XS > XL

The emerging concept of commercial co-living and its influence on users-affordability and developers-profitability

PERSONAL DATA

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Graduation phase	*P5*
Date of proposal	*1st of April 2019*
Date of presentation	*8th of April 2019*
Institution	*Technical University of Delft*
Mastertrack	*Management in the Built Environment*
Course	*MBE Graduation Laboratory*
Domain	*Housing*
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ABSTRACT

The worldwide urbanization is resulting in increasingly densified urban areas, aiming for the development of more space efficient cities. The increase of urban inhabitants, also in the Netherlands, has put vast pressure on the demand of housing in the city. Mainly affected by the Dutch housing crisis are young and elderly people looking for mid-segment rental housing, of which the availability of affordable housing is problematic. Simultaneously, Dutch demographics are changing wherein an extensive increase of one-person households is expected. With a traditional housing stock serving mainly one-family households, the vast shortages and the increasing demand, this future mismatch on the housing market frames the current issue.
With the emergence of a new economic landscape, the sharing economy provides new insights in possible solutions for the housing crisis: the concept of shared housing of which commercial co-living. This raises the question what this concept comprises of and how the characteristics of this concept can influence upon the affordability of housing and perhaps stimulate developers by providing a profitable development and operation. Through the diminishing of private space but addition of larger communal areas, the concept of co-living can decrease rental costs but increase number of units, possibly serving the user-affordability and developers-profitability. Through research into the concept of co-living, a thorough analysis of state-of-the-art examples and subsequently framing the characteristics of co-living. An analysis upon the level of influence of these characteristics in regards of the users-affordability and developers-profitability, give an initial insight in the economic opportunities of co-living on the commercial housing market.

PREFACE

In front of you lies my conducted research for the graduation research in the domain of Housing, written at the Faculty of Architecture, Urbanism and the Built Environment of the Technical University of Delft.

Whilst combining my studies of Architecture with the studies in Management in the Built Environment, my personal interest has always gone towards the changing of society and its physical impact on the urban and architectural environment. What is this built future we are conceptualizing present-day? What are the qualities we aim for in the future regarding the built environment?

With this same fascination I present to you this research of XS>XL: the emerging concept of commercial co-living and its influence on users-affordability and developers-profitability. A research emerging from the existing mismatch on the housing market and the questions it arises about the possible future of housing in the densifying city. A changing society demands for a changing view on one of the main requirements in daily life: housing.

I hope you will read this research proposal with as much enthusiasm as I have researching the subject.

Yours sincerely,

Ir. L.A. Rissik

MANAGEMENT SUMMARY

Problem Statement
The worldwide urbanization is resulting in increasingly densified urban areas, aiming for the development of more smart and efficient use of space in cities. The increase of urban inhabitants, also in the Netherlands, has put vast pressure on the demand of housing in the city. Mainly affected by the Dutch housing crisis are young and elderly people looking for mid-segment rental housing -€710,68-€1000 a month-, of which the availability of affordable housing is problematic. Simultaneously, Dutch demographics are changing wherein an extensive increase of one-person households is expected. With a traditional housing stock serving mainly one-family households, the vast shortages and the increasing demand, this future mismatch on the housing market frames the current issue on the Dutch housing market.

Research proposal
With the changing economic landscape towards a more 'sharing economy', new housing concepts emerge amongst which shared housing solutions. One of these shared housing solutions is represented by the concept of commercial co-living. Through the diminishing of private space and the addition of larger collective spaces, the concept brings together urban housing and community living. Within the same concept of sharing, the possibility is served that it can provide affordable housing but can also be increasingly interesting for commercial housing developers by being able to rent out to an increase number of tenants. Within this research these two perspectives are analysed simultaneously: its users aiming for affordability, and its developers aiming for profitability.
The research proposal comprises out of first an understanding of the emerging concept of commercial co-living, with its background, characteristics and hypothesis on influencing affordability and profitability. This first part is followed by an analysis of state-of-the-art co-living projects upon their configuration of the characteristics and their level of influence upon the affordability and profitability.

Research questions
As mentioned, the research is divided into two parts, a descriptive and an analytical part. The first, descriptive part addresses the understanding of the concept of commercial co-living. The second, analytical part addresses the analysis upon the configuration of the framed characteristics as found in state-of-the-art co-living projects and their level of influence upon the users-affordability and developers-profitability.

Serving these two parts, a main research question is posed.

"What is commercial co-living and
how do its physical and operational characteristics influence the (users-)affordability and (developers-)profitability?"

In order to direct the research into these two parts, the main research question is subdivided into partial questions.

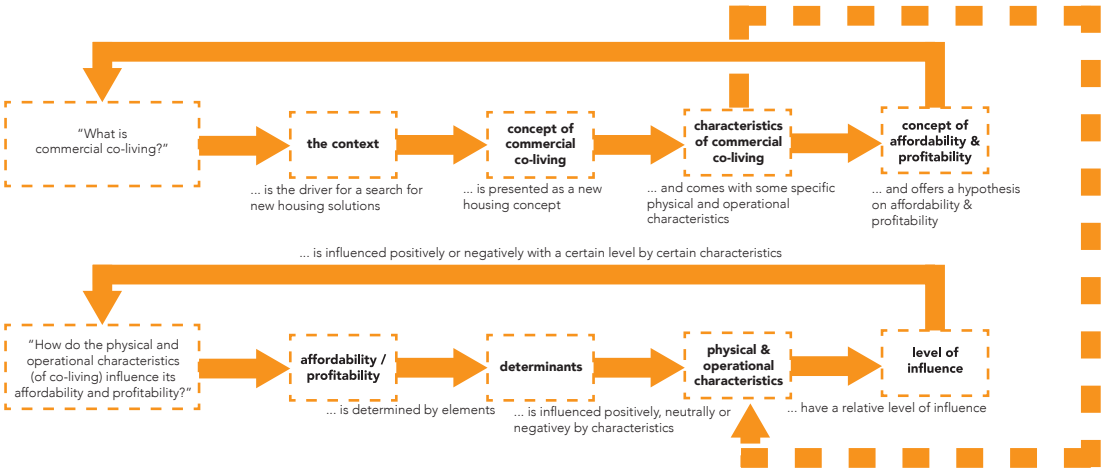


Figure M1. Research divided in two parts (own ill.)

Research part 0: Introduction to the research context
1 What are the main issues on the present-day Dutch housing market?
[Context: why demand for affordability and profitability?]

Research part 1: Descriptive
2 What is (the concept of) commercial co-living?
3 What are the physical and operational characteristics of commercial co-living?
4 What is the co-living concept on user-affordability and developers-profitability?

Research part 2: Analytical
5 How can user-affordability be determined?
6 How can developers-profitability be determined?
7 How do the physical and operational characteristics influence the affordability?
8 How do the physical and operational characteristics influence the profitability?

By using these sub-questions as a guideline throughout the entire research, the main posed question will be answered. See figure M1.

Research framework
In aiming to be able to answer upon the framed sub-questions and with that be able to conclude upon the main question, a set of research methods are framed together with the development of an analytical tool. See figure M2.

Methodology
The research into the issues on the housing market and the analysis framing the basis of the research proposal is conducted through a literature (and small market) study. Here a combination of scientific literature together with journalistic reviews is used to answer to these questions.
The main body of the research demanded a collection of methods, which concluded in a combination of literature and journalistic study together with case study analyses. The case study analysis is conducted through desk research in combination with semi-structured interviews.

Analytical framework
As the analytical part of the research comprises out of a qualitative analysis upon the concept of commercial co-living together with its characteristical influence upon the affordability and profitability, an analytical framework is developed in order to be able to analyse and compare the collected data. The collected data comprises out of qualitative information about the concept and empirical findings from the analysed case-studies, as well as quantitative information on projects and contextual market studies. Being able to compare this input of qualitative and quantitative data, an analytical tool is developed in order to be able to compare and assess upon the level of influence upon the affordability and profitability, as posed in the second part

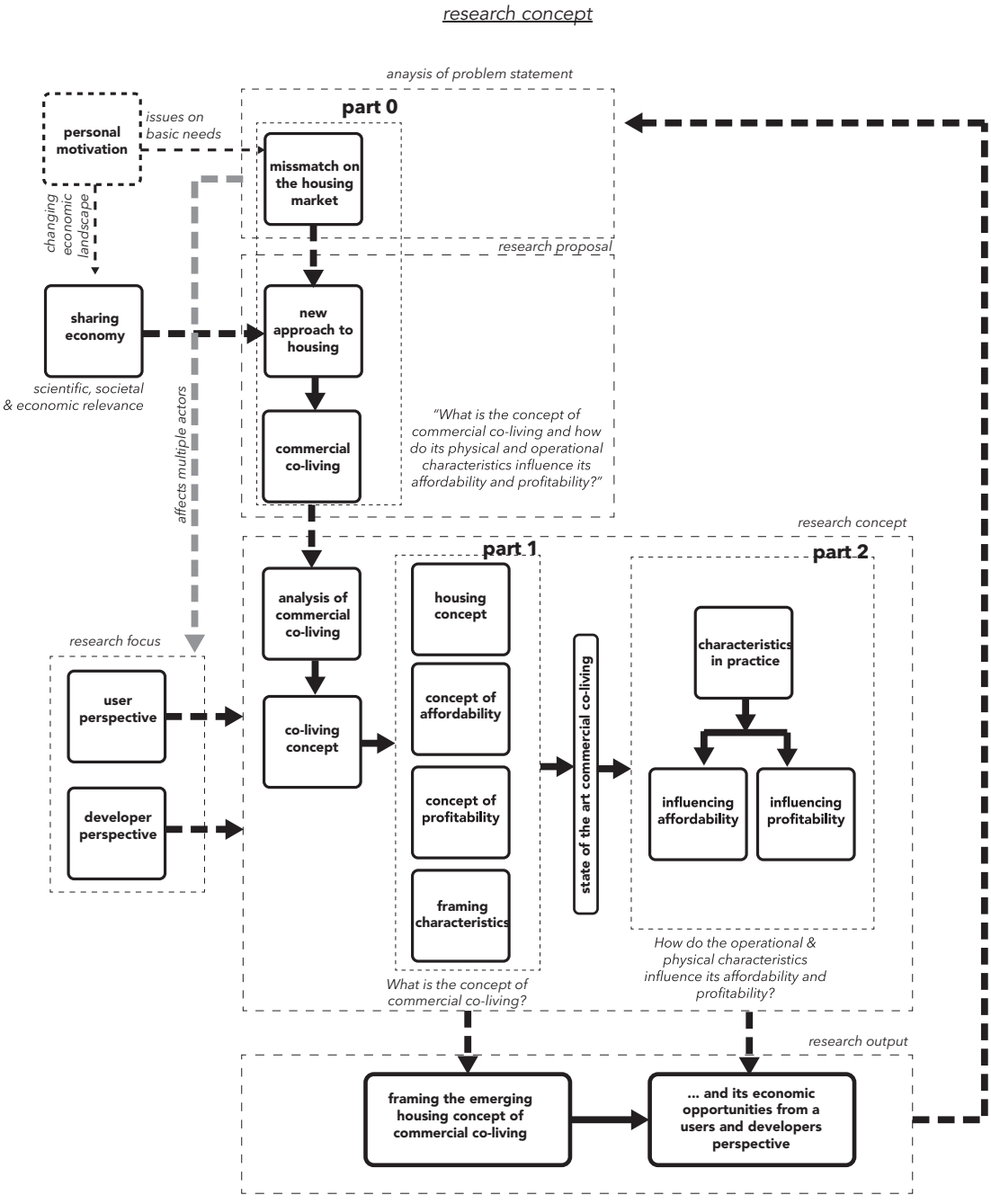


Figure M2. Research concept (own ill.)

of the research question.

The analytical framework is developed upon the housing economics adjustment system upon supply and demand by Fallis (1985). Affordability and profitability of housing are intrinsically a part of the general housing economics system. In the effort of determining the influence upon affordability and profitability of the co-living concept in comparison to traditional housing, it is apparent that the concept will be analysed within the general housing economics. The adjustment system addresses both the supply and demand and its price-equilibrium for housing, representing both perspectives of user and developer. See M3 for the determinants of affordability and profitability derived from the adjustment system. The influence of the characteristics upon the affordability and profitability is conducted through its level of influence upon the determinants for these aims. See figure M4.

In figure M5 the layout of the analytical framework for answering the second part of the research regarding the influence of the characteristics on the users-affordability and developers-profitability is shown. Here determinants for affordability and profitability are framed and connected to the influencing physical and operational characteristics. The level of influence, 1 to 5 or very negative to very positive, is framed in comparison to traditional housing. Figure M6, shows the analytical tool that was developed based upon this analytical framework.

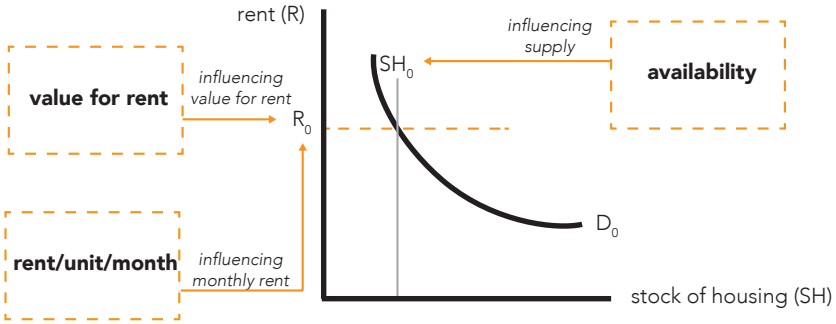


Figure M3a. Determinants for affordability, basis for the analytical framework (own ill. based on Fallis, 1985)

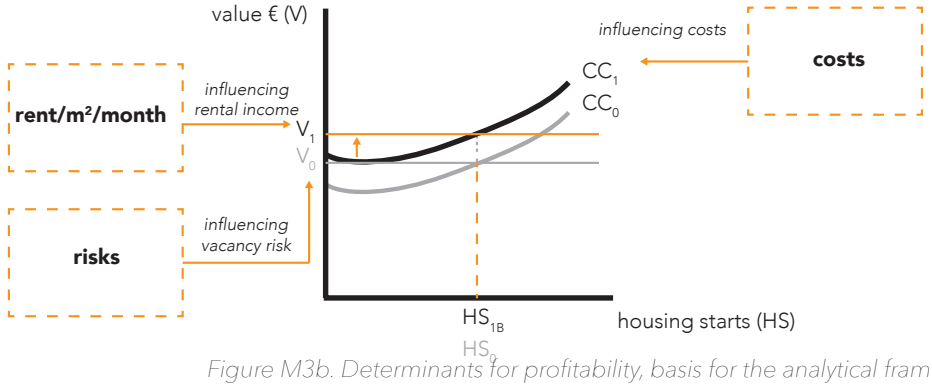


Figure M3b. Determinants for profitability, basis for the analytical framework (own ill. based on Fallis, 1985)

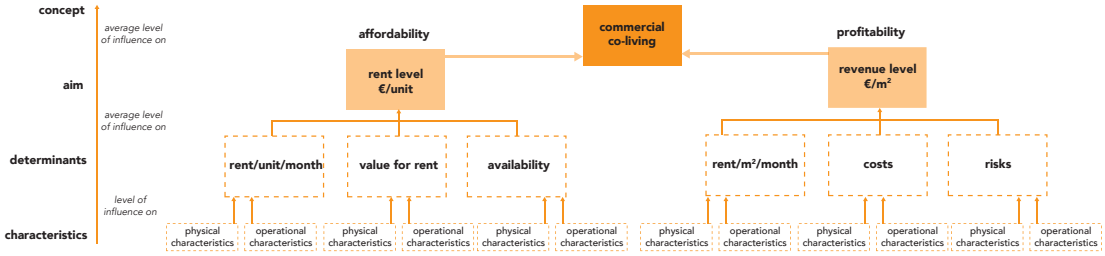


Figure M4. Characteristics influencing determinants for affordability and profitability (own ill.)

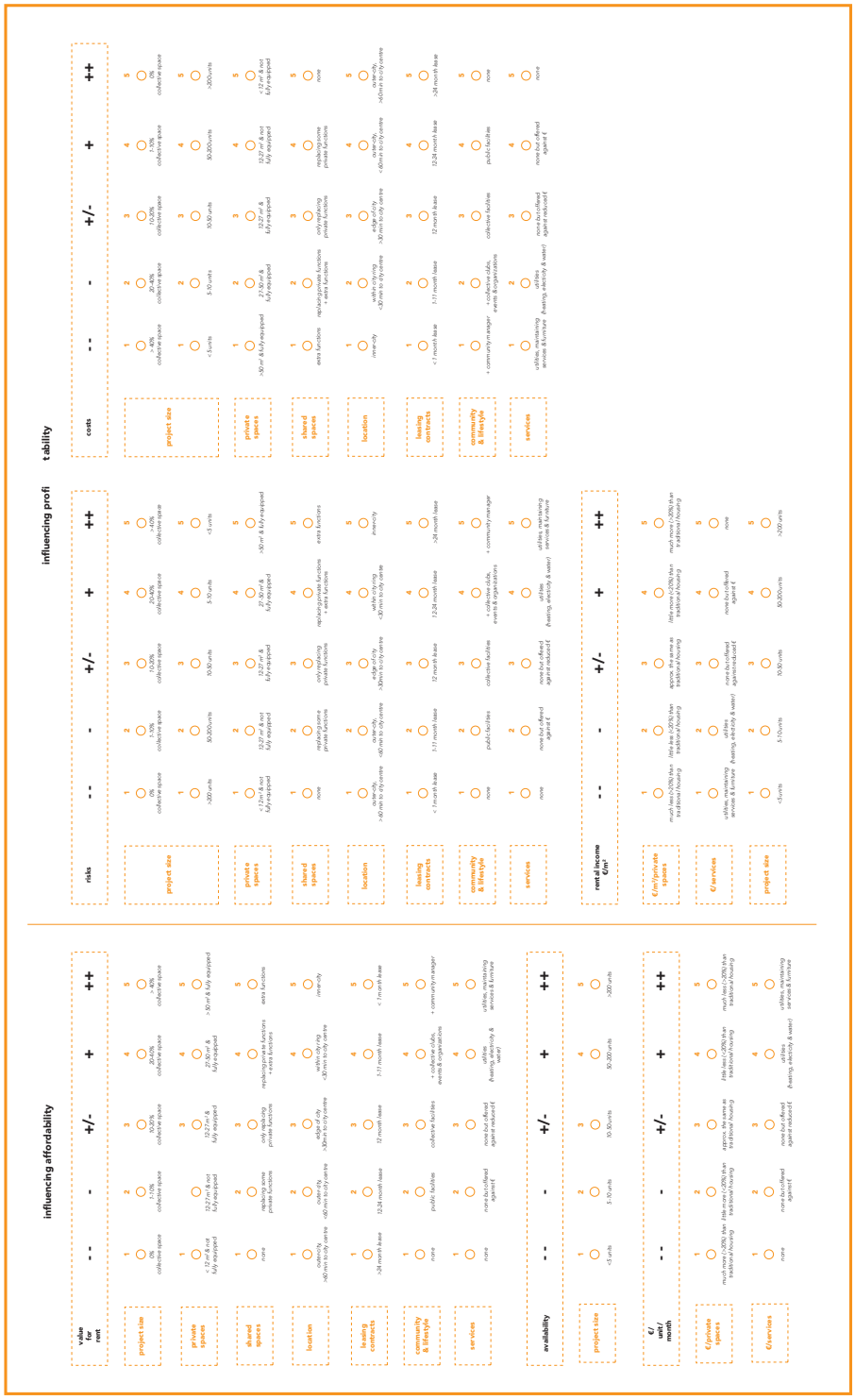


Figure M6. Analytical tool based upon analytical framework. (own. ill.)

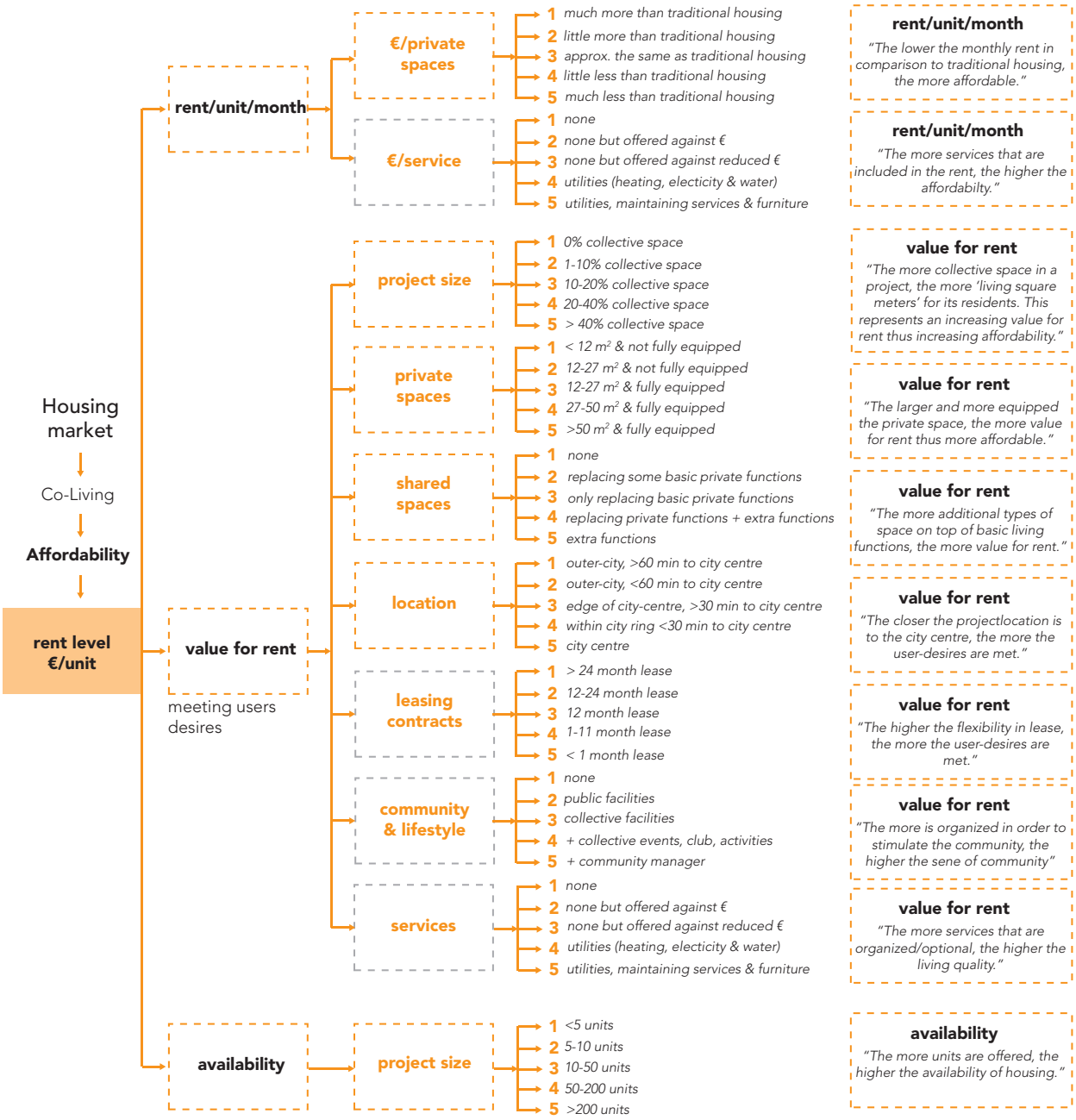
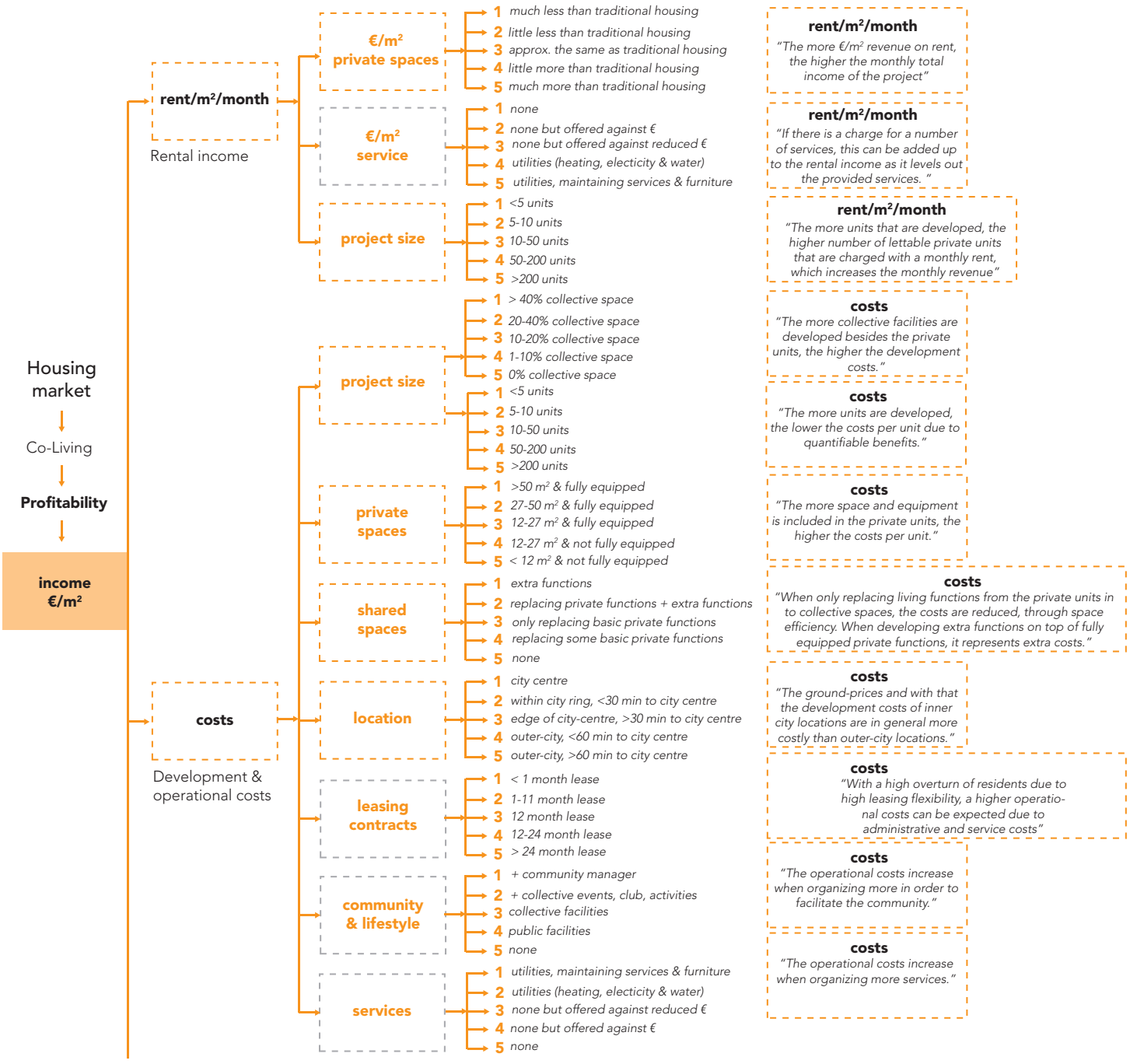


Figure M5a. Overview of analytical framework: affordability (own. ill.)


Housing market
Co-Living
Profitability
income €/m²
rent/m²/month
Rental income
costs
Development & operational costs
€/m² private spaces
1 much less than traditional housing
2 little less than traditional housing
3 approx. the same as traditional housing
4 little more than traditional housing
5 much more than traditional housing
€/m² service
1 none
2 none but offered against €
3 none but offered against reduced €
4 utilities (heating, electicity & water)
5 utilities, maintaining services & furniture
project size
1 <5 units
2 5-10 units
3 10-50 units
4 50-200 units
5 >200 units
project size
1 > 40% collective space
2 20-40% collective space
3 10-20% collective space
4 1-10% collective space
5 0% collective space
1 <5 units
2 5-10 units
3 10-50 units
4 50-200 units
5 >200 units
private spaces
1 >50 m² & fully equipped
2 27-50 m² & fully equipped
3 12-27 m² & fully equipped
4 12-27 m² & not fully equipped
5 < 12 m² & not fully equipped
shared spaces
1 extra functions
2 replacing private functions + extra functions
3 only replacing basic private functions
4 replacing some basic private functions
5 none
location
1 city centre
2 within city ring, <30 min to city centre
3 edge of city-centre, >30 min to city centre
4 outer-city, <60 min to city centre
5 outer-city, >60 min to city centre
leasing contracts
1 < 1 month lease
2 1-11 month lease
3 12 month lease
4 12-24 month lease
5 > 24 month lease
community & lifestyle
1 + community manager
2 + collective events, club, activities
3 collective facilities
4 public facilities
5 none
services
1 utilities, maintaining services & furniture
2 utilities (heating, electicity & water)
3 none but offered against reduced €
4 none but offered against €
5 none
rent/m²/month
"The more €/m² revenue on rent, the higher the monthly total income of the project"
rent/m²/month
"If there is a charge for a number of services, this can be added up to the rental income as it levels out the provided services. "
rent/m²/month
"The more units that are developed, the higher number of lettable private units that are charged with a monthly rent, which increases the monthly revenue"
costs
"The more collective facilities are developed besides the private units, the higher the development costs."
costs
"The more units are developed, the lower the costs per unit due to quantifiable benefits."
costs
"The more space and equipment is included in the private units, the higher the costs per unit."
costs
"When only replacing living functions from the private units in to collective spaces, the costs are reduced, through space efficiency. When developing extra functions on top of fully equipped private functions, it represents extra costs."
costs
"The ground-prices and with that the development costs of inner city locations are in general more costly than outer-city locations."
costs
"With a high overturn of residents due to high leasing flexibility, a higher operatio-nal costs can be expected due to administrative and service costs"
costs
"The operational costs increase when organizing more in order to facilitate the community."
costs
"The operational costs increase when organizing more services."

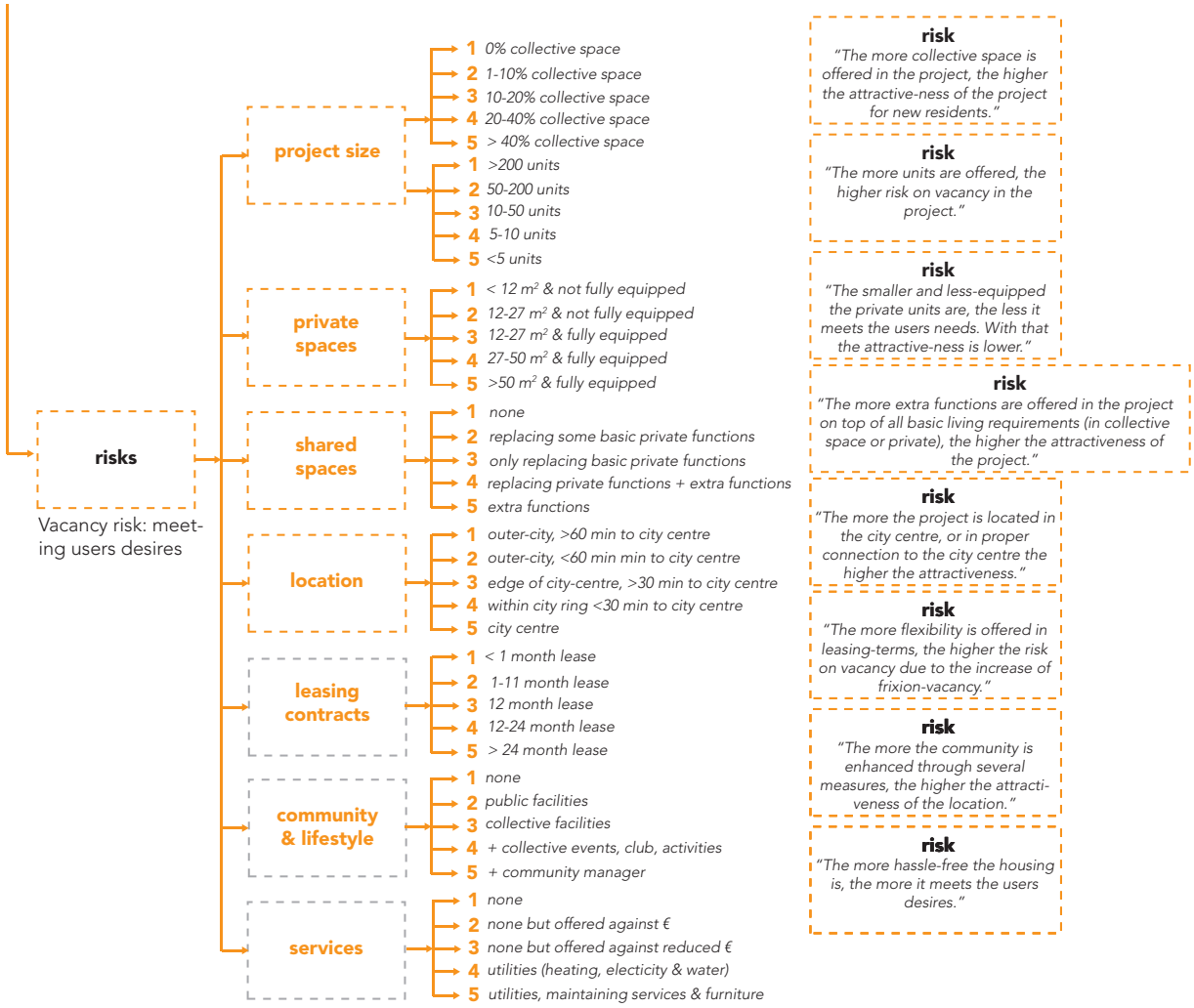


Figure M5b. Overview of analytical framework: profitability (own. ill.)

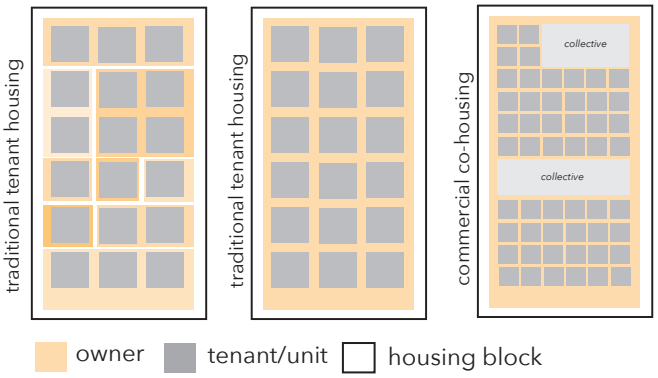


Figure M7. Commercial traditional tenant housing versus co-living (own ill.)

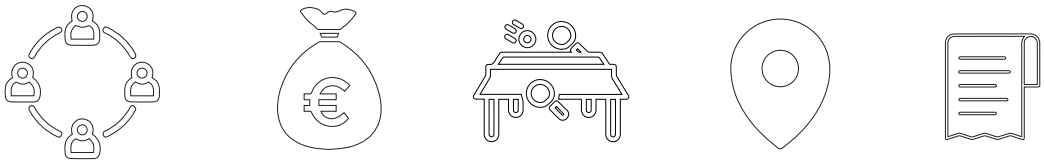


Figure M8. Main requirements for co-living from an users-perspective (own ill. based on One Shared House 2030)

Figure M9. Levels of sharing in co-living based upon the One Shared Housing Survey and the case study analyses (own ill. based on the circles of sharing of AM)

Research results
With the discussed research methods, results upon the posed research questions were provided.

Result Part 1: "What is the concept of commercial co-living"?
After reviewing literature, journalistic findings and state-of-the-art examples of co-living, an insight is given in what the concept of commercial co-living comprises of.

The concept of 'commercial co-living' represents in the basis the facilitation of relatively smaller (in comparison to traditional housing of approximately 50m2 per person) private living units together with collective facilities within one building. The leasing out of collection of private units and facilities are here the responsibility of one commercial company or person. See figure M7. In the following elements of this basic concepts are further elaborated on.

Considering the differences between traditional housing and co-living, it can be expected that other user-drivers are in place. From the perspective of the co-living user, five main desires can be determined: enhancing social interaction by taking part in a community, saving upon housing costs through the sharing of spaces, use of a variety of amenities in close proximity of ones living environment, living in central or well-connected urban locations and flexibility in terms of housing leases. See figure M8.

As the concept of co-living comprises out of the balance between private and shared spaces, an analysis upon these levels of sharing was in place. Based upon the research of AM in levels of sharing of millennials, the co-living levels of sharing are developed. These levels of sharing, based upon literature and case study analyses, give insight in the level of privacy that is expected in certain functions. What is concluded here is that the basic homey functions (bathing, sleeping, cooking, eating, living) can be divided into 'never shared' and 'optionally shared'. Here the sleeping and bathing areas are never shared, but the other homey functions are sometimes shared and sometimes private. See figure M9.

Within the basic concept of commercial co-living, a hypothesis upon the user-affordability and developers-profitability can be found.
Here, the affordability concept is based upon the reduction of private square meters, which are the most expensive. By sharing some living spaces (homey functions) the price/costs of square metres for these functions are 'shared'. The benefit here is that although the private spaces are much smaller than in traditional housing, one's total living space is increased by the addition of collective spaces. In this way the private spaces are balanced with the use of collective space and makes up for the lack of private space. This represents the concept on making housing affordable, without given in too much in living space. See figure M10.

Besides a hypothesis upon affordability, the co-living housing concept also provides a hypothesis on the opportunities for profitability. The concept of profitability is based upon the higher revenue per square meter, whilst providing smaller private units complemented with collective spaces in order to facilitate 'the same amount of living space' for its tenants. With a higher square meter prices in comparison to traditional housing, but lower monthly costs for its users due to the lease of less private square meters, the concept of affordability and profitability

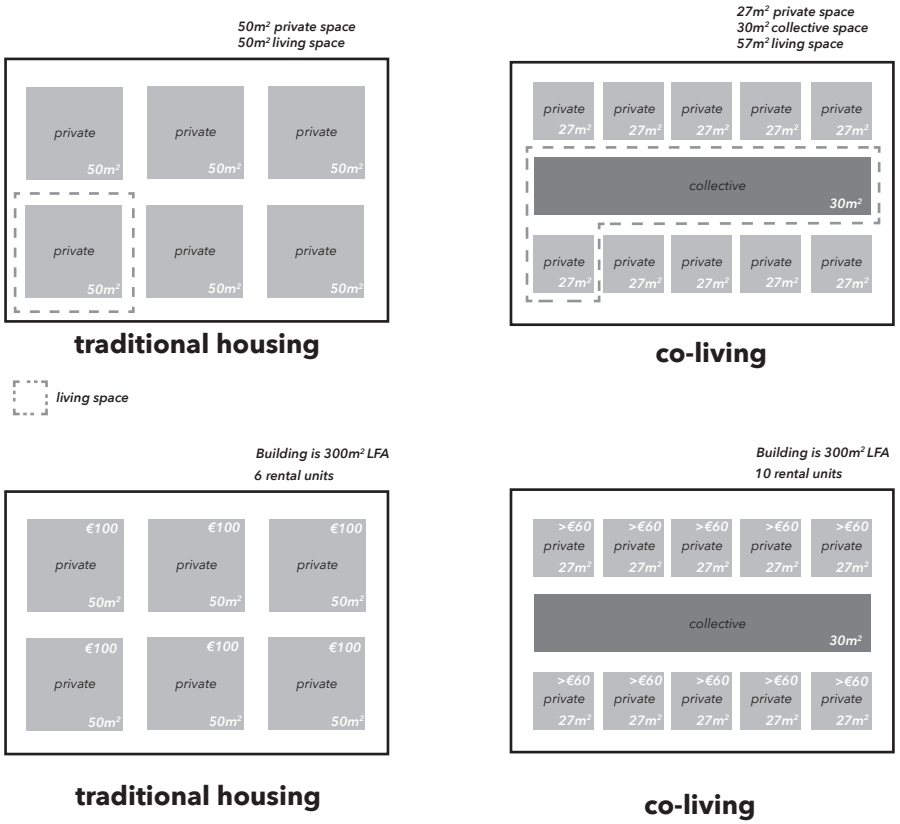


Figure M10 & M11. Concept of affordability and profitability in commercial co-living (own ill.)

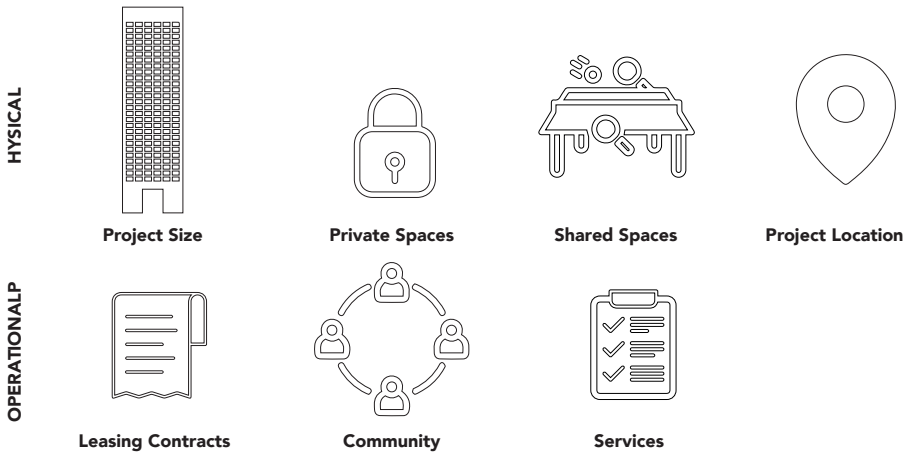


Figure M12. Framed physical and operational characteristics of commercial co-living (own ill.)

find each other in the co-living concept. See figure M11.

Based upon the collected data upon the concept of co-living and its background, its user drivers, levels of sharing and state-of-the-art examples of co-living, a total of 7 characteristics are framed. These are complemented by its direct financial implications on the housing costs (rent/month & services/month). The characteristics are divided into physical and operational characteristics.
The physical characteristics comprise out of the project size, configuration of private units and shared spaces and the project location. The operational characteristics comprise out of the leasing terms, the facilitation of the community and the provided services. See figure M12.

Result Part 2: "How do its physical and operational characteristics influence the (user-) affordability and (developers-)profitability"?

Through the implementation of the developed analytical tool that helps framing the level of influence of the characteristics upon the determinants of affordability and profitability, knowledge is gained upon the economic opportunities of certain characteristics from a user and developer perspective. After analysing 6 case studies upon the configuration of their characteristics, then with the use of the analytical tool determining their level of influence upon the determinants for affordability and profitability were framed. Taking these levels of influence of the 6 case studies together, an average result upon the levels of influence of certain characteristics is provided, as shown in figure M13.

Considering the second part of the research question – "How do the physical and operational characteristics (of commercial co-living) influence the (users-)affordability and (developers-) profitability?" – it is interesting to take these separate influences of the characteristics upon the determinants as shown in figure M13 together, and see if a conclusion can be drawn upon the influence of the characteristic as a whole upon the affordability and profitability.

In figure M14 and M15 the level of influences of the characteristics per determinant are comprised into an verage level of influence upon the affordability and profitability. These levels of influence, ranging from very negative to very positive, give an insight in how the configuration of these characteristics, as discussed in the research, impact the affordability and profitability (in comparison to traditional housing).
In terms of affordability this level of influence per characteristics could directly be linked to an 'average configuration' (see figure M14). Yet, this is not possible for all the levels of influence of the characteristics on the profitability, as the determinants of risk and costs in some cases have opposite influences on the profitability. Therefore, for these characteristics, a general average level of influence is provided, not directly linked to a specific configuration of the characteristic (see figure M15).

In regards of the aim for affordability, it is interesting to see that, although the rental prices are a little bit (5-10%) higher than with traditional housing, the value that is provided for this rental price – consisting out of services, configuration of private units and shared spaces, flexibility in

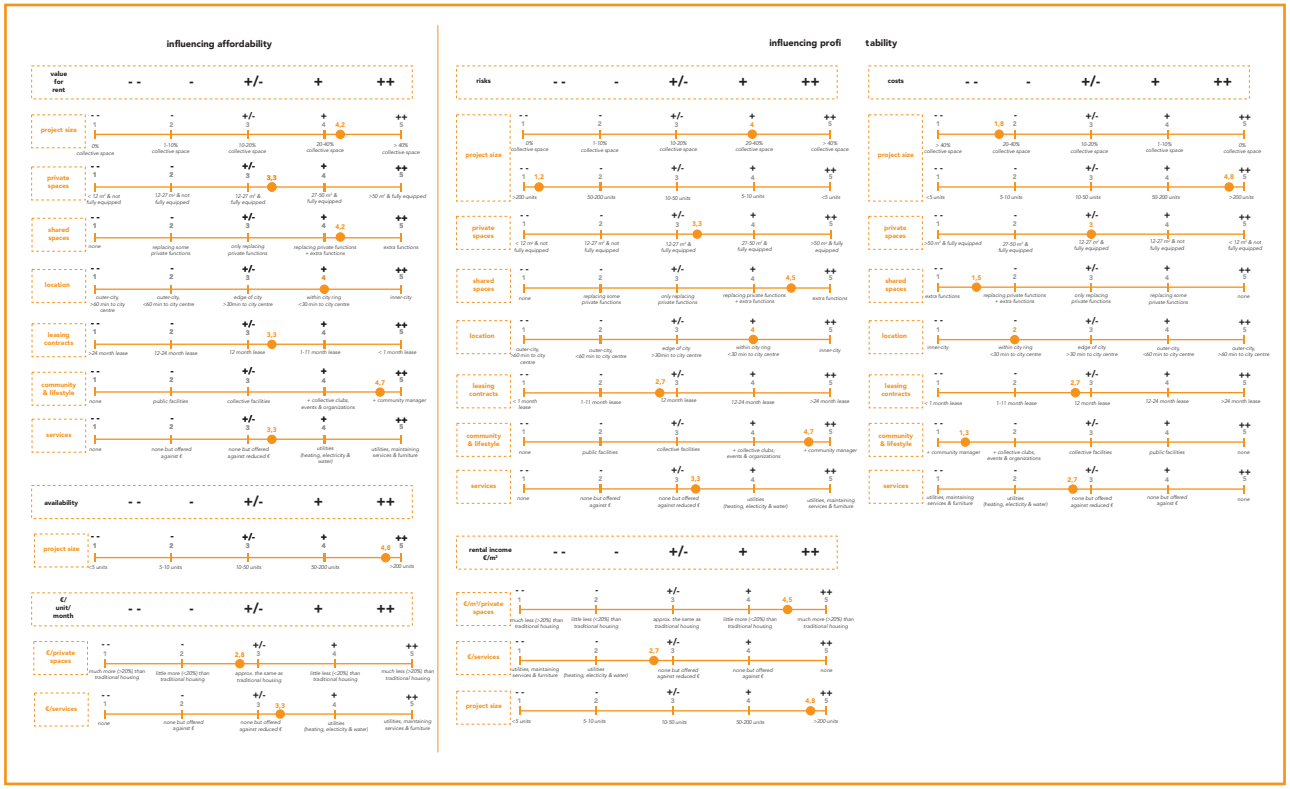


Figure M13. Average level of influence of the characteristics on the profitability of commercial co-housing. (own ill.)

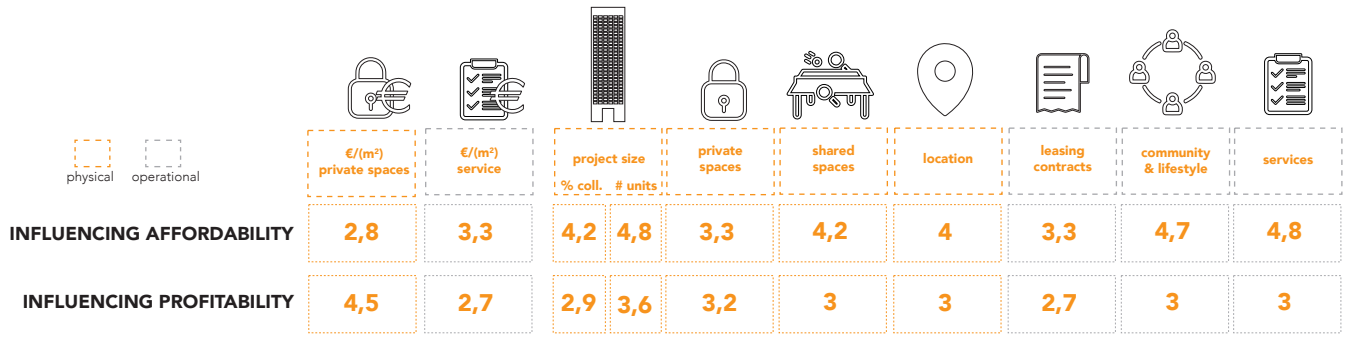


Figure M14. Conclusions on "How do the physical and operational characteristics of commercial co-living influence the (users-)affordability and (developers-)profitability?" (own ill.)

lease, availability of housing and the facilitation of community – is considered relatively high and of a positive influence upon the affordability. Considering all characteristics of the same importance, one could conclude that the affordability of co-living is not found in terms of rental price, but in terms of value of the living environment.

In regards of the aim for profitability, it is interesting to see that the rental income per square metre is considered much higher than traditional housing and with that of a very positive influence on the profitability. Yet, taking into account the services and developed living environment that are provided for this square metre price, one could say that these are of a neutral to sometimes negative influence upon the profitability. The offered flexibility in leasing contracts as well as the provided services included in the rent and the vast amount of collective square metres, pressure on the profitability from a developer's perspective. Yet, the project size in terms of number of lettable units as well as the reduced size of the private spaces have their positive influence on the profitability.

Altogether the research has provided an insight in the concept of commercial co-living, with its physical and operational characteristics and their level of influence upon the user-affordability and developers-profitability.

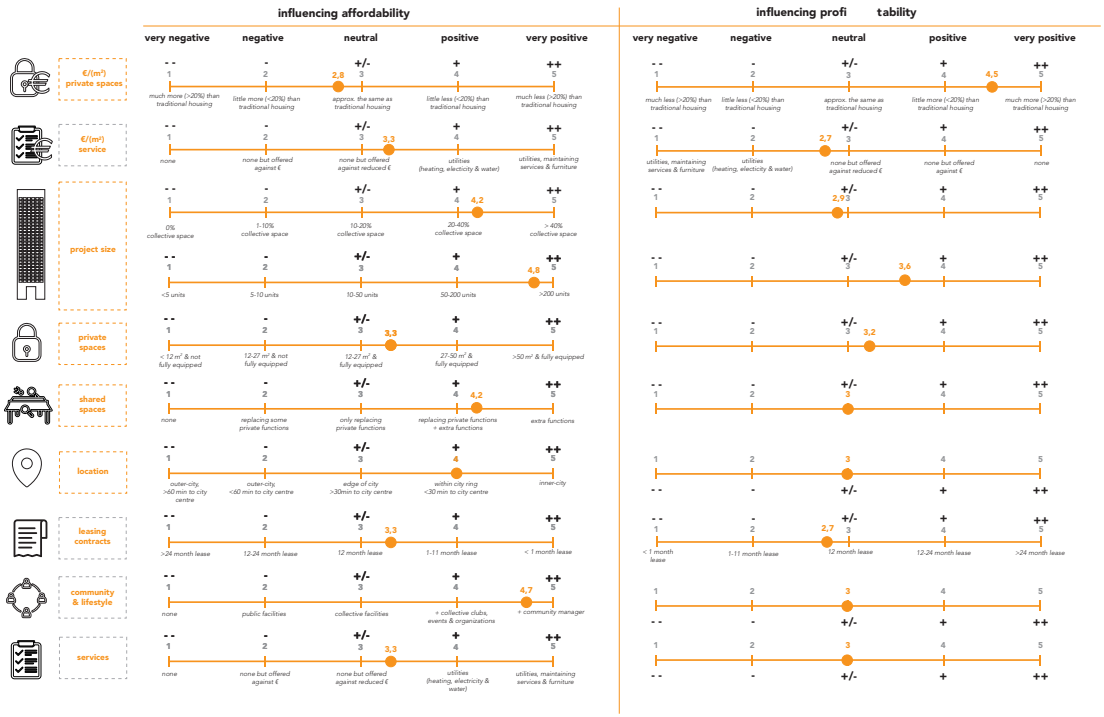


Figure M15. Conclusions on "How do the physical and operational characteristics of commercial co-living influence the (users-)affordability and (developers-)profitability?" (own ill.)

TABLE OF CONTENT

PART 0

1 INTRODUCTION
a problem statement on the Dutch housing market

Now, in 2018, many newspapers are stating the importance to address the current housing issue in the Netherlands. Quotes like "many people in their thirties are stuck", "cheap rentals are unfindable", or "shortage for mid-segment income groups in the (…) housing market" are daily present in the news. The origin of these proclaimed issues on the housing market, which some tend to call a new Dutch housing crisis, can be derived from a collection of factors.

1.1 Issues on the Dutch housing market

1.1.1 21st Century urbanization

Cities, all over the world including the Netherlands, are rapidly growing. The 21st century introduces itself as an increasingly global and interconnected world, where over half of the world's population – 54 percent – resides in urban areas. (UN, 2014) It is expected that this urbanization will continue to grow towards almost 66 percent by 2050 worldwide. Historically, this process of urbanization can be associated with important economic and social transformations within society. Cities have always been important drivers of development and poverty reduction, as they concentrate economic activity, government, commerce and transportation. (UN, 2014) Therefore, the development of cities has always reflected the state-of-mind of society.

1.1.1.1 Growing Dutch urban population

Also, in the Netherlands, the CBS (2016) expects that the four largest cities – Amsterdam, The Hague, Utrecht and Rotterdam – will have increased with 15% by 2030 (since 2015). In their triennial research in the population and household prognoses the PBL/CBS looks at the expectancies on national and regional level. The prognoses states, that of the expected population growth of almost 950.000 people, almost threequarters will take place in the four largest cities. There are four main factors that determine the population growth: birth- and mortality rate, immigration and emigration. (CBS, 2016)

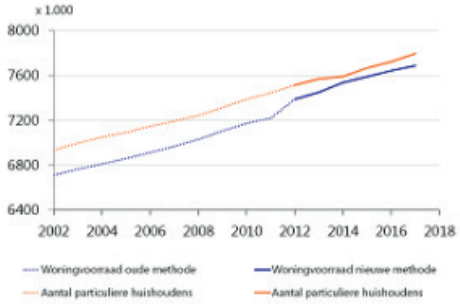
1.1.1.1.1 Immigration

Foreign migration has been one of the most striking developments in the past years. Although an average of 8.000 immigrants is expected from 2023, the past years the number of immigrants per year ranged from 13.000 (in 2014) to 60.000 (in 2017). History serves, that most immigrants settle themselves in urban areas, as these areas provide the best job and schooling opportunities. Immigrants also tend to search for communities consisting out of like-minded people with the same origin, which are likely to be found within cities. (CBS, 2016)

1.1.1.1.2 Migration

Besides through immigration, many larger Dutch cities have received a large part of their new population from other smaller municipalities in the country. "The city functions as a magnet, with an historical attraction to young people because of the availability of jobs, educational facilities and amenities." (Manting en Huisman, 2015 in CBS, 2016) The size of the migration is determined by a combination of factors that determine the attraction of the city, like the demographic structure, the economic development, the available amenities, culture factors

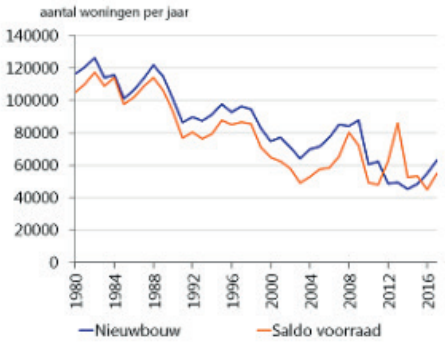
Figuur 1: Het gat tussen het aantal huishoudens en het aantal woningen wordt weer groter



Bron: CBS; in 2012 is de definitie van de woningvoorraad veranderd; hierdoor zijn de periode voor en die na 2012 niet met elkaar te vergelijken.

Figure 1. Increasing housing shortage (Rabobank , 2018)

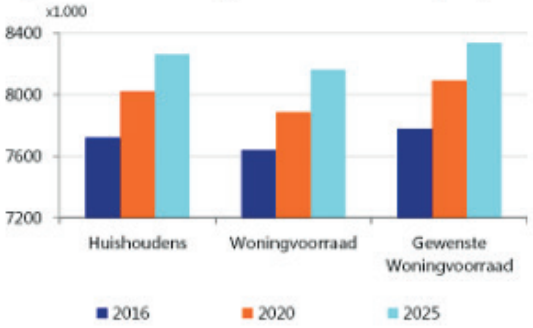
Figuur 2: Nieuwbouwproductie blijft dalen



Bron: ABF Research

Figure 2. Standstill of newbuilt (Rabobank, 2018)

Figuur 3: Het woningtekort zal verder oplopen



Bron: ABF Research - Primos

Figure 3. Increase of households in comparison to housing supply. (Primos, 2016)

and the availability of housing. Cities try to influence these factors by for example investing in new neighbourhoods and cultural facilities, and with that attract more, mostly young, people to move to the city.

1.1.1.1.3 Mortality & Birth-rate

Although the average birth-rate (per woman) has decreased over the past decade, the CBS (2016) expects that from the 2020ies it will settle around a stable 1,75 child per woman. Interesting to state here is that, as cities are attracting more and more young people from all over the country, the birth-rate is relatively high in urban areas in comparison to the periphery. This adds to the relatively higher growth of the urban areas. Another factor that is important to mention is the ever-increasing life-expectancy. With the aging population, also the mortality rate increases. In social-economic prosperous regions, like the larger cities, the life-expectancy is higher. These two factors contribute to the increase of urban inhabitants.

1.1.2 Increasing housing demand & market shortages

As mentioned in the previous paragraph, housing is an interconnected element within the development of urban areas. The vast urbanization is accompanied by the increase of the demand of housing within and around the growing urban areas. Comparing different sources, the high demand and increasing shortages in housing becomes apparent.

The CBS determines the demand for housing by counting the number of households. Compared with the existing housing stock it determines the housing shortage. In this respect it was concluded that after the economic crisis, the housing shortage increases gradually from 55.000 in 2014 towards 108.000 in 2017. (See figure 1) (Rabobank, 2018) The shortage is even more increased due to the standstill of newbuilt during the economic crisis. Where in the fifteen years before the crisis, over 80.000 dwellings were delivered yearly, since 2014 no more than 50.000 dwellings were delivered per year (see figure 2). But it is not only the increase in number of households and the decrease of production that determine the shortages on the housing market. Also factors like deregulation of the central government, changes in the social housing sector and the importance of the more expensive ground positions for municipal revenues play a determining role in the shortages on the housing market. (Rabobank, 2018)

The current shortage on the Dutch housing market is expected to balance between 100.000 and the 140.000 dwellings (Rabobank, 2018). To respond to the increasing demand a study by the EIB (Economisch Instituut voor de Bouw) claims that towards 2040, at least 1.000.000 new dwellings are necessary. This only represents new built and does not even count the annual replacement or renewal of the existing housing stock, which embodies another 600.000 towards 2040. The EIB states that re-development of empty buildings hardly presents a solution, as this can only take up 50.000 dwellings. In the pressured areas, like the Randstad and in the larger cities the main question becomes where to find the possibility to realise the necessary housing expansion. "The strive between scarcity and space will return" says Taco van Hoek, director of EIB (BouwendNL, 2015)

In respect to new supply, until 2020, it is expected that the housing market will provide a modest amount of around 55.000 dwellings per year. This will result in a market that is lacking behind

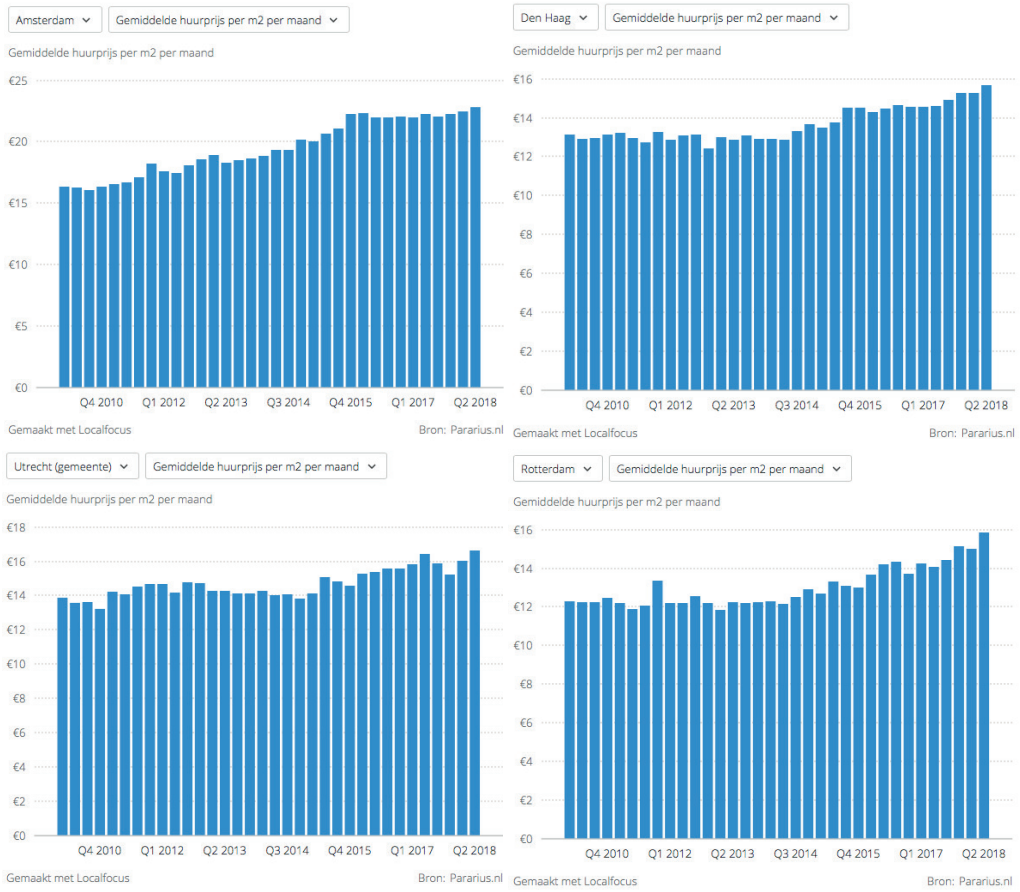


Figure 4. Rental-price development four large Dutch cities (Pararius, 2018)

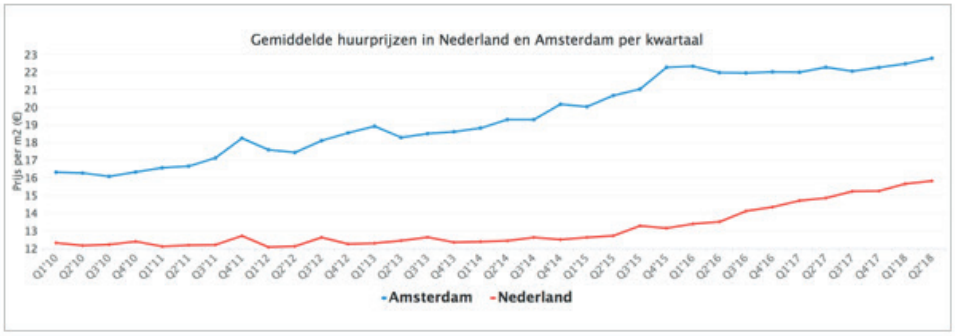


Figure 5. Increase of rental-prices in the city of Amsterdam in comparison to the national average. (Pararius, 2018)

the larger demand. It is expected that towards 2030, with an addition of 30.000 dwellings per year the supply and demand will slowly meet. From 2040, with an average of 10.000 new dwellings per year, the supply and demand are expected to be in balance. (CBS, 2016)

This means that until 2040, there will be a disbalance between supply and demand on the Dutch housing market. This will be even more out of balance in the cities, as the population growth in these areas is the largest as expected and the possibilities of expanding are not limitless due to scarcity of space. Figure 3 gives a good insight in the disbalance between increase in urban inhabitants, the housing stock and the desired housing stock. (Here 'the desired housing stock' also considers people that live somewhere but want to live somewhere else)

1.1.3. Increasing housing prices

The housing shortages are often claimed as one of the main factors influencing the rising housing prices on the Dutch housing market. According to research of the Rabobank (2018), the growth of the gap between demand and supply on the housing market definitely influenced the increase of around 14% in housing prices in cities like Amsterdam and Rotterdam. See figure 4. As figure 5 clearly represents, with Amsterdam as the example, the rental-prices in urban areas are much higher than on national level, which could be acclaimed by the higher demand in urban areas.

1.1.3.1 Issues for the mid-segment housing

An increasing pressure on space in urban areas, a vast shortage in -especially the mid-segment- housing and continuous rising rental prices. Altogether it frames the current housing crisis in the Netherlands. The shortage is even strengthened by the fact that due to the economic crisis – started in 2008 – developers have been cautious on the market and only 7000 new building permits have been granted between 2011 and 2016 (JLL, 2016). But not only a stagnation on the developer market contributes to the housing shortages. "In the Netherlands the housing issue is also affected by certain policies. The accessibility of the rental sector for mid-segment dwellers have decreased, as housing corporations are obliged to lease out at least 90% of their dwellings to lower-level income groups (until €34,911 per year). (CPB, 2016) Housing associations are obliged to invest mainly in lower-segment housing, while the commercial developers play safe by focusing on the development of housing for the higher-segment, with the highest expected return on investment. Therefore, the increase in demand together with the stagnation or decrease in supply for mid-segment housing, makes this the group that is affected the most. See figure 6.

1.1.4. A changing housing demand

Another factor that plays an important part in the issues on the Dutch housing market, is a recognizable change in type of demand. In respect to the historical development and growth of Dutch cities, a different spatial demand can be recognized as a reflection of societal changes.

1.1.4.1. Changing households

The demand for type of housing is partially determined by the types of households within society. With a recognizable change in household types in the Netherlands, the demand for housing type is changing consequently.

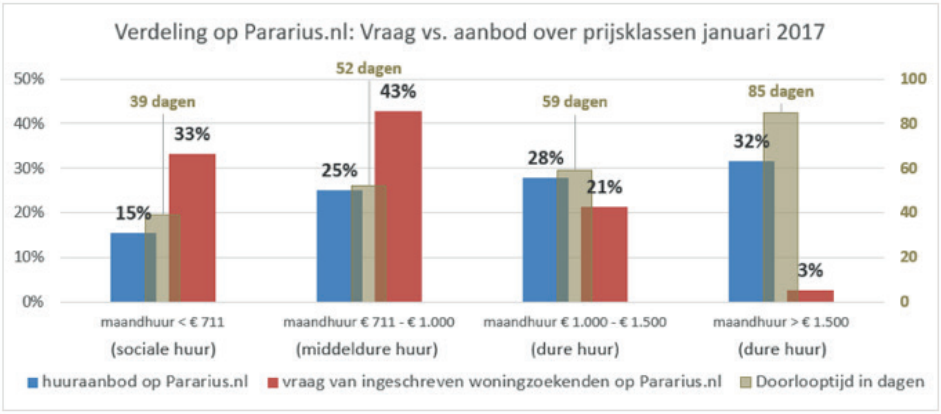


Figure 6. Rental demand in 2018 (Pararius, 2018)

Perioden	Particuliere huishoudens: samenstelling Totaal particuliere huishoudens	Eenpersoonshuishouden	Meerpersoonshuishouden Meerpersoonshuishoudens zonder kinderen	Meerpersoonshuishoudens met kinderen
	aantal			
1995	6 468 682	2 109 149	1 886 794	2 472 739
2000	6 801 008	2 272 219	2 062 123	2 466 666
2005	7 090 965	2 449 378	2 110 295	2 531 292
2010	7 386 144	2 669 516	2 181 514	2 535 114
2015	7 665 198	2 867 797	2 224 618	2 572 783
2016	7 720 787	2 906 334	2 235 783	2 578 670
2017	7 794 075	2 961 228	2 247 191	2 585 656
2018	7 857 914	2 997 617	2 265 409	2 594 888

Bron: CBS

Figure 7. Changing households (CBS, 2016)

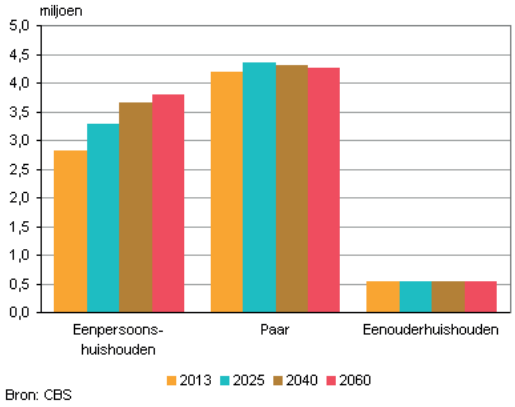


Figure 8. Household expectancies (CBS 2013)

In the Netherlands it is expected that by 2030 the number of households is increased by almost 700.000 (CBS, 2013) to 1.000.000 by 2040 (BouwendNL, 2015) What is apparent is that the household compilation has changed overtime and is expected to change even more. Wherein 1995 the dominant household were multi-person households with children, since 2010 the one-person households take up this leader position. The CBS expects that towards 2060 the one-person households will increase towards 44% of the population (in respect to a 37% in 2013) whilst the number of couples and single-parent households will remain steady.
The CBS states that the aging of the population is the main cause of the increase in one-person households. Also, they recognize a change in relationship behaviour, where an increasing number of young people delays living together and chooses for a period of living by themselves. On top of this the increase in divorces adds to the increase in one-person households. (CBS, 2013) See figure 7 and 8.

1.1.4.2. Social impact of changing households

The impact of these changing households is not only of a physical nature. With the individualisation of society being more apparent in urban areas together with the lack of physical social interaction due to technological developments, people are developing a growing feeling of loneliness. This urban loneliness is expected to become an increasing issue in urban areas. What is considered as one of the causes of a feeling of loneliness is the situation of living alone. Thus, the expected increase of one-person households can be expected to be accompanied by an increase of urban loneliness.

1.1.4.3. Changing housing demand

With the societal change towards more single-person households, a consequent change in the demand for housing is a result. The change embodies a shift from a primary demand for one-family housing, towards housing that facilitates one-person households.

When taking the increase in rental-prices as an indication of the demand, it is interesting to compare the increase in rental prices with the increase in household types. As can be seen in figure 9, the highest rental-prices can be found in the smallest apartments, whilst an increase is apparent of single-person households. What carefully could be concluded is that the main demand is in the smaller apartments serving one-person households.

1.1.5. Mismatch on the housing market

What is then even more interesting is the analyse the average housing m2 per person. In average, in urban areas, the square meters of housing are set around the 50m2. It could be said that this is a common average for how people nowadays live in Dutch cities. Yet, looking at the average of a one-person household, the mount of m2 ranges between 70 to 100 in urban areas. What could be concluded is that the fitting supply of housing for a single-person household is limited and people are forced live 'too big' and with that probably even 'too expensive' and for sure 'less efficient' in terms of supplying for the demand. See figure 10.

When comparing households and housing stock even further, the mismatch between demand and supply becomes even more clear when looking at figure 11 and 12. With a current 30% it is expected that towards 2050, the one-person households will take up almost 50% of the total amount of households. As stated in the earlier paragraph an average of 50m2 is now common

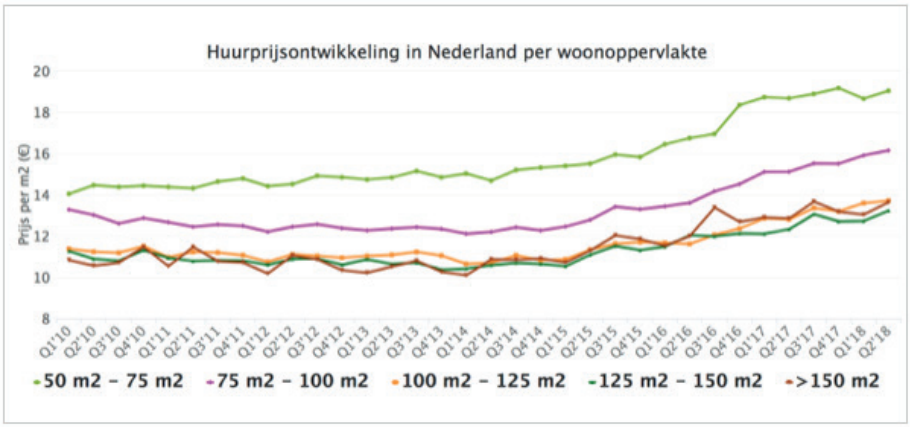


Figure 9. Development in square metre price per apartment size (Pararius, 2018)

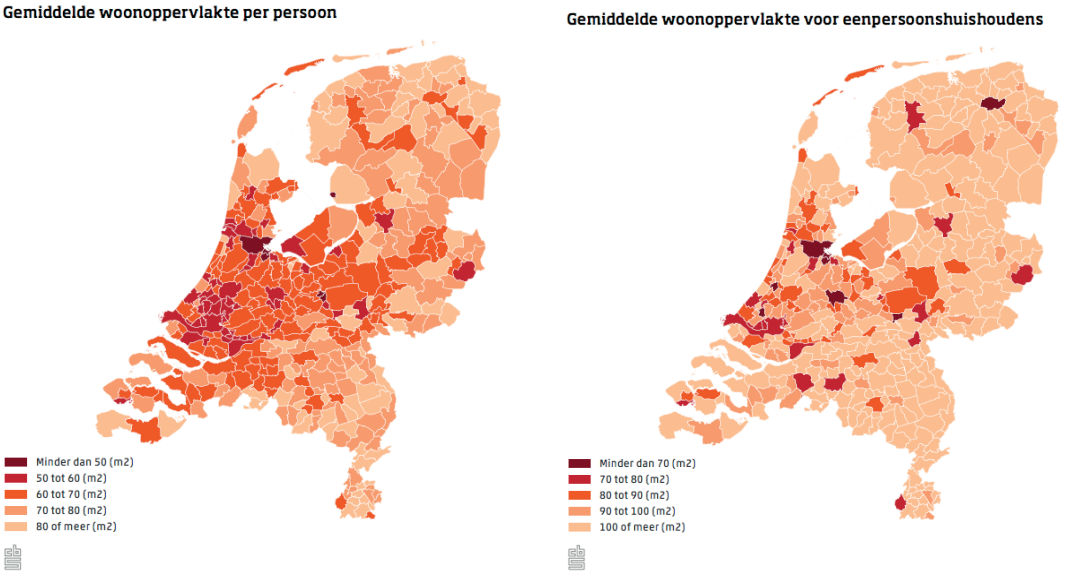


Figure 10. Average housing m2 per person & per single-person household (CBS, 2013)

in the Netherlands, of which it can be expected that it is even less in urban areas. Comparing this with the existing housing stock in 2015, as shown in figure 11, it is apparent that only 1/5th of the housing stock comprises out of apartments smaller than 75m2.
This means that currently there is a mismatch between a supply of smaller apartments (<75m2) that is 20% of the total housing stock, that needs to serve the 30% of one-person households (needs <50m2). An existing mismatch that will become even worse taking the expected increase of one-person households into account.
The question arises, how to address this shortage and mismatch on the housing market and what kind of housing will fit the emerging non-traditional demand. "The conservative approach to new construction is losing ground and the call for new developments is getting stronger" states Colliers (2017)

1.2 A new approach to housing

With the current and still rising housing shortage in densifying cities, new solutions occur towards the supply of dwellings. Serving the one-person households, a variety of (new) typologies are seen on the contemporary housing market: micro-housing, (smaller) apartments, student-housing and shared housing. The 'smaller living' solution of micro- and shared housing are seen as one of the new solutions for the large demand in inner cities.

1.2.1. Micro-housing: living smaller

The first micro housing initiatives presented themselves in dense cities like New York City and Tokyo, where housing prices have, already for years, been rising rapidly. The overall definition of micro housing that is advocated consists of 'any residential structure, foundation built or on wheels, with full utilities (electric/water/sewer) and living facilities (kitchen/bed/bath/commode) designed for full time occupancy that accommodates occupants at (less than) 27 m2'. (Microshowcase, 2018) Here it is a fundamental combination between liveability versus living density. As the micro dwellings are approximately 27 m2, smart interior design solutions play an important role in reaching for this liveability. There are five main drivers from a user perspective behind micro living that can be acknowledged.
First of all, the economic driver of the lower cost of living on the dweller side. On the commercial side, developers of micro housing apartment units experience the upside from adding more units in a given building footprint. Secondly, the demographic driver. As described above the number of one-person households is expected to drastically increase. A one-person household is, because of the lack of space, the main target group for micro dwellings. Thirdly, many dwellers are motivated for micro living due to lower ecological footprint. Still it is believed, that this is never the main driver. This driver correlates with the fourth driver, that represents a growing urge for more simpler living, which represents a more sustainable life on a more ecological and personal level. This is where the micro housing movement finds its position (Microshowcase, 2018) The final and fifth driver, presents new technological innovations that provide elements that were first part of a dwelling and can now be outsourced. Think of transportation like Uber, laundry facilities or the delivery of food.

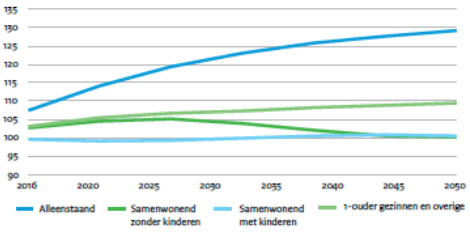
1.2.2. Shared housing: living smaller, but big together

It is this fifth driver as discussed above, that introduces new chapters for the possibilities on the housing market. The initial growth of cities, is built upon a traditional economic landscape,

Prognose aantal huishoudens naar grootte (x 1.000), 2016-2050

	Huishoudens totaal	Alleenstaand	Samenwonend zonder kinderen	Samenwonend met kinderen	1-ouder gezinnen en overige
2016	7.732	2.914	2.201	2.020	597
2020	8.021	3.132	2.259	2.014	616
2025	8.265	3.327	2.304	2.004	630
2030	8.435	3.477	2.316	2.005	637
2035	8.537	3.586	2.289	2.020	641
2040	8.591	3.664	2.246	2.035	646
2045	8.626	3.722	2.216	2.038	651
2050	8.655	3.766	2.205	2.030	654

Index omvang huishoudens (2016=100)

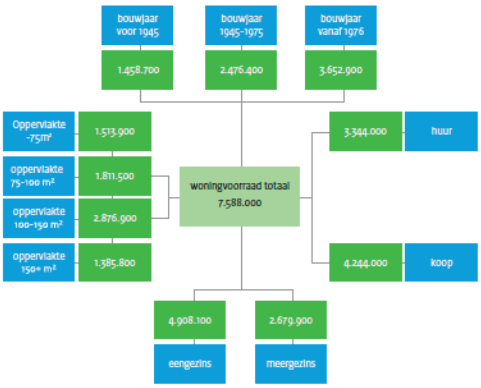


In 2016 telt Nederland 7,7 miljoen huishoudens, waarvan ruim eenderde alleenstaand is. In 2050 zal deze verhouding toenemen tot 44 procent. Het aandeel huishoudens bestaande uit samenwonenden (met en zonder kinderen) verandert in de periode 2016-2050 enigszins, maar is in 2050 nagenoeg gelijk aan het aandeel in 2016.

Bron: ABF Research - Primos prognose 2016. Peildatum: 1 januari.

Figure 11. Household prognoses (Primos, 2016)

Woningvoorraad naar eigendom, woningtype, bouwjaar en oppervlakte, 2015



Op 1 januari 2015 staan er in Nederland bijna 7,6 miljoen woningen, waarvan 56 procent in de koopsector. Ongeveer 65 procent van de woningvoorraad wordt gevormd door eengezinswoningen. Meer dan de helft (51 procent) van de woningen is gebouwd na 1975 en ongeveer 1 op de 5 woningen is kleiner dan 75 m².

Opmerkingen: De gepresenteerde oppervlakte is de GBO (gebruiksoppervlakte). Dit is inclusief gebruiksruimten (hal, e.d.). Cijfers zijn voorlopig en afgerond op honderdtallen (hierdoor kan de som van uitsplitsingen afwijken van het totaal). (zie verderop voorbeelden)

Bron: BAG, bewerking ABF Research. Peildatum: 1 januari.

Figure 12. Dutch housing stock in 2016. (Primos, 2016)

where the economic relationship is based on a financial contract between the producer and the consumer. Nevertheless, it is this landscape, with its traditional economic structures that is undergoing a comprehensive change. With the emergence of peer-to peer, or in other words collaborative, collective or sharing businesses like Airbnb and Uber, a new economic landscape opens up. This sharing economic landscape breaks up the traditional relation between producer and consumer and, often through digital platforms, offers the consumer new accessibilities to desired products.
Many believe there's high demand for the sharing economy – especially in emerging markets, where it's tipped to accelerate growth by giving consumers access to services they could not traditionally afford. (French, 2015) This is where the sharing economy presents its financial incentive, by making available what was previously not available through the measure of sharing. Not only financial but also environmental and social incentives are presented. Advocates claim the sharing economy is creating a stronger sense of community while reducing waste and pollution. (French, 2015) Altogether the sharing economy 'focusses on the sharing of underutilized assets, monetized or not, in ways that improve efficiency, sustainability and community'.

As the housing sector is an intrinsic part of the overall economy, it simultaneously with the emergence of other sharing markets, shows examples of shared housing. Shared housing could be considered a social evolution from micro-housing as the same user drivers can be recognized, but with one extra driver, namely the social incentive for living in a community. As mentioned earlier, with more and more people living individualistically in large cities, the psychological phenomenon of urban loneliness – a lack of social interaction – emerges. Where micro housing comprises of smart tiny apartment units, shared housing embodies tiny private housing units together with collective facilities and stimulating the social interaction through community living. Organizing and maintaining a large-scale community asks for active operational management and, in respect to the housing market, is most probably found in the rental housing market.

"Co-living is currently growing in popularity in major cities such as London and New York, where increasing housing prices are forcing residents to look at a new and adaptive ways to rent in the city." (Overstreet, 2018) Although even in 2016, the contemporary concept of co-living was in its early, more experimental stages, its ambitions and inspirations were already widely discussed. Only two years later, the concept of co-living has refined its mission and is finding success through the collection of common themes: "a yearning for social connection, participation in an increasingly shared economy, and the affordability of a convenient housing solution." (Overstreet, 2018) Herein it is clear, that the social, environmental and financial incentives are intertwined comparable with the financial, environmental and social incentives driving the sharing economy. Therefore, as stated by Skovbro (2002), shared housing can be seen as a more economic, environmental and social sustainable approach towards the housing issue. Many believe that shared living will be one of the main new ways of living in the future. Like the entrepreneur behind London start-up The Collective said, "home ownership will become a thing of the past", while other claim that "co-living could solve the housing crisis in many cities". (Gibson, 2017)

The main difference between shared housing, or in other words co-living, and micro housing is the inclusion versus exclusion of the collective approach. As Lucas Crobach of Zoku states: 'Co-Living is so much more than micro-living, and it is all about the element of 'co'. 'Co', for me, stands for community, collectivity and connectivity, which represents the main difference focus point between micro-living and co-living.'

1.3 Shared housing: research proposal, aim and expectancies

Recently, there has been a growing tendency to study 'alternative' forms of housing provision. (Czischke, 2017) As the demand for housing is changing drastically, it raises the question what new or renewed typologies of housing can offer possible solutions. As a possible answer to the posed problem statement, the concept of shared living is advocated. With the emergence of the sharing economy, new possibilities open up on the housing market amongst which the emergence of commercial co-living, a top-down, mostly large-scale shared living concept. Herein the position of its users as well as its developers play an important role in the determination of the possibilities co-living has to offer on the changing economic market. So what opportunities does (commercial) co-living has to offer? Can the stimulation of development of commercial co-living offer -partially- a solution for the posed issues within the Dutch housing crisis?

The proposal of this research is to understand this new emerging concept of commercial co-housing and its characteristics, whilst looking into the opportunities the concept offers from a user as well as a developer perspective. For this, the analysed co-living characteristics are taken as a starting point to validate its influence to affordable and profitable housing. Through the focus on the commercial housing market instead of governmentally aided social housing market, is will be visible if this new concept can function independently within new and still changing economic and housing markets.
Altogether, it can provide an initial insight in the position the concept of co-housing can take within the changing and pressured housing market, and where the opportunities within the concept are found. In the following chapter, the research concept and methods are further elaborated.

2 RESEARCH FRAMEWORK

Derived from the posed problem statement on the Dutch housing market, the following research is proposed, developed and conducted. In order to direct the posed research into answering to the framed problem statement, a research framework is developed around a main research question. In the following the separate parts as well as the research framework as a whole will be discussed.

2.1 Research aim

Due to urbanization, disbalance between supply and demand and changes in household configuration, the pressure on the housing market is problematic. The search for new solutions on the housing market is apparent and serves as the starting point for this research. In this research commercial co-living is put forward as a globally emerging housing concept, driving upon the essence of the sharing economy. The aim of this research entails the understanding of the emerging concept of (commercial) co-living and with that analysing the characteristical opportunities of the concept in regards of the user's affordability and developer's profitability. With this research, insight is provided in the characteristics of the new housing concept as well as its characteristical opportunities in searching for a solution in the densifying housing market through the aim for affordable housing and profitable developments. It is the rental housing market that represents the best comparison to other shared housing markets, where top-down sharing is facilitated and organized.
Therefore, the focus on the rental market provides the best insight in the, besides physical, operational impact of organizing sharing. Being able to influence the affordability of housing as well as the profitability of a new housing concept in a positive or negative way in comparison to traditional housing, gives insight in the opportunities of its specific characteristics and provides insight in its position on the housing market. As the physical and operational structures of co-living are considered the most important determinants in rental-housing as well as sharing markets, this is the main focus in regards of the analysis of the characteristics. This research aim is compiled into the following research question:

"What is commercial co-living and
how do its physical and operational characteristics influence its (user-)affordability and
(developers-)profitability?"

2.2 Research concept

As the research aim entails an understanding of the concept followed by an understanding of the influence of the characteristics of the concept upon the affordability and profitability, the research is conducted from two perspectives. First the user perspective, in which the user is the actor aiming for affordability in housing. Secondly the developer's perspective, embodying the aim of housing developers/investors/initiators that have housing as a business model and with that aim for profitability of their development and rental-operations. See figure 13.

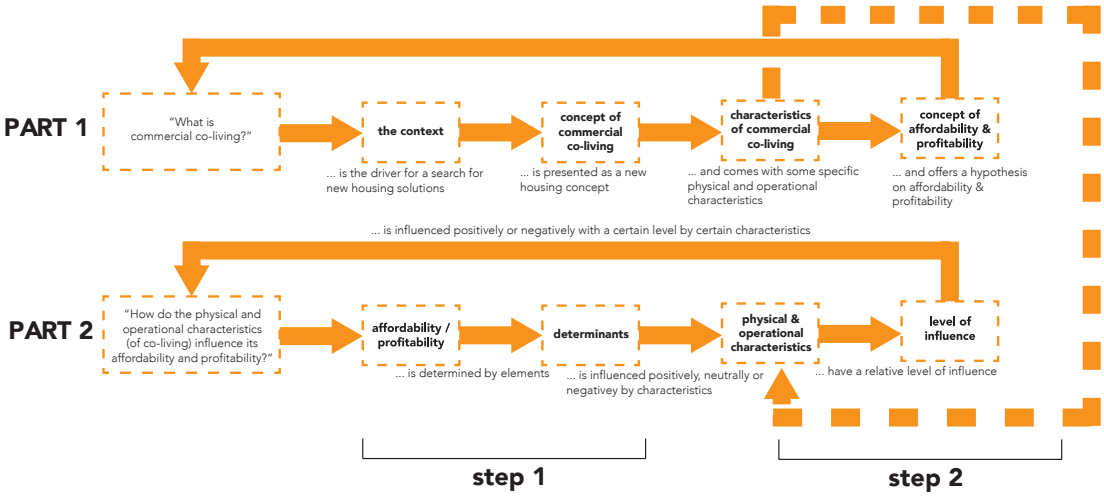


Figure 13. Research divided in two parts (own ill.)

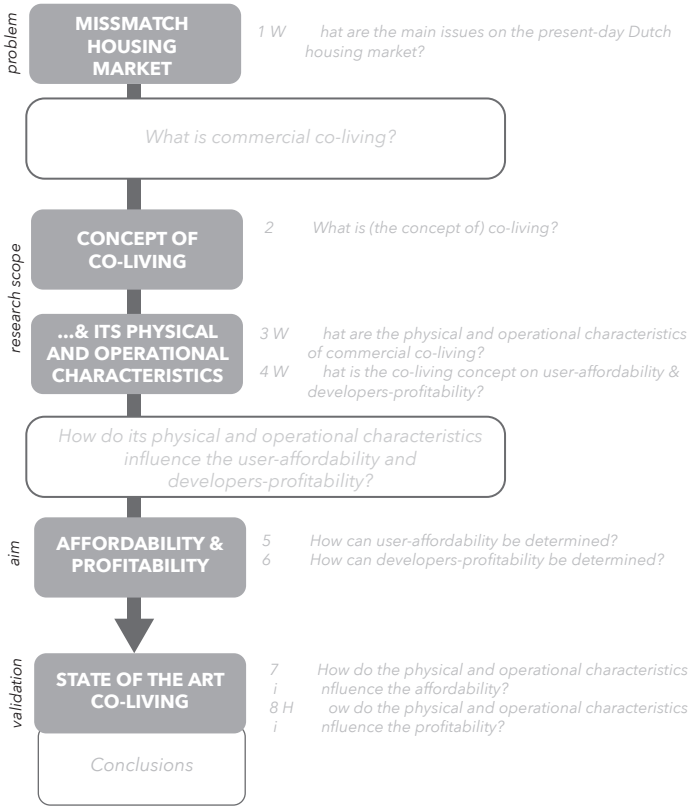


Figure 15. Research questions (own ill.)

As a starter and as part of the introduction to the research, is the analysis on the problem statement -the mismatch on the housing market- and the introduction to the research proposal. This introductory part is called part 0, and already discussed.
Following the introductory part, is the first research and descriptive part of the thesis. This research part focusses on the first part of the research question, namely the understanding of the concept of commercial co-living. Through an analysis of the concept, its physical and operational characteristics (in comparison to traditional housing) and its concept on affordability and profitability this part answers to the first part of the posed research question.
The second, analytical part of the research, is directed upon answering the second part of the research question. Here the understanding of the researched concept characteristics as found in state-of-the-art co-living examples are analysed upon its structure and its influence on affordability of housing as well as profitability of developing this type of housing. Altogether, this addresses the second part of the posed research question, regarding the influence of the physical and operational characteristics on the concept's affordability and profitability. See figure 14 (next page).

The described research concept entails a qualitative exploration of the concept of commercial co-living and it position towards the economic determinants of affordability and profitability. The qualitative exploration/research is complemented by quantifiable data in order to validate and understand certain elements of the concept.

2.3 Research questions

As the research is divided into three segments - one introductory and two research parts - as described within the research concept, these segments are accompanied by a collection of research questions all aiming for the answer to the main research question.

Main research question

"What is the concept of commercial co-living and
how do its physical and operational characteristics influence its (user-)affordability and
(developers-)profitability?"

This main research question can be broken down into segments, also framed as the sub-research questions. See figure 15 and the following.
Research part 0: Introduction to the research context
1 What are the main issues on the present-day Dutch housing market? [Context: why demand for affordability and profitability?]

Research part 1: Descriptive
2 What is (the concept of) co-living?
3 What are the physical and operational characteristics of commercial co-living?
4 What is the co-living concept on user-affordability and developers-profitability?

Research part 2: Analytical
5 How can user-affordability be determined?
6 How can developers-profitability be determined?

Research framework
research concept

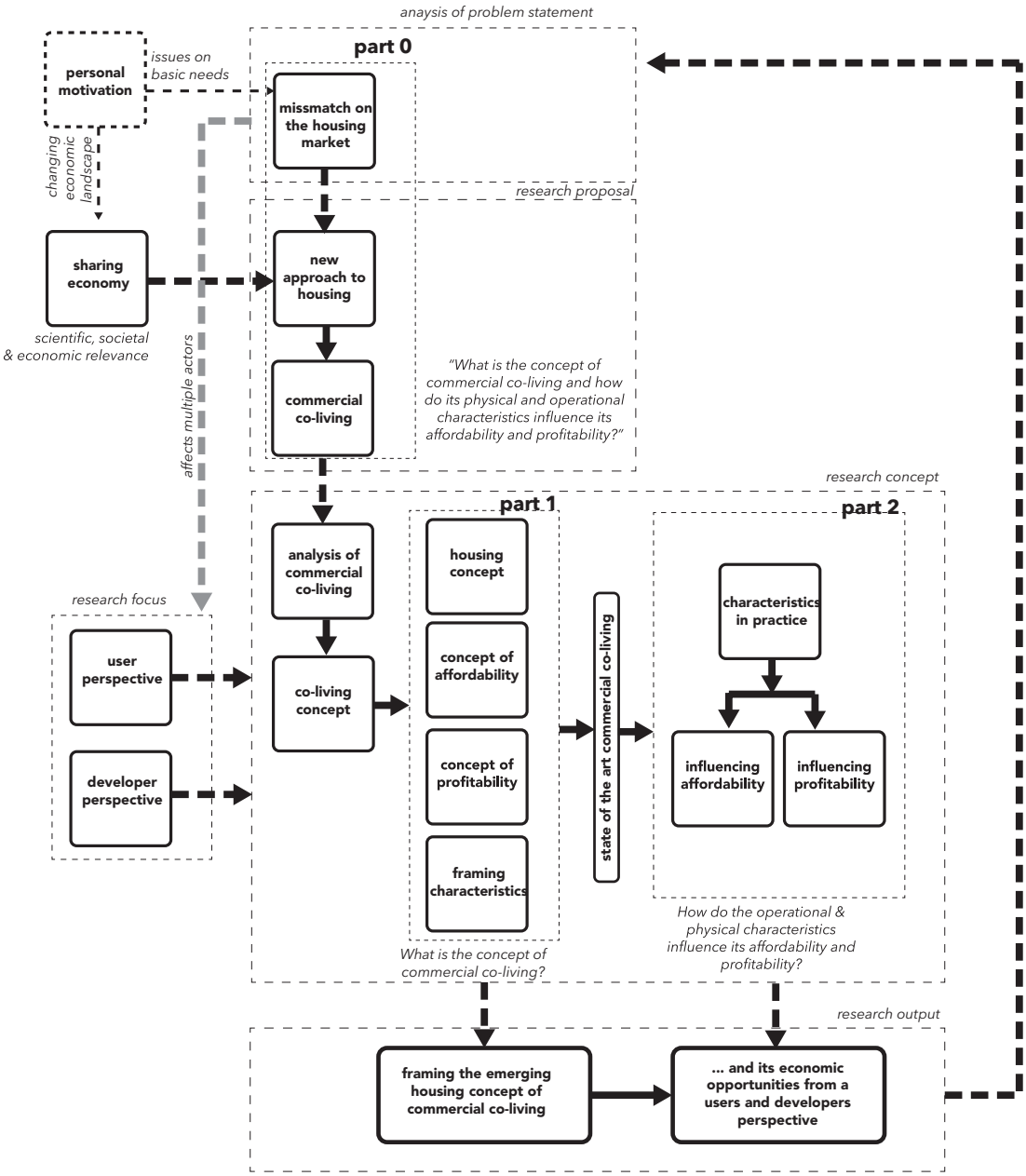


Figure 14. Research Framework (own ill.)

7 How do the physical and operational characteristics influence the affordability?
8 How do the physical and operational characteristics influence the profitability?

2.4 Research scope

Within the aim of the research as within the previously discussed problem statement, the scope upon the different research concepts was already introduced. Following will be a short description of the research concepts within the scope, where all will be further elaborated in other chapters.

User perspective
The aim of the research of looking into the opportunities of co-living in providing for affordable housing, is derived from the perspective of the user. The user embodies the collection of tenants of the private units within a co-living project. See chapter three for a further elaboration on this research concept.

Developers perspective
The aim of the research of looking into the opportunity of co-living to provide profitable housing, is derived from the perspective of the developer and/or investor and/or initiator. It represents the person or company responsible for developing and operating a co-living housing block. See chapter three for a further elaboration on this research concept.

Dutch housing market
Although the case studies are taken globally, the analysis is derived from the demand for new solutions for the Dutch housing market. The research embodies a global approach but with the aim to validate the opportunities of the concept for the Dutch housing market.

Rental housing market
The research focusses on the commercial co-living concept within the rental housing market. Here not only the physical but also the operational structures have their influence on the way the rental housing block functions and operates.

Middle-segment
The main issues and biggest demand and shortages are within the middle-segment housing. This embodies the segment of the housing market just above the social-housing cap and below the high-segment, luxury housing. For the rental market this means €710 to €1000 rent per month for a private housing unit within the Dutch housing market.

One-person household
The demographics in the Netherlands are changing and a vast increase of one-person households is expected. With a housing stock mainly serving 2+/3+ households, also called one-family housing, a mismatch is recognized between demand and supply. Therefore, with the strongest expected demand, the main focus of this research is on this growing target group of one-person households.

2.4 Research methods

In order to answer the posed research question(s), different research methods are used.
The research into the issues on the housing market and the analysis framing the basis of the research proposal is conducted through a literature (and small market) study. Here a combination of scientific literature together with journalistic reviews is used to answer to these questions. The journalistic studies are added due to the limited available research upon the emerging topic of commercial co-living.
The main body of the research demanded a collection of methods, which concluded in a combination of literature and journalistic study and case study analyses. The case study analysis is conducted through desk research in combination with interviews. The interviews were semi-structured interviews with people representing the developer's perspective of their projects. See figure 16.

Case study selection
In order to conduct the research in representative case studies, a set of selection criteria is designed, all based on set criteria for which the research question will set the guidelines (Bryman, 2012, p.416)

The cases are selected upon the following determinants serving the user and developers aim.
- Close to city centre: in close proximity of city centre as framed by the compact city requirements; close to city centre through public transport within an hour or direct proximity.
- International: shared housing is an internationally recognized new concept, with not enough examples in the Dutch market yet.
- Rental housing: as framed in the research proposal
- Housing 1-person household: as framed in the research proposal
- Realized recently (2010 and later): recent emerging concept, thus comparing projects based on the same worldwide economic trend of urbanization
- Size: at least 100 private units, in order to be able to address the facilitation of a large-scale community and following the concept of profitability.
(see later chapters)

See table 1 for the selected case studies.

Case study	Developer/ Company	Close to city centre	International	Rental Housing	Size #private units	1-person household	Realized recently
WeLive	WeWork	Yes	New York	x	200	x	2016
Old Oak	The Collective	Public transport	London	x	500	x	2016
The Fizz	The Fizz/AM	Yes	Amsterdam	x	212	x	2018
Urby Staten Island	Urby	Public transport	New York	x	571	x	2016
Zoku	Zoku	Yes	Amsterdam	x	133	x	2016
Urby Jersey City	Urby	Public transport	New York	x	700	x	2017

Table 1. Case study selection (own ill.)

As the earlier conducted scientific research on this topic is quite limited, for research purposes multiple extra case studies are partially analysed depending on the research topic.

Data collection
Although the research is of a qualitative nature -understanding (the influence of the characteristics of) a housing concept- the data collection is conducted through qualitative and quantitative methods.
- Desk research on literature and journalistic findings.
- Project documentation on case studies
- Market research on the context of the case studies
- Semi-structured interviews focussing on characteristics of the case studies

Literature and journalistic findings
Printed and digitally published literature or journalistic publications on different topics discussed in this research.

Project documentation
Existing documentation and publications on the selected case studies provides the basis of knowledge of the selected case-studies in order to be able to analyse its characteristics.

Market Research
In order to analyse the rent-level variables of all the case studies, a small market research is conducted on the rent-levels of traditional housing in comparable locations.

Semi-structured interviews
In analysing the developer's perspective together with their view on the user's needs, interviews are conducted with some co-living initiators (related to URBY, Zoku and The Fizz). These interviews were semi-structured and focussed on their organizational model, strategy and future approach in modifying the young concept. In the appendix the layout of the interviews as well as the transcripts can be found.

2.5 Introduction to analytical framework

In order to be able to analyse and compare the qualitative (and quantitative) data, an analytical frame work is developed. In figure 17 and 18 the layout of the analytical framework for answering the second part of the research regarding the influence of the characteristics on the users-affordability and developers-profitability is shown. Here determinants for affordability and profitability are framed and connected to influencing characteristics. The level of influence, 1 to 5 or very negative to very positive, is framed in respect to traditional housing. See chapter 7 for the further elaboration on the analytical framework.

2.6. Research relevance

The relevance of the research can be put forward through different perspectives, namely its economic, social/societal, environmental and scientific relevance.

The economic relevance is found within the research's aim to validate an emerging commercial housing concept. The knowledge of the (characteristical) influence on the affordability and profitability of a new type of housing, can serve as a basis for opportunities for new co-living initiatives.
The element of community and shared living answers to a certain societal relevance, with its expected issues of urban loneliness and position within the changing economic landscape. The validation of this housing concept offers a possible opportunity to address these social issues through housing. From another societal point of view, all new valid housing solutions are welcomed due to the enormous pressure on the housing market with all its societal implications. With a housing concept that aims for the most efficient use of square metres within dense urban environments, the environmental relevance is recognized. Reducing environmental footprint through efficient use of space, adds to the environmental. Awareness.
To conclude, is the scientific relevance of this research of great importance. As earlier stated, the existing research upon the research topic is limited. This research will be one of the first on the topic and with that add to the scientific knowledge of the topic.

2.7. Research expectancies

Through the conduction of this research into the characteristics and opportunities the emergence of commercial co-housing has to offer, it is expected to get a well-framed idea of what the concept contains. Viewing the concept from a two-way perspective, both user and developer, will provide an all-round image and will offer insight for developers as well as other housing initiators in a new way of looking at the development within the housing market. As the research focusses on commercial co-housing instead of social housing interventions, the conclusions provide insight in solutions independent of for example governmental funding or other aids. It is expected that, after understanding the concept, a framework of co-living characteristics will give insight in its influence to the concept's affordability and profitability. The level of influences provide insight in the characteristical opportunities towards user-affordability and developers-profitability.

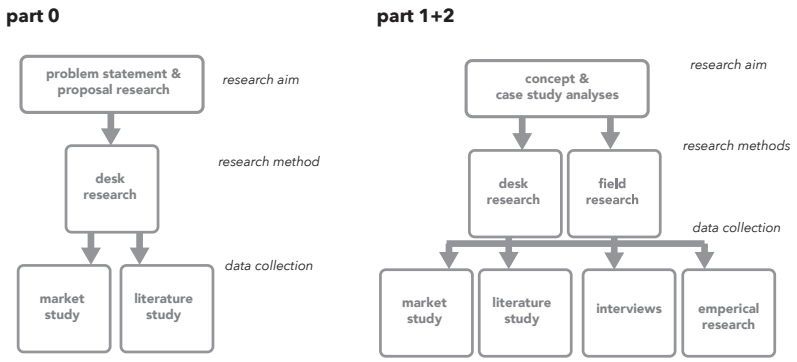


Figure 16. Used research methods and data collection tools in respect to the research parts. (own ill.)

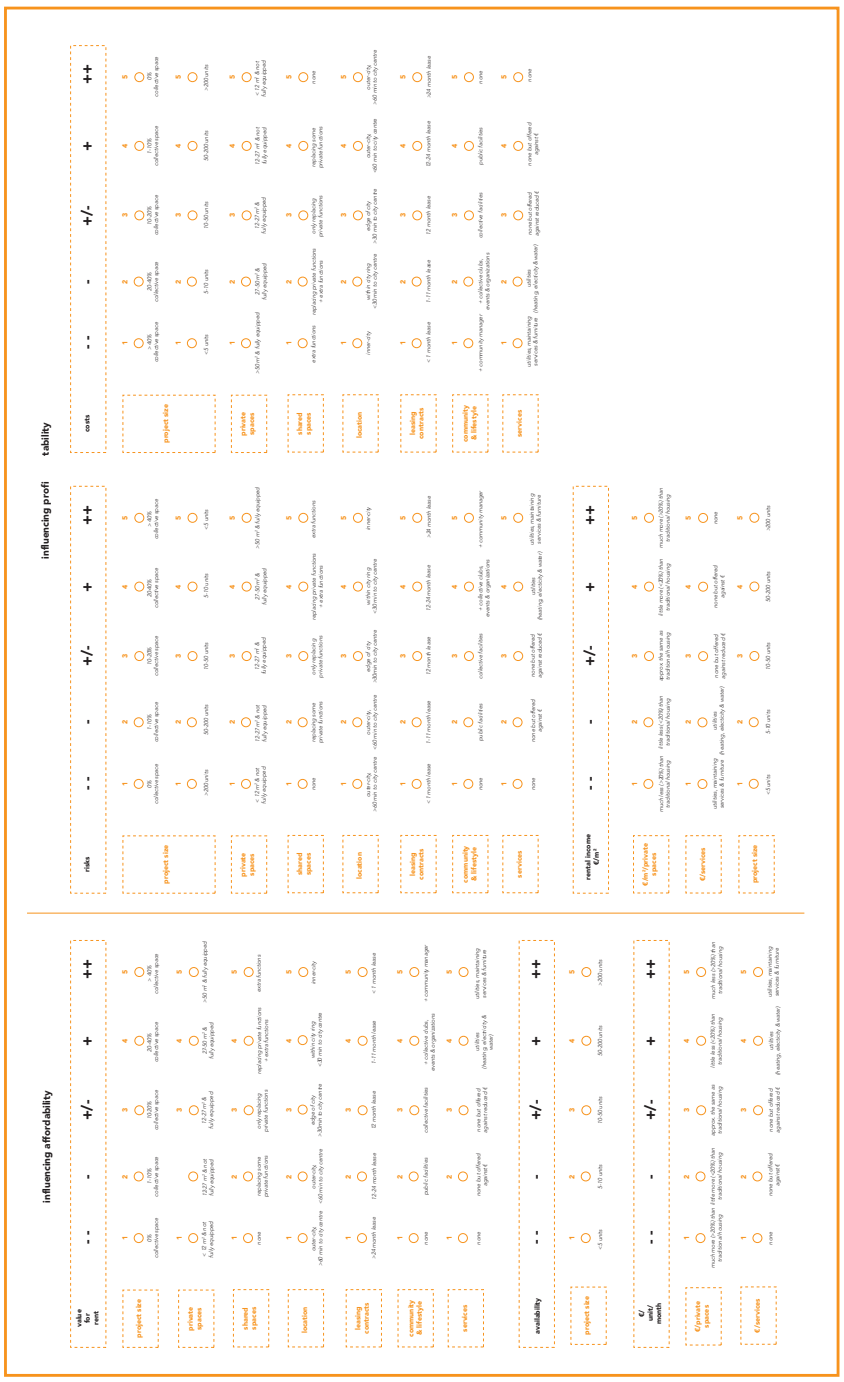
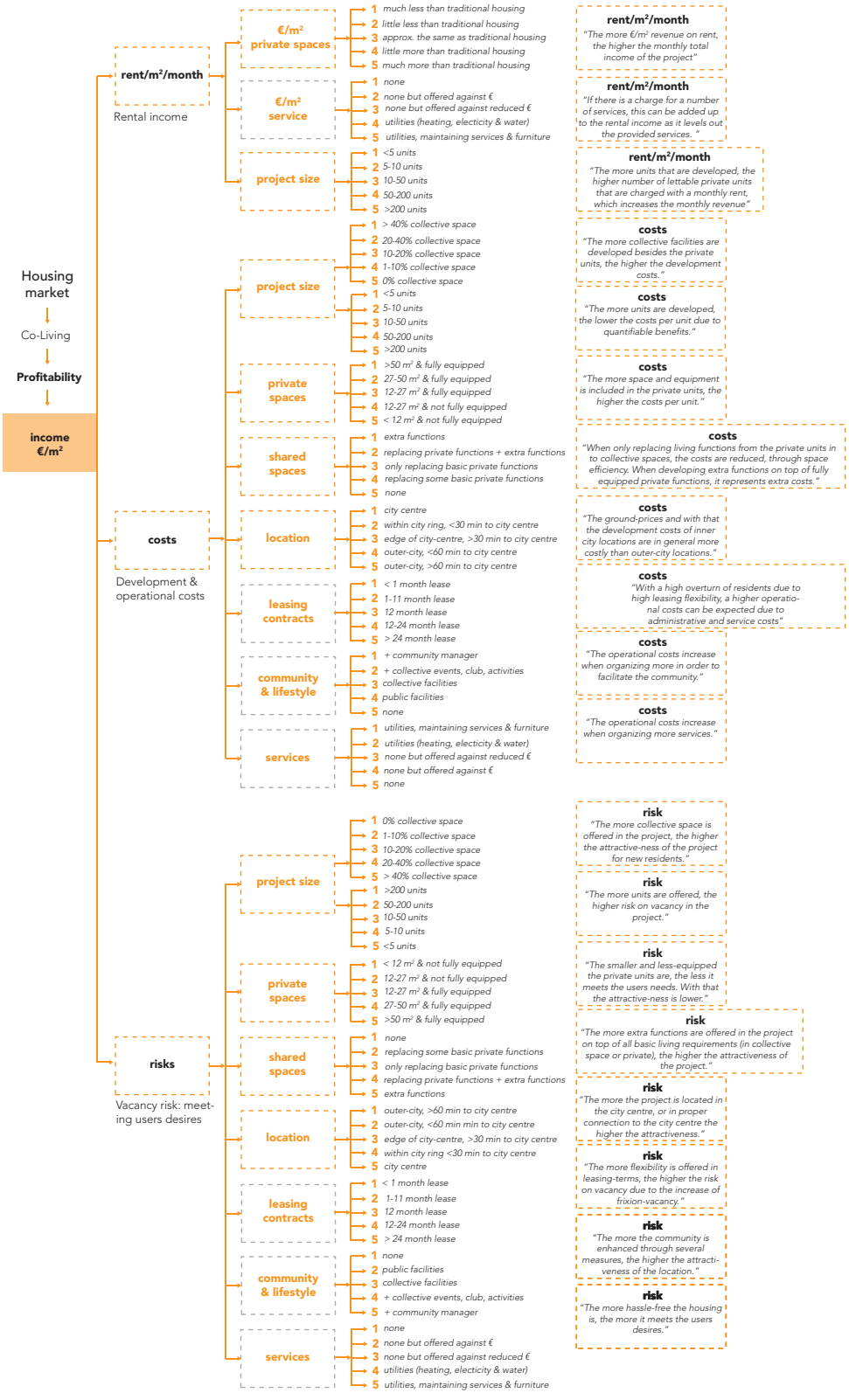
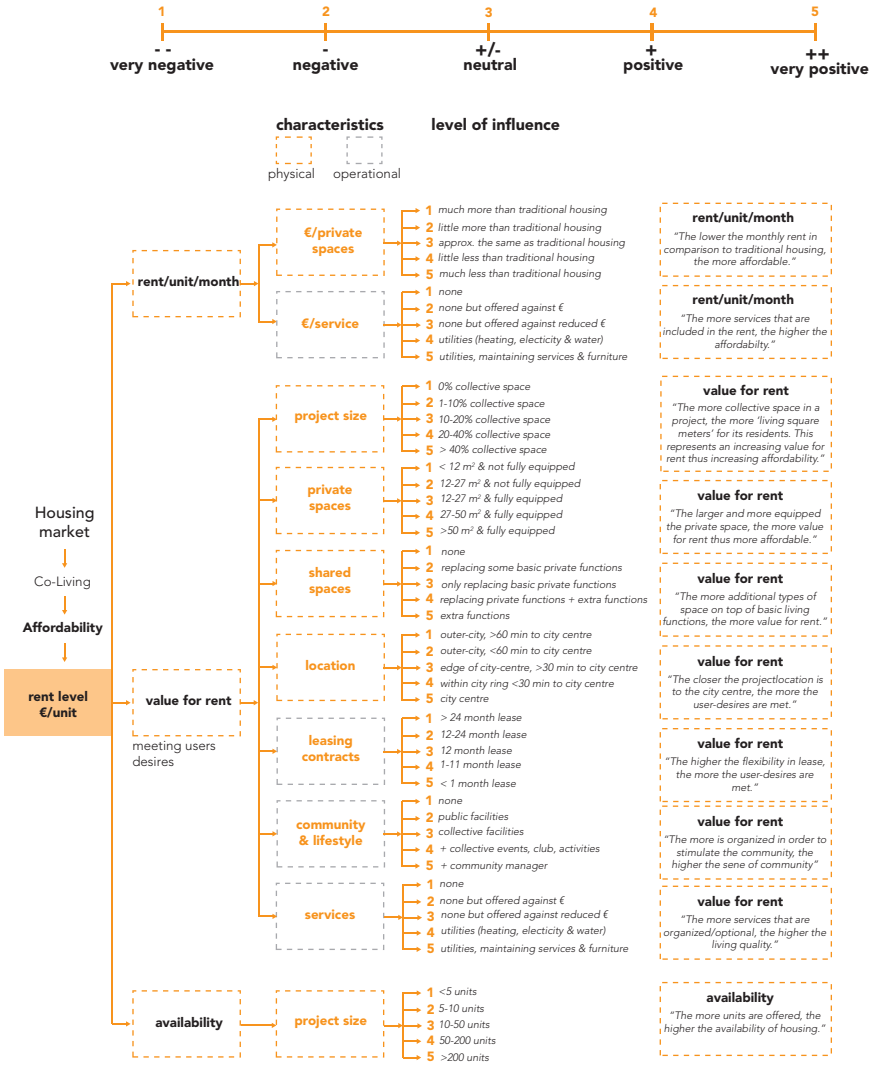


Figure 18. Analysing the different levels of influence upon affordability and profitability of the determinants (own ill,)


Housing market
Co-Living
Profitability
income €/m²
rent/m²/month
Rental income
costs
Development & operational costs
risks
Vacancy risk: meeting users desires
€/m² private spaces
1 much less than traditional housing
2 little less than traditional housing
3 approx. the same as traditional housing
4 little more than traditional housing
5 much more than traditional housing
rent/m²/month
"The more €/m² revenue on rent, the higher the monthly total income of the project"
€/m² service
1 none
2 none but offered against €
3 none but offered against reduced €
4 utilities (heating, electricity & water)
5 utilities, maintaining services & furniture
rent/m²/month
"If there is a charge for a number of services, this can be added up to the rental income as it levels out the provided services."
project size
1 <5 units
2 5-10 units
3 10-50 units
4 50-200 units
5 >200 units
rent/m²/month
"The more units that are developed, the higher number of lettable private units that are charged with a monthly rent, which increases the monthly revenue"
project size
1 > 40% collective space
2 20-40% collective space
3 10-20% collective space
4 1-10% collective space
5 0% collective space
costs
"The more collective facilities are developed besides the private units, the higher the development costs."
1 <5 units
2 5-10 units
3 10-50 units
4 50-200 units
5 >200 units
costs
"The more units are developed, the lower the costs per unit due to quantifiable benefits."
private spaces
1 >50 m² & fully equipped
2 27-50 m² & fully equipped
3 12-27 m² & fully equipped
4 12-27 m² & not fully equipped
5 < 12 m² & not fully equipped
costs
"The more space and equipment is included in the private units, the higher the costs per unit."
shared spaces
1 extra functions
2 replacing private functions + extra functions
3 only replacing basic private functions
4 replacing some basic private functions
5 none
costs
"When only replacing living functions from the private units in to collective spaces, the costs are reduced, through space efficiency. When developing extra functions on top of fully equipped private functions, it represents extra costs."
location
1 city centre
2 within city ring, <30 min to city centre
3 edge of city-centre, >30 min to city centre
4 outer-city, <60 min to city centre
5 outer-city, >60 min to city centre
costs
"The ground-prices and with that the development costs of inner city locations are in general more costly than outer-city locations."
leasing contracts
1 < 1 month lease
2 1-11 month lease
3 12 month lease
4 12-24 month lease
5 > 24 month lease
costs
"With a high overturn of residents due to high leasing flexibility, a higher operational costs can be expected due to administrative and service costs"
community & lifestyle
1 + community manager
2 + collective events, club, activities
3 collective facilities
4 public facilities
5 none
costs
"The operational costs increase when organizing more in order to facilitate the community."
services
1 utilities, maintaining services & furniture
2 utilities (heating, electricity & water)
3 none but offered against reduced €
4 none but offered against €
5 none
costs
"The operational costs increase when organizing more services."
project size
1 0% collective space
2 1-10% collective space
3 10-20% collective space
4 20-40% collective space
5 > 40% collective space
risk
"The more collective space is offered in the project, the higher the attractive-ness of the project for new residents."
1 >200 units
2 50-200 units
3 10-50 units
4 5-10 units
5 <5 units
risk
"The more units are offered, the higher risk on vacancy in the project."
private spaces
1 < 12 m² & not fully equipped
2 12-27 m² & not fully equipped
3 12-27 m² & fully equipped
4 27-50 m² & fully equipped
5 >50 m² & fully equipped
risk
"The smaller and less-equipped the private units are, the less it meets the users needs. With that the attractive-ness is lower."
shared spaces
1 none
2 replacing some basic private functions
3 only replacing basic private functions
4 replacing private functions + extra functions
5 extra functions
risk
"The more extra functions are offered in the project on top of all basic living requirements (in collective space or private), the higher the attractiveness of the project."
location
1 outer-city, >60 min to city centre
2 outer-city, <60 min min to city centre
3 edge of city-centre, >30 min to city centre
4 within city ring <30 min to city centre
5 city centre
risk
"The more the project is located in the city centre, or in proper connection to the city centre the higher the attractiveness."
leasing contracts
1 < 1 month lease
2 1-11 month lease
3 12 month lease
4 12-24 month lease
5 > 24 month lease
risk
"The more flexibility is offered in leasing-terms, the higher the risk on vacancy due to the increase of frixion-vacancy."
community & lifestyle
1 none
2 public facilities
3 collective facilities
4 + collective events, club, activities
5 + community manager
risk
"The more the community is enhanced through several measures, the higher the attractiveness of the location."
services
1 none
2 none but offered against €
3 none but offered against reduced €
4 utilities (heating, electricity & water)
5 utilities, maintaining services & furniture
risk
"The more hassle-free the housing is, the more it meets the users desires."



(left and right) Figure 17. Weighing the levels of influence per characteristic (own ill.)

3 A THEORETICAL DISCUSSION ON THE CONCEPT OF HOUSING AFFORDABILITY & PROFITABILITY

3.1 A discussion on the concept of housing affordability

When focussing the research on the issues regarding housing affordability, it is important to understand the discourse regarding the concept of affordability in housing.
The definition of the concept of affordability, in its broader sense but also in respect to housing, has been a topic of discussion amongst social and economic researchers, governmental policy makers as well as within society. (Hulchanski, 1995)

As different definitions of the term and concept of affordability are being used both in literature and in journalistic reviews, a misunderstanding or mis comparison is easily made. Understanding what can be considered as affordable housing and 'what not', can provide as a reference in order to be able to assess a specific housing opportunity from a user's point of view. Before continuing with the posed research on the influence of (the characteristics of) commercial co-living upon the users-affordability, it is important to understand the discourse on the concept and position and implement a definition in this research.

The Cambridge Dictionary (2019) explains the term 'affordability' as the following: "the state of being cheap enough for people to be able to buy". In the sense of this research, being scoped into the rental market, it could also be transformed into "the state of being cheap enough for people to be able to rent." In that sense, housing affordability can be framed as "the state of being cheap enough for people with a certain income to obtain (rent or buy) a dwelling fitting their needs." It is in this definition, that a couple of discussions posed by researchers come together (see Hulchanski, 1995; Haffner & Heylen, 2011; Czischke & Van Bortel, 2018).

Discussing the 'state of being cheap enough to be able to rent', of course regards a relation between 'the state of being cheap enough' and 'being able to rent'. Haffner and Heylen (2011) explain this relation, as "a standard of reasonableness of the price paid for housing consumption in relation to income". The relation of housing costs -rent, or costs of housing consumption- to income, is an often-used method of measuring the affordability of housing.

Affordability through housing expenditure-to-income-ratio
Hulchanski (1995) expresses this relation and measurement of affordability as an expenditure-to-income ratio. He claims that, up until his research, a housing affordability issue could be explained as a household paying "more than a certain percentage of its income to obtain adequate and appropriate housing." (Hulchanski, 1995). Here the 'rule of thumb' of the relation between income and housing expenditure, was considered "'one week's pay for one month's rent' around the turn-of-the-century." (Hulchanski, 1995) Where this covered a general indication on the ability to pay for housing in that period of time, it became clear that this expenditure-to-income ratio "moved upward" during the 20th century. Starting from a 20 percent rule until the 1950ies, the ratio moved to 25 percent and even a 30 percent ratio in the 1980ies. Where the European Union Statistics on Income and Living Conditions (in Czischke & Van Bortel, 2018)) in 2015 confirm the 25% expenditure ratio for the average European household, Czischke

& Van Bortel (2018) even recognized households spending 40 to 60% of their income on housing costs. It is interesting to see, that the level of reasonableness in regards to the cost of housing consumption shifts with time, stretching the housing demand and price elasticities. (Hulchanski, 1995).

Considering this posed housing expenditure-to-income ratio an in indicator for housing affordability, it is interesting to pose this measurement tool on the current Dutch housing market. Here, the Dutch housing market should be analysed upon its recognized housing expenditure and its household income.
In table x, the 'Planbureau voor de Leefomgeving' (PBL, 2016) defines the income groups of Dutch households as the following.

Household type	Yearly Income	Accessibility to housing market
Low income	< €34.688	Access to social rental sector
Lower Middle-income	€34.678 - €38.690	Access to the social rental sector due to a temporary widening of the policy, which has been extended up to 2021
Middle Middle-income	€38.690 - €44.360	These are incomes starting from the temporary widening of the policy up to the highest limit for income-dependable annual rent increase (IAH)
Higher Middle-income	€44.360 - €52.500	Commercial Rental Sector
High income up to 2x 'modaal'	€52.500 - €70.000	Commercial Rental Sector
High Income	> €70.000	Commercial Rental Sector

Table 3.1. Definitions of income groups (own ill. based on PBL, 2016)

As also discussed by Czischke & Van Bortel (2018), the Dutch housing market, as well as foreign housing markets, maintains a clear division between the social and the liberalized housing market. The PBL (2016) already connects certain income groups to their accessibility to either the social or the liberalized (commercial rental) market. Governmental policies, have set a cap on income and housing expenditure for the social market. In 2018, this was set on an income with a maximum of €38.690. (Rijksoverheid, 2018)
With this maximum of income in mind, the Dutch government has set a liberalization-limit, which represents the cap of social housing costs. In 2018, this limit was set on €710,68 per rent month. (Aedes, 2017 and BiZa, 2018). With this cap set, the liberalized market starts with a minimal income of €38.690 and housing expenditures of €710,68 and up.
Considering an annual income of €38.690 and monthly housing costs of €710,68, the housing expenditure-to-income ratio is 22 percent. With this, one could conclude that Hulchanski's discussion on the expenditure-to-income ratio of 20 to 30 percent, applies to the Dutch social housing market.

When taking the rent-level division of the rental-market platform Pararius (2018), we see that they make a difference between social, middle-segment and high-segment rent, where the middle- and high-segment rent are part of the liberalized market. See figure 3.1.

Taking this division of segments by Pararius as an indicator of rent-levels, this could be compared with the division of income groups by the PBL (2016). Comparing these estimations on housing expenditure with the incomes, the housing expenditure ration can be calculated. See table x.

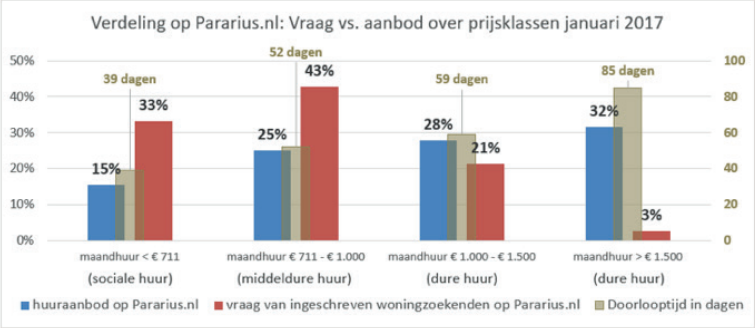


Figure 3.1. Rental demand in 2018 (Pararius)

Looking at table x, the quick comparison of Dutch income groups and implemented rent-levels, do show the same ratios as the theories of Hulchanski (1995) and Czischke & Van Bortel (2018). Taking the mid-segment market as an example: in terms of an" accepted and reasonable price paid for housing consumption in relation to income" (Haffner & Heylen) one could conclude that acquiring housing for a rent-level between €710,68 and €1000 per month with an income of €38.690 to €44.360 per year is affordable based upon the housing expenditure-to-income ratio. To conclude, table 3.2 shows the accepted affordable rent-levels per income group. Considering a housing expenditure-to-income ratio of 20 to 30 percent 'affordable', housing costs exceeding this percentage would be considered 'unaffordable'.

Household type	Yearly Income	Rent-level	Expenditure-to-income ratio
Low income (social)	< €38.690	< €710,68	22%
Middle-income	€38.690 - €44.360	€710,68 to €1000	22% to 27%
Higher-income	€44.360 – €52.500	> 1000-€1500	27% to 34%
High-income	>€52.500	> €1500	34%

Table 3.2. Expenditure-to-income ratio based on Dutch income groups and rent-levels (Pararius, 2018; PBL, 2016; Hulchanski, 1995)

One could say that the research of Hulchanski (1995) on the measurement of affordability could conclude in affordable housing in all housing markets, ranging from serving low to high income groups. Here all housing costs are affordable relative to one's income. Also, Stone (2006) describes affordability as "the challenge each household faces in balancing the cost of its actual or potential housing, on the one hand, and its nonhousing expenditures, on the other, within the constraints of its income." (Stone, 2006)

Czischke & Van Bortel (2018) consider a slightly different meaning and infill of affordability and its division in the rental housing market. They recognize social rent-level, affordable rent-level and free market/liberalized rent-level as three different domains. Herein, social is funded housing, affordable is housing costs based on a certain percentage of income (see Hulchanski,

1995) and full market is housing costs exceeding this 'affordable percentage of income' and actually representing the balance between supply and demand in terms of rent-level of the liberalized housing market. See figure 3.2.

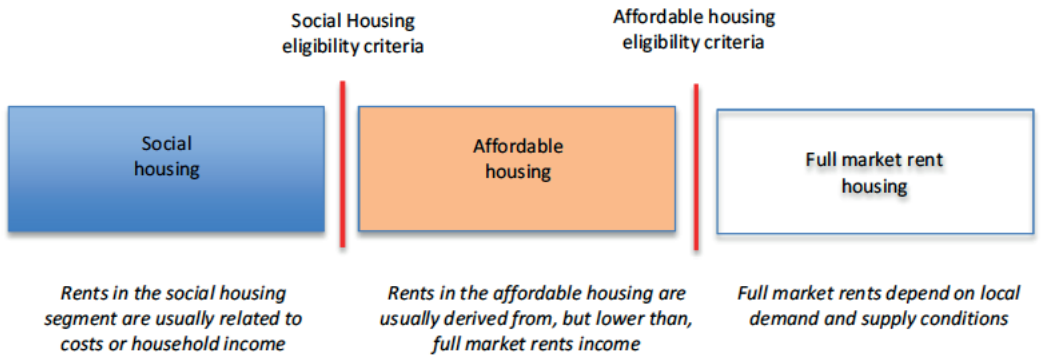


Figure 3.2. Rental housing segments (Czischke & Van Bortel, 2018)

In the above described division, it does not exclude the full market rents from being affordable. Yet, within a market where affordable housing is scarce, it does give a proper insight in the differences in rent-levels between social (funded), affordable (expenditure-to-income ratio) and full market rental housing.
Czischke & Van Bortel (2018) discuss the attainment of affordable housing in a pressured housing market through several routes. Where full market rents are required by for-profit developers, the affordable housing rent-levels can be attained through investors accepting lower return on investment than can be expected based on the local market conditions, but "still sufficient to cover the costs of capital". (Czischke & Van Bortel, 2018) Another way to attain affordable housing is to compensate the developers for their lower return on investment, through for example financial grants, lower land prices and loan guarantees. (Czischke & Van Bortel, 2018) These are means for governmental policies to steer upon affordable housing in a high pressured and unaffordable housing market.

Using this division of rent-levels, one could analyse the current Dutch housing market, in order to see if there are and what the differences are between social rent-levels, affordable rent-levels and full market rent-levels. Taking the following, one-person dwelling, in Amsterdam as an example. This example is an average based upon a market study on the Amsterdam housing market, see appendix.

Household	Size	Rent-level *social*	Rent-level *affordable (30% of income)*	Rent-level *full-market pricing*
1-person mid-income	55 m2	< €710,68	< €1000	+- €1615
Index		0,71	1	1.63

Table 3.3. Rental housing segments based upon an Amsterdam market study

Table 3.3 proves, based upon the division theory of Czischke & Van Bortel (2018) that the average

rental prices on the Dutch housing market, for a one-person, mid-income household are very unaffordable with rental prices of an average of 63% higher than is considered affordable.

Where Hulchanski (1995) and partially Czischke & Van Bortel (2018) describe the definition of affordability based upon a two-folded relation between income and housing costs, Haffner and Heylen (2011) identify three elements influencing the affordability. He discusses affordability, derived from the definition of Maclennan & Williams (1990, in Haffner & Heylen 2011), as follows: "'Affordability' is concerned with securing some given standard of housing (or different standards) at a price or a rent which does not impose, in the eyes of some third party (usually government_) an unreasonable burden on household incomes." (Haffner & Heylen, 2011) Herein, besides the elements of rental price and household income, they introduce the quality of housing. He also stresses the importance of establishing a "standard of reasonableness of the price paid for housing consumption in relation to income". (Haffner & Heylen, 2011) Where this standard provides the possibility to assess housing upon their affordability for a certain income group and household type, as discussed earlier.

Furthermore, they stress the importance of a standard for housing quality. They state that "without a standard for housing quality to be consumed it is not possible to be certain whether housing indeed is unaffordable as quality influences this evaluation." (Thalmann, 2003 in Haffner & Heylen, 2011). The quality of the housing can be experienced through an objective, physical and subjective, emotional perspective. These quality services include physical elements like "the number of square metres of living space, different kinds of rooms, a particular structure type, an address, accessibility to employment" together with the more emotional, subjective elements of "a neighbourhood environment, a set of neighbours, and a diverse collection of public and quasi-public services including schools, garbage collection and police protection". (Kain & Quigley, 1970). Fallis (1985) describes this term quality as the value of housing that is provided for the demanded rent. Value here being the physical and emotional qualities a dwelling can offer a certain household and/or person. This could also be understood as general accepted physical qualities together with specific, personal qualities together framing qualitative housing for a certain user.
Measuring the quality of rental housing on the Dutch housing market, is often conducted through the governmental measurement tool of the so-called 'point-system' (Rijksoverheid, 2019) This point-system determines the quality of the dwelling and with that its fitting maximum rental price. The point-system recognizes two different types of dwellings: an independent dwelling and a dependant dwelling.
Independent dwellings are one-family dwellings, apartments, 'portiekwoingen', maisonettes and 'gallerij'-flats. (Rijksoverheid, 2019) It assesses an independent dwelling on the size of the dwelling-surface, energy-system and label, kitchen and bathing facilities, outdoor space, type of dwelling and disabled services.
Dependent dwellings (rooms) are student-rooms and rooms with innkeepers/hosts. The point-system assesses dependent dwellings on its dwelling-surface of the different private rooms and the communal rooms, its energy(heating) system, kitchen and bathing facilities, outdoor space and storage facilities for mobilities. (Huurcommissie, 2019b)

A third recognized type of dwelling is the 'unfree-dwelling' of in other words the 'tied-dwelling'. The tied-dwelling is a dwelling of which its spaces are connected to communal circulation

spaces, but has its own kitchen, shower and toilet which can be privately locked. With this, a 'tied-dwelling' (onvrije woning) is considered an independent dwelling.
Yet, the valuation of the point-system is mainly designed for the social housing sector. (Huurcommissie, 2019a) As the social-sector housing cap is set on €710,68, the free-market sector starts from this rent-level. As in the social-sector the rent-level is regulated, the free-market sector gives the house-owner the opportunity to freely determine the rent-level of the dwelling as long as the value of the dwelling is above the social-cap. In order to determine if the dwelling is worth enough to be rented out in the free-market, the point-system can be used. For this, a dwelling requires at least 146 points (equals a rent-level of €717,97 in 2017) (Principle Properties, 2019)

So subsequently, both Hulchanski (1995), Haffner and Heylen (2011), Stone (2016) and Czischke and Van Bortel (2018) consider affordability as a balance between housing expenditures and household income. Balance here meaning an accepted expenditure-to-income ratio. On top of the variables of housing costs and household income, Haffner and Heylen introduce the variable of housing quality, or as Fallis (1985) states, the value of housing. One could consider the quality of housing through a general, physical point of view, addressing size, location and number of rooms, but also from a personal, emotional point of view (from the user) addressing personal desires like social contact, services, desired neighbourhood etcetera. As these physical elements are often better able to assess, for example through the Dutch point-system, upon their level of quality, the emotional elements are of a more specific, personal level, addressing certain desires in respect to housing as recognized within certain population groups.

With this theory in mind, the measure of analysing the concept of commercial co-living upon its affordability, is described in the analytical framework. The analytical framework is based on the balance between rental prices, which could be considered affordable or unaffordable in its relation to income- together with the offered housing quality, or in other words the value that is provided for the required rent. This concludes in this research in the following working definition of affordability :

> "Housing affordability means the balance between the required rent as part of the households income and the value of the acquired housing that is provided."

The research continues with a comparision of commercial co-living with traditional housing in the context of the current Dutch housing market. Herein, the concept of 'relative affordability' is introduced, representing the level of housing being 'more or less' affordable than what is currently seen in the market. This is further elaborated on in the chapter regarding the analytical framework.

3.2 A discussion on the concept of housing profitability

Besides the focus of this research on the affordability of housing from a users perspective, a second perspective is addresed, namely the perspective of the developer. With the large demand for housing, as discussed in the introduction, the question rises how the development of new housing can be stimulated. What drives the development of of housing? Within this research the scope is set on the developer-operator of rental-housing, aiming for a profitable development. This poses the question, how profitability can be understood, or in other words: what are the triggers for housing development? In the following, a discussion on existing literature on the concept of profitability is presented, serving as a theoretical underlayer for the following research.

According to the economic literature study by Thalmann (2008), the development of residential construction projects is leaded by "developers analysing market opportunities and maximising their profit. (...) Where they see sufficent demand for new developments and expect to earn an adequate return on their investment, they acquire land and other building resources required to make dwellings, produce them and put them on the market." (Thalmann, 2008) With this, the supply responds to a certain demand. The time between the analysis of the market and the actual delivery of new housing responding to the demand, represents an element of risk on the development, as contextual changes can occur. Also, "it is difficult for developers to be aware of what their competitors are preparing", which can result in a simultaneous answer to the demand delivering an excess of supply. As developer-operators do not need to make their profit at the point of delivery by selling the property, but earn their money gradually over time through the leasing of their property. Thalmann (2008) stresses, that this situation does make the calculation and with that the measurement of the profitability of a certain project much more difficult than when selling at point of delivery, making a direct profit from the development. In the rental market, expectations upon current and future profit plays a much more important role than only current market conditions. (Thalmann, 2008) Challenging here, is that the same market conditions may just as well signal an increase in profitability as wel as a decrease in profitabiltiy. Scanlon and Whitehead (2006) explain this through the element of property prices. An increase of property prices could, at one hand, imply lower return on rent together with a greater risk, as this could imply higher development costs, taxes or even inflation together with a higher risk due to the reduction of the potential target group. On the other hand, this could mean a higher demand for housing, which could result in a lower risk. This already introduces the difficulties in predicting the future profitability and the consequences of price changes.

A developer-operator, is at one hand the owner of a building and at the other hand the operator managing upon the leasing of the building. This results in both short-term rental revenue as wel as long-term building value, together framing the potential profitability of the development over a certain period of time. Scanlon and Whitehead (2006) define the return on rental property as "net rental yield plus change in capital value". Here they state that a change in one or more factors could affect this expected return; a change in house prices, in rental demand, in taxes and in interest rates. They conclude these elements in the following.

According to Thalmann (2008) there is a lot of discussion amongst experts how to assess the profitability of housing investment and development. As Scanlon and Whitehead address both profits due to the influence on rental yield and capital value, some ignore "the capital gains

	1. Factors that increase return	2. Factors that decrease return
Rental Yield	Lower interest rates Rising demand for rental property Decreased taxees on rental income Falling house prices	Higher interest rates Falling demand for rental property Increased taxes on rental income Rising house prices
Capital Value	Rising house prices Decreased taxes on capital gains	Falling house prices Increased taxes on capital gains

Table 3.4. Factors that might change the expected return on rental property (own table based on Scanlon & Whitehead, 2006)

component".
Although a thorough, but difficult, analysis of potential developments can give insights into the profitability of a project, practice does show that many developers use "short cuts" and "place their faith in the liong life expectancy of their products" when it comes to the descision for development. (Thalmann, 2008) The launching of a development can occur in favourable situations like a developer is proposed a plot of land or the joint development with neighbouring plots. What practice also shows on the other hand it that the rise of land prices or the cost on building measures, a decrease in economic growth or an increase in vacancies can discourage a developer whilst a thorough analysis might still show that the development can be profitable. (Thalmann, 2008) One could say that the latter, is the situation on the Dutch housing market, where the economic crisis together with the increase in land prices and costs on building measures have destimulated developers and shifted them from the mid-segment housing market to the high-segment housing market, with the result of vast housing shortages for mid-income households.

Thalmann (2008) frames three types of developers: the market developer, the investor-developer and the market/investor-developer. See table 3.5.

	Market developer	Investor Developer	Market/Investor Developer
Aim	"Developer seeking to sell the completed dwellings/building with a profit."	"Developers who build with a veiw to keeping ownership of the completed building."	"Developers who sometimes sell the completed dwellings/building."

Table 3.5. Developer types (own table based on Thalmann, 2008)

The investor-developer, who developers the property and then leases out the dwellings, can be compared with the earlier framed developer-operator. Thalmann (2008) recognizes three different drivers for a investor-developer or developer-operator:

1. Profit-driven: "developers who see a profitable investment";
2. Social-driven: "developers who pursue social goals with their rental dwellings and seek to address housing needs";
3. Revenue driven: "developers who are foremost interested in the work provided by development to occupy their idle capacities". Here Thalmann states that this category probably represents a developer that tried to sell their property but was not able to.

A survey amongst developers in regards of their aim on profitability, conducted by Thalmann (2008) shows different meanings depending on the driver, see table 3.6) Here it is clear that

	Profitability means ...
Profit-driven	"The profitability of the investment." (54%) "The safety of a long-term asset." (43%) "A steady flow of rental income." (4%)
Social-driven	"Does not need profitability, just cost coverage" (44%) "Applies the criteria of the authorities." (44%)
Revenue-driven	"The return must not lie blow some rate" (63%) "Does not need profitability, just cost coverage" (36%)

Table 3.6. Aiming for profitability depending on development driver (own table based on Thalmann 2008)

the driver for development -profit, social or revenue- results in a different aim for profitability. This aim ranges from just the coverage of the development costs, to accepting a certain rate of return, to maximizing the profitability of the investment. One could say that some type of projects, like commercial co-living in this research, are more applicable to some type of developrs than others.

Altogether, developing a commercial co-living project as described above, embodies three main actions: the investment in, the physical building of, and the exploitation/management of a co-living project. Altogether this frames the responsibility for the co-living investor-developer or as framed the developer-operator.

Geltner (2001) discusses the profitability through some major constraints that affect its investors or investor-developers. Its profitability is dependable of the following constraints.

1. Risk: "The possibility that future investments performance may vary over time in a manner that is not entirely predictable at the time when the investment is made. "
2. Liquidity: "The ability to sell and buy investment assets quickly at full value and without much affect in the price of the assets." (this is less applicable to investor-developers as they keep the property in their portfolio)
3. Time Horizon: "The future time over which the investors objectives, constraints and concerns are relevant."
4. Investor Expertise and Management Burden: "How much ability and desire the investor has to manage the investment process and the investment assets." This is of great importance for an investor-developer in terms of shared housing, as they will need to manage the concept after development.
5. Capital constraints: "Whether the investor faces an absolute constraint on the amount of capital they have available to invest or can obtain additional capital relatively easily if good investment opportunities are available."

For this research not considering the responsibility for an investors own liquidity or financed capital, the two main focusses of an investor-developer are the reduction of risk and the prospects in revenue. The reduction of risk is applicable to the real estate development phase as well as the asset management phase. In other words, reducing risk while 'making' the project, and reducing risk while 'managing' the lease of the project, making sure projected revenues are achieved.
Prospects in revenue for an investor-developer can be short-term and long-term, and can be

derived from possible revenue/yields from the future sale of the real estate property itself, as well as revenue from the monthly/annually lease of the property. Considering it regards the lease of housing, the research will focus on monthly revenues and costs. (Geltner, 2011)

A common method to measure a projects monthly revenue/yield is through its possibility to reach a certain yield calculated from project income and costs. This is calculated as such:

Gross Initial Yield = Gross Rental Income / Current Property Costs

Herein the calculation of the gross rental income takes into revenue risks like vacancies. The property costs are the costs of the development of the project (recalculated in monthly costs) as well as the costs of the management of the property.

Traditional developers would state that there should be aimed for a yield of 7% to even 10%. With the current market, as risks have reduced, developers tend to go for lower yields. Currently, the prospects for the housing market, are that the Gross Initial Yield for new housing in the Randstad ranges between 4,00% and 5,25%. "Due to the vast pressure on the market, initial yields continue to fall: for existing buildings and new builds in particular, initial yields have fallen to a level of between 4.00% and 4.25%. Colliers (2017) even expects that these numbers will drop even further under the 4,00%. Because of the high demand in the housing sector, the risk of investing in housing has decreased and developers are willing to invest in non-traditional types, like co-living. (Syntrus Achmea, 2018)

To conclude, some important drivers for a potential investor-developer that could stimulate the willingness to invest in housing, like commercial co-living, are applicable to the decision-making. Although the meaning or expectancy of profitability is dependant of the type of developer, the profitability is influenced through a couple of factors (Geltner, 2011):

- Property costs
  - Buildings costs
  - Operational costs
- Revenues
  - Monthly rental income
  - Future real estate asset value
- Risk
  - Vacancy risk
  - External risks (policy, damage to property)

With this theory in mind, the measure of analysing the concept of commercial co-living upon its profitability, is described in the analytical framework. The analytical framework is based on the balance between rental income, risk on this income (vacancy risk) and the development costs. This concludes in this research in the following working definition of profitability :

"Development profitability means a positive the balance between the acquired income through rent, the risk on this potential rent and the costs of development."

The level of positivity is dependand of the aim of the type of developer in respect to profitability, as earlier discussed.

As already stated, the research continues with a comparision of commercial co-living with traditional housing in the context of the current Dutch housing market. Herein, also the concept of 'relative profitability' is introduced, representing the level of the development of co-living dwellings being 'more or less' profitable than what is currently seen in the market in traditional housing. This is further elaborated on in the chapter regarding the analytical framework.

PART 1

4 CONCEPT OF COMMERCIAL CO-LIVING

In the following chapter, the concept of commercial co-living is discussed. This is done in terms of its historical background, its position amongst other types of shared housing, its functional and sharing concept and its hypothesis on the co-living affordability and profitability concept. Finally, the characteristics, based upon a widely spread case study analysis, are framed.

4.1 The evolution of shared living

Shared living is not a phenomenon of the 21st century and today's ideas about shared living have been influenced by multiple historical examples. (Vestbro & Horelli, 2012). Sharing environments that give shelter date back to the beginning of mankind. Since the middle ages the motives for shared living range from religious, social, economic to even utopian incentives. Under influence of the church religious forms of shared living were introduced in terms of living in a commune. Nowadays, the historical mission-driven, economic and social incentives for sharing are more comparable to the nowadays drivers of shared housing.
The term shared housing, represents a place where two or more non-related people live together in an existing residential dwelling unit. (Schreter, 2010)

Utopian, social and economic incentives for sharing
Vestbro and Horelli (2012) discuss shortly main influencers on the concept of shared living. Starting with the idea of Thomas More in 1516 to aim for a society where man and woman are equal, wherein he continues that the task of over citizen is to take up his/her part for communal purposes, joining communal meals and the existence of large collective dining halls. This utopian image was taken further by Charles Fourier, who believed in "communal ownership, order and productivity". Both utopians suggest small city-like communes where everybody is engaged in household production and management. Fourier called his settlements the 'Phalanstère's', wherein communal spaces ranged from dining halls, schools, kindergartens, libraries, lecture halls, a theatre and other collective facilities. (Vestbro & Horelli, 2012)

A less utopian and more economic incentive was brought forward in the nineteenth century Europe, within the growing middle-class to find solutions to the problem of hiring domestic servants at an affordable price. (Vestbro & Horelli, 2012) Here ideas about sharing were put forward in order to save costs through the "collectivizing of the household help". This idea was integrated in nineteenth century designs for urban residential complexes, in such a way that many households could share for example meal production, collective maid's rooms and storage spaces. These one-kitchen buildings formed then again, the basis for 'the kollektivhus 'concept (the collective house), first introduced in Sweden. Within these collective houses the main aim was not cooperation but the addressing of collective household labour. One of the first complexes, the Hässelby Family Hotel, comprised out of 328 private apartments, all in connection to collective facilities like a restaurant, cafeteria, big party room, a day-care centre for children, a gymnastic hall, a small shop, a reception, a hair-dresser, a laundry and a meditation room. (Vestbro & Horelli, 2012) Another initiative, evolved from the Hässelby Family Hotel concept, was the BIG Group. They claimed that combining shores like cooking and child-care within a larger group, the shores eventually becomes more enjoyable and affordable. The

BIG Group considered a complex for fifteen to fifty households an appropriate size for this new type of co-housing. They claimed that if each house would be abstaining only 10 per cent of the normal apartment space, the collective space would get a substantial amount of communal facilities without increasing costs. (Vestbro & Horelli, 2012)

Analysing some of the historical examples of collective housing, it is apparent that programming for collective spaces, are all derived from the incentive of being part of a community, aiming for affordability and striving for social equality. Equality in possibilities in daily life plays an important role in the utopian and social ideas about sharing and reaching this equality requires certain collective solutions for the posed problem. Projecting this sense and urge of equality to the current market, it could be advocated that equality in terms of available facilities and space is the new form of urban equality people are aiming for. All have the right to live in the increasingly expensive city centre and sharing spaces will provide you that possibility. Still, recent research describes the re-emergence of co-housing as pragmatic, rather than the aim for a utopia of equality. Herein it is a pragmatic answer to societal changes and needs such as everyday service energy or cost-savings and accessibility. (Tummers, 2017) As she states: "The overall profile of contemporary urban co-housing initiatives (…) correspond to a group of predominantly middle-income households embedding itself in clustered housing in inner city locations. They seek the benefits of the city, such as the proximity of schools, culture, jobs and services, avoiding suburban disadvantages such as mono-functionality, isolation and car-dependency." Vestbro adds to this that "the cohousing movement represents a rupture with traditional family structures, specifically a break with gender roles in the domestic sphere". (Vestbro, 2010 quoted in Tummers 2017)

As shared housing in the last centuries have been driven by religious, ideological, social and economic factors, it strikes that 21st century shared housing does not wander far away from that. The incentive of sharing costs through sharing spaces is dominant in 21st century examples. Also, the sense of being part of a community dates back to the beginning of religious communes, still plays an important role in the motives for shared living.
On the other hand, many people compare the emergence of shared living with the long history of student housing. Where the origin of student housing is set in the sharing of living spaces in order to reduce housing costs, the same can be recognized in modern student- and co-living. The emphasize on communal space, think of dining space and living areas are fundamental to both concepts. The main difference that is made between student style living and commercial co-living, is the provision of facilities that are unlikely to be present in a more traditional house share. Think of supporting facilities like places to work, go to the gym or other places for social interaction are part of the character of commercial co-housing and is unlikely to be found in ordinary student housing.
As habitat sociologist Monique Eleb states "The concept (of co-housing) is not new. It mixes two well-established phenomena: cohabitation and the equipped building." (Vincelot 2018).

4.2 Definitions of 'co-housing'

The widely acknowledged term for shared housing, representing the general concept of sharing within living environments is co-housing. Co-housing embodies the collection of the variations in sharing concepts ranging from collaboration, cooperation, community and collectivity. There

are several concepts that have been used to denote the same phenomenon of housing with common spaces and shared facilities. It ranges from collaboration between residents to the promotion of a sense of community or just the rational organization of a housing block. All of these concepts embody a sense of sharing yet conducted from a different perspective, see figure 28 on page 86.

Collective housing
Vestbro and Horrelli (2012) describe the term 'collective housing' as the emphasis on the collective organization of housing and services within a building or area. Others, like Collective House Inc. (2018) claim "collective housing is a way to share space and time to enrich and support the lives of residents." Within the concept of collective housing, commercial co-housing and self-managed co-housing can be identified. "Co-housing initiatives constitute a sometimes pragmatic, at other times idealistic response to the challenges of living in contemporary society" claims Tummers (2017). Furthermore, she states (2017) that co-housing represents 'housing with common space and shared facilities.'

Collaborative housing
The term "collaborative housing refers specifically to housing that is oriented towards collaboration among residents" according to Vestbro and Horreli (2018). It comprises often out of some sort of collaborative activities where people act together, collaborative, towards a certain goal. Co-building is an example of collaborative housing. Or in other words, forms of collective self-organised housing with a focus on collaboration and co-production (Czischke, 2017) Herein you can think of collaboration between residents or residents and housing providers. Terms referring to this collective self-organised housing are 'collaborative housing', 'community-led', 'resident-led', 'participative housing' or 'co-housing'. (Czischke, 2017) However, all these different terms represent a variety in level of participation and are with that different from each other. Altogether, Czischke (2017) uses the term 'collaborative housing' as an umbrella term for all these different phenomena. Collaborative housing initiatives are in line with the societal trends of decentralization, increasing individualisation and a growing demand for participation and custom-made solutions. (Tummers, 2017). She claims collaborative housing is defined by 'housing oriented towards collaboration by residents.'

Cooperative housing
'Cooperative housing' does not imply any shared living situations but only relates to cooperative ownership of housing. (Vestbro & Horelli, 2012) "Cooperative initiatives are considered increasingly important through their addressing of the gap the government leaves by the withdrawal of the state providing in enough affordable housing. Secondly, housing cooperatives tend to create a sense of social cohesion and a shared place identity amongst their members. (Lang & Novy, 2014) Herein cooperative housing organization position themselves in between passive residents and (governmental) housing organizations by the cooperation between residents through social and financial capital which provides them a position of decision-making in regards of their housing situation. (Lang & Novy, 2014) Tummers (2017) on the contrary posed a slightly different definition which states 'cooperative housing' as "cooperative ownership without common spaces or shared facilities, therefor not co-housing."

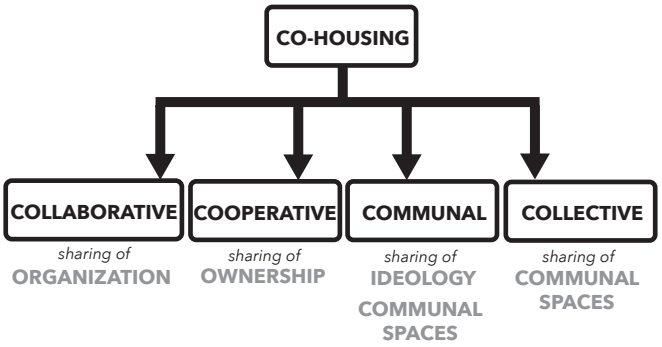


Figure 28. Umbrella term Co-Housing (own ill.)

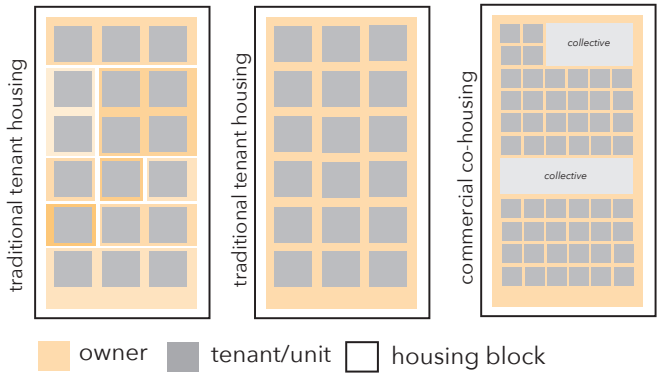


Figure 29. Commercial traditional tenant housing versus co-living (own ill.)

Communal housing
According to Vestbro & Horelli (2012) the term 'communal housing' "is used when referring to housing designed to create a community". The concept of communal housing finds large parts of its history in religious settlements where the focus on the commune was a basis of daily life. Although the sense of community can be found back in all the varieties of the concept of co-housing, the drivers behind this commune driven housing differs. (see appendix D) Ranging from religious motives, to utopian, social and economic drivers, communal housing comprehends a broad term of housing where a sense of community is facilitated. What is striking is that, due to joint ideologies about living, these communes often come with high ecological standards for example. (Ache & Fedrowitz, 2012) Tummers (2017) identifies the difference between 'communal housing' and a 'commune'. Herein represents communal housing, a living place for togetherness and sense of community while a 'commune' is defined by "living without individual apartments."
What can be concluded after researching to the published writing regarding the different co-housing concepts, is that these terms are used and implemented in different ways and with different meanings. Between the four main umbrella terms (see figure 26), it should also be acknowledged that there is a lot of overlap in the content of the terms. As stated earlier, some level of community can be found in all phenomena as well as the sharing of elements of housing, ranging between the sharing of space, of house ownership, home-life ideology or household management. Therefore, as it is important for this research, that focusses on the concept of co-living, that it is considered as follows:

"Co-living represents the sharing of living environments wherein there is an emphasis on the sharing of communal spaces." Herein, the terms co-housing, co-living and shared living all represent the same phenomenon, analysed in this thesis.

4.3 Commercial co-living

Concludingly, living together in order to save upon housing costs, is not a new concept and has been occurring for centuries. (Schreter, 2010) And although collective housing comprises of different backgrounds, ideologies, motives and a comprehensive history, the concept of large scale commercial collective housing is of a more recent nature.

The infill of the definition of co-living differs per co-living housing provider. The Collective (2019) states "Co-living is a way of living in cities that is focused on community and convenience. Live as part of a community, sharing wonderfully designed spaces and inspiring events, with the comfort of being able to retreat to your own fully furnished private apartment (…). Everything you need to make the most of city life is included in bill; rent, concierge, superfast internet, all utilities and taxes, room cleaning, exciting daily event and gym membership. So, you can do the living, and leave the rest to us."
Although considering that this is a marketing statement, it does give immediate insight in what the vast majority of co-living providers imply and offer with co-living: communal living, private spaces and sharing spaces and, not to be overseen, serviced living.

4.3.1 Basic concept of commercial co-living

'Commercial co-living' represents the facilitation of relatively smaller (in comparison to traditional housing of approximately 50m2 per person) private living units together with collective facilities within one building. The leasing out of collection of private units and facilities are here the responsibility of one commercial company or person. See figure 29.

In comparison to traditional rental housing, some important differences are to be mentioned. The main issue that was brought up in the discussion about the value of shared housing where the difficulties in program planning, financing and its management, as it requires a totally different approach than traditional rental housing. (Schreter, 2010)
Especially with large scale shared housing, its operational management is becoming more challenging. This is why in all of the analysed co-living projects, own organizations or external operating companies are responsible for the operational management of the large scale co-living projects.

4.3.2. Positioning commercial co-living in the housing market

In trying to position the emerging concept of commercial co-living within the existing housing market, many compare the concept with student housing. More and more, co-living blocks are building a presence in dense urban areas increasingly spread over the world, where young professionals do not end their student-style living when starting their first jobs. (JLL, 2018) Jones Lang LaSalle claims that "student accommodation has evolved and that the latest generation have become accustomed to higher levels of serviced accommodation than has been previously accessible.". (JLL, 2018) Herein flexibility and consistency are considered one of the main requirements for housing after graduation.

That the evolution from student housing to adult co-housing is accepted is visible in the urban planning of larger cities. The local government of the city of London already proposed in the 2018 London Plan, to stimulate the development of large-scale 'purpose built shared living space' (PBSL) without a university agreement in place. University agreements with shared housing complexes were leading in the past decades in Great Britain, but are now making space for commercial markets focussing on the development of shared living spaces targeted at students. In Great Britain, purpose built shared living spaces – or in this research framed as commercial co-living- are defined as shared living developments that comprise of at least 50 units. Herein the units "should be appropriately sized to be comfortable and functional to the tenants needs." (JLL, 2018) With land values increasing the pressure on the land use increases simultaneously. The obvious result is to increase the number of people that can live on these locations. This is where the concept of co-living is becoming increasingly interesting for commercial housing developers, as it is a concept providing the possibility to house relatively more residents on a given footprint.

Difficulties in market positioning: policies

With an expected increase of 13 million people to be living in European cities by 2025, co-living has the potential of taking up an important role in the housing market. Despite the growing demand, many European cities do not yes have planned to facilitate these large-scale purpose built shared living spaces (PBSL). Within Europe there are different housing policies wherein for example the Netherlands and Germany already recognize student housing as an

important part of the housing market. Herein the acceptance on the market reduces initial risks for possible new investors and developers. As the co-living concept is quite similar in practice to student housing, these markets are recipient to the co-housing initiatives, where in other countries like Great Britain there are more policy hurdles to overcome. (JLL, 2018) In Great Britain, due to the success of the Collective Old Oak (to be discussed later) there is increasing recognition towards the high-density housing solution possibilities co-housing can provide.

As co-living is very much in its early stages, tenancy laws need to catch up with the new housing models, as demand for more flexible housing grows. Also, there is not a one-size-fits all model, claims Philip Hillman, Chairman of Alternatives at JLL. "We'll see a lot of variations and in some schemes in Germany you have people eating together all the time in social areas. We will be seeing a British version of co-living that is probably slightly more reserved." Still, he claims it is all part of a living revolution, where the demand for more individualistic housing is increasing by the day, and this massive demand requires more smaller units and large amounts of people having to live in the same building. (Aitch, 2018)

4.4 Co-living: a sharing concept

4.4.1. The sharing user

The main differences between co-housing and traditional housing is the sharing element. Besides the functional research in what housing functions are sharable and which aren't, the willingness to share also plays an important role in the success of co-living. What people are willing to share in respect to the reduction of housing costs is subjective and differs per culture and person.

One Shared House 2030: a shared living survey

Space10, the living research lab of IKEA, focusses their research, amongst others, on the future of shared living. Within this research a survey, called One Shared House 2030, amongst 13.000 people from all over the world was conducted. Within this survey, the willingness to share -like what, with whom, where- was researched as well as peoples greatest concerns towards shared living. As all these people responded not from an experience with shared living per se, but from their imagination about sharing, its conclusions cannot be considered a proper scientific result. Still, it does give an in initial insight in peoples motivations and willingness, which represents the opportunities in housing the co-living target group.

Within the One Shared House 2030 survey, the average Dutch, single person with an age between 18 to 39 years old, considers co-living as the possibility to provide more ways to socialize. For the research group it is not only about first-hand social contacts, but also the opportunity to be part of a new community, besides the regular communities coming from ones work or school.
On top of these social incentives, the financial motivations are put forward. The splitting of monthly housing costs through sharing is considered as an important pro in choosing for co-housing. Also, the additives of a variety of communal spaces is considered as getting more in return for your money in comparison to traditional housing.

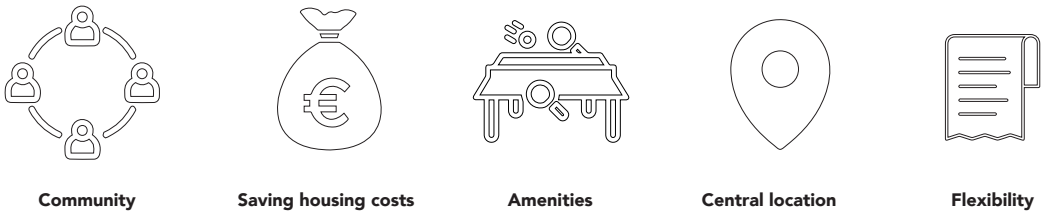


Figure 30. Main requirements for co-living from an users-perspective (own. ill. Based on One Shared House 2030)

Figure 31. Main fears for co-living from an users-perspective (own. ill. Based on One Shared House 2030)

Within the same survey, some requirements are put forward by the researched group in order to have an easy and comfortably co-living situation.
First of all is the urban central location a requirement, independent of the fact if there are proper mobility services provided. On top of this, the researched group prefers the possibility to live a nomad life. Several co-living locations around the world that are connected and provide a global co-living community, is what they would prefer to be a part of. The composition of this community is preferred to consist out of couples, single men and woman. Also, it is in general preferred to choose new flat-mates themselves instead of placement by management. Herein people that are neat and tidy, honest, considerate, proactive and socially at ease are preferred to live with.
In terms of private and communal spaces, it is preferred to have furnished communal spaces but be responsible for the interior of one's own private space. Also, the private kitchen is not considered a necessity in one's private space, and people rather see more private space with a communal kitchen instead of private kitchen facilities within the private unit, taking up space. Besides the sharing of the kitchen facilities it is in general mostly preferred to share workspaces and a common room, outdoor space as well as services like internet and mobility. See figure 30.

Not only the One Shared House research has framed the possible desires of a co-living resident. Jones Lang LaSalle (2018) confirms the research and frames four key components or user-desires for co-living:
1. Location. As cities provide the most attractive place for new businesses whilst attracting talent through the establishment of universities, these urban environments are mostly desired by young people. This urban attractivity has direct impact on the need for new types of residential accommodation to satisfy demand.
2. Connectivity. City living increasingly reduces the need for car ownership and stimulates the use of bicycles, public transport or car sharing. Besides this the reliance on high speed Wi-Fi and telecoms infrastructures is increased with the shift towards food delivery, and retail and personal (delivery) services. The access to smart devices is crucial in daily life.
3. Amenities. Lifestyle and leisure have become an intrinsic part of daily urban life. "The growing number of options for eating out, entertainment and leisure have all contributed to the growth of the sharing economy." Hence, this reduces the need for traditional, self-contained household functions like a large kitchen or dining room.
4. Education and innovation. Universities and global business located in the city, attract global talent which in their daily life rely on collaboration and co-working.

Taking these four components framed by JLL (2018), together with the framed co-living requirements of the One Shared House survey, these could be considered as the basic framed desires for the co-living user.

The constraints of sharing
Within the same survey of One Shared Housed 2030, a couple of constraints are clearly formulated by the researched group of Dutch people between the age of 18-39 and part of a single-household.

First of all, it is considered important that there is a clear boundary between private spaces and communal spaces. Although this research group is open for other people to use their

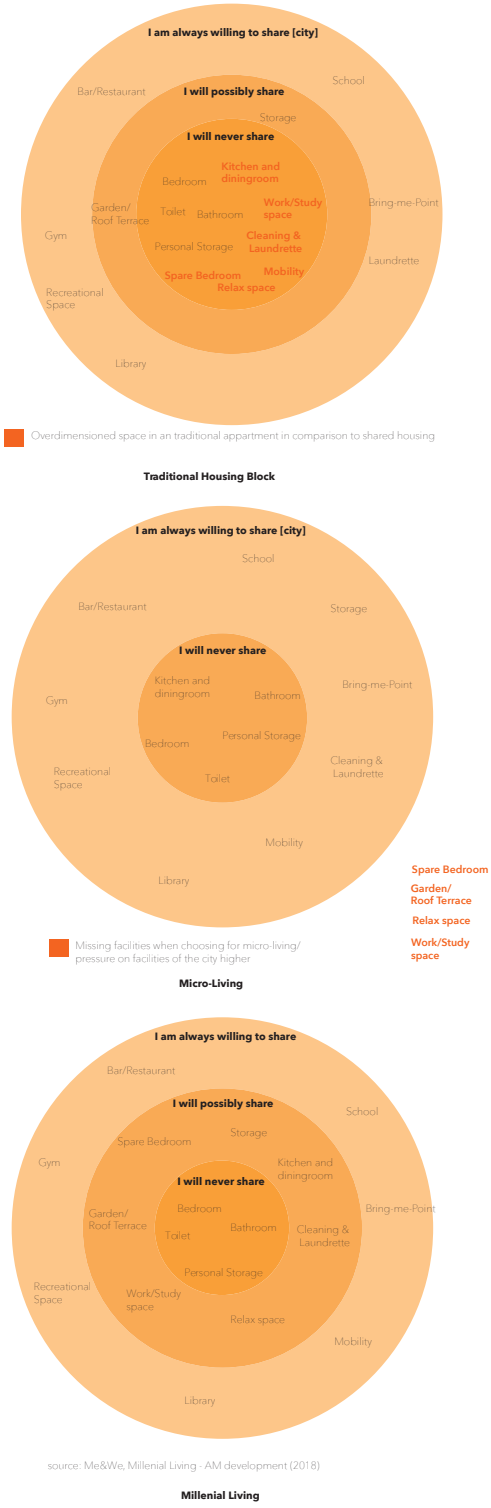


Figure 32. Levels of sharing in a traditional housing block, millennial housing and micro-housing (own ill. Based on AM & One Shared House 2030)

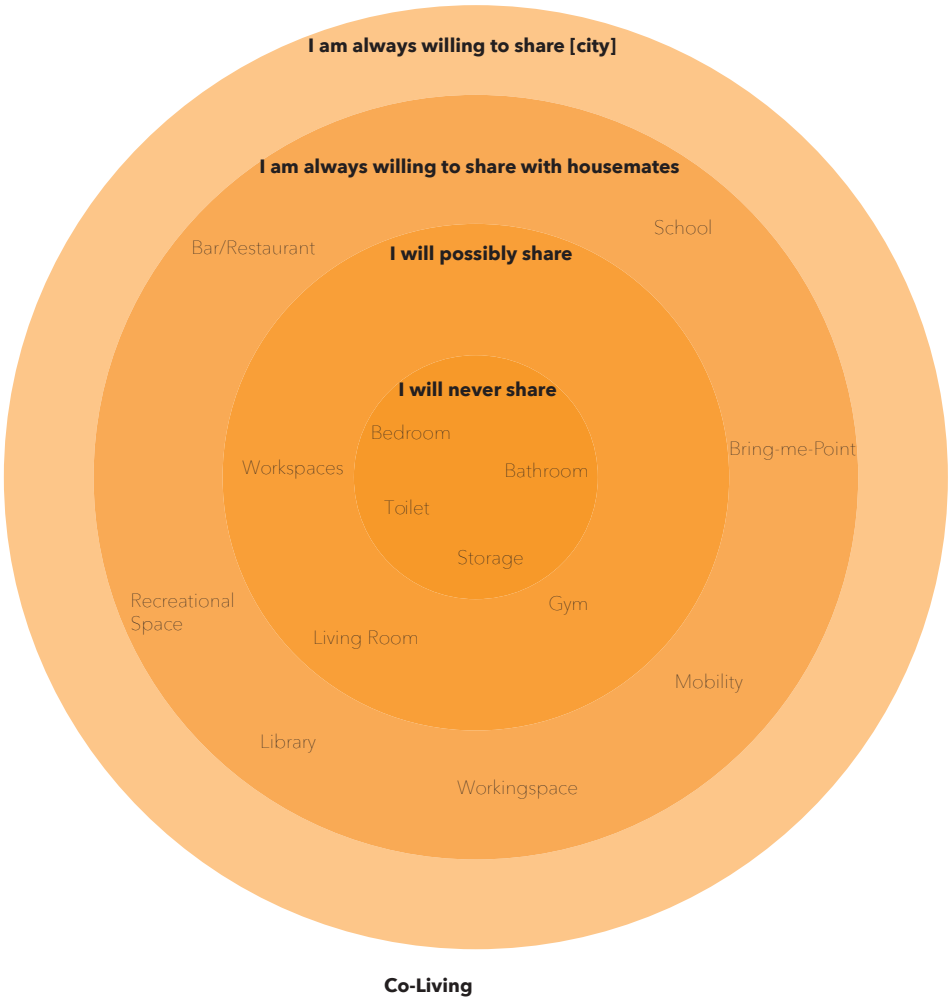
private space when they are not around, it should still be clear what is private and what is really communal. The main constraint herein is that people are afraid that there will be a lack of privacy. Clear boundaries of private space help protecting this privacy.
Also, what comes forward from the survey is peoples concern about equality in costs and responsibility. There should be equal rights in space usage. Still, regarding these communal spaces, the researched group states to be afraid to live in 'other people's mess'.
Besides, as earlier stated, the preference in choosing one's flatmates yourself, it is also preferred to be part of a community ranging from 4 to 10 people. See figure 31 and the Appendix for the complete survey.

4.4.2. The shared spaces
Co-living characterizes itself through its combination of private and shared spaces determining the living environment. AM conducted a research into elements of micro-housing and millennial living and visualized this in so-called functionality circles within housing. (AM, 2018) These circles represent the functional division between private and shared spaces. These functionality circles can also be drawn up for traditional housing as well as co-living in order to understand and visualize the functional differences. Here the levels of willingness to share represent the levels of privacy that is expected with the given functions, where 'I will never share' means 'completely private'.

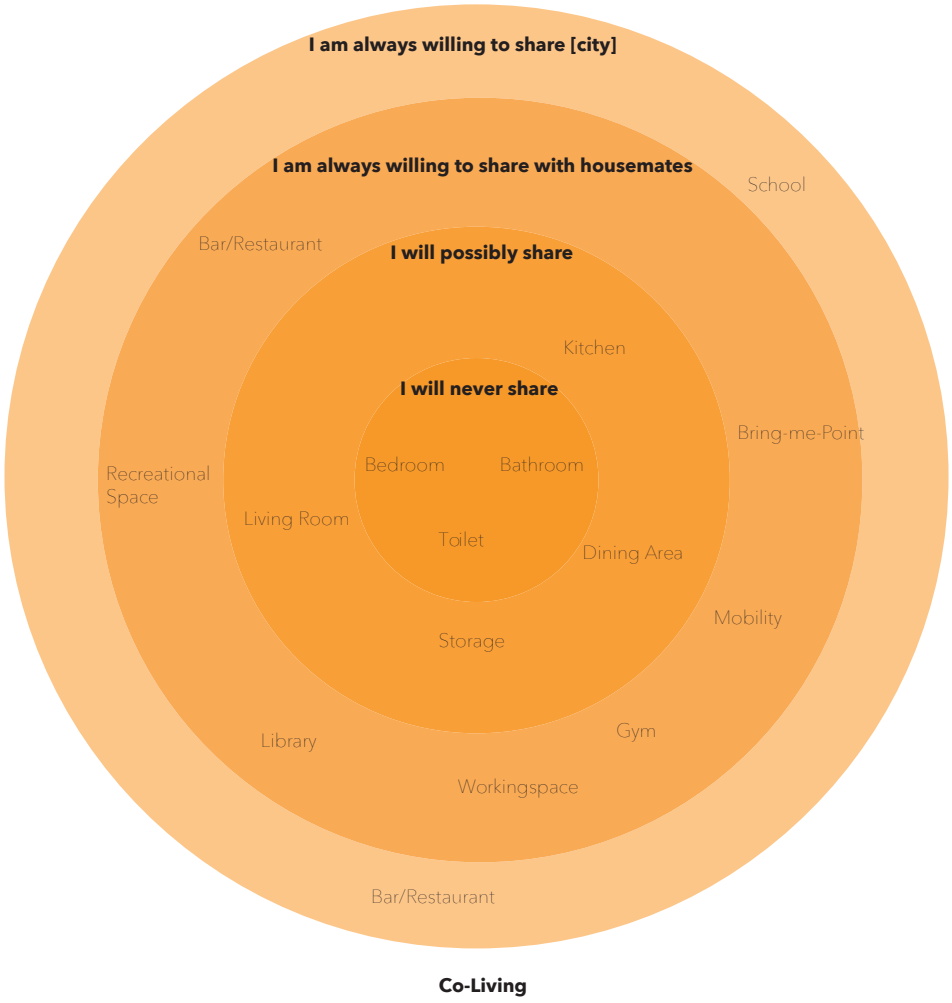
Projecting the analysis and visualisation tool of levels of sharing through the functionality circles, as developed by AM (2018), the same tool can be projected upon the functionalities within traditional housing in order to understand the differences. Here it is clear, as shown in figure 32, that the functions that are never shared are the most in traditional housing (1st circle). Projecting the same functionality analysis on micro-living, as it was discussed before, it is clear that less functions are considered completely private in comparison to traditional housing. Here the basic homey functions of a bedroom, bathing area, living room and dining area (complemented by storage space) is considered the basis for a micro-living apartment. Looking then at the by AM developed functionality circle of millennial living (3rd circle), the willingness to share functions increases and the primary housing functions of a bedroom and bathing facilities are considered completely private. Here it could be considered that, as the target group of co-living is mostly represented by the millennial generation, that this last circle representing willingness to share serves as a basis for the co-living users.

The same analysis and visualisation tool is projected upon the analysis of Space 10 on the willingness to share as well as the analysed co-living projects. Here you indeed see comparisons with the AM research into the willingness to share of the millennial generation. See figure 33. In conclusion the private spaces can be framed as sleeping and bathing areas, where the other homey functions like living and dining spaces as well as other amenities people are willing to share. Here it could be stated that not having to share the other basic homey functions like a living room and a dining area ('I will possibly share'), adds to the attractiveness of the private spaces.

Configurations of organizing shared spaces
Continuing on the analysis of the shared spaces on co-living projects and in relation to the above discussed levels of sharing, it is apparent that two main configurations of these shared



source: Co-Liv Lab, Space 10 research (2018)



source: Co-Living case study analysis (2018)

Figure 33 (left & right). Levels of sharing in co-living based upon the One Shared Housing Survey and the case study analyses (own ill. Based on the circles of sharing of AM)

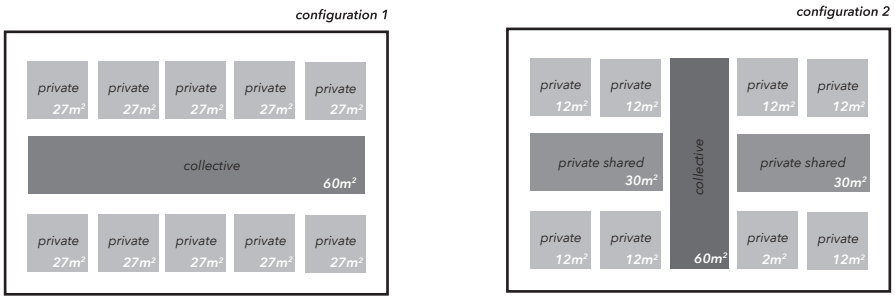


Figure 34. Different configuration of using shared spaces (own Ill.)

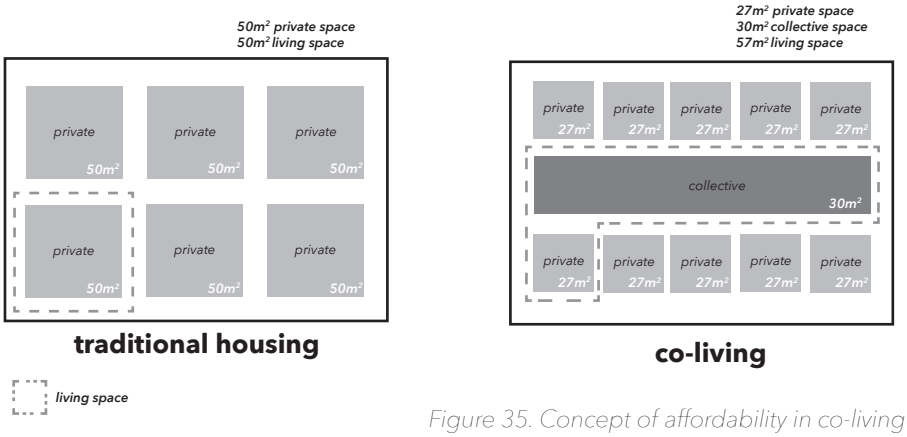


Figure 35. Concept of affordability in co-living (own ill.)

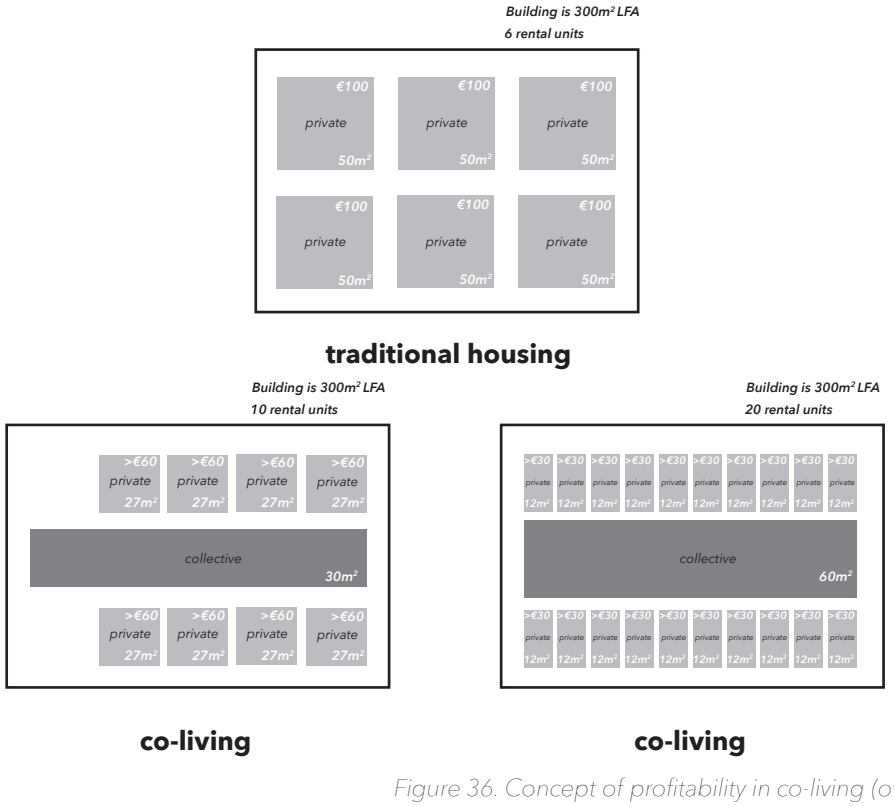


Figure 36. Concept of profitability in co-living (own ill.)

spaces are recognized, as shown in figure 34. Here, it is dependent how many functions are included in the private functions, all homey functions (configuration 1) or only the basic homey functions (configuration 2). As a reminder, all homey functions representing a fully equipped micro-living apartment and basic homey functions representing a millennial-living private space (See figure 32). These two configurations have their influence also on the way the shared spaces are organized within a co-living building. Configuration 1, shows the organization of 'fully equipped' private units and central organized collective amenities. Configuration 2, shows 'not fully equipped' private units, with de-centralized sharing of homey functions and centralized sharing of other collective amenities. This second configuration presents a more community within a community type of organization where the first configuration represents one collective community.

4.5 Co-living: a concept for affordability and profitability

Taking the basis of the commercial co-living concept, hypotheses can be drawn upon its concepts position towards users-affordability and developers-profitability.

4.5.1 Co-living: a concept for affordability

Within the majority of traditional housing, ones living space equals its private space. With an average of around 50 m2 for a one-bedroom apartment (as discussed in earlier chapters), the apartment comprises out of a kitchen, bathroom, bedroom and living room complemented with storage space.
The co-living concept offers a different configuration of these spaces and divides its living spaces over private square metres and collective square metres. The co-living private units mostly comprise out of a bathroom, bedroom and optional small sitting area/pantry as discussed in the previous chapters. The collective spaces offer mostly a living and dining room and larger kitchen facilities together with additional amenities that are often not seen in traditional housing like a gym, rooftop terrace, game rooms etcetera.

The affordability concept is based upon the reduction of private square meters, which are the most expensive. By sharing some living spaces (homey functions) the price/costs of square metres for these functions are 'shared'. Take a look at the explanatory concept drawing as a starting point as shown in figure 35. In the traditional set-up, one will live on 50m2 and pay for 50m2 of private space. Then looking at the co-living set-up, one will pay for 27m2 (micro-dwelling size) of private space and 1/10th of the 60 collective square metres. One is responsible for the rent of 27m2 instead of the 50m2 with traditional housing, whilst its living space is 57m2. The benefit here is that although the private spaces are much smaller than in traditional housing, one's total living space is increased. In this way the private spaces are balanced with the use of collective space and makes up for the lack of private space. This represents the concept on making housing affordable, without given in too much in living space.

4.5.2. Co-living: a concept for profitability

Besides a hypothesis upon affordability, the co-living housing concept also provides a hypothesis on the opportunities for profitability.
Take a look at the explanatory concept drawing below as shown in figure 36. A traditional

rental block will house for example 6 units of 50m2 with a total of 300 m2 lettable floor area. When dividing the same block into smaller private units and adding a shared compartment, the block can for example house 10 private units of 27m2 and a collective space of 30m2. The concept of profitability is based upon the indexation between square metre price in traditional housing and in co-housing. In conversion the private units with a co-living block should give a revenue of at least €60, -- (in the example) to equal the revenue of the traditional housing block. The profitability concept however, is based upon this range of 'at least' €60 to 'less than' €100. Looking ate the last set-up in figure 36, one could state that the smaller the private units, the relative higher revenue per lettable square metre. As long as the private units are more affordable than traditional housing, but 'equal to more expensive' per square metre it could be a profitable real estate development and operation.

4.5.3. Co-living: a concept for affordability and profitability

When taking the concept of affordability and profitability together, it is apparent that these two concepts are actually complementary to each other. By reducing the size of the private spaces, the total monthly rent is reduced for its users. The lack of private space is then complemented by the use of collective spaces. Yet, the size of the collective spaces in total can be less that the total reduction of private square metres as the metres are shared.
As the location/building can fit in more private units due to its reduction in sizes, the total amount of lettable units increases. The balance between the higher square metres price as a profitable concept for the developer/investor, and the reduced total monthly costs for its users with an increased total amount of living space (although smaller private space) as an affordability concept for its users, makes the two concepts complementary to each other. With this it represents the opportunities of the new housing concept, interesting for it users as well as the developers and investors market.

4.6 The physical implications of micro-living and sharing

When reducing the sizes of the private spaces, sometimes even up to only 12 m2, this requires smart and efficient use of the limited space. Many theories stress the importance of the size of living space due to its implications on people's health. The total amount of living space, should not be too limited which stresses the importance of adding collective facilities to the reduced size private spaces (Foye, 2017). Also, in terms of the private units, the interior design becomes of an increasing importance in providing a comfortable living space.

4.6.1 Developing micro-privacy

In the research in the programmatic design implications of micro living and co-living it is clear that it embodies a different view on the design of one's living environment than with traditional housing. Housing corporations like Ymere and De Key as well as developers like AM and Synchroon worked together with the Architecture Centre Amsterdam (ARCAM) in design labs to search for clear guidelines for the successful development and design of micro housing. (ARCAM,2017)

As an example of how new approaches to micro-units are developed, Synchroon (2018) presents three simple approaches towards an efficient design of a micro space of 40m2.

1. Layering

Through the smart combination of two types of split-level units, the limited heights are destined for program like sleeping, whilst the extension of height is used for a comfortable living area or n bathing unit. See image 1.

2. Maximizing through compromising

By including all compromised functions into the thickness of the wall, the open space of the private unit is maximized and only filled in when choosing to use a certain function. See image

3. Flexibility

Through interactive and flexible interior design, the choice of use of private function determines the layout of the space. See image 3.

Fact is altogether, that judging a living space on square meter possibilities is being replaced by its potential in cubic meters. Three-dimensional approach on design is an important requirement in successful and efficient use of tiny private units.

Besides smart design approaches to reach space efficiency, the quality of the designed space is of great importance. As the user of the space already gives in quite prominently on square meters living space, the quality of the left-over private space needs to be of a high level, states ARCAM (2017). Here they suggest higher ceiling heights, increasing the entrance of light and the quality of a nice view for example. As the design for micro and co-living is of a relatively young nature, it is important to consider that as whimsical as the demands of its target group is, it will most probably change over time. Flexibility in the design of co-living projects is therefore advisable according to ARCAM (2017). Fixed cores on smart positions, loadbearing facades that provide an open floorspace are examples of smart design basics.

Altogether it can be concluded that smart and efficient design of the micro private spaces as well as the quality of the shared spaces, are important for the attractiveness, and quality of the living environment for the co-living resident.

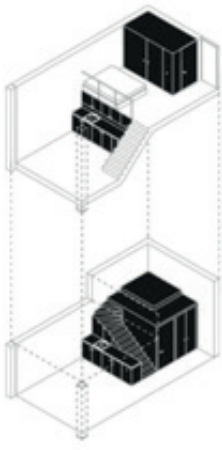


Image 1. Layering of available space (Synchroon, 2018)

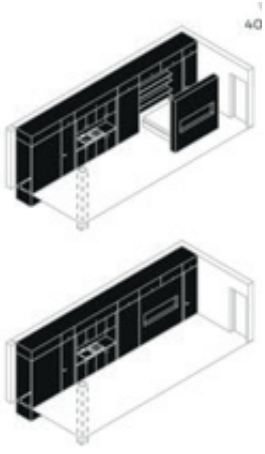


Image 2. Maximizing wall usage (Synchroon, 2018)

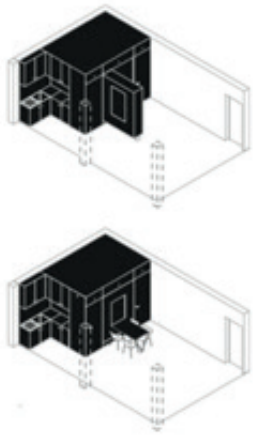


Image 3. Flexibility (Synchroon, 2018)

5 STATE-OF-THE-ART CO-LIVING an analysis upon characteristics

After understanding the concept of co-living based upon the analysed literature, this understanding is complemented with an analysis of the concept in practice. After discussing globally located co-living projects, the concept is broken down into its physical and operational characteristics in order to understand the different elements of the concept.
In the second part of this research, these characteristics are analysed upon their influence on the user-affordability and developers-profitability in order to understand the economic opportunities of the emerging concept.

5.1 State-of-the-art co-living examples

5.1.1. Introduction to state-of-the-art commercial co-living

As stated earlier, one of the main challenges in rapid urbanization, is the socially and economical sustainable development of this vast growth. As shared housing all over the world presents itself as a financial solution to the rising housing prices, it does not always imply that it serves good quality living. The city of Hong Kong, presents disastrous examples of how sharing spaces only led to the reduction of costs, but not the increase of social interaction let alone providing good quality living spaces. (Ma, e.a.,2017) The Hong Kong subdivided flats, as shown in image 4 (see appendix), are a good example of a mismatch of the housing stock, where many people share a one-family apartment. Here the rooms in the apartment are individually housed and bathroom and kitchen are shared in order to reduce the monthly costs of a renting a dwelling.

Since the 2010s, co-working and co-living has become a new topic within the debate about use of urban space, driven by the new sharing economic force. This resulted in emerging co-living initiatives organizing top-down development and operational management upon large-scale co-living. With mostly economic and social incentives, slowly new initiatives are developed around the world. Increasingly in the larger co-living developments, the financial incentive of sharing becomes less important, and the feeling of being part of a community becomes increasingly important in Western society. Therefore, affordability is not always the case in the present-day large-scale, high-quality co-housing complexes. New values are added in these complexes, making daily urban life easier for its inhabitants. Kaley Overstreet (2018) is describing modern-day co-living as apartments that "are more than just a place to live." Co-living functions as a catalyst for social interactions while removing "everyday tedious tasks of cleaning, paying bills, and buying furnishings."

Following, some of the well-known international co-living examples are set out as a representation of state-of-the-art shared housing. All of them are co-living concepts, driven by comparable motives for community, and have locations around the world, see figure 37. The descriptions given here are initially based upon their own mission statements and publications.

5.1.2. WeLive, New York

The WeLive initiative was an evolution from the earlier initiated concept of WeWork, of which the first buildings were developed in 2010 and now occupy 171 locations over 18 countries.

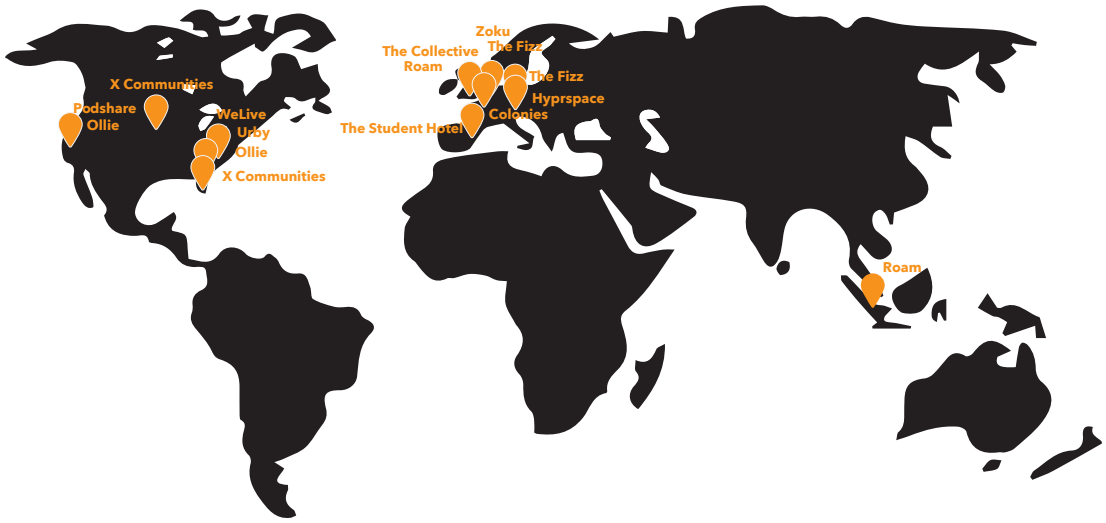


Figure 37. Co-Living Projects spread over the world (own ill.)

(WeWork, 2018) By WeLive, two complexes are developed in New York and in Seattle. Their mission statement is as follows: "WeLive is a new way of living built upon community, flexibility, and a fundamental belief that we are only as good as the people we surround ourselves with. (…) WeLive challenges traditional apartment living through physical spaces that foster meaningful relationships. Life is better when we are part of something greater than ourselves." (WeLive, 2018) The WeLive complex in New York houses around 200 private units.
With the possibility to move in for months, or just stay for a few nights, WeLive actually represents more of a hotel concept. (WeLive, 2018) The private unit possibilities range from studio units to 1, 2 or 3+ bedroom units ranging from 41 to 92 m2. Each private unit is outfitted with living and sleeping areas, a kitchen and a bathroom. The collective facilities comprise out of fitness spaces, laundrette, workspaces and access to the WeWork buildings, communal chef kitchens and other "dynamic common areas". Besides private and collective facilities, many household shores are taken away and part of the service of the WeLive concept. (WeLive, 2018) Pricing ranges from $3.050 a month for a private studio to $1900 (total starting at $7600) a month per person for a four-bedroom unit. (WeLive, 2018) The main focus of the WeLive concept is to create a local community and facilitate a comfortable way of living. See image 5.

5.1.3. The Old Oak Collective, London

The Collective Old Oak is an initiative of The Collective, a company that focusses on creating "ground-breaking spaces". (The Collective, 2018) Their first initiative was The Collective Old Oak in the city of London – and two projects currently in development - with the clear mission to "build a connected and more inspired world that is more alive, more together and more collaborative." (The Collective, 2018) From the believe that people are most alive when they are together, The Collective designed homes and workspaces that "inspire and bring people together, unlocking a new lifestyle for the curious and ambitious." Starting with a variety of private spaces –around 550 units starting a –£245 a week and ranging from 15 to 24 m2–, a vast collection of communal facilities is serving the entire complex together with a complete structure of service to reduce household shores and administrative hassle. The private possibilities range from a studio apartment with or without ensuite bathroom, a shared ensuite unit or a share ensuite with kitchenette. The collective spaces comprise out of a library, cinema, garden and roof terrace, laundrette, gym, spa, coffee shop, communal kitchens, dining rooms, lounge areas, a games room and another restaurant and bar. (The Collective, 2018) The main focus of The Collective is to create a local community and affordable urban living. See image 6.

5.1.4. Zoku, Amsterdam

Exceeding the hotel concept and providing "a home base for travelling professionals who are living and working in a city for periods from a few days to a few months" is what represents the 133 unit counting Zoku location in Amsterdam. (Zoku, 2018) It can be considered as a re-invention of the apartment hotel with a focus on international working life. Trying to reduce the loneliness of business travel, Zoku facilitates a place to "live, work and socialize with like-minded people while getting wired into the city." (Zoku, 2018)

5.1.5. Urby, Staten Island, New York

The Urby complex, housing currently around 500 and in the second phase up to 900 private units, located in Staten Island New York, "combines unique hotel personality with imaginative architectural design to create a fresh new standard for apartment living". Ranging from studio,

Image 5. Communal facilities of WeLive, New York (WeLive, 2018)

one and two-bedroom apartments ranging from 34 to 88 m2 for a monthly rent starting at $1.890, - to $2.425, - a month. The private units house washer and dryer, storage space, a private bathroom and fully equipped kitchen and living space. The collective spaces comprise out of a café, residential farm, gym, bike storage, restaurant and retail, kitchen, rooftop and pool together with organized community events. The main focus of the Urby concept is high quality living with communal amenities to enhance quality of life even more. See image 7.

5.1.6. Urby, Jersey City, New York

Another complex of the initiators of Urby, is the location in Jersey City. This complex is based upon the same values as the location on Staten Island. Here the complex houses also studio, one and two-bedroom apartments with a comparable interior design of the Staten Island location with a total of 763 units.

5.1.7. The Fizz | Little Manhattan, Amsterdam

The Fizz concept is divided serving two target groups: students and young professionals. 'The Fizz-Young Professionals' aims for relaxed and flexible living, for people that live a high-bustling life and are looking for a place that makes their life 'easier'. The Fizz is located on central places in cities close to public transport. The concept aims for high-quality designed interiors and are currently located in 7 locations in Germany, in Vienna and now located in Amsterdam in a building called Little Manhattan. Through 'House Managers' household shores are taken away and community events are organized. The Fizz concept is also expanding to cities like Rotterdam and Utrecht. The main focus of the Fizz concept is on making its residents busy life more comfortable and easier.

5.1.8. Ollie, New York

The main statement the co-living company Ollie makes is that it represents "all-inclusive co-living". They state that their residents save an average of $500, - (approximately €429, -) a month due to added perks and complimentary services. The private units at the Kips Bay-Manhattan location, comprising out of 55 private units ranging from 24-34 m2, starting at a monthly rent of $2,830, - a month. Services ranging from weekly housekeeping, linen & towel service and Wi-Fi and TV connection. The private units are completely furnished and Ollie provides so-called 'social memberships', where you can join in on community events and getaways. Currently Ollie has locations in Long Island City – Queens, Kips Bay – Manhattan, South End – Boston, Jersey City – New Jersey, Los Angeles – California, Downtown – Brooklyn and Pittsburgh – Pennsylvania. Typical amenities within the Ollie-concept are hotel-like units, indoor laundry, a gym, lounge and rooftop terrace. Simultaneously they emphasize the communal element by having an 'community manager' in place, who is responsible for the social facilitation within the complex. The initiators and co-founders aimed to provide "efficiently designed studios and shared suites wrapped in a bundle of hotel-like services and communal living that promises to make life better – more affordable, more convenient, and more fun –" (Ollie, 2018) The main focus of the Ollie concept is to facilitate a comfortable way of living whilst creating a sense of community.

5.1.9. Roam, London

The Roam concept is slightly different than the other co-living concepts presented here. Roam aims for "a new way of living", like the other examples, but presents itself as a "network of global co-living spaces". Their three main drivers are 'comfort, community and productivity'. Every private

Image 6. The Collective Old Oak, London (The Collective, 2018)

unit has its own private bathroom and undergoes weekly cleaning services. In each location the community-feeling is stimulated through large and diverse gathering spaces and events. As the Roam concepts focusses on traveling working people, it facilitates productivity through large co-working spaces within the complex. Priced at £2800, - a month, a resident gains access to all the co-living spaces around the world. Roam has locations in San Francisco, London, Bali, Miami and Tokyo and "is a co-living and co-working community testing the boundaries between work, travel and life adventure." (Roam. 2018) The London location houses 34 private units. The main focus of the Roam concept is creating an international community.

5.1.10. Colonies

A relatively new player presenting itself in France, are the co-living projects of Colonies. Opening their first project in 2019 in Fontainebleau and two to follow in Paris, is strives for "all-inclusive, community-driven co-living for the passionate". (Colonies, 2018) Smaller, existing buildings are turned into a vibrant, high-end co-living space housing studio apartment together with community spaces.

5.1.11. The Student Hotel, Amsterdam

An interesting last typical co-living example is The Student Hotel concept, of which the first one was developed in Amsterdam in 2016, and now houses locations in the Netherlands like Eindhoven, Groningen, Maastricht, Rotterdam, The Hague and other European locations like Barcelona, Dresden, Florence and Paris. Although their initial target group were students, they exceeded their potential and currently house students together with young professionals. The Student Hotel concept identifies itself by its successful concept and interior design. It has a prominent social space in every heart of its buildings, where people have proven to make use off. (Van der Ham, 2018)

5.1.12. Hyprspace, Nest, North Orleans, X Communities

As a variation on the focus of community, are the following co-living projects. As the first co-living project in Germany, Hyprspace in Munich focusses on bringing together entrepreneurs under one roof. (Hyprspace, 2018) The same counts for the Nest project in Copenhagen, Denmark. (Nest, 2018) Here the focus is to create a community around the work people do, instead of addressing urban loneliness in a broader sense. Bringer together creative minds and with that create new bright ideas for the future.

5.1.13. Change=, Amsterdam

Having started as an initiative on the social market, Change= is of a different nature than the previous co-living projects, but nevertheless interesting to discuss. The concept for Change=, presents itself as a community-concept for ambitious working young-adults in the age group of 18 tot 35 years old. They recognize the difficulties young-adults have in finding the right housing in the cities they work in. With that in mind, Change= develops large-scale living complexes housing private living-units, ranging from 30 m2 to 72 m2 with private kitchen and bathing facilities in urban environments close to public transport. Their aim is to offer affordable housing, starting at €581, -- a month, together with a vision on the community through 6 themes: working, dwelling, learning, living, care and safety. They recognize the changes in society and answer to that with fully serviced micro-living services, also framed as 'Living as a service'.

5.1.14. Initial reflection upon state-of-the-art co-living projects

Image 7. Urby, Staten Island (URBY, 2018)

In an initial reflection upon the above described mission statements and functionalities of the discussed co-living projects, it is interesting to recognize the earlier discussed main requirements for co-living as framed by the user survey of One Shared House 2030 as shown in figure 30. Themes like 'saving upon housing costs', 'taking part in a community', 'a variation in collective functions', 'central urban location' and 'hotel-like flexibility in leasing contracts' are stated by the different co-living initiators and confirm the demand for these requirements by its users as stated by Space10.

5.2. Co-living types of sharing

A first analysis of the described co-living projects, gives an insight in the differentiations between the projects. Differences are recognizable in the so-called 'level of sharing' and is comparable to the earlier discussed levels of sharing as framed by AM (2018). Here it is divided into three types (see figure 38):

Type 1: "limited sharing" within this type the main focus is on the smaller private units, with a limited range of options for sharing facilities.

Type 2: "optional sharing" within this type the private units are well-equipped and full micro apartments. There are many options for shared/collective facilities but the well-equipped private unit gives you the opportunity also to choose for a more private life.

Type 3: "collectivity, community, connectivity" within this type the private units are very limited equipped which makes the collective facility a daily necessity

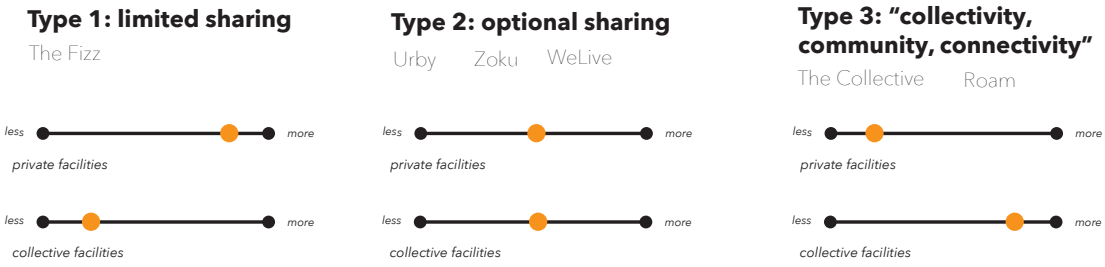


Figure 38. Analysis of types of state-of-the-art co-living projects (own. ill.)

5.3. Co-Living characteristics

As stated earlier, the above discussed literature and case studies upon the concept of commercial co-living, provides insight in the different physical and operational characteristics of the concept. In positioning and understanding the characteristics on the traditional housing market, occasionally a comparison is made with typical qualities of traditional housing. An understanding of these characteristics, serves as a tool within the following analysis -in the 2nd research part- upon its influence on the concept of affordability and profitability, as earlier discussed.

5.3.1 Introduction to characteristics

The Cambridge Dictionary (2019) describes the word characteristic as 'a typical or noticeable quality of someone or something' or 'a characteristic is typical of a person or thing'. Derived from this, one could say that 'the characteristics of co-living are its typical or noticeable qualities.' Now, the characteristics of a rental housing project, can range from physical and operational characteristics to characteristics of the external context like governmental policies. Within rental housing, besides its physical organization, also the operational structure comprises out of typical qualities. Therefore, in this research the focus is set on the physical and operational characteristics of co-living.

5.3.2. Physical characteristics

The physical characteristics represent the typical qualities that regards the physical surroundings and location of the co-living project, or in other words the physical configuration. This regards the building in itself in terms of number of units and configuration of collective space, the configuration of the shared and private spaces itself and the location of the co-living project in the city.

5.3.2.1. Characteristic 1: Project size

The project size of a rental building can be considered through different interpretations of size. First of all, it could be read as physical size in terms of total amount of gross square meters, but also through its number of people it houses, in terms of number of private units. In this research into co-living -where communal spaces are an intrinsic part of the living environment- the project size is also interpreted as percentage of the total reserved for communal space.

Co-Housing Project	Building Size	Private Units	Communal Space
WeLive | New York	20.275 m2	200	27 %
WeLive | Washington DC	x	250	x
The Collective Old Oak	16.000 m2	546	59 %
The Fizz | Little Manhattan	26.000 m2	278	22 %
The Fizz | The Lofts	x	212	x
The Fizz | Cobana	x	375	x
The Fizz | Don Bosco	x	429	x
Urby | Staten Island	33.800 m2	571	37 %
Urby | Jersey City	64.000 m2	762	45 %
Urby | Harrison	x	409	x
Ollie | Manhattan	x	55	x
Ollie | Long Island	x	426	x
Ollie | Pittsburgh	x	127	x
Zoku | Amsterdam	4.500 m2	133	20%
Average	27.429 m2	341	35%

Table 2. Project sizes of co-living through three different interpretations

As shown in table 2, the project size in terms of gross meters, number of private units and percentage of communal space differ allot amongst the analysed co-living projects around the world. With number of private units ranging from 55 units in the Manhattan location of Ollie to 762 units of Urby in Jersey City, on average the number of private units is over 340.

Comparing to traditional housing
With that, one could say that the average community consists out of approximately 340 persons. As a comparison, this could be laid next to the number of units housed in the traditional housing block of The Whale in Amsterdam. This reference project, houses 214 units of one- and multi--person apartments in a total of 35.800 m2 with 12% of the project not reserved for collective, but for commercial space.

	The Whale Amsterdam	Average Co-living (taken from the 6 selected case studies)
People	428 (?)	415
Units	214	415
Unit types	one-&multi-person apartments	one-person apartments
Size in m2	35.800 m2	27.429 m2
Size private in m2	31.504 m2	17.829 m2
Size in % col.	12% (commercial space)	35%
living m2/person	73 m2	66 m2
Private m2/person	73 m2	42 m2
m2/unit	146 m2	42 m2

Table 3. Comparison of project sizes between co-living projects and a traditional block.

Interesting in the comparison between the Whale and the co-living projects, is the extra living space that is provided within the co-living projects on top of the private units. Although the private area within the co-living projects is smaller in comparison to the one-person apartments in the Whale (almost 30m2 difference), the amount of living square meters is approximately the same (73m2 and 66m2). Here you see that the same number of people are housed, yet in a relatively smaller building in terms of co-living. This confirms the theory as stated in earlier paragraphs, that co-living provides efficient use of space, which provides opportunities upon the user-affordability and developers-profitability.

5.3.2.2. Characteristic 2: Shared spaces
As already shown by the characteristic of project size, in the co-living projects a large part is taken up for the facilitation of the collective facilities. The character of these shared spaces ranges from homey functions -as they replace missing homey area in the private units- to recreational, work and outdoor functions. Whilst in traditional housing blocks private units are fully equipped with all homey functions with a possible addition of collective functions like shared parking, outdoor space or smaller multi-functional spaces, these collective functions are more elaborated in the co-living projects. In the following these types of collective functions is

Figure 38. Analysis of types of state-of-the-art co-living projects (own. ill.)

more elaborated on. See figure 39.

Homey functions
As the total sizes of the projects differ quite a lot from each other, so does the infill of its communal spaces. Most of the smaller projects, like Roam, Ollie and the expected Colonies projects, start with the basic facilitation of communal kitchens and living/dining rooms, as these are homey functions that are taken out of the private units. As laundry facilities are in all cases, but the Urby projects, not integrated in the private units, these are also one of the first communal spaces added to the program.

Recreational functions
The larger commercial development like the WeLive, The Collective, The Fizz and Urby projects, house a vast variety of communal spaces. Gym and yoga spaces, restaurants and (coffee)bars, (movie) theatres and libraries are examples of the communal spaces that can be found in these projects. All spaces are focussed on facilitating the community through its multifunctional layout and organization of activities. On top of that, most projects like WeLive, The Collective, Roam and Urby have an extra event space for inhouse social events. In the desire to simulate communal life, the shared spaces are designed in such a way that they are attractive places to 'hang out' and consequently meet other people. The Urby interior concept aims for "variation and open space" where everything can happen (Muis, 2017)

Work functions
Striking is the repeating focus on the sharing of work spaces. As earlier stated has the WeLive project evolved from the co-working spaces of WeWork and keeps the focus on co-working in their shared living projects. Also, other organizations like The Collective and The Fizz aspire to facilitate young professionals through meeting and seminar rooms as well as larger communal work spaces. Roam and also the Dutch initiative Zoku go even further and aim to facilitate a co-living and co-working 'global network'. (Roam 2018 & Zoku, 2018) Like Roam states it is "a network of global co-living spaces that provide everything you need to feel at home and be productive the moment you arrive." (Roam, 2018)

Outdoor/other functions
With private outdoor spaces being relatively rare within the urban environment, the outdoor spaces and pools are an added quality most of the projects aim to provide. Here communal barbecues and social events are housed. In Staten Island, the developers of Urby go even further and offer studios with small private terraces.

What is perhaps logical, but still necessary to state is that the larger the project, the more variety in collective spaces is offered. Where the smaller projects mainly facilitate communal kitchens and living rooms, the larger projects excel through the facilitation of gyms, roof top gardens, work and meeting spaces, event rooms and indoor theatres. Even retail spaces are part of the Urby project in Staten Island, so the community can function fully on site and functions independently from the amenities of the city.

5.3.2.3. Characteristic 3: Private units
As previously shown in figure 39, the configuration of the private spaces (complemented by

Co-Housing Project	Studio	1-Bedroom	2-Bedroom	3-Bedroom	4-Bedroom
WeLive	41 m2				93 m2
The Collective Old Oak	12 m2	16 m2	21 m2	x	x
The Fizz | Little Manhattan	30 m2	41 m2	x	x	x
The Fizz | The Lofts	x	30 m2	60 m2	x	x
Urby | Staten Island	29 m2	47 m2	66 m2	x	x
Urby | Jersey City	37 m2	55 m2	74 m2	x	x
Ollie | Manhattan	24 m2	x	x	x	X
Zoku					
Average	29 m2	38 m2	55 m2		93 m2

Table 4. Sizes of private units in co-living

Traditional housing	Studio	1-Bedroom	2-Bedroom	3-Bedroom	4-Bedroom
New York | Manhattan	51 m2	64 m2	108 m2	154 m2	x
London | White City	x	50 m2	65 m2	x	x
Amsterdam	55 m2	55 m2	83 m2	133 m2	X
Average	53 m2	56 m2	85 m2	144 m2	x

Table 5. Sizes of traditional apartments

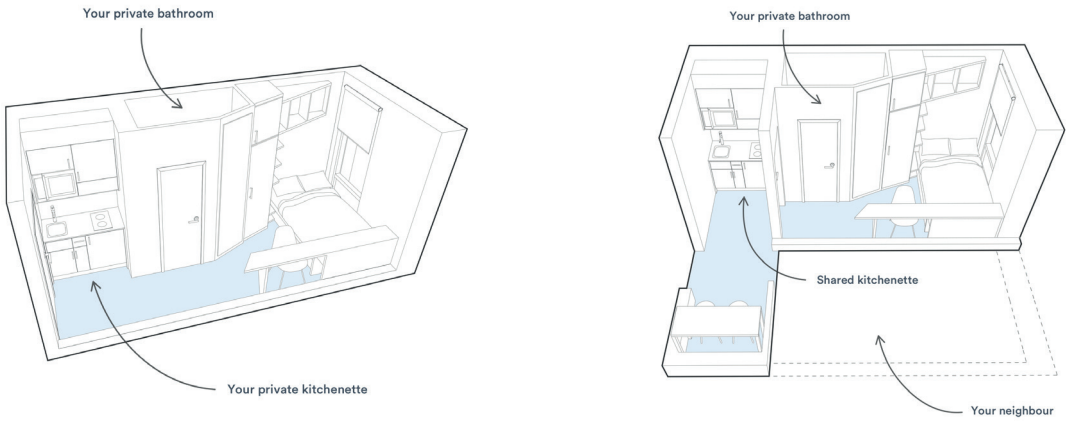


Image 7. Size and layout coming together in the Collective Old Oak: Studio (12m2) (l) and 2-Bedroom unit (9,2 m2+ 5,8 m2 kitchenette) (r) (The Collective, 2018)

collective spaces) in co-living projects differs from the private spaces in traditional housing. Not only in terms of size, where you see an aerial difference of around 41%, but also in terms of design and layout.

Size
Besides the fact that the sizes of the private spaces are reduced with an average of 41% in comparison to traditional housing, the unit sizes differ also quite from each other when comparing the co-housing projects. See table 4 and 5. The smallest private units are found in the Collective Old Oak, designed by Whittam Cox Architects, providing minimalistic studio units of 12 m2. Still, the Collective Old Oak houses by far the smallest private units, as The Fizz, WeLive, Urby, Ollie and Roam provide private studios with a size ranging from 24 (Ollie) to 55 m2 (Urby).
As the private units differ in size, they consequently differ in the program/homey functions they can house. All projects consider the bathroom as an intrinsic part of the private entity and is not part of the shared spaces. Every unit is equipped with a tiny bathroom consisting out of a shower, toilet and sink. The WeLive, The Collective and The Fizz private units are also equipped with a small kitchenette. Only the larger private units at WeLive, Roam, Urby and The Collective are on top of that also equipped with a small living/dining space. Whilst in all the other projects laundry is facilitated in shared spaces, the Urby units are equipped with a washer and dryer built in in the interior.

Layout
In order to efficiently use the little space that is reserved for private use, smart interior design seems a requirement. Space efficiency is achieved through built in closets, double functioning furniture and minimalistic size requirements. Like The Collective states "We create better places for people to live, work and play. Our homes and workspaces are designed to inspire and bring people together, unlocking a new lifestyle for the curious and ambitious. We're fiercely passionate about creating happy, inspired communities (…). Our members live in beautifully designed spaces and share awesome amenities". (The Collective, 2018)
Thus, the smart design of the private units is a requirement in aiming for the development of a comfortable private unit, where the smart and efficient use of space makes up for the actual the lack of space. Here, designing for cubic meters instead of square meters becomes very important, as the efficient use height of the private spaces offer opportunities. The requirement of smart interior design, also results in the fact that almost all co-living private units are for a large party already furnished. See the character of 'services' for a further elaboration on this. See image 7.

5.3.2.4. Characteristic 4: Project location
As the centre of cities, often, house the most amenities, cultural facilities and offices, these are in general more desired places to live than the outer areas of the city. As within inner-city locations the necessity of transport is less than in outer-city dwelling locations, the housing prices in the inner city are often higher due to its attractive location. See figure 41.

The locations of the co-living projects, just as traditional housing, range from inner city locations to the outer edges of the city. Yet, you see that all locations have a relation to the city centre or business district in terms of connection through public transport. See figure 40.

Figure 40. Co-Living locations in respect to the city centre

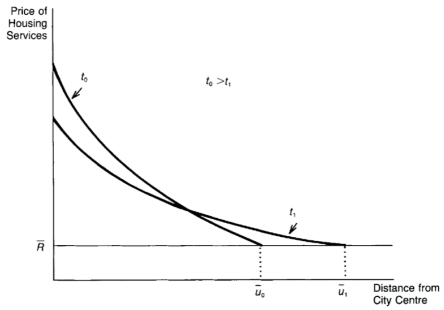


Figure 41. Influence of location on rental price (Fallis, 1985)

Altogether, the project size, the private and shared functions and the project location represent the physical characteristics of commercial co-living.

5.3.3. Operational characteristics

The operational characteristics represent all characteristics that regard the day to day organization, management but also use of the co-living rental building. The management of a rental building contains out of the management of the tenants, the property itself and its finances. (Eberlin, 2018) Management upon the tenants comprises out of organizing moving in and out, rent collections, lease agreements, tenant screening and possible evictions, repair request and others. The management upon the property contains out of the maintenance of the property and the management upon the finances comprises mostly out of the organizing of the services and rent payments. (Eberlin, 2018) Altogether, these operational responsibilities in respect to co-living can be framed in the following characterises: leasing contracts, community and lifestyle and services.

5.3.3.1. Characteristic 5: Leasing contracts

Traditional housing offers, generally speaking, 12 to 24-month leases. It is common, that after the 12 or 24 months, the lease is extended per month or per year until requested termination of the lease by the user. In answering for the desire of the millennial urban inhabitant in having flexibility in terms of housing lease, multiple co-living projects offer the opportunity for short- and long-term leases. Here, flexibility is given through the option for more hotel-like terms of day to day lease, where a higher rent is required. But also, standard leases starting at 4 months are provided, like in The Collective Old Oak. Others maintain the traditional terms and provide housing starting at a 12 months lease.

5.3.3.2. Characteristic 6: Community & Co-living Lifestyle

With an average of 314 people housed within a co-living project (see table 2), the opportunity of creating a community amongst the residents is in place. With an increase of urban loneliness due to a rise in individualism and lack of physical social connection due to technological changes, the desire of the co-living residents for social connection is high. As stated by Crobach of Zoku (2018) choosing for co-living is a choice of lifestyle. He states that co-living is not restricted to the millennials as some people state, but that it can be a choice of life for everybody who would prefer to be surrounded by a community.

Still, the facilitation of just collective facilities is not a guarantee for a successful community feeling, as Crobach of Zoku says that "just a space does not yet make a community" (Crobach, 2018) And this is why many the co-living projects intervene by steering the growth of the community feeling. All commercial co-housing projects position themselves as 'places where communities can build up and thrive'. Like the founder of The Collective states: "Because technology, for all its benefits, has created a kind of barrier for human connection, The Collective is an attempt to break down those barriers. (Merchant, in Smith, 2018)

In order to stimulate this communal feeling, all organizations stimulate the organization of events, social activities and clubs. Roam, The Collective, Ollie and The Fizz guide this community feeling through an in-house 'community manager'. This community manager is responsible for

Figure 42. Flexibility in leasing terms as found in co-living

2211 N Milwaukee Ave,
Chicago, IL

2017 COMMUNITY EVENTS CALENDAR

Friends are always welcome. Dates subject to change.

POTLUCK HALL CRAWL [WAS DELICIOUS]
Wednesday, March 15th @ 8pm

Share your favorite crowd-pleasing dish with the guys and gals next door. Bring a friend or two. We'll bring the wine!

MIXOLOGY CLASS [BUZZED BY]
Thursday, April 6th @ 7:30pm

Up your cocktail game by learning from expert mixologists how to make all the classics with style. Limit to 15 residents with a guest each.

BIKE TUNE-UP #1
Saturday, May 3rd @ 9:30-11:30am

Get your bike prepped for the good weather Logan Square Art Bike Tour. Visit local art installations & hear from the artists themselves about their motivation and technique.

YOGA ON THE LAWN
Thursday, May 18 @ 7:30pm

Bend and stretch with the neighbors, then hang out for wine and cheese.

STOP NETWORKING! HOW TO BUILD SUSTAINABLE RELATIONSHIPS
Wednesday, June 4th @ 7 PM

Professional development workshop hosted by the founders of the Second Shift coworking space.

whattheL.co

Image 8. Community Events Calender of Social Communities X

the organization of social events, the management of special clubs and organizations and the promotion of social activities. The event space as well as the other shared spaces most of the projects house facilitates these organized happenings. See image 8.

5.3.3.3. Characteristic 7: Services: the all-inclusive formula

One thing that stands out in all the discussed co-living projects, is facilitation of 'serviced housing'. Herein it unarguably distinguishes itself from traditional (student-)housing. Multiple marketing strategies present collective living as 'serviced', 'comfortable', 'hassle-free' and 'easy' urban living. Cleaning, laundry, linen and towel, Wi-Fi, television and maintenance services are intended to take away the ordinary daily tasks a living environment requires from its inhabitant. The organization behind Ollie even claim that these services at the end of the day even save the tenant money, as the tenant saves time and does not need to acquire these services externally. In the Netherlands, an approximation of the monthly household cost are as follows (see table 6).

Household service	Task	Monthly costs [approx.]	Source
Laundry	Leasing washing machine & dryer	€35,-	Meolease (2018)
Internet & Television	Subscription	€60,-	KPN (2018)
Maintenance	Replacing of lamps, painting etc.	€15,-	
Cleaning	Cleaning services	€105,- (twice a month)	22 %
	Helpling (2018)	212	x
Water	Use of water	€15,-	Evides (2019)
Electricity & Gas	Use of electricity and gass	€80,-	Nuon (2019)
Taxes	Municipal taxes	€15,-	
Total		€325,-	

Table 6. Approximation of monthly household services costs

Within the offered services are, besides the services as described above, also furnished apartments offered. From a user's perspective these costs are one-time costs considering of approximately the following (see table 7).

Interior	One-time costs
Sleeping area	€850,-
Dining area	€200,-
Living area	€550,-
Total	€1550,-
Per month with a 24 month lease	€65,-
Per month with a 12 month lease	€140,-

Table 7. Approximation of one-time interior costs (based on IKEA, 2019)

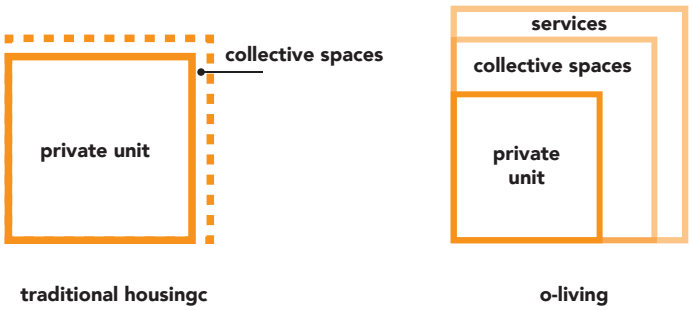


Figure 43. Elements included in the monthly rent in traditional housing versus co-living

City / Co-Housing project	Traditional Studio/1-Bed		Co-Housing Studio/1-Bed		Difference	
	Monthly Rent	Size	Monthly Rent	Size	Monthly Rent	Size
Amsterdam / The Fizz	€1430	55 m2	€751	30 m2	-47%	-45%
Amsterdam / Zoku	€1430	55 m2	€5370	30 m2	+275%	-45%
NYC Staten Island / Urby	€1062	59 m2	€1498	29 m2	+29%	-37%
NYC Jersey City / Urby	€2009	41 m2	€2413	29 m2	+20%	-29%
NYC Manhattan/WeLive	€2958	51 m2	€2460	41 m2	-17%	-19%
London / The Collective	€1750	50 m2	€1428	12 m2	-18%	-76%

Table 8. Insight in traditional housing rent-level versus co-housing projects from a user's perspective

City / Co-Housing project	Traditional Studio/1-Bed		Co-Housing Studio/1-Bed		Difference	
	Monthly Rent	Size	Monthly Rent	Co-living Size	Monthly Rent	Size
Amsterdam / The Fizz	€1430	55 m2	€751	63 m2	-47%	+15%
Amsterdam / Zoku	€1430	55 m2	€5370	34 m2	+275%	-38%
NYC Staten Island / Urby	€1062	59 m2	€1498	56 m2	+29%	-5%
NYC Jersey City / Urby	€2009	41 m2	€2413	70 m2	+20%	+71%
NYC Manhattan/WeLive	€2958	51 m2	€2460	56 m2	-17%	+10%
London / The Collective	€1750	50 m2	€1428	29 m2	-18%	-42%

Table 9. Insight in traditional housing rent-level versus co-housing projects from a user's perspective

This approximation of monthly and one-time household costs gives an indication of what the all-inclusive formula takes away in housing costs. Here it does not even consider the saving of time that is a result of these all-inclusive formulas. Still, it does give a proper indication of what kind of costs (almost €400, -) are considered included in monthly rent. Also here, the sharing of these services gives the possibility of reducing the costs per unit for the use of these services. This mostly unseen all-inclusive formula in housing confirms the statement of some of the organizations that these co-living projects are inspired by characteristics of the hotel world. Part of the operational management takes up the undertaking of these services. Like the Fizz project in Amsterdam, 'house managers' are taking up the responsibility for streamlining these promised services for its tenants.

Altogether, the leasing contracts, community facilitation and provided services represent the operational characteristics of commercial co-living.

5.3.4. Financial implications of characteristics on housing costs

With the above described characteristics of the co-living projects, an insight is given in what is concluded in the monthly housing costs charged at the co-living residents. Some of these characteristics are traditionally speaking, directly 'charged' in the monthly rent for the lease of a private unit, others can be considered 'included' in the monthly rent. Traditionally, the monthly rent covers the use of the private unit and possible collective facilities in a building. In terms of co-living, rent includes the use of the private unit, the use of the collective spaces and the possible inclusion (some charge a separate fee on top of the monthly rent) of services. See figure 43.
The rent-level can be analysed from a user's perspective as well as a developer's perspective, as it influences both the user-affordability and the developers-profitability.

Rental costs from a user's perspective
Besides the differences in what is included in the monthly rent, it is interesting to look into the differences in actual rent-level in comparison to usable private (table 8) and co-living space (table 9).
In terms of monthly rent, you see that some co-living projects offer a lower rent per month and some offer a higher rent per month in comparison to traditional housing. In terms of size all co-living projects, as can be expected with micro housing as a basis, is lower than traditional housing. See table 8.
When looking at table 9, the comparison is made not only through the provided private unit sizes, but the total of the living environment, including the amount of collective square meters per person. Here you see that the differences in size become much less, and even some co-living projects offer more living area than in traditional housing.

On top of the charged monthly rent, should be taken into account the research in to the costs for services as discussed in paragraph 5.3.3.3..

City / Co-Housing project	Traditional Studio/1-Bed		Co-Housing Studio/1-Bed		Difference	
	Monthly Rent	Size	Monthly Rent	Size	Monthly Rent	Size
Amsterdam / The Fizz	€26 /m2	55 m2	€21 /m2	30 m2	-19%	-45%
Amsterdam / Zoku	€26 /m2	55 m2	€179/m2	30 m2	+575%	-45%
NYC Staten Island / Urby	€18 /m2	59 m2	€51 /m2	29 m2	+183%	-37%
NYC Jersey City / Urby	€49 /m2	41 m2	€83 /m2	29 m2	+69%	-29%
NYC Manhattan/WeLive	€58 /m2	51 m2	€60 /m2	41 m2	+3%	-19%
London / The Collective	€35/m2	50 m2	€119,--/m2	12 m2	+240%	-76%

Table 10. Insight in traditional housing rent-level versus co-housing projects from a developers perspective

City / Co-Housing project	Traditional Studio/1-Bed		Co-Housing Studio/1-Bed		Difference	
	Monthly Rent	Size	Monthly Rent	Co-living Size	Monthly Rent	Size
Amsterdam / The Fizz	€26 /m2	55 m2	€11/m2	63 m2	-57%	+15%
Amsterdam / Zoku	€26 /m2	55 m2	€157/m2	34 m2	+504%	-38%
NYC Staten Island / Urby	€18 /m2	59 m2	€27/m2	56 m2	+50%	-5%
NYC Jersey City / Urby	€49 /m2	41 m2	€34/m2	70 m2	-31%	+71%
NYC Manhattan/WeLive	€58 /m2	51 m2	€44/m2	56 m2	-24%	+10%
London / The Collective	€35/m2	50 m2	€49/m2	29 m2	+40%	-42%

Table 11. Insight in traditional housing rent-level versus co-housing projects from a developers's perspective

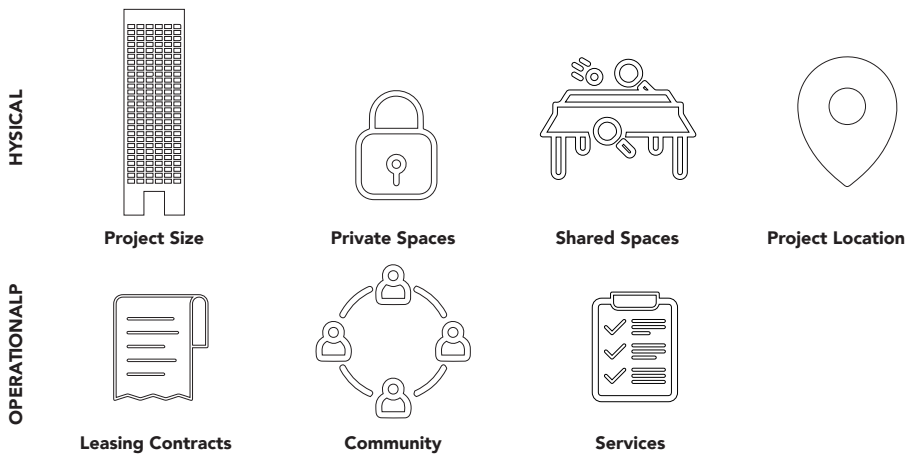


Fig. 44. Framed physical and operational characteristics of commercial co-living

Rental costs from a developer's perspective
From a developer's point of view, it is interesting to make the comparison between rent-level per lettable square meter. In table 10, you see the rental price based upon the provided private meters. Here it is clear, that the rent-level of co-living projects per square meter is much higher than in traditional housing, whilst the sizes of the private units are much lower.
When making the same type of comparison, but not taking only the lettable private units but the total of the living area including the collective spaces, another result is given (table 11). Here you see that, considering all of the developed area, in less projects the revenue per square meter is more than in traditional housing. Here it should be considered that the costs of developing the collective spaces are relatively lower than the development of the private units, which would make up for the lower square meter prices.

Other characteristics
Here it should be noticed that there are many other characteristics influencing the configuration, financial situation and political position of a new housing typology like co-living. Yet, in framing the research, the focus is set on the physical and operational characteristics as they are relatively much different than traditional housing. See figure 44.

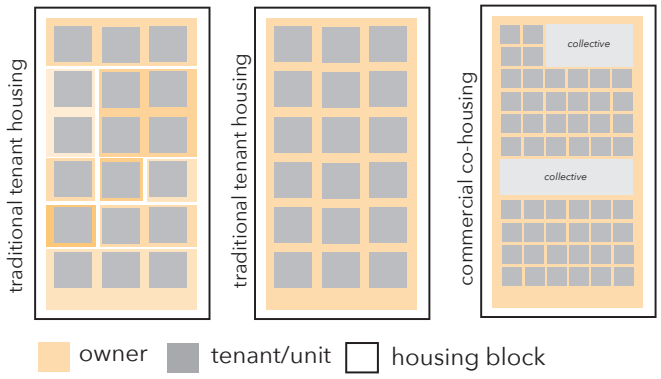


Figure 29. Commercial traditional tenant housing versus co-living (own ill.)

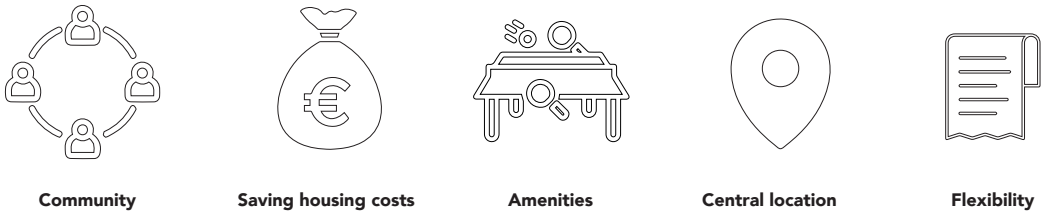


Figure 30. Main requirements for co-living from an users-perspective (own. ill. Based on One Shared House 2030)

Figure 33. Levels of sharing in co-living based upon the One Shared Housing Survey and the case study analyses (own ill. Based on the circles of sharing of AM)

6 CONCLUSION "what is commercial co-living?"

After reviewing literature, journalistic findings and state-of-the-art examples of co-living, an insight is given in what the concept of commercial co-living comprises of. Following are short summaries upon the elements of the first part of the research.

6.1 Basis of concept of co-living

'Commercial co-living' represents in the basis the facilitation of relatively smaller (in comparison to traditional housing of approximately 50m2 per person) private living units together with collective facilities within one building. The leasing out of collection of private units and facilities are here the responsibility of one commercial company or person. See figure 29.

6.2 Co-living users' desires

As framed by the survey research of Space10 and Jones Lang LaSalle, five main desires from the user's perspective are determined: enhancing social interaction by taking part in a community, saving upon housing costs through the sharing of spaces, use of a variety of amenities in close proximity of ones living environment, living in central or well-connected urban locations and flexibility in terms of housing leases. See figure 30.

6.3 Concept of sharing

Based upon the research of AM in levels of sharing of millennials, the co-living levels of sharing are recognized and projected upon the comparable levels of sharing. These levels of sharing, based upon literature and case study analyses, give insight in the level of privacy that is expected in certain functions. What is concluded here is that the basic homey functions (bathing, sleeping, cooking, eating, living) can be divided into 'never shared' and 'optionally shared'. Here the sleeping and bathing areas are never shared, but the other homey functions are sometimes shared and sometimes private. See figure 33.

6.4 Concept on affordability and profitability

The affordability concept is based upon the reduction of private square meters, which are the most expensive. By sharing some living spaces (homey functions) the price/costs of square metres for these functions are 'shared'. The benefit here is that although the private spaces are much smaller than in traditional housing, one's total living space is increased by the addition of collective spaces. In this way the private spaces are balanced with the use of collective space and makes up for the lack of private space. This represents the concept on making housing affordable, without given in too much in living space.

Besides a hypothesis upon affordability, the co-living housing concept also provides a hypothesis on the opportunities for profitability. The concept of profitability is based upon the higher revenue per square meter, whilst providing smaller private units complemented with collective spaces in order to facilitate 'the same amount of living space' for its tenants. With a higher square meter prices in comparison to traditional housing, but lower monthly costs for its users due to the lease of less private square meters, the concept of affordability and profitability find each other in the co-living concept. See figure 35 and 36.

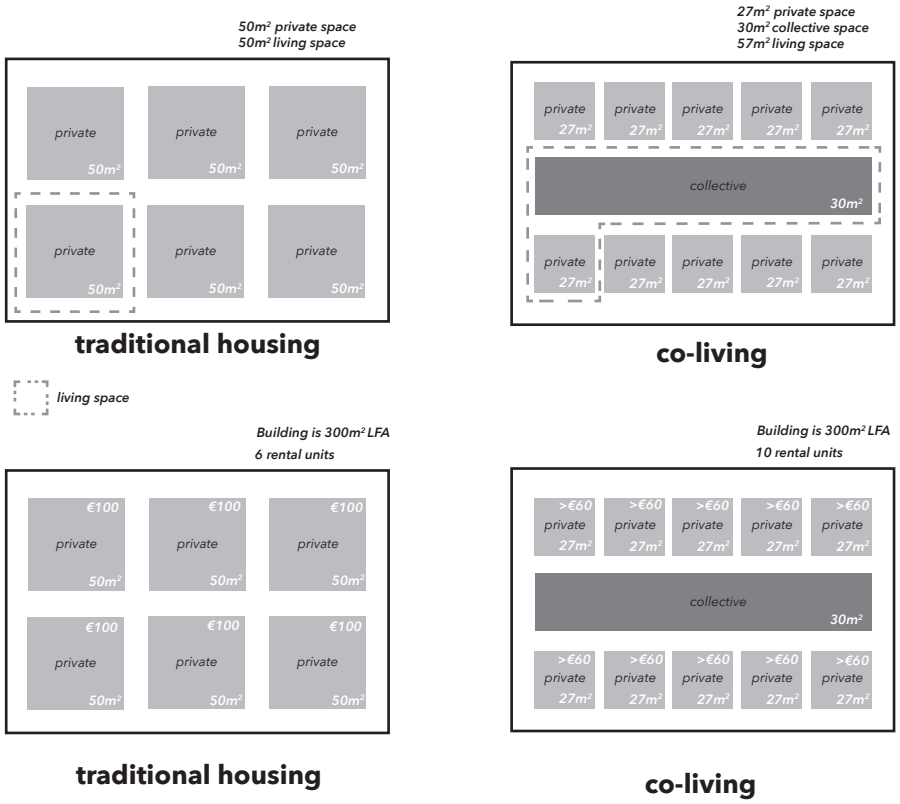


Figure 35 & 36. Concept of affordability and profitability in commercial co-living. (own ill.)

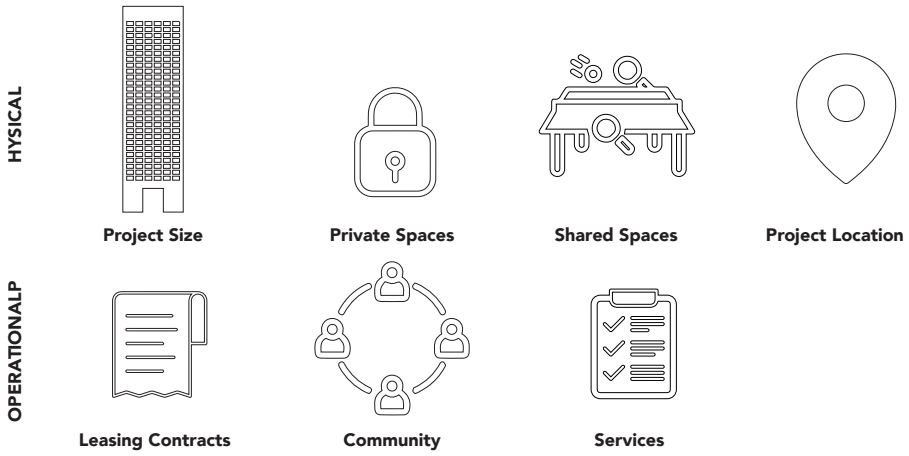


Fig. 44. Framed physical and operational characteristics of commercial co-living

6.5 Co-living characteristics

A total of 7 characteristics are framed, complemented by its direct financial implications on the housing costs (rent/month & services/month). The characteristics are divided into physical and operational characteristics.

The physical characteristics comprise out of the project size, configuration of private units and shared spaces and the project location. The operational characteristics comprise out of the leasing terms, the facilitation of the community and the provided services. See figure 44.

PART 2

7 USERS-AFFORDABILITY & DEVELOPERS-PROFITABILITY analytical framework

As described in the introduction of the research, the determination of the economic opportunities of the co-living concept on the housing market is conducted through the analysis of its user's affordability and developer's profitability. This chapter is an elaboration on these two phenomena – users-affordability and developers-profitability- and the proposed analytical framework serving as a measurement tool in the analysis upon the level of influence in the following case study analyses, in order to continue with the second part of the research.

The analytical framework is divided in two steps. Here the first step is discussed, as it can be developed independently from answering the first main question. The second step can be conducted after answering the first research question and having framed the characteristics that influence the determinants (step 1) of affordability and profitability. In step 2 the analytical framework of the influence of the framed co-living characteristics upon the determinants for affordability and profitability is discussed. See figure 13.

7.1 Concept of relative users-affordability

When starting at the meaning of affordability the Cambridge Dictionary (2019) gives the following explanation: "the state of being cheap enough for people to be able to buy". In this sense, being scoped into the rental market, it could also be transformed into "the state of being cheap enough for people to be able to rent." In that sense, housing affordability can be framed as "the state of being cheap enough for people with a certain income to obtain (rent or buy) a dwelling fitting their needs." In that sense the affordability can be framed as rent-level (€) per dwelling (per month), of which the level of affordability is determined by the income of the target group. Affordability can be framed as a certain rent-level range for a target group, but can also be a relative concept in the sense that one dwelling can be 'more affordable' than another.

7.1.1 Framing 'the user'

In order to determine the level of affordability, it is important to firstly frame the specific user who determines the level of affordability. As discussed in the earlier chapters, the one-person household will take up a striking 50% of the total households towards 2050. This frames the user target towards the most dominant housing tenant in the future: the one-person household.

Framing the target group of one-person households, it represents a dwelling or housing unit inhabited by one person. One-person households comprise out of people from all age-groups. Here you can think of young urban professionals without children, divorced or widowed elderly people. As discussed earlier in the research, all of these age-groups are subjected to the social issue of loneliness. These complementary reasons, one-person and open or even looking for social interaction, make the one-person household a fitting target group for the concept of co-living.

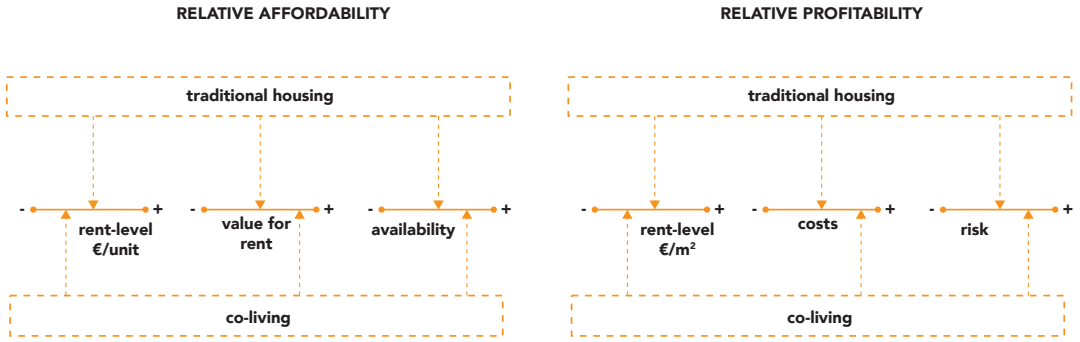


Figure 19. Relative influence upon affordability and profitability (own ill.)

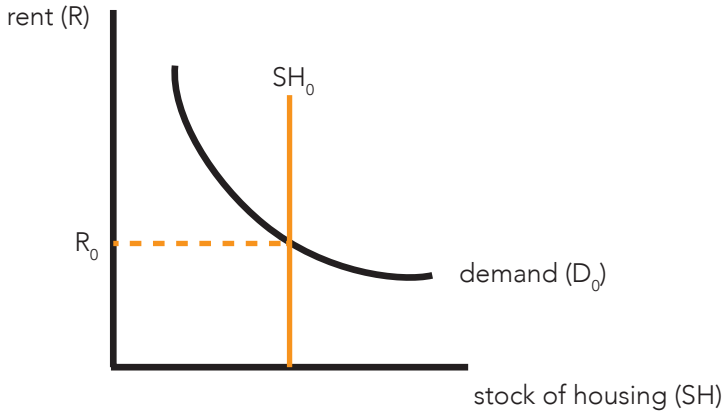


Figure 20. Rent equilibrium based on certain demand and supply (own ill. Based on Fallis, 1985)

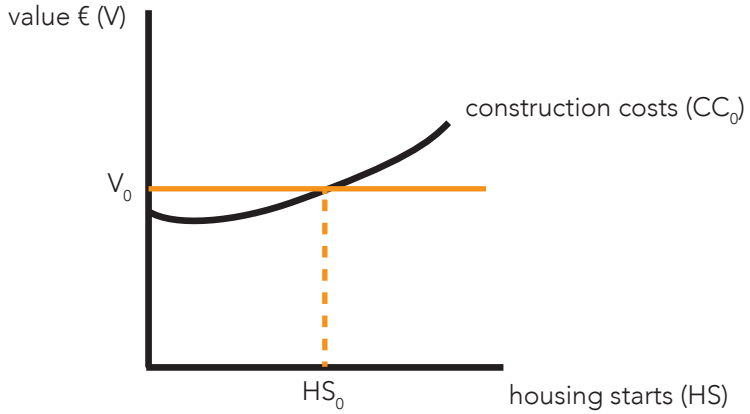


Figure 21. Maximum housing starts based on certain project value and construction costs (own ill. Based on Fallis, 1985)

7.1.2. Relative affordability
As affordability is a subjective, relative concept, the level of influence on affordability is of a relative sense in comparison to traditional housing. See figure 19.

7.2 Concept of relative developers-profitability

The aim formulated derived from the developer's perspective, is the research into the profitability of co-living. Profitability here determining, if co-living can be a commercial interesting new housing concept, triggering housing developers to develop and operate new co-living projects. The Cambridge Dictionary (2019) describes profitability as follows: 'the situation in which a company, product, etc. is producing a profit' wherein profit is described as 'money that is earned in trade or business after paying the costs of producing and selling goods and services.'
Before determining what elements determine profitability, it is important to frame the actor aiming for this, until now called 'the developer'.

7.2.1 Framing 'the developer'
A property developer is a person or a company aiming for profit through the buying of land, building new houses, offices etc. or by changing existing buildings to sell or to rent. (Cambridge Distortionary, 2019) As within this research, the scope is narrowed down to the rental market, the developer is framed as an actor that aims for profit through 'the building of new houses to rent'. In the research for the profitability of the concept of co-living, 'the developer' represents the company or person responsible for the (re)building of a co-living project and responsible for the renting of the property. This company or person could be a combination of traditional investors and real estate developers as well as new-comers to the real estate market initiating a co-living concept and making this, through different means, reality.

7.2.2. Relative profitability
As profitability in a qualitative sense can be a relative concept, the level of influence on profitability is of a relative sense in comparison to traditional housing. See figure 19.

7.3. Analytical framework based upon the housing economics adjustment system

Affordability and profitability of housing are intrinsically a part of the general housing economics system. In the effort of determining the relative affordability and profitability of the co-living concept in comparison to traditional housing, it is apparent that the concept will be analysed within the general housing economics. The adjustment system, or in other words the equilibrium approach, is considered "central to understanding the operation of the housing market in the national economy". (Fallis. 1985) Here Fallis states that the approach is especially useful in examining upon the relative price levels of housing. According to Fallis, these price-levels can be determined by "a bundle of measurable characteristics of an apartment". Therefore, the analysis upon the relative affordability and profitability is conducted through the comparison of the characteristics of co-living with traditional housing in the sense of its influence upon the recognized determinants for affordability and profitability within the housing economics adjustment system.

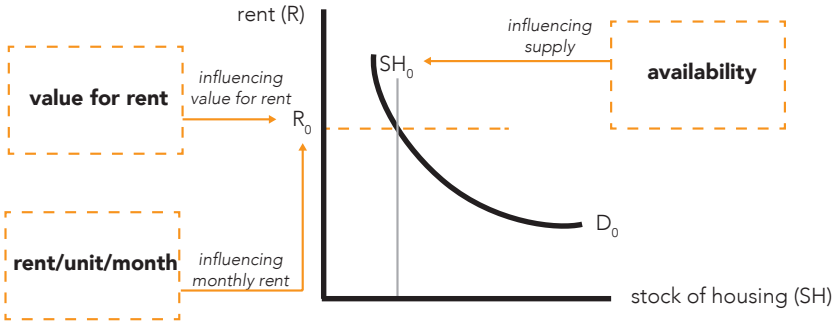


Figure 22. Determinants of user-affordability in rent-level in the housing economics adjustment mechanism. (own ill. Based on Fallis, 1985)

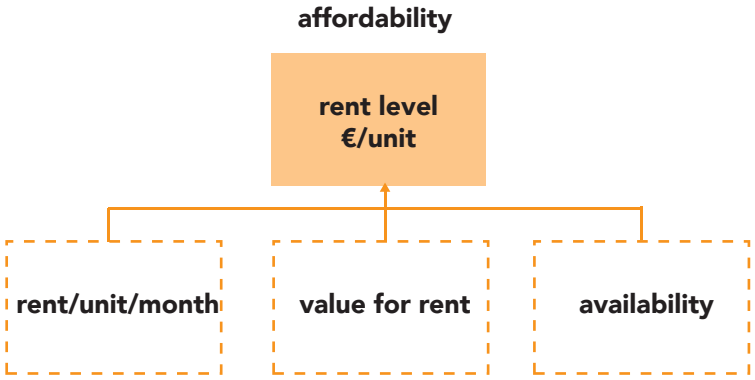


Figure 23. Determinants of user-affordability in rent-level (own ill.)

The housing economics adjustment system of Fallis, 1985
Within the economics of housing, the rental price of a dwelling, with a certain configuration, is determined by its supply and demand. Supply being the existing housing stock complemented by new housing starts and demand being the demand for housing.

As projected in figure 20, the rental price is, with a certain demand, determined by the available housing stock. Here the equilibrium price (R0) represents the rental price for the specific supply (HS) and demand (D0). (Fallis, 1985) From the point of view of the two research perspectives, this equilibrium represents the user's perspective aiming for a certain equilibrium in price, or in other words for the affordability in rent.

This same rental price influences the possible income and with that the profitability of the developer. The rent as shown in figure 20, is then translated into developer's value (V) via discounting cash flows. (Fallis, 1985) See figure 21. Dividing current period rents by the discount rate* gives the value of the project based on certain rental incomes. By comparing the value with the construction costs (CC), it can be determined whether profitable opportunities occur of developers. The intersection of constructions costs (CC0) and the value of housing (V0) determines the maximum level of new housing starts (HS0), as on the point of this intersection the costs for developing are equal to the value of the project.

* Discount Rate is based upon the expected return on money, costs of capital and a risk premium (Geltner, 2007)

7.4. Analytical framework upon users-affordability

Based upon the above described housing economics adjustment system of Fallis (1985), an analytical framework is developed upon the determination of influence on affordability.

In aiming for affordable and available housing, the housing economics adjustment system as projected by Fallis (1985) is used as a guideline in framing the determinants for affordability. The housing economics adjustment system, as introduced by Fallis in 1985 represents the economic balance between demand and supply which results in a rent-equilibrium (R0).
See figure 22. Here, the adjustment mechanism is taken as a starting point in order to understand the balance between the determinants as well as the scenarios of influence of the different determinants on the rent-level and with that on the user-affordability.

Here the rent-level can be understood as the rent per unit per month as well as what is provided for this rent, in other words the value for rent. Together with the available stock of housing, the rent-level and with that the affordability is determined. In the following these determinants for affordability derived from the adjustment system, are further discussed.

7.4.1. Determinants of affordability

The desired rent-level for the mid-segment rental user, as framed in the previous paragraphs was set on €710, -- to €1000, -- per month. Yet as discussed above, the quantified rent-level is not the only determinant for affordability. As shown in figure 22, the rent, or in other words the total costs for housing, (R) is determined by the rent-level per private unit as well as the

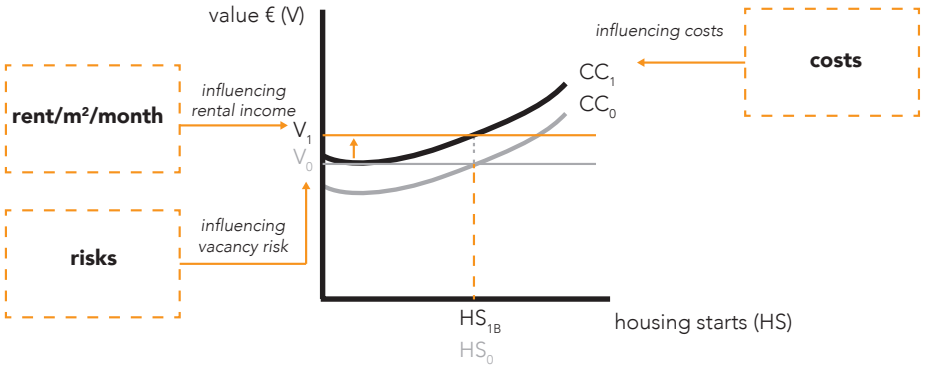


Figure 24. Determinants of developers-profitability in rental value in the housing economics adjustment mechanism. (own ill. Based on Fallis, 1985)

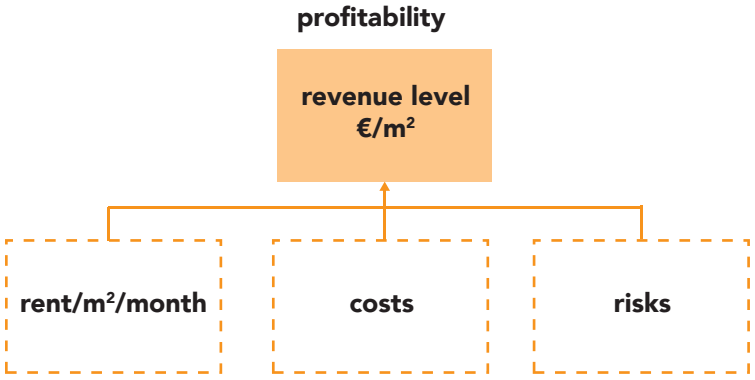


Figure 25. Determinants of developers-profitability in revenue-level (own ill.)

value/quality that is provided for that rent-level. With a certain demand, as discussed in the introduction, the supply of housing – the availability- also determines the equilibrium of rent. See figure 23 for the three determinants of the housing costs per month. In the following the three determinants will be further discussed.

Rent/unit/month
This first determinant is of a quantitative nature. The rent per dwelling unit per month represents the total costs that are made for the lease of the unit and use of the property. This can be solely rent paid for the use of a private unit, but can also include the amount paid for the use of the total property (collective functions) and use of provided services. Altogether, it represents the total monthly costs for the lease of a rental unit. Taking the rent per unit per month as one of the determinants for affordability, it is taken as a starting point that 'the lower the monthly rent for co-living in comparison to traditional housing, the more affordable'.

Value for rent
This second determinant is of a qualitative nature. The value can be framed as 'meeting the desires of the users'. These desires differ per target group. Following the ascribed desires of the target group represented by the one-person millennial household, its aspired values in housing can be framed as the following (see previous chapters for further elaboration):
- Comfortable, 'hassle-free' -living
- Flexibility (in leasing a property)
- Privacy
- Social connection
- Inner-city location

Taking the value for rent as one of the determinants for affordability, it is taken as a starting point that 'the more the needs of the user are met, the higher the value for rent.'

Availability
The third determinant can also be considered as a result of the other two. Yet, the balance between supply and demand, thus the availability of housing contributes to the 'sense of affordability', providing the user in the flexibility of choice for rental unit and location for example. When there is a limited availability, it could be said, that the supply does not properly represent the actual demand.
Taking availability as one of the determinants for affordability, it is taken as a starting point that 'the higher the availability, the more the user-requirements are met and the higher the value for rent.'

7.5. Analytical framework upon developers-profitability

Based on the above described housing economics adjustment system of Fallis (1985), an analytical framework is also developed upon the determination of influence on profitability.

In figure 24, the housing economics adjustment mechanism of Fallis (1985) is taken as stating point in order to understand the balance between the determinants for profitability. These determinants can be framed as income in terms of rental value, costs and risks.
The value represents the rent-level that is translated into developers' value (V) via discounting cash flows. (Fallis, 1985). As explained before, dividing the current period rents by the discount

rate gives the value of the project based on certain rental incomes. The discount rate is based upon the expected return on money, costs of capital and a risk premium. (Geltner, 2007) By comparing the value with the construction costs (CC), it can be determined whether profitable opportunities occur of developers. The intersection of constructions costs (CC0) and the value of housing (V0) determines the maximum level of new housing starts (HS0), as on the point of this intersection the costs for developing are equal to the value of the project.

7.5.1. Determinants of profitability

When, again, starting with the description of the Cambridge Dictionary (2019) of the concept of profitability, it gives the following explanation: "the situation in which a company, product, etcetera, is producing a profit", with profit meaning "money that is earned in trade or business after paying the costs of producing and selling goods and services."
Projecting this concept upon the research of profitability within the housing rental market, the term 'profit' could also be read as "income that is earned/generated (=money) through leasing out dwelling units (=trade or business), after paying the development (=costs of producing) and operational costs (=selling goods and services)."
It is these elements of the description that are framed as the determinants for profitability, see figure 25.

The developers-profitability within the scope of the development of co-living, is determined by the elements of rental income per square meter (per month), the development and operational costs, and the risks that can be recognized that can harm the rental income. (Geltner, 2007) The balance between the projected rental income per square metre, the subtracted development and operational costs and the risk-level upon expected income of the project together, frame the profitability of the project.

Rent/m2/month

The first determinant of the profitability of a co-housing project, is the rental income per square metre of lettable private space per month. The lettable private space represents the leased out private units including its private bathing and kitchen facilities.

Costs

The second determinant of the profitability is the expected costs. Here the costs can be divided into development costs in facilitating the physical characteristics of co-living, together with the costs that are dependent upon the operational organization.

Risks

The third and least quantifiable determinant is the element of risk. Here the risk-level represent the level of possibility that the projected income is not obtained. In rental housing, vacancy risk is considered the most important element of risk upon income. The way the development is organized physically but also operationally, has its influence on the possible vacancy risk. Meeting the desires of possible tenants, through rent-level or facilities and services, is a way to manage the risk on vacancy.

7.6 Affordability & Profitability determinants and co-living characteristics

Concluding the above, the three determinants for both affordability and profitability are framed. This total of 6 determinants are used as a measure in order to assess the influence of the co-living concept on the affordability and profitability.

The second part of the research question – How do the physical and operational characteristics influence the user-affordability and developers' profitability? – is addressed through the following sequence of analysis, see figure 26. The determinants for user-affordability and developer's profitability are framed in the previous chapters, based upon the housing economics adjustment system of Fallis. Then, after analysing the commercial co-living concept and its physical and operational characteristics, the relative level of influence of the characteristics upon the determinants is analysed. This relative level of influence means a not a quantitative analysis but a qualitative, where the comparison is made with traditional housing, see figure 27. The weighing of the level of influences is further elaborated on in chapter 7.
Finally, total developed analytical framework is projected upon the case studies, in order to be able to conclude upon the level of influence of the characteristics upon the (determinants of) users-affordability and developers-profitability.

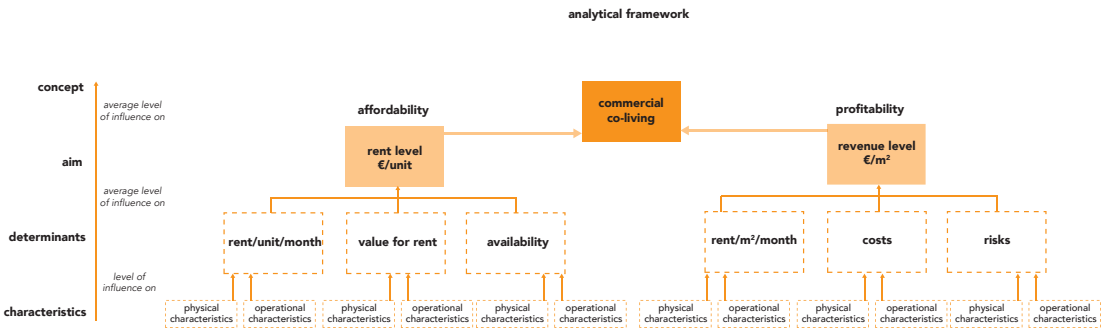


Figure 26. How do the physical and operational characteristics influence the affordability and profitability? (own ill.)

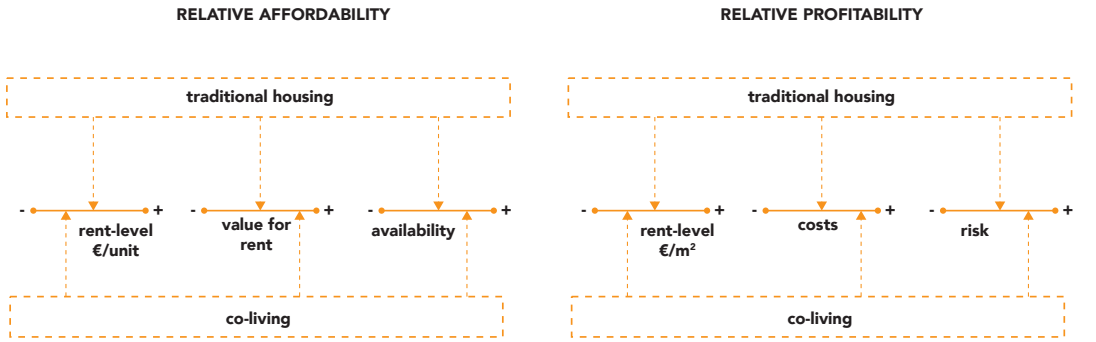


Figure 27. Research focussing on relative influence on affordability & profitability. (own ill.)

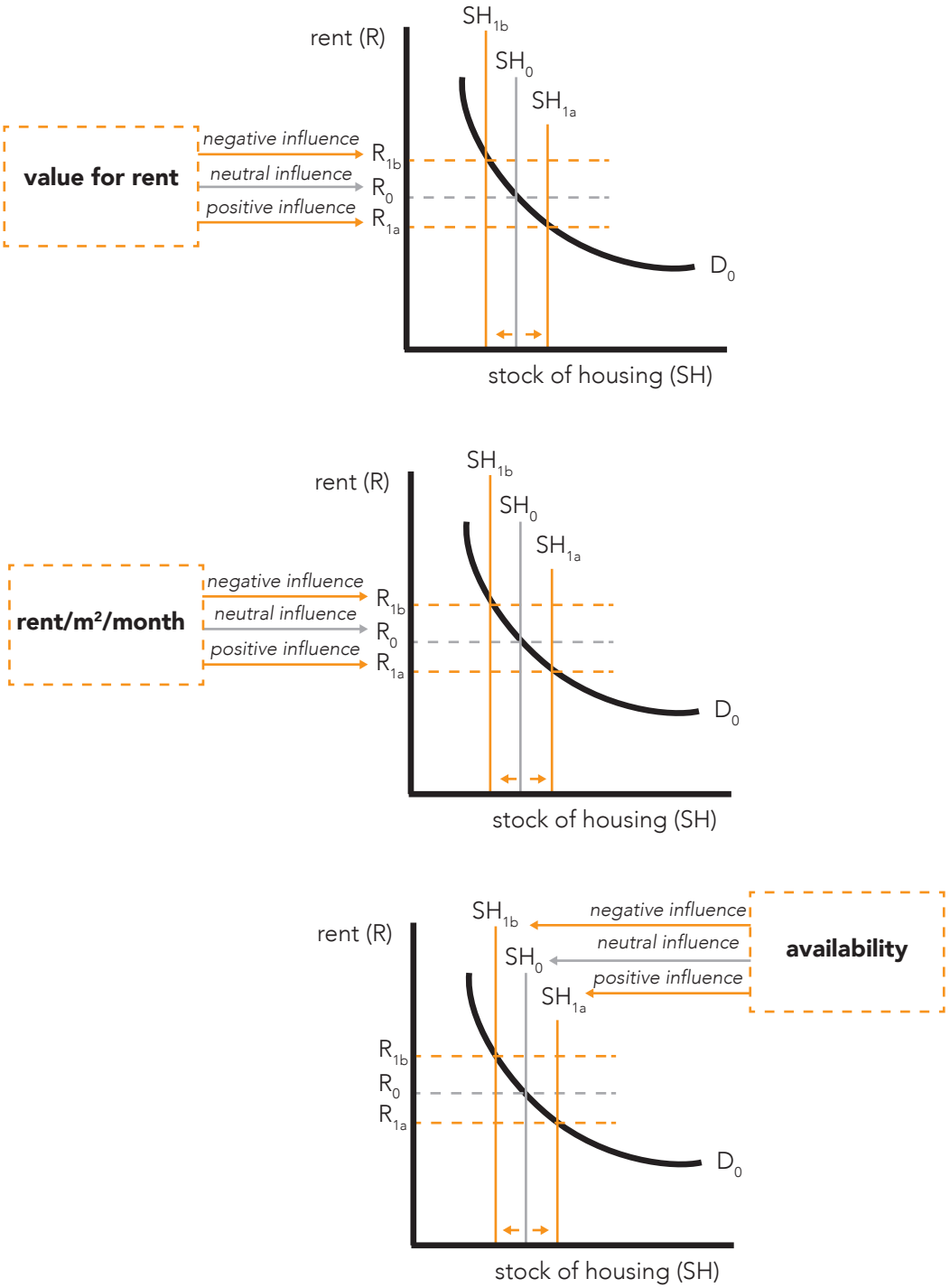


Figure 45. Scenarios on influencing affordability. (own ill. based on Fallis, 1985)

Now, the second part of the research is introduced. This second part is an analytical continuation of the first, more descriptive part of the research. The second posed research question comprised out of the following:

"How do the physical and operational characteristics (of co-living) influence its (user-)affordability and (developers-)profitability?"

This question continues upon the first posed question that informed upon the concept of commercial co-living, its concept on affordability and profitability and its physical and operational characteristics. The second question implies a deeper research into this concept on user-affordability and developers-profitability by analysing the influences of the characteristics upon these two aims. Multiple case study analyses are used as a method to answer the posed research question.

In order to be able to structure the posed analysis, the following steps are implemented. Firstly, the elements that determine user-affordability and developers-profitability were already introduced in chapter 2. These elements can be positively or negatively (or not at all) influenced by the physical and operational characteristics of commercial co-living: they increase or decrease the affordability and/or profitability according to the housing economics adjustment system of Fallis (1985). See chapter 2 and figure 26.

The influence of the characteristics, either positive or negative, is of a relative nature. Taking the characteristics of traditional housing as a basic reference, the level of influence is based upon the relative difference with the basic reference. See figure 27. This gives insight in the level of influence upon affordability and/or profitability a characteristic contains. This is firstly analysed per case study, consequently offering a general level of influence per characteristic with the analysed data of the case studies combined. See figure 17 and 18 in chapter 2 for the complete analytical framework.

The framework is built up in steps upon the posed research question as followed:

How do the physical and operational characteristics of co-living influence its user-affordability?
Step 1. Determents of affordability
Step 2. Characteristics influencing determinants
Step 3. Levels of influence per characteristic

and

How do the physical and operational characteristics of co-living influence its developers-profitability?
Step 1. Determents of profitability
Step 2. Characteristics influencing determents
Step 3. Levels of influence per characteristic
In the following, the co-living characteristics that have an influence on one of the determinants for affordability or profitability are mapped. With the type of characteristics influencing upon the determinants in place, the level of influence upon affordability and profitability of these

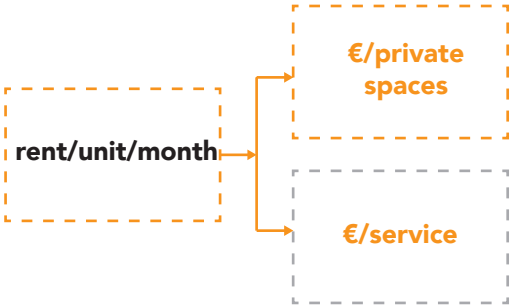


Figure 46. Characteristics influencing the determinant of rent/unit/month

Figure 47. Characteristics influencing the determinant of availability

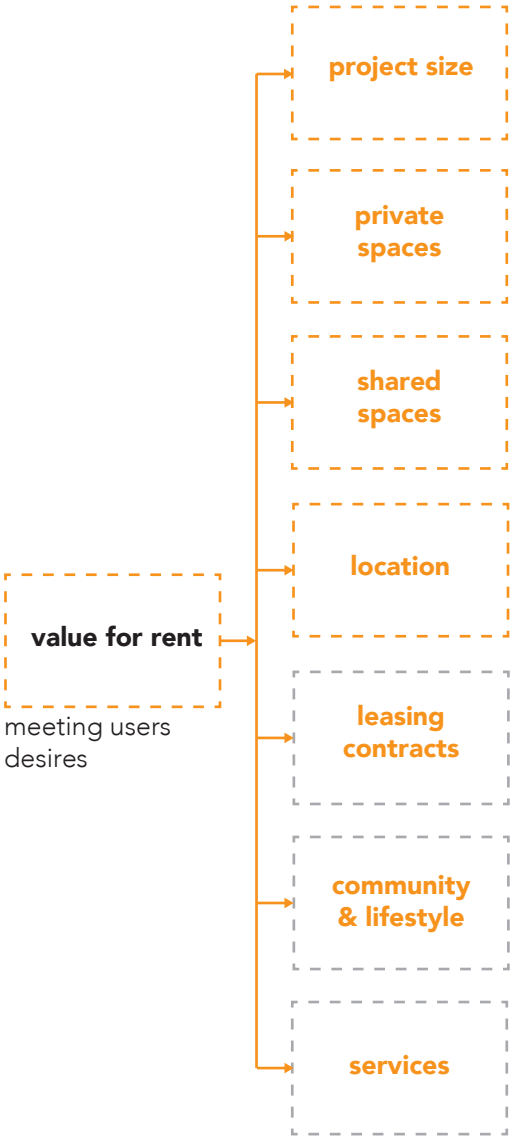


Figure 48. Characteristics influencing the determinant of value for rent

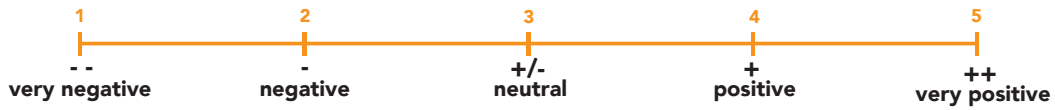


Figure 49. Levels of influence on the affordability (own ill.)

characteristics are framed.

7.7 Characteristics influencing determinants of affordability

In researching upon the influence on affordability, the influence of the co-living characteristics upon the determinants is a way to analyse the concept. The way, or the level, the determinants influence the user-affordability, is determined by the way the physical and operational characteristics are organized. Here different scenarios can be recognized based upon the adjustment system of Fallis (1985). Every characteristic has their own positive or negative (or none) influence on the determinant for affordability. This means that a characteristic can (see figure 45):

1. Increase or decrease the rent/unit/month (positive or negative influence)
2. Increase or decrease the value for rent (positive or negative influence)
3. Increase of decrease the availability (positive or negative influence)

Based on the research of the co-living concept – see previous chapters- its characteristics are divided into physical and operational characteristics. These characteristics can be analysed upon their influence on the above described determinants of affordability.
The physical characteristics comprise out of:

- Project size
- Private spaces
- Shared spaces
- Location

And the operational characteristics comprise out of:

- Leasing contracts
- Community & lifestyle
- Services

With a reference rental pricing of:

- €/private space
- €/services

The description of the characteristics is included in the first part of the thesis, discussing the concept of commercial co-living and its characteristics. Therefore, for the understanding of the content of the characteristics, one is referred to that chapter.

Note that, the following paragraphs have a slight overlap with the paragraphs on influence upon affordability as the same levels of influence are used as a reference tool.

7.7.1. Characteristics influencing rent/unit/month

The characteristics that influence the determinant of 'rent/unit/month', or in other words the housing costs, are the following two: the rental costs € per private unit and the monthly costs € for services. See figure 46. For these characteristics the following is guiding in aiming for affordability:

- €/private spaces: the lower the monthly rent in comparison to traditional housing, the more affordable;
- €/services: the more services that are included in the rent, the higher the

affordability.

7.7.2. Characteristics influencing availability

The characteristic that influences the determinant of 'availability' is the following: the project size. See figure 47. For this characteristic the following is guiding in aiming for affordability:

- Project size [# private units]: the more units are offered, the higher the availability of housing. The higher the availability the higher is the positive influence on affordability.

7.7.3. Characteristics influencing value for rent

The characteristics that influence the determinant of 'value for rent' are the following seven: project size, configuration of private spaces, configuration of shared spaces, location, leasing terms, facilitation of community, and facilitation of services. See figure 48. For these characteristics the following is guiding in aiming for affordability:

- Project size [% collective space]: the more collective space in a project, the more'living square meters' for its residents. This represents an increasing value for rent thus increasing affordability.
- Private spaces: the larger and more equipped the private spaces, the more value for rent thus more affordable.
- Shared spaces: The more additional types of space on top of basic living functions, the more value for rent and thus more affordable.
- Location: The closer the project location is to the city centre/business districts, the more the user-desires are met. With that the more value is provided for rent thus a positive influence on affordability.
- Leasing contracts: the higher the flexibility in lease, the more the user-desires are met.
- Community & Lifestyle: the more is organized in order to stimulate the community, the higher the sense of community. With that the user-desires are met and is the affordability increased.
- Services: the more services that are organized/optional, the higher the living quality. With that a positive influence on the affordability.

7.8 Levels of influence per characteristic

Which characteristics are to influence the user-affordability (positively or negatively) was the first step in the analytical framework. Following this first step, the level of this influence is framed. The determined levels of influence per characteristic are based upon both insights from the case studies, literature on basic space requirements and user desires, as well as references to traditional housing. Determining the levels of influence of the characteristic, provides the tool for weighing the configuration of the characteristic upon its influence on the determinants of affordability. In the following the levels of influence are described per characteristic. For all characteristics and their levels of influence counts, that the range of 1 to 5 represents the level of negative to positive influence. Here meaning 1 as the lowest, most negative influence on affordability, and 5 meaning the highest, most positive influence on affordability. Here a negative influence means that the affordability decreases, and a positive influence means that the affordability increases. See figure 49.

In the following, the levels of influence, ranging from very negative to very positive is elucidated per characteristic.

Physical characteristics

7.8.1. € rent/private space

The levels of influence of monthly rent per private unit, is expressed though a reference to the monthly rent per private unit/apartment for traditional housing. Here there are five levels identified ranging from much less (>20%) than traditional housing to much more (>20%) than traditional housing. Approximately the same represents a bandwidth of 5%. See figure 50.

7.8.2. Project size

The levels of influence of the project size, is based upon its percentage of offered collective space. Here also the reference to traditional housing is made, with the identified level of 0% or 1-10%. The more collective space the more attractive the location is for possible tenants.
The level of influence can also be analysed through the number of offered private units. This influences the availability and with that the affordability of the co-living project. Here the more is offered, the more it has a positive influence on the affordability. See figure 51.

7.8.3. Private spaces

For the private spaces, the size of a standard micro-dwelling, as found in related literature, is set a s a basis, namely 27 m2. (Microshowcase, 2018) The student room of 12m2 is set as the lowest possibility. The analysis of the size of the private unit is complemented with the level of equipment, like kitchen and bathroom facilities. Here the reference is set on 'not fully equipped' and 'fully equipped'. Not fully equipped meaning no private bathrooms or fully equipped kitchens, and 'fully equipped' meaning that private bathrooms as well as a full equipped kitchen is included in the private space. The more is provided within the private spaces, the more positive influence it has on the affordability. See figure 52.

7.8.4. Shared spaces

As the basic affordability (and also profitability) concept is based upon the collective facilitation of basic living functions, like an eating area and living room, this is set as the basis for the influence levels. With that, the 'only replacing of basic private functions', is set as the basic, neutral level of influence. If the project offers, besides the replacement of basic functions, extra functions, it represents the positive level of influence. If the private units are fully equipped and the building still offers extra functions, this influences the affordability the most due to all its offered extra amenities in comparison to traditional housing. Therefore, that represents the highest level of influence. See figure 53.

7.8.5. Location

The influence on affordability of the location is based upon the users desire to live in or in close vicinity of the city centre. With that the highest level of influence is set on a project location in and around the city centre. The other two levels are based upon their location and traveling distance (by public transport) to the city centre. See figure 54.

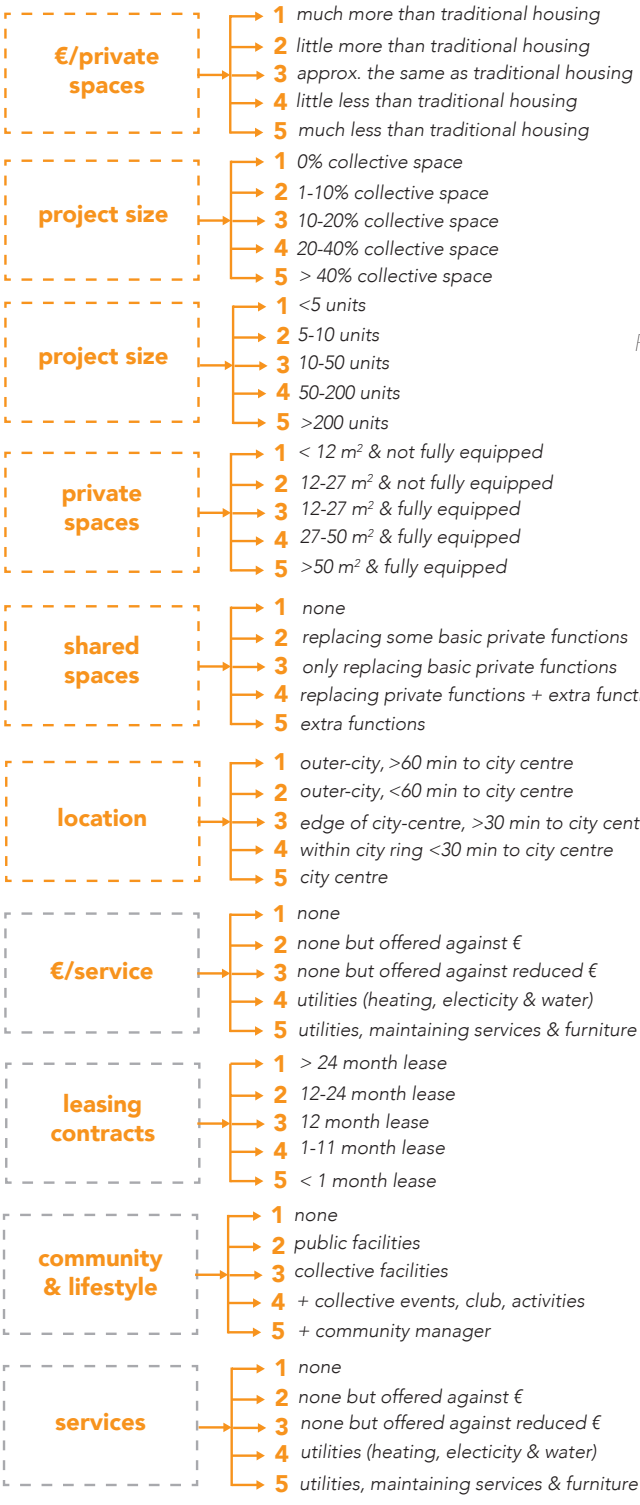


Figure 50. Level of influence on affordability through rent-level for private units

Figure 51. Levels of influence on affordability through the amount of offered collective space or number of private units

Figure 52. Level of influence on affordability through the configuration of private spaces

Figure 53. Level of influence on affordability through the configuration of shared spaces

Figure 54. Level of influence on affordability through position of location in regards of city centre

Figure 55. Level of influence on affordability through services included in the rent-level

Figure 56. Level of influence on affordability through leasing terms

Figure 57. Level of influence on affordability through community facilitation

Figure 58. Level of influence on affordability through the facilitation of services

Operational characteristics

7.8.6. € costs/services
The influence on affordability of the characteristics of the price for services is based upon what is or is not included in the monthly rent-level. As collective living is an organized way of living, the inclusion of utilities (heating, electricity and water) is set as the basic, neutral level of influence on affordability. This can be complemented by cleaning and other maintaining services in the second level of influence. When besides these services also furniture for the private units is included, the highest level of positive influence on the affordability is reached. See figure 55.

7.8.7. Leasing contracts
In analysing the level of influence of the leasing terms on the user-affordability, the desire for flexibility is used as a reference. With traditional leasing terms being set on 12 tot 24 months, a lease starting at 24 months is set as the lowest negative influence on affordability. Being able to lease less than a year is set on the second level of influence, with being able to lease from day to day or weekly, is set on the third level of influence. See figure 56.

7.8.8. Community & Lifestyle
The level of influence of the characteristic of the 'facilitation of the community and lifestyle' is set on the number of different ways the operational management stimulates and facilitates the community within the co-living residence. Here the basis is set on the facilitation of collective spaces, being also the basic concept of co-living. When the organization also simulates collective events or even facilitated collective member clubs and organizations with a community manager, the level of influence on affordability by meeting the desire for community by the users is increased. See figure 57.

7.8.9. Services
In terms of meeting the user requirements for comfortable living, the level of influence of the characteristic of services plays its role. Here, again, the more services are offered, not per se included in the rent-level, the higher the level of comfort can be reached. See figure 58.

7.9 Characteristics influencing determinants of profitability.

The way the determinants influence the developers-profitability, is based upon the way the physical and operational characteristics are organized. Every characteristic
has their own positive or negative (or none) influence on the determinant for profitability. This means that a characteristic can (see figure 59):

1. Increase or decrease the rental income/m2/month (positive or negative influence)
2. Increase or decrease the development or operational costs (positive or negative influence)
3. Increase or decrease the risk on vacancy (positive or negative influence)

The characteristics are divided into physical and operational characteristics. The physical characteristics comprise out of:

- Project size
- Private spaces

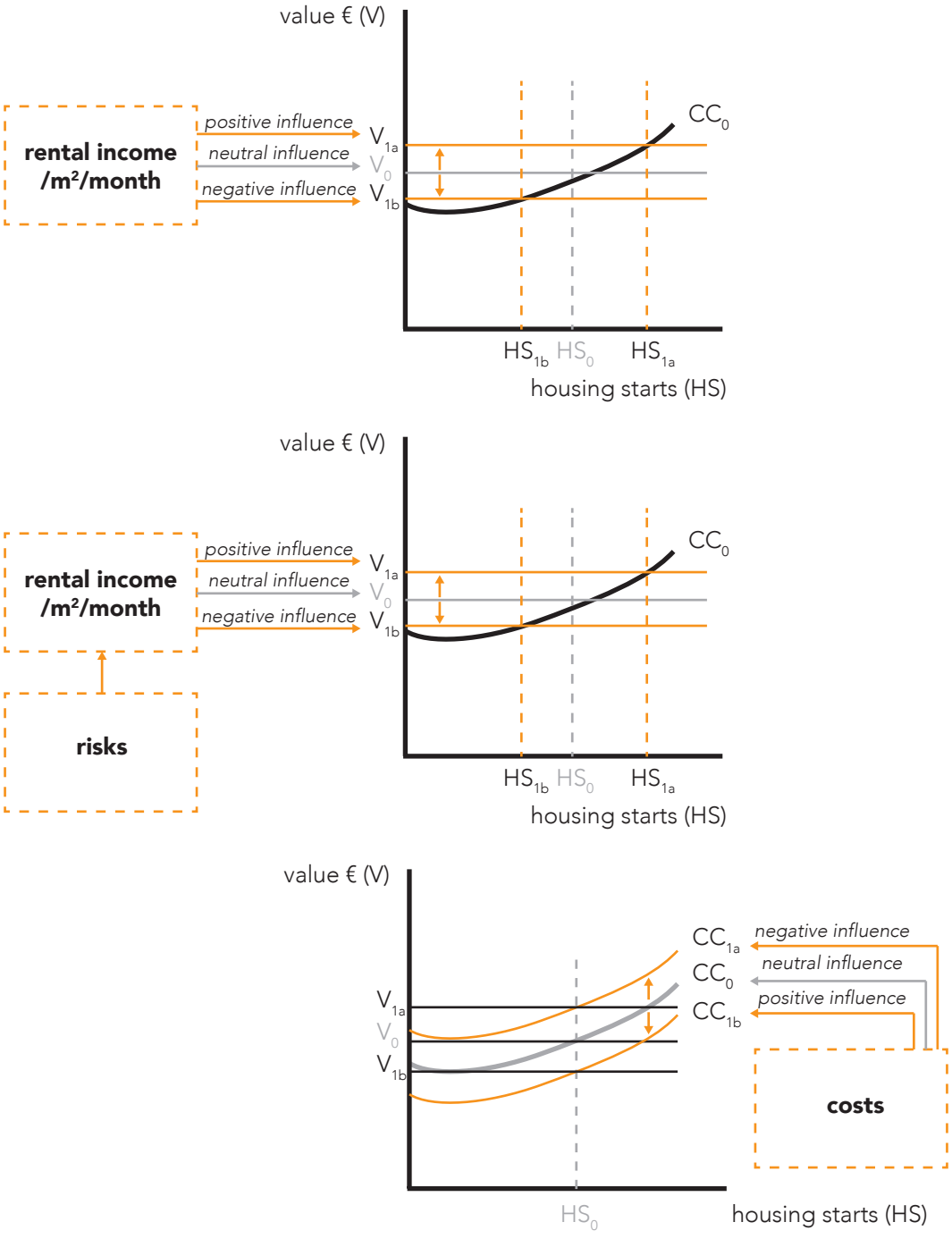


Figure 59 Scenarios on profitability. (own ill. based on Fallis, 1985)

- Shared spaces
- Location

And the operational characteristics comprise out of:

- Leasing contracts
- Community & lifestyle
- Services

With a reference rental pricing of:

- €/private space
- €/services

The description of the characteristics is included in the first part of the thesis, discussing the concept of commercial co-living and its characteristics. Therefore, for the understanding of the content of the characteristics, I refer to that chapter.

7.9.1. Characteristics influencing rent/m2/month

The characteristics that influence the determinant of rental income per square meter per month, are the following three: rental income from the lease of private square meters, income generated from charged services (if so), and the size of the project. Here the size of the project determines the number of possible private units, which influences the height of the total possible rental income per month. For these characteristics the following is guiding in aiming for profitability (see figure 60):

- €/m2 private space: The more €/m2 revenue through rent, the higher the monthly total income of the project.
- €/m2 services: If there is a charge for a number of services, this can be added up to the monthly income as it levels out the costs for the provided services.
- Project size: The more units that are developed, the higher the number of lettable private units that can be charged with a monthly rent, which increases the monthly revenue.

7.9.2. Characteristics influencing costs

The characteristics that influence the determinant of costs, are the following seven: the size of the project in terms of percentage of collective space, the configuration of the private spaces, the configuration of the shared spaces, the location, the leasing terms, the facilitation of the community and the provided services. For these characteristics the following is guiding in aiming for profitability (see figure 61):

- Project size [% collective space]: The more collective facilities are developed besides the private units, the higher the development costs.
- Project size [# private units]: The more units are developed, the lower the costs per unit due to quantifiable benefits.
- Private spaces: The more space and equipment is included in the private units, the higher the costs per unit.
- Shared spaces: When replacing living functions from the private units in to collective spaces, the costs re reduced, through space efficiency. When developing extra functions on top of fully equipped private functions,

Figure 60. Characteristics influencing the determinant of rental income/m2/month

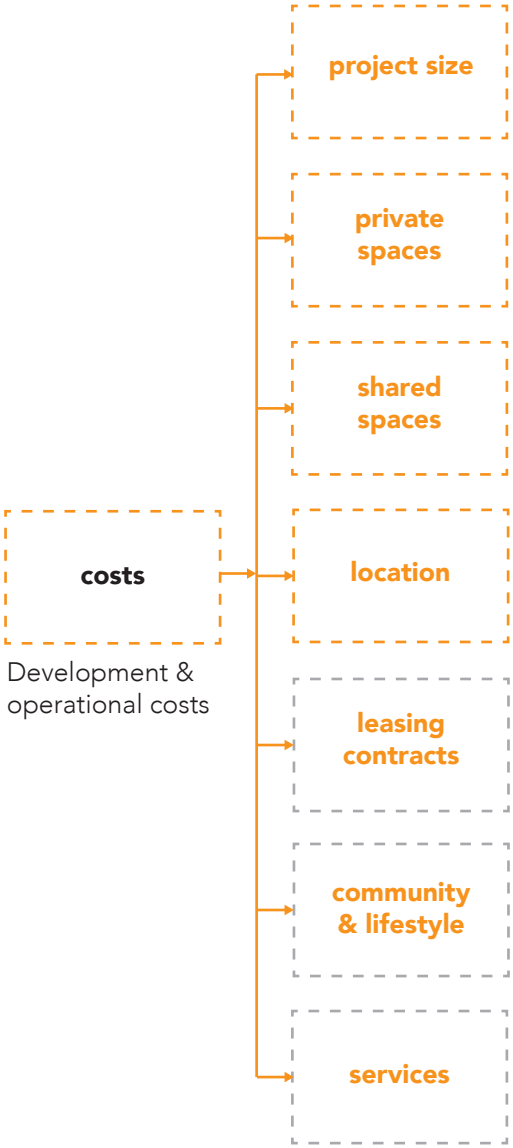


Figure 61. Characteristics influencing the determinant of development and operational costs

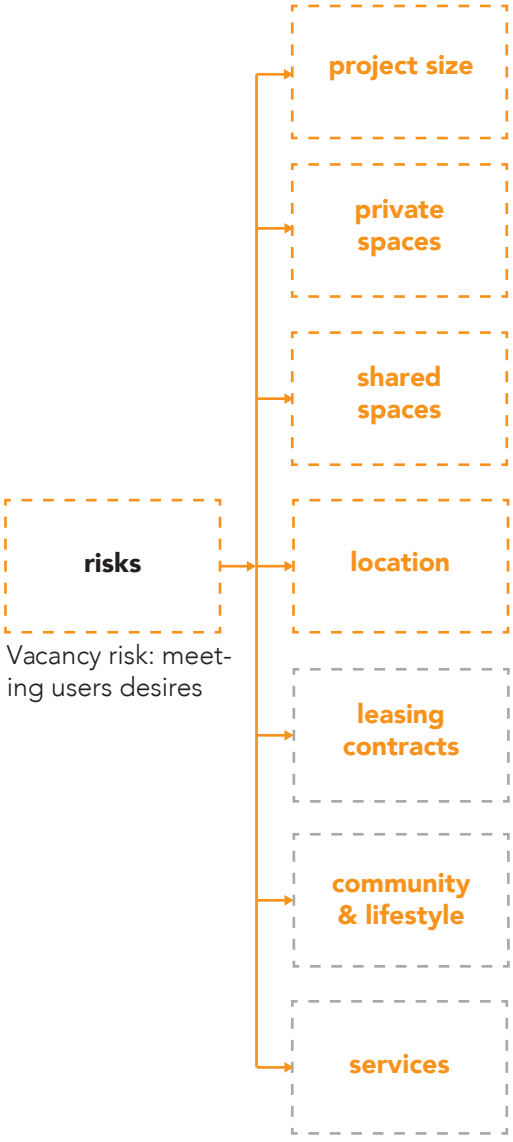


Figure 62. Characteristics influencing the determinant of the risk on vacancy.

it represents extra costs.
- Location: The ground-prices and with that the development costs of inner-city locations are in general more costly than outer-city locations. Therefore, the position of the project in regards of the city centre has its relative positive or negative influence on the development costs.
- Leasing contracts: With a high overturn of residents due to high leasing flexibility, a higher operational cost can be expected due to administrative, maintenance and service costs.
- Community & Lifestyle: the operational costs increase when organizing more (activities, events, etcetera) in order to facilitate the community.
- Services: The operational costs increase when organizing more services.

7.9.3. Characteristics influencing risk

The characteristics that influence the element of risk, and in this sense dominantly the risk on vacancy, are the following seven: the size of the project in terms of number of private units but also the percentage of collective space that is offered in the project, the configuration of the private spaces, the configuration of the shared spaces, the location, the leasing terms, the facilitation of the community and the provided services. For these characteristics the following is guiding in aiming for profitability (see figure 62):
- Project size [% collective space]: The more collective space is offered in the project, the higher the attractiveness of the project for new residents.
- Project size [# private units]: The more units are offered, the higher the risk on vacancy in the project.
- Private spaces: The smaller and less-equipped the private units are, the less it meets the user's needs. With that the attractiveness is lower, which increases the risk on vacancy.
- Shared spaces: The more extra functions are offered in the project on top of all basic living requirements (in collective space or private), the higher the attractiveness of the project, and thus the less risk on vacancy.
- Location: The more the project is located in the city centre (or in proper connection to the city centre) the higher the attractiveness of the location. Besides a decreasing risk on vacancy with a desired project location.
- Leasing contracts: The more flexibility is offered in the leasing terms, the higher the risk on vacancy due to the increase of friction-vacancy. Yet, the higher the flexibility the more it meets the desires of the users, which increases the attractiveness. Yet, here the risk on vacancy is influenced the most with high flexibility in a negative sense from a developer's point of view.
- Community & Lifestyle: The more the community is enhanced through several measures, the higher the attractiveness of the residence and with that the lower the risk on vacancy.
- Services: The more hassle-free the housing is, the more it meets the user's desires. Therefore, the more services are offered the lower the risk on vacancy.

7.10 Levels of influence per characteristic

Whether a characteristic has either a positive or a negative influence on the developers-profitability, is analysed in the previous step. Following this step, is the second analysis zooming

in on the levels of influence. Comparable to the levels of influences described in terms of affordability, are the same levels of influence used in the profitability analysis. In the following, these same levels are explained in terms of their level of influence per characteristic on the profitability. Again, for all characteristics and their levels of influence counts, that the range of 1 to 5 represents the level of negative to positive influence. Here meaning 1 as the lowest, most negative influence on profitability, and 5 meaning the highest, most positive influence on profitability. Here a negative influence means that the profitability decreases, and a positive influence means that the profitability increases. See figure 49.

In the following, the levels of influence, ranging from very negative to very positive is elucidated per characteristic.

Physical characteristics

7.10.1. € rent/private space
The levels of influence of monthly rental income per square meter of private unit, is expressed though a reference to the monthly rental income per private square meter for traditional housing. Here there are five levels identified ranging from much less (>20%) than traditional housing to much more (>20%) than traditional housing. See figure 64.

7.10.2.1. Project size [influencing costs]
The levels of influence of the project size upon the costs, is based upon both the percentage of the project that is reserved for collective spaces as well as upon the number of private units housed in the project.
For the analysis upon percentage of collective spaces, the reference to traditional housing is made, with the identified level of 0% or 1-10%. The higher the percentage of collective space in the project, the higher the costs without direct revenue, so the more negative the influence on the profitability.
The level of influence of the project size upon the costs, can also be analysed through the number of private units offered. Here - with the curve of the adjustment system upon the quantifiable benefits in costs used as reference- the costs per unit is reduced when developing an increasing number of units. Therefore, the more units are developed, the more positive influence it has on the costs and with that on the profitability of the project. See figure 65.

7.10.2.2. Project size [influencing risk]
The levels of influence of the project size upon the risk on vacancy, is also based upon both the percentage of the project that is reserved for collective spaces as well as upon the number of private units housed in the project. Here, in terms of percentage of collective space, it represents a level of attractiveness towards possible new residents. Therefore, the more collective space is offered, the higher the attractiveness and with that the lower the risk on vacancy. In terms of the number of units, the more units are offered, the higher the risk on vacancy. See figure 66.

7.10.3.1. Private spaces [influencing costs]
For the private spaces, the size of a standard micro-dwelling, as found in related literature, is set a s a basis, namely 27 m2. (Microshowcase, 2018) The student room of 12m2 is set as

the lowest possibility. The analysis of the size of the private unit is complemented with the level of equipment, like kitchen and bathroom facilities. Here the reference is set on 'not fully equipped' and 'fully equipped'. Not fully equipped meaning no private bathrooms or fully equipped kitchens, and 'fully equipped' meaning that private bathrooms as well as a full equipped kitchen is included in the private space. In terms of costs, the less is provided within the private units for the demanded rent-level, the lower the costs per unit. Thus, the less is provided the more profitable the units are. See figure 67.

7.10.3.2. Private spaces [influencing risks]
For the comparison and configuration of the private units, here counts the same as for levels of costs influences. In terms of risk of vacancy, the highest positive influence is not the 'smallest and least equipped' private unit but the unit that is comparable to traditional housing. Here the tenant receives the most physical quality in terms of equipment and square meters of privacy for the demanded rent level. Therefore, the more is provided the lower the risk on vacancy and with that the higher the profitability. See figure 68.

7.10.4.1. Shared spaces [influencing costs]
As the basic profitability (and also affordability) is based upon the collective facilitation of basic living functions, like an eating area and living room, this is set as the basis for the influence levels. With that, the 'only replacing of basic private functions', is set as the basic, neutral level of influence. From the point of development costs, the facilitation of no collective spaces is, of course, the most interesting for the profitability. Therefore, with fully-equipped private functions, only providing extra functions on top of that is the costliest, and with that the most negative influence on the profitability. See figure 69.

7.10.4.2. Shared spaces [influencing risks]
The level of influence upon vacancy risk through the configuration of the shared spaces is based upon the extra benefits it provides for its tenants. With extra benefits on top of basic living functions, the attractiveness of the project increases and with that the risk on vacancy reduces, which is a positive influence on the profitability. Being offered no collective facilities, has the most negative influence on the attractiveness, and with that it increases the risk on vacancy. See figure 70.

7.10.5.1. Location [influencing costs]
As the ground-prices of the inner-city are in general the most expensive, it could be concluded that inner-city project locations, in terms of location have the highest development cost due the ground prices. Therefore, in terms of influence on costs, the outer-city locations have the most positive influence as the ground-prices are expected to be lower here in comparison to city centre locations, which represent the most negative influence on the costs. See figure 71.

7.10.5.2. Location [influencing risks]
The influence on profitability of the location is based upon the users desire to live in or in close vicinity to the city centre. The attractiveness for residents of a city centre location has its positive influence on the reduction of risk on vacancy and with that a positive influence on the profitability. See figure 72.

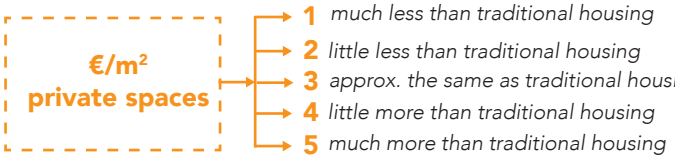


Figure 64. Level of influence on profitability through rental-income per square meter of lettable private space.

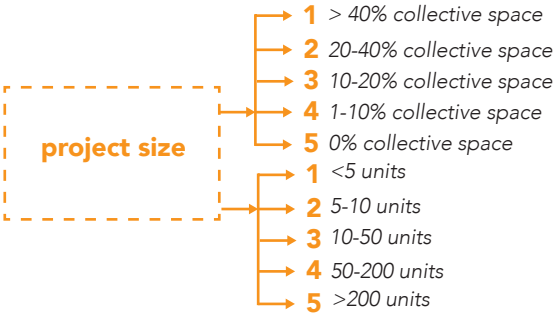


Figure 65. Level of influence on profitability through analysis of the costs of the project size based upon percentage of collective space and number of private units.

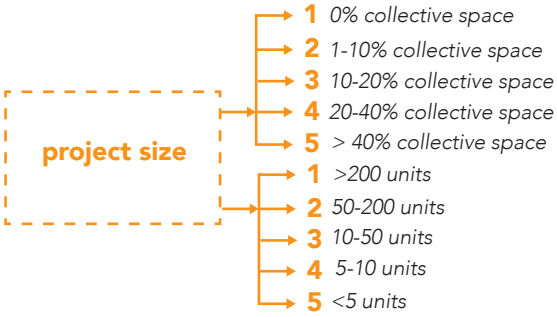


Figure 66. Level of influence on profitability through analysis of the risks due to project size based upon percentage of collective space and number of private units.

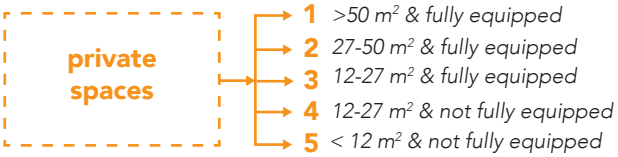


Figure 67. Level of influence on profitability due to costs through the configuration of the private spaces

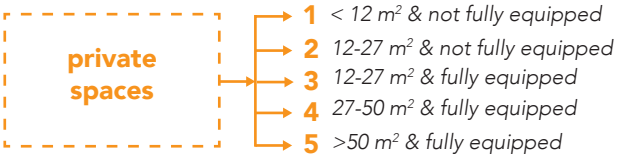


Figure 68. Level of influence on profitability due to risks through the configuration of the private spaces

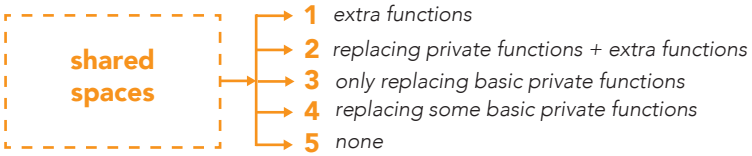


Figure 69. Level of influence on profitability due to costs through the configuration of the shared spaces.

Figure 70. Level of influence on profitability due to costs through the configuration of the shared spaces.

Operational characteristics

7.10.6. € income/services
The influence on the profitability of the income per square meter for services, is based upon what income is generated for the services that are provided. So not services included in the rent, but services that are charged separately, can generate extra income, levelling out the costs of the provided services. Here the more € is generated for the provided services, the more positive influence it has on the monthly income and thus on the profitability. See figure 73.

7.10.7.1. Leasing contracts [influencing costs]
The influence of the provided leasing terms of a co-living project, has both its influence on operational costs as well as vacancy risk. From the perspective of operational costs, the lower the flexibility and with that the overturn of residents, the lower the costs of repairing, cleaning and preparing the units for new residents as well as the administrative costs. Therefore, the lower the flexibility, the higher the positive influence on operational costs and with that on the profitability. See figure 74.

7.10.7.2. Leasing contracts [influencing risks]
As discussed above, the provided leasing terms of a co-living project has also its influence on the risk of vacancy. When the flexibility of the leasing terms is very high, the overturn of residence is also high. With a high overturn of residents, the risk on vacancy, like friction vacancy, increases. Therefore, low flexibility in leasing terms has a positive influence on the risk on vacancy and with that on the profitability. See figure 75.

7.10.8.1. Community & Lifestyle [influencing costs]
The influence on profitability of the facilitation of the community and the co-living lifestyle, is based upon meeting the desires for social connection of the projected users. Here, from the developer's point of view, the facilitation of the community has its influence on both the operational costs as well as the risk of vacancy. The more is facilitated and organized for the community the higher the operational costs from the developer's perspective. See figure 76.

7.10.8.2. Community & Lifestyle [influencing risks]
The level of influence of the characteristic of the 'facilitation of the community and lifestyle' is set on the number of different ways the operational management stimulates and facilitates the community within the co-living residence. Here the basis is set on the facilitation of collective spaces, being also the basic concept of co-living. The facilitation of the collective facilities only, does not yet improve the community that much, as stated by Crobach (2018) of Zoku. Therefore, facilitating activities or even a community manager improves the level of community sense and with that the attractiveness of the residence. The more is organized, the more attractive thus the less risk on vacancy. See figure 77.

7.10.9.1. Services [influencing costs]
The level of influence upon the costs through the providing of services, is the highest when many services are included in the demanded monthly rent. Here the number of services

Figure 71. Level of influence on profitability due to costs through the costs of location.

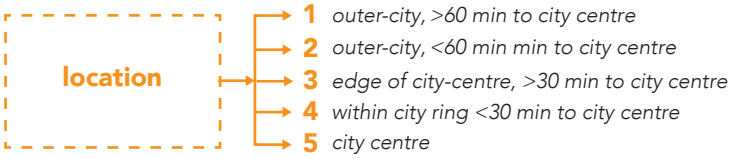


Figure 72. Level of influence on profitability due to risks through demand for type of location.

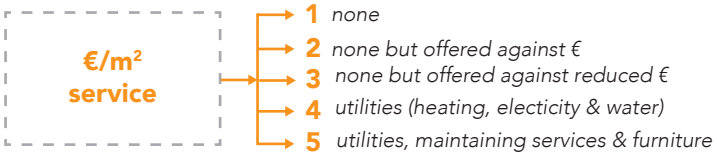


Figure 73. Level of influence on profitability through income generated by provided services

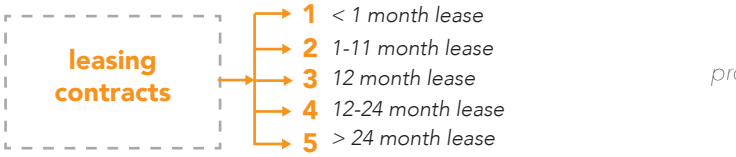


Figure 74. Level of influence on profitability through operational costs due to leasing terms

Figure 75. Level of influence on profitability through risks due to leasing terms.

Figure 76. Level of influence on profitability through operational costs due to the facilitation of the community.

Figure 77. Level of influence on profitability through vacancy risk due to the level of facilitation of the community.

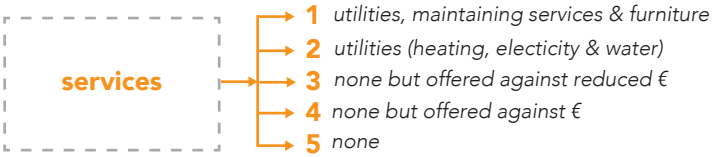


Figure 78. Level of influence on profitability through costs of providing services.

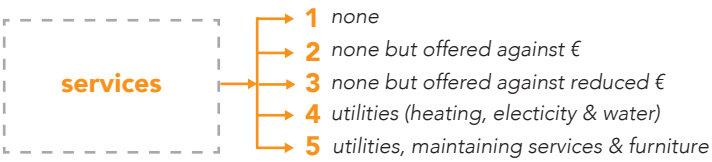


Figure 79. Level of influence on profitability through risk on vacancy based on level of provided services

included determines the level of influence on the costs, where the more is included the higher the costs are and with that the less profitable. See figure 78.

7.10.9.2. Services [influencing risks]
The providing of services in included in the rent are one of the desires of the projected users. Therefore, it adds to the attractiveness of the co-living location. The more is facilitated the more attractive it is for the users and with that the lower the risk on vacancy. See figure 79.

7.11 Analytical framework as a tool

The above described levels of influence represent the analytical tool in order to assess the configuration of the characteristics upon its level of influence on the affordability or profitability. In figure 80, these levels of influence are framed in a designed analytical tool sheet used in the following case studies. For a larger format, see page 59.

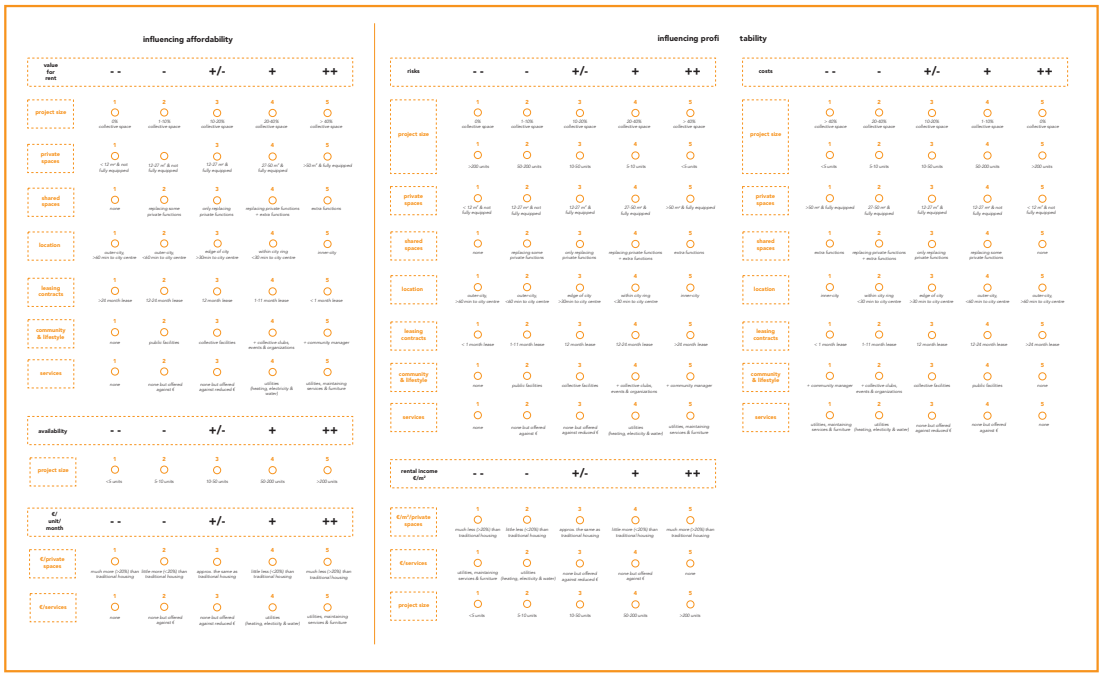


Figure 80. Analysing the different levels of influence upon affordability and profitability of the determinants

8 STATE-OF-THE-ART CO-LIVING a case study analysis upon affordability and profitability

8.1 Introduction to the case study analyses

With the understanding of the concept of commercial co-living, its physical and operational characteristics together with the here before discussed design of the analytical framework, the analysis upon the influence of the characteristics on the users-affordability and developers-profitability can be executed. As discussed in Chapter 2, table 1, a selection of 6 case studies is made based upon their configuration of the characteristics. These case studies will now be analysed upon their characteristics, followed by an analysis of their influence on the determinants for both affordability and profitability.

Within the case study analyses, in four case studies a wide elaboration upon the characteristics is provided. This counts for The Collecitve Old Oak, WeLive, Zoku and Urby, Staten Island. To complement the analyses of these four, two more case studies are conduced, yet less elaborately. This counts for the projects of Urby, Jersey City and The Fizz, Little Manhattan.

After conducting the six case studies and having analysed them upon their characteristical influence upon (the determinants of) affordability and profitability, conclusions in regards of the 2nd part of the posed research question are drawn.

8.2 Case Study Analysis 1: The Collective Old Oak

8.2.1. General description

The Collective Old Oak is an initiative of The Collective, a company that focusses on creating "ground-breaking spaces". (The Collective, 2018) Their first initiative was The Collective Old Oak in the city of London – and two projects currently in development - with the clear mission to "build a connected and more inspired world that's more alive, more together and more collaborative." (The Collective, 2018) From the believe that people are most alive when they are together, The Collective designed homes and workspaces that "inspire and bring people together, unlocking a new lifestyle for the curious and ambitious." Starting with a variety of private spaces –around 550 units starting a –£245 a week and ranging from 12 to 21 m2–, a vast collection of communal facilities is serving the entire complex together with a complete structure of service to reduce household shores and administrative hassle. The private possibilities range from a studio apartment with or without ensuite bathroom, a shared ensuite unit or a share ensuite with kitchenette. The collective spaces comprise out of a library, cinema, garden and roof terrace, laundrette, gym, spa, coffee shop, communal kitchens, dining rooms, lounge areas, a games room and another restaurant and bar. (The Collective, 2018) The main focus of The Collective is to create a local community and affordable urban living.

Factsheet

Location	London, UK	Year	2016
Size total (m2)	16.000 m2	Size (private units)	12-21 m2
Rental price /month (€)	Starting from €1195--	Private m2 / person	12 m2
Rental price/m2	€119,--/m2	Private + Col.* m2 / pers.	29 m2
Apartments #	323	Amount (private units)	551
Types	Studio, 2-bed	Private m2 total	(12*551 =)6612 m2
		Collective* m2 total	9388 m2

Table 11. Factsheet The Collective Old Oak

** Also considering other spaces like technical, public etc. Meaning other than private spaces*

Factsheet on rent-level

Traditional Housing				Co-living in The Collective Old Oak			
Type	€/unit	m2	€/m2	Type	€/unit	m2	€/m2
Studio	-			Studio	1433 €/unit	12 m2	€119,--/m2
1-bed	1.793 €/unit	50 m2	35 €/m2	1-bed	-		
2-bed	2.024 €/unit	65 m2	31 €/m2	2-bed	2.422 €/unit	24 m2	€101,--/m2

Table 12. Comparing rental prices in the same neighbourhood

8.2.2. Physical structure influencing affordability/profitability

8.2.2.1. Project size

The Collective Old Oak comprises out of 551 bedrooms housed within 323 residential units. (Wittham Cox, 2019) The 11-storey building of 16.000 m2 gross covers both communal and private spaces together with retail and co-working commercial spaces in the plinth. See table 13. In table 14, the calculated collective space in total and per resident of The Collective Old Oak is shown.

Size	# Apartments	# People
16.000 m2	323	551
Private m2 total	Collective m2	m2 co-living/person
6.612 m2	9.388 m2	29 m2

Table 13. Project size facts.

m2 private / person	m2 collective/person	m2 co-living / person
12 m2	17 m2	29 m2
0,41	0,59	1

Table 14. private versus collective versus co-living m2 per person

	Size	m2 per person	Fitting # person	Rent/person	Rent/m2	Rental income**
Traditional	16.000 m2	50 m2*	320	€1750	35 €/m2*	€560.000
Co-Living***	16.000 m2	29 m2	551	€ 1323	45 €/m2	€728.973
		1,7:1		1,3:1		

Table 15. Traditional housing versus Co-Living (studio) projected on project: conceptual calculation
** see following calculations on traditional rental prices and apartment sizes*
*** fictive rental income for comparison purposes and does not consider risks and costs*
****taking an average of 50/50 studio/2-bedroom*

What is interesting about this quick research as shown in table 15 is that the ratio in space per person between traditional housing and co-living is 1,7 to 1. Meanwhile, the ratio in rent per person is 1,3 to 1. What can be concluded here is that in the case of The Collective Old Oak, the space and rent ratios are not equal and with that the co-living concept will, in this case, always be more interesting, whatever the size of the project. Interesting in a sense, that it you need relatively more space for traditional housing where this same ratio is not returned in rental income.

Looking at the average co-living rent/m2 of €45, --, it is approximately 23% higher than the traditional housing square meter price of € 35, --. Taking only the square metre price, it should be concluded that the co-living concept in this situation is a more expensive choice and with that has a negative influence on the affordability.
Still, the above described situation is only the case in terms of price per square meters. When

taking the total rent per person a month, it is decreased and, as shown earlier, the amount of available housing units is increased. Including the collective spaces, the number of square meters 'used' by one person (29m2) is less than in the traditional sense. This means that due to the size of the project, the collective of communal spaces can be 'spread out' over a number of 551 inhabitants. This means that there is an efficient use of space.

8.2.2.2. Shared spaces
The building houses public functions used by inhabitants together with people from the neighbourhood as well as communal functions shared by its inhabitants.
The project contains the following types of collective functions housed in approximately 9.400 m2 (also considering other requirements like technical spaces, public spaces etcetera).

- Kitchens
- Spa
- Gym
- Restaurant
- Games Room
- Cinema
- Library
- Disco Launderette
- Co-working Incubator Hub
- Roof terrace

A total number of 9 different collective functions.

The configuration and spreading of the collective spaces are done by means of the type of collective functions. On the living floors homey functions like dining and cooking areas are included, also here called smaller collective functions shared by smaller groups of people. The more recreational and working functions, here called the larger collective functions used by the entire building, are located together in the plinth or on the roof. See figure 81.

Homey spaces
To complement the tiny private spaces and induce the liveability of such a tiny space, homey functions are located on the living floors. Communal eating areas but also larger communal kitchens make up for the tiny sitting area and pantry in the private units. Not on the living floors, but in the communal plinth the larger living room, or lounge area, is located where everyone comes together. Laundrette services are also located here, housing the laundry facilities that are not included in the private units.

Recreational spaces
The standard homey functions are complemented by recreational functions that, in a traditional housing situation, would be found in the city. Functions like a restaurant, cinema, and a gym are onsite, as well as a grocery store. The location on an industrial, up-coming redevelopment area, does not provide that many urban recreational functions. In order to facilitate its inhabitations and with that make up for the location, these functions are facilitated in house.

Work spaces
Besides co-living, is the Collective Old Oak also a co-working facility. In the plinth an entire floor is reserved for co-working. Besides working spaces, meeting and seminar complement the work environment as well as a library functions for a quieter workspace.

Mobility and outdoor spaces
There are no shared mobility functions in the Collective Old Oak, although they do provide secured bike parking. Still, there are services with a car-renting company possible on site. The rooftop terrace is completely open and used as communal outdoor space.
The complemented shared spaces, with all its variety in types as shown in table 16, offer all homey functions that are lacking in the private spaces, but then in a shared composition. On top of this, the Collective Old Oak offers a variety of functions that are in a traditional sense more urban facilities like recreational and office-like functions. With that, in comparison to traditional housing, you could say that the co-living concept offers 'more'.

8.2.2.3. Private space
The Collective Old Oak has two main options in the types of private units: a private studio (12 m2) and ensuite rooms (9,2 m2) with a shared kitchenette (5,8 m2) with one other room. The studio comes with a private bathroom and kitchenette, see table 17. The ensuite rooms also offer private bathrooms but share the kitchenette and is complemented with an extra dining table/desk, see table 18.

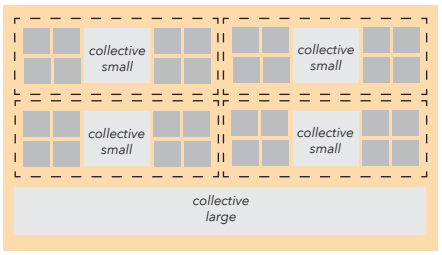


Figure 81. Configuration and spreading of the collective spaces

Home	Eating areas	Kitchens	Living Rooms	Laundrette			
	x	x	x	x			
Recreation	Gym/Spa	Retail	(Grocery)Store	Restaurant/Bar	Theatre/Cinema	Library	Event Spaces
	x/x		x	x	x	x	x
Work	Workspaces	Meetingrooms	Makerspaces				
	x						
Mobility	Bike Storage	Car Parking	Outdoor space	Pool			
	x		x				

Table 16. Collective facilities.

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x	x		x		x		x

Table 17. Private functions in a studio

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x			x		x		x

Table 18. Private functions in an ensuite

The offered sizes of private units ranging between 12 m2 (studio) and 24 m2 (shared ensuite). A traditional studio/1-bedroom apartment in the same area of London offers 50 m2 of private space. A 2-bedroom offers in comparison 65 m2. This means that, respectively that studios offer 76% less private square meters and the ensuite units offer 63% less square meters than the traditional option. See table 19 to 21.

Co-Housing Project	Studio	1-Bedroom	2-Bedroom	3-Bedroom	4-Bedroom
The Collective Old Oak	12 m2		24 m2		

Table 19. Sizes of private units

Traditional housing	Studio	1-Bedroom	2-Bedroom	3-Bedroom	4-Bedroom
London | White City	x	50 m2	65 m2		

Table 20. Sizes of traditional apartments in the same borough

The Collective Old Oak	1 pers unit	2 pers unit	Difference
Co-Living	12 m2	24 m2	76%
Traditional housing	50m2	65 m2	63%

Table 21. Difference in sizes of private units in the same borough

8.2.2.4. Project location

The project location is an emerging regeneration area of the London Borough of Ealing, Old Oak and Park Royal Development Area (Whittam Cox, 2019). The project is located at a 100 km distance from Central London but within a 7-minute walk to the subway station, with direct connection, taking less than 40 minutes, to the city centre. See table 22.

Distance to city centre	Time to city centre with Public Transport	Distance to Public Transport
100 km	40 min	7 min walk

Table 22. Project location in terms of distance to the city centre.

Rental price on location
The two images on prices in London (see appendix) show the rental-price per square feet for a one-bedroom apartment as well as the average rental price in the boroughs. The Collective Old Oak location of the project between Camden Town and Stanmore, is just outside the high-priced city centre. The average rental price of £ 26-28 /square ft/year, equals a €23 - €25 per m2/month for a one-bedroom unit in the White City area of the Collective Old Oak. See table 23 and 24.

Co-Housing project	Traditional Studio/ 1-Bed		Co-Housing Studio		Difference	
	Rent	Size	Rent	Size	Rent	Size
The Collective	35 €/m2	50 m2	119 €/m2	12 m2	+240%	-76%
	1.793 €/unit	50 m2	1.433 €/unit	12 m2	-20%	-76%

Table 23. Comparing co-living and traditional rental prices: studio

Co-Housing project	Traditional 2-Bed		Co-Housing 2-Bed		Difference	
	Rent	Size	Rent	Size	Rent	Size
The Collective	31 €/m2	65 m2	100 €/m2	24 m2	+222%	-63%
	2.024 €/unit	65 m2	2.422 €/unit	24 m2	+16%	-63%
			1.211 €/person			

Table 23. Comparing co-living and traditional rental prices: studio

Because of the lower ground prices, the more you get outside of the city centre, the development of The Collective Old Oak in this area in respect to the city centre is a more profitable approach as it reduces the costs. The risk on vacancy expected from the fact that the location is not preferable, is captured due to its location in close vicinity of public transport. Altogether, does the location outside the city centre have a positive influence on the profitability. From a user's perspective, is the location more affordable than comparable traditional housing options in the area. The quick connection to the city centre adds to the liveability on an outside-centre location.

8.2.3. Operational structure influencing affordability/profitability

8.2.3.1. Leasing contracts: short-term versus long-term

The Collective Old Oak offers a standard leasing term of 9 or 12 months. Some of the units are leased out for a shorter lease term of 4 or 6 months. In order to maintain the community feeling and inclusiveness, not all of the units are possible to lease for a shorter period of time. By housing as many people as long as possible, the Collective Old Oak really represents a long-term home for people instead of a short-stay location. Yet, the demand for flexibility in housing in an increasingly diversified life of its inhabitants, it is considered a service to lease out short-stay units. See table 25 and 26.

Short-stay		Long-stay Studio *			
Per day	Per week	Per 4 months	Per 6 months	Per 9 months	Per 12 months
Not possible	Not possible	€1608 / month	€1533 / month	€1484 / month	€1434 / month

Table 25. Lease prices dependent upon leasing term: studio

Short-stay		Long-stay Studio *			
Per day	Per week	Per 4 months	Per 6 months	Per 9 months	Per 12 months
Not possible	Not possible	€1385 / month	€1310 / month	€1261 / month	€1212 / month

Table 26. Lease prices dependent upon leasing term: 2-bedroom
**valuta changes calculated on the 19th of February 2019*

In order to capture this increased risk within the value based upon rent, The Collective reduced the risk through a rental increase for the leases with a higher risk profile. The leasing contract for 4-months is almost €200, -- a month more expensive – higher rent for the same unit– than a 12-month leasing contract. By doing this The Collective covers the higher risk percentage in the value, and with that rent, calculations.

From a user's point of view, the tenant is as a starting-point offered the traditional 12-month leasing term for a certain rent-level. Yet, if the user would prefer the extra service of a more flexible contract, the possibility is offered within The Collective, although for a higher rental-price. Here the desires of the user weigh out against a higher rent-level, or in other words: flexibility has its price within The Collective.

8.2.3.2. Facilitating the community

One of the main striking characteristics of co-living is its community factor. In The Collective Old Oak the community is facilitated through several means. An on-site 'community team' serves the sole task of enabling the community activities, social interaction and with that the 'community feeling'. Through the organization of events, like yoga classes, film nights, creative workshops and live music and facilitating clubs or organizations serving inhabitants with the same interests the onsite community team helps building and maintaining the sense of community within The Collective Old Oak. See table 27.

Events	Activities	Clubs/Organizations	Community Manager
x	?	x	x

Table 27. Operational organization for community management

The facilitation and maintenance of the community within the block, is considered of great importance to the success of the project. From a user's perspective, the community – being part of a community – is one of the drivers for co-living. Facilitating collective spaces which are underused, does not stimulate the quality of living on site. By stimulating the use of these spaces complemented with events and activities, the community development is facilitated. This community and collective lifestyle are an extra on top of the private living facilities, and is considered as an extra value for rent.

From a developer's point of view, the value of the proper facilitation of the community is also of great importance. By creating an attractive community, the desire to join and live on this specific property can be increased. By having the community function as an incubator and attractor the risk of vacancy can be reduced.

8.2.3.3. Services: all-inclusive formula

The Collective Old Oak does not only present itself as a choice for collective living, but also a choice for convenience. Included in the monthly rent, is not only the sole-use of the private unit and collective use of the communal facilities. It also includes many services introduced to facilitate a high level of living-convenience. This convenience is facilitated through several means. First of all, the private units are fully-furnished. Cleaning services and linen changes are also included. Wi-Fi access and onsite maintenance services together with property security are also contributing to the convenience level all included in the rental price. See table 28.

Furnished	Linnen & Towels	Laundry	Cleaning	Wi-Fi	TV	Maintenance	Tailoring	Mobility Rental	Security
x	x		x	x		x		x	x

Table 28. Extra services included in the rent for the private unit

The facilitation of these services has its influence on the affordability and profitability of the project. First of all, the fact that all private-units are fully-furnished saves upon moving costs and costs of acquiring furniture. From an operational point of view, it also saves upon damage costs due to movements. Cleaning services and linen changes, saves the user or costs in acquiring these services externally or time to take upon these chores himself, where could be said that this time also equals missing out on possible earnings. Also, the included Wi-Fi and maintenance services saves upon the costs of acquiring this externally. Altogether it could be said, that the all-inclusive formula of the Collective Old Oak positively influences the user-affordability.

Yet, from a developer's point of view it is different. From one side, the facilitation of a high-service level contributes to the convenience and with that meeting users desires and increasing the demand for living at The Collective Old Oak. This would reduce the possible risk on vacancy. Though, on the other side, are the costs of these services included in the monthly rent. This pressure the developer's value of the rent (R). Although the costs are relatively lower than if every inhabitant would acquire these services themselves, as the quantity of the project lower the costs per unit. What should be noted here, is that the as the square meter price for the co-living situation of The Collective Old Oak is already much higher than its traditional comparison. With that it could be assumed that the costs for provided the services for its users, are covered within the higher square meter price.

8.2.4. Conclusions on The Collective Old Oak case study

The influence of the characteristics upon the determinants of affordability and profitability are derived from the case study analysis, and concluded in the following. By using the developed measurement tool (see figure 82) to determine the 'level of influence', an insight is given in how the physical and operational characteristics of The Collective Old Oak co-living project influence the affordability and profitability (see figure 83).

8.2.4.1. An analysis in influence of the characteristics upon the affordability

In the following the characteristics of the case study of The Collective Old Oak and its influence on the three determinants for affordability are discussed.

8.2.4.1.1. Conclusions on characteristics

Determinant of value for rent

Project size

The project of The Collective Old Oak offers almost 60% of its square meters collective facilities. This results in much extra meters provided on top of the private units. With that it increases the living space immensely and offers a very positive influence on the value for rent.

Private spaces

The private spaces of 12m2 are set on a bare minimum in terms of private space. The units are almost completely equipped, yet only the kitchen is not a fully-equipped kitchen but a kitchenette. Private bathing facilities and an eating area/desk are included in the private units. With smart interior design the 12m2 is maximized in terms of use. Yet, being much smaller than the micro-living standard and not fully equipped, the configuration of the private spaces has a negative influence on the value for rent.

Shared spaces

The collective of squared meters consists out of homey functions replacing the lack of space and facilities in the private units together with working and recreational functions that are an extra on top of basic living functions. Therefore, the configuration of the shared spaces has a positive influence on the value for rent.

Location

The location of The Collective Old Oak, on the edge of the city but within 45 minutes by public transport to the business district is not the most desired location but gives its residents a proper connection to the city centre. With that the location can be considered of a neutral influence to the value for rent.

Leasing contracts

As The Collective Old Oak offers leases starting from already 4 months, it offers a relative flexibility in comparison to the traditional leasing term of a minimum of 12 months. Therefore, the lease terms of the project have a positive influence on the value for rent.

Community & Lifestyle

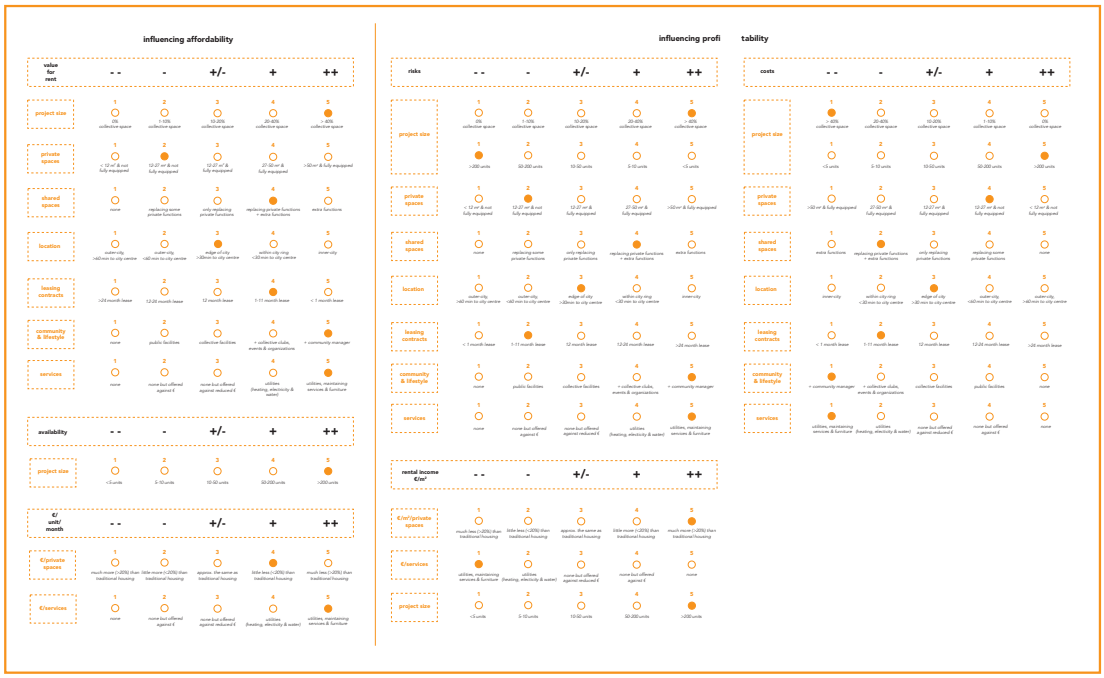


Figure 82. Filled in measurement tool of level of influence of the characteristics of The Collective Old Oak on the affordability and profitability.

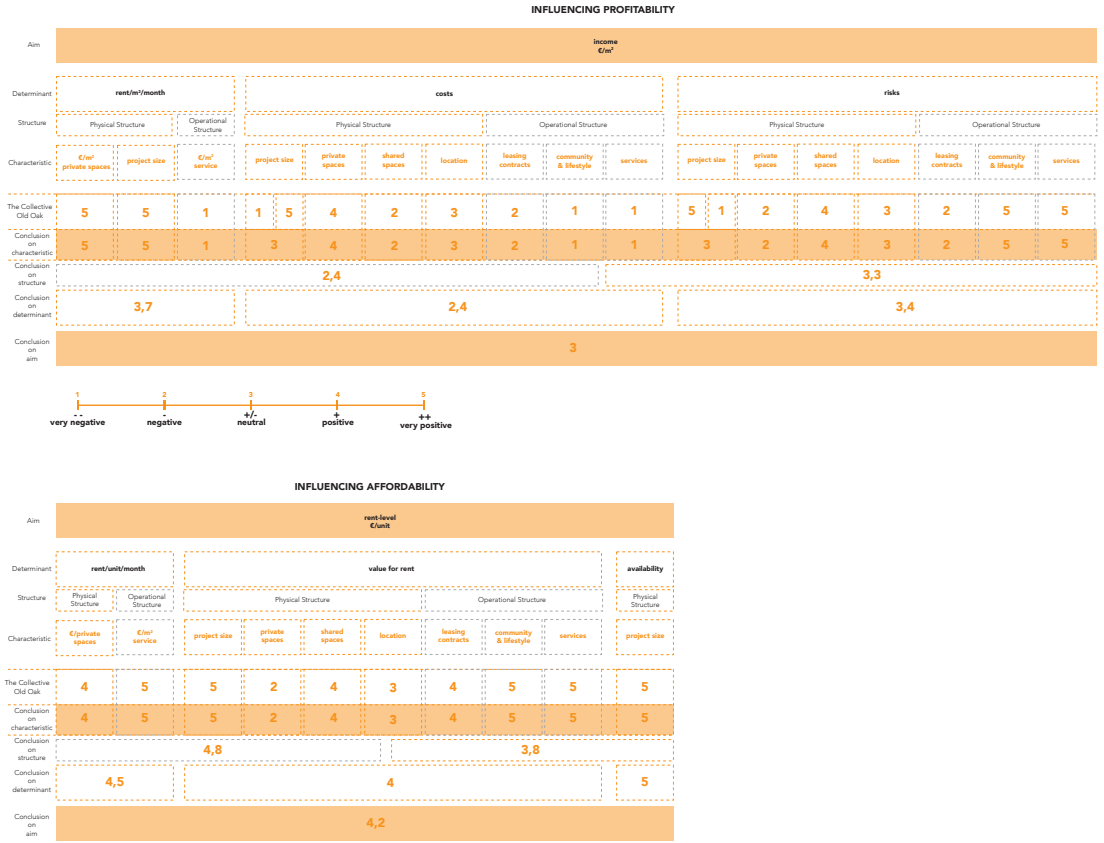


Figure 83. Level of influence of characteristics upon determinants of affordability & profitability within the case study of The Collective Old Oak

The community of The Collective Old Oak is stimulated through collective facilities, events, organizations and clubs and an on-site community manager. With this the general community organization has a very positive influence on the value for rent.

Services
All utilities, cleaning and maintenance services, mobility rental and even furniture are included with the monthly rent in The Collective Old Oak. Therefore, the facilitation of the services has a very positive influence on the value for rent.

Determinant of availability
Project size
As the project houses over 500 private units, the availability of housing is of a relative very high level within the project. Therefore, the project size has a very positive influence on the availability.

Determinant of monthly costs per private unit
€/Private spaces
As the total rental prices of the private units is 20% lower than the traditional one-person housing apartments in the same urban area, the characteristics of monthly costs per private unit has a positive influence on the affordability.

€/Services
As all services, ranging from cleaning services, maintenance and furniture, is included in the rent level, this has a very positive influence on the affordability of the monthly costs per lease of private unit.

8.2.4.1.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the affordability is of a positive influence. This means that generally speaking, all physical characteristics taken together (=4) they have a positive influence on the affordability.

Looking in to the general influence of the operational characteristics, they have a very positive influence on the affordability. This means that generally speaking, all operational characteristics of The Collective Old Oak taken together (=4,8) they have a (positive to) very positive influence on the affordability.

8.2.4.1.3. Conclusions on determinants

Monthly costs per private unit
Looking at the two characteristics that influence the monthly rental costs per private unit, it is clear, in considering them equal in importance of influence, that taking them together results in a positive to very positive influence (=4,5) on the monthly costs per private unit determining the affordability. What should be noted is that this does not indicate that the affordability is neutral in comparison to traditional housing, but that the two characteristics influencing the determinant of monthly cost per private unit in average have a positive to very positive influence.

Value on rent
Taking all the characteristics that influence the value for rent, both physical and operational characteristics, the average represents a positive influence (=4) on the value for rent determining the affordability.

Availability
Being only analysed in terms of project size, the same conclusion can be drawn as for the characteristic on its own: the project size has a very positive influence (=5) on the availability that determines the affordability of the project.

8.2.4.1.4. Conclusion on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of affordability, it could be concluded that the characteristics have a positive (to very positive) influence (=4,2) on the affordability.

8.2.4.2. An analysis in influence of the characteristics upon the profitability
In the following the characteristics of the case study of The Collective Old Oak and its influence on the three determinants for profitability are discussed.

8.2.4.2.1. Conclusions on characteristics

Determinant of costs
Project size
As the project uses more than 40% for collective facilities, with on top of homey functions many extra working and recreational facilities, the costs without direct return through rent, is relatively high. These spaces require not only costs on development but also operational costs for management and maintenance. Therefore, the project size in terms of amount of collective space has a very negative influence on the development and operational costs determining the profitability.

Yet, the number of units – more than 500 – that are housed, offers the opportunity for quantum benefits in terms of cost spreading. Therefore, the project size in terms of number of private units has a very positive influence on the development costs determining profitability.

Taking the two together, the project size has a neutral influence (=3) on the development and operational costs determining the profitability.

Private spaces
The configuration of private spaces - of 12 m2 and not fully equipped – although the costs per square meter most probably higher than with traditional housing due to its efficient use of space, the total costs per unit are lower than with a traditional housing unit because of its size and because it is not fully equipped. Therefore, the configuration of the private spaces has a positive influence on the costs.

Shared spaces
The shared spaces consist first of all out of homey functions that are complementary to the missing functions in the smaller private units. Secondly the project houses a large variety in working, recreational and outdoor functions for collective use. Altogether the project houses many extra functions besides the basic homey functions. The development of those facilities results in a negative influence on the costs that determine the profitability.

Location
As the location is on the edge of the city centre, but close vicinity to public transport in an upcoming area of London, the costs for the ground are relatively lower than in the city centre. Being a medium-desired location, not in the city centre but also not outside the city, the location has a neutral influence on the ground costs and with that on the development costs.

Leasing contracts
The relative high flexibility – being able to lease starting from 4 months -, comes with a relative high overturn of tenants which results in relatively high costs for preparing, cleaning and administrative costs of operations. Therefore, the leasing terms of The Collective Old Oak have a negative influence on the operational costs.

Community & Lifestyle
The facilitation of the community through collective facilities, events and by taking on a community manager, demands high (development and) operational costs of facilitating the community on such a high level. This results in a very negative influence on the operational costs.

Services
By providing many services as cleaning, maintenance and even furniture included in the monthly rent, this requires extra costs of development and operations. Therefore, the service characteristic of The Collective Old Oak has a very negative influence on the operational costs.

Determinant of risk
Project size
As the collective spaces cover almost 60% of the project, the living space that is complemented on top of the private spaces is of a great amount. This increases the total amount of co-living space per person and with that the quality of living space and the attractiveness of the residence. Therefore, the project size in terms of amount of collective space has a very positive influence on the attractiveness and with that reduces the risk on vacancy.

Yet, housing more than 500 private units, the risk on vacancy is also increased due to the high number of lettable units. In this sense the project size has a very negative influence on the risk on vacancy.

Taking these two together, one could say that the project size in general has a neutral influence on the risk on vacancy.

Private spaces
As the configuration of the private units is very small (12 m2) and are not fully equipped, the attractiveness of the private units is very little. Therefore, the configuration of the private units has a negative influence on the risk on vacancy.

Shared spaces
The shared spaces consist first of all out of homey functions that are complementary to the missing functions in the smaller private units. Secondly the project houses a large variety in working, recreational and outdoor functions for collective use. Altogether, the homey functions are complemented with many extra functions and with that the living space is increased immensely. Altogether this results in a positive influence on the attractiveness and with that on the risk on vacancy.

Location
The location of The Collecitve Old Oak on the edge of the city but within 45 minutes of traveling distance by public transport to the city centre, has with its balance of city-edge location but in proper traveling distance to the city centre a neutral influence on the attractiveness and with that on the risk on vacancy.
Leasing contracts
The relative high flexibility of being able to lease starting from 4 months, answers to the user's desire of leasing flexibility. Therefore, the leasing contracts of the Collective Old Oak have a positive influence on the attractiveness and with that on the risk on vacancy.

Community & Lifestyle
The facilitation in many different ways of the sense of community, through spaces, events and a responsible community manager, the attractiveness of joining the community is increased. With that the community has a very positive influence on the risk on vacancy.

Services
As a variety of services are offered and included in the rent, the attractiveness of the residence is increased and with that the characteristic of services has a very positive influence on the risk on vacancy.

Determinant of rental income/m2/month
Project size
The size of the project with over 500 units allows for a very high number of lettable units. Therefore, the size of the project has a very positive influence on the total rental income per square meter per month.

€/m2/Private spaces
The square meter price of the private units of The Collective Old Oak are almost 70% higher than comparable traditional apartments in the same area. Therefore, the rental price per square meter for private spaces has a very positive influence on the rental income per month and with that on the profitability.

€/m2/Services
As all offered services are included in the monthly rent, without any refunding in return, this has a very negative influence on the rental income per month.

8.2.4.2.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the profitability is of a neutral to positive influence. This means that generally speaking, all physical characteristics taken together (=3,3) they have a neutral (to positive) influence on the profitability.

Looking in to the general influence of the operational characteristics, they have a negative influence on the profitability. This means that generally speaking, all operational characteristics taken together (=2,4) they have a negative (to neutral) influence on the profitability.

8.2.4.2.3. Conclusions on determinants
Costs
Taking all the characteristics that influence the development and operational costs the average represents a negative (to positive) influence (=2,4) on the costs determining the profitability.

Risks
Taking all the characteristics that influence the risks (on vacancy) together, the average represents a neutral (to positive) influence (=3,4) on the risks determining the profitability.

Rental income/m2/month
Taking the three characteristics that influence the monthly rental income, it is clear in considering them equal in importance of influence, they balance each other out (influence level 1 to 5) which results in a generally taken (neutral to) positive influence (=3,7) on monthly rental costs determining the profitability. What should be noted is that this does not indicate that the profitability is neutral in comparison to traditional housing, but that the three characteristics influencing the determinant of monthly rental income per square meter of private unit in average have a neutral influence.

8.2.4.2.4. Conclusions on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of profitability, it could be concluded that the characteristics have a neutral influence (=3) on the profitability.


MONEY & IN
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NEW YO
WALL S
YORK

8.3. Case Study Analysis 2: WeLive, New York

8.3.1. General description

The WeLive initiative was an evolution from the earlier initiated concept of WeWork, of which the first buildings were developed in 2010 and now occupy 171 locations over 18 countries. (WeWork, 2018)

With WeLive, two complexes are developed in New York and in Seattle. Their mission statement is as follows: "WeLive is a new way of living built upon community, flexibility, and a fundamental belief that we are only as good as the people we surround ourselves with. (…) WeLive challenges traditional apartment living through physical spaces that foster meaningful relationships. Life is better when we are part of something greater than ourselves." (WeLive, 2018) The WeLive complex in New York houses around 200 private units.

With the possibility to move in for months, or just stay for a few nights, WeLive actually represents more of a hotel concept. (WeLive, 2018) The private unit possibilities range from studio units to 1, 2 or 3+ bedroom units ranging from 41 to 92 m2. Each private unit is outfitted with living and sleeping areas, a kitchen and a bathroom. The collective facilities comprise out of fitness spaces, laundrette, workspaces and access to the WeWork buildings, communal chef kitchens and other "dynamic common areas". Besides private and collective facilities, many household shores are taken away and part of the service of the WeLive concept. (WeLive, 2018) Pricing ranges from $3.050 a month for a private studio to $1900 (total starting at $7600) a month per person for a four-bedroom unit. (WeLive, 2018) The main focus of the WeLive concept is to create a local community and facilitate a comfortable way of living.

Factsheet on basics

Location	New York, USA	Year	2016
Size total (m2)	27372 m2 total building 20.275 m2 WeLive (20 fl), 6.083 m2 WeWork (6 fl), 1013 m2 plinth commercial	Size (private units)	41- 93 m2
Rental price /month (€)	Starting from €2799--	Private m2 / person	+- 41 m2
Rental price/m2	€ 60 /m2	Private + Col.* m2 / pers.	56 m2
Apartments #	207	Amount people	360
Types	Studio, 1-bed, 2-bed, 4-bed	Private m2 total	14.760 m2
Floors	27 (6 for coworking, 21 for co-living)	Collective* m2 total	5515 m2

Table 29. Factsheet on basic information of WeLive
** Also considering other spaces like technical, public etc. Meaning other than private spaces*

Factsheet on rent-level

Traditional Housing*					Co-living in WeLive				
Type	€/unit	m2	€/m2	€/person	Type	€/unit	m2	€/m2	€/person
Studio	€ 2989	51 m2	€58 /m2	€ 2989	Studio	€ 2490	41 m2	€60 /m2	€ 2490
1-bed	€ 3829	64 m2	€59 /m2	€ 3829	1-bed	x			
2-bed	€ 6130	108 m2	€56 /m2	€ 3065	2-bed	x			
3-bed	€ 8654	154 m2	€56 /m2	€ 2885					
4-bed	-				4-bed	€ 6701	93 m2	€72 /m2	€ 1675

Table 30. Comparing rental prices in the same neighbourhood
** Prices are set on the valuta of 20-02-2019*

Size WeLive	# Apartments	# Floors	m2 co-living/unit
20.275 m2	207	20	56 m2
Private m2 total	m2/floor	# People*	Average rent/person
14.760 m2	1013 m2	360	€2533**
Collective m2		People per floor*	
5.515 m2		18	

Table 31. Project sizes
** calculations based upon information of one floorplan. Reality may divert slightly from these calculations.*
*** average rent taken per person, fictive calculations*

Total m2	Collective m2	Private m2
20.275 m2	5.515 m2	14.760 m2
1	0,27	0,72

Table 32. Ratio collective versus private m2

m2 private / person	m2 collective/person	m2 co-living / person
41 m2	15 m2	56 m2

Table 33. Private versus collective versus co-living m2 per person

	Size	m2 per person	Fitting # person	Rent/person	Rent/m2	Rental income**
Traditional	20.275 m2	61 m2* /***	332	€2989	49 €/m2*	€992.348
Co-Living	20.275 m2	56 m2	360	€ 2533	45 €/m2	€911.880
		1:0.91		1:0.94	1:0.92	

*Table 34. Traditional housing versus Co-Living (studio) projected on project: conceptual calculation***
** see following calculations on traditional rental prices and apartment sizes, 51 m2*
****taken here as gross m2 = rental m2 *a factor of 1,2. The gross meters consider the technical and circulation spaces as well as the buildings construction. The Co-living meters are always gross.*

8.3.2. Physical structure influencing affordability/profitability

8.3.2.1. Project size

The project is located in a 27-storey refurbished office building, with a total size of 27.372 m2. Within this building both a WeWork (a co-working venture of the same entrepreneurs as WeLive) and a WeLive settlement is located, together with a commercial plinth. Starting at the second floor, 6 floors are reserved for co-working, where the other 20 floors house co-living units and facilities. Within the co-living floors, 207 housing-units are located housing around 250 residents. See table 31 to 34.
The ratio between amount of square meters per person and the rent per person differs slightly, yet indicates an relative 'higher' housing costs for co-living in comparison to traditional housing. Analysing the square meter price for the total amount of co-living meters per person, it is lower

than the income per square meter in traditional living.

8.3.2.2. Shared spaces
Beside the commercial plinth, the WeLive location houses a variety of communal functions. The project contains the following types of collective functions housed in approximately 5.515 m2 (also considering other requirements like technical spaces, public spaces etcetera).

The configuration and spreading of the collective spaces are done through the type of collective functions, see figure 84. On the living floors homey functions like dining, cooking and smaller living areas are included, also here called smaller collective functions shared by smaller groups of people. The more recreational and working functions, here called the larger collective functions used by the entire building, are located together in the plinth and some on the roof.

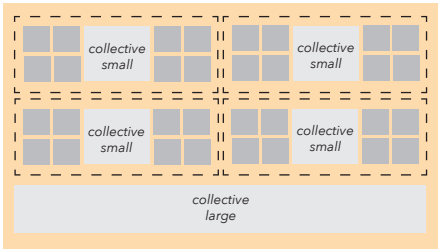


Figure 84. Configuration and spreading of the collective spaces

Homey functions
On every one of the 20 living-floors, the private apartments are complemented with a communal zone with large kitchen facilities, living area and eating area. These communal spaces are connected with either the upper or the lower floor, in order to stimulate even more cohesion between the floor-communities.

Recreational functions
The recreational functions with the WeLive location range from gym-facilities, to a games room, a bar to host events and collective outdoor space.

Work functions
As the lower 6 floors of the building houses a WeWork location, the other venture of the same entrepreneurs as WeLive. Although the WeLive location itself does not facilitate working spaces or office-like spaces, all residents of WeLive get a discounted subscription to the WeWork facilities.

Outdoor/Mobility functions
On site there is a bike storage for sole use of the WeLive and WeWork users. Collective outdoor space equipped with jacuzzies and other amenities is for sole use of the WeLive residents.

Home	Eating areas	Kitchens	Living Rooms	Laundrette			
	x	x	x	x			
Recreation	Gym/Spa	Retail	(Grocery)Store	Restaurant/Bar	Games Room	Library	Event Spaces
	x/-				x		x
Work	Workspaces	Meetingrooms	Makerspaces				
	X (wework)						
Mobility	Bike Storage	Car Parking	Outdoor space	Pool			
	x		x				

Table 35. Collective facilities in WeLive.

From a user's perspective, considering that the WeLive location facilitates fully-equipped relatively largely sized private units, the location offers many extra perks with the facilitated collective functions. In a city where space is limited, the combination of relatively large – for co-living standards – private spaces with extra collective spaces, concludes extra value for the monthly rent.

From the other perspective, the combination of fully-equipped private units, together with the developing of shared facilities pressures from two directions on the costs: costs for all facilities in the private units as well as costs for the extra communal facilities.

8.3.2.3. Private space

The private spaces in the WeLive location are fully equipped and very much equal to a traditional sized and equipped apartment. The units house fixed and flexible sleeping areas, living areas and kitchen and dining facilities. In the studio and one-bedroom units the bathrooms are private, but in the larger units for 2 tot 4 people the bathing facilities are shared among the flat-mates. See table 36 and 37 and image 9 (in appendix). In order to provide in comfortable shared-bathing facilities, the shared apartments have two toilet facilities.

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x	x	x	x		x

Table 36. Private functions in a studio

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x		x			x

Table 37. Private functions in a 4-bedroom

Although WeLive facilitates many varieties in the private units, the average square meters per unit are given below in table 38. Striking is that the difference in amount of square meters does not differ more than 20% with the average of traditional housing in the same district.

WeLive	Co-Living	Traditional	Difference
Studio	41 m2	51m2	19 %
1-person unit		58 m2	
2-person unit		108 m2	
3-person unit		154 m2	
4-person unit	93 m2		

Table 38. Difference in sizes of private units in the same borough

From the developer's perspective, you could say more that the WeLive project could be more profitable as the sizes of the apartments are still smaller than the traditional apartments. Yet it should be taken in to account that the private units are complemented with collective facilities. Also, the private units are fully-equipped, which even multiple bathing facilities in the shared units. This puts relative high pressure on the unit costs. Where 51m2 of traditional housing has 1 bathroom and 1 kitchen, now 41m2 of co-living housing has 1 bathroom and 1 kitchen. The same counts for the shared units. Where a traditional 3-person unit has 1 bathroom and 1 kitchen in 154 m2, in the WeLive co-living situation the 4-pers unit has 2 bathrooms and 1 kitchen on 93 m2.

8.3.2.4. Project location

The location of the project on 110 Wallstreet is set in the financial district of Lower Manhattan. The location could be rated as a city centre location in walking distance of the central business district. See table 39.

Distance to city centre	Time to city centre with Public Transport	Distance to Public Transport
0 km	0 min	Walking distance to subways

Table 39. Locational distance to city centre.

The availability of housing serving a large group of people on such a high desired, central city location, influences the affordability positively. Yet, on the other side -developers perspective-, it could be said that the facilitation of housing on such a central city location results in a relatively high ground prices in comparison to a location outside the city centre (but for example close to public transport). Asking relatively lower rental prices per square metre, on such a high desired location, should negatively influence the profitability. Providing housing on such desired location does answer to the high demand in the area and with that reduces its risk on vacancies.

8.3.3. Operational structure influencing affordability/profitability

8.3.3.1. Leasing contracts: short-term versus long-term

The WeLive location offers both short-stay and long-stay leasing contracts. Short-stay already possible starting at one-day, with that functioning as a hotel-like function. The long-stay leasing contracts starts already at one-month leases.

The differences between short-stay and long-stay pricing is more than 300%. With that, the flexibility that is offered on the location in leasing contract under one month, has a large impact on the price-level. Still, the long-stay pricing already starts at one-month leases. With that it

could be said that the flexibility is also relatively high (in comparison to 12 months in traditional housing) for the long-stay contracts.

The high pricing in the short-stay contracts, which represent more hotel pricing and terms than housing pricing and terms, answer to the high vacancy rate hotel-functions like this have. With that it could be said that the high pricing levels out the high-risk level. Still, the long-stay contracts already start at one-month leases, offering the users the level of flexibility they desire. Yet, this also results in a possible high flow of new tenants and with that a high change on vacancies. Therefore, the offering of one-month leases instead of the traditional 12-month leases increases the risk on vacancy.

Short-stay (less than 28 days)			Long-stay (at least 1 month)		
	Per day	Per person	Per 1 month	Per person	Per 12 months
Studio	€291	€291	€2799	€2799	€1434 / month
Studio+	€322	€322	€2931	€2931	
1-bed	€348	€348	€3390	€3390	
1-bed+	€419	€419			
2-bed	€454	€227	€4853	€2426	
3-bed			€5947	€1982	
4-bed	€542	€135	€6701	€1675	
Average	€396	€290	€4436	€2533	

Table 40. Rental prices based upon leasing terms.
**valuta changes calculated on the 19th of February 2019*

Days	Short-stay studio pricing	Long-stay studio pricing	Difference
1	€291	€90	323%
31	€9021	€2799	

Table 41. Comparing rental prices based upon leasing terms

8.3.3.2. Facilitating the community

WeLive organizes weekly events to stimulate the social connection between inhabitants and enhance the coexistence. These events and activities range from happy hours, family dinners to wellness events, which sometimes require a small fee. See table 42.

Events	Activities	Clubs/Organizations	Community Manager
x	x	-	-

Table 42. Operational organization for community management

This community and collective lifestyle are an extra on top of the private living facilities, and is considered as an extra value for rent.
From a developer's point of view, the value of the proper facilitation of the community is also of great importance. By creating an attractive community, the desire to join and live on this specific property can be increased. By having the community function as an incubator and attractor the risk of vacancy can be reduced.

8.3.3.3. Services: all-inclusive formula

The WeLive location offers a variety in services. These services are sometimes included and sometimes not included in the monthly rent. All apartments come fully furnished and the kitchen is fully equipped. WeLive charges every new tenant a one-time fee of $200, -- (which equals €176,--) to cover the 'moving expenses' of the use of this furniture and equipment.
WeLive also charges a monthly amenities fee of $125, --. This includes the use of the laundry facilities are on site, monthly cleaning services of the private units, Wi-Fi connection in the building and on-site security. See table 43.

As WeLive charges its residents a one-time moving fee as well as monthly amenities fee, the benefits of the arranged services are not visible in the monthly rent. Although everything is facilitated and organized which gives in that sense an extra value by saving the time of the residents, it does not show in the monthly rate as the resident is charged a fitting fee. In terms of the facilitation of furnishings, it does have a positive influence on the affordability as the resident does not have to take care of that when moving in.
From a developer's perspective, facilitating the services the fees are covering the expensed made for organizing these services and its costs. Offering the services adds to the attractiveness of the location for tenants and with that influences positively the risk on vacancies. Although the amenities fee largely cover the expenses made for this service, the moving fee does not as the costs of the furnishing of the apartments are more than the charged €176, --. This fee mostly covers repairing and maintenance after a tenant moving out.

Furnished	Linnen & Towels	Laundry	Cleaning	Wi-Fi	TV	Maintenance	Tailoring	Mobility Rental	Security
x			x	x		x		x	x

Table 43. Extra services included in the rent for the private unit

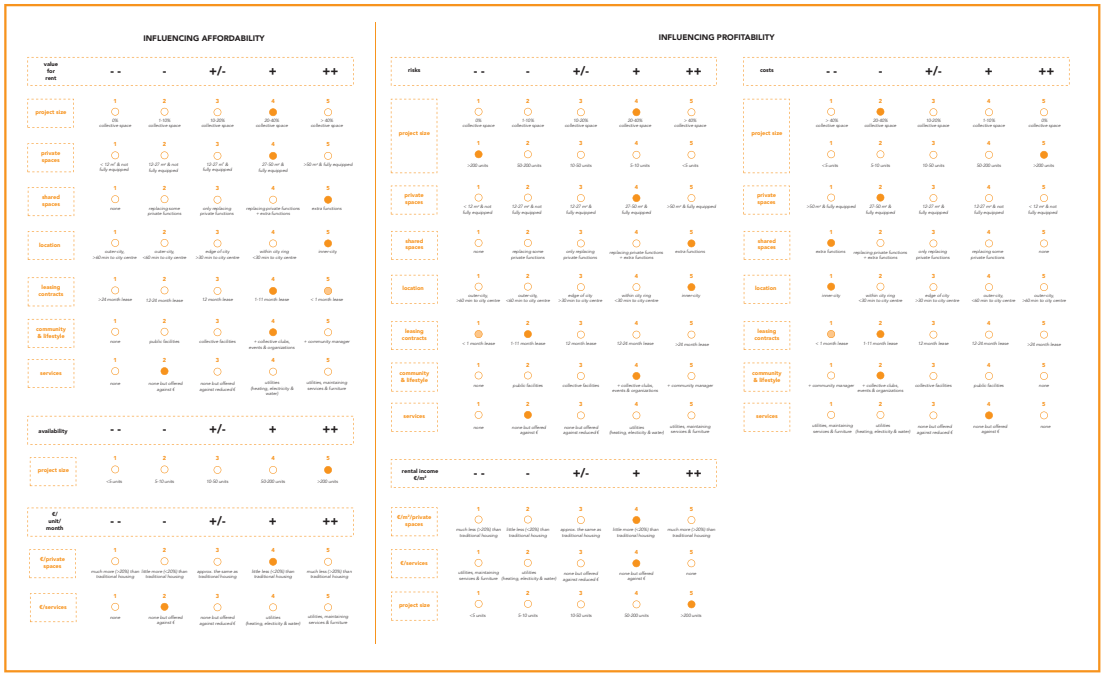


Figure 85. Filled in measurement tool of level of influence of the characteristics of WeLive on the affordability and profitability.

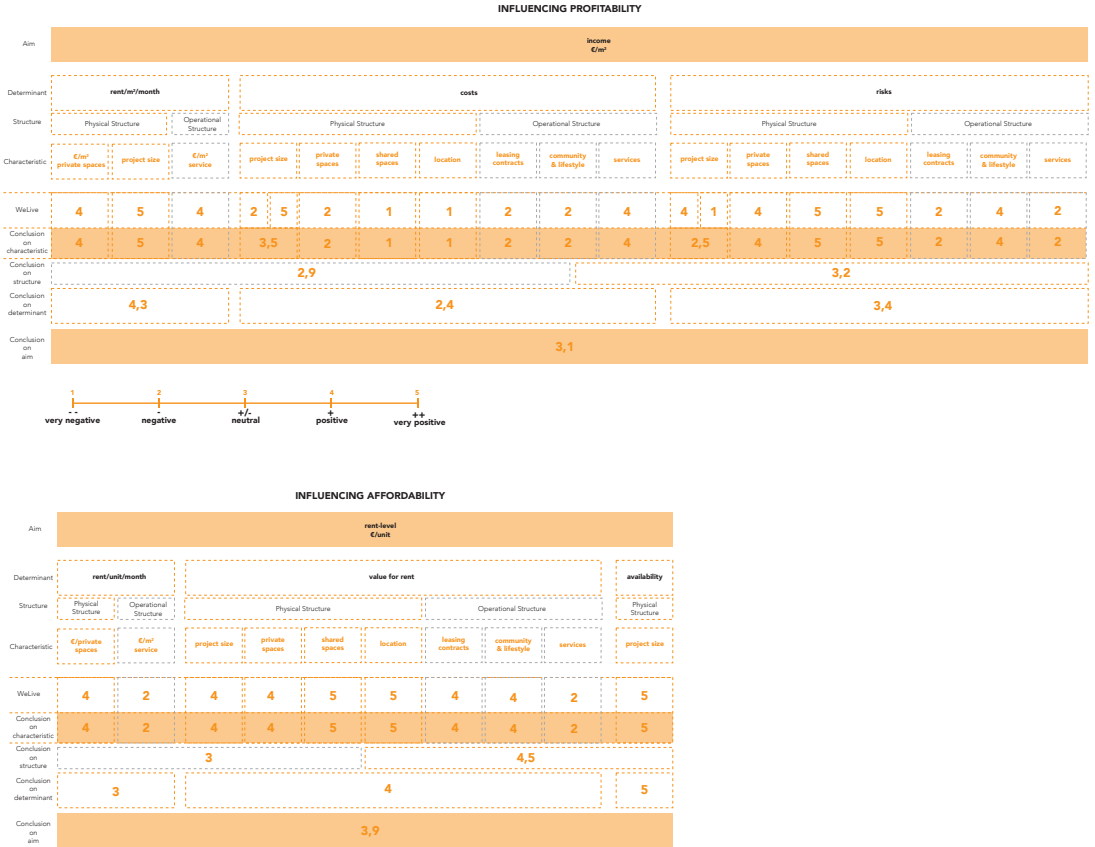


Figure 86. Level of influence of characteristics upon determinants of affordability & profitability within the case study of WeLive

8.3.4. Conclusions on WeLive case study

The influence of the characteristics upon the determinants of affordability and profitability are derived from the case study analysis, and concluded in the following. By using the developed measurement tool (see figure 85) to determine the 'level of influence', an insight is given in how the physical and operational characteristics of WeLive co-living project influence the affordability and profitability (see figure 86).

8.3.4.1. An analysis in influence of the characteristics upon the affordability

In the following the characteristics of the case study of WeLive and its influence on the three determinants for affordability are discussed.

8.3.4.1.1. Conclusions on characteristics

Determinant of value for rent

Project size

Of the total number of square meters of the project of WeLive, 27% is occupied by collective facilities. This is considered above required for collective basic needs (20%) and with that adds extra living quality for the users. Therefore, it could be concluded that the project size has a positive influence on the value for rent.

Private spaces

The private units of the WeLive residence consist out of 41 m2 of private space and have a fully equipped bathroom and kitchen. With this configuration it has almost the same characteristics as a traditional one-person apartment. With this configuration it has a positive influence on the value for rent.

Shared spaces

The shared spaces consist first of all out of homey functions that are complementary to the missing functions in the smaller private units. Secondly the project houses a large variety in recreational functions for collective use. Altogether the project houses many extra functions besides the basic homey functions. The facilitation of these shared spaces represents an increase in living space on top of the fully equipped private units and thus have a very positive influence on the value for rent.

Location

The location of WeLive in the business district of Manhattan New York, answers to the demand for housing in the city centre and represents a very attractive housing location. With that it has a very positive influence on the value for rent.

Leasing contracts

The flexible leasing terms – already starting at 1 month – meet the user desires for flexibility. Therefore, the leasing contracts have a positive influence on the value for rent.

Community & Lifestyle

The community is stimulated through collective spaces in combination with events. With that

the operational management upon the community has a positive influence on the value for rent.

Services
In the WeLive location many services like furniture, cleaning and maintenance and utilities are provided, yet against a fixed monthly and one-time moving fee. The fees for utilities and amenities are almost the same as the costs, but the moving fee for making use of the furniture is a fee that will only cover maintenance costs for example. Therefore, the facilitation of services against a fee result in a negative influence on the value for rent.

Determinant of availability
Project size
With more than 207 people housed in the WeLive residence, the location offers an increase on the availability in a region where housing is scarce. Therefore, it has a very positive influence on the availability influencing affordability.

Determinant of monthly costs per private unit
€/Private spaces
The monthly rental price per unit is 15% lower than comparable traditional housing in the same urban area. Therefore, it has a positive influence on the costs per private unit.

€/Services
As many services are provided but against a required fee, the characteristic of costs for services is of a negative influence on the costs per month and with that on the affordability.

8.3.4.1.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the affordability is of a positive to very positive influence. This means that generally speaking, all physical characteristics taken together (=4,5) they have a positive to very positive influence on the affordability.

Looking in to the general influence of the operational characteristics, they have a neutral influence on the affordability. This means that generally speaking, all operational characteristics taken together (=3) they have a neutral influence on the affordability.

8.3.4.1.3. Conclusions on determinants
Monthly costs per private unit
Taking the two characteristics that influence the monthly costs, it is clear, in considering them equal in importance of influence, they balance each other out (influence level 2 and 5) which results in a generally taken neutral influence (=3) on monthly rental costs determining the affordability. What should be noted is that this does not indicate that the affordability is neutral in comparison to traditional housing, but that the two characteristics influencing the determinant of monthly cost per private unit in average have a neutral influence.

Value on rent
Taking all the characteristics that influence the value for rent, both physical and operational characteristics, the average represents a positive influence (=4) on the value for rent determining the affordability.

Availability
Being only analysed in terms of project size, the same conclusion can be drawn as for the characteristic on its own: the project size has a very positive influence (=5) on the availability that determines the affordability of the project.

8.3.4.1.4. Conclusion on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of affordability, it could be concluded that the characteristics have a positive influence (3,9) on the affordability.

8.3.4.2. An analysis in influence of the characteristics upon the profitability
In the following the characteristics of the case study of WeLive and its influence on the three determinants for profitability are discussed.

8.3.4.2.1. Conclusions on characteristics

Determinant of costs
Project size
Of the total number of square meters of the project of WeLive, 27% is occupied by collective facilities. This is considered above required for collective basic needs (20%) and with that adds extra living quality for the users. Therefore, it could be concluded that the project size has a negative influence on the development and operational costs.

Yet, the number of units -207 units- that are housed, offers the opportunity for quantum benefits in terms of costs spreading. Therefore, the project size in terms of number of private units has a very positive influence (=5) on the development costs.

Taking the two together, the project size has a neutral to positive influence (=3,5) on the development costs determining profitability.

Private spaces
The configuration of the private spaces with a size of 41 m2 and being fully equipped, has a negative influence on the costs.

Shared spaces
The shared spaces consist first of all out of homey functions that are complementary to the missing functions in the smaller private units. Secondly the project houses a large variety in recreational functions for collective use. Altogether the project houses many extra functions besides the basic homey functions. The facilitation of these shared spaces represents an increase in living space on top of the fully equipped private units and thus have a very negative influence on the costs.

Shared spaces
The location of WeLive in the business district of Manhattan New York, comes with relatively very high ground prices. This pressures on the total development costs and with that the location has a very negative influence on the costs.

Leasing contracts
The high flexibility of 1-month leases – even being able to lease per day, although charged with a higher rate -, comes with a high overturn of tenants which results in relatively high costs for preparing, cleaning and administrative costs of operations. Therefore, the leasing terms of WeLive have a negative influence on the operational costs.

Community & Lifestyle
The facilitation of the community through collective facilities and events, demands high (development and) operational costs of facilitating the community on such a level. This results in a negative influence on the operational costs.

Services
As the provided services of utilities, cleaning and maintenance and furniture is being provided against a fixed monthly and one-time moving fee, it does not pressure on the costs. With this many private units, there are quantum benefits of arranging these services and with that it has a positive influence on the costs.

Determinant of risk
Project size
Of the total number of square meters of the project of WeLive, 27% is occupied by collective facilities. This is considered above required for collective basic needs (20%) and with that adds extra living quality for the users. Therefore, it could be concluded that the project size has a positive influence on the attractiveness and with that on the risk on vacancy.

Yet, with the number of units -207 units- that are housed, the risk on vacancy is relatively high which results in a very negative influence on the risk on vacancy.

Taking the two together, the project size has a negative to neutral influence (=2,5) on the development costs determining profitability.

Private spaces
The configuration of the private spaces with a size of 41 m2 and being fully equipped, represents very attractive housing and with that has a positive influence on the risk on vacancy.

Shared spaces
The shared spaces consist first of all out of homey functions that are complementary to the missing functions in the smaller private units. Secondly the project houses a large variety in recreational functions for collective use. Altogether the project houses many extra functions besides the basic homey functions. The facilitation of these shared spaces represents an increase in living space on top of the fully equipped private units and thus have a very positive

influence on the attractiveness and thus on the vacancy risk.

Location
The location of WeLive in the business district of Manhattan New York, answers to the demand for housing in the city centre and represents a very attractive housing location. With that it has a very positive influence on the risk on vacancy.

Leasing contracts
The flexible leasing terms – already starting at 1 month – meet the user desires for flexibility. Yet, the risk on vacancy is very high with a high risk on overturn of leases. Therefore, it has a negative influence on the risk on vacancy.

Community & Lifestyle
The community is stimulated through collective spaces in combination with events. With that the operational management upon the community has a positive influence on the attractiveness of the residence and with that on the risk on vacancy.

Services
In the WeLive location many services like furniture, cleaning and maintenance and utilities are provided, yet against a fixed monthly and one-time moving fee. The fees for utilities and amenities are almost the same as the costs, but the moving fee for making use of the furniture is a fee that will only cover maintenance costs for example. Therefore, the facilitation of services against a fee result in a negative influence on the attractiveness and with that on the risk on vacancy.

Determinant of rental income/m2/month
Project size
The size of the project with 207 units allows for a relatively high number of lettable units. Therefore, the size of the project has a very positive influence on the total rental income per square meter per month.

€/m2/Private spaces
The square metre price of the private rental units is a little bit higher than the traditional square metre price. With that it has a positive influence on the rental income per month and with that on the profitability.

€/m2/Services
As all services that are provided are organized against a required fee, this configuration has a positive influence on the rental income per month.

8.3.4.2.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the profitability is of a neutral to positive influence. This means that generally speaking, all physical characteristics taken together (=3,2) they have a neutral influence on the profitability.

Looking in to the general influence of the operational characteristics, they have a negative influence on the profitability. This means that generally speaking, all operational characteristics taken together (=2,9) they have a neutral influence on the profitability.

8.3.4.2.3. Conclusions on determinants
Costs
Taking all the characteristics that influence the development and operational costs the average represents a negative (to positive) influence (=2,4) on the costs determining the profitability.
Risks
Taking all the characteristics that influence the risks (on vacancy) together, the average represents a neutral (to positive) influence (=3,4) on the risks determining the profitability.

Rental income/m2/month
Taking the three characteristics that influence the monthly rental income, it is clear in considering them equal in importance of influence, they balance each other out (influence level 4 to 5) which results in a generally taken positive (to very positive) influence (=4,3) on monthly rental costs determining the profitability. What should be noted is that this does not indicate that the profitability is neutral in comparison to traditional housing, but that the three characteristics influencing the determinant of monthly rental income per square meter of private unit in average have a neutral influence.

8.3.4.2.4. Conclusions on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of profitability, it could be concluded that the characteristics have a neutral influence (=3,1) on the profitability.


IT'S NOT YOU.
IT'S GIN TONIC.

8.4. Case Study Analysis 3: Zoku, Amsterdam

8.4.1. General description

Exceeding the hotel concept and providing "a home base for travelling professionals who are living and working in a city for periods from a few days to a few months." (Zoku, 2018) It can be considered as a re-invention of the apartment hotel with a focus on international working life. Trying to reduce the loneliness of business travel, Zoku facilitates a place to "live, work and socialize with like-minded people while getting wired into the city." (Zoku, 2018)

Factsheet on basics

Brand	Zoku		Inner-city
Location	Amsterdam, The Netherlands	Year	2016
Size total (m2)	4511 m2	Size (private units)	133
Rental price /month (€)	Starting from €4770	Private m2 / person	27 m2
Rental price/m2	€ 187,-- /m2	Private + Col.* m2 / pers.	34 m2
Apartments #	133	Amount people	133
Types	Studio	Private m2 total	3591 m2
Floors	6: 5 (lofts) + 1 (collective)	Collective* m2 total	470 m2 collect + 450 m2 event 90 m2 greenhouse

Table 29. Factsheet on basic information of WeLive

** Also considering other spaces like technical, public etc. Meaning other than private spaces*

Factsheet on rent-level

Traditional Housing*					Co-living in WeLive				
Type	€/unit	m2	€/m2	€/person	Type	€/unit	m2	€/m2	€/person
Studio	€1.750	55 m2	€26 /m2	€1.750	Loft	€4770	24 m2	€198/m2	€4770
1-bed	€1.750	55 m2	€26 /m2	€1.750	Loft XL	€5370	30 m2	€179/m2	€5370
2-bed		83 m2			Loft XXL		46 m2		
		55					27 m2		

Table 45. Comparing rental prices in the same neighbourhood

8.4.2. Physical structure influencing affordability/profitability

8.4.2.1. Project size

The Zoku location in Amsterdam is set in a refurbished office building alongside the Weesperstraat in the central east part of the city. The entire building is occupied by Zoku together with the co-working company WeWork and a gym in the plinth. The Zoku facility occupies around 4500 m2. See table 46.

Size Zoku	# Apartments	# Floors
4.511 m2	133	6
Private m2 total		# People
3.591 m2		571
Collective m2	m2 co-living/unit	
920 m2	34 m2	

Table 46. Project sizes

Looking at the division between private and collective space within the building, the configuration is as follows. The top floor together with the outdoor roof is reserved for all collective functions. The 5 floors under are housing all the private units. In ratio the collective functions take up around 20% of the total, and thus the private units take up around 80% of the total Zoku facility. See table 47 to 49.

8.4.2.2. Shared spaces

m2 private / person	m2 collective/person	m2 co-living / person
27 m2	7 m2	34 m2

Table 47. Private versus collective versus co-living m2 per person

Total m2	Collective m2	Private m2
4.511 m2	920 m2	3.591 m2
1	0,20	0,80

Table 48. Ratio collective and private m2
** Note that these calculations are an indication based the taken averages of private m2. Real numbers may vary from what is presented here.*

	Size	m2 per person	Fitting # person	Rent/person	Rent/m2	Rental income**
Traditional	4.511 m2	66 m2* /***	68	€ 1575	58 €/m2*	€107.100
Co-Living	4.511 m2	34 m2	133	€4770	€198/m2	€634.410
		1:0.51		1:3.03	1:3.41	

*Table 49. Traditional housing versus Co-Living (studio) projected on project: conceptual calculation***
** see following calculations on traditional rental prices and apartment sizes, 51 m2*
****taken here as gross m2 = rental m2 *a factor of 1,2. The gross meters consider the technical and circulation spaces as well as the buildings construction. The Co-living meters are always gross.*

Within the 920 m2 of indoor collective space together with the designed roof and greenhouse of 90 m2, several different functions are facilitated. With the upper floor of the building is completely reserved for these collective functions, most of the functions are interconnected with each other or function in the same space.
The collective functions in the building consist out of the following:

- Treatment room
- Bar
- Living room
- Living kitchen
- Co-working spaces
- Meeting rooms
- Tailored retail
- Game room
- Music Corner
- Locker room
- Launderette
- Guest Pantries
- Changing Room
- Gym contracts in same building – included in long-stay

Homey functions
Part of the collective floor is set out as 'the living room', with many seating arrangements. Connected to the living room is the so-called living kitchen. The living kitchen does not function as a communal kitchen as it is more a in-house restaurant kitchen where meals are served daily.

Recreational functions
Using the same space as the living room, corners of the space are specified as the 'game room' or the 'music corner'. Altogether this gives the larger space different uses. A small corner is reserved for an inhouse shop to be able to buy some simple groceries. Furthermore there is a treatment room where specialist from the city give spa treatments.

Work functions
Also connected to the 'living room' and the 'living kitchen' are the co-working spaces. Making use of the seating arrangements in the living room together with closed-off meeting rooms together provides in the possibility to work on site. These spaces are also rented out as a separate subscription to locals, under the name of WorkZoku. This brings together not only Zoku residents but also locals to the same place.
Mobility/Outdoor
The roof is developed as an outdoor terrace with seating and lounge facilities together with a greenhouse, used by the living kitchen.

Home	Eating areas	Kitchens	Living Rooms	Laundrette			
			x	x			
Recreation	Gym/Spa	Retail	(Grocery)Store	Restaurant/Bar	Games Room	Library	Event Spaces
	x			x	x		
Work	Workspaces	Meetingrooms	Makerspaces				
	X	x					
Mobility	Bike Storage	Car Parking	Outdoor space	Pool			
		x	x				

Table 50. Communal facilities

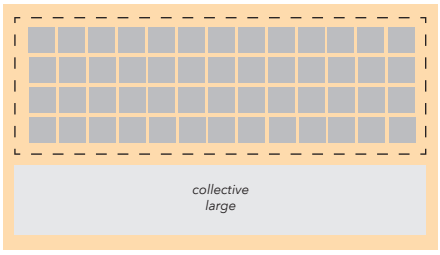


Figure 87. Configuration and spreading of the collective spaces

The organization of the collective functions is that they are all put together on one floor, serving the private units located on the other floors.

As all private units are already fully-equipped, the variety in offered collective spaces, especially with office-spaces included, are an added value within the rent.

Then again, as all private units are already fully equipped, all extra offered space are extra spaces which are not directly included in the rent-level. Because the collective spaces are not directly replacing functions in the private units, although making-up for the lack of square meters, it represents extra costs.

8.4.2.3. Private space

The private spaces of Zoku are, although limited in size, almost fully equipped: only the kitchen facilities are limited to a pantry function. Making use of the large floor to floor height, the space is designed three-dimensional and with that making efficient use of the limited given square metres. A lifted sleeping area gives the opportunity for extra storage and desk space for example. See table 51.
The difference between traditional housing in the area and the Zoku co-living solution is around 50%. See table 52.

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x	x		x	x	x		x

Table 51. Private functions in a studio

Type	Zoku Co-Living	Traditional	Difference
Loft / 1-bed	24 m2	55 m2	0,44:1
Loft XL / 1-bed	30 m2	55 m2	0,55:1
Loft XXL / 2 bed	46 m2	83 m2	0,55:1

Table 52. Private functions in a studio

8.4.2.4. Project location

The location of Zoku is on the east of the city centre. The metro and tram station is in walking distance of the location that connects Zoku with the business district of Amsterdam

Distance to city centre	Time to city centre with Public Transport	Distance to Public Transport
0 km	0 min	Walking distance to subways

Table 53. Locational distance to city centre.

8.4.3. Operational structure influencing affordability/profitability

8.4.3.1. Leasing contracts: short-term versus long-term

The leasing terms of Zoku are like a hotel-concept, as the Zoku residence was initially thought of. Being able to lease day to day brings the rental price also to a hotel-like level. Discounted when staying longer than 28 days is provided yet, the day to day termination of the lease is still possible. Therefor also the 'long-stay' – longer than 28 days – is still relatively pricy as it is three times as expensive as traditional housing options in the same area of the city. See table 54 and 55.

Short-stay (less than 28 days)		Long-stay (at least 1 month)
	Per day	Per 1 month (30 days)
Loft	€244,71	€4770
Loft XL	€264,71	€5370
		€5070

Table 54. Short- & longterm lease pricing (Zoku 22nd of February 2019)

Days	Short-stay Loft pricing	Long-stay Loft pricing	Difference
1	€244,71	€159	1:53
31	€7320	€4770	

Table 55. Difference in price level between short-stay and long-stay

8.4.3.2. Facilitating the community

In order to stimulate and facilitate the community feeling, Zoku has a permanent community manager on site. This community manager is responsible for the organization of community events, like workshops and music nights, but also functions as a social character in the communal areas. See table 56.

Events	Activities	Clubs/Organizations	Community Manager
x	-	-	x

Table 56. Operational organization for community management

8.4.3.3. Services: all-inclusive formula

As Zoku started as a residential version of the hotel concept, a lot of services are included in the rent. Completely furnished private unit with linen and towels are the basis. Wi-Fi and TV facilities are also included and the weekly cleaning, maintenance and security is taken care of. Coming from the high-flexibility in lease, the water, heating and electricity are also included in the rent. See table 57.

Furnished	Linnen & Towels	Laundry	Cleaning	Wi-Fi	TV	Maintenance	Tailoring	Mobility Rental	Security
x	x		x	x	x	x		x	x
Taxes	Water, Heating & Electricity	Security	Tailoring	Mobility Rental					
	x	x							

Table 57. Extra services included in the rent for the private unit

8.4.4. Conclusions on the Zoku case study

The influence of the characteristics upon the determinants of affordability and profitability are derived from the case study analysis, and concluded in the following. By using the developed measurement tool (see figure 88) to determine the 'level of influence', an insight is given in how the physical and operational characteristics of the Zoku co-living project influence the affordability and profitability (see figure 89).

8.4.4.1. An analysis in influence of the characteristics upon the affordability

In the following the characteristics of the case study of Zoku and its influence on the three determinants for affordability are discussed.

8.4.4.1.1. Conclusions on characteristics

Determinant of value for rent

Project size

As the project houses 20% of collective space, the amount is a considered approximate minimum in terms of collective housing. Therefore, it is considered that it as a neutral influence on the value for rent as it does not provide any extra or less facilities than required.

Private spaces

The private units are 27m2, which is considered a micro-housing minimum, and equipped with a private bathroom and a kitchenette. As this is not a fully equipped kitchen, the level of equipment is set on 'not fully equipped'. Considering these two elements, the private spaces have a negative influence on the value for rent. This I because, although it does provide in the minimal amount of space (27 m2), it does not comprise out of a fully-equipped private unit.

Shared spaces

The space that is reserved for collective facilities in the building, house a limited collective of collective functions. With a large living area and kitchen, although it also functions as recreational space together with working space, it adds to or 'replaces' the missing space in the private functions. With that there is a balance between the collective and the private functions and thus the shared spaces have a neutral influence on the value for rent.

Location

The position of Zoku in the city centre, is set in a very desired location. With that it has a very positive influence on the value for rent.

Leasing contracts

As the Zoku residence offers hotel-like lease terms, with as standard lease going from day to day – although discounts are offered when staying longer than 28 days -, the flexibility in the terms are very high. In meeting the desire for flexibility from its users, the influence of the leasing contracts on value for rent is a very positive influence.

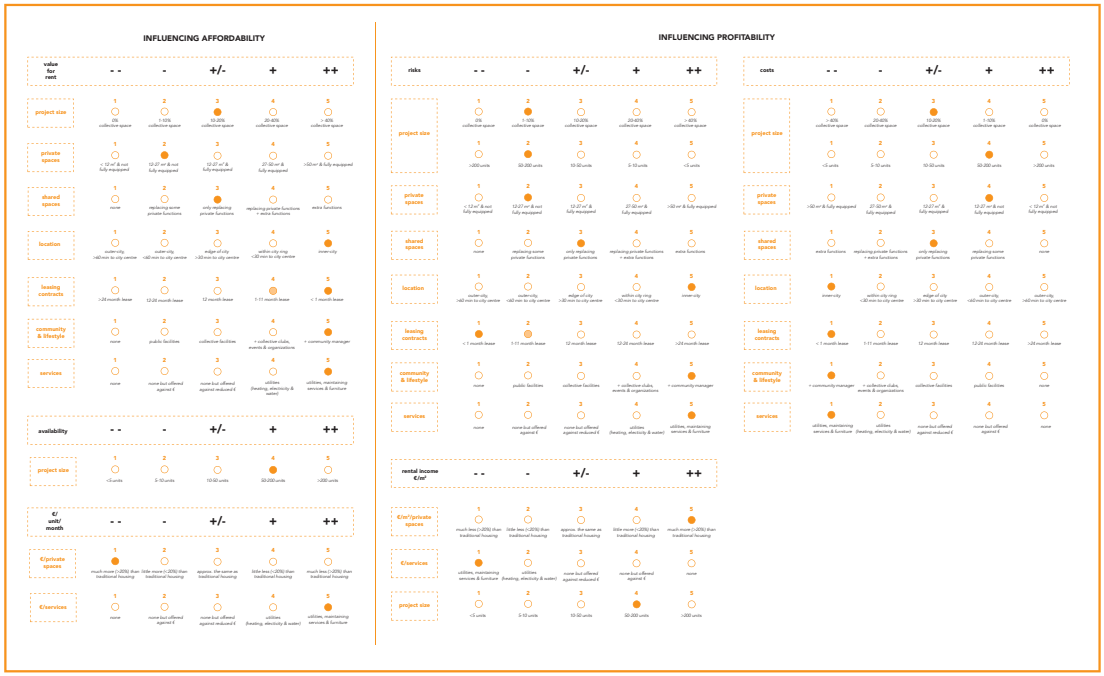


Figure 88. Filled in measurement tool of level of influence of the characteristics of Zoku on the affordability and profitability.

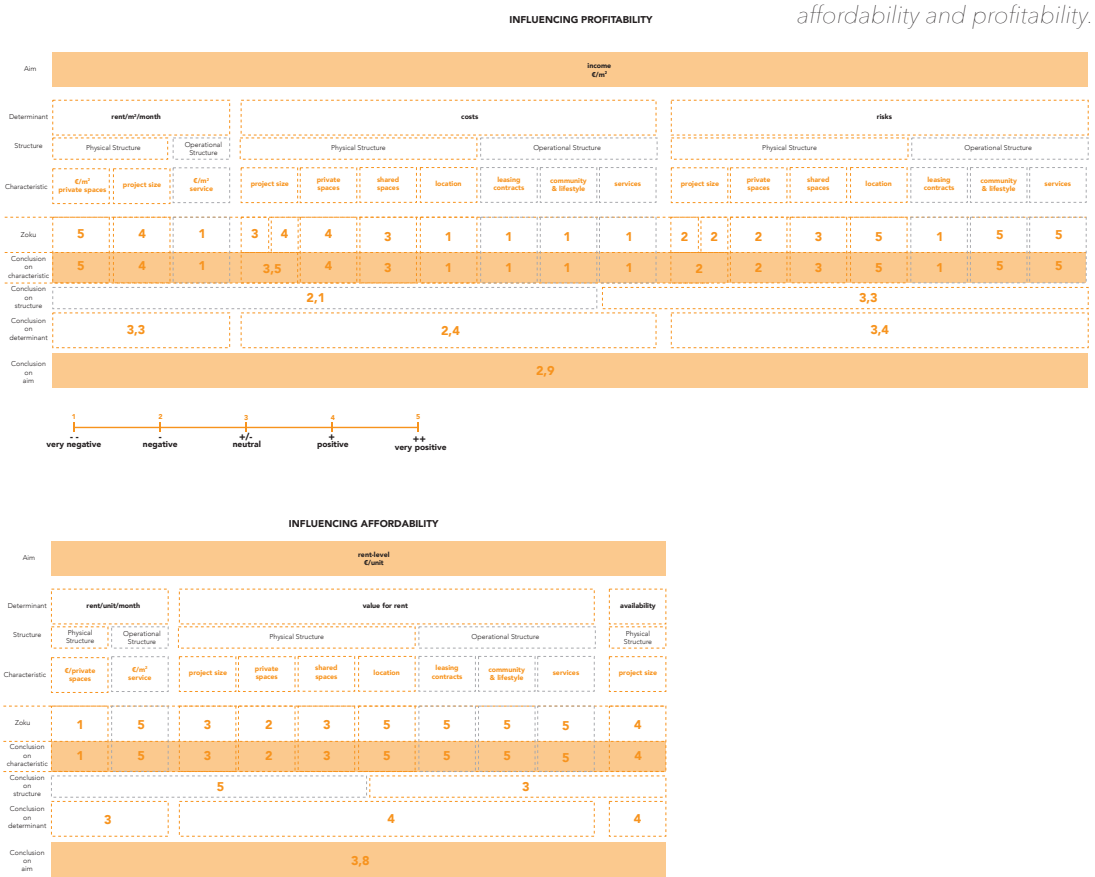


Figure 89. Level of influence of characteristics upon determinants of affordability & profitability within the case study of Zoku

Community & Lifestyle
The community is stimulated through collective spaces in combination with events and an on-site community manager. With that the operational management upon the community has a very positive influence on the value for rent.

Services
With the monthly rent, all kinds of services are offered ranging from weekly cleaning services, utilities and tv and Wi-Fi as well as the costly element of furniture. With that the service characteristic of Zoku has a very positive influence on the value for rent.

Determinant of availability
Project size
As Zoku houses 133 private apartments, the project offers quite a large availability of housing. Therefore, the project size has a positive influence on the availability.

Determinant of monthly costs per private unit
€/Private spaces
The price of the private units is almost three times as expensive as traditional housing in the same urban area, the rental costs for the private spaces has a very negative influence on the monthly housing costs per private unit.

€/Services
As a large collection of services is facilitated and all of these, but the taxes, are included in the rent, this as has a very positive influence on the monthly housing costs per private unit.

8.4.4.1.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the affordability is of a neutral influence. This means that generally speaking, all physical characteristics taken together (=3) they have a neutral influence on the affordability.

Looking in to the general influence of the operational characteristics, they have a very positive influence on the affordability. This means that generally speaking, all operational characteristics taken together (=5) they have a very positive influence on the affordability.
8.4.4.1.3. Conclusions on determinants
Monthly costs per private unit
Taking the two characteristics that influence the monthly costs, it is clear, in considering them equal in importance of influence, they balance each other out (influence level 1 and 5) which results in a generally taken neutral influence on monthly rental costs determining the affordability. What should be noted is that this does not indicate that the affordability is neutral in comparison to traditional housing, but that the two characteristics influencing the determinant of monthly cost per private unit in average have a neutral influence.

Value on rent
Taking all the characteristics that influence the value for rent, both physical and operational characteristics, the average represents a positive influence on the value for rent determining

the affordability.

Availability
Being only analysed in terms of project size, the same conclusion can be drawn as for the characteristic on its own: the project size has a positive influence on the availability that determines the affordability of the project.

8.4.4.1.4. Conclusion on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of affordability, it could be concluded that the characteristics have a neutral to positive influence on the affordability.

8.4.4.2. An analysis in influence of the characteristics upon the profitability
In the following the characteristics of the case study of Zoku and its influence on the three determinants for profitability are discussed.

8.4.4.2.1. Conclusions on characteristics

Determinant of costs
Project size
The project houses 20% of collective space, which is the amount is a considered approximate minimum in terms of collective housing. Therefore, it has a neutral influence (=3) on the development costs.

Yet, the number of units -133 units- that are housed, offers the opportunity for quantum benefits in terms of costs spreading. Therefore, the project size in terms of number of private units has a positive influence (=4) on the development costs.

Taking the two together, the project size has a neutral to positive influence (=3,5) on the development costs determining profitability.

Private spaces
The configuration of the private spaces, being set at the minimum size of 27 m2 – so not smaller than required- in combination with being not fully equipped -saving upon fully equipped kitchen-, results in a neutral influence of the private spaces on the costs.

Shared spaces
As the shared spaces house mainly homey functions that are complementary to the not fully equipped private units, these two characteristics complement each other which result in a neutral influence on costs of the shared spaces.

Location
The location of Zoku in the city centre of Amsterdam, comes with relatively high ground prices. This pressures on the total development costs and with that the location has a very negative influence on the costs.

Leasing contracts
The high flexibility – being able to lease per day, although charged with a higher rate -, comes with a high overturn of tenants which results in relatively high costs for preparing, cleaning and administrative costs of operations. Therefore, the leasing terms of Zoku have a very negative influence on the operational costs.

Community & Lifestyle
The facilitation of the community through collective facilities, events and by taking on a community manager, demands high (development and) operational costs of facilitating the community on such a high level. This results in a very negative influence on the operational costs.

Services
By providing many services as cleaning, maintenance and even furniture included in the monthly rent, this requires extra costs of development and operations. Therefore, the service characteristic of Zoku has a very negative influence on the operational costs.

Determinant of risk
Project size
The project houses 20% of collective space, which is the amount is a considered approximate minimum in terms of collective housing. Because it complements missing space in the private units, the added collective space is in balance with the private space and does not offer extra quality to the location. Therefore, it has a neutral influence on the attractiveness and with that on the risk on vacancy.

As the offered number of private units is quite high in Zoku -133 units-, the risk on vacancy is relatively high in comparison to smaller project. Therefore, the project size in terms of number of private units has a negative influence on the risk on vacancy.

Private spaces
The configuration of the private spaces does provide the micro-living minimum of 27 m2, but does not provide a fully-equipped kitchen. This taken together, has a neutral influence on the attractiveness and with that on the risk on vacancy.

Shared spaces
As the shared spaces house mainly homey functions that are complementary to the not fully equipped private units, these two characteristics complement each other which result in a neutral influence on attractiveness of the residence and with that on the risk on vacancy.

Location
The location of Zoku in the inner-city of Amsterdam, answers to the demand for housing in the city centre and represents a very attractive housing location and will reduce the risk on vacancy. With that it has a very positive influence on the risk on vacancy.

Leasing contracts

The flexibility of the offered leasing contract, starting with already day to day lease (although against a very high rental price), offers the possibility for a very flexible lease. Therefore, it answers to the demand for flexibility by its users and creates with that attractiveness of the location. With this, it has a very positive influence on the risk on vacancy.

Community & Lifestyle
The facilitation in many different ways of the sense of community, through spaces, events and a responsible community manager, the attractiveness of joining the community is increased. With that the community has a very positive influence on the risk on vacancy.

Services
As a variety of services are offered and included in the rent, the attractiveness of the residence is increased and with that the characteristic of services has a very positive influence on the risk on vacancy.

Determinant of rental income/m2/month
Project size
The size of the project with 133 units allows for a relatively high number of lettable units. Therefore, the size of the project has a positive influence on the total rental income per square meter per month.

€/m2/Private spaces
The rent per square meter of private units is in the Zoku project almost three times higher than the traditional comparison in the same neighbourhood. Therefore, the rental price has a very positive influence on the income per square meter of private space.

€/m2/Services
As all offered services are included in the monthly rent, without any refunding in return, this has a negative influence on the rental income per month.

8.4.4.2.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the profitability is of a neutral to positive influence. This means that generally speaking, all physical characteristics taken together (=3,3) they have a neutral (to positive) influence on the profitability

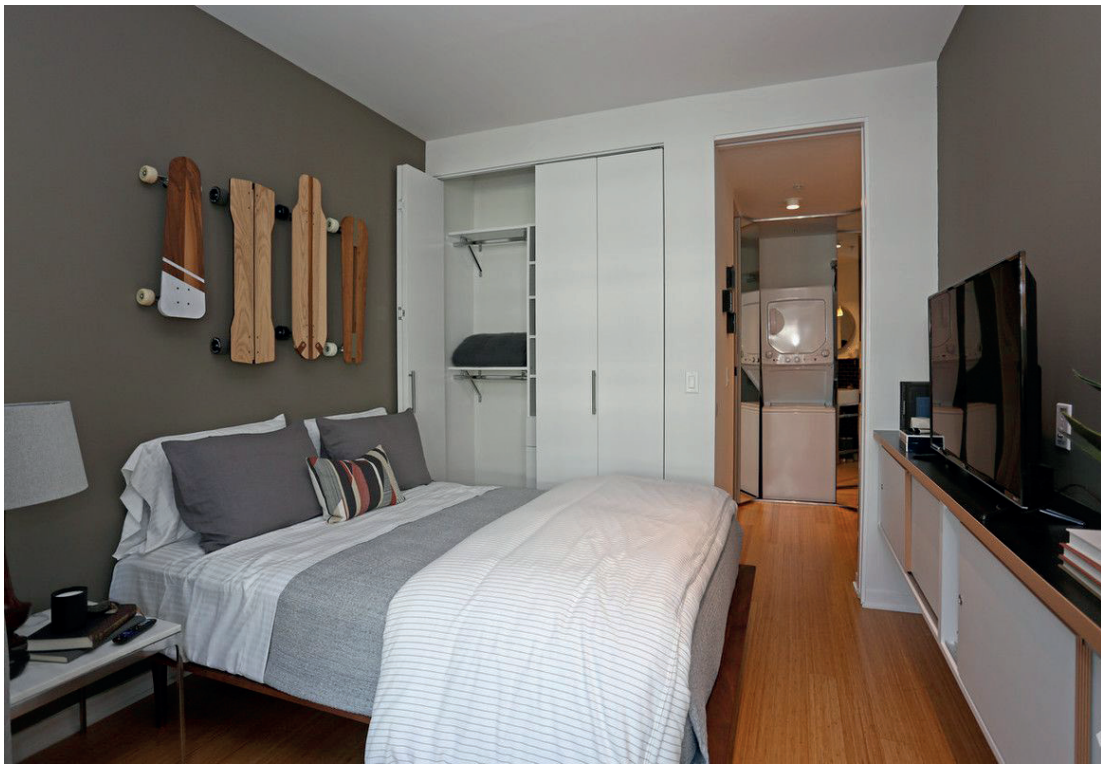
Looking in to the general influence of the operational characteristics, they have a negative influence on the profitability. This means that generally speaking, all operational characteristics taken together (=2,1) they have a negative influence on the profitability

8.4.4.2.3. Conclusions on determinants
Costs
Taking all the characteristics that influence the development and operational costs the average represents a negative (to neutral) influence (=2,4) on the costs determining the profitability

Risks
Taking all the characteristics that influence the risks (on vacancy) together, the average represents a neutral (to positive) influence (=3,4) on the risks determining the profitability

Rental income/m2/month
Taking the three characteristics that influence the monthly rental income, it is clear in considering them equal in importance of influence, they balance each other out (influence level 1 to 5) which results in a generally taken neutral (to positive) influence (=3,3) on monthly rental costs determining the profitability. What should be noted is that this does not indicate that the profitability is neutral in comparison to traditional housing, but that the three characteristics influencing the determinant of monthly rental income per square meter of private unit in average have a neutral influence.

8.4.4.2.4. Conclusions on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of profitability, it could be concluded that the characteristics have a neutral influence (=2,9) on the profitability.



8.5. Case Study Analysis 4: Urby, Staten Island

8.5.1. General information

The Urby complex, housing 900 private units and located in Staten Island New York, "combines unique hotel personality with imaginative architectural design to create a fresh new standard for apartment living" on a prime location. Ranging from studio, one and two-bedroom apartments ranging from 34 to 88 m2 for a monthly rent starting at $1.890, - to $2.425, - a month. The private units house washer and dryer, storage space, a private bathroom and fully equipped kitchen and living space. The collective spaces comprise out of a café, residential farm, gym, bike storage, restaurant and retail, kitchen, rooftop and pool together with organized community events. The main focus of the Urby concept is high quality living with communal amenities to enhance quality of life even more.

Factsheet on basic

Concept	Urby		Outside city centre
Location	Staten Island, New York, USA	Year	2016
Size total (m2)	33.816 m2	Size (private units)	133
	Size (private units)	29-100 m2	27 m2
Rental price /month (€)	Starting from €1666,--	Private m2 / person	X m2
Rental price/m2	€ 33-51 /m2	Private + Col.* m2 / pers.	56 m2
Apartments #	571 (later 900)	Collective m2	12303 m2
Types	Studio, 1-bed, 2-bed	Private m2 total	21412 m2
Floors	2x 5 floors + plinth	Collective* m2 total	x m2

Table 58. Basic information on Urby, Staten Island.
** Also considering other spaces like technical, public etc. Meaning other than private spaces*

Factsheet on rent-level

Comparison to housing in the same area

Traditional Housing*					Co-living in Urby | Staten Island				
Type	€/unit	m2	€/m2	€/person	Type	€/unit	m2	€/m2	€/person
Studio	€ 1058	59 m2	€18 /m2	€ 1058	Studio	€ 1498	29 m2	€51 /m2	€ 1498
1-bed	€ 1165	54 m2	€21 /m2	€ 1165	1-bed	€ 1688	47 m2	€36 /m2	€ 1688
					2-bed	€ 2513	74 m2	€33 /m2	€ 1256
		56,5		€1112					

Table 59. Basic rental information on Urby, Staten Island.
** Pricing of New York Staten Island on 1st of October 2018*
*** services include maintenance, heating and water and community services like internet-connection*

Comparison to housing in city centre (Manhattan)

Traditional Housing* (Lower Manhattan)					Co-living in Urby | Staten Island				
Type	€/unit	m2	€/m2	€/person	Type	€/unit	m2	€/m2	€/person
Studio	€ 2989	51 m2	€58 /m2	€ 2989	Studio	€ 1498	29 m2	€51 /m2	€ 1498
1-bed	€ 3829	64 m2	€59 /m2	€ 3829	1-bed	€ 1688	47 m2	€36 /m2	€ 1688
2-bed	€ 6130	108 m2	€56 /m2	€ 3065	2-bed	€ 2513	74 m2	€33 /m2	€ 1256
		55,75		€2471			37,5		

Table 60. Basic rental information on Urby, Staten Island.
** Pricing of New York Lower Manhattan on 1st of October 2018*

8.5.2. Physical structure influencing affordability/profitability

8.5.2.1. Project size

The Urby location on Staten Island New York, in the neighbourhood of Stapleton, gave the opportunity for a large-scale project, housing in the first phase 571 units, and in a second phase going to a total of 900 units. With private units ranging in size and type (S, M, L) the almost 34.000 m2 houses 571 units with an average size of 37,5 m2 per person. Complemented with a range of collective facilities this concludes in 59 m2 of co-living space per person. See table 61 to 65.

Within Urby, around 37% of the project contains the collective facilities (as well as technical facilities etcetera) which results in a total of 56m2 of co-living space. Comparing this with

Size URBY | SI	# Apartments	# Floors	m2 co-living/unit
33.816 m2	571	5	59 m2
Private m2 total	m2/floor	# People	Average rent/person
21.412 m2	6763 m2	571	€ 1424,75
Collective m2			
12303 m2			

Table 61. Project sizes

Total m2	Collective m2	Private m2
33.816 m2	12.303 m2	21.412 m2
1	0,37	0,63

Table 62. Ratio collective and private m2
** Note that these calculations are an indication based the taken averages of private m2. Real numbers may vary from what is presented here*

Average m2 private / person	m2 collective/person	m2 co-living / person
37,5 m2	15 m2	56 m2

Table 63. Private versus collective versus co-living m2 per person

traditional housing in the area, it only differs 10% in living space. With that the quality of living space is not reduced that much, but has decreased of course.

Fictive rental income calculation: traditional (Staten Island) versus co-living m2 pricing

	Size	m2 gross p/p	Fitting # person	Rent/person	Rent/m2	Rental income**
Traditional	33.816 m2	68 m2*	497	€1112	16 €/m2*	€552.664
Co-Living	33.816 m2	59 m2	571	€ 1425	24 €/m2	€813.675
		1:0.87		1:1.28	1:1.5	

*Table 64. Fictive rental calculation in comparing the development of traditional housing versus co-living. *taken here as gross m2 = rental m2 *a factor of 1,2. The gross meters consider the technical and circulation spaces as well as the buildings construction. The Co-living meters are always gross.*

Fictive rental income calculation: traditional (Lower Manhattan) versus co-living m2 pricing

	Size	m2 gross p/p	Fitting # person	Rent/person	Rent/m2	Rental income**
Traditional	33.816 m2	68 m2*	497	€1112	16 €/m2*	€552.664
Co-Living	33.816 m2	59 m2	571	€ 1425	24 €/m2	€813.675
		1:0.87		1:1.28	1:1.5	

*Table 65. Fictive rental calculation in comparing the development of traditional housing versus co-living. *taken here as gross m2 = rental m2 *a factor of 1,2. The gross meters consider the technical and circulation spaces as well as the buildings construction. The Co-living meters are always gross.*

The rental pricing is less expensive than in the city centre, but more expensive in comparison to its own area. From a developer's point of view, in comparing the project within its own area but also the traditional housing in the city centre, URBY provides in less living space in total per person for a, within the same area, higher square metre price. Yet being in travel distance of the city centre, and offer housing that is almost 30% cheaper than in the city centre, for almost the same m2 living space, makes the location interesting.

8.5.2.2. Shared spaces

As mentioned above, around 37% of the square metres URBY Staten Island covers is reserved for collective (and technical) functions. Within these collective meters, homey, recreational and outdoor functions are positioned all put together in the lower floors of the building. See figure 90.

Homey functions

As the private units within URBY are fully equipped with kitchens, dining and living areas, the necessity of the addition of homey functions is limited. There is one larger communal kitchen on ground level, including dining area. Yet, considering that this one communal kitchen is usable for 571 people, it should be considered that this is more of a recreational extra function, than an addition to the homey functions.

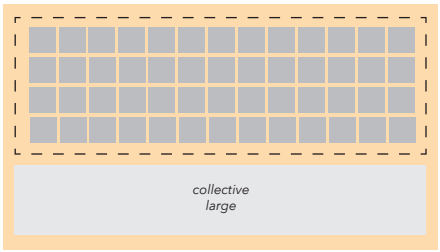


Figure 90. Configuration and spreading of the collective spaces

Recreational functions

Due to the location of URBY in the Stapleton area, the lack of amenities in the area need to be taken care of within the property. Besides public commercial functions in the plinth like a restaurant and a bar, a grocery store and other retail is facilitated on site. Besides these amenities, a fully equipped gym can be found within the building. The public restaurant and bar function as the entrance of the URBY residence and is part of the collective area. "We notice that we need to find the balance between public areas and collective areas, as we see that the inhabitants are looking to make a space their own. This cannot be done in places that are completely public" says Jolijn Vonk from the architecture firm Concrete that designed URBY.

Work functions

Although the co-living concept is considered by some to have evolved out of the co-working concept, the URBY residence does not facilitated separate working or meeting areas. Again, the public functions of the restaurant and bar, function partially as a co-working area (Vonk, 2018)

Outdoor/Mobility functions

As the location is outside the city centre, the URBY project not only facilitates secured bike parking but also car parking on site. A large collective outdoor space in between the two dwelling blocks, house a swimming pool, collective garden and greenhouses and outdoor seating areas.

Home	Eating areas	Kitchens	Living Rooms	Laundrette			
		x					
Recreation	Gym/Spa	Retail	(Grocery)Store	Restaurant/Bar	Games Room	Library	Event Spaces
	x/-	x	x	x			X
Work	Workspaces	Meetingrooms	Makerspaces				
Mobility	Bike Storage	Car Parking	Outdoor space	Pool			
	x	x	x	x			

Table 66. Communal facilities

8.5.2.3. Private space

The facilities within the private units of the URBY project are quite similar to those of a traditional apartment unit. Besides a sleeping area, all units have a private bathroom, private laundry facilities, a variety in types of storage space, a fully equipped kitchen together with a sitting and eating area. URBY offers a variety in types, starting at the small studio (29 m2), then the medium sized 1 bedroom (47 m2) and the large sized 2-bedroom unit (74 m2). There are some varieties within these types affecting its sizes, yet these given measurements can be considered as the reference. See table 67 to 69.

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x	x	x	x	x	x

Table 67. Private functions in a studio

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x		x	x	x	x

Table 68. Private functions in a 1-bedroom

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x		x	x	x	x

Table 69. Private functions in a 2-bedroom

When comparing the provided units in URBY to the apartment sizes in the same neighbourhood, there is an average difference of around 50% between traditional apartments and the square meters of the co-living units in URBY. The smart interior design of URBY makes it possible to house all desired functions of a traditional private unit, in a co-living version needing only half of the square meters to function. The URBY private units could also be seen as smart micro-living design as they are completely functioning as proper housing on their own. See table 70.

Type	Urby Co-Living	Traditional	Difference
Studio [S]	29 m2	51 m2	1:1.76
Studio [M]	47 m2	64 m2	1:1,36
2-Bed [L]	74 m2	108 m2	1:1.46

Table 70. Comparison sizes of private units between URBY |SI co-living and traditional units

8.5.2.4. Project location

The location alongside the Navy Pier, is set in the so-called 'fifth and forgotten borough' of New York. (DPA International) Being an undesired place to live, it requires proper connection to the business district of Manhattan, also framed as the city centre. Although the effective distance (by car) is almost 220 km, the location is walking distance of public transport that takes the residents within an hour to the central business area of Manhattan. The vicinity to the public transport is of great importance in terms of liveability for its users.

Distance to city centre	Time to city centre with Public Transport	Distance to Public Transport
217 km (by car)	45-60 min	Walking distance to busses

Table 71. Locational distance to city centre.

8.5.3. Operational structure influencing affordability/profitability

8.5.3.1. Leasing contracts: short-term versus long-term

As URBY really presents itself as a living location not a location for traveling working people, the leasing terms represent this. The terms vary from an initial leasing starting at 12 or 24 months. URBY does offer discounts when choosing for long-term stay (24 months). After the 12 or 24 months lease, the tenants can cancel their lease every month. In that sense, the leasing terms are similar to the of traditional housing.

8.5.3.2. Facilitating the community

In the URBY projects, the community feeling is helped and stimulated by the operational organization. "You can't just take a space and throw people in there and expect that they're going to figure out how to have their own wine tasting or cooking class or that they're going to connect with each other" says David Barry of Ironstate Development, the development company behind the URBY concept. A cultural director organizes activities for the residents.
"It's a boost," Barry says, "to help people in this demographic connect to each other—and make them feel more emotionally connected to the brand." See table 72.

Events	Activities	Clubs/Organizations	Community Manager
x	x	-	x

Table 72. Operational organization for community management

This community and collective lifestyle are an extra on top of the private living facilities, and is considered as an extra value for rent.

From a developer's point of view, the value of the proper facilitation of the community is also of great importance. By creating an attractive community, the desire to join and live on this specific property can be increased, especially on an initially undesired location of Staten Island. By having the community function as an incubator and attractor the risk of vacancy can be reduced.

8.5.3.3. Services: all-inclusive formula

In the monthly rent, extra services are included in comparison to the rent of traditional apartments. First of all, all apartments are partially furnished. Furnished or equipped in the sense that the design of the apartments includes built-in closets and in-home washer/dryer. Furniture needed for the sleeping, eating and living area need to be arranged by the dweller him- or herself. See table 73. Table 74 shows the monetized benefits of services included in the New York region.

Furnished	Linnen & Towels	Laundry	Cleaning	Wi-Fi	TV	Maintenance	Tailoring	Mobility Rental	Security
			x		x	x		x	x
Taxes	Water, Heating & Electricity	Security	Tailoring	Mobility Rental					
	Water & heating	x							

Table 73. Extra services included in the rent for the private unit

Furnished	Linnen & Towels	Laundry	Cleaning	Wi-Fi	TV	Maintenance	Tailoring	Mobility Rental	Security
?	?	$50	$240	$70		x		x	x
Taxes	Water, Heating & Electricity	Security	Tailoring	Mobility Rental					
	$110	?							

Table 74. Costs of services in New York (Common 2019)

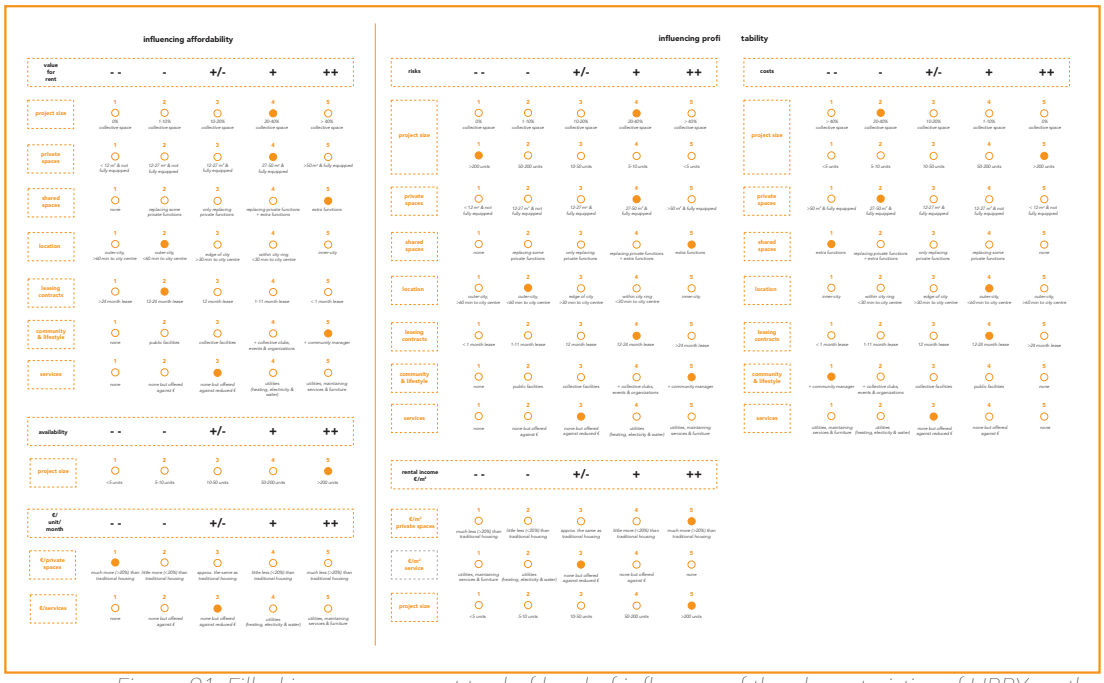


Figure 91. Filled in measurement tool of level of influence of the characteristics of URBY on the affordability and profitability.

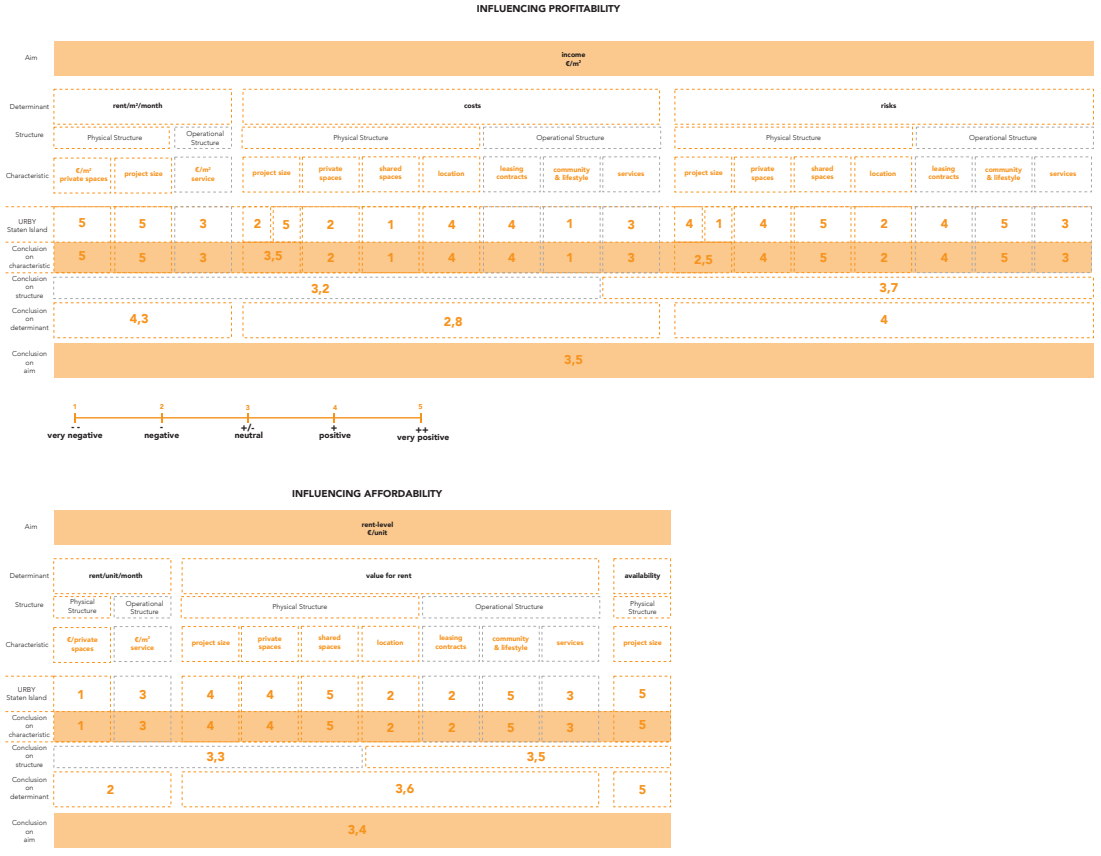


Figure 92. Level of influence of characteristics upon determinants of affordability & profitability within the case study of URBY.

8.5.4. Conclusions on the URBY case study

The influence of the characteristics upon the determinants of affordability and profitability are derived from the case study analysis, and concluded in the following. By using the developed measurement tool (see figure 91) to determine the 'level of influence', an insight is given in how the physical and operational characteristics of the URBY | Staten Island co-living project influence the affordability and profitability (see figure 92).

8.5.4.1. An analysis in influence of the characteristics upon the affordability
In the following the characteristics of the case study of URBY and its influence on the three determinants for affordability are discussed.

8.5.4.1.1. Conclusions on characteristics

Determinant of value for rent
Project size
The project of URBY offers almost 37% of its square meters collective facilities. This results in much extra meters provided on top of the private units. With that it increases the living space immensely and offers a very positive influence on the value for rent.

Private spaces
The private units of the WeLive residence consist out of 29 m2 of private space and have a fully equipped bathroom and kitchen. With this configuration it is a high-quality compact living environment. With this configuration it has a positive influence on the value for rent.

Shared spaces
The collective functions in URBY consists out of some recreational functions together with some public functions in the plinth. Because the private units are fully equipped, the shared functions represent extra quality to the living environment. Therefore, it has a very positive influence on the value for rent.

Location
The location of URBY is outside the city but still within 60 min distance by public transport to the business district of Manhattan New York. With that the location has a negative influence on the value for rent.
Leasing contracts
The leasing contract of URBY are the same as traditional contracts starting at 12 and offering also 24 months leases. With that it does not answer to the flexibility and has therefore a negative influence on the value for rent.

Community & Lifestyle
The community of URBY is stimulated through collective facilities, events, organizations and clubs and an on-site cultural manager. With this the general community organization has a very positive influence on the value for rent.

Services
In the URBY location many services like cleaning and maintenance and utilities are provided, yet against a fixed monthly fee. The fees for utilities and amenities are almost the same as the costs. Therefore, the facilitation of services against a fee result in a negative influence on the value for rent.

Determinant of availability
Project size
With more than 500 people housed in the URBY residence, going up to 900 in the second phase, the location offers an immense increase on the availability. Therefore, it has a very positive influence on the availability influencing affordability.

Determinant of monthly costs per private unit
€/Private spaces
The monthly rental price of the private units of URBY are 42% higher than the traditional apartments in the same area. Yet, they are also 50% lower than traditional apartments in the business district of Manhattan, on 60 minutes traveling away. Altogether the rental price per unit has a very negative influence on the affordability.

€/Services
As many services are provided but against a reduced required fee, the characteristic of costs for services is of a neutral influence on the costs per month and with that on the affordability.

8.5.4.1.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the affordability is of a positive to very positive influence. This means that generally speaking, all physical characteristics taken together (=3,5) they have a neutral to positive influence on the affordability.

Looking in to the general influence of the operational characteristics, they have a neutral influence on the affordability. This means that generally speaking, all operational characteristics taken together (=3,3) they have a neutral (to positive) influence on the affordability.

8.5.4.1.3. Conclusions on determinants
Monthly costs per private unit
Taking the two characteristics that influence the monthly costs, it is clear, in considering them equal in importance of influence, they balance each other out (influence level 2 and 5) which results in a generally taken negative influence (=2) on monthly rental costs determining the affordability. What should be noted is that this does not indicate that the affordability is neutral in comparison to traditional housing, but that the two characteristics influencing the determinant of monthly cost per private unit in average have a neutral influence.

Value on rent
Taking all the characteristics that influence the value for rent, both physical and operational characteristics, the average represents a (neutral to) positive influence (=3,6) on the value for

rent determining the affordability.

Availability
Being only analysed in terms of project size, the same conclusion can be drawn as for the characteristic on its own: the project size has a very positive influence (=5) on the availability that determines the affordability of the project.

8.5.4.1.4. Conclusion on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of affordability, it could be concluded that the characteristics have a (neutral to) positive influence (=3,4) on the affordability.

8.5.4.2. An analysis in influence of the characteristics upon the profitability
In the following the characteristics of the case study of URBY and its influence on the three determinants for profitability are discussed.

8.5.4.2.1. Conclusions on characteristics

Determinant of costs
Project size
As the project of URBY offers almost 37% of its square meters collective facilities. This results in much extra meters provided on top of the private units. These are metres that are not directly lettable and thus have a very negative influence on the costs.

With more than 500 people housed in the URBY residence, going up to 900 in the second phase, the location offers an immense number of lettable units. This offers the opportunity for quantum benefits in terms of costs spreading. Therefore, the project size in terms of number of private units has a very positive influence (=5) on the development costs.

Taking the two together, the project size has a neutral to positive influence (=3,5) on the development costs determining profitability.

Private spaces
The configuration of the private spaces with a size of 29 m2 and being fully equipped, has a negative influence on the costs.

Shared spaces
All the shared spaces that are developed are on top of the already fully-equipped private units. The management, activation and development of these spaces have a very negative influence on the operational and development costs.

Location
The location on the undesired Staten Island, offers the opportunity for lower ground costs. This has a positive influence on the development costs.

Leasing contracts
As there is hardly any flexibility in the leasing contracts, the costs related to high turnovers are diverted. With that the leasing contracts have a positive influence on the operational costs.

Community & Lifestyle
The facilitation of the community through collective facilities and events and even an on-site cultural manager, demands high (development and) operational costs of facilitating the community on such a level. This results in a negative influence on the operational costs.

Services
As the provided services of utilities, cleaning and maintenance is being provided against a fixed monthly, it does not pressure on the costs. With this many private units, there are quantum benefits of arranging these services and with that it has a positive influence on the costs.

Determinant of risk
Project size
Of the total number of square meters of the project of WeLive, 37% is occupied by collective facilities. This is considered above required for collective basic needs (20%) and with that adds extra living quality for the users. Therefore, it could be concluded that the project size has a positive influence on the attractiveness and with that on the risk on vacancy.

Yet, with the number of units -over 500 units- that are housed, the risk on vacancy is relatively high, especially which results in a very negative influence on the risk on vacancy.

Taking the two together, the project size has a negative to neutral influence (=2,5) on the development costs determining profitability.

Private spaces
The configuration of the private spaces with a size of 29 m2 and being fully equipped, represents very attractive housing and with that has a positive influence on the risk on vacancy.

Shared spaces
The collective functions in URBY consists out of some recreational functions together with some public functions in the plinth. Because the private units are fully equipped, the shared functions represent extra quality to the living environment. Therefore, it has a very positive influence on the attractiveness of the location and with that on the risk on vacancy.

Location
The location of URBY is outside the city but within 60 min distance by public transport to the business district of Manhattan New York. With that the location has a negative influence on attractiveness and with that on the risk on vacancy.

Leasing contracts
The leasing contract of URBY are the same as traditional contracts starting at 12 and offering

also 24 months leases. This reduces the risk on vacancy with that has a positive influence on the profitability.

Community & Lifestyle
The community is stimulated through collective spaces in combination with events and even a cultural manager. With that the operational management upon the community has a very positive influence on the attractiveness of the residence and with that on the risk on vacancy.

Services
In the URBY location many services like cleaning and maintenance and utilities are provided, yet against a fixed monthly fee. The fees for utilities and amenities are almost the same as the costs. Therefore, the facilitation of services against a fee result in a negative influence on the attractiveness and with that on the risk on vacancy.

Determinant of rental income/m2/month
Project size
The size of the project over 500 units allows for a relatively high number of lettable units. Therefore, the size of the project has a very positive influence on the total rental income per square meter per month.

€/m2/Private spaces
The square metre price of the private rental units is a much higher (33%) than the traditional square metre price. With that it has a very positive influence on the rental income per month and with that on the profitability.

€/m2/Services
As all services that are provided are organized against a reduced required fee, this configuration has a neutral influence on the rental income per month.

8.5.4.2.2. Conclusions on structure
As is visible in figure x, the influence of the physical characteristics in general on the profitability is of a neutral to positive influence. This means that generally speaking, all physical characteristics taken together (=3,7) they have a (neutral to) positive influence on the profitability.

Looking in to the general influence of the operational characteristics, they have a negative influence on the profitability. This means that generally speaking, all operational characteristics taken together (=3,2) they have a neutral influence on the profitability.
8.5.4.2.3. Conclusions on determinants
Costs
Taking all the characteristics that influence the development and operational costs the average represents a neutral influence (=2,8) on the costs determining the profitability.

Risks
Taking all the characteristics that influence the risks (on vacancy) together, the average represents

a (neutral to) positive influence (=3,7) on the risks determining the profitability.

Rental income/m2/month
Taking the three characteristics that influence the monthly rental income, it is clear in considering them equal in importance of influence, they balance each other out (influence level 3 to 5) which results in a generally taken positive (to very positive) influence (=4,3) on monthly rental costs determining the profitability. What should be noted is that this does not indicate that the profitability is neutral in comparison to traditional housing, but that the three characteristics influencing the determinant of monthly rental income per square meter of private unit in average have a neutral influence.

8.5.4.2.4. Conclusions on aim
In general, taking everything together, the mean of all characteristics, both physical and operational influencing the three determinants of profitability, it could be concluded that the characteristics have a neutral to positive influence (=3,5) on the profitability.

8.6. Compact Case Study Analysis 5: The Fizz, Amsterdam

8.6.1. General information

The Fizz concept is divided serving two target groups: students and young professionals. 'The Fizz-Young Professionals' aims for relaxed and flexible living, for people that live a high-bustling life and are looking for a place that makes their life 'easier'. The Fizz is located on central places in cities close to public transport. The concept aims for high-quality designed interiors and are currently located in 7 locations in Germany, in Vienna and now coming to Amsterdam. Through 'House Managers' household shores are taken away and community events are organized.
Close to the city centre of Amsterdam, in the Amstel region, area and real estate developer AM is planning to realise the Lofts sold the Fizz Group; a complex offering high quality mid-segment rental housing with a communal touch. The project aims to serve starters and millennials born between 1980 and 2000. The Fizz Amsterdam [Lofts020] location offers 212 private units of which the prices start at €900, - a month and its sizes range from 30m2 to 60m2. The Fizz concept is also expanding to cities like Rotterdam and Utrecht. The main focus of the Fizz concept is on making its residents busy life more comfortable and easier.

Factsheet on basics

Concept	The Fizz | Little Manhattan	Plot	4.377 m2
Location	Amsterdam, The Netherlands	Year	2017
Size total (m2)	26.000 m2 (total 45.000 m2)	Size (private units)	133
	Size (private units)	30 - 41 m2	27 m2
Rental price /month (€)	Starting from €663,--	Private m2 / person	X m2
Rental price/m2	€25 /m2	Private + Col.* m2 / pers.	X m2
Apartments #	279 (590 student rooms)	Amount people	279
Types	Studio, 1-bed	Private m2 total	X m2
Floors	19-23	Collective* m2 total	63 m2
	3250 m2 public retail plinth		

Table 75. Basic information on The Fizz
** Also considering other spaces like technical, public etc. Meaning other than private spaces*

Factsheet on rent-level

Traditional Housing*					Co-living in The Fizz				
Type	€/unit	m2	€/m2	€/person	Type	€/unit	m2	€/m2	€/person
Studio	€1.750	55 m2	€26 /m2	€1.750	Studio	€633	30 m2	€21 /m2	€633
1-bed	€1.750	55 m2	€26 /m2	€1.750	1-bed	€ 805	41 m2	€50 /m2	€ x
					Services	€118			
						€751	30 m2	€25 /m2	

Table 76. Basic information on the rent-level of The Fizz
** Pricing of Amsterdam on 1st of October 2018*
** Services are heating, water TV and internet, excluding furniture*

8.6.2. Physical structure influencing affordability/profitability

8.6.2.1. Project size

Size The Fizz	# Student Apartments	m2 Student Apartments	m2 co-living/unit
45.000 m2 BVO 37.500 m2 VVO*	590	17.700 m2	
Private m2 total	# YUP Apartments	m2 YUP Apartments	Average rent/person
29.139 m2	279	11.439 m2	€751
Collective m2	# Floors	# People	
8.361 m2	19-23	869	

Table 77. Project sizes
** Taken a ratio of 1,2 between GFA and LFA for calculation purposes.*

Total m2	Collective m2	Private m2
37.500 m2	8.361 m2	29.139 m2
1	0,22	0,78

Table 78. Ratio collective and private m2
** Note that these calculations are an indication based the taken averages of private m2. Real numbers may vary from what is presented here.*

8.6.2.2. Shared spaces

Home	Eating areas	Kitchens	Living Rooms	Laundrette			
Recreation	Gym/Spa	Retail	(Grocery)Store	Restaurant/Bar	Cinema	Library	Event Spaces
	x				X	x	
Work	Workspaces	Meetingrooms	Makerspaces				
	x	x					
Mobility	Bike Storage	Car Parking	Outdoor space	Pool			
	x	x	x				

Table 79. Communal facilities The Fizz

8.6.2.3. Private space

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x	x	x	x		x

Table 80. Private functions in a studio

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x		x	x		x

Table 80. Private functions in a 1-bedroom

Type	Urby Co-Living	Traditional	Difference
Studio	30 m2	55 m2	1:1.8
1-bed	41 m2	55 m2	1:1,34

Table 81. Comparison sizes of private units between The Fizz co-living and traditional units

8.6.2.4. Project location

Distance to city centre	Time to city centre with Public Transport	Distance to Public Transport
5 km	10 min	1 min

Table 82. Locational distance to city centre.

8.6.3. Operational structure influencing affordability/profitability

8.6.3.1. Leasing contracts: short-term versus long-term
The leasing terms in The Fizz start at 12 months.

8.6.3.2. Facilitating the community

Events	Activities	Clubs/Organizations	Community Manager
x	x	-	x

Table 83. Operational organization for community management

8.6.3.3. Services: all-inclusive formula
The service of utilities is offered against a fee as well as the lease of furniture.

Furnished	Linnen & Towels	Laundry	Cleaning	Wi-Fi	TV	Maintenance	Tailoring	Mobility Rental	Security
fee			fee	fee				x	x
Taxes	Water, Heating & Electricity	Security	Tailoring	Mobility Rental					
	fee	x							

Table 84. Extra services included in the rent for the private unit

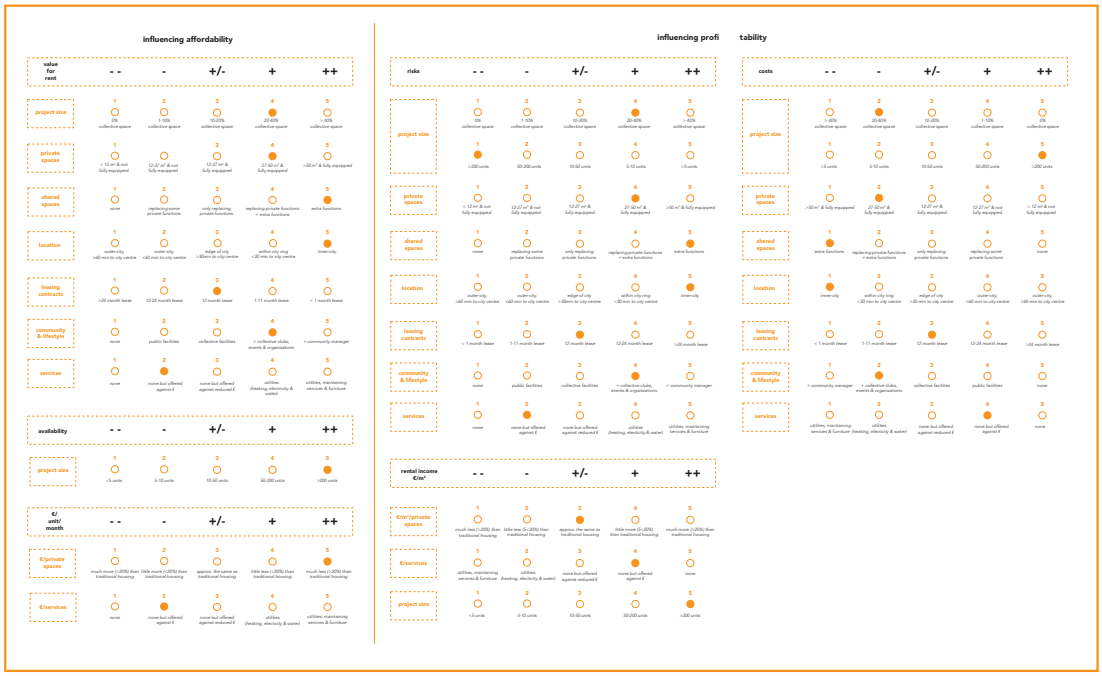


Figure 93. Filled in measurement tool of level of influence of the characteristics of the Fizz on the affordability and profitability.

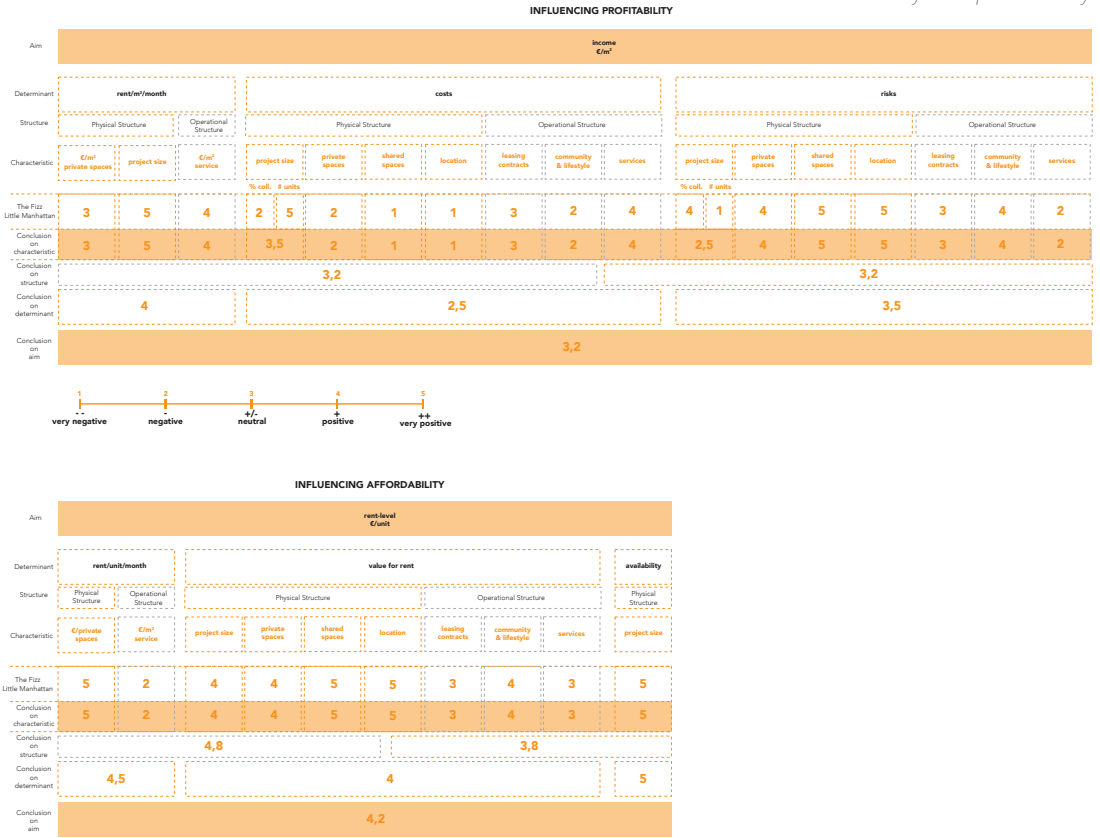


Figure 94. Level of influence of characteristics upon determinants of affordability & profitability within the case study of the Fizz.

8.6.4. Conclusions on the Fizz case study

The influence of the characteristics upon the determinants of affordability and profitability are derived from the case study analysis, and concluded in the following. By using the developed measurement tool (see figure 93) to determine the 'level of influence', an insight is given in how the physical and operational characteristics of the Fizz | Little Manhattan co-living project influence the affordability and profitability (see figure 94).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8.7. Compact Case Study Analysis 6: Urby, Jersey City

8.7.1. General information

Another complex of the initiators of Urby, is the location in Jersey City. This complex is based upon the same values as the location on Staten Island. Here the complex houses also studio, one and two-bedroom apartments with a comparable interior design of the Staten Island location with a total of 763 units.

Factsheet on basics

Concept	Urby	Position	Outside city centre
Location	Jersey City, New York, USA	Year	2016
Size total (m2)	115,197 m²	Size (private units)	28.956 m2
Rental price /month (€)	Starting from €2413	Private m2 / person	38 m2
Rental price/m2	€ 64 /m2	Private + Col.* m2 / pers.	70 m2
Apartments #	762	Amount people	x
Types	Studio, 1-bed, 2-bed	Private m2 total	X m2
Floors	69	Collective* m2 total	x m2

Table 85. Basic information on Urby, Jersey City.
** Also considering other spaces like technical, public etc. Meaning other than private spaces*

Comparison to housing in the same area

Traditional Housing*					Co-living in Urby | New Jersey				
Type	€/unit	m2	€/m2	€/person	Type	€/unit	m2	€/m2	€/person
Studio	€2040	41 m2	€49 /m2	€2040	Studio	€2413	29 m2	€83 /m2	€2413
1-bed	€2.732	67m2	€41 /m2	€2.732	1-bed	€ 2842	48 m2	€59 /m2	€ 2842
2-bed	€3.159	105 m2	€30 /m2	€1580	2-bed	€ 3707	74 m2	€50 /m2	€ 1853
Average			€40 /m2	€2117			38 m2	€64 /m2	€2240

Table 86. Basic rental information on Urby, Jersey City.
** rents on the 28th of February 2019 from Rent.com*

8.7.2. Physical structure influencing affordability/profitability

8.7.2.1. Project size

Size The Fizz	# Apartments	m2 Apartments	m2 co-living/person
63,890 m²GFA 53.241 m² LFA*	762	28.956 m2	
Private m2 total	(=762*38 m2)	70 m2	Average rent/person
28.956 m2	# Floors	# People	Average rent/person
Collective m2	69	x	€2240
24.285 m2			

Table 87. Project sizes
** Taken a ratio of 1,2 between GFA and LFA for calculation purposes.*

Total m2	Collective m2	Private m2 (total & per person)
53.241 m²	24.285 m2	28.956 m2
		38 m2
1	0,45	0,55

Table 88. Ratio collective and private m2
** Note that these calculations are an indication based the taken averages of private m2. Real numbers may vary from what is presented here.*

8.7.2.2. Shared spaces

Home	Eating areas	Kitchens	Living Rooms	Laundrette			
		x					
Recreation	Gym/Spa	Retail	(Grocery)Store	Restaurant/Bar	Cinema	Library	Event Spaces
	x			X		x	X
Work	Workspaces	Meetingrooms	Makerspaces				
Mobility	Bike Storage	Car Parking	Outdoor space	Pool			
	x	x	x	X			

Table 89. Communal facilities Urby New Jersey

8.7.2.3. Private space

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x	x	x	x	x	x

Table 90. Private functions in a studio

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x		x	x	x	x

Table 91. Private functions in a 1-bedroom

Sleeping area	Kitchenette	Fully-equipped kitchen	Dining area/ Desk	Living room	Bathroom	Laundry facilities	Storage Space
x		x		x	x	x	x

Table 92. Private functions in a 2-bedroom

Type	Urby Co-Living	Traditional	Difference
Studio [S]	29 m2	41 m2	1:1.41
Studio [M]	47 m2	67m2	1:1,42
2-Bed [L]	74 m2	105 m2	1:1.41

Table 93. Comparison sizes of private units between URBY New Jersey co-living and traditional units

8.7.2.4. Project location

Distance to city centre	Time to city centre with Public Transport	Distance to Public Transport
9 km	30 min	14 min walking

Table 94. Locational distance to city centre.

8.7.3. Operational structure influencing affordability/profitability

8.7.3.1. Leasing contracts: short-term versus long-term

The lease of the Urby Jersey City location is the same as the Staten Island location and has a standard lease period of 12 to 24 months.

8.7.3.2. Facilitating the community

Events	Activities	Clubs/Organizations	Community Manager
x	x	-	x

Table 95. Operational organization for community management

8.7.3.3. Services: all-inclusive formula

Furnished	Linnen & Towels	Laundry	Cleaning	Wi-Fi	TV	Maintenance	Tailoring	Mobility Rental	Security
			x fee	x fee	x fee	x		x	x
Taxes	Water, Heating & Electricity	Security	Tailoring	Mobility Rental					
	x fee	x							

Table 96. Extra services included in the rent for the private unit

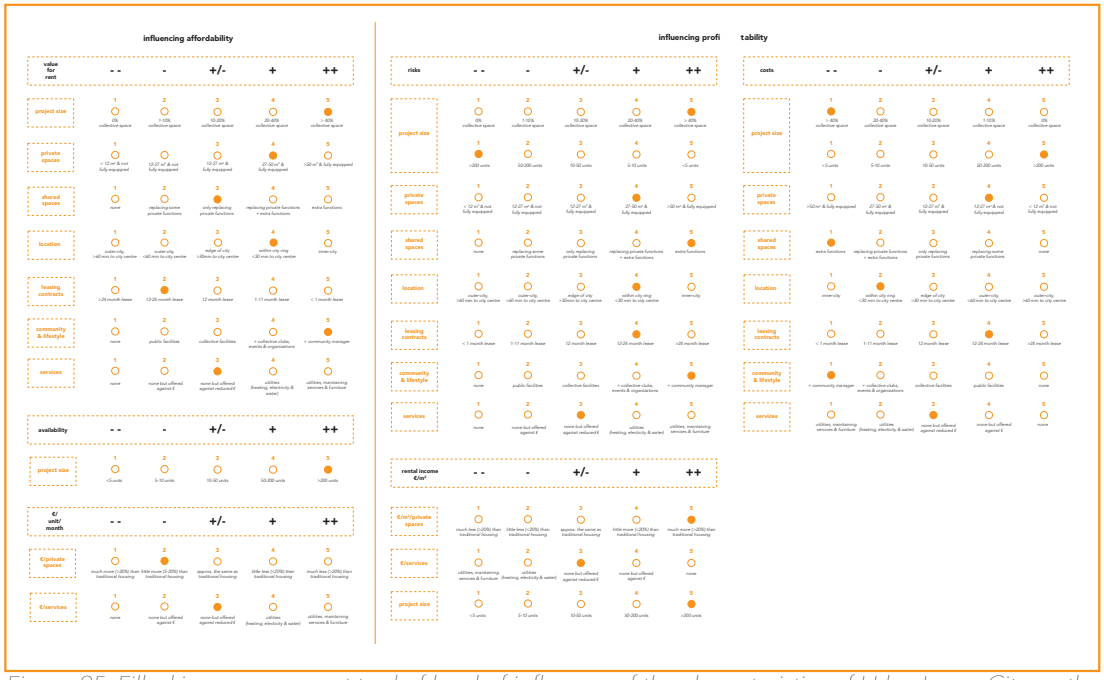


Figure 95. Filled in measurement tool of level of influence of the characteristics of Urby Jersey City on the affordability and profitability.

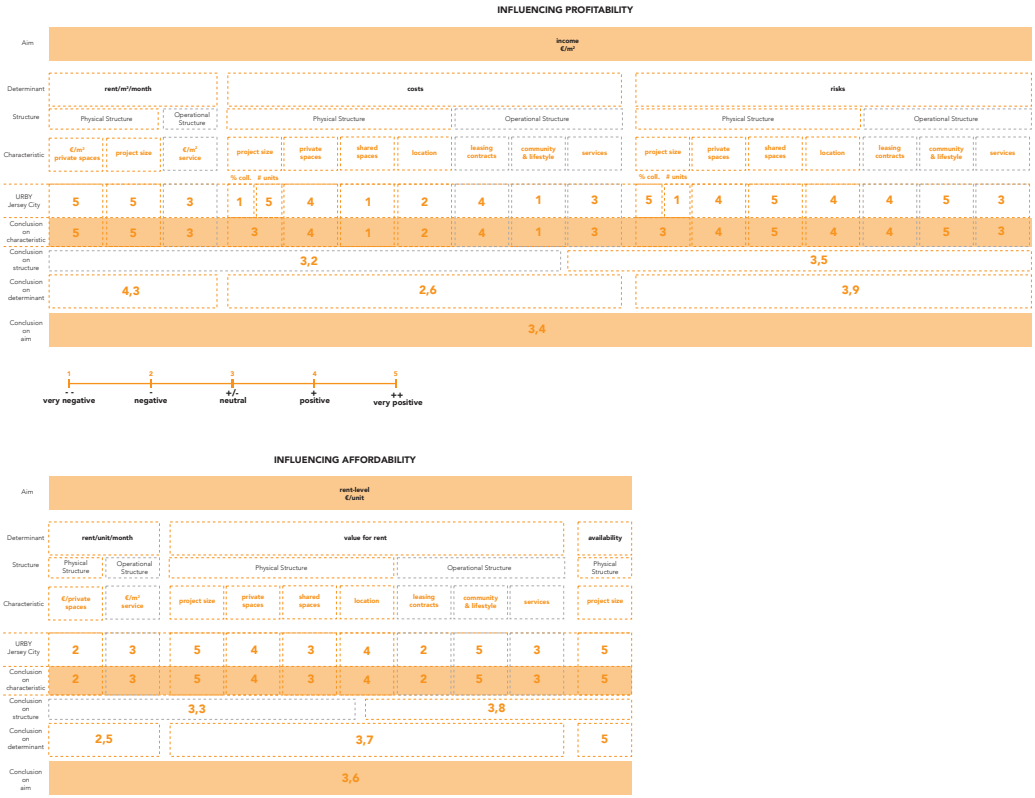


Figure 96 Level of influence of characteristics upon determinants of affordability & profitability within the case study of Urby Jersey City.

8.7.4. Conclusions on the Urby Jersey city case study

The influence of the characteristics upon the determinants of affordability and profitability are derived from the case study analysis, and concluded in the following. By using the developed measurement tool (see figure 95) to determine the 'level of influence', an insight is given in how the physical and operational characteristics of the Urby Jersey City co-living project influence the affordability and profitability (see figure 96).

INFLUENCING AFFORDABILITY

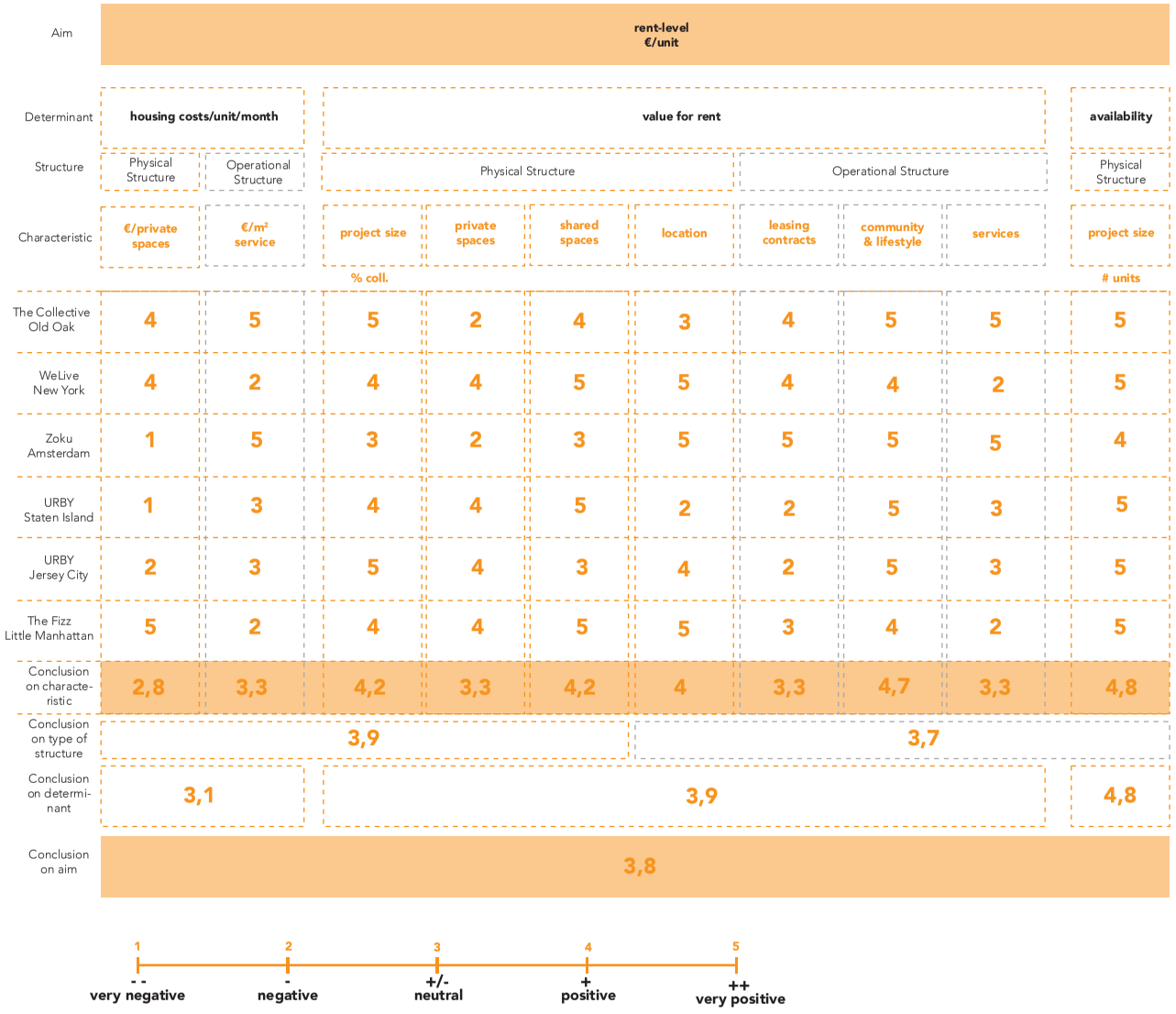


Figure 97. Level of influence of characteristics upon determinants of affordability.

9 CONCLUSIONS "How do the physical and operational characteristics influence the affordability and profitability?"

9.1 Conclusion on "How do the physical and operational characteristics influence the affordability?"

Following the research in the different co-living case studies and looking into the levels of influence on the determinants for affordability, conclusions can be drawn in respect to the posed research question. In an effort to answer the question "How do the physical and operational characteristics (of commercial co-living) influence the affordability?", an analytical framework was developed where the influence of the co-living characteristics – part of the physical or operational structure of the project – on the determinants for affordability was analysed. A bandwidth of influence levels, ranging from a very negative to a very positive influence on the determinant of affordability, was developed in reference to traditional housing, user desires and relativities within the characteristics itself. Here, the basic commercial co-living concept (see research part 1) was used as a starting-point for developing the bandwidths. This bandwidth of levels gives an insight in the relative influence a characteristic has on the affordability of the co-living project. For the results of the analysis combined see figure 97.

In the following, the conclusion drawn from the analyses of the characteristics on the (determinants of) affordability are discussed. These conclusions give an insight in the influence the different physical and operational characteristics of co-living have on the affordability. This provides knowledge into the affordability opportunities of the commercial co-living concept.

9.1.1. Conclusions on characteristics

Here the characteristics are discussed in respect to their influence to the determinants of affordability.

Determinant of housing costs per private unit per month

€/Private spaces

Looking at the rental prices per private unit as demanded in the different case studies, you see a wide range of situations with rents ranging from more than 20% higher to more than 20% lower than traditional housing. Taking these together, it gives an average of around the same rental prices as seen in traditional housing, and with that has a neutral influence on the affordability. Yet, because of the large differences between the case studies, this gives a misguided insight in the influence of rental prices per private unit on the housing costs. See figure 98.

€/Services

Looking at the provided services in the co-living projects, it is striking that none of the projects do not provide any services. All operational organizations provide at least utilities, Wi-Fi, TV and cleaning and maintenance services and some provide also furniture. Yet, not all projects provide these services within the monthly rent, and charge and extra one-time or monthly fee for these services. Taking them all together, one could say that the provided services, have a

Figure 98 . Influence of the rental costs €/private unit/month on the affordability.

Figure 99. Influence of the €/private unit/month for services on the affordability.

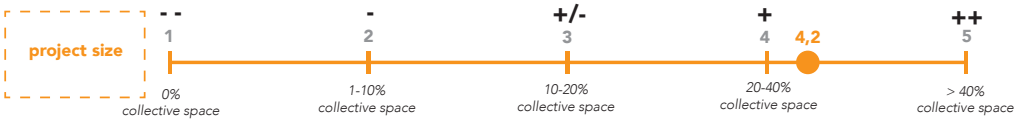


Figure 100. Influence of the amount of collective space on the value for rent.

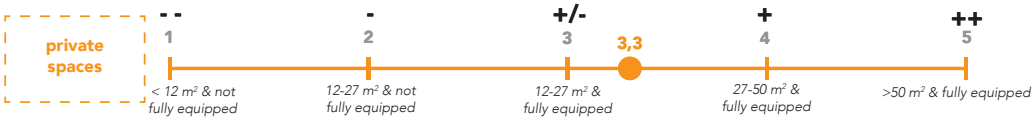


Figure 101. Influence of configuration of private units on the value for rent.

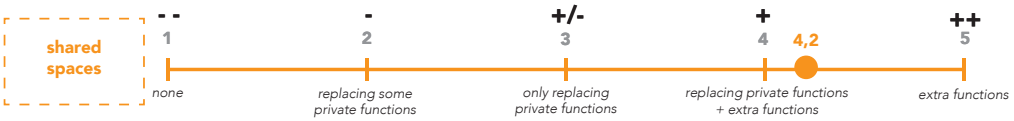


Figure 102. Influence of configuration of private units on the value for rent.

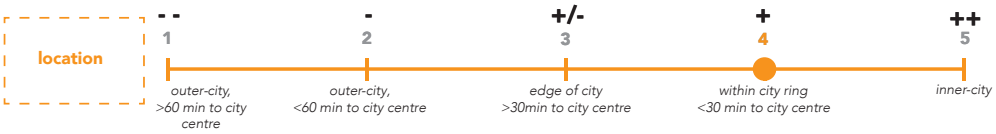


Figure 103. Influence of the project location on the value for rent.

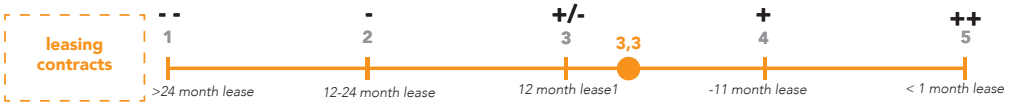


Figure 104. Influence of the leasing terms on the value for rent.

Figure 105. Influence of the organization of community and co-living lifestyle on the value for rent.

neutral (to positive) influence on the monthly costs for housing and with that on the affordability. See figure 99.

Determinant of value for rent
Project size
Analysing the provided amount of collective space, there are quite some similarities between the co-living projects. The percentages taking up collective space range from 20% to almost 60% of the project size. With that all of the project has a neutral to very positive influence on the value for rent with their configurations of collective square meters versus private square meters. Therefore, all projects increase the 'living square meters' of its residents by the implementation of at least 20% of collective space but on average more than 40%. With that the characteristic of the project size in terms of amount of collective space in general has a positive influence on the value for rent and with that on the affordability. See figure 100.

Private spaces
The private spaces represent, of course, the most essential element for its users within any type of housing, also within co-living projects. As the co-living concept is an evolution of micro-housing, this type of private unit was considered a proper basic unit and therefore neutrally influencing the affordability.
Looking into the configurations of the private units within the different case studies, it is clear that there is are two configurations leading. All projects house or a '12-27 m2 (smaller than a standard micro-dwelling) and not fully equipped'-private unit or a '27-50m2 (almost the same size as traditional housing) and fully equipped'-private unit. Housing smaller, not-fully equipped units, the pressure on the collective space becomes bigger as the units are not completely self-sufficient and lack living space. With that the influence on value for rent is negative. When providing units larger than a micro-dwelling and fully equipped, the units are self-sufficient and with that the pressure on the necessity of collective facilities is less. With that the influence on value for rent is positive.
Although two configurations are dominant, on average the configurations of the private spaces in the analysed co-living case studies have a neutral (to positive) influence on the value for rent and with that on the affordability. See figure 101.

Shared spaces
Analysing the configurations of the collective facilities, it cannot be understood without first understanding the possibilities in configurations of the private spaces. As the shared spaces in the basis complement the lack of space in the private units, the 'replacement' of homey functions like kitchens, living rooms and dining areas is considered a neutral influence on the value for rent as it balances out the lack of space in the private units (where micro-sized dwellings are considered the benchmark).
Looking at the different configurations of shared spaces in the co-living projects, they range from replacing the private functions with (positive influence) or without (neutral influence) extra functions to facilitating a variety of extra functions on top of self-sufficient private units.
Taking all configurations together, the shared spaces have on average a positive influence on the value for rent and with that on the affordability. See figure 102.

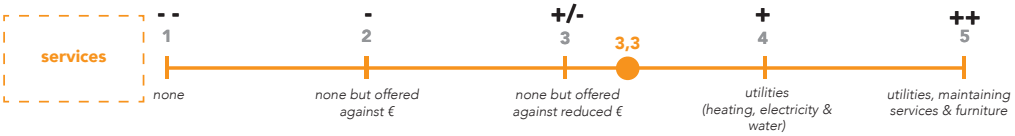


Figure 106. Influence of the offered services determining the level of comfort and with that the value for rent.

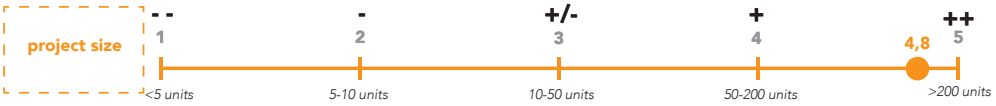


Figure 107. Influence of the project size on the availability of housing.

Location
The location of housing often determines its demand and with that its affordability of the supply. With users that desire inner-city locations in close proximity to work, recreational facilities and culture, the location of the co-living project has its influence on the value for rent.
Looking at the different locations of the co-living projects, there is a wide range visible in locational types. From outer city locations, where residents are within 45 minutes in the central business district, to inner-city locations. With three of the six case studies being located in the city centre, one within the city ring, one on the edge of the city and on the outskirts of the city, the average influence on the value for rent from the locational characteristics is of a positive influence. See figure 103.

Leasing contracts
Traditionally, leasing contracts for housing are for a rental period from at least 12 sometimes 24 months. With that, it is considered that a 12-month lease is comparable to traditional leasing terms and with that has a neutral influence on the value for rent. Both URBY projects offer a traditional leasing term of 12 to 24 months. The other co-living locations offer a more flexible leasing term from less than one year to even daily rent. Yet, the locations that offer daily rental options, do charge higher rent for the units. As the millennial users desire high flexibility in terms of their housing lease, this determines the value for rent in terms of leasing contracts. Altogether, taking all co-living locations together, the character of leasing terms has a neutral (to positive) influence on the value for rent and with that on the affordability. See figure 104.

Community & Lifestyle
Being part of a community and embracing a collective lifestyle, is what represents the desire of one-person-household users for social connection within the loneliness of increasingly more dense urban environments. As the facilitation of (some) shared functions within a co-living project are considered part of the basic concept, this is taken as a neutral influence on the sense of community and also considering that, "just a space does not yet make a community" (Crobach of Zoku, 2018). Looking at the way the co-living initiatives organize and stimulate the sense of community amongst its residents, there are some noticeable similarities between the locations. All locations have operational management teams organize events and activities, some facilitate the initiations of clubs amongst residents and a couple have an on-site community manager, being responsible for a vibrant, active community life. Altogether, it could be concluded that based on these six case studies, the characteristic of community and co-living lifestyle has a (positive to) very positive influence on the value for rent and with that on the affordability. See figure 105.

Services
Together with the desire of the one-person, millennial household for flexibility in leasing terms, comes the desire for hassle-free and comfortable housing. Services like cleaning, maintenance and furniture help providing these desired service levels.
Some of the locations offer these kinds of services within the monthly rent, others do offer the service, but against a fixed monthly or one-time fee. If the services are included in the rent, it offers an increasing value for rent.
Taking all the co-living locations together, on average the services are all offered but against a (reduced) fee. This configuration has a neutral (to positive) influence on the value for rent. See

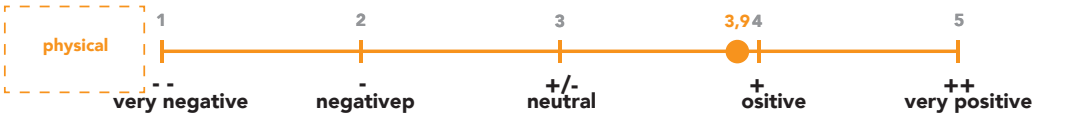


Figure 108. Average level of influence of physical characteristics on affordability.

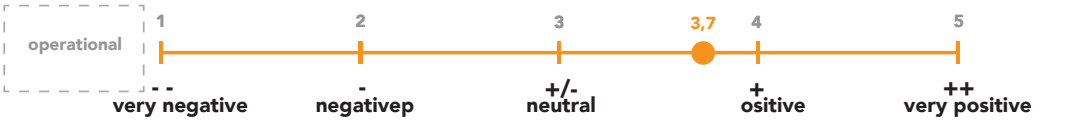


Figure 109. Average level of influence of operational characteristics on affordability.

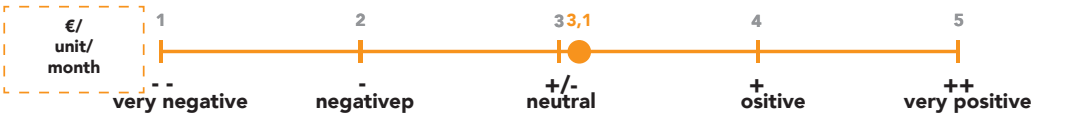


Figure 110. Average level of influence of the characteristics on the housing costs per units per month determining the affordability.

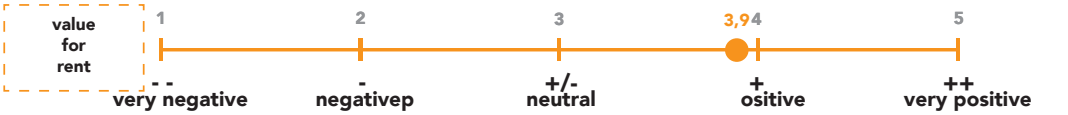


Figure 111. Average level of influence of the characteristics on the value for rent determining the affordability.

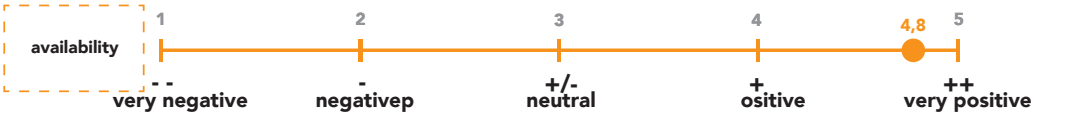


Figure 112. Average level of influence of the characteristics on the availability determining the affordability.

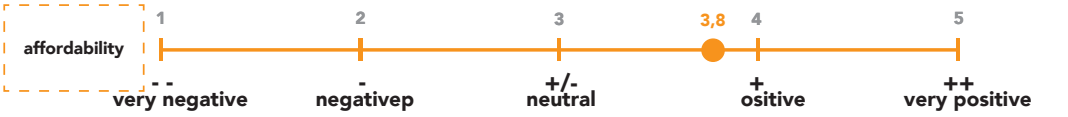


Figure 113. Average level of influence of the characteristics on the affordability of commercial co-housing.

figure 106.
Determinant of availability
Project size
Meeting the rent-level requirements and providing a proper value for rent already stimulates the affordability of housing. Yet, if the availability -supply- is not there, residents are still not possible to move into their desired living environment.
Therefore, the availability of housing a project offers adds to the affordability of rental housing. The sizes are based on typologies of 'shared blocks. Here a traditional rowhouse, offers to around 5 apartments and a flat building can house more than 200. The analysed co-living projects, although all selected upon their size, all house from a 133 tot over 700 units. Therefore, on average the influence on availability of the project size in terms of units, is a very positive influence. See figure 107.

9.1.2. Conclusions on structure
In concluding upon the level of influence of structure, first the physical characteristics of the co-living projects are taken together. Here, it could be concluded that the general, average level of influence of the physical characteristics on the affordability is of a positive influence. See figure 108

Secondly, all operational characteristics are considered together in concluding upon the level of influence of the operational structure. Here, it could be concluded that the general, average level of influence of the operational characteristics on the affordability is of a (neutral to) positive influence. See figure 109.

9.1.3. Conclusions on determinants
As there are three determinants framed in aiming for affordability, it is interesting to see what the general level of influence of the characteristics of these determinants is upon the affordability.

Monthly costs per private unit
The two characteristics of rental costs per private unit per month as well as the monthly costs for services influence the determinant of the total costs for housing for the user which influences the affordability. Taken the level of influences of these two characteristics together, it could be concluded that they provide a neutral influence of the monthly housing costs per unit per month on the affordability. See figure 110.

Value on rent
All seven physical and operational characteristics have their influence on the value for rent. Taking these characteristics together, the general, average level is a positive influence of the value for rent on the affordability. See figure 111.

Availability
As the availability is here determined by one characteristic, namely the number of available private units, this conclusion is the same as the conclusion for the characteristic itself. Therefore, the conclusion is that general, average availability has a very positive influence on the affordability.

See figure 112.

9.1.4. Conclusion on aim

Although it does not provide insight in how much more or less affordable the co-living projects are in respect to traditional housing, taking all characteristics together does give insight in the level of influence the characteristics of the analysed co-living projects, and with that perhaps on co-living in general, have on the affordability in respect to traditional housing.

Affordability in this research was considered as being determined by the monthly housing costs per unit, the value that provided for these costs and within this unit (and its surroundings) and the availability of housing.

Taking all level of influences of the characteristics of co-living together, it can be concluded that the characteristics have a general, average positive influence on the affordability. See figure 113.

Notes on conclusions: what is striking?

What is interesting to note after concluding upon the levels of influence on the affordability of the different characteristics is the following.

Although the level of influence on the determinant of monthly costs for housing is of a neutral influence - meaning that the rental costs for a private unit per month is approximately the same as for traditional housing -, it is striking that the value for rent is of a much higher and even a positive influence. With this it could be concluded that, for the approximately the same rent-level per month, the value for this rent level that is provided in the co-living projects is higher than traditional housing. Here it should be taken in to account that the different characteristics are not weight in respect to their importance for the user, and therefore it cannot (yet) be concluded if the value for rent is actually quantifiably more that for traditional housing. For example, the configuration of the characteristic of private space would, most probably, weigh heavier for the user than the flexibility in leasing terms. Still, it is interesting that on average the value for rent has a relative positive influence on the affordability, together with a neutral influence of the housing costs per month. With that, perhaps, the co-living users 'get more' value for the total situation of their housing. So the affordability of co-living here, is not found in rent per month, but in the value that is provided for the rent.

What is also interesting, is that both structures – physical and operational- have a positive level of influence on the affordability. With this, it could be said that, still without weighing the importance of the specific characteristics – the physical and operational structure of co-living is beneficial for its users.

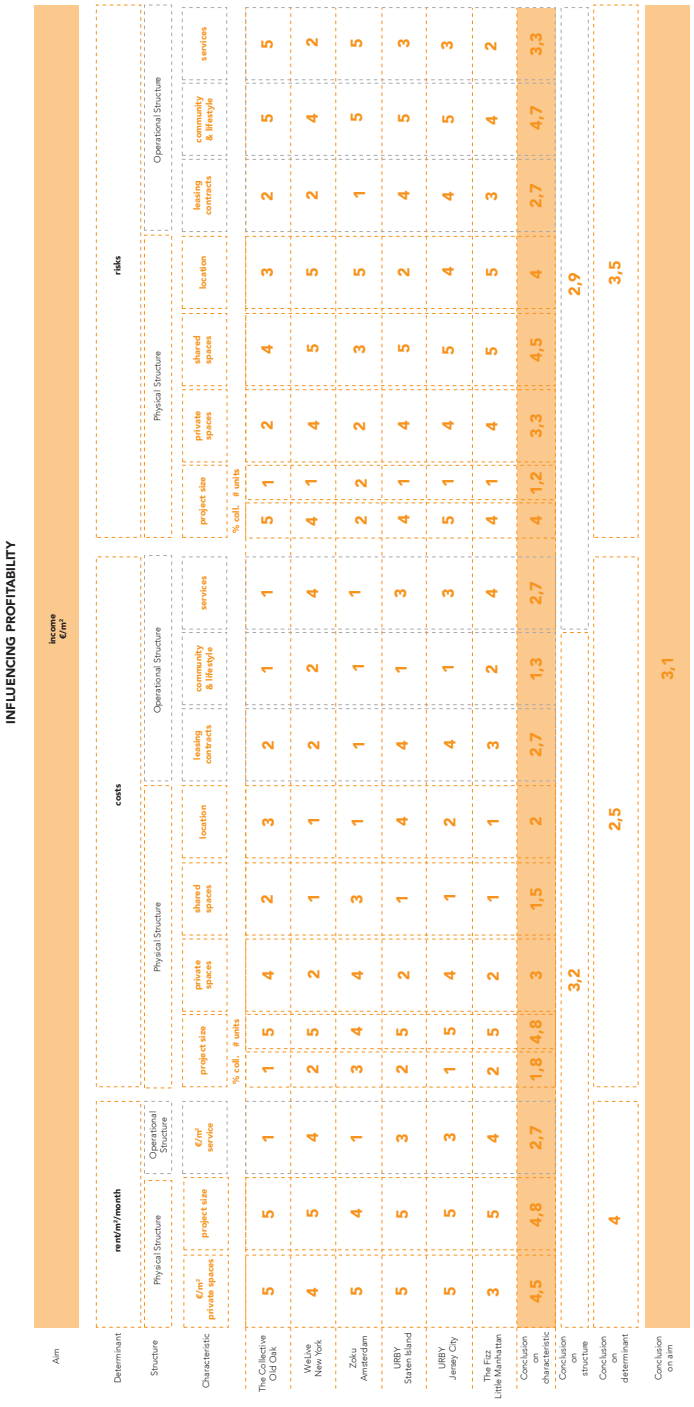


Figure 114. Level of influence of characteristics upon determinants of profitability.

9.2. Conclusion on "How do the physical and operational characteristics influence the profitability?"

Now, after analysing the affordability, the second aim will be analysed, namely the profitability. Following the research of the different co-living case studies and looking in to the levels of influence upon the determinants for profitability, conclusions can be drawn in respect to the posed research question. In an effort to answer the question "How do the physical and operational characteristics (of commercial co-living) influence the profitability?", an analytical framework was developed where the influence of the co-living characteristics – part of the physical or operational structure of the project – was analysed on the determinants for profitability. A bandwidth of influence levels, ranging from a very negative to a very positive influence on the determinant of profitability, was developed based upon traditional housing references, user desires and relativities within the characteristics itself. Here, the basic commercial co-living concept (see research part 1) was used as a starting-point for developing the bandwidths. This bandwidth of levels gives an insight in the relative influence a characteristic has on the profitability from a developer's perspective of the co-living project. For the results of the analysis combined see figure 114.

In the following, the conclusion upon the analyses of the characteristics on the (determinants of) profitability are discussed. These conclusions give an insight in the influence the different physical and operational characteristics of co-living have on the profitability. This provides knowledge upon the profitability opportunities of the commercial co-living concept.

9.2.1. Conclusions on characteristics

Here the characteristics are discussed in respect to their influence to the determinants of profitability.

Determinant of rental income/month

Project size

As discussed in the chapter regarding the concept of co-living, the project size in terms of number of lettable units plays an important role in aiming for profitability. The benefits of leasing out as much private units as possible that all share the collective facilities, are found in the benefits of spreading the costs for the collective spaces over as much private units as possible. Looking at the different case studies that were analysed, it is clear that all projects house at least 100 lettable private units and have with that at least a positive influence on the project size. Taking them all together even results in a very positive influence on the determinant of total rental income per month and with that on the profitability.

What should be noted is, that in selecting the case studies, only large-scale projects were selected. So, this conclusion is not a conclusion on the average number of provided lettable units in a co-living project. See figure 115.

€/m2/Private spaces

Being the most dominant element of the monthly income, the rent-level per square meter

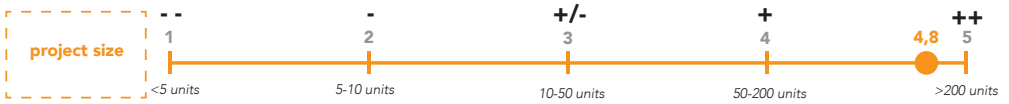


Figure 115. Average level of influence of the project size on the total rental income/month.

Figure 116. Average level of influence of rent per m2 per month on the total rental income/month.

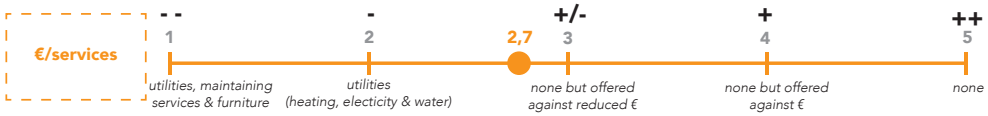


Figure 117. Average level of influence of income for provided services on the total rental income/month.

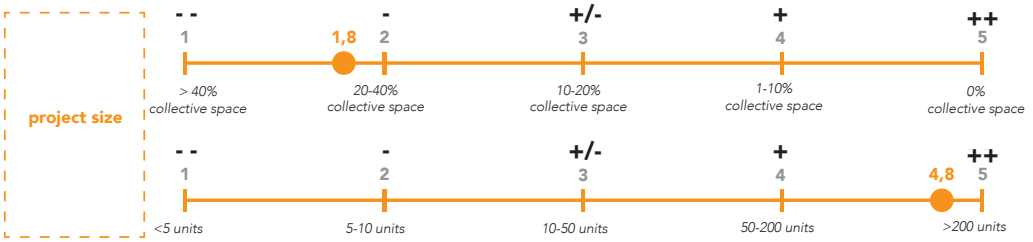


Figure 118. Average level of influence of the project size on the costs.

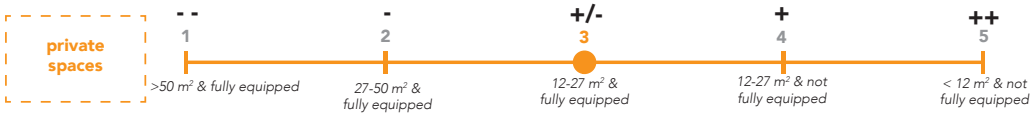


Figure 119. Average level of influence of the configuration of the private spaces on the costs.

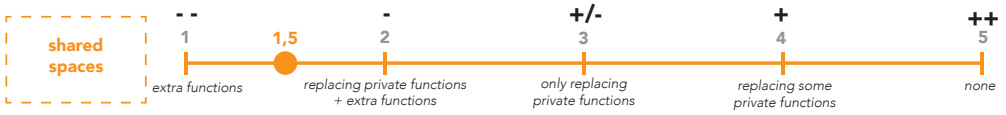


Figure 120. Average level of influence of the configuration of the shared spaces on the costs.

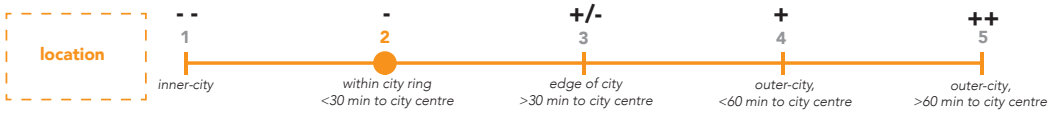


Figure 121. Average level of influence of the location on the costs.

private space determines a large part of the monthly income. Analysing co-living in comparison with traditional housing, the same square meter rental income as traditional housing is considered as a neutral influence on the profitability. This does not mean that is represents 'no profits', but it should be seen in as a relative nature.
Looking at the different analysed co-living projects, it is interesting to conclude that the average square meter price and with that rental income ranges from approximately the same as traditional housing to much more than traditional housing, which is over 20%. With this, on average and in general the rental price per square meter has a positive to very positive influence on the profitability. See figure 116.

€/m2/Services
Together with the desire of the one-person, millennial household for flexibility in leasing terms, comes the desire for hassle-free and comfortable housing. Services like cleaning, maintenance and furniture help providing these desired service levels.
Facilitating these services comes with relatively higher development and operational costs in respect to traditional housing, where these services are in general not included. Yet, looking at the case studies, the provision of these services -ranging from utilities to cleaning and furniture- is sometimes included in the monthly rent for private units and sometimes a monthly or one-time fee is charged. When a fee is charged, the monthly income in respect to the made costs is higher, and vice versa. With that, taking all co-living projects together with their characteristic on service income per month, the character has a (negative to) neutral influence on the monthly income and with that on the profitability. See figure 117.

Determinant of costs
Project size
The characteristic of the project size, has in two ways influence on the determinant of development costs.
First of all, in terms of percentage of collective space of the total square meters of the co-living project. This percentage gives an indication on how many square meters of the project are not directly lettable but are an addition to the lettable private units. In terms of costs, the more collective space is facilitated, the more collective spaces need to be developed without direct return through rent on the collective square meters. Of course, it could be said that this is incorporated in the rent for the private units, but that is not the way it is considered here.
Looking at all the analysed case studies, it is clear that the percentage of the project that is houses the collective facilities range from 20% to almost 60%. Altogether, this gives a general, average of a negative influence on the costs and with that on the profitability.
Secondly, the costs of the project size can be analysed in terms of number of private lettable units. As the selection of the case studies was based upon their size, the number of private units offered in the case studies range from a 100 to more than 700 units. The influence these numbers have on the development costs, is set in the benefits of spreading fixed costs over a multiple number of private units, which makes the costs per unit relatively lower when developing more units. Considering this, on average, the project size in terms of number of private units has a very positive influence on the development costs and with that on the profitability. See figure 118.

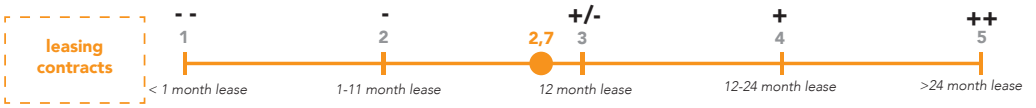


Figure 122. Average level of influence of the lease terms on the costs.

Figure 123. Average level of influence of facilitation of the community on the costs.

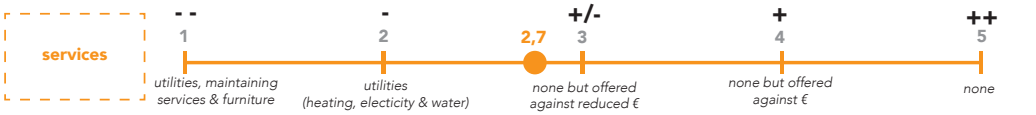


Figure 124. Average level of influence of the provided services on the costs.

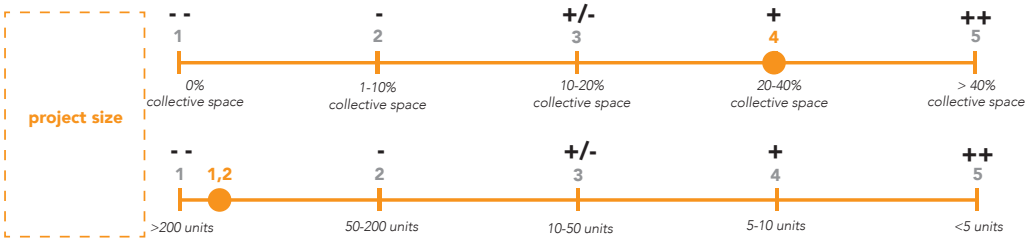


Figure 125. Average level of influence of the project size the risk on vacancy.

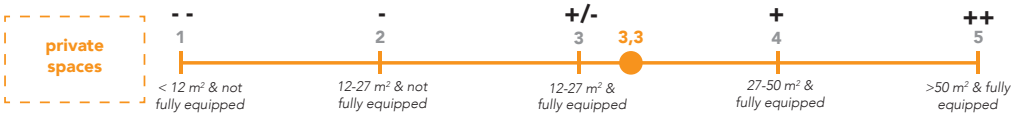


Figure 126. Average level of influence of the configuration of private spaces on the risk on vacancy.

Figure 127. Average level of influence of the configuration of shared spaces on the risk on vacancy.

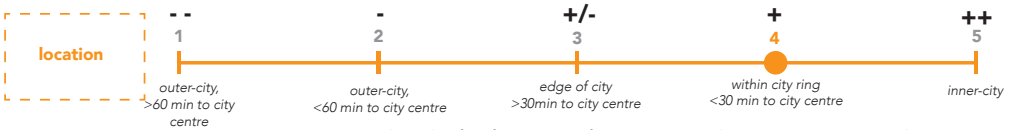


Figure 128. Average level of influence of the project location on the risk on vacancy.

Private spaces
The costs of the developing the private spaces is mostly found in the size of the units as well as the way the units are equipped. Looking at the different case studies there are two configurations found. First of all, sizes ranging from 27-50 m2 (larger than micro-dwellings) and being fully equipped and secondly sizes ranging from 12-27 m2 (smaller than micro-dwellings) and not fully equipped. Have set a basic fully equipped micro dwelling of 27m2 as the reference, the first configuration can be considered as costlier and the second configuration as less costly than the reference unit. As the division of these configuration amongst the six case studies was equal, the average influence level results in a neutral influence on the costs of private spaces and with that on the profitability. See figure 119.

Shared spaces
The necessity of the shared spaces is dependant of the configuration of the private spaces. When homey functions are missing in the private spaces, it would require more of the collective spaces. Yet when private units are fully equipped, all collective spaces that are developed can be considered as spatial extra's and increase the quality of the living environment.
In terms of costs, the replacement of homey functions in the collective areas is considered a neutral influence on the development costs, as collective kitchens, living rooms and eating areas (in replacing the homey private functions) are in general larger and with that balance out the development of these elements in the private units. When replacing these homey functions together with extra collective facilities like gyms, event rooms and workspaces, the development costs increase in respect to 'only developing basic living functions', like in traditional housing. Looking at the case studies, the configurations range from replacing the homey functions to housing extra functions on top of fully equipped private units. Taking all configurations of the shared spaces found in the case studies together, the character has a negative to very negative influence on the costs and with that on the profitability. See figure 120.

Location
The locations of the analysed co-living projects vary from inner-city locations to outer-city locations with a traveling distance less than 60 minutes by public transport to the inner city. As the desire of the millennial urban resident is set on inner-city locations, this is the most desired option. Yet, inner-city locations, in general, require the highest ground prices and with that pressure the development costs. Taking all locations together, although with big variations amongst them, the average influence of the characteristic is a negative influence on the development costs and with that on the profitability. See figure 121.

Leasing contracts
As traditional housing leasing contracts take on 12 months, this term is considered as a neutral influence on the operational costs. Yet, with the desire of the urban millennial to have high flexibility in terms of living situation, co-living residences offer higher flexibility in terms of lease. Ranging from traditional periods of 12 to 24 months to even day to day leasing terms, the flexibility in co-living is relatively higher than in traditional housing. In terms of operational costs, high flexibility results in a high overturn of residents and with that in higher maintenance, service and administrative costs. Therefore, a higher flexibility in leasing terms increases the operational costs. Taking the leasing terms of all co-living projects together, it is considered

that the character has a neutral (to negative) influence on the operational costs. See figure 122.

Community & Lifestyle
The facilitation and stimulation of the community and co-living lifestyle, is an extra element not found in traditional housing. Therefore, every action in facilitating this results in extra operational costs. As the co-living concept is based upon the combination of private and shared spaces and shared spaces on itself do not directly stimulate the community feeling, the facilitation of collective facilities is considered as a neutral influence on the community. When organizing events or even having an on-site community manager in place, the community is stimulated and facilitated. Yet this extra organizations require extra costs on operations. Therefore, the more is organized, the higher the operational costs.
Considering the community organizations of all co-living projects, you see that all of projects organize at least events and some have an on-site responsible manager. With that the general, average influence on operational costs of facilitating the community is of a (negative to) very negative influence. See figure 123.

Services
Together with the desire of the one-person, millennial household for flexibility in leasing terms, comes the desire for hassle-free and comfortable housing. Services like cleaning, maintenance and furniture help providing these desired service levels.
Facilitating these services comes with relatively higher development and operational costs in respect to traditional housing, where these services are in general not included. Yet, looking at the case studies, the provision of these services -ranging from utilities to cleaning and furniture- is sometimes included in the monthly rent for private units and sometimes a monthly or one-time fee is charged. When a fee is charged the pressure on the costs for facilitating the services is reduced and when it is included it is increased. Taking all co-living projects together in regards of their character on monthly costs for services, it results in a (negative to) neutral influence on the development and operational costs and with that on the profitability. See figure 124.

Determinant of risk
Project size
On the contrary of the reasoning for the determinant of costs, has the increasing project size in terms of percentage of collective space a positive influence on the determinant of risk. The amount of collective space that is offered in the project adds to the total amount of co-living space for its users, and with also a large variety in collective functions it answers to the user's desires and with that reduces the risk on vacancy. With that, the average influence of the character 'project size' in terms of percentage of collective space is of a positive influence upon the risk on vacancy and with that on the profitability.
Looking at the project size in terms of number of private units, it also has a contradictory influence in comparison to its influence on the development costs. In terms of risk, the more lettable units in a project, the higher the risk on vacancy. Having selected the case studies upon their size, the average number of private units is relatively high which results in a (negative to) very negative influence on the risk on vacancy and thus on the profitability. See figure 125.
Private spaces
As the private spaces represent the basis of the living environment for the co-living users, the

configuration of the private spaces has an important influence on the attractiveness of the location and with that on the risk on vacancy.
As the analysed co-living projects house either 12-27 m2, not fully equipped units or 27-50 m2, fully equipped units, the average is set in between these two levels of influence. This results in a neutral (to positive) influence of the configuration of the private spaces on the determinant of risk and with that on the profitability. See figure 126.

Shared spaces
The necessity of the shared spaces is intertwined with the configuration of the private spaces. When homey functions are missing in the private spaces, it would require more of the collective spaces. Yet, when private units are fully equipped, all collective spaces that are developed can be considered as spatial extra's and increase the quality of the living environment. Therefore, the more types of collective spaces are offered on top of basic homey functions, the more living quality is provided in the co-living residence, which increases the attractiveness of the living location and thus reduces the risk on vacancy.
Taking all configurations of the shared spaces together, the average level of influence on the risk on vacancy is a positive to very positive influence. See figure 127.

Location
The locations of the analysed co-living projects vary from inner-city locations to outer-city locations with a traveling distance less than 60 minutes by public transport to the inner city. As the desire of the millennial urban resident is set on inner-city locations, this is the most desired and attractive option and therefor has the most positive influence on the risk on vacancy. With the locations of the analysed co-living projects ranging from outer city locations to inner-city locations, the average influence of the project locations in responding to the users' desire, is of a positive influence on the risk on vacancy and with that on the profitability. See figure 128.

Leasing contracts
Although the users desire is set on high flexibility in leasing terms, the risk of vacancy increases with higher flexibility due to the increase of friction vacancy as a result of high overturn of residents. Taking the leasing terms as seen in the co-living projects and their influence on the risk on vacancy, the general average is a neutral (to negative) influence as the average influence is slightly more flexible than the traditional 12-month leasing term. See figure 129.

Community & Lifestyle
The facilitation of the community is an intrinsic part of the co-living lifestyle. Herein, the presence of collective facilities is considered a basic element of co-living. When the operational management organized collective events, activities and even provides a responsible community manager, the sense of community is stimulated. An active community results in an attractive living environment and thus reduces the risk on vacancy. On average, the level of influences of the community organizations found in the co-living projects, are of a (positive to) very positive influence on the risk on vacancy and thus on the profitability. See figure 130.

Services
Together with the desire of the one-person, millennial household for flexibility in leasing terms, comes the desire for hassle-free and comfortable housing. Services like cleaning, maintenance

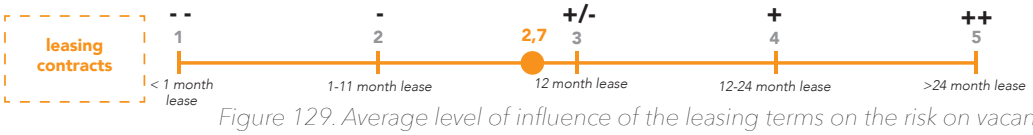


Figure 129. Average level of influence of the leasing terms on the risk on vacancy.

Figure 130. Average level of influence of facilitation of the community on the risk on vacancy.

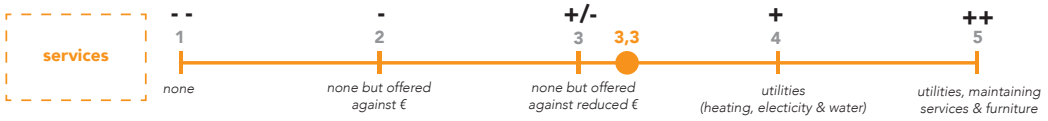


Figure 131. Average level of influence of facilitation of services on the risk on vacancy.

and furniture help providing these desired service levels.
Some of the locations offer these kinds of services within the monthly rent, others do offer the service, but against a fixed monthly or one-time fee. In providing these services, included in the rent or not, the users desire is met in aiming for a comfortable way of living.
Taking all the co-living locations together, on average the services provided have a neutral (to positive) influence on the attractiveness of the locations and thus on the risk on vacancy. See figure 131.

9.2..2. Conclusions on structure
In concluding upon the level of influence of structure, first the physical characteristics of the co-living projects are taken together. Here, it could be concluded that the general, average level of influence of the physical characteristics on the profitability is of a neutral influence. See figure 132.

Secondly, all operational characteristics are considered together in concluding upon the level of influence of the operational structure. Here, it could be concluded that the general, average level of influence of the operational characteristics on the profitability is also of a neutral influence. See figure 133.

9.2.3. Conclusions on determinants
As there are three determinants framed in aiming for affordability, it is interesting to see what the general level of influence of the characteristics of these determinants is upon the affordability.

Rental income/m2/month
The three characteristics determining the total rental income per month are the charged rental price per square meter, the income on service fees and the number of lettable private units. Here you see, that the rental income together with the number of lettable units have a very positive influence on the total income. The services provided reduce the influence as some co-living projects provide the service included in the monthly rent. Altogether, the rental income has a positive influence on the profitability. See figure 134.

Costs
All seven physical and operational characteristics have an influence on the development or operational costs determining the profitability. Looking at all the different characteristics influencing the costs, it is clear that the characteristic of project size in terms of number of units is the only characteristic having a very positive influence on the cost determinant. All other characteristics offer a neutral to very negative influence on the costs in comparison to traditional housing. With that, considering them on average, the determinant of costs has a neutral to negative influence on the profitability. See figure 135.

Risks
Also, all seven physical and operational characteristics have an influence on the determinant of risk on vacancy. Here, it is namely the project size in terms of number of lettable units together with flexibility in leasing terms that have a negative to very negative influence on the determinant of risk. The other physical and operational characteristics have a neutral to very positive influence on the risk on vacancy. Altogether, the average influence of the characteristics

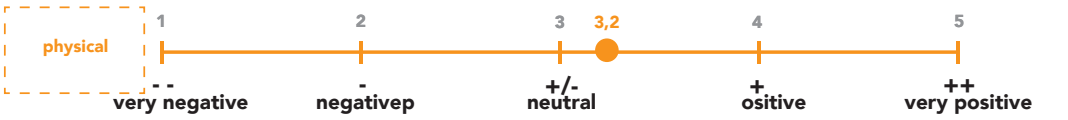


Figure 132. Average level of influence of physical characteristics on profitability.

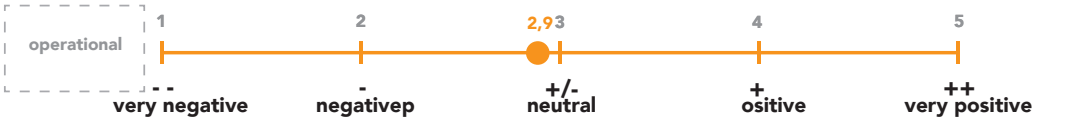


Figure 133. Average level of influence of operational characteristics on profitability.

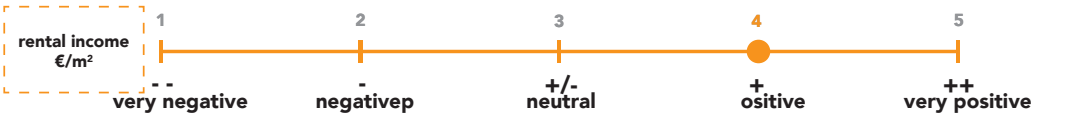


Figure 134. Average level of influence of the characteristics on the total rental income determining the profitability.

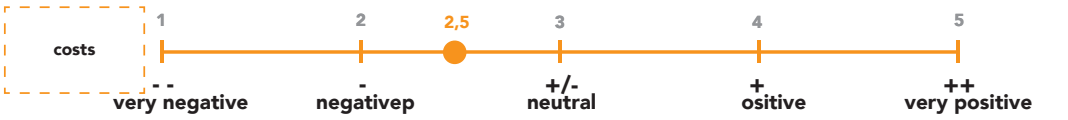


Figure 135. Average level of influence of the characteristics on the costs determining the profitability.

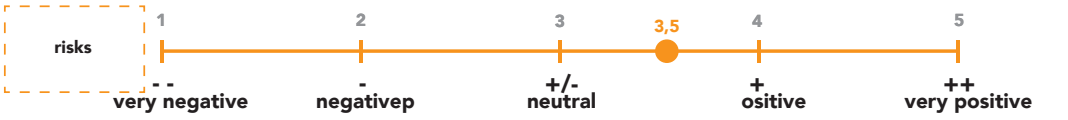


Figure 136. Average level of influence of the characteristics on the risks determining the profitability.

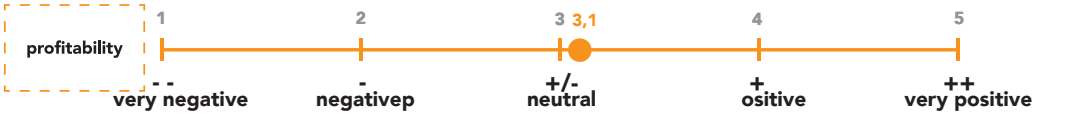


Figure 137. Average level of influence of the characteristics on the profitability of commercial co-housing.

framing the risk on vacancy, have a neutral to positive influence on the profitability. See figure 136.

9.2.4. Conclusions on aim

Taking all the influence of the characteristics on the determinants of profitability together, it can be concluded that the co-living characteristics, of the analysed case-studies, have a neutral influence on the profitability. This does not mean, that the co-living projects are or are not profitable, but gives insight in the way the framed characteristics influence the profitability in comparison to the development and operation of traditional housing. See figure 137.

Notes on conclusions: what is striking?

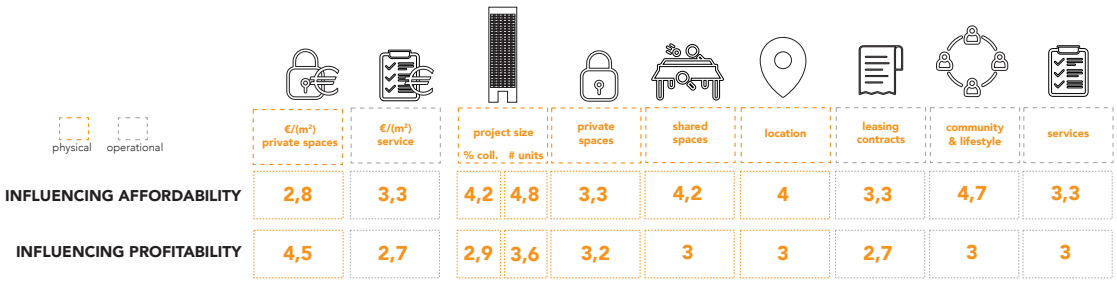
What is noticeable when comparing all the conclusions on influence levels of the characteristics on the profitability, is that the combination of negative influence of costs together with a positive influence of the revenue per square meter is striking. What could be concluded is that the higher costs due to the development and operational management of the collective spaces, provided services and lease flexibility is charged within the monthly square metre price.

Also, it is interesting to see that both structures -physical and operational- have on average a neutral influence on the profitability. Here characteristics balance each other out, as they are in this research considered as equally important.

Reflection upon conclusions

Interesting here, is that, in comparison to the same analysis upon affordability, the average monthly rent is approximately the same as traditional housing. With that it could be concluded, although cautiously because the characteristics are not weighed on their impact level of importance, that the rental prices for the users are approximately the same as for traditional housing whilst the value for rent increases, the revenue per square meter for the developer increases but also the development and operational costs are higher. All and all, perhaps the development, operation and lease of co-living has relatively the same impact on affordability and profitability as traditional housing?

What could be an interesting next step, following this research, is to quantify the levels of influence in such a way, that the level of impact importance of every character can be determined. This would give a better insight in the financial impact of all characteristics upon the affordability and profitability and thus, give an even more clear view on the opportunities of the co-living project as from a development point of view as well as a user's point of view.



	€/(m²) private spaces	€/(m²) service	project size % coll.	project size # units	private spaces	shared spaces	location	leasing contracts	community & lifestyle	services
physical / operational										
INFLUENCING AFFORDABILITY	2,8	3,3	4,2	4,8	3,3	4,2	4	3,3	4,7	3,3
INFLUENCING PROFITABILITY	4,5	2,7	2,9	3,6	3,2	3	3	2,7	3	3

Figure 138. Conclusions on "How do the physical and operational characteristics of commercial co-living influence the (users-)affordability and (developers-)profitability?"

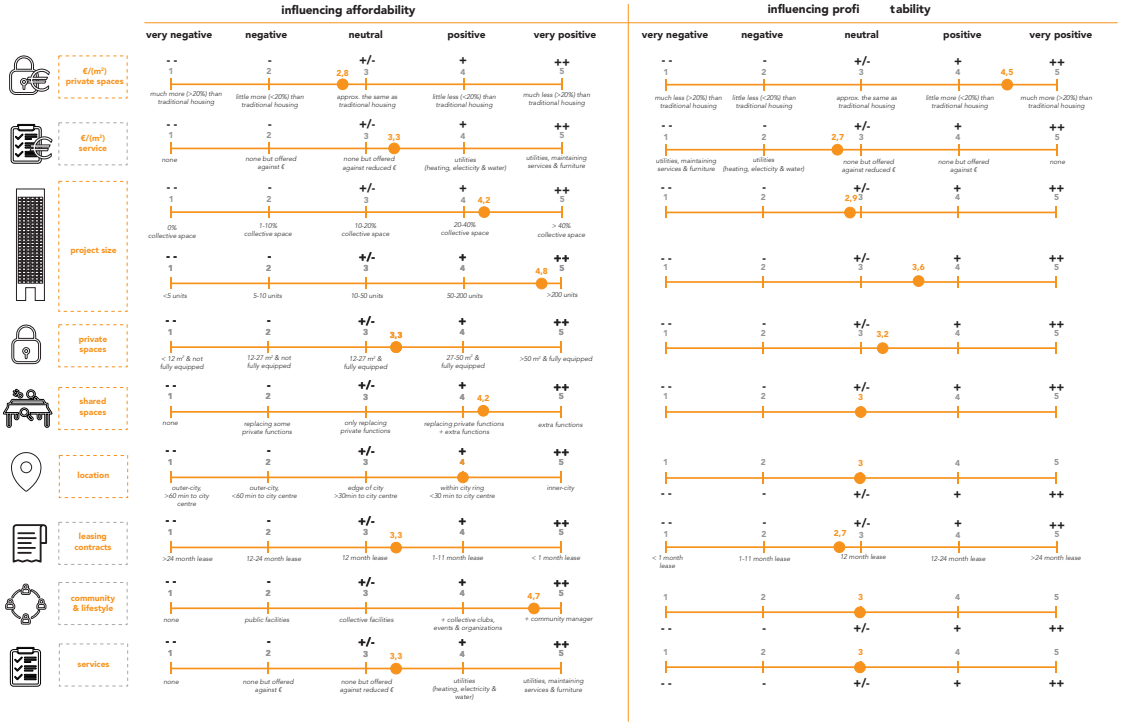


Figure 139. Conclusions on "How do the physical and operational characteristics of commercial co-living influence the (users-)affordability and (developers-)profitability?"

9.3. "How do the physical and operational characteristics influence the (users-) affordability and (developers-)profitability?"

The previous chapter provides the initial conclusions upon the level of influence of the characteristics upon affordability and profitability. This is shown through the separate characteristics influencing the determinants for affordability and profitability, but also on structural average (physical or operational structure) in taking all physical and operational characteristics together, or on average per determinant. With this, conclusions are provided, upon the average level of influence of the physical characteristics as well as the operational characteristics on the affordability and profitability. But also concluded are the average influence on the affordability of the determinants value for rent, availability and monthly housing costs and the average influence on the profitability by the determinants of costs, monthly income and risks. See figure 108 to 137 for a summary of these conclusions.
In the following the influence of the characteristics (influencing different determinants for affordability or profitability) are taken together in order to frame an insight in the average level of influence of a characteristic upon the affordability and profitability.

9.3.1. Influence of characteristics upon the determinants of affordability and profitability.
As previously shown and again here in figure 138, conclusions are drawn by use of the developed measurement tool, upon the influence of a characteristics upon the determinant for affordability or profitability. These influences range from very negative to very positive, of which the content of this influence depends on the characteristic (see analytical framework, chapter 7)

Considering the second part of the research question – "How do the physical and operational characteristics (of commercial co-living) influence the (users-)affordability and (developers-)profitability?" – it is interesting to take these separate influences of the characteristics upon the determinants as shown in figure 138 together, and see if a conclusion can be drawn upon the characteristic as a whole upon the affordability and profitability.

In figure 138 and 139 the level of influences of the characteristics per determinant are comprised into an average level of influence upon the affordability and profitability. These levels of influence, ranging from very negative to very positive, give an insight in how the configuration of these characteristics, as discussed in the research, impact the affordability and profitability (in comparison to traditional housing).
In terms of affordability this level of influence per characteristics could directly be linked to an 'average configuration' (see figure 139). Yet, this is not possible for all the levels of influence of the characteristics on the profitability, as the determinants of risk and costs in some cases have opposite influences on the profitability. Therefore, for these characteristics, a general average level of influence is provided, not directly linked to a

specific configuration of the characteristic (see figure 139).

In regards of the aim for affordability, it is interesting to see that, although the rental prices are a little bit (5-10%) higher than with traditional housing, the value that is provided for this rental price – consisting out of services, configuration of private units and shared spaces, flexibility in lease, availability of housing and the facilitation of community – is considered relatively high and of a positive influence upon the affordability. Considering all characteristics of the same importance -within this research, for further elaboration see reflection-, one could conclude that the affordability of co-living is not found in terms of rental price, but in terms of value of the living environment.

In regards of the aim for profitability, it is interesting to see that the rental income per square metre is considered much higher than traditional housing and with that of a very positive influence on the profitability. Yet, taking into account the services and developed living environment that is provided for this square metre price, one could say that these are of a neutral to sometimes negative influence upon the profitability. The offered flexibility in leasing contracts as well as the provided services included in the rent and the vast amount of collective square metres, pressure on the profitability from a developer's perspective. Yet, the project size in terms of number of lettable units as well as the reduced size of the private spaces have their positive influence on the profitability.

9.3.1.1 Comparing conclusions with theoretical discussions

Where the above described conclusions are mainly based on the posed analytical framework and the findings from the case study analysis, it is also interesting to look back to the theoretical discussion presented in the beginning of the thesis.

In terms of affordability, the discussion was posed on the relation between household income and the expenditures for the use of housing together with a given standard for the quality of the acquired housing. With the conclusions on the rental price for a private unit within the analysed commercial co-living projects, it is apparant that the rental price are comparable to traditional housing. Where the analytical framework would conclude this into a neutral influence on the affordability, the theoretical framework can concluded this in the fact that the commercial co-living projects are also 'unaffordable' due to their high expenditure-to-income ratio. As was already concluded, the current market shows a very high expenditure-to-income ratio, and the current market is, with that, unaffordable for the mid-income household. With a comparable to slightly higher even rental price in commercial co-living, one should conclude that the commercial co-living projects are also unaffordable.

Yet, in regards to the quality of housing, or as used in this research, the value of the provided housing, the research shows higher affordability as more quality is provided than seen in traditional housing. Still, this value for rent stays a combination of

objective and subjective values, of which is impact on living quality is also depending on the user specific. This still makes it difficult to conclude upon the affordability from a theoretical reference point based on value for rent. Altogether, one could conclude that commercial co-living is not more affordable, even less affordable, than traditional housing when considering affordability from an expenditure-to-income ratio as discussed by Hulchanski (2008) and Czischke and Van Bortel (2018). But, when including the quality of housing, or value for rent, as suggested by Haffner and Heylen (2011), one could say that commercial co-living has a positive influence on the affordability through its high offered range of values.

In terms of profitability, the discussion was conducted on types of developers and its drivers for profitability. Here different aims in level of profitability were discussed, ranging from costs-balancing to profit maximazation. The elements of revenue of rent, building costs and risk were discussed in terms of their influence on the profitability. These same elements were used within the analytical framework in order to be able to assess the characteristics on their influence upon these determinants for profitability.
Where the definition was framed on a "positive balance between rental income, risk on the income and the building costs", one could conclude that, although the development costs are expected to be relatively higher than in traditional housing, the risk due to the high demand is low (although developing a new type of housing), the rental income per lettable square metre is much higher. Conceptually, this can conclude in a increasingly positive balance between rental income, risk and building costs.

9.3.2. Follow-up upon influence of characteristics
As the discussed research gives in insight in the opportunities upon affordability and profitability of certain characteristics, it does not provide insight in 'how much' this characteristical influence on the aims actually is. Because the impact of the characteristics upon the affordability and profitability is considered equal in this research, one could suggest that a follow-up upon this research could focus on weighing these levels of importance upon the determination of affordability and profitability. Following are some suggestions on the methods of weighing the characteristics, shortly discussing the use of the point-system, life-cycle costs, other hierarchy in costs and Maslow's hierarchy in users' needs in regards of housing.

Suggestion 1. How to measure value for rent? The point-system
In order to be able to asses and analyse the quality of the supply of housing, in this case the quality of the offered co-living facilities, the following measurement tool could be used.

An often-used measurement tool for the determination of the value of a rental

Figure 140. Maslow Hierarchy of Needs (own ill. Based on Jusan, 2013)

property on the Dutch housing market is the so-called 'point-system' (Rijksoverheid, 2019) This point-system determines the quality of the dwelling and with that its fitting maximum rental price. The point-system recognizes two different types of dwellings: an independent dwelling and a dependant dwelling.

Independent dwellings are one-family dwellings, apartments, 'portiekwoingen', maisonettes and 'gallerij'-flats. (Rijksoverheid, 2019) It assesses an independent dwelling on the size of the dwelling-surface, energy-system and label, kitchen and bathing facilities, outdoor space, type of dwelling and disabled services.

Dependent dwellings (rooms) are student-rooms and rooms with innkeepers/hosts. The point-system assesses dependent dwellings on its dwelling-surface of the different private rooms and the communal rooms, its energy(heating) system, kitchen and bathing facilities, outdoor space and storage facilities for mobilities. (Huurcommissie, 2019b)

A third recognized type of dwelling is the 'unfree-dwelling' of in other words the 'tied-dwelling'. The tied-dwelling is a dwelling of which its spaces are connected to communal circulation spaces, but has its own kitchen, shower and toilet which can be privately locked. With this, a 'tied-dwelling' (onvrije woning) is considered an independent dwelling.

Yet, the valuation of the point-system is mainly designed for the social housing sector. (Huurcommissie, 2019a) As the social-sector housing cap is set on €710,00, the free-market sector starts from this rent-level. As in the social-sector the rent-level is regulated, the free-market sector gives the house-owner the opportunity to freely determine the rent-level of the dwelling as long as the value of the dwelling is above the social-cap. In order to determine if the dwelling is worth enough to be rented out in the free-market, the point-system can be used. For this, a dwelling requires at least 146 points (equals a rent-level of €717,97 in 2017) (Principle Properties, 2019)

Point-system applicable for the analysis on co-living?
As this research focusses on the determination of the affordability and profitability of co-living on the free-market sector, it could be concluded that the valuation in terms of rent-level connected to the point-system is not directly applicable to the co-living concept. This, because the application of either the valuation of a dependent dwelling or of an independent dwelling, does not completely cover characteristics of the co-living concept. In other words, it could be said that the co-living concept balances in between a dependent and an independent dwelling.

Analysing the characteristics of co-living, it is difficult to determine if the concept should be considered a dependent or an independent dwelling.

Dependent due to:
- Shared circulation
- Shared facilities

Independent due to:
- Private bathing areas
- Private sleeping areas
- Private kitchen areas [optional]
- Private storage

The influence on affordability and profitability is part of this balance between independency and dependency. If you consider co-living as micro-living complemented with communal facilities, you could imagine a valuation combination of both independent and dependent point-measurements. Here, the private unit could be valued through the independent dwelling valuation and the communal facilities of the entire building through the dependent dwelling valuation. By adding the two valuations, a first insight could be provided in the point-valuation of a concept like co-living.

Yet this point-system is limited, especially in terms of the valuation of co-living. It does not take in to account all characteristics, like the stimulation of the community, let alone the quality and variation of its communal spaces. Therefore, it should be concluded that the evaluation of rent-level through the point-system is an incomplete valuation and should first be redesigned to be a fitting analysing tool for the co-living housing concept.

Suggestion 2. How to measure importance of costs? Life-cycle costs
The life-cycle costing is a method used to analyse the financial costs of a product or service. Here a balance is apparent between the development costs and operational costs.
Using this tool could give an indication of financial importance to the determinants of profitability.

Suggestion 3. How to measure importance of user-needs in housing? Maslow Hierarchy of Needs
The Maslow hierarchy of needs represents a phsychological theory based upon the ‘stages of growth’ of a human being. Based upon these stages of growth, a hierarchy of human needs was developed by Maslow in 1943 (see figure 140), where the basic needs are at the bottom of the pyramid. This hierarchy is, by many of which Jusan (2013), projected upon the needs for housing.
This theory could be used as indication upon the importance of certain characteristics influencing the affordability in regards of the configuration of co-living.

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APPENDIX

A APPENDIX research reflection

In this appendix, a reflection upon the conducted research as a whole is presented.

Initial motivation for research topic
The research upon the concept of co-living, commenced with a personal interest in to the issues on the housing market and the changing context towards an increasingly sharing economy. With this triggered interest, further explorative research was conducted into the different facets of the new housing concept and its concept upon sharing. With the issues on the housing market understood as affecting not only the user but also showing market difficulties from the perspective of the developer, the focus on both perspectives within the research upon co-living was introduced, which framed the scope of the research.

The process of developing a research framework
With the initial research motivation set upon the emerging concept of co-living in respect to the issues on the housing market affecting both housing user and developer, the further research framework was developed. Within this framework, it became apparent that the research motivation could be divided in to two actual motivations: first understanding the emerging housing concept of co-living and secondly looking into the way this housing concept could address or position itself towards these issues on the housing market, again affecting both user and developer. This position on the housing market from a user and developer's perspective could also be understood as a position towards the aim for users-affordability and developers-profitability. Herein, users-affordability in terms of housing represents a balance between the monthly costs of housing, the value of housing provided within these costs and the availability of this type of fitting housing for a certain type of user. The developers-profitability in terms of housing, represents the balance between the development and operational costs of a certain type of housing, its expected risks of development and operation together with the expected monthly revenue gained from the lease of this certain type of housing.
Understanding this division within the posed research, the main research question was developed: "What is (commercial) co-living and how do its physical and operational characteristics influence the (users-)affordability and (developers-)profitability? In an effort to structure this research question, the main question was further divided into sub-research questions aiming at answering elements of the main question.
With this clear division within the research, it became apparent that the first, descriptive part of the research required a different research method then the second, analytical part of the research.
As the first part comprised out of the understanding of and describing the co-living concept, a literature reviews seemed the most appropriate research method.

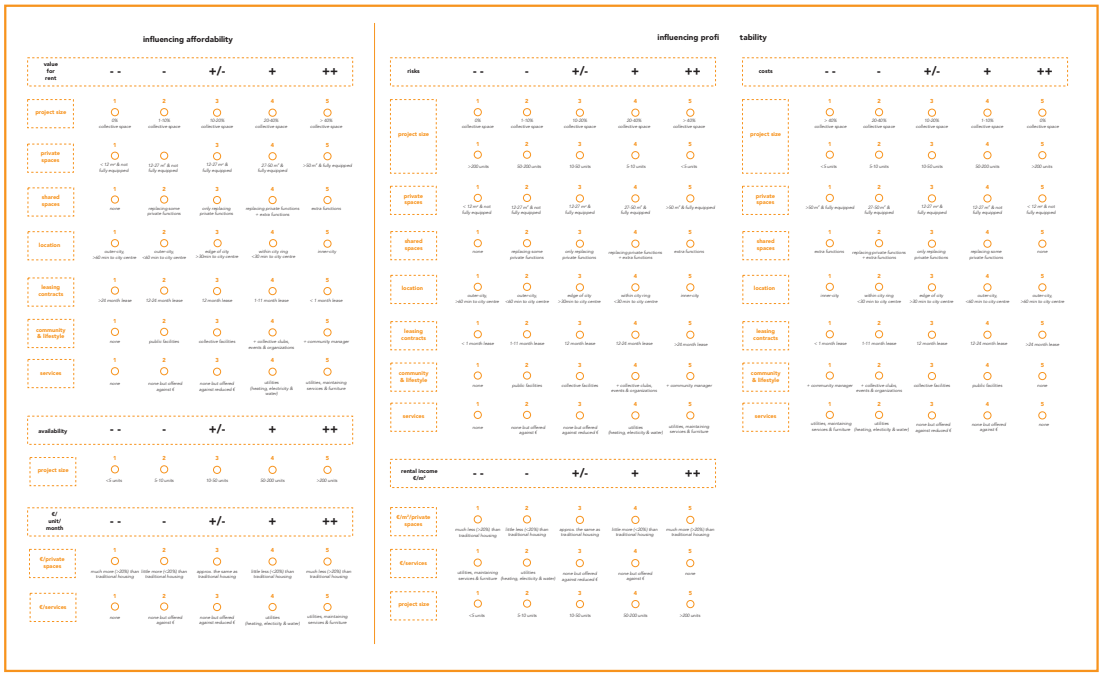

Figure A1. Analytical tool sheet based upon analytical framework.

Unfortunately, whilst collecting the data upon the research concept, being an emerging concept, the collection of earlier conducted scientific research upon the topic seemed limited. Therefore, in this part of the research it was chosen to complement the collective scientific research with journalist reviews and analyses of an array of practical examples of commercial co-living. Combining this collection of data, provided enough insight in the different aspects of the concept in order to be able to answer upon the first part of the research question comprises of "What is (commercial) co-living?".
The second part of the research, required a different method of research as it comprised out of an analytical question upon the characteristics of the (in the first part) framed co-living concept. In an effort to analyse the characteristics upon their influence on the users-affordability and developers-profitability, it first required an understanding of the determinants for affordability and profitability. Again, a literature study, this time upon the position of housing affordability and profitability within the general housing economics system, was used in understanding and framing these determinants. With the determinants for affordability -housing costs per month, value for rent, availability- and profitability -revenue, costs and risks- in place, the analytical framework regarding the influence of the characteristics was to be developed. The method for analysing the influence of the characteristics were case study analyses upon the configurations of the characteristics as found in the case studies. As data upon the direct financial implications of the characteristics as found in the case studies was limited, a combination of qualitative and quantitative data was collected within the case studies. Based upon the reference of literature on the characteristics as well as comparisons made with traditional housing, an analytical tool was developed in order to assess the 'level of influence' upon the affordability and profitability. See figure A1. Using this designed analytical tool, all configurations of the framed characteristics were assessed upon their level of influence on the determinants for affordability and profitability. Combining the assessed level of influences of the characteristics per determinant, an insight was provided in the average level of influence of a characteristic upon affordability and profitability, based upon the framed levels of influence.
As the first part of the research, the understanding of the concept and framing its characteristics, was a necessity for being able to continue with the second part, one could also say that the research is one as a whole instead of two parts. Nevertheless, breaking down the research in a descriptive and an analytical part, provided a clear division between methods and analytical tool to be used. Altogether, the total research, provided an insight in the emerging concept of co-living and an initial understanding of its characteristical opportunities towards the aim for affordable and profitable housing.

Aspect 1: Reflection upon the relationship between research and design
The element of design within this research, is found within the designing of the analytical framework as well as the analytical tool sheet. Before being able to design the analytical tool, the research into the element determining the analytical framework was necessary. The assessment tool is derived from the analytical framework based upon the literature on the determinants for affordability and profitability (as discussed by Fallis (1985) and Geltner (2007)) together with a scientific and empirical understanding of the configurations of the characteristics. This combination is what the analytical tool, used in assessing the analysed co-living characteristics as found in the case studies, was based upon. Using the references to literature and analysis upon traditional housing, the bandwidth of levels of influence could be determined. Altogether reflecting upon the relationship between research and design, in this thesis the research upon the characteristics and the determinants for affordability and profitability were a necessity before being able to design an assessment tool, used in addressing the second part of the research question.

Aspect 2: the relationship between your graduation topic, your master track (MBE-Housing), and your master programme (MSc AUBS)
The master track of Management in the Built Environment, as part of the master programme MSc AUBS, contains of different chairs amongst which the Housing department responsible for research into housing systems and housing management. Different research fields like housing market developments and housing preferences are part of the research responsibility of this chair.
This research into the emerging new housing concept of commercial co-living and its influence upon the user-affordability and developers-profitability, aligns with the goal of the housing department to focus on developing knowledge on emerging markets, housing theories and housing economics.

Aspect 3: Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.
The chosen combination of literature study (scientific and journalistic) and case study analyses, were derived from firstly the fact that the existing scientific research into the concept of commercial co-living is limited as it is an emerging new housing concept, and secondly derived from the aim to analyse the concept in practice. These two methodological approaches were intertwined with each other throughout the research and complemented each other in both the first (the descriptive) and the second (the analytical) part of the research. As, again, the existing research upon the research concept is limited, it was chosen to make occasional comparisons to traditional housing, in order to better understand and validate parts of the analysed concept. This comparison to traditional housing was based upon a market study in terms of rent-levels and housing sizes.

By using the methods of case studies research as well as market research (for comparison reasons), the lack of scientific literature upon the research concept was complemented with new data and analyses upon the research topic. This compiled data and analysis serves as new knowledge upon the research topic and with that within the general research regarding new housing concepts.

Aspect 4: Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.
With the vast and increasing issues on the housing market being apparent, the urge for new or renewed housing solutions is dominating topic within the professional field. Not only the issues regarding the lack of affordable housing, but also the increasing lack of social interaction between urban inhabitants should be considered as a societal problem. As the conducted research into the concept of co-living and its opportunities towards affordable and profitable housing, the research positions itself in regards of the posed societal issues. The research offers an initial understanding of one of the new emerging housing concepts on the pressures housing market, and offers an initial insight into the opportunities in aiming for affordability as well as aiming for profitability. With that it serves the societal and professional market from two perspectives.
In aiming for continuation of the research, what should be considered valid is reframing the research from a 'how' towards a 'how much' type of research. As the conducted research touches upon the 'how' in regards of levels of influence, it would be interesting to take this knowledge further and translate these levels of influence into a quantitative measurement of 'how much'. This would give insight not only in the location of opportunities but also in the financial implications of these opportunities. With that, it could serve as a basis for development plans.

Aspect 5: Discuss the ethical issues and dilemmas you may have encountered in (i) doing the research, (ii, if applicable) elaborating the design and (iii) potential applications of the results in practice.
As the concept of co-living entails the sharing of spaces that are private in traditional housing, it requires a different view in regards of the psychology of the living environment. Although the Space10 user survey together with the research into the sharing of spaces by AM and others have shown that there is willingness to share certain functions, a thorough analysis based upon user-experience into the sharing of spaces in respect to commercial co-living is lacking. The way people use shared spaces, feel responsible for the shared spaces and deal with the lack of privacy and the effects on human health of small private spaces, should be considered when designing, developing and operating a commercial co-living project. What are the effects upon the feeling of loneliness of being part of a community is also an element that is part of hypothesis instead of experience within the commercial co-living topic. It would be interesting, in further research upon the topic to conduct this user-based

research into the experience of sharing spaces and being part of a community in order to assess the concept upon this.

Personal reflection upon process

Looking back, the process of this research has been interesting and challenging at the same time. Interesting in terms of the use of different methods (literature study, small market study, case study analysis through project documentation, literature and interviews) where all methods provided different knowledge upon the state-of-the-art projects. Learning about this new housing concept, helped not only understanding the concept of co-living, but also provided a better understanding about what a development and operational process of housing actually contains. In that sense the learning curve covered much more than just the thesis topic. The research has been challenging in the sense that, as it represents a relative understudied topic and emerging topic, the collection of data was initially difficult. With a lack of proper scientific literature upon the topic, the framing of the research question(s) was an iterative process. Nevertheless, although being 'forced' to use different data collection methods, in the end, although it took longer than initially expected, a vast knowledge upon the topic and with that being able to fully understand what the research was delivering was reached. In terms of research experience, it has been a collection of new and intense experiences, of which I can say I have learned a lot.

Planning towards P5

Having conducted the research up until now, and with the submitted proposal and research as lays before you, there still are some elements that requires further elaboration towards the final thesis. For starters is the aligning the collected and analysed data of the case studies, making sure exactly the same type of information is collected and with that properly documented. Secondly, a further elaboration on the possible follow-up research would be interesting to see what this research could offer in next phases. Finally, making sure the conclusions are to the point and complete, as well as the management summary, is a last step.

B APPENDIX semi-structured interview

Interview
The initiators perspective: interview on developing co-housing

Dutch:

Onderderzoeks introductie
Aanleiding voor mijn afstudeeronderzoek is de immense krapte op de woningmarkt, voornamelijk voor het middensegment, huur €710 tot €1000 per maand. Met een veranderende vraag naar voornamelijk 1-persoons huishoudens en een traditioneel woning aan bod van 1-gezins woningen is er naast het tekort ook een mismatch op de huidige woningmarkt. Mijn onderzoek speelt in op de mogelijkheden die het groeiende co-living concept kan bieden voor deze mismatch en wat de voorwaarden en karakteristieken zijn voor betaalbaar en haalbaar co-living vanuit gebruikers perspectief en ontwikkelaars perspectief.

Uitgangspunt is inzicht krijgen in de voorwaarden voor een co-living model waarin midden-segment betaalbare woningen realiseerbaar zijn en tegelijkertijd winstgevend is voor commerciële ontwikkelaars. Of zoals jullie het eigenlijk zelf al benoemen 'woningen die haalbaar en betaalbaar zijn'.

Insteek van dit interview is inzicht te krijgen in hoe jullie begonnen zijn met het ontwikkelen van co-living projecten, de aanpak en keuze van soort bouw en architectuur en de kansen en risico's die jullie als ontwikkelaar van co-living projecten zien en de mogelijkheden die co-living kan bieden voor de toekomst.

Introductie AM & Aanleiding tot het ontwikkelen van co-living projecten
1. Kan je iets vertellen over jullie eerdere ervaringen met het ontwikkelen van traditionele woning projecten?
2. Wat was voor jullie de aanleiding om je te gaan verdiepen in co-living?
3. Wat ervaar je als het grote verschil tussen traditionele woningen ontwikkelen en een co-living project ontwikkelen?
4. Wat is jouw/jullie rol binnen AM bij de ontwikkeling van co-living projecten?

Ervaring met het ontwikkelen van co-living projecten
5. Kan je iets vertellen over de verschillende co-living projecten die jullie doen?
6. Wat voor een soort samenwerkingen gaan jullie hierin aan?
7. Hoe is de samenwerking met IC Netherlands/Inbo voor The Fizz ontstaan?
8. Is het concept The Fizz gezamenlijk ontwikkelt?
9. Hoe is de samenwerking met Inbo ontstaan?

10. Komt het initiatief voor de ontwikkeling vanuit jullie?
11. Is het plan om dit als ontwikkelteam verder uit te rollen?

Co-Living ontwikkel programma

12. Hoe bepalen jullie het programma van eisen?
a. Hoe veel collectieve ruimte?
b. Hoe groot moet de private unit zijn?
c. Met hoeveel private units deel je collectieve ruimtes?
13. Het delen van ruimtes, vraagt om een ander managementbeleid dan bij traditionele huurwoningen. Hoe is dit aangepakt bij jullie projecten?
14. Het verschil tussen co-living en micro wonen zit hem natuurlijk vooral in het onderdeel zijn van een community. Hoe stimuleren jullie community in jullie projecten? Hoe is het verschil in benadering in jullie projecten?
15. Hoe bepalen jullie de grootte van de projecten?
16. Wat zijn de voorwaarden voor het bepalen van een geschikte locatie voor een co-living project?
17. Op wat voor een manier nemen jullie het all-inclusive living model mee gedurende de ontwikkeling? Hoe slaat dit terug op het programma van eisen?
18. Was de originele insteek het ontwikkelen van betaalbare woningen?
19. Hoe hebben jullie de doelgroep ingekaderd voor jullie co-living projecten?
20. De doelgroep van millenials, die over de hele wereld werken en niet vast willen zitten aan een plek brengt ook juist het risico met zich mee van een hoge wisselingsgraad in huurders. Hoe spelen jullie hierop in om frictieleegstand zo veel mogelijk te voorkomen?
21. Wat ervaren jullie als de grootste risico's binnen het ontwikkelen van co-living projecten?
22. Waarom is het voor jullie als ontwikkelaar interessant te focussen op midden-segment woningen?
23. Wat zijn de bussiness structuren die jullie aangaan bij deze projecten? Zelf exploiteren, exploitatie uitbesteden, verkopen?

Toekomst van co-living

24. Bij welke doelgroepen zie je nog veel mogelijkheden voor co-living?
25. Zie co-living ook op hele andere locaties zoals buiten de randstad in een andere formule?
26. Denk je dat co-living grootschalig opgepakt zal worden door de commerciële markt/andere ontwikkelaars?

Afronding

27. Is het mogelijk een gebruikers survey af te nemen bij de bewoners van de Fizz?

English:

Getting to know you
1. Can you tell something about the co-living projects you or your company have been a part of?
2. Have you, yourself, ever lived in a shared house?
3. Have you ever developed housing before?
4. What is your background?

Motivation for co-housing
5. How did you come to the idea to start with a shared housing project?
6. What drives you to develop shared housing in comparison to traditional housing?
7. How do you determine new locations and possible new markets?
8. What kind of management structures did you think of in order to operate the co-housing projects?
9. Did you come up with the idea yourself or with others?

Developing a co-housing project
10. What kind of target group do you have projected?
11. Do you think the concept is interesting for other target groups?
12. What is the financial model behind the concept?
13. What kind of structure is there between you as an initiator, the developer, the investor and the operator?
14. How did you motivate investors?
15. Is it currently a profitable project?
16. Do you think it offers affordable housing?
17. Do you think it can provide better affordability whilst protecting your profits?

Future of Co-Housing
18. How do you see the future of co-housing?
19. Do you think Co-Housing could be one of the solutions for the housing crises in many cities?
20. Do you think it could serve other target groups?

C APPENDIX
shared house 2030: user survey

Theme	Survey Question	All ages – any life situation – all countries prefer:
Demographics	Who would you want in your co-living community?	Couples, single woman and single men
Development	Which of these industries do you think would organize the best co-living community?	People with a design background
Origins	Should the people behind your community have co-lived themselves?	No, it does not matter
Service	Would you pay extra for a service layer to manage all house related items?	Yes
Tolerance	Which of these items are you comfortable sharing in your home, long-term? [nothing, shower & toilet, common room, bedroom, workspaces, kitchen, daily dinners, groceries, self-driving car, childcare, cleaning responsibilities, household appliances, self-sustainable garden, utilities, internet]	Internet, self-sustainable garden and workspaces
Size	What is the right amount of people for your community? [4-10, 10-25, 25-50, 50-100, 100+]	4-10 people
Energy	How do you want to negotiate energy use?	Costs based on used per person
Dynamics	What should your fellow house-member be like?	House-members from different walks of life
Pros	What do you think will be the biggest pro of living with others?	More ways to socialize and splitting costs and getting more for the same amount of money
Cons	What do you think will be the biggest con of living with others?	Worries about lack of privacy
Ownership	Who do you want to own your community?	Equal ownership amongst members
Personality	What are some of the most important qualities in a house-member?	Neat and tidy, honesty and being considerate
Resolution	Someone never cleans up after themselves, how do you solve it?	Talking in private
Assembly	There's a free space in the house, who should choose the new house-member?	Consensus vote amongst house members
Space	How do you prefer the spaces in the house to be utilized?	Set private space and communal spaces with clear boundaries
Furniture	Should the house come furnished?	Only the common areas to come furnished, private space furnish themselves
Privacy	When you are not home, are others allowed to use your private room?	Wants to make sure their private room is off-limits when they're not at home
Cooking	If healthy food can be delivered for free, do you still want a private kitchen?	Don't need their own private kitchen and would use the communal kitchen so they can have more flexible private space
Commuting	If your community has a self-driving car, where would you prefer to live?	City
Location	Do you want to live in a community that has locations all over the world?	Multiple homes where it is easy to move between
Pets	Are you okay with pets in the house?	Any kind of pet

Table C. Results from One Shared House 2030-survey (own table based on OneSharedHouse2030, 2018)

D APPENDIX
traditional housing market study

Amsterdam

Area	Studio/1-Bed - Furnished					2-Bed - Furnished				
	Rental Price	m2		€/m2	Link to source	Rental Price	m2		€/m2	
Centre	1	2250	75	€ 30,00	https://www.f	1	1750	52	€	33,65
	2	900	40	€ 22,50	https://www.f	2	2000	64	€	31,25
	3	1400	30	€ 46,67	https://www.f	3	2250	90	€	25,00
	4	1300	30	€ 43,33	https://www.f	4	2000	80	€	25,00
			44	**€ 35,63**				**72**	**€**	**28,73**
East	1	1500	50	€ 30,00	https://www.f	1	2250	110	€	20,45
	2	1900	81	€ 23,46	https://www.f	2	2350	115	€	20,43
	3	1500	60	€ 25,00	https://www.f	3	1900	120	€	15,83
	4	1400	40	€ 35,00	https://www.f	4	1800	95	€	18,95
			58	**€ 28,36**				**110**	**€**	**18,92**
West	1	1750	65	€ 26,92	https://www.f	1	1550	60	€	25,83
	2	1450	51	€ 28,43	https://www.f	2	1250	58	€	21,55
	3	1250	36	€ 34,72	https://www.f	3	1850	75	€	24,67
	4	1500	50	€ 30,00	https://www.f	4	2100	78	€	26,92
	5	1600	55	€ 29,09	https://www.f	5	1500	49	€	30,61
			51	**€ 29,83**				**64**	**€**	**25,92**
South	1	2000	50	€ 40,00	https://www.f	1	1850	100	€	18,50
	2	2250	87	€ 25,86	https://www.f	2	2450	75	€	32,67
	3	1650	50	€ 33,00	https://www.f	3	2200	90	€	24,44
	4	1750	75	€ 23,33	https://www.f	4	2350	75	€	31,33
			66	**€ 30,55**				**85**	**€**	**26,74**
Amsterdam			**55**	**€ 31,09**				**83**	**€**	**25,07**

London

	1-Bed - Furnished						2-Bed - Furnished					
	Rental Price	square ft	m2	$/m2	Link to source		Rental Price	square ft	m2	€/m2		
White city	1	£ 2.275,00	460	43 £ 53,23	https://www.f	1	£ 1.595,00	618	57	€	27,78	
	2	£ 1.842,00	656	61 £ 30,22	https://www.f	2	£ 1.950,00	774	72	€	27,12	
	3	£ 1.517,00	516	48 £ 31,65	https://www.f	3			0	#DEEL/0!		
	4	£ 1.517,00	535	50 £ 30,52	https://www.f	4			0	#DEEL/0!		
	5	£ 1.409,00	518	48 £ 29,28	https://www.f	5						
		£ 1.712,00	**537**	**50 £ 34,98**		6						
						7						

* note all prices per room not per appartment

New York
Area

		Studio Furnished					1-Bed - Furnished				
		Rental Price	square ft	m2	$/m2	Link to source	Rental Price	square ft	m2	$/m2	
Manhattan - Low	1	$ 4.990,00	577	54	$ 93,09	https://streete	$ 4.250,00	666	62	$	68,69
	2	$ 3.500,00	521	48	$ 72,31	https://streete	$ 3.950,00	650	60	$	65,41
	3	$ 3.750,00	668	62	$ 60,43	https://streete	$ 4.500,00	675	63	$	71,76
	4	$ 3.250,00	530	49	$ 66,01	https://streete	$ 3.750,00	550	51	$	73,39
	5	$ 2.950,00	522	48	$ 60,83	https://streete	$ 3.750,00	600	56	$	67,27
	6	$ 3.421,00	550	51	$ 66,95	https://streete	$ 5.490,00	617	57	$	95,78
	7	$ 2.800,00	542	50	$ 55,61	https://streete	$ 4.295,00	884	82	$	52,30
	8	$ 3.300,00	500	46	$ 71,04	https://streete	$ 4.500,00	931	86	$	52,03
	9	$ 2.950,00	500	46	$ 63,51	https://streete	$ 4.450,00	502	47	$	95,42
	10	$ 3.000,00	550	51	$ 58,71	https://streete	$ 4.500,00	865	80	$	56,00
		$ 3.391,10	**546**	**51**	**$ 66,85**		**$ 4.343,50**	**694**	**64**	**$**	**69,80**
Staten Island	1	$ 1.200,00	630	59	€ 20,50	https://www.t	$ 850,00	1200	111	€	7,62
	2			0			$ 1.460,00	600	56	€	26,19
	3			0			$ 1.200,00	700	65	€	18,45
	4			0			$ 1.300,00	450	42	€	31,10
		$ 1.200,00	**158**	**59**	**€ 20,50**		**$ 1.202,50**	**738**	**69**	**€**	**20,84**
Long Island	1			0	#DEEL/0!		3150	663	62	€	51,14
	2			0	#DEEL/0!				0	#DEEL/0!	
	3			0	#DEEL/0!				0	#DEEL/0!	
	4			0	#DEEL/0!				0	#DEEL/0!	
	5			0	#DEEL/0!				0	#DEEL/0!	
			-		**#DEEL/0!**			**133**		**#DEEL/0!**	

New York

		Studio Furnished					1-Bed - Furnished				
		Rental Price	square ft	m2	$/m2	Link to source	Rental Price	square ft	m2	$/m2	
Brooklyn	1	$ 2.300,00	500	46	$ 49,51	https://streete	$ 2.750,00	750	70	$	39,47
	2	$ 1.995,00	500	46	$ 42,95	https://streete	$ 2.000,00	800	74	$	26,91
	3	$ 3.500,00	603	56	$ 62,48	https://streete	$ 2.200,00	780	72	$	30,36
	4	$ 1.950,00	500	46	$ 41,98	https://streete	$ 2.900,00	650	60	$	48,02
	5			0	#DEEL/0!		$ 4.000,00	887	82	$	48,54
	6			0	#DEEL/0!		$ 3.281,00	658	61	$	53,67
	7			0	#DEEL/0!		$ 4.995,00	650	60	$	82,72
	8			0	#DEEL/0!		$ 4.250,00	839	78	$	54,53
	9			0	#DEEL/0!		$ 3.500,00	651	60	$	57,87
	10			0	#DEEL/0!		$ 2.850,00	738	69	$	41,57
		$ 2.436,25	**526**	**49**	**$ 49,23**		**$ 3.272,60**	**740**	**69**	**$**	**48,37**
Queens	1						$ 2.495,00	950	88	$	28,27
	2						$ 1.700,00	760	71	$	24,08
	3						$ 3.150,00	662	62	$	51,22
	4										
							$ 2.448,33	**791**	**73**	**$**	**34,52**

E APPENDIX interviews

Three interviews were conducted with the following people,:

- Lucas Croba ch, of Zoku Amsterdam
- Jolijn Vonk of URBY Staten Island and Jersey City
- Jan Noorda of AM Development

For the recordings and transcripts of the interviews, please contact the writer.

F APPENDIX
other images

Image 4. Examples of the subdivided flats in Hong Kong

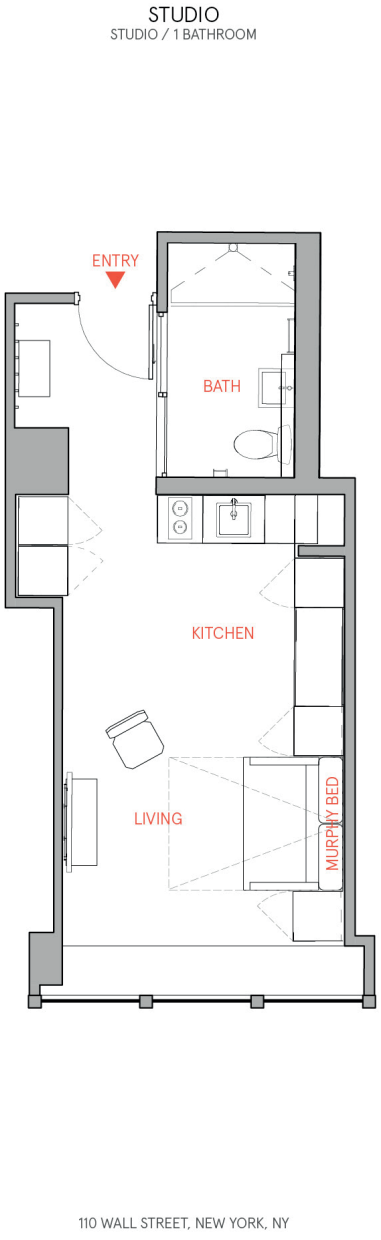

Image 9. WeLive studio and 4-bedroom layout.

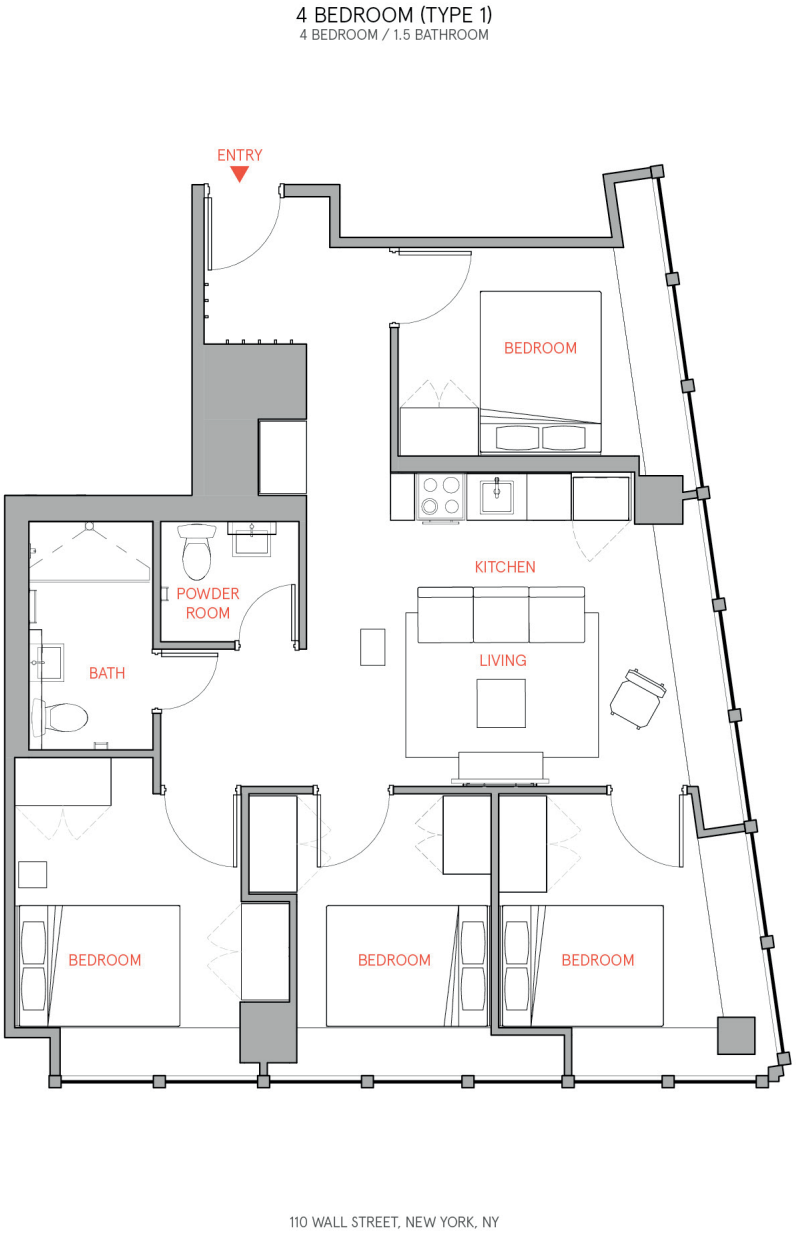

Image 9. WeLive studio and 4-bedroom layout.