described a co-working office as a work environment for freelancers and other location-independent professionals'. Co-working offices are not only attractive for freelancers, contractors and small enterprises, but also to larger enterprises that need a temporary office space (Sykes, 2014). It is difficult to categorize co-working offices because of the large variety of spaces, the complexity of the multiple potential combinations of people, space, networks, industry combinations, sponsorships and structures.

### *Incubators*

An incubator can be defined as a property based initiative that provides business support services (Ratinho, 2011) and a network of individuals and organizations (Hackett and Dits, 2004). Peters et al. (2004) suggested that an incubator entails a change from a business center only offering office space and facilities to a business center that offers a variety of services specifically to start-up enterprises. Bruneel et al. (2010) generalized three generations of incubators based on existing literature. The first generation, 'the generation of infrastructure', started in the 1950's. The core value of these incubators was providing low cost office space and a small set of shared services (e.g. secretarial services, copy and fax, reception, telephone answering), similarly as a regular business center. The next generation of incubators started in the mid 1980's and was focused on helping new companies to develop their experience and skills through business support services (e.g. coaching and training). Finally, the last generation started in the mid 1990's and was called 'the generations of networks'. This generation provides access

to external networks (e.g. potential customers, suppliers, partners and investors). It provides learning opportunities and allows start-ups to grow faster.

Bruneel et al. (2010) observed that the lack of financial capital, experienced management teams and capabilities often inhibits the survival and growth of start-up enterprises. The main objective of a business incubator is therefore not to offer office space, shared facilities and services, but to accelerate the successful development of start-up enterprises and support them in the development of innovative products (e.g. Lesáková, 2012; Aernoudt, 2004; Peña, 2004). As such, Peters et al. (2004) argued that besides supporting and helping start-up enterprises, incubators should promote local job creation, technology transfer and economic development.

Mian (1996) suggested that the key services of an incubator are shared office services, business assistance, access to capital, business networks and rent breaks. Business support services, such as business advice, entrepreneurial training and assistance services are one of the most important factors for the successful development of enterprises (Al-Mubarak and Busler, 2011; Peña, 2004; Mian, 1996). Incubators can vary depending on the type of property, on capacity, the target group, organizational structure, strategy, facilities and services (Lesáková, 2012; European Commission, 2002).

Table 1 gives an overview of the characteristics of the different business center concepts. Whereas previous studies have identified these characteristics (e.g. objective, prime target group, office space, work mode, atmosphere, facilities/services) and types of business center concepts (incubators, business centers, serviced offices and co-working offices), they also observed many possible variations within each type of business center concept. Therefore, the question arises whether these 4 types of business center concepts form a clear and valid taxonomy that reflects the structure of this sector.

**Table 1. An overview of business center concepts**

	<b>Business center</b>	<b>Serviced office</b>	<b>Co-working office</b>	<b>Incubator</b>
<i>Objective</i>	Offer office space	Offer flexible office space, business services, facilities and managed technology (e.g. Peltier, 2001)	Creating a work community. Stimulate a sense of collaboration and synergy (e.g. Van Meel and Brinkø, 2014; Deijl, 2011)	Supporting and facilitating start-ups. Promote local job creation, technology transfer and economic development (e.g. Peters et al., 2004; Lesáková, 2012)
<i>Tenants (Prime target group)</i>	A wide range of businesses	SME's, freelancers (e.g. Laterveer, 2011; Ketting, 2014)	SME's, freelancers, large enterprises and location-independent professionals (e.g. Sykes, 2014; Fuzi et al., 2014)	Start-up enterprises (e.g. Ketting, 2014; Bruneel et al, 2010)
<i>Tenants (Atmosphere)</i>	Formal/ informal	Formal (e.g. Van Meel and Brinkø, 2014)	Informal (e.g. Van Meel and Brinkø, 2014)	Formal/ informal
<i>Facilities/ services</i>	Low service level, some shared facilities or services (e.g. Calder and Courtney, 1992; Van den Berg and Stijnenbosch, 2009)	Business services (e.g. accounting, administration, word processing), IT services and secretarial services (e.g. reception, mail, fax, email, telephone service) (e.g. Troukens, 2001)	Business services, IT services, secretarial services and access to networking events and workshops (e.g. Deijl, 2011)	Business services, IT services, secretarial services, access to networking events, workshops and business support services (e.g. Chen et al., 2006; Mian, 1996)
<i>Spaces</i>	Separate units	Separate units (e.g. Van Meel and Brinkø, 2014)	Open plan spaces (e.g. Van Meel and Brinkø, 2014)	Separate units/ open plan spaces

### 3. DATA COLLECTION, VARIABLES AND DESCRIPTIVES

It appears from the literature review that several variables (objective, tenants, spaces, atmosphere and facilities/services) are important for identifying the business center concepts. Also, it recognized that business centers could vary depending on the business model, type of property and capacity of the business center (e.g. Lesáková, 2012; European Commission, 2002; Gibson and Lizieri, 1999). Therefore, data on all these variables was collected, using an online questionnaire among owners/managers of business centers in the Netherlands. To get more insight in the business center sector, more detailed information was collected than described by the existing literature.

Regarding the *objectives* of the business centers, respondents were invited to choose one or more of the following objectives (Calder and Courtney, 1992; Chen et al., 2006; Gibson and Lizieri, 1999; Moriset, 2014; Aernoudt, 2004):

- To offer office space;
- To offer shared facilities and services;
- To offer office space with flexible terms (e.g. flexible rental period);
- To offer full-fitted office space;
- To offer managed technology (e.g. telecommunication, web conferencing, broadband technology or a virtual assistant);
- Creating a work community (stimulating cooperation and synergy among tenants);
- To support and facilitate start-up enterprises;
- Stimulate local employment;
- Stimulate knowledge transfer;
- Stimulate economic development and growth in the region;
- Other objectives.

In addition, respondents were asked about the *business model* of the business center (for-profit or non-profit). Information on *tenants* was collected by asking respondents on which *target group(s)* the business center focuses, the current *number of tenants* of the business center, and which *lease contracts* are offered. They could select one or more target groups namely self-employed people, independent workers (work at an organization that is based at another location), SME's, start-up enterprises, large enterprises and others (Parrino, 2013; Sykes, 2014; Laterveer, 2011; Aernoudt, 2004). The *atmosphere* between tenants/users in the business center was measured by asking respondents if there is a formal atmosphere or a more informal atmosphere between tenants/users.

To collect information on *facilities/ services* offered by the business centers, respondents were asked to select which services are offered by the business center. They could select one or more of the following facilities/services, described by the existing literature (e.g. Laterveer, 2011; Calder and Courtney, 1992; Van den Berg and Stijnenbosch, 2009; Ketting, 2014; Troukens, 2001): business services, secretarial services, cleaning and maintenance, security, managed technology, services, consultancy services, networking events, catering, use of coffee and tea makers, furniture and other facility/ service. If these facilities/ services are offered, respondents had to indicate if these services are included in the rental price. In addition, respondents were asked whether facilities/ services are offered by the '*pay what you use*' principle.

Respondents were also questioned about the different types of *spaces* offered by the business center. These spaces are based on the workspaces described by Allen et al. (2004) and some common known other office spaces, namely a concentration room, office space with fixed workstations, with shared workstations, with a combination of fixed and shared workstations, atelier space, laboratory space, conference room, informal/social space, project/creative space, reception/entrance, kitchen, coffee corner, storage room, showroom, business unit or other spaces. In addition, respondents were asked to indicate whether these spaces were shared by tenants/users.

Regarding the *capacity* of the business centers, information was collected on the GFA in m<sup>2</sup>, the minimum rentable surface in m<sup>2</sup> and the vacancy in m<sup>2</sup>. Moreover, respondents answered questions about the *type of property* (the number of years the business center exists and the construction year of the business center).

#### *Data collection*

The five largest municipalities in the Netherlands were asked to provide a list with (all) business centers that were located in the municipality, which provided 260 business centers. Also, a list of 204 business centers in the Atlas of Business Centers, established by Van den Berg and Stijnenbosch (2009) based on collected data on business centers in 2004 in the Netherlands, was used. In addition, 54 business centers were brought forward in interviews with 13 real estate professionals. Some of the business centers were mentioned double by the municipalities, the

Atlas of Business Centers and the real estate professionals. Owners/managers of a total of 446 business centers were approached by an email. Those who did not fill in the questionnaire received a reminder and were subsequently called. From the 446 business centers, owners/managers of 139 (30%) returned a completed questionnaire.

### *Sample characteristics*

Table 2 shows some of the sample characteristics. Respondents were asked to assess to which type of business center concept their business center belongs. The frequencies of the different types of business center concepts in the sample delivered a similar spread of serviced offices (32%) and incubators (12%) as the sample derived by Van den Berg and Stijnenbosch (2009). The sample (2015) included much less regular business centers (25%) and more co-working offices (14%), which might reflect the market changes discussed before. The sample derived by Van den Berg and Stijnenbosch (2009) did not include any co-working offices. Some respondents reported other business center concepts (17%), such as a combination of the four business center types, a business center based on vacancy management, a co-working place with residential-working combinations, ateliers, a combination of a conference and an event center with a collaborative work environment and a school building in combination with office space for external tenants. These findings suggest that the business center sector has changed since 2004 and the four business center concepts do not represent the whole business center sector.

**Table 2: sample characteristics (N=139)**

		Frequency	%
Objectives	To offer office space	114	82
	To offer office space with flexible terms	100	72
	To offer shared facilities and services	93	67
	Creating a working community	86	62
	Stimulate knowledge transfer	64	46
	To support and facilitate start-up enterprises	64	46
	To offer full-fitted office space	57	41
	To offer managed technology	52	37
	Stimulate economic development and growth in the region	38	27
Targetgroup	Start-up enterprises	110	79
	SME's	104	75
	Self-employed people	102	73
	Independent workers	54	39
	Large companies	42	30
Services/facilities	Cleaning and maintenance	120	86
	Security	96	69
	Managed technology services	91	66
	Use of coffee and tea maker	84	60
	Secretarial services	68	49
	Networking events	65	47
	Catering	64	46
	Furniture	63	45
	Workshops and lectures	51	37
	Business services	37	27
	Consultancy services	25	18
Spaces	Reception/ entrance	109	78
	Conference room	107	77
	Office space with fixed workstations	98	71
	Kitchen	98	71
	Informal/ social meeting space	95	68
	Storage room	85	61
	Coffee corner	80	57
	Office space with shared/flexible workplaces	78	56
	Project, creative- or classroom	60	43

Space for copy, print, mail etc.	59	42		
Office space with fixed and shared workplaces	55	39		
Atelier space	46	33		
Business hall/ unit	37	27		
Concentration room /study room	34	25		
Showroom	25	18		
Laboratory space	15	11		
	Minimum	Maximum	Mean	SD
Minimal rented surface in m <sup>2</sup>	0	5530	89,0261	499,95
GFA in m <sup>2</sup>	94	110000	9344,7868	15281,64
Vacancy in m <sup>2</sup>	0	27000	1861,9302	3815,23
Year of construction	1889	2014	1972	33,595
# Years as a business center	0	45	9,5	8,996
# Different spaces	0	16	8	3,322
# Tenants	0	350	39	52,37

Most respondents reported the objective ‘to offer office space’, ‘to offer shared facilities and services’ or ‘to offer office space with flexible term’. Notably, more than half of the respondents reported that the objective of the business center is to create a work community to follow the trend in demand. Existing literature suggest that specifically co-working offices focus on creating a work community (e.g. Van Meel and Brinkø, 2014). However, only 14% of respondents reported the business centers as a co-working office. This suggests that there are more types of business center concepts that focus on creating a work community. A large number of business centers is focused on supporting and facilitating start-up enterprises. This is a high number compared to the low number of incubators (12%) in the sample, which according to the existing literature are the only type that is focused on stimulating start-up enterprises (e.g. Lesáková, 2012; Aernoudt, 2004). Furthermore, 75% of the business centers is profit oriented.

Most business centers offer a one year or a one month lease contract. All respondents reporting a one hour lease contract, also reported a one day lease contract, and most of these respondents reported a one month lease contract as well. Moreover, most of the respondents that reported a 2 year lease contract, also reported a one year lease contract. These findings suggest that most business centers in the sample offer flexible lease contracts. Now, opposed to the longer leases of offices in the past, leases have become shorter and more flexible (Halvitigala and Zhao, 2014).

Regarding services/facilities, many business centers offer cleaning and maintenance services, security, managed technology services, the use of coffee and tea maker and secretarial services. Consultancy services and business services are the least available in business centers. Almost half of the business centers in the sample offers networking events, catering, furniture and secretarial services. A few respondents (9%) reported other services/facilities such as fitness, the use of e-bikes or business and employee benefit services (dry cleaning, clothing repair, bookings and reservations). Furthermore, half of the business centers (55%) offers some or all of the services/facilities based on the ‘pay what you use’ principle.

Many business centers in the sample offer a conference room, reception/entrance, office space with fixed workstations, informal/social meeting space and a kitchen. A few business centers offer laboratory spaces, these are particularly incubators focusing on a particular business sector (e.g. Pivot Park, Catalyst, Meditech Center Groningen or Biopartnercenter Wageningen). Some of the respondents (15%) reported other types of spaces such as a restaurant, event area, café, dance and sports or fitness club/room, auditorium, theater, shared terrace, retail units, exhibition spaces and cleanrooms.

The oldest building in the sample was constructed in 1889 and the latest building was constructed in 2014. The maximum number of years a business center exists in its current state is 45 years. The sample contains business centers constructed over all time periods. Most of the business centers in the sample are constructed after 1980; no buildings are constructed during the Second World War (between 1939 and 1945). On average they hold 39 tenants (with a maximum of 350). The minimum of the minimal rented surface in m<sup>2</sup> is 0. This is because some of the business centers only offer a single workplace and therefore they reported this workplace as 0 m<sup>2</sup>. The maximum minimal rented surface is 5530 m<sup>2</sup> and the mean is 89 m<sup>2</sup>.

With regard to the vacancy of each business center concept, incubators have the lowest mean of vacancy (904 m<sup>2</sup>). However, this is also dependent of the gross floor area of the building. The occupancy rate is 74% for regular business center, 76% for serviced office, 88% for co-working space and 88% for incubators. These findings suggest that co-working spaces and incubators are the most attractive for tenants. Regular business centers are the least attractive, which is probably due to the low service/facility level.



#### 4. RESULTS

The differences between business center concepts (according to the literature) and the characteristics that define them were analyzed using bivariate analyses. Chi-square ( $\chi^2$ ) analysis is a descriptive analysis that is commonly used to test differences on categorical variables (e.g. Crosby et al., 2001). Chi-square analyses were used to analyze the differences between the type of business center concepts with regard to the nominal or ordinal business center variables. Using the business center concepts as categorical variables, resulted in many cells with values  $<5$ . Therefore, the business center concept variable was recoded into five dichotomous variables (no=0 or yes=1), namely a regular business center, serviced office, co-working office, incubators and other business center concepts. The differences between the business center concept variable (e.g. regular business center: yes=1) and the other business center concepts (no=0) were analyzed. In addition, some other nominal variables (e.g. pay what you use principle, objectives, spaces and the facilities/services) were recoded into dichotomous variables to perform a Fisher's Exact Test (suitable for 2x2 tables), when more than 20% of the cells had values  $<5$ . Cohen's Kappa ( $\kappa$ ) was used to indicate the direction and strength of the differences between the business center concepts that were found to have a significant difference. The Cohen's Kappa can have a value between -1 (opposite view) and +1 (exactly the same view). The T-test (t) is a widely used method to compare two independent groups and tests the differences between mean values (e.g. Tidwell & Gallimore, 2013). In this study, a T-test (t) was used to analyze the differences between the type of business center concept (as a dichotomous variable) and the ratio or interval variables (e.g. number of spaces, capacity variables or the year of manufacture). It is assumed here that the limit of statistical significance is  $p=0.05$ .

##### *Objectives*

Table 3 shows the differences between the business center concepts regarding the objectives and the business model. Findings on the *objectives* of the business center concepts show several significant results between a regular business center compared to the other business center concepts. No significant difference was found between a regular business center and the other business center concepts with regard the objective 'to offer office space'. This is because all the business center concepts offer office space, which was to be expected. In addition to the objectives 'to offer office space', 'to stimulate knowledge transfer' and 'other objectives', significant results were found of a serviced office with all the other objectives related to a serviced office. Significantly negative differences were found between serviced offices and the other concepts with regard to the objectives 'to stimulate local employment', 'to stimulate economic development and 'to support and facilitate start-up enterprises'. These findings suggest that serviced offices have less of these objectives than other business center concepts.

Regarding the findings of the analysis between a co-working office and the other business center concepts, positive significant differences were found with regard to the objectives 'to stimulate knowledge transfer' and 'to create a working community'. Leforestier (2009) also suggested that the objective of a co-working space is to stimulate social interactions and networking between tenants. Moreover, co-working offices appear to offer a community-driven environment that stimulates collaboration among tenants (Fuzi et al., 2014; Sykes, 2014).

With regard to the objectives 'to offer shared facilities and services', 'to offer full-fitted office space' and 'to offer managed technology', significant differences (negative) were found between incubators and the other business center concepts. This suggests that incubators do not have these objectives. These findings are not in line with Chen et al. (2006), who suggested that incubators offer 'software' services (providing techniques, organizing and managerial knowledge) and 'hardware' services (space, facilities and technology); similarly, Mian (1996) argued that one of the key services of an incubator are shared facilities and services. On the other hand, with regard to the objectives 'to support and facilitate start-up enterprises' and 'to stimulate economic development or growth in the region' (using Fisher's Exact Test), positive differences were found between incubators and the other concepts. These findings are in line with the extant literature on incubators (e.g. Lesáková, 2012; Aernoudt, 2004; Peters et al. 2004). Findings with regard to the *business model* (profit oriented/ non-profit oriented) suggest that incubators and other business centers are mostly non-profit oriented and serviced offices are mostly profit oriented.

**Table 3. Objectives and business model**

Positive	Negative	Business center concepts				
N		35	45	12	14	17
Variables		Regular business center	Serviced office	Co-working office	Incubator	Other business center concept
To offer shared facilities and services		$\chi^2= 18,716^{**}$ $\kappa= -0,257$	$\chi^2= 20,988^{**}$ $\kappa= 0,306$		$\chi^2= 8,742^{**}$ $\kappa= -0,123$	
To offer office space with flexible terms			$\chi^2= 7,147^{**}$ $\kappa= 0,165$			
To offer full-fitted office space		$\chi^2= 16,918^{**}$ $\kappa= -0,327$	$\chi^2= 24,928^{**}$ $\kappa= 0,416$		$\chi^2= 6,847^{**}$ $\kappa= -0,166$	
To offer managed technology		$\chi^2= 13,486^{**}$ $\kappa= -0,299$	$\chi^2= 20,770^{**}$ $\kappa= 0,384$		$\chi^2= 5,440^*$ $\kappa= -0,155$	
Creating a work community		$\chi^2= 30,181^{**}$ $\kappa= -0,352$	$\chi^2= 7,085^{**}$ $\kappa= 0,189$	$\chi^2= 7,108^{**}$ $\kappa= 0,129$		
To support and facilitate start-up enterprises			$\chi^2= 15,199^{**}$ $\kappa= -0,317$		$\chi^2= 10,279^{**}$ $\kappa= 0,189$	
Stimulate local employment			$\chi^2= 11,402^{**}$ $\kappa= -0,281$			$\chi^2= 5,395^*$ $\kappa= 0,191$
Stimulate knowledge transfer		$\chi^2= 22,561^{**}$ $\kappa= -0,363$		$\chi^2= 4,436^*$ $\kappa= 0,130$		$\chi^2= 8,617^{**}$ $\kappa= 0,195$
Stimulate economic development and growth in the region		$\chi^2= 4,012^*$ $\kappa= -0,170$	$\chi^2= 6,570^*$ $\kappa= -0,216$		Fisher's Exact-test** $\kappa= 0,234$	
Business model			$\chi^2= 15,186^{**}$ $\kappa= -0,325$		Fisher's Exact-test** $\kappa= 0,309$	$\chi^2= 10,660^{**}$ $\kappa= 0,268$

\*Significant at the 0.05 level (2-tailed)

\*\*Significant at the 0.01 level (2-tailed)

### Tenants

Table 4 shows the significant differences between the different types of business center concepts with regard to the tenants variables (target groups, lease contracts, atmosphere and the number of tenants). There is no significant difference between the business center concepts with regard to *the number of tenants* and the *atmosphere*. Regarding the *target groups*, our analysis points at several significant results. As can be inferred from Table 4, a negative significant difference was found between a regular business center and the other concepts, with regard to independent workers. This finding suggests that independent workers tend not to be a key target group for regular business centers.

**Table 4. Tenants**

Positive	Negative	Business center concepts				
N		35	45	12	14	17
Variables		Regular business center	Serviced office	Co-working office	Incubator	Other business center concept
Self-employed people			$\chi^2= 4,170^*$ $\kappa= 0,123$			$\chi^2= 4,011^*$ $\kappa= -0,085$
Independent workers		$\chi^2= 9,277^{**}$ $\kappa= -0,246$	$\chi^2= 21,675^{**}$ $\kappa= 0,391$			
SME's			$\chi^2= 4,957^*$ $\kappa= 0,131$		Fisher's Exact-test* $\kappa= -0,078$	
Start-up enterprises					Fisher's Exact-test* $\kappa= 0,071$	
Large companies					$\chi^2= 5,439^*$ $\kappa= -0,170$	
Other target group						Fisher's Exact-test* $\kappa= 0,205$
One hour lease contract		$\chi^2= 11,800^{**}$ $\kappa= -0,288$	$\chi^2= 16,309^{**}$ $\kappa= 0,326$			
One day lease contract		$\chi^2= 9,849^{**}$ $\kappa= -0,265$	$\chi^2= 18,181^{**}$ $\kappa= 0,361$			
One month lease contract		$\chi^2= 15,693^{**}$ $\kappa= -0,286$	$\chi^2= 32,402^{**}$ $\kappa= 0,446$		$\chi^2= 9,048^{**}$ $\kappa= -0,163$	
One year lease contract		$\chi^2= 4,767^*$ $\kappa= 0,134$			$\chi^2= 4,715^*$ $\kappa= -0,094$	
2 years lease contract		$\chi^2= 7,978^{**}$ $\kappa= 0,222$			$\chi^2= 4,876^*$ $\kappa= -0,137$	$\chi^2= 7,082^{**}$ $\kappa= -0,184$
5 years lease contract		$\chi^2= 9,232^{**}$ $\kappa= 0,242$				
Lease for an indefinite period			$\chi^2= 14,382^{**}$ $\kappa= 0,316$			

\*Significant at the 0.05 level (2-tailed)

\*\*Significant at the 0.01 level (2-tailed)

In addition, significant differences were established between a serviced office and the other business center concept, with regard to self-employed people, independent workers and SME's. These findings suggest that serviced offices focus on these target groups. No significant differences were found, with regard to the target groups, between a co-working office and the other business center concepts.

Differences were also found between an incubator and the other concepts with regard to SME's (negative), start-up enterprises (positive) and large enterprises (negative). This suggests that incubators focus on start-up enterprises rather than SME's or large enterprises, which is in line with the existing literature (e.g. Peña, 2004).

Other business center concepts were found to be significantly different with regard to self-employed people (negative) and other target groups (positive). This suggests that other business centers focus more on other target groups and less on self-employed people.

**Table 5. Facilities/services**

Positive	Negative	Business center concepts				
N		35	45	12	14	17
Variables		Regular business center	Serviced office	Co-working office	Incubator	Other business center concept
Business services		$\chi^2= 16,969^{**}$ $\kappa= -0,349$	$\chi^2= 24,312^{**}$ $\kappa= -0,414$		Fisher's Exact-test* $\kappa= -0,157$	
Secretarial services		$\chi^2= 26,315^{**}$ $\kappa= -0,382$	$\chi^2= 29,532^{**}$ $\kappa= 0,435$			
Security			$\chi^2= 9,650^{**}$ $\kappa= 0,201$		$\chi^2= 7,051^{**}$ $\kappa= -0,106$	
Managed technology services		$\chi^2= 10,578^{**}$ $\kappa= -0,197$	$\chi^2= 16,146^{**}$ $\kappa= 0,273$			
Consultancy services		$\chi^2= 7,258^{**}$ $\kappa= -0,233$				Fisher's Exact-test** $\kappa= 0,245$
Networking events		$\chi^2= 31,661^{**}$ $\kappa= -0,427$	$\chi^2= 15,846^{**}$ $\kappa= 0,323$	$\chi^2= 4,147^*$ $\kappa= 0,124$		
Workshops and lectures		$\chi^2= 27,110^{**}$ $\kappa= -0,426$	$\chi^2= 12,738^{**}$ $\kappa= 0,301$	$\chi^2= 4,260^*$ $\kappa= 0,144$		
Catering		$\chi^2= 30,615^{**}$ $\kappa= -0,423$	$\chi^2= 26,975^{**}$ $\kappa= -0,423$	$\chi^2= 6,124^{**}$ $\kappa= 0,154$	$\chi^2= 6,287^{**}$ $\kappa= -0,156$	
Use of coffee and tea maker		$\chi^2= 41,659^{**}$ $\kappa= -0,421$	$\chi^2= 26,975^{**}$ $\kappa= 0,370$	$\chi^2= 7,763^{**}$ $\kappa= 0,138$		
Furniture		$\chi^2= 18,185^{**}$ $\kappa= -0,328$	$\chi^2= 28,282^{**}$ $\kappa= 0,435$			
Pay what you use principle		$\chi^2= 4,066^*$ $\kappa= -0,043$	$\chi^2= 11,706^{**}$ $\kappa= 0,082$	$\chi^2= 5,232^*$ $\kappa= 0,036$	$\chi^2= 7,582^{**}$ $\kappa= -0,041$	

\*Significant at the 0.05 level (2-tailed)

\*\*Significant at the 0.01 level (2-tailed)

Regarding *lease contracts*, negative significant difference were found between a regular business center and the other concepts with regard to an one hour, one day and an one month lease contract. This suggests that regular business centers do not offer these types of lease contracts. Positive significant differences were found

regarding a two year and a five year lease contract. These findings suggest that regular business centers offer more often these two types of lease contracts compared to the other business center concepts. Significant differences were found between a serviced office and the other the business center concepts with regard to several types of lease contracts. These findings imply a serviced office offers more often a one hour lease contract, a one day lease contract, a one month lease contract or a lease contract for an indefinite period than other concepts.

Regarding lease contracts, no significant differences were found between a co-working office and the other business center concepts. In addition, the results in Table 4 suggest that incubators less often offer a one hour, one day and an one month lease contract and more often an one year, two years and a five years lease contract than other business center concepts.

#### *Facilities/services*

As can be seen in table 5, many significant results were found with regard the *facilities/services* offered by the business centers. Several negative differences were found between a regular business center and the other business center concepts. These findings suggest that a regular business centers offers a lower level of services than the other business center concepts. This is also recognized by the existing literature (e.g. Calder and Courtney, 1992; Troukens, 2001).

Serviced offices were found to have the highest level of services. Regarding all facilities/services, besides the consultancy services, cleaning and maintenance services and the other services, there is a positive significant difference between a serviced office and the other business center concepts. Here, Gibson and Lizieri (1999) stated that a serviced office offers a wide range of IT and secretarial services, whereas Peltier (2001) suggested a serviced office also offers business services.

Significant differences were found between a co-working office and the other concepts with regard to catering, the use of coffee and tea maker and with regard to more social services (networking events and workshops or lectures). These services stimulate networking and collaboration among tenants/users of the business centers, because they give people the opportunity to meet each other.

Negative significant differences were found between incubators and the other business center concepts with regard to business services, security and catering. This finding suggests that incubators provide a lower range of services compared to the other business center concepts. In addition, no differences were found with regard to consultancy services. However, it is recognized that business support services (e.g. business advice, entrepreneurial training and assistance services) are important for developing a successful enterprise (e.g. Al-Mubarak and Busler, 2011; Peña, 2004). On the other hand, a positive significant difference was found between other business center concepts and the other four business center concepts with regard to consultancy services. This finding suggest that most other business centers offer consultancy services. This may be related to the fact that most other business center concepts involve a combination of the four types of business centers.

With regard to the 'pay what you use' principle, several significant differences were found between the business center concepts. These findings suggest that a regular business center and incubators offer less often facilities based on the pay what you use principle. Moreover, serviced offices and co-working offices offer more often facilities based on the pay what you use principle.

#### *Spaces, type of property and capacity*

Several negative significant results were found with regard the types of *spaces* between a regular business center and the other business center concepts. These findings suggest that a regular business center offers less different types of spaces than the other concepts. Regarding serviced offices, findings of this study suggest that serviced offices offer more often an office space with fixed workstations, office space with shared/ flexible workplaces, a conference room, a kitchen and a coffee corner than the other business center concepts. Serviced offices do not offer atelier spaces or other spaces.

Regarding an informal/social meeting space, space for copy, print, mail etc. and other spaces, positive significant differences were found between a co-working office and the other business center concepts. This finding suggests that co-working offices provide more social and collaborative spaces than the other business center concepts. No significant differences were found between an incubator and the other business center concepts. This is probably because of the low number of incubators in the sample. Other business center concepts were found to be significantly different in terms of atelier space, laboratory space, project, creative- or classroom and other spaces. This might suggest that other business center concepts offer more of these types of spaces than their counterparts.

**Table 6. Spaces**

Positive	Negative	Business center concepts				
N		35	45	12	14	17
Variables		Regular business center	Serviced office	Co-working office	Incubator	Other business center concept
Office space with fixed workstations		$\chi^2= 8,185^{**}$ $\kappa= -0,160$	$\chi^2= 10,816^{**}$ $\kappa= 0,208$			
Office space with shared/ flexible workspaces		$\chi^2= 14,411^{**}$ $\kappa= -0,262$	$\chi^2= 21,686^{**}$ $\kappa= 0,352$			
Atelier space			$\chi^2= 5,152^*$ $\kappa= -0,193$			$\chi^2= 6,832^{**}$ $\kappa= 0,200$
Laboratory space		Fisher's Exact-test* $\kappa= -0,178$				Fisher's Exact-test* $\kappa= 0,213$
Conference room		$\chi^2= 10,386^{**}$ $\kappa= -0,158$	$\chi^2= 12,958^{**}$ $\kappa= 0,202$			
Informal/ social meeting space		$\chi^2= 14,047^{**}$ $\kappa= -0,217$		$\chi^2= 7,085^{**}$ $\kappa= 0,144$		
Project-, creative- or classroom		$\chi^2= 4,061^*$ $\kappa= -0,158$				$\chi^2= 5,463^*$ $\kappa= 0,161$
Space for copy, print, mail etc.		$\chi^2= 15,185^*$ $\kappa= -0,307$		$\chi^2= 3,865^{**}$ $\kappa= 0,127$		
Kitchen		$\chi^2= 10,820^{**}$ $\kappa= -0,184$	$\chi^2= 10,816^{**}$ $\kappa= 0,208$			
Coffee corner		$\chi^2= 40,740^{**}$ $\kappa= -0,432$	$\chi^2= 30,673^{**}$ $\kappa= 0,431$			
Other space			$\chi^2= 8,615^{**}$ $\kappa= -0,221$	Fisher's Exact-test** $\kappa= 0,299$		Fisher's Exact-test** $\kappa= 0,244$
# Types of spaces		$t= 6,885^{**}$	$t= -2,671^{**}$	$t= -2,528^*$		
# Types of shared spaces		$t= 4,433^{**}$				
Year of construction			$t= -2,457^*$			
# Years as a business center		$t= -2,432^*$				

\*Significant at the 0.05 level (2-tailed)

\*\*Significant at the 0.01 level (2-tailed)

In addition, a significant difference was found between a regular business center ( $M=5,34$ ,  $SD=2,34$ ) and the other business center concepts ( $M= 8,80$ ,  $SD=3,15$ ) with regard to the number of spaces and between a regular

business center (M=1,60, SD=1,88) and the other concepts (M=3,64, SD=3,41) with regard to the number of shared spaces.

With regard to the total number of different spaces, a significant difference was found between a serviced office (M=8,89, SD=2,60) and the other concepts (M=7,47, SD=3,54) and between a co-working office (M=9,68, SD=3,82) and the other concepts (M=7,65, SD=3,17). These findings suggest that serviced offices, co-working offices and other types of business center concepts offer more types of different spaces than regular business centers or incubators.

As can be seen, table 5 shows the results of the t-test analyses between the different business center concepts, the type of property (year of construction and number of years as a business center). A significant difference was found between a regular business center (M=12,67, SD=9,84) and the other business center concepts (M=8,46, SD=8,47), with regard to the number of years as a business center. This might suggest that regular business centers exist a longer time than other business center concepts. Another negative significant difference was found between a serviced office (M=1982, SD=31) and the other business center concepts (M=1967, SD=34) with regard to the year of construction. This finding suggests that serviced offices are mostly located in newer buildings than other business center concepts.

No other significant differences were found between the types of business center concepts, with regard to the year of construction and the number of years as a business center. Furthermore, no significant results were found between the business center concepts with regard to the capacity (minimal rented surface in m<sup>2</sup>, the GFA in m<sup>2</sup> and the vacancy in m<sup>2</sup>).

## 5. DISCUSSION AND CONCLUSION

The aim of this study was to analyze the business center market and test if the existing classifications entail significantly different concepts. In addition, to understand the different types of business center concepts, the differences between the business center concepts with regard to the business center characteristics were analyzed.

This study points at many significant differences between business center concepts. *Regular business centers* appear to exist longer than the other business center concepts, have no specific objectives, offer mostly a one year, 2 year or a 5 year lease contract, offer a low number of different (shared) spaces, and have a low service level.

*Serviced offices* are mostly newer business centers, for profit oriented, have many objectives, are oriented on SME's, self-employed people and independent workers, offer a lot of different (shared) spaces, have a high service level, mostly based on a 'pay as you use' principle and offer workspaces based on a one hour, one day or one month lease contract.

*Co-working offices* have the objective to stimulate knowledge transfer and to create a working community. These offices offer social and collaborative spaces, mostly based on a one year lease contract, have a high number of different spaces and offer catering and the use of coffee and tea makers.

*Incubators* appear to be mostly nonprofit oriented, have as objectives to support and facilitate start-up enterprises and to stimulate economic development and growth in the region, and are focused on start-up enterprises.

Thus, the analyses show that the four concepts of business centers in the literature also exist in the market and indeed have unique selling points to attract tenants. However, the results did not show significant differences with regard to the number of tenants, the informal atmosphere, spaces (concentration room, reception/ entrance, storage room, showroom, business units and office space with fixed and shared workplaces), minimal rented surface and the GFA. So, with regard to the physical part of the concepts all business centers are rather uniform and can be offered in similar objects. Therefore, owners/managers must differentiate themselves on the characteristics that make their concept unique (services, contract types or social spaces) and emphasize these in marketing and branding activities.

Surprisingly, less significant differences were found between an incubator and the other business center concepts than was expected. For example, incubators were not found to be significantly different with regard to the objectives 'to offer full-fitted office space' and 'to offer managed technology', laboratory space, project-, creative- or classroom and business- or consultancy services. This might be due to the low number of incubators in the dataset, compared to the other business center concepts, but also could indicate a shift in the entire market towards offering more complete and holistic concepts. This makes it difficult for incubators to profile themselves, because their role (to provide a complete concept to help and support start-up enterprises) is taken over by the other concepts. Owners/managers of incubators could rethink their role (as most are non-profit organizations) and how they can still add to reaching their specific goals of stimulating start-up enterprises in certain sectors by

offering more unique services and facilities (e.g. laboratory space, consulting services, networking opportunities and access to capital).

Findings suggest that more and more owners/managers recognize the social importance of business centers for tenants. Therefore, a growing number of business centers (e.g. co-working spaces) focus on creating a work community and offering social services, facilities and spaces. Occupancy rates in this sample show that co-working spaces have a lower occupancy rate compared to regular business centers and serviced offices. This suggests that co-working spaces have increased in popularity. These findings are in line with existing literature that suggest that there is a growing demand for other spaces than just a regular office space (e.g. informal meeting areas, project spaces and event spaces) (Harris, 2015).

Business center owners/managers who are dealing with vacancy problems or consider refurbishments could improve their business center by offering a more extended concept, with aspects that make their concept unique (e.g. atelier spaces, project- and creative spaces, laboratory spaces, consultancy services). As this study showed, this should not demand big changes in the physical presence of the building itself, and thus should be fairly easy. Furthermore, developers and investors could use findings of this study to make well-informed decisions about new business centers that they want to develop or invest in.

Although business centers have become an important sector of the property market, there is hardly any empirical research on this sector. The results of this study provide more insight into the business center sector, which could be useful to academic researchers in this area. Findings of the analyses on the other reported business center concepts (e.g. not belonging to the four general types in literature) show several significant differences, such as an atelier space, laboratory space, project-, creative- or classroom and consultancy services. Further research in this area needs to analyze, besides the four business center concepts used in this study, if other business center concepts can be identified and what their unique selling points are. In addition, why these parties have decided to offer a different concept needs to be analyzed. Also, it would be interesting to analyze user characteristics and how users of the different business centers experience these concepts.

In this study, data is collected from 139 business centers in the Netherlands. The dataset includes business centers from all different types of business center concepts, spread over various construction periods. However, using a larger dataset of business centers is likely to enhance the validity and reliability of the findings. Moreover, comparing the results of this study of Dutch business centers to those in other countries will serve to develop a taxonomy of business center concepts that is generally applicable.

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