



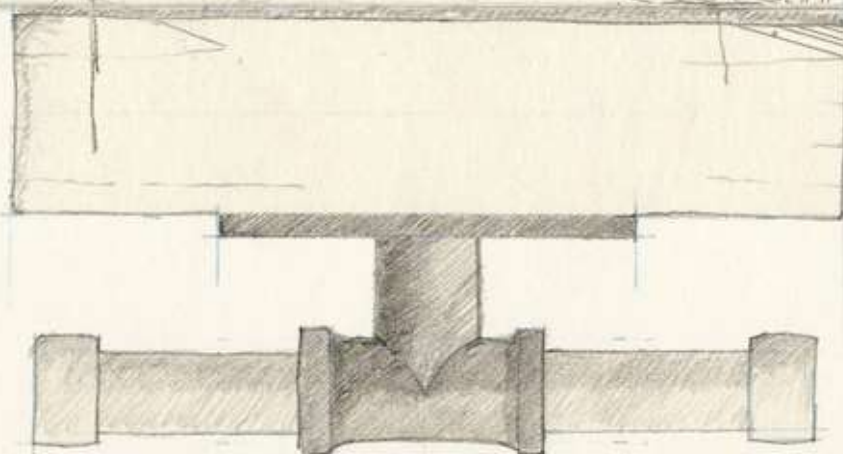
## **Making and City development**

*A case study of makerspace the Keilewerf in Rotterdam, the Netherlands*

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## **Abstract**

The emergence of maker spaces has been associated with an increased interest and attention in urban areas to bottom up, collaborative forms of urban revitalization, where people take matters in their own hands and where the responsibility for a sustainable urban future is shared. Though there seems to be a clear overarching vision and narrative, this research aims to find out what it is like in a real empirical case: what do stakeholders involved in a maker space see and think about making and its role in the city. The findings of this qualitative research show that making is perceived and valued differently by makers, founders of the maker space and the city. Making as part of the creative industries, contributes to employment, makes it possible for makers to develop their making business and boots the local economy as maker spaces are built on communities of networks.

## **Keywords**

Maker movement, making, urban development, craft, skills, creative industries

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## 1. Introduction

“(…) making has the potential to turn more and more people into makers instead of just consumers, and I know from history that when you give makers the right tools and inspiration, they have the potential to change the world.”

(Bajarin, 2014, as stated in Wolf-Powers et al., 2016, p. 3)

Maker spaces are popping up in cities around the world. As of 5 October 2017, there are in total 1.186 fablabs worldwide (Patty, 2017). The Dutch and Belgian website [www.makerscene.io](http://www.makerscene.io) shows that there were 56 fablabs and 18 maker spaces in the Netherlands as of 24 August 2018 (n.d.). Maker spaces originate from the fablab, an abbreviation of *fabrication laboratory*, which has its roots at the Massachusetts Institute of Technology (MIT) in the United States. These fablabs have been emerging since 2001 as specific spaces equipped with computer technology for the development of digitally produced products (Fabfoundation, n.d.). To qualify as a fablab, these spaces need to become part of a worldwide network of labs that have specific equipment such as 3D printers and they need to sign a charter. Where the fablab is more focussed on tools and sharing knowledge via open-source mediums and open-accessibility, maker spaces give access to technology, machines, materials and knowledge (Fabfoundation, n.d.). Maker spaces offer amateurs and professionals alike the opportunity to make anything from furniture and ceramics to 3D printed designs and to learn new practical skills within a social context (Anderson, 2012; Holbert, 2016).

Alongside the emergence of the fablabs and maker spaces, the *maker movement* was founded in 2005 with the introduction of the *Make* magazine and the *Maker Faire* (Anderson, 2012). Characteristic to the maker movement are the ideas of inclusivity and that everyone has the capacity and ability to make something. The maker movement focuses on the experience of the making process, exchange of knowledge and the development of skills within a community of like-minded people. Some argue that the maker movement has the potential to solve some of cities' pressing needs; for example, more sustainable production and practical-skills education (Carr & Gibson, 2016; Martin, 2015). As the quote by technology analyst Tim Bajarin at the start of the chapter

suggests, making could even potentially have the power to change the world. It can be questioned, however, if making is truly a driving force for societal transformations.

There has been an increased interest in the concept of making in the public domain: the concept of making, sharing knowledge in a social context, is being adopted by educational institutions, public libraries and in city development (Grodach, 2017; Rosa et al., 2017). The maker movement is framed in response to a dual shift in urban policy. First, it moves away from larger scale manufacturing and production; second, it emphasises the creative class, focusing on lifestyle and consumption. In the context of urban policy development, cities have turned their backs to those working in the manufacturing industries and towards the knowledge and creative industries (Grodach et al., 2017). Repetitive and physical work is undervalued in comparison to those who are higher educated and working in the knowledge industry and creative industries, which combines design and production of cultural and creative goods (Grodach et al., 2017; Wolf-Powers et al., 2017). Moreover, urban policy has thus far been attempting to stimulate the urban economy by attracting educated, creative people to the cities and promoting a consumption-based lifestyle (Florida, 2002; Grodach, et al. 2017).

The maker movement is often framed as offering a new, more sustainable avenue for cities — a new basis for revitalising urban areas and boosting the economy. Based on current research (Anderson, 2012; Banks, 2010; Carr & Gibson, 2016; Grodach, 2017; Vivant, 2013), making is expected to contribute to solving urban challenges through the production of cultural and creative goods. However, not much is known about how stakeholders involved in this movement experience it and why they are involved in making. The relevance of researching urban development and the potential of making is to policy makers and maker spaces themselves, in terms of understanding their appeal and potential. This research focusses on addressing this gap through an empirical case.

The case study of this research is an investigation of the Keilewerf maker space ([www.keilewerf.nl](http://www.keilewerf.nl)) in Rotterdam, the Netherlands. The Keilewerf is based at the western outskirts of the city in a former harbour district that has been under redevelopment since 2013. The district, with a clustering of maker spaces each focussing on their own expertise (e.g. innovation, craft), has recently been rebranded by the city as the 'Maker District' in an attempt to create a lively area for working, living and spending leisure time. The Keilewerf is constructed from a former wharf (Keilewerf 1) and former office building (Keilewerf 2) over a total of 6000 square metres, providing space for 80

makers employed by 50 small businesses. The Keilewerf facilitates studio spaces for individual makers and groups who are permanently based in the maker space, a garden, and a park between the two buildings with a mobile café called the Keilecafé that has recently been opened. In addition to individual studio spaces, there is a Building Academy in Keilewerf 2 for the unemployed to learn building skills and increase their potential for the job market. The not-for-profit bicycle shop Give a Bike is run out of Keilewerf 2 and Buurman, which focusses on recycling and reusing discarded building materials via a hardware store and an open, accessible work space with workbenches and tools for rent. Festivals such as KeileFest and the music festival Once Upon A Time in The West are some of the activities organised by the Keilewerf. Furthermore, guided tours for groups of design students are conducted on open days organised by the maker space itself or as part of Maker District events.

Essential to exploring the potential of making for urban development is an approach that links the micro level of individual motivations for making to the meso level (investing in maker spaces, for instance) and to the macro level of the wider societal positioning of making in the development of cities. In the aftermath of the recent economic crises in cities, alternative approaches to city development are becoming desirable. To understand these current societal developments and the contributions of stakeholders involved in the development of the Keilewerf, the following research question is stated: ***How do stakeholders understand and perceive the place and role of the Keilewerf maker space in the city's development?*** The sub-questions stated in the methodology chapter will help answer this research question.

To explore the perceptions and role of the stakeholders and find answers to the research questions, three qualitative methods applied to this research. The chosen research methods are semi-structured interviewing, document analysis and observations. Together, these will generate data on the micro, meso and macro levels and thus give a comprehensive view of the various perspectives on the development of the maker space.

Following this introduction, the second chapter explores the relevant concepts and theories of making on the micro, meso and macro levels, within the context of urban development. The third chapter focusses on the three qualitative research methods to explore making from the perspectives of the three stakeholders involved in the development of the Keilewerf. In addition, this chapter explains how the research was

conducted. The fourth chapter provides an extensive overview of the findings that emerged during data collection. The output of this research is placed in the context of the main theories. The last chapter provides a detailed reflection on the main findings, places making in a broader societal perspective and provides suggestions for future research.

## 2. Theory

Literature concerning the concepts of making and urban development is reviewed in this theoretical framework. This theory chapter discusses the role of making on three levels. This theoretical framework will help to provide the theoretical lens through which to understand the role and place of making in the societal context of the revitalization of a former harbour area in the west part of the Dutch city Rotterdam. Existing research on making focusses on the individual, social and societal perspectives of the concept (Anderson, 2012; Carr & Gibson, 2016; Dougherty, 2012; Ocejo, 2010; Sennett, 2008; Wolf-Powers et al., 2017). Making is also an individual and intrinsically driven endeavour that has become of interest for policy makers for revitalizing urban areas (Carr & Gibson, 2016; Grodach et al, 2017).

This chapter is divided into three sections that show the role of making at three levels: on the micro level, the level of the amateur and professional makers working in maker space the Keilewerf; on the meso level, the founders of the Keilewerf and Buurman; and on the macro level, the city's policy maker. The first section focusses on the forms of making as an individual undertaking, including what making means for individuals, and places craft within the creative industries, as part of the employment sector. The second section addresses making on the level of the maker space. In the social context of the maker space, new forms of production emerge, businesses develop and collaborative skills development takes place. The third section discusses the societal dimension of making. On the macro level, making plays a role in policy development, such as in the development of urban areas. Making also plays a role in economic, environmental and societal aspects of the urban context.

### 2.1 Micro level: making as an individual endeavour, for pleasure or as a business opportunity

The term *making* refers to a collaborative and individual activity applied in various ways and encompassing various meanings such as craft, tinkering and small manufacturing (Anderson, 2012; Carr & Gibson, 2016; Dougherty, 2012; Sennett, 2008; Wolf-Powers et al., 2017). Making has existed as long as humans have. People make objects and spaces and by making create the spaces and objects that surround them and the world they live in (Carr & Gibson, 2016). Craft is an activity for which people must develop a certain

level of skill and have a passion and care for the product they are creating and for the process of development (Banks, 2010; Sennett, 2008). Tinkering is often seen as a way to experiment with new and existing materials and tools. It encompasses an activity where the process is an important part of the development and where exploration and play are part of this process (Anderson, 2012; Dougherty, 2012). Small manufacturing is making commodities on a small scale, eventually to generate revenue (Wolf-Powers et al., 2017). Whereas craft focusses on skills development, tinkering has an innovative and experimental characteristic and small manufacturing is more business oriented. The focus in this research, on micro level, is on makers -mainly craftsmen and small manufacturers- working in maker space the Keilewerf. Most are freelancers and earn a living from the crafted-oriented products they make or services they offer.

Individuals choose to make for several reasons, for example, to spend free time, to learn new skills, to feel challenged or to employ a business venture, and for some makers their hobby has become their work (Anderson, 2012; Banks, 2010; Dougherty, 2012; Ocejo, 2010; Sennett, 2008). In *The Craftsman*, sociologist Richard Sennett addresses the human need to make things, focussing on hand crafting objects and the personal endeavour of undertaking to make with precision and care (2008). To become an advanced maker, one needs to learn, develop and improve skills. It takes time to become a goldsmith or furniture maker, a focus is needed and the discipline to persevere in the process of making, which at times can be challenging (Sennett, 2008).

Chris Anderson, author of *Makers: The Third Industrial Revolution* and chief editor of *Wired magazine*, which focusses on culture and technology and the re-emergence of manufacturing, describes the current maker movement as the third industrial revolution in which we will all become makers (2012). The author reminisces of becoming a maker in his childhood, experimenting, exploring and inventing things with objects, machines and materials – also known as tinkering - in his grandfather's workshop. Anything was possible in this workshop. There were no boundaries to what could be made. Computer-based making was soon added to the tinkering process, as technology spurred the Do-It-Yourself movement (DIY), which has decentralised and democratised making. Audio-visual tools and later, via the internet, open-accessibility software, has made it possible for anyone in the world to make anything themselves (Anderson, 2012).

Technology also plays a role in another type of making: small manufacturing. Small manufacturing is a combination of small-scale making and producing of commodities with the intention to generate revenue (Wolf-Powers et al., 2017). Small manufacturing often takes place within the local and relatively small setting of a maker space for example. Technology and the internet make it possible for these small manufacturers to work with available software to (co) produce goods and use the internet for the distribution of their designs (Wolf-Powers et al., 2017).

Labour processes and manual labour of small manufacturing entrepreneurs contribute to the local and creative economy, and therefore place making in the context of creative industries (Banks, 2010; Grodach & Connor & Gibson, 2017). The creative industries is an overarching term that encompasses all creative work of for-profit and non-profit companies and uncreative work in creative companies (Carr & Gibson, 2016; Ocejo, 2010; Wolf-Powers et al., 2017).

The next section will address new forms of work that are creating opportunities for employability by making. These new forms of work provide insight into individual approaches to work and thus address the individual makers involved in the development of the Keilewerf.

#### *2.1.1. Making on micro level: new forms of work and skilled labour*

This section addresses the individual forms of labour that have their roots in creative industries. Labour in the creative industries includes creative work such as architecture, furniture designing, visual arts and media (Banks, 2010). It also involves uncreative work that often supports the creative work such as film editing and set designing, though people often need specific skills to do this type of work (Banks, 2010; Ocejo, 2010).

Banks (2010), Ocejo (2010) and Sennett (2008) attempt to broaden our perspective on the qualities of skilled labour that combine skills-knowledge, practice and often creativity. Skilled labour focusses on the individual's process of making, in contrary to the work of an artist, which focusses on the end result. By working in the field of uncreative work, many people find their personal motivations and drives for engaging in small manufacturing, craft and skilled labour.

Banks (2010) focusses on uncreative work, as it is often overlooked and has a lower status compared to the aura of authenticity assigned to the unique work of an



artist. The importance of considering uncreative forms that support creative work as part of the creative industry is that they take up a large part of the work in this field, are skills-based and offer new opportunities for employment (Banks, 2010). Uncreative work in the creative industries includes quality, technology and service driven work such as being a cameraman, video editor or set designer. Ocejó (2010) takes it a step further and includes bartending as a craft. Bartending is considered part of the creative industries, as it is a craft where a constant development of skills is needed to be successful. One aspect that quality and service have in common is an intrinsic drive towards the process and the work one wants to deliver (Banks, 2010; Ocejó, 2010; Sennett, 2008).

According to Banks (2010), there is a revival, or 'renaissance', of craft labour and small manufacturing (p. 309). Today's craft takes place on a small scale and within a collaborative context, which is a contrast to the large-scale manufacturing and repetitive work that took place in factories during the industrial revolution (Banks, 2010). There are similarities to the workshop model of the middle ages, where there was the focus on the development of craft skills. However, today's workshops are open-accessible and have new technology and tools available. Still, there is the core focus on the craft and product that is being created. The renaissance of craft also addresses how people experience their work and the role work has in their lives. Although both creative and uncreative craftsmen - as described above - earn a living from their work. Sennett (2008) and Ocejó (2010) question if craft work and making is merely a way to earn a living or if there is more to the work, as it is based on skills, and makers are driven by an internal motivation to make. In the next section, they shed a light on new forms of work, including quality-driven work, where there is a focus on the making process, and service work, where creativity helps add a personal touch to the service work. Key aspects of these new forms of work are the intrinsic motivation of people conducting the work and the skills development needed to meet a high standard of quality.

### *2.1.2. Crafts and value of making for individual makers*

As discussed in the previous section, the craftsman and the bartender are skilled in their own fields. They have learnt techniques to complete the tasks that constitute their job and, in the process, improve these techniques to become experts (Banks, 2010).

However, craft and skilled labour are more than physical activity; they are an expertise,

a tradition of skills and knowledge, passed on by generations or a tailor-made product sold as commodity (Klamer, et al. 2013; Klamer, 2018; Ocejo, 2010; Sennett, 2008).

This section will provide an overview of the diversity of craft-based work as part of skilled work in order to grasp the field of crafts and show how crafts and skilled work are related. As can be seen in the figure below (Figure 1), crafts are part of the broader field of skilled labour. Overlaps can be seen between the various types of crafts; traditional crafts partially overlaps with unitarian crafts (Klamer et al., 2013). Traditional crafts consist of tangible and intangible products and customs that are often passed on by generations of people and embedded within local communities (Cominelli, 2017). Utilitarian crafts are crafted goods that have also have a function, such as a hand-crafted piece of furniture to store books or a vase for flowers (Klamer et al., 2013). This research that places making within the context of the creative industries, focusses on the creative, or contemporary crafts. Creative crafts connect design and arts with traditional and utilitarian crafts. Indeed, here design and the arts are considered partly as skilled work and in combination with contemporary craft this leads to cutting edge crafts, where innovation takes place amongst different groups involved in skilled work (Klamer et al., 2013).

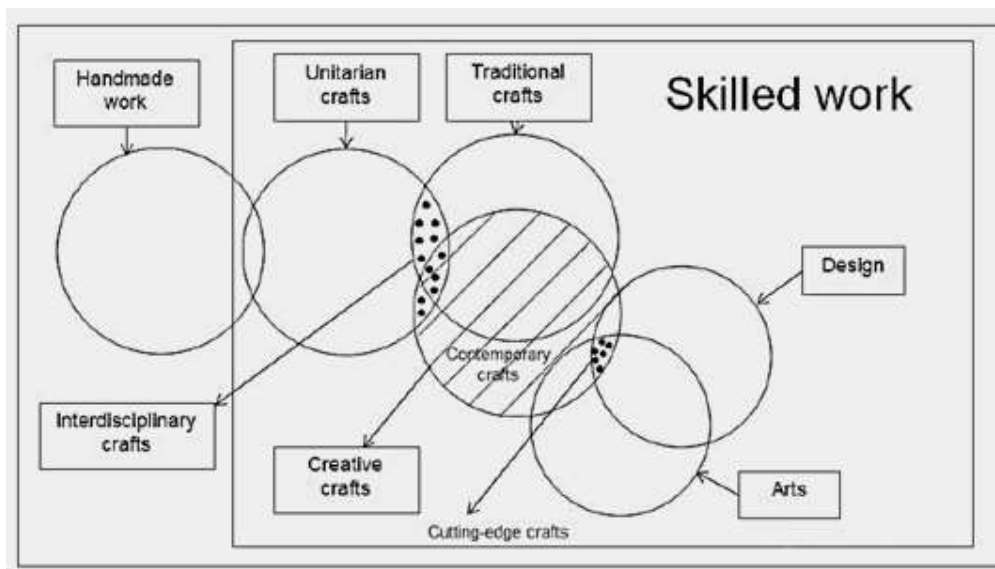


Figure 1: The definition of crafts and skilled work (Klamer et al., 2013)

Choosing a career in craft or even exchanging a regular full-time job for a job in the creative industries raises questions about how individuals value craft labour and why people choose meaningful work (Dougherty, 2012; Ocejo, 2010; Sennett, 2008). According to Dougherty (2012), people make and create things, or even develop new objects or ideas that lead to innovations because of an internal motivation. Ocejo's examples of often low-paid jobs, like being a barista or a set designer, can be reframed as meaningful occupations due to the maker's intrinsic desire to do each aspect in the best way they can and distinguish themselves in their field, which generates internal and external rewards (Banks, 2010; Ocejo, 2010).

Skilled work is often repetitive work; in order to do something well, people need to repetitively practice their skills, thus skilled occupations often acquire long hours of repetitive work and can become physically straining (Sennett, 2008). Bartenders, for example, often work often for long hours, during night times or holidays when people who have a regular job are off work (Ocejo, 2010). People working in skilled occupations, such as the bartenders, derive meaning and value from their work through the creativity they can apply to the job and distinguish themselves by their specific knowledge of the craft and its production (Banks, 2010; Ocejo, 2010). Creativity helps to give meaning to the otherwise monotonous routine.

"Bartenders redefine bartending by infusing the production, service and consumption aspects of the job with aesthetic considerations based on legitimized cultural practices and a desire to create a unique sensory experience for customers. By including creativity in service, cocktail bartenders redefine bartending in a manner that separates their own brand of bartending from those more common versions of it" (Ocejo, 2010, p. 184).

Besides the creativity and internal drive to distinguish themselves and the products made, makers value the freedom to make. The freedom to make is stimulated by the 'workshop model': open-accessibility places where makers meet and produce craft goods (Banks, 2010). These places offer makers the space and time to develop their products and services. This freedom to work when and how they want is motivation and allows makers to give meaning to their job and distinguish themselves from other makers (Banks, 2010; Sennett, 2008; Ocejo, 2010). Sennett's (2008) observations show that these individual craftsmen are not motivated to complete a set of tasks within the set time frame, which is the extrinsically driven approach, but focussed on the high quality of the tools they work with, directing their full attention towards the craft

process and the product (Sennett, 2008). Despite the low status of bartending, these craftsmen tend to find pleasure and meaning in their job through their creativity and motivation to do the job the best they can and thus offer high-quality service to their clients (Ocejo, 2010). Ocejo (2010) explores what it means to work in an occupation consisting of physical, repetitive work where service is the key aspect of the job. Both craftsmen and bartenders have the internal drive to refine and constantly improve the tools they work with and improve their process to achieve the best quality. Their main priority is the personalised client experience.

High-quality work combines the 'hands' and 'head' in the making process and, according to Sennett, the tactility of materials in the making process is a way of learning about ourselves and the world we live in (2008). Throughout the centuries, our heads and hands have become disconnected due to specialised work. Manual work has also become less valued than intellectual work because of industrialisation, where labour in factories consisted of hard physical and repetitive work (Carr & Gibson, 2016, p. 298). Ocejo (2010) and Sennett (2008) argue for a new revaluation of manual labour where the mind and the hands connect in the process of making high-quality commodities based on makers' craft skills.

The creative industries take a broad scope toward defining creative producers, including those who are outside the creative and cultural field; however, within the context of the maker movement, production is focussed on exchange and the collaborative initiative (Anderson, 2012; Grodach, 2017). The following section will discuss the social dimension of making, as this contributes to the image of maker spaces as places where new forms of production and businesses emerge, and innovation takes place.

## **2.2 Meso level, perspective of the maker space: making in the social context of the maker space**

The second perspective of making explored in this thesis is the perspective of the maker space. Maker spaces are social contexts for craft production and small manufacturing, places where makers have the space and the tools to create and to engage with other makers (Anderson, 2012; Banks, 2010; Dougherty, 2012). This section addresses making on the meso level and explores the perspectives of maker spaces as places for

engagement in and the promotion of making. Additionally, this section will address new forms of production, small manufacturing and business development that emerge through the collaborative skills and social connections that are developed in these spaces.

### *2.2.1. Maker space perspective: places of social engagement promoting making*

At their core, maker spaces are open-accessibility spaces for creation; however, today's maker spaces are seen as more than just places for creating tangible products. Maker spaces today are places of opportunity. Holbert (2016) suggests that maker spaces have additional value in offering a place to learn skills and use or hire machines and tools. Additionally, through the advancements of technology in the past few decades, makers have been given the opportunities to create and experiment with digital technologies such as open-source computer software (Dougherty, 2012). Advancements in the field of technology have led to worldwide access to knowledge and stimulated innovation in the development of creative and cultural products (Banks, 2010). The open accessibility of knowledge and tools to make, experiment and explore with innovative, self-built tools and share ideas via the internet creates the opportunity for amateurs and professionals to create and invent, leading to the 'democratization of innovation' (Hippel, 2005, p. 1).

The facilities, open accessibility and developments in technology make these spaces places of unlimited opportunity for both amateurs and professionals with the maker mindset (Dougherty, 2012). The can-do mindset, as described by Dale Dougherty, comes from an internal drive to create and explore new ways of creating. This mindset focusses on the individual qualities of makers as opposed to external motivations to make. Maker spaces are promoted as places that can empower and enrich people and make them proud by helping them discover and develop their talents through individual making and collaboration with other makers (Rosa et al., 2017; Van Holm, 2017). In maker spaces, people are valued for their existing qualities, talents, skills and probable prospects and makers can learn new skills and techniques in these spaces, play and experiment with materials and open-accessibility software, become explorers and innovators, and contribute to solving societal challenges (Anderson, 2012; Banks, 2010; Dougherty, 2012).

Although maker spaces are seen today as part of a niche urban culture, the promotion of these spaces focusses on a broad diversity of makers from all ages and

backgrounds (Anderson, 2012; Dougherty, 2012; Grodach et al., 2017). Maker spaces are open to all makers, amateur or professional, who want to make individually and within the context of a community or collaborate with other makers and learn from each other (Dougherty, 2012; Martin, 2015; Rosa et al., 2017).

### *2.2.2. Maker spaces leading to new forms of production with a renewed attention for small manufacturing*

New forms of production have emerged from today's maker spaces. From the perspective of the creative industries, Banks (2010) discusses a new renaissance of craft labour within the workshop model where the skills of making tangible and digital products prevail over a knowledge- and service-centred work environment. According to Banks (2010), the workshop model appeals to makers because of the freedom to make how, when and with whom they wish. Those with an internal drive to make and invest time can create meaning from making, instead of being motivated by an external superior. Other aspects that have stimulated this change of focus on work production are the small-scale communal workspaces where people have access to tools and software, and work within the social context of these workshops.

Menichinelli et al. (2017) have conducted a qualitative survey amongst makers in Italy, where there is a long history of making cultures, and perceive an increase in collaborative production in maker spaces. This production with 'peers' in maker spaces is triggered by the development of open-accessibility technologies and platforms. Digital software for manufacturing, funding and communication tools are stimulating groups of people to collaborate, contribute and create tangible products. Inspired by the collaborative atmosphere that is facilitated by technology, 'peer production' has become part of the physical making process (Menichinelli et al., 2017, p. 1).

New forms of production in the social context of maker spaces lead to new forms of making, which in this case is small-scale manufacturing. Small-scale manufacturing is the opposite of the machine-generated, industrialised manufacturing in large factories. Anderson (2012) considers the current emergence of small-scale manufacturing to be a third industrial revolution. What distinguishes the third industrial revolution from the first and second is the scale of production: small-scale making within the context of collaborative communities, characterised by careful attention to the developmental process of manually or digitally crafted products.

### *2.2.3. The emergence of new types of businesses*

Today's digitalisation, combined with small-scale manufacturing, allows anyone to be a maker. Additionally, digitalisation connects makers with other makers, businesses, institutes and even on a global level (Carr & Gibson, 2016; Hamalainen & Karjalainen, 2017). This combination of connectivity and the focus on craft and skill-centred work in maker spaces impacts businesses of small manufacturers, and new business models are emerging (Banks, 2010; Hamalainen & Karjalainen, 2017; Lee, 2015; Menichinelli et al., 2017).

Both Menichinelli et al. (2017) and Hamalainen and Karjalainen (2017) have conducted qualitative research on these new social developments in the work field of makers. Hamalainen and Karjalainen (2017) researched the mechanism and motivations behind the change in work from individual to social manufacturing, where businesses participate in the production process of manufacturing commodities. Their research discusses how the relationship between makers and businesses in the production process can be beneficial for both stakeholders. On one hand, makers are more focussed on self-development, value and enthusiasm for making than on earning a profit, which can contribute to a sustainable work relationship. The businesses can profit from the flexibly, relative low cost, speed and network of the makers (Hamalainen & Karjalainen, 2017).

Menichinelli et al. (2017) discuss the involvement between stakeholders during three stages of the production process: the design, manufacturing and distribution of goods. In this process each stakeholder has the own contribution and responsibility, but all contributions add up to the general production process.

Making democratises the production of small manufactured goods, as maker spaces offer accessibility to other makers by connecting businesses from anywhere in the world. At the same time, being part of a maker space can provide a sense of belonging to a community of people with similar interests (Carr & Gibson, 2016; Dougherty, 2012; Van Holm, 2017). However, this hybrid and flexible work environment makes it challenging for makers to balance work and generate revenue in the current profit-driven society, especially since makers are passionate about their work and value personal development over monetary gain (Anderson, 2012; Hamalainen & Karjalainen, 2017; Menichinelli et al., 2017; Vivant, 2013).



The collaborative and flexible maker businesses, where people have the drive to make and collaborate, attract the attention of policy makers (Anderson, 2012; Grodach, 2017; Wolf-Powers et al., 2017). The following section discusses making on the societal level and the impact of making for urban policy.

### 2.3. Macro level

The third level dimension of making addresses making on the level of urban policy: the economic, environmental and societal values of making, and the social dimension of solving urban issues in collaboration with other makers.

#### *2.3.1. Making on macro level: A shift from consumption of creativity to the production of creative goods*

According to Grodach, a 'quiet turn' is taking place in the field of urban development (2017, p. 86). This turn marks a shift from a focus on creativity and consumption to a focus on creativity as a tool for new production (Anderson, 2012; Grodach, 2017). The knowledge and consumption industries have been the loci to attract people to cities in the past decennia. Based on Richard Florida's body of thought, the 'creative class' was attracted to cities such as New York and London by the promotion of an urban lifestyle consisting of a lively art and culture climate (Grodach, 2017). The higher-educated and creative class were stimulated to consume creative and cultural goods in order to contribute to the urban economy (Florida, 2002; Vivant, 2013). This city policy, where the main focus was on the consumption of creative and cultural goods and services, often increased the value of property and resulted in the displacement of residents and companies, also known as gentrification (Grodach, 2017; Vivant, 2013 Zukin, 2016).

The change from consumption to production has been triggered by developments such as the recent economic crisis in Western countries. The manufacturing and thus production of creative goods by individuals within social contexts seems to be increasing, according to existing research (Grodach, 2017, Menichinelli et al., 2017). This change starts at the grass roots level, as individuals are taking matters in their own hands and collaborating to make change happen (Carr & Gibson, 2016). This drive to change is connected to a movement against an economic- and profit-driven society, where the consumption and mass production of cheap produced goods is stimulated

(Carr & Gibson, 2016). It has, however, become more and more clear that consumption does not solve issues of economic inequality, and mass-produced goods are often produced under unhealthy and environmentally harmful circumstances (Carr & Gibson, 2016; Grodach, O'Connor, Gibson, 2017).

Besides the recent financial crisis, the environmental crisis has triggered a shift in people's values towards human existence, the world we live in, our relation to work and our economic values (Carr & Gibson, 2016; Grodach & O'Connor & Gibson, 2017). In the next section, the values of making will be addressed, as this touches upon the underlying motivations for the present shift from the consumption to production of creative and cultural goods and the role of making in the context of urban policy.

### *2.3.2. Macro level: economic, environmental and societal values of making*

Since the emergence of the maker movement where technological innovation is combined with manufacturing, there has been a rising interest from urban policy in making as approach to urban development (Anderson, 2012; Cominelli, 2017; Grodach et al., 2017; Wolf-Powers et al., 2017). Advancements in the field of technology have led to worldwide access to knowledge and open-source computer software, which has stimulated the development of innovation in the creative and cultural products (Banks, 2010).

Research on policy levels indicates that making is becoming of increased value for the cultural economy, our environment and in the societal context (Banks, 2010; Grodach, 2017; Wolf-Powers et. al., 2017). From a societal perspective, making is valued for bringing people together in spaces where people make, learn and collaborate (Anderson, 2012; Dougherty, 2012). Schools and public libraries have adopted the concept of making to educate students about craft skills, often in combination with technological tools and machines. We connect with others in the process of making. From this social perspective, engaging and collaborating in maker spaces offers people the opportunity to learn and teach new skills and exchange of ideas and knowledge (Carr & Gibson, 2016; Lee, 2015). In addition, while opening the doors to both amateur and professional makers, it offers spaces in which people can socialise and engage in making (Hall et al., 2012; Barton, Tan & Greenberg, 2016).

Making has become of interest in the field of urban policy. Making is not only seen as a hobby and a way to spend leisure time but as part of the creative industries,

and it is considered to contribute to the creative economy (Cominelli, 2017; Wolf-Powers et. al., 2017). By supporting makers, especially small manufacturers, urban areas can boost local employment and distinguish themselves by investing in makers and become attractive place for businesses to settle (Cominelli, 2017; Wolf-Powers et. al., 2017). Makers are flexible and determined to develop the manufacturing business they are passionate about, which makes them more focussed on internal rewards than external ones (Sennett; 2008). However, makers do need to make a living.

Grodach (2017) points out that today's flexible capitalism does make it challenging for makers to build a sustainable business if they are not supported by policy makers. Menichinelli et al. (2017) also addresses the issue of sustainable employability. Makers are often self-employed or work on a non-profit base, so they earn a relative low wage compared to the hours spent on making cultural and creative goods. Menichinelli et al. (2017) suggests further research into how flexible work has impact on our societies.

Besides the economic aspects, making is valued for contributing to the environment (Carr & Gibson, 2016; Grodach, 2017). The maker movement connects like-minded people with similar interests and drive to make, and this in turn attracts people to the maker spaces and contributes to the expansion of local community networks. These clusters of makers who develop cultural and creative goods also attract other people interested in these activities and products. Connections between making are valued for the environment. Carr and Gibson (2016) suggest that making, and especially knowledge of materials and how to manufacture materials, empowers people and gives people the tools to be able to influence the surroundings they live in. This reduces mass production, places greater value on the quality of objects and spaces, and suggests a way to save the scarce and decreasing resources worldwide (Carr & Gibson, 2016).

The next section will address how the values of making are directly contributing to solving urban challenges. From the perspective of urban policy, making can be deliberately used as a tool.

### *2.3.3. Solving pressing urban issues in collaboration with others*

Collaborative initiative in the urban context has been spurred because of societal and economic changes and technological developments (Anderson, 2012; Mayer, 2013). The economic crisis of Western countries in the past decennium has impacted people from all layers of society, national and local governments, and led new social movements to emerge (Mayer, 2013). Especially due to the large impact and scale of the crisis, homogenous activist groups have been triggered to combine forces and form organizations such as Occupy (Mayer, 2013, p. 11). These movements within Western societies, where activists turn against neoliberalism and consumption-driven societies, have impacted the creative field as well (Grodach, 2017; Mayer, 2013).

Creativity and the creative industries have contributed to solving societal urban challenges in the past decades; for example, declining city centres and the environment (Florida, 2002; Grodach, 2017; Grodach, O'Connor & Gibson, 2017; Vivant, 2013). Making is seen as a way to deal with consumption-focussed societies and, at the same time, by acknowledging the influence of making on the micro to macro level, this can contribute to solving societal challenges such as the current global climate changes (Carr & Gibson, 2016). Less focus should be on consumption and profit development, which is still considered an essential part of the current capitalistic system, and more on the revaluation and creation of small-scale manufactured goods.

Carr and Gibson's perspective on making suggests that it can aid in solving pressing sustainability issues (2016). In our society where it is common to purchase mass-produced goods we are used to purchasing new products. This does not only contribute to the exhaustion of global resources but also increases amounts of waste worldwide and thus contributes societal issues (Carr & Grodach, 2016). According to Carr and Gibson (2016), making and producing goods ourselves would help solve the possible scarcity of goods due to a future decrease in resources. Therefore, we need to revalue making things ourselves, with the available resources, in order to recreate the surroundings we live in and provide what people need in their daily lives.

### 3. Methodology

This research is based on qualitative data collected at the level of the three stakeholders involved in making at the Keilewerf: the city, the managers of the maker space Keilewerf, and the makers themselves, some of which are tenants. The methods for this research consisted of interview, observations and document analysis. The collected data on the development of the Keilewerf provide insights into the process of revitalisation in this area and the role making is seen as having therein. Eventually, these data may provide support for alternative approaches to making and city development beyond this single case.

#### 3.1. Case study and methods

The case studied for this research is the Keilewerf maker space, an instrumental case that contributes to generating information about the phenomenon of making (Baxter & Jack, 2008, p. 549). The Keilewerf has a diversity of functions and is based in a transitioning location. This makes it an interesting case to study from various perspectives: the users, the founders and those involved in the development of the area at the city level. As a broad selection of data has been collected within the limited timeframe of this research, one case study is sufficient. This chapter will discuss the methods most suitable to explore the process of making in the Keilewerf. To investigate making in this district, a qualitative exploration took place on the micro, meso and macro levels. On the micro level are the individual makers based for the long or short term in the Keilewerf. On the meso level are the founders of the wharf and Buurman, and on the macro level is a team consisting of the city's municipality and Port Rotterdam.

The following paragraph will address the methods most fitting to explore the case study. Eventually, this qualitative exploration will generate data that provide a three-dimensional view of the perceptions and motivations of the three stakeholders.

### *3.1.1. Mixed methods*

The qualitative research collects the perspectives of the Keilewerf's makers, founders and policy makers. The data collection has been adapted to the three respondents. Mixed research methods seemed most fitting for this research. A combination of qualitative methods (interviewing, observations and document analysis) made it possible for this research to generate a three-dimensional perspective of making on various layers. The first method, semi-structured interviewing, helped to collect data about motivations, views and experiences. The second method, observation, was used to generate textual data on human behaviour, activities and the environment in which these activities take place. The third method of document analysis, allowed for the collection of textual data on the founding process of the space, which provided a context for making in the Keilewerf.

### *3.1.2. Semi-structured interviewing*

Through the interviews, it is possible to gain new insights into why people engage in making practices and link to wider making goals. Interviews with the stakeholders involved in the development of the area will add to current research in the field of craft, collaborative production and urban cultural development. To understand the personal experiences, opinions and motivations of the participants, the qualitative research method of interviewing most suitable.

Interviewing is an inductive approach (Bryman, 2012; Babbie, 2011; Boeije, 2014), meaning that this research contributes to the existing theory of making and urban development. There are various types of interviews: structured, unstructured and semi-structured (Bryman, 2012; Babbie, 2011, Boeije, 2014). The most appropriate method for this research is semi-structured interviewing. Semi-structured interviewing provides a framework for the interview based on a list of open-ended questions. These questions are used as a guideline to direct the conversation, but enough space is left for the interviewee to deviate from the subject and thus data on views, perceptions and motivations can be collected (Boeije, 2014). This interview strategy made it possible to gather rich and in-depth information from stakeholders about this space where both the individual and collaborative production of goods takes place and where the learning and teaching of new skills is supported within a local network of makers (Bryman, 2012; Babbie, 2011, Boeije, 2014). In practical sense, the advantage of conducting interviews

with people who are involved in a maker space in Rotterdam is that it allows for meeting each individual face to face. The questionnaire of the interviews in Dutch is included in appendix A.

### *3.2.3. Conducting the interviews*

The collection of data took place between 1 March and 20 May 2018. I visited the wharf 14 times in total for interviews, observations and familiarisation with the space. Twelve people were eventually interviewed. The interviewees were approached in person or through email, phone or LinkedIn. The total amount of data collected consists of 10,5 hours of audio recording, encompassing 12 interviews, each transcribed verbatim.

All interviewees received an email with an elaborate description of the purpose and conditions of the interview, and they all gave verbal consent. Two interviews took place by phone due to a lack of time. I met and spoke to the founder of Buurman briefly during a visit to the wharf. The interview with the municipality took place at the governmental offices at Katendrecht, and nine interviews were conducted at the Keilewerf.

The interviews took between three quarters of an hour to an hour on average. Seven interviews lasted around 65 minutes, two interviews lasted 45 minutes, and three interviews were slightly shorter; they lasted half an hour due to the limited time of the respondent. Arranging interviews with the founders and most of the makers turned out to be a challenge. In total, I approached 18 makers for an interview, and 10 were delayed due to busy schedules.

The interviews with the makers and experts connected to the Keilewerf took place on site. In all cases, the makers showed me their studio space, and the founder even took an extra hour to show me around the second building, introduce me to some makers and initiatives there and explained the near-future plans of the open-accessibility park. On the next page, image 2 presents an illustration of the of the two Keilewerf buildings, Keilewerf 1 (left) and Keilewerf 2 (right). On the next page, image 3 show the location of the two buildings on the site, with in between a green open space.





Image 2: The Keilewerf 1 (left) studios marked in blue with Buurman in orange, including the location of the open accessible maker space and Keilewerf 2 (right)



Image 3: Keilewerf 1 (above) and Keilewerf 2 (below, with in between a green area, and Benjamin Franklinstraat, Keizerstraat, and the Keileweg (Source: Google maps)

### 3.2. Sampling and selection criteria

The Keilewerf in Rotterdam was chosen as a single case study for this research because it distinguishes itself from other similar maker spaces in the city by the diversity of functions it offers for a broad group of professional and amateur makers. Other options for maker spaces in the Maker District are the Bouwkeet and the Rotterdam Droogdok Maatschappij (RDM) Maker Space. The Bouwkeet is a maker space for children who live in the Delfshaven neighbourhood and focusses on the education of craft skills. Another maker space is the RDM Maker Space, a fablab based in the RDM district where makers can rent a space and machines. The business of this maker space is directed towards producing nautical goods for the harbour of Rotterdam. Given the specific target audiences of the other two maker spaces, the Keilewerf was preferred.

#### 3.2.1. Unit of analysis: stakeholders

The respondents are those involved in the development of the case study the Keilewerf, including 1) amateur and professional makers; 2) the municipality and Port of Rotterdam, which develop the visions and strategies; and 3) the founders of the Keilewerf maker space. Thus, the unit of analysis is stakeholders. As illustrated previously, people use the Keilewerf maker space in different ways and have different motivations for participating. There are professional makers who have a studio and amateur makers who temporarily use or rent a space, workbench or machines.

#### 3.2.2. Selection criteria respondents

The selection of the makers is based on subjective purposive sampling (Bryman, 2012). It was clear in advance that the criteria for this selection were makers working in craft or small-scale manufacturing who collaborate and intend to work with recycled materials – and who are based at the Keilewerf. The Keilewerf website provides an overview of profile images for the makers and an explanation of the work each person does with what materials (used) and how (e.g., independently or in collaboration with others at the wharf). However, the profiles do not indicate the role(s) someone has in the community. Some makers are closely involved in running the organisation, while others are only renting a space. The website profiles were not all up to date, which initially led to a selection of people of which a few did not actually fully match the criteria. Three interviewees were not working fulltime at the Keilewerf anymore, one

collaborated less than initially stated on the website and one had moved but is still connected to the space via her partner who still works in the space they initially shared.

Unless otherwise stated in the profile, I assumed makers in the Keilewerf worked there fulltime. In reality, there were a few working part-time due to commissions or jobs elsewhere. Although the criteria already limited the group for selection, gathering a diverse group of makers turned out to be a challenge, as there is a fairly large group of makers working as furniture designers in Keilewerf 1. Understandably, not all of the approached nine makers were available or wanted to contribute to this research. Still, only seven interviews with makers took place.

Besides the makers, other stakeholders closely connected to the development of the Keilewerf were invited for an interview. These experts included the initial founder of the Keilewerf and the co-founder of Buurman. After a few months of attempting to get in touch via email, phone, LinkedIn and at the Keilewerf, the interviews with the founders eventually took place, one by phone and the other at the Keilewerf. The last stakeholder interviewed was the former project manager involved in the development of the Maker District. I initially attempted to get in touch via LinkedIn; eventually, it was possible to get in touch with him via a shared acquaintance. In table 4 on the following page, an overview is provided of the stakeholders interviewed.

## MICRO LEVEL: MAKERS

1.	Furniture refurbishing	Fulltime, teaches a few hours per week	Textiles, wood
2.	Furniture making	Fulltime	Wood, steel
3.	Surfboard and furniture making	Fulltime	Wood
4.	Workshop manager Buurman and furniture maker	Employed for 3 days at KW, works 3 days as maker at the wharf	Wood
5.	Sculptor	Part-time at KW besides commissions	Marble
6.	Designer and maker of wooden rings and small-scale boats.	Fulltime job elsewhere	Wood
7.	Workshop manager and mechanic Give a Bike	One day a week - has a job in Amsterdam running a similar company	Steel (bikes)
8.	Retired cardiologist who enjoys creating and making	Followed a 6-evening course in furniture making	Wood
9.	Set design for theatre, designer of bags and felt accessories	Fulltime, has a part time job on the side few a few hours a week	Felt and various set design materials

## MESO LEVEL: FOUNDERS

10.	Founder of Keilewerf		
11.	Co-founder of Buurman		

## MACRO LEVEL: EXPERT

12.	Former manager of the development of the M4H and RDM district		
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Table 4: Overview of interviewed stakeholders

### 3.2.3. *Selected settings for observations and selected documents for analysis*

The setting for the observation and selection of documents were based on a form of purposive sampling, namely criterion sampling. A selection of documents was chosen based on the criteria that the reports must provide information of about future plans, views and approaches to the development of the area and the creative spaces in this area (Bryman, 2012). Besides the first method of interviewing, the second source of data collection was based on three observations during a workshop course at Buurman. The third source for the data collection was five documents, including the Maker District Vision and Strategy document (December, 2017) of the municipality and Port of Rotterdam, the municipality's Creative Spaces Rotterdam policy document for 2017-2021 (October, 2017), Buurman's 2016 annual report (Buurman, n.d.) and screenshots of the Keilewerf website.

The criterion for the observations was to witness collaborations between makers in the Keilewerf. The initial idea was to attend a meeting of the founders and current co-owners. However, as the question remained unanswered, I decided to attend three open-accessibility courses and workshops. The observations during these workshops focussed on the making process and collaborations. I had hoped to attend the evaluation at the end of one of the courses; however, time ran out. It was late in the evening, and the participants still needed to finish their design. Eventually, I was able to get in touch with one of the participants for an interview.

### 3.3. **Interview guide and operationalisation**

This research aims to answer the main research question: ***How do stakeholders understand and perceive the place and role of maker space the Keilewerf in the city development?*** To address the research question, the concepts have been operationalised by motivations for making, views on making, views on making in relation to the city and views on collaborative making. These concepts have been developed into a questionnaire, consisting of semi-structured questions (see interview guide in table 5 on page 36 and 37 and appendices A, B, C, D, E).

The interview guide starts with the first concept of the motivations for making. The first question about motivations triggered respondents' personal perspectives, why they make, what is enjoyable and challenging about making. This generated a rich

quantity of information on a personal level about how the makers and founders are involved in making. The second concept addressed the views for making by the makers, the founders and the city. Topics that emerged touch upon what it means to be involved making, such as the freedom to make, challenges of small manufacturing and the capitalistic system. These topics address the role of making. The third concept, of views on making in the city, places making in a broader context of urban development. Topics that emerged related to economic, societal aspects of making, such as making is a way to reframe the image of the area around the Keilewerf, making as a way to boost the economy and via making with discarded materials people learn about sustainability and the value of discard materials. The fourth concept of collaborative making addresses making in the context of the maker space and with other makers. Topics that emerge from the social context of making are related to the collaborative development of the maker space, makers helping each other with commissions or sharing of knowledge.

It became clear during the development of this research, that the activity of making gives meaning to those who make. This meaning making indicates the **role** of making, from the perspective of the makers, founders and policy maker; and answers the sub question: ***What does making mean to the stakeholders?*** The Keilewerf is the context in which making takes place. Collecting views on the maker space at current and for the future, indicates the place of the maker space and gives answers to the second sub question: ***What does the Keilewerf mean to the stakeholders?***

Concept	Dimension	Measurement
Motivation	Personal	<p>How did you become interested in De Keilewerf?</p> <p>What motivated you to come to De Keilewerf?</p> <p>What is most rewarding about being here?</p> <p>What is your experience with being part of De Keilewerf - as a community?</p> <p>What attracted you to be part of De Keilewerf maker community?</p> <p>How would you describe the community of makers in De Keilewerf?</p> <p>What are your dreams and/or aims as a maker at De Keilewerf?</p> <p>What are your dreams and/or aims for the development of De Keilewerf in this urban area?</p>
	Societal	<p>How involved are you in the maker space? (e.g. organisation activities, teaching wood working)</p> <p>How are you as a maker contributing to the development of the Merwe-Vierhaven district and the city of Rotterdam?</p> <p>What is in your opinion the added value of making for the development of this urban area, and the revitalization of the former harbour De Keilewerf is based?</p>
	Environmental	<p>In how far has sustainability played a part in your practice being based in this space and location?</p> <p>What are your views on the sustainability goals of the maker space De Keilewerf - where there is a focus on waste reduction (recycling and reuse)- and the maker district -as an innovative green district in development-?</p> <p>How do these goals of sustainability connect to your own practice?</p>
Making process	Personal	<p>How would you describe your work/craftsmanship?</p> <p>What drives you as a maker/craftsman?</p> <p>What is the most rewarding of making [a product]?</p> <p>What do you value in making and crafting?</p> <p>How would you describe or illustrate your making process?</p>
	Social	<p>How does being based in De Keilewerf impact your making process; could you also make in another context?</p> <p>Why do you collaborate in making process?</p> <p>What do you value most in collaboration in the making process?</p>
	Environmental	<p>How is your making process connected to your surrounding (local products, recycling, reuse)?</p> <p>What are your motivations for this?</p> <p>How do you wish to contribute to solving issues of sustainability with your work?</p>
Collaborative production	Personal	<p>What are your personal experiences in collaborating with other manufacturers at De Keilewerf?</p> <p>What are your views on collaborative production versus individual production?</p> <p>What do you value most about collaborating with other makers?</p> <p>How does collaborating with a diversity of makers affect you as amateur or professional maker?</p> <p>In what ways does collaborating with other makers affect your work?</p>



	Social	<p>How has your network developed since working at De Keilewerf?</p> <p>What are the implications of the social developments?</p> <p>How do collaborations develop/emerge between makers in De Keilewerf?</p> <p>In what ways does collaborating impact your work and that of other makers based in De Keilewerf, in your view?</p> <p>What is the relevance of collaborate production for the space and the location in the city?</p>
	Economic	<p>How has your economic situation been affected by being part of the Keilewerf community?</p>
	Environmental	<p>What is in your view the relation between collaborating production and solving urban issues of waste for example?</p> <p>How can collaborative production in your opinion help solve issues of waste in the city of Rotterdam?</p> <p>How do you think making can help solve issues of sustainability in cities rapidly expanding and in time of decreasing resources in the future?</p> <p>What would be needed for these developments to take place?</p>
Urban development	Cultural	<p>What is in your opinion the importance of creativity for Rotterdam?</p> <p>How would you describe the creative city of Rotterdam?</p> <p>How do you experience the creative city Rotterdam?</p> <p>What are your thoughts on the current cultural policy in Rotterdam?</p>
	Societal	<p>What do you think is the added value of De Keilewerf for the city? How do you think small manufacturing can contribute to the urban cultural development for the city of Rotterdam?</p> <p>What is in your opinion the future potential of making for cultural policy in the city of Rotterdam?</p>
	Environmental	<p>What are your views on how making physical products can help solve urgent urban challenges, such as an abundance of waste in the city of Rotterdam?</p> <p>What role do you think cultural policy can play in creating the opportunities for making in an urban context?</p>

Table 5: Operationalization.

### 3.4. Observation makers

Ethnographic research has its foundations in the research fields of anthropology and sociology, studying human behaviour and interactions in a certain environment during a certain time period (Boeije, 2014; Schensul, et al.,1999). For this part of my research, I observed the behaviour of amateur makers participating in the courses and workshops offered by Buurman, which take place in the open-accessibility space at the entrance of the Keilewerf. Characteristic to the maker space is open accessibility, where people from outside the space are welcome to take part in courses, workshops and events. A second characteristic is collaboration. In this series of observations, the focus was on observing processes of collaboration, problem solving, interactions and the exchange of knowledge and skills. In total, 9,5 hours of observation took place during two workshops and one evening course.

I observed two different groups of people taking part in workshops and a group of amateur makers taking part in the last day of a four-day course on furniture making. Besides this, I have taken notes of observations before, during and after the face-to-face interviews with makers who have a working space on location. Ethnographic research makes it possible to systematically study group behaviour. In the context of the Keilewerf, observing professional and amateur makers who are based in the space for both long and short periods of time has informed this research by revealing the individual and collaborative behaviour during the courses and the exchanging of skills and knowledge. To avoid bias and secure the validity and reliability of the research, I took notes and memos each half hour and quoted overheard conversations or conversation I had during the observations.

In order to investigate the behaviour (individual and collaborative making) in the maker space at the Keilewerf I chose to observe three groups of makers participating in a course or workshop. In two occasions the person teaching the course about my presence and role in advance. In these two cases, my two- to three-hour presence was more visible as the groups were very small and consist of between four and six people. My presence was less visible during the observation of a lively group of 24 students with their teacher who were visiting one Saturday in addition to the regular costumers visiting the hardware store and makers walking to and from their studios. The makers were not interrupted or unsettled by my presence in any case, but they were curious

about the purpose of the observations. I was able to interview one of the makers by phone after the observation.

### 3.5. Analysis

#### *Document analysis*

The document analysis, consisting of the city's future visions for the area, is based on the recently published document Vision and Strategy: Rotterdam Maker District (Stadshavens Rotterdam, 2017). This document provides information about the plans and strategies of the municipality and the Port of Rotterdam to revitalise the Maker District in the coming years. Other documents analysed include the city's policy for studio spaces and hubs (Rotterdam, 2017, October) and the annual reports of for-profit companies (Buurman, 2017) with information about their sustainable goals, achievements and the services they offer. Lastly, the Keilewerf website provides basic information about the aims of the space, profiles of the users in Keilewerf 1 and Keilewerf 2, news, events, a guide for renting space and contact details.

#### *Thematic analysis*

The data analysed for this research consists of peoples' experiences, visions and perceptions on the development of the Keilewerf maker space in the Maker District. The aforementioned types of data generated by interviewing, conducting observations and analysing documents is considered using thematic analysis. This method can be used to explore a large set of various data in search for patterns and themes, and eventually provide answers to the research questions. The advantage of a thematic approach for this analysis is the flexibility it offers in a qualitative exploration for developing alternative theories (Nowell et al., 2017). In order to be transparent and create a valid and reliable theme, it is important to have a well-structured approach in the process of retrieving patterns and distilling themes from a large amount data (Nowell et al., 2017). The collected data give a three-dimensional view of the perceived role and place of the Keilewerf in the development of the area. The processed data and findings eventually answer the research questions. Boeije (2010, p. 150) describes this rigorous process of analysis as the following: 'Processing and manipulating the data are means by which to arrive at interpretations that demonstrate (from a particular theoretical viewpoint) how

people make sense of their situations and act on them. The analysis themselves, or “the making of the findings” are not findings themselves.’

### *Coding*

For this research, my interpretation of the coded data is key to finding the categories and themes that connect the results back to the theory of making, engaging and collaborating in the Keilewerf maker space. The coding and analysis of the interviews, documents and observations were conducted using software Atlas.ti edition 8 for Mac (Bryman, 2012; Babbie, 2011; Boeijs, 2010). First, the documents were imported into Atlas.ti, and then the analysis started with re-reading the collected data. During this process of open coding between the interviews and other data connections between the data started to emerge.

During the second step of coding, the first themes emerged and the connections, patterns and themes between the different perspectives of the stakeholders started to develop. This step is known as axial coding, where answers about the concepts of making, collaborating and developing the Maker District can be found (Bryman, 2012; Babbie, 2011; Boeijs, 2010). Analysis is an iterative process, meaning that there is a constant review and adjustment of the research questions and propositions. The thematic data analysis starts via a five-step process of getting to know the data, making codes, distilling themes, then reviewing these and eventually coding (Nowell et al., 2017, p. 4). On the next page, the coding tree (table 6) visualises the coding process.

<p><b>Experience making in Keilewerf</b></p> <ul style="list-style-type: none"> <li>• Motivation; “making at Keilewerf”, “small manufacturing”, “rewarding”</li> <li>• Economic aspects; “business development”</li> <li>• Social aspects; “collaboration for commission”, “consultation amongst makers”, “creative and stimulating”</li> </ul> <p><b>Collaborative experiences of development Keilewerf</b></p> <ul style="list-style-type: none"> <li>• Collaborative development</li> <li>• Slow urban development; “attract diverse groups”, “spread growth over long-term”</li> <li>• Pioneering and creating liveliness</li> <li>• Much interest by makers for Keilewerf; “affordability”, “community of creative and entrepreneurial makers”, “freedom”</li> <li>• Business development</li> </ul> <p><b>Future visions stakeholders</b></p> <ul style="list-style-type: none"> <li>• Collaborative development</li> <li>• Slow urban development; “attract diverse groups”, “spread growth over long-term”</li> <li>• Develop a Maker District; “attract small manufacturing entrepreneurs”, “attract companies in different stages of development exchange knowledge and skills”</li> <li>• Collaboratively creating a great maker space</li> <li>• Grow small manufacturing business; “make a living of making”, “make beautiful Products”, “make people happy”</li> <li>• Sustainable business; “create awareness about reuse, recycling and repair”, “save discarded materials”</li> </ul>
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Table 6: Addressed topics during interviews with stakeholders

*Shift in research focus*

This research has sought to investigate the relation between making and collaborative activity in city development, a research area that emerged from a previous proposal. The initial research proposal focussed on making and solving pressing issues of sustainability in cities (Carr & Gibson, 2016). The effects of climate change are present in cities, through the increase of waste and pollution for example. The research focus has changed while in the process of conducting the research. After the interview number six, it became clear that waste reduction deviated from the core practice of many makers, and is the core focus of one of the key organizations in the case study. The interviews show the topic is present amongst the makers and the city; though waste is not the core focus of the maker practice the focus and research questions of this research has been adjusted while two -thirds into the process.

As a final remark, most of the interviews were conducted in Dutch. The quotes have been translated from Dutch to English, and the original Dutch quotes have been added in the footnotes.

## 4. Findings

Chapter 4 will set out an analysis of the data collected. The three data sources were analysed together, so the results are integrated in this findings section.

This exploratory research has aimed to lay bare the motivations, experiences and views of three types of stakeholders (amateur and professional makers, a policy maker of the city Rotterdam and the founders of the Keilewerf and Buurman), to find out how they understand making and see its role in the city's development. The motivation behind this research is to see whether making is seen as providing sustainable, viable, long-term alternatives for urban development. Indeed, this research aims to critically assess the apparent hype of making as part of the approach and strategy to city development. By focussing on the case of the Keilewerf, situated in the Maker District, we aim to reveal what making means for city development; in this case, the city of Rotterdam.

These stakeholders are all connected through their involvement in the development of the maker space on different levels. Their combined views offer a multidimensional perspective on making and its role in the city. These levels of involvement form the framework of this findings section. Besides this, the findings in this section are placed within the context of theory. The findings section consists of five parts.

The first section addresses the background of the Keilewerf and the connection of the maker space to the Maker District. This section provides the historical and policy background to the development of the Keilewerf, particularly from the perspective of the city. The second section provides insights into the visions and motivations of the three stakeholders involved in making in the Keilewerf. This qualitative research has collected a rich range of future ideas and plans for making in the Keilewerf, from the perspective of the policy maker and city, from the founders of the maker space and of professional and amateur makers working in the Keilewerf. The third part continues with what making means for those involved in the development of the maker space. This part gives insights into the overlaps and differences in values and motivations of the stakeholders. The fourth part reflects on the development in reality. How does the reality of making and the development of the Keilewerf match up with the visions and

ideas there are by the three stakeholders. The last section reflects on the implications of making for future urban development.

#### **4.1. Historical and policy background maker space Keilewerf**

The following section provides an introduction to the Maker District and the Keilewerf, clarifying the relationship between the two. It begins with an explanation of the origins, development, and aims of the Keilewerf and the Maker District.

##### *4.1.1. Developing the Maker District as part of the Merwe-Vierhavens*

The Maker District contains two former harbour areas, the Merwe-Vierhavens (M4H) and RDM Heijplaat (RDM). These two parts of the harbour of Rotterdam were officially named the Maker District as of 23 January 2018 (Lancering Rotterdam Maker District, n.d.). The Maker District was developed in collaboration with the Port of Rotterdam and the city's municipality. These partners created a vision and strategy, then formed a team for the realisation of the intended transformation. The most recent vision and strategy document, dating from December 2017, shows the development of the Maker District started more than a decade ago, in 2007. The policy maker collaborates with the people of the Port of Rotterdam in the development of the Maker District and has been involved as the project leader for four years. The policy maker explained that the development accelerated rapidly for a few years and the revitalization began sooner than expected due to the economic growth of Rotterdam in past years, coupled with an increased demand for housing.

“But there have been quite a few changes and also changed ambitions with different city counsels. And, yes, you now actually see things that are gaining momentum. Well, what also has to do with the improving economy and the large housing needs that exist in Rotterdam “(04)<sup>1</sup>.

Although the idea of developing this area date more than a decade, the most recent Vision and Strategy document –from 2017 by Stadshavens Rotterdam – stresses the urgency for action by the city and taps into the opportunities from changes in the economy and interest in the area. As the economy is rapidly growing and the number of initiatives in the Maker District (M4H and RDM) is rapidly increasing, this is the

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<sup>1</sup> “Maar er zijn wel vrij veel wisselingen geweest en ook wisselde ambities met verschillende colleges. En, ja, je ziet nu eigenlijk wel dat zaken wat in de stroomversnelling komen. Nou ja, wat ook te maken heeft met de aantrekkende economie en de grote woningbehoefte die er ook in Rotterdam bestaat.” (04)



momentum for the city to invest in the physical structure, such as urban planning, housing, of the area. It is also a good time to attract business, as there has been an increase in the financial means of the city and in the interest of businesses wanting to invest in the area.

Aside from information on the aims and visions for the area, as described in the policy document, information about the experience of the development process dates back to 2013, the year in which the policy maker of the municipality became involved as the team leader. According to this expert, who I interviewed about the process and experiences with this development, both the municipality and Port of Rotterdam have collaborated closely for the past decade in developing policy for the transformation of the area.

#### *4.1.2. The geographical location of Keilewerf in the Maker District*

Each area within the Maker District has its own long-term focus, as shown image 7 below. The policy maker explained that the western part of the Merwe-Vierhavens area – in the direction of Schiedam – will be developed into a residential area. The area further east in the Merwe-Vierhavens district will keep its current function, and the middle area, together with the RDM, will be developed into a Maker District.



Image 7: Overview of Keilewerf in the RDM and Merwe-Vierhavens area – between Rotterdam and Schiedam (source: Google maps)

As the policy maker stated, the Keilewerf is a smaller area within the Maker District. The Keilewerf is based alongside the Benjamin Franklinstraat, Keizerstraat, and the Keileweg. In this particular area of the Maker District, the city wants to attract and maintain long-term, small-scale manufacturing, as well as larger scale businesses. But the emphasis is on the creative industries: craftsmanship, design, and architecture. There will be a few hundred houses, which is small-scale housing, compared to the western Merwe-Vierhavens district.

#### *4.1.3. Developing the Keilewerf and the relations between the actors involved in the development*

The wharf where maker space the Keilewerf is based has initially been developed via an economic procedure called a tender. In the case of the wharf, the city set out to invite creative entrepreneurs to apply as the city wanted to create a creative area within the Maker District. This process closely connects to similar urban revitalization approaches policy maker. Not only are creatives attracted to the area, as suggested by Florida (2002), as the tender set out, in this case makers who work in craft and have a small manufacturing business, were granted the space.

The founder together with a small group of befriended makers were the first to receive the key to the building in 2013 and to realise their plan for a space where makers can work and collaborate. In the following years, more makers and businesses became based in the wharf, such as Buurman; a shop with an open accessible space to make with discarded wood and other building materials.

The makers based in the Keilewerf are tenants as they rent a studio space or a workbench for a short time period or for as long as the Keilewerf exists. The majority of the makers have a small business. Currently, eighty individual makers have fifty small businesses based in Keilewerf building 1 and 2. Due to the rapid increase of interest in making in the wharf, the Keilewerf already in 2014 started renting the whole wharf instead of half. Making up in total 3000 m<sup>2</sup>. And since 2016, a former office building next to the wharf is added to the Keilewerf. Now there is in total 6000m<sup>2</sup> for the makers and their small-scale companies.

The link between the Maker District and the Keilewerf is that it is part of the development of a former harbour area. The city offers cheap and temporary real estate

that is scheduled to be demolished within a few years. The city expects makers and will bring creativity, craft and skilled entrepreneurs and create a buzz and attract more businesses. Eventually, this will transform the former red-light district into the area appealing to potential business, residents and visitors.

As can be seen in this case, founders and makers have been granted the wharf by the city to turn the area around it into a Maker District. Grodach et al. (2017), addresses this as reframing the area and stimulating urban development via the craft industries, which is a part of the creative industries. The next section, delves further into the future visions of the three stakeholders for making in the Keilewerf and place these developments within theory on urban development.

## **4.2. The visions and the motivations of the three stakeholders for making in the Keilewerf**

The section begins with descriptions of the visions for maker space in the Keilewerf by the interviewed amateur and professional makers, the founders, and the policy maker. The visions of the makers in the Keilewerf provide insight into how they perceive the role of the maker space for themselves, the area, and the city. Additionally, the three stakeholders were questioned about their motivations for becoming involved in making for a short time, such as participating in a workshop, or for a longer time, as when renting a studio or developing the space within the context of the Maker District. The following section on the visions and motivations of the stakeholders, addresses the sub question '*What does making mean for the stakeholders?*' and '*What does the Keilewerf mean to the stakeholders?*'.

### *4.2.1. Visions of professional and amateur makers for making in the Keilewerf*

Makers who are based in the wharf for a longer time period and amateur makers who have taken part in a short workshop or course were asked about the visions they have for making in the Keilewerf.

The majority of the interviewed makers with a studio in the wharf and based there for the longer term or have taken part in a workshop or short course at the Keilewerf have not developed a clear vision for the future of the maker space. Most makers have not (yet) considered the future of making in the context of the Keilewerf,

which is based in an urban area that is undergoing a transformation in the upcoming decade. Most are considerate of the temporality of the Keilewerf in its current state, though they see an increased growth of the maker space, as well as interest from outside in the maker space and the Maker District, and they hope the space will stay for as long as possible in the current location.

The majority of the interviewed amateur and professional makers were not very focussed on the future or the role of the Keilewerf in the context of the Maker District as an urban revitalisation of the area. The majority of the makers were, moreover, focussed on what the maker space currently offers them and their businesses. These makers often held short-term ideas for the future, such as learning new skills, settling in their affordable and spacious studio space to work, generating and sharing commissions, developing their small manufacturing business, and becoming part of a community of like-minded people who want to develop the maker space. These open accessible spaces are describes by Banks (2010) as the workshop model; places where there is the freedom to work, develop own commodities and connect to other makers.

The makers who considered the future of making in the Keilewerf were either open to seeing how the space would develop or where they would move to once they knew they must leave, as the wharf will be taken down in the not-so-distant future. The term 'gentrification' emerged, as the makers will be dislocated once the wharf will be taken down. Indeed, this process is alike with the process Florida (2002) describes, as there are no alternative and future sustainable locations for the makers currently based in the wharf; they will have to see what possible opportunities there are at the time they have to leave.

Some makers did consider continuing their making elsewhere; searching for another location to possibly rent with other makers they know or have met in the Keilewerf. There are also makers who have considered taking up a full- or part-time job and spending fewer hours trying to make a living off their craftsmanship.

#### *4.2.2. Visions founders for making in the Keilewerf*

The founder of the Keilewerf has a background in business and a vision to create a hub for the community of makers, thus helping the makers' small businesses grow. 'I hope the Keilewerf is really a hub for the area and businesses can grow from hereon' (06)<sup>2</sup>.

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<sup>2</sup> "Ik hoop (...) dat de Keilewerf echt een broedplaats is voor het gebied en dat bedrijfjes vanuit hier door kunnen groeien" (06).

‘Initially, the idea was to develop the wharf into a great space where interesting things take place’ (06) and for makers to work and collaborate while developing the empty wharf into a maker space. The metaphor of a treehouse has been used to express the idea of creating such a space, in collaboration with other like-minded people; the Foundation Treehouse is also the name of one of the initiatives of the founder. Now, a few years later, this idea has evolved into wanting to create a hub where makers can stay for a few years, the time period needed to help develop the makers’ business and – once further professionalised – continue their business in a more independent setting outside the Keilewerf.

“(…) that the Keilewerf really is a breeding ground for the area and that companies can grow from here to another place where they can rent 200 m<sup>2</sup> instead of 40 m<sup>2</sup> and make a step in their business” (06)<sup>3</sup>.

Another vision of the founder of the Keilewerf, who is also the co-founder of Buurman, was to create a place where people could buy and collect second-hand materials. The idea existed in collaboration with a small group of makers called De Bende (literally: the gang); this initiative was erected from the wish to do something with discarded materials and the issues of waste. Deelhout (literally: share wood) is an initiative forthcoming from the idea to share wood that was left after the construction of the central train station of Rotterdam. A commercial form of Deelhout was eventually realised in the current form of Buurman. The founder’s vision for the Keilewerf is creating an attractive and open accessible space by crafting a positive experience for those visiting the Keilewerf.

The vision of the founder of Buurman for making in the Keilewerf was to contribute to the awareness of sustainability through making. Buurman has a shop selling discarded building materials from building sites, festivals, and museums in the city of Rotterdam. These materials are used and bought by makers based in the wharf and amateurs and professionals from outside the maker space. People can make their own work by renting a workbench or learning new skills, thus learning how to process discarded materials by taking part in a workshop on furniture making, for example. The initiative of Buurman is inline with the thought of Carr & Grodach (2016) that through

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<sup>3</sup> ‘(…) dat de Keilewerf echt een broedplaats voor het gebied is en dat bedrijven van hier naar een andere plek kunnen groeien waar ze 200 m<sup>2</sup> kunnen huren in plaats van 40 m<sup>2</sup> en een stap in hun bedrijf kunnen zetten.’ (06)

skill development and being frugal with our resources. Shown the interest of Buurman's concept by other cities, reuse and skill development is spreading throughout the country.

#### *4.2.3. Visions of the policy maker, on behalf of the city and the Port of Rotterdam*

The most recent vision and strategy document for the Maker District – December 2017 – emphasises a transformation of the former harbour area into a place for experimenting, development, and the sharing of knowledge and business opportunities (Stadshavens Rotterdam, 2017).

As seen in current research (Florida, 2002; Grodach et al., 2017; Holbert, 2016; Scott, 2014) on urban development, the majority of the strategies aim to boost the local economy, revive and reframe the area, and attract certain profiles of people, both higher educated and creative. The higher educated people are likely interested in spending leisure time and investing in real estate in the future, and the creatives contribute to the reframing of the area, developing it into a place where people are interested in visiting or residing (Florida, 2002).

There is similarity in this particular case, as the city wants to attract entrepreneurial creatives who want to invest, pioneer, innovate, and spend leisure time and, in the near or far future, want to live in the area. The colourful images in the vision and strategy document envision a mixture of an urban and maritime area, full of industrial activity, people handling high tech robotics or working at a work bench, groups attending presentation's, people cycling or walking through green parks or alongside one of the waterfronts, drifting dwellings or farms, and past art placed in the public space.

The vision for the Vierhavensblok – where the Keilewerf and three other creative spaces (Atelier van Lieshout, Daan Roosgaarde, and HAKA building) are based – is to create an area that facilitates small-scale business development, specifically small-scale craft and creative ventures and small-scale housing developments. In this specific area, there is less of an emphasis on innovation-oriented ventures. To start development in this area, the city offers temporary real estate to skilled makers, architects, and artists who are interested in experimenting and pioneering. Offering space, particularly to makers and craft-based entrepreneurs, is what distinguishes this development from Florida's (2002) theory on urban development, which mainly focuses on creatives in

general, as well as higher educated people. In this case, there is a focus on people who have their own creative and craft-based business and are based within the collaborate setting of a maker space. The open, accessible maker space stimulates the production of craft rather than the consumption of creative commodities and services (Grodach, 2017).

The maker space is open to anyone who wants to make individually or with others, learn new skills, or purchase used materials. According to the policy maker, the maker space was envisioned to create a buzz, attract people, and create interest in an area that is currently in full development.

“I think it is a challenge to ensure that this also continues to be a kind of organic. Well, I think that is also a characteristic of urbanity that you have buildings but also have users who are in all kinds of phases of their development. And also a diverse one, but if you really want to make a city, then you have a mixture of living and working. But also catering, events, everything together. And I think such a diverse area will also gradually develop” (04)<sup>4</sup>.

The revitalisation of the area will take between 10 and 20 years. There are different simultaneous development stages of this slow process. For example, in the Maker District, there are parts that still belong to the harbour area or non-maritime businesses that will leave the area, as they do not fit the established profile. According to the policy maker, giving way to a slow urban development spread over a few decades contributes to an area with a diversity of functions and inhabitants that are expected to have a positive impact on the neighbouring urban areas in the city. The city expects the up scaling of the Maker District to increase growth in surrounding areas. According to Menichelli et al. (2017), there is an increased interest in peer production which clarifies the in cities and the expected increase of maker businesses. Although this research has taken place in the Netherlands instead of Italy, where there is a long history of craft-based entrepreneurship, there seems to be a similar trend in Rotterdam seen the increased interest of maker businesses to become based in the west part of Rotterdam.

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<sup>4</sup> “Ik denk dat het een sport is om ervoor te zorgen dat dat ook een soort van organisch blijft gaan. Hè, ik denk dat dat ook wel een kenmerk van stedelijkheid is dat je gebouwen hebt maar ook gebruikers hebt die in allerlei verschillende fase van hun ontwikkeling zitten. En ook een diverse, hè, als je echt een stad wilt maken, dan heb je een mengeling van wonen en werken. Maar ook horeca, evenementen, alles door elkaar. En ik denk zo’n divers gebied zich ook geleidelijk zal ontwikkelen.” (04)



However, it can be questioned what role aspects play in the increase of makers to the area, such as affordability, space and location.

The city places the vision for the Maker District (M4H and RDM area's) within a broader geographical context of Rotterdam – the Hague area, stimulating the 'new economy' in this western part of the Netherlands. The vision focuses on the decrease of costs through digitalisation, sustainable production, emphasising the circularity of materials, new (entrepreneurial) productivity, and inclusive societies (Stadshavens Rotterdam, 2017, p.11). The creative entrepreneurs connected to these ideas of circularity and inclusivity as they make use of available resources; the buildings – though temporarily – and, in case of Buurman, the selling and education of discarded materials. Another resource is the makers, with their skills, energy, and drive to develop the space in collaboration with other makers. The next section addresses why the three stakeholders are involved in making in the Keilewerf.

### 4.3. Motivations stakeholders

The motivations indicate what it means for the individual amateur or professional maker to make in the Keilewerf, thus addressing the role of making in the context of the maker space as a whole. The next section discusses the motivations of the three stakeholders involved in making in the Keilewerf.

#### 4.3.1. Motivations makers for making in the Keilewerf

##### *Pleasure of making*

Ocejo (2010) and Sennett (2008) address the rewarding feel of making, in both creative and uncreative work. Ocejo (2010) focusses on creativity and skills development in uncreative work and Sennett (2008) on craft and skills within the context of a workshop. During the interviews amateur and professional makers mentioned the pleasure they experience from making with their hands and learning new skills, similar to Sennett's discoveries of rewarding aspects of craft labour. The appreciation for manual labour is a good counterpart for leading a busy life, as one of the course participants explained during the second evening of observations. Often mentioned motivations for making is the pleasure of working with your hands and a relaxing experience. The appreciation for developing a design from scratch, and the attention this task asks from the maker, is experienced as calming, 'Physically making something en developing it yourself, I don't



know, it a sort of calming feeling when you are focussed on the details, thinking out every part and giving attention to the finish' (08)<sup>5</sup>. As one of the course participants mentioned during an observation, making a cupboard in a six weeks course helped him appreciate the discarded materials he was working with, challenged his patience. But he enjoyed the physical activity, and the final product made him proud.

The rewarding aspect of making with your hands, mentioned by the interviewees, connects to Sennett's idea of re-appreciating materiality and how one thinks about physical work and the world around them. Making tangible products teaches you about the world around you, things you cannot learn from books or only think about in your head. Interviewee (03) thinks our heads and hands should be reconnected so as to learn about the world surroundings us:

"(...) or I see that doing is also an experience and knowledge you cannot find in books. So yes, I do think that they, that there are real values in that sense. That you can understand things in a different manner, than only having thought about it. For example, a wood connection; you can read about it and understand it, theoretically, (...) but you can only understand it once you have made the wood connection and sense what it does to the wood. Then it is possible to form an image of how it works indeed, of to what extent this can function as a chair. I would find it a pity if making would become even more disconnected. I am actually in favour of integrating the two" (03)<sup>6</sup>.

Another pleasure of making is striving to make something as well as possible, striving for the best quality. Makers in the wharf find it rewarding to go the extra mile and take extra time to focus on making a product of high quality. The majority of the makers would prefer to take all the time needed to make something of high quality, as they find this one of the most rewarding aspects of making. These rewarding aspects of making in the Keilewerf motivated three of the interviewed makers based in the wharf to swap their regular job at a company for working as a maker. Here, they work with their hands and heads, and the makers are involved in physical activity while making, instead of working behind a desk in a job that only challenged the intellect.

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<sup>5</sup> "Fysiek iets maken en zelf het ontwikkelen, ik weet niet, een soort rustgevend iets als je bezig bent met alle details, alles bij elkaar puzzelen en mooi afwerken"(08).

<sup>6</sup> of zie ik gewoon dat doen ook gewoon ervaring meebrengt en kennis die je niet uit boeken kan halen. Dus ja, ik denk dat dat voor mij, daar zitten wel gewoon echt waarden in. Dat je, ja, dingen op een andere manier begrijpt dan, alleen door d'r over nagedacht te hebben. Bijvoorbeeld een houtverbinding, die kan je lezen en je kan hem begrijpen, zeg maar, theoretisch. (...) Maar pas als je hem in elkaar hebt gezet en je voelt wat dat dan vervolgens doet met het houdt, dan kan je een beeld vormen van hoe werkt het inderdaad, of in hoeverre kan dit in een stoel functioneren en ja, ik zou het zonde vinden als maken nog verder losgekoppeld wordt. Ja, ik ben wel meer voor de integratie van die twee dingen eigenlijk (03)

*Being within the context of a creative community of like-minded people*

Most of the makers based in the wharf became part of the maker group via other makers who were based there already; few had heard about this space for makers or had passed by and decided to learn about the availability of studio spaces and introduce themselves to the founders. The majority of the professional and amateur makers found the atmosphere in the Keilewerf and being in a context of a community of like-minded makers, creatives, an important motivation for making in the maker space. Makers inspire and help each other in their work or with practicalities. Some collaborate and share commissions; others are actively involved in setting up programmes for people from outside the space to attend, such as music festivals. Even more want to make in the wharf just because they are surrounded by other makers, without having to actively contribute to the space or with the community, for the practical reason of working at another location and being at the wharf during the evenings, when most have left their studio. The makers are stimulated by the creative and active atmosphere in the Keilewerf, which would not exist without this group of creatives.

*Affordability*

The low costs for renting a space and the available square metres enables makers to have a studio in the wharf. The low costs make it possible for makers to spend less time generating an income via a regular job or trying to build a business, thus hopefully increase the income of commissions. These types of buildings often have low rent due to the temporary character, which make them affordable (Florida, 2002). Although makers are within a social context of other businesses, that provides opportunities for business growth as Menichinelli et al. (2017) and Hamalainen and Karjalainen (2017) suggest, for most makers, economic growth is not a goal in itself; it is a means to be able to focus on making: 'I am situated a bit in the middle regarding business growth, but I do not have the ambition to grow (...) I just continue doing what I am doing and I am happy with that' (02). Another interviewee agreed (01) with this statement, as expanding a one-man business unwillingly changes the role of the maker into a manager. So, most interviewed makers are not aiming to develop large businesses, as the focus is on being able to have the space to make and focus on the manufacturing labour. Also, the amount of space offered for rent is often enough to create a workshop with all the materials needed.

Furthermore, makers can use some shared machines, the abundance of space, and the easy accessibility the wharf offers, making it possible to easily transport objects in and out the studio.

#### *4.3.2. Motivations founders for making in the Keilewerf*

The founder of the Keilewerf initially searched for a location to organise a dinner event and instead settled in the wharf with a group of friends consisting of skilled craftsmen and architects. A plan for the space and vision for what would become a maker space developed in the first phase of settling. At this stage, they formed a group mainly of architects and craftsmen skilled in working with wood, who were able to help construct and build the wharf. So, initially, this group of makers – already familiar with each other – intended to make the wharf into an inviting space for more makers to work. For the founder, making in the Keilewerf is a way to create change in the direct area of the Keilewerf, generating a great space with the energy and enthusiasm of the makers to create. Making things is one of the key drivers for developing initiatives such as the Keilewerf, together with other makers. The founder of the Keilewerf, who has a background in business, was also involved in making in the Keilewerf as he wanted to help the small businesses of the makers in the Keilewerf grow:

“I would really like to work more on what a place can do for the makers and the companies that are in it. At the Keilewerf we could still make a shot at the collection or retrieval of various companies that are there to really promote and profile as any client you are, private or corporate, your wish can be realized here. There could be more power behind it “ (06)<sup>7</sup>.

According to the founder of Buurman, who has a background in architecture, making in the Keilewerf is a way to create awareness of pressing urban issues of sustainability. The main motivation for developing Buurman in the Keilewerf was to create awareness of the value of discarded building materials. These materials are from building sites in the neighbourhood, exhibitions at museum Boijmans van Beuningen, or the architecture biennial in Rotterdam. Aside from the shop they established for supplying building materials to makers, Buurman has initiated a maker space in the

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<sup>7</sup> “Ik zou het heel tof vinden om meer te werken naar wat een plek nog meer kan doen voor de makers en de bedrijven die erin zitten. Bij de Keilewerf zouden we nog wel een slag kunnen maken bij het ophalen of binnenhalen van verschillende bedrijfjes die erin zitten om het echt te promoten en profileren als welke opdrachtgever je ook bent, particulier of corporate, je wens kan hier gerealiseerd worden. Daar zou meer kracht achter gezet kunnen worden.”(06)

Keilewerf to educate amateur and professional makers about the skills and techniques of making with discarded building materials. By addressing the value of devalued, but still very usable building materials – such as wood or glass, for example – from a building site or used in an exhibition of a museum, Buurman aims to contribute to larger societal issues of the urban areas we live in today and in the future. One of the most rewarding aspects of making in the Keilewerf is to stimulate the reuse of materials in a concrete and tangible sense; instead of only talking about reuse on a management level, making by amateur and professional makers at Buurman in the Keilewerf is a concrete way to start solving the urban challenges of waste.

“We also visit conferences and events with Buurman. At symposia and presentations there is always a lot of talk about circular economy and there are big plans and things. But when I come back to the wharf and I see Mohammed from Delfshaven is here to pay for 20 meters of wood - that is ultimately what really ensures reuse. And all the men in gray suits just talk about it, but those are never our customers, never the people who will expand their house with discarded materials or who will do large projects with discarded materials “ (11)<sup>8</sup>.

Furthermore, there are practical motivations for making in the Keilewerf. According to the founders, the cheap rent makes it possible to make here and have a large space to do so. Also, the strategic location of the wharf near the city centre, makes the space for makers based in the wharf and those who an accessible location. Additionally, the good facilities in the street, such as a supermarket and hardware stores, all contribute to the motivations to make in the Keilewerf. Founder Keilewerf stated:

“So in terms of location this really helped to make it go well. You're really on the edge of the city, you can park your car in the parking lot and make a lot of noise. I think that if it really had been much further in the area then the character might have been different. More the open character. Accessibility” (06)<sup>9</sup>.

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<sup>8</sup> “We komen met Buurman ook op congressen en dingen, en op symposia gesproken en presentaties gegeven en wordt altijd heel veel over circulaire economie en doen en grote plannen en dingen. En als ik dan terugkom in de loods, dan staat Mohammed uit Delfshaven staat hier 20 meter plak af te rekenen, dat is uiteindelijk degene die echt zorgt voor hergebruik zeg maar. En alle mannen in grijze pakken praten er alleen maar over, maar dat zijn nooit onze klanten, nooit de mensen die hun huis gaan verbouwen met restmaterialen, die grote projecten gaan doen met restmaterialen.” (11)

<sup>9</sup> “Dus qua locatie heeft dit er echt wel toe bijgedragen dat het goed liep. Je zit echt aan het randje van de stad, je kunt je auto op het parkeerterrein kwijt en heel veel lawaai maken. Ik denk dat als het echt nog veel verder in het gebied was geweest dan had het karakter misschien wel anders geweest. Meer het open karakter. Toegankelijkheid.” (06).

#### *4.3.3. Motivations policy maker for being involved in making in the Keilewerf*

##### *Stimulating excitement in the area*

The policy maker explained that the city is involved in making in the Keilewerf; they plan to revitalise the area, which currently consists of mainly industrial and maritime businesses, into an attractive, lively area where people want to invest in developing a business, where visitors want to spend leisure time, where future residents want to invest in housing, and where knowledge-based institutes are based (Stadshavens Rotterdam, 2017). According to the policy makers, making in the Keilewerf contributes to a stimulating urban environment created by the makers, the initiatives they employ, and the networks of creatives, '(...) the quality is that there is just life, is a lot of excitement.' (04)<sup>10</sup>. This connects to Grodach's (2017) idea of production stimulating urban growth, instead of consumption as Florida (2002) he addressed in the past. Production brings along a lively and creative climate to the area (Grodach, 2017).

##### *Job creation in the area*

The city intends to revitalise the Maker District by attracting businesses that focus on innovation and – especially where the Keilewerf is based – on the small-scale creative and craft businesses of architects, designers, and artists, alongside developing small-scale housing projects. To do so, they will attract craft and creative makers and small-scale creative businesses in the area where the Keilewerf is based.

The city wants to stimulate economic growth by safeguarding existing jobs, creating sufficient new jobs opportunities, focusing on circularity, and creating an inclusive area for all residents and visitors (Stadshavens Rotterdam, 2017). By placing small-scale businesses besides medium and large-scale businesses, the city expects to stimulate cross-fertilisation between these businesses, which in return will stimulate a diversity of businesses, making use of each other's skills and knowledge, and stimulating the local economy in the area. The idea of the city is similar to Hamalainen and Karjalainen (2017) suggestion to place small-scale businesses together with other businesses linked to craft businesses so the various ventures can use each other's knowledge and skills.

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<sup>10</sup> (...) de kwaliteit is toch dat er een, dat er gewoon leven is, een hoop reuring is." (04).

### *Attracting a certain type of potential residents*

Makers, craftsmen, and other creatives bring along a certain image and profile of the urban area where these makers are based. According to the policy maker, the image and vibrant urban environment created by these makers attracts certain profiles of people who want to spend leisure time or who are potential residents and want to invest in the area by purchasing an apartment or house in the future. One example to illustrate the energy created is the Fenix Loods in Katendrecht, which is located in a former red-light district. This area has been revitalised in the past decade and, thus, has become a popular place for people inside and outside the city. This attraction and interest in the area has spurred real estate. Making in the Keilewerf is, according to the policy maker, expected to bring a similar energy and stimulate interest in housing. The energy puts the area “(...) on the map. And I think Keilewerf also brings a kind of equal energy” (04)<sup>11</sup>.

## **4.4 What maker space the Keilewerf means to the stakeholders**

The previous section focussed on the ideas of the stakeholders for making and why the stakeholders are involved in making. This next section deeply examines what the maker space, Keilewerf, means to the interviewed makers, the two founders, and the policy maker. Answers to the question ***what does the Keilewerf mean to the three stakeholders?*** provide insights into the role of the maker space in the urban development.

### *4.4.1. A space for experimentation and flexibility, where like-minded people meet*

Banks (2010) states one of the main aspects for making in a maker space is due to the freedom there is to make and the social context of making. The findings underline this idea. One of the main things that attracts makers to the Keilewerf is the freedom for experimentation and the flexibility for makers to work in the spacious wharf space and contribute to the development of the deprived real estate and – in this form, temporary – maker space. The Keilewerf is, in a way, a blank canvas and an adventure for makers, especially for those makers who were involved in the initial development of the wharf. In the first 1.5 years, they could contribute to developing the empty building into a lively space for people to work in the context of other makers. Also, in the years after, it has kept appealing to the makers to be part of the further development of the space and

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<sup>11</sup> “Dat het gebied gewoon op de kaart staat. En ik denk dat Keilewerf ook een soort gelijke energie met zich meebrengt.” (04)

contribute to the notoriety of the Keilewerf. Also, as there are little financial means for makers to invest in the space, they have to find creative solutions to develop the space, thus contributing to the image of the space and attracting makers.

The city offers the space to makers and provides them the creative freedom to develop it. The Keilewerf is a large space where makers rent a space, and, in Keilewerf 1, they have the freedom to design and build their own studio space. Those who became part of the maker space in the first year, especially, could choose where and how they would make their own studio, and contributed to the development of the empty wharf.

The Keilewerf is located in an area where there are, moreover, large maritime buildings, and there is little infrastructure for leisure time or residential areas for living. Being located in this area creates freedom for the makers to initiate and organise open days, bonfires, music events, or other festivities at the wharf, and since the summer of 2018 in the outer park between Keilewerf 1 and Keilewerf 2, a café.

There are no residents who will be disturbed by the activities outside or inside the space. This feature attracts makers who want to be part of this group and based in the wharf, but also people from outside the space and the area to the Keilewerf, to visit the place during workshops, courses, or events, or contribute to the space or as a maker. Also, the Keilewerf is a place that attracts people interested in hand-made products or those who want to learn the skills and techniques behind the craft.

#### *4.4.2. Keilewerf, a space where the people involved are committed to co-creation*

Co-creating takes to establish maker space the Keilewerf; makers, founders, city collaborate to develop the wharf. Grodach (2017) suggests collaboration on micro, meso and macro level is a new aspect of urban development that offers opportunities for cities to become involved in the production rather than the consumption-led urban development. In this case the city offers the space to the makers and founders to develop by making.

The first group of makers and founder invited friends and collegial makers from their own network of creatives to become makers in the Keilewerf and contribute to the development of the space. These makers were selected, based on their skills, to help build the space, possessing the innovative and entrepreneurial knowledge to attract other makers and visitors from outside to the area. The group of makers gathered on a monthly basis to decide how they wanted to design and build the interior and exterior of

the wharf. These gatherings were part of becoming a maker in the wharf. Although these meetings only took place in the initial development phase, it is still mentioned in the contract that makers who join will contribute to the community by, for example, doing building chores. Currently, these collaborative activities do not take place anymore as the group of makers based in the wharf has become too large. The initial group who developed the wharf wanted a communal and open, accessible space beyond the individual studio spaces they were building for themselves to work.

“At the time we all worked together, we had monthly meetings and discussed ideas and needs for general space and how are we going to organize and approach this development. It was a kind of collaborative search with each other.. (...). Everyone wanted to create a great space with a diversity of businesses and an their own workshops. But also general spaces” (06)<sup>12</sup>.

The Keilewerf is a large open space filled with studio spaces, a shop, and workbenches from Buurman. Buurman provides this general and open accessible space where people from inside and outside can meet. Here, amateurs can learn from experienced makers during the workshops at Buurman. Many makers work during the day, and all have their own expertise. One maker is an expert in processing marble into sculptures or furniture, another is an upholsterer, while a third maker expertly works with wood and receiving commissions for a group of makers to work on. Also, makers in the Keilewerf lead workshops and share their knowledge and craft with amateurs from the outside. The Keilewerf is a place where cross-fertilisation takes place, makers collaborate and share commissions, help each other, and people share their knowledge.

#### *4.4.3. Creating a vibrant urban environment is not just a business – but one that allows for freedom of experimentation*

There is no clear policy developed by the city for the development of the Keilewerf or the urban area of the Maker District. Instead, the policy maker explained, there is a certain profile the city wants in each of the areas that make up the Maker District. For

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<sup>12</sup> “Toen der tijd was het wel echt met z’n allen van we hebben elke maand een meeting en we gaan om tafel zitten van waar is behoefte aan dat er gedaan wordt aan de algemene ruimtes en hoe gaan we het inrichten en aanpakken. Een soort van zoektocht met elkaar. (...) Iedereen vond dat er een toffe plek moest ontstaan en dat de verschillende bedrijfjes hun eigen werkplaats hadden. Maar ook dat er algemene ruimtes waren.” (06)



the Keilewerf, the city wants artists, designers, and small maker businesses to be based there. These creatives have the creativity, flexibility, skills, and energy to develop the maker space. In return, the creatives are given the freedom to develop the maker space how they want to and develop initiatives and events that are in line with the makers' activities and events. This freedom, according to Banks (2010), produces creativity and generates inspiration. One of the interviewee's (03) underlined the relationship between freedom in the development of the wharf and creativity: 'Someone stopped by and named this a sort of workshop favela's. (...) And I actually like this, haha. I personally find this charming and, also because it, yeah, I often have the idea that here, where people can take their own space, between the lines most interesting things happen'.

The Keilewerf is a place where people make, develop their businesses, share knowledge, and collaborate; it's also a place where people can buy furniture, learn to make, or commission makers for a design. The flexibility and space for experimentation makes it possible for new ideas to be developed and tested so they can emerge. The founder of Buurman explained that they were one of the first businesses in the wharf, one of the pioneers in the area contributing to the current development:

"I think we actually already had that role. So that role lies in history [laughs]; as a supercharger. So we have been one of the first, supercharger or pioneer or whatever you want to call it... We were one of the first four companies to settle here in the Keilewerf. So it was also very much a basis for the development that it can now go through" (11)<sup>13</sup>.

#### **4.5. The development in reality: implications of making in the Keilewerf**

This next section discusses the reality of making in the Keilewerf within the context of the urban development of the Maker District. The three stakeholders all have their motivations and visions for making in the Keilewerf and what the Keilewerf means for the stakeholders. However, during the interviews, it became clear that there are also other aspects that play a role in the development.

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<sup>13</sup> "Ik denk dat we die rol eigenlijk al hebben gehad. Dus dat die rol in de geschiedenis ligt [lacht] ; als aanjager. Dus we zijn een van de eersten geweest, aanjager of pionier of hoe je het ook wilt noemen...We waren een van de eerste vier bedrijven die zich hier vestigde in de Keilewerf. Dus het was ook heel erg een basis vormen voor de ontwikkeling die het nu kan doormaken." (11)

#### 4.5.1. Pragmatic considerations

There are pragmatic considerations that have an impact on making in the Keilewerf. The following sections discuss these considerations of makers based there.

##### *Precarious work: misbalance between earning a living and the pleasure of making*

Carr and Gibson (2016) consider the skills and material knowledge to be an opportunity for makers to be independent and self supportive. Hesmondhalgh (2010) addresses the positive aspect autonomy of creative work; in order to be creative maker one needs a certain amount of autonomy. However, this also results in makers being in uncertain work conditions and questions if creative work is indeed contributing to makers' wellbeing.

The makers in the Keilewerf feel the imbalance between making and the need to fulfil commissions to pay the rent. The makers are aware they live in a capitalist system where generating an income and investing in the economy – for example, paying the rent for the studio – are key aspects. However, this situation creates an imbalance between making and generating an income and limits their freedom and time to invest in making. For crafting, time and focus is needed. Makers who are struggling to make ends meet with their practice either decide to have a job on the side, work full-time elsewhere and make as a hobby, or try to increase the number of their commissions – often via collaborations in the wharf. In consumer-oriented and knowledge-based societies where people are used to purchasing mass produced goods, these manufacturers stay in this precarious position, as the manual labour and the quality of making and craft are still not highly valued for authentic quality, expressiveness, or technical quality, as is traditional craft and art (Banks, 2010). Sennett (2008) touched upon the value and pleasure of making something of high quality and focussing on doing something well. However, one of the dilemmas of makers, as they want to make products of a high standard, is that these endeavours are time consuming and, thus, costlier than mass produced goods.

“And that immediately brings with it a problem, which I also experience with making my furniture. The western capitalist system, yes, I can, can no longer deal with that so well in my things that take a lot of time. While I actually like the fun things, haha. So I am in a dilemma of yes that you actually want to make things in a certain way, but

that it has no right to exist. That, I find that difficult. And, maybe a bit disappointing, kind of “ (03)<sup>14</sup>.

Also, consumers are familiar with buying affordable commodities, and some makers question if people can value and want to pay for the hand-made commodity that needs more time to make and is, thus, expensive. This predilection has an impact on the existence of maker businesses:

“(…) Well I do not know if it is, I think people can appreciate it. Only yes, yes, it's just about money. And that is what you see in furniture too. People are accustomed to IKEA prices, and yes, if you have to be able to eat, then you cannot do that as a self-employed person for those prizes” (02)<sup>15</sup>.

The majority of the interviewed makers based in the wharf had a small manufacturing business. Six out of the seven makers had a job on the side. One interviewed maker (01) taught a few hours a week, while another maker (12) spent a few hours a week behind the register at a climbing gym. Three makers (02, 03, 05, 07) took commissions in related fields, often via their local networks in- or outside the wharf. These uncertain and flexible work conditions are, according to Banks, because craft is not valued as the ‘autonomous’ and ‘unique’ labour of an artist (2010, p. 317).

Experience of pleasure in work can also have downsides. These jobs can bring job uncertainty, ‘where hand making cultures grow beyond the use value - pleasure and self fulfilment are often exchanged for unstable, precarious and exploitive work’ (Dawkins, 2010: 261; see also Luckman, 2012; Barnes, 2014, as stated in Carr & Gibson, 2016, p.300). Indeed, as makers often struggle with dividing time between making and the business side of their maker business, such as marketing and networking for commissions, which they not are as experienced in. Some makers (01, 03) were considering working a part-time job and while making in the Keilewerf more became a hobby instead of a business.

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<sup>14</sup> “En dat brengt meteen een probleem met zich mee, wat ik ook ervaar met mijn meubel maken. Het westerse kapitalistisch systeem, ja, ik kan, kan daar niet meer zo goed mee overweg in mijn dingen die veel tijd kosten. Terwijl ik eigenlijk dat de leuke dingen vind, haha. Dus ik zit daarmee in een dilemma van ja, dat je eigenlijk op een bepaalde manier dingen wil maken, maar dat het geen bestaansrecht heeft. Dat, dat vind ik lastig. En misschien ook wel een beetje teleurstellend, een soort van.” (03)

<sup>15</sup> (...) Nou ik weet niet of het, ik denk wel dat mensen het kunnen waarderen. Alleen ja, ja, het gaat gewoon over geld. En dat zie je bij meubels ook. Mensen zijn IKEA-prijzen gewend, en ja, als je ervan moet kunnen eten dan, dan kan je dat als zelfstandige natuurlijk niet doen voor die prijzen.” (02)

#### *4.5.2. Temporality of making in the Keilewerf as part of the development strategy*

Affordable working space for makers comes at a price. Makers based in the Keilewerf can work in a spacious location not far from the city and including needed facilities, however the wharf will be dismantled within a few years. In a similar manner, Florida's creative class were able to afford space in the city centres due to the poor state of the real estate and the planned redevelopment in time. While discussing the topic of future making in the Keilewerf, makers expressed their unease about the uncertainty of the future of the maker space. Most makers were quite sceptical about the continuation of the space in its current state at the current location. Terms such as gentrification arose; the makers expected that they would have to move for investors to take over the area, which was expected to develop into an unaffordable place to work and live. The makers find most disturbing that the making in the Keilewerf has boosted the area and generated local and national interest towards the Maker District. Closing the building would bring an end to this. Also, the maker space cannot, thus, invest time and energy in further professionalising the maker space. Some think this temporality is part of the strength of the development of this maker space. The founders of the Keilewerf would like it to stay for a longer time. The founder of the Keilewerf would like to focus more on helping small maker businesses grow. The founder of Buurman was realistic and aware that they will need to find a new large and cheap space to rent so as to continue with the maker space and shop.

The policy maker questioned if cheap space contributes to the existence of such creative maker spaces, as creative people find alternative solutions and, in this case, depend on their skills and network to develop the maker space and pursue their maker businesses. He also explained that, although the wharf will be taken down within a few years, the city is looking into possibilities for (part of) the Keilewerf to still be based in the area, as this area in the future will continue to be an area for creatives, even if the wharf is dismantled.

#### *4.5.3. Collaboration is not one of the main aspects of making in the wharf: though the development's foundation is based on stakeholder's networks*

The website of the Keilewerf notes that the wharf is a place for makers, where makers meet, collaborate, and take initiative. Additionally, theories (Anderson, 2012; Banks, 2010; Carr & Gibson, 2016; Dougherty, 2012) on makers and maker spaces show

collaboration is often part of being a maker. In reality, collaboration is not a key aspect of making in the wharf, though the development of networks is. The Keilewerf is a place where a maker space case Buurman is located. The open, accessible maker space is surrounded by studio spaces of makers, craftsmen, architects, furniture designers, and theatre designers, amongst other skilled makers. During the observations and an interview with one of the course participants, it became clear making does not, per se, imply collaborating. The respondent explained that there was little time and enjoyed making by herself.

Furthermore, other interviewed makers who are based in the wharf shared this opinion; most enjoyed being in the context of the wharf where other makers are. But making was a way to relax, and they enjoyed making in their own studio, in solitude. There are, however, some makers in the wharf who collaborate for commissions or help each other in a practical sense; they need a hand or are looking for advice. These findings show that collaborating as part of the making practices is less self-evident than is discussed in the literature on making (Dougherty, 2012; Grodach, 2017).

Although collaborating is not, per se, part of making in the wharf, the founding of the wharf was based on collaboration. The founder of the Keilewerf development intended to collaboratively make a great space and bring people together. In the first year, a group of makers built the interior and exterior of the wharf and, in collaboration, decided how to develop the space. The idea of contributing to the development of the wharf by attending group meetings and completing chores was part of the contract of the makers. Those involved in the initial development phase of the wharf (02, 03, 06, 08, 11) still valued this time where they had the opportunity to build the space they wanted. As a group of makers, they set out to transform the space where they had the freedom in this transformation process. In this pioneering phase, before becoming a more structurally organised space, the makers (02, 03, 06) felt they had the space to explore and experiment in the process while developing a collaborative vision for the wharf.

#### *4.5.4. Broad approach to sustainable awareness*

Carr and Gibson (2016) address the power of making for the environment. Their narrative is, having the knowledge and skills to work with available materials contributes to people being able to use these materials humans are surrounded with. People are able to be independent of other manufacturers and able to reuse materials.

Buurman, as part of the Keilewerf, stimulates sustainability by selling discarded building materials, offering workshops for professionals and amateurs to learn how to make with these materials. This saves materials from being wasted. The Keilewerf in entirety might not be a place where makers always use and reuse materials; this practice is not part of the ideology of the space. If it is possible, the makers do work with discarded materials, but it is often costlier than working with newly bought ones. Most interviewed makers, however, are aware of issues of sustainability and would prefer to work with discarded materials if it was not so time consuming and costly, thus often too expensive for clients.

Despite this issue, sustainability is part of the development of the space in a slightly different interpretation. Sustainable development, according to the founder of the wharf, is more than reuse and repair. With the development of the Keilewerf, the real estate is reused (the former wharf reused as a maker space). Maker's knowledge and skills are also considered reuse of existing resources that is essential to the development of the space. And most importantly, people's energy and enthusiasm is reused:

"(...) make use of what is there at all levels. So also the knowledge of people and the energy that is there, the buildings that are there and empty, materials, but especially enthusiasm. And channel that in a good way so that something happens. Ultimately, that's why it is" (06)<sup>16</sup>.

#### *4.5.5. Organic development or staged profile: bottom-up approach to urban development*

In line with the sustainable development approach of the founders of the Keilewerf – where existing resources are used for making in the Keilewerf – the policy makers applied this approach for sustainable urban development, stimulating the use of people's energy, ideas, skills, and, in the case of the Keilewerf, the reuse of existing real estate for the development of the space.

This bottom-up approach, instead of a centralised and top-down approach, suits this urban development well, according to the policy maker. Each urban development possesses an individual development strategy, and this former maritime area is intended to become revitalised and the Keilewerf's location transformed into a

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<sup>16</sup> "(...) op alle niveaus gebruik maken van hetgeen wat er is. Dus ook de kennis van mensen en de energie die er is, de gebouwen die er zijn en leeg staan, materialen, maar vooral op enthousiasme. En dat op een goeie manier kanaliseren zodat er ook wat gebeurt. Uiteindelijk gaat het daarom." (06)

neighbourhood where creative hubs, artists, designers and makers are based, also in the future. This atmosphere, according to the policy maker, brings energy into the area and attracts potential residents and people who want to spend their leisure time in the area.

#### **4.6. Future expectations of making in the context of the Keilewerf by the three stakeholders**

Discussing the expectations of the involved stakeholders provided insight into the visions of the city, as well as knowledge the stakeholders have of being based in a temporary development. Also, it demonstrates how the stakeholders see the future for the development and their practice.

The majority of the interviewed were aware of the temporality of the space, though at this point, it was not a concern, but they were not aware the expected time is by the end of 2019. All involved (maker and founders) would like the place to stay at its location, especially because the makers are involved in a collaborative development they have worked hard to establish:

“I wish we could stay here for a longer period of time. It does not have to be permanent. Because I have the feeling now things are just getting started and up and running, and the becoming known as well. (...) It is of course a very appealing location for real estate, but based on what we are doing here, I think we have proven that we are of added value” (08)<sup>17</sup>.

According to the city, the economic growth of the past few years has spurred the plans and ambitions for the Maker District. Companies will be relocated due to the rebuild plans, including the Keilewerf. The city acknowledges the importance of the Keilewerf for the area, despite this; it is a fact the building of the Keilewerf will be taken down in the upcoming years. Next year is the expected time; however, the founders and makers hope to stay longer. The building is temporary, but the city plans to keep makers in the area and is developing a plan called the ‘Red carpet treatment’ (Vision and Strategy, 2017, p. 23) that offers makers and innovative ventures access to national networks, knowledge-based institutes, support to develop their businesses, and meet

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<sup>17</sup> “Het liefst zou ik zien dat we hier nog lang kunnen blijven. Hoeft niet per se permanent te zijn. Want nu begint het voor mijn gevoel allemaal lekker op gang te komen en draait het goed en komt de bekendheid ook. (...) Het is natuurlijk een heel aantrekkelijke plek om iets te ontwikkelen. Maar op zich van wat we hier doen denk ik wel dat we bewezen hebben dat we een meerwaarde zijn voor de buurt” (08)

other businesses in the area for example. It can be questioned if the temporary character of this type of maker space thrives on the fact that the costs are low due to the affordable real estate, space, and freedom to experiment and collaboratively develop a maker space like the Keilewerf.



## 5. Conclusion

This research has explored the perceptions of three stakeholders involved in making within the context of the case study maker space, the Keilewerf. These views and experiences of the stakeholders offer insight into what making means for the city of Rotterdam, the founders of the maker space, and the makers working in the maker space. In the following paragraphs, the sub questions are answered. This qualitative research contributes to answering the main research question on how stakeholders understand and perceive the place and role of making in city development. The third section reflects on the research conducted, current theories and research, and addresses limitations and suggestions for further research. The last section addresses the implications this research can have for society and urban policy.

### 5.1. Sum up of main findings

This case study shows the initial development of the maker space the Keilewerf in the Maker District, which was set in motion by a team consisting of the municipality and the Port of Rotterdam, for the revitalisation of the former harbour area currently known as the Maker District in Rotterdam. Although the wish of the city for a redevelopment of this maritime area had already existed for more than a decade, the economic growth of the past years and the increased demand for housing has spurred the development of the Keilewerf to occur since 2013. In the district where the Keilewerf is based, the city intentionally focussed on attracting craft and skill-based makers and artisans creating hand-made crafted products, small-scale housing, and attracting small and large-scale business to facilitate collaboration between the businesses.

The Keilewerf is one of the first spaces in the area, functioning as a pioneer in the urban development of the Maker District. The Keilewerf was developed by makers from the networks of the first groups of makers who were based in the wharf. By developing the wharf with a group of makers and collaboratively organising events such as open days, events, and music festivals in and around the building, the space has become known to people in the area, but also amongst people further in- and outside the city. Buurman has also contributed to creating energy and attention, as the open, accessible maker space with the shop selling discarded building materials is based in the wharf. Additionally, Buurman has contributed to knowledge about the reuse of building

materials. The Keilewerf has generated a positive image about the former red-light district and has thus functioned as a pioneer attracting makers, visitors, and also national governments interested in the Keilewerf development and the sustainable concept of Buurman. The location of the Keilewerf, with public transport and biking distance from the city centre, contribute to the accessibility of the space and is also a necessity for makers to be based there. The location also contributes to the sense of freedom for makers to make, experiment, develop the space, and develop initiatives, which attract people to the area. The space is however temporary and the area will be redeveloped in the near future, meaning the makers will have to elsewhere and each maker will have to (re)build their making business.

## 5.2. Answering the two sub questions and main research questions

This section begins by answering the sub questions to eventually answer the main research question. This first sub question is ***What does making mean to the stakeholders?***. The meaning of making is research based on the motivations of the stakeholders to be involved in making in the Keilewerf. The answers provide insight into the place of making in the Keilewerf.

Making at micro levels means a way to create craft-made products. On a personal level, people enjoy making with their hands over working behind a desk and computer all day. The makers find it relaxing to be engaged in the physical activity of working with their hands and materials, such as wood, steel, or fabrics. The intellectual challenges of making are also found stimulating and make the creators proud, especially when challenges – such as the craft skill and technique to make a wood connection – have been overcome. Making, for most makers, is a way to earn an income and develop a making business.

Making in the meso level demonstrates a way to connect people and, together, create a vibrant maker space and venture. Making with others is a way to, in a practical sense, build the interior and exterior of the space. Making attracts other like-minded professional makers, often via the networks of the makers in the wharf, as well as amateur makers interested in making and learning new skills. Making in the wharf at the meso level is a way to facilitate commissions for the makers based there and help makers develop their making business.

On a macro level, making is a way to transform and revive a former maritime area. Along the Keileweg, there was a red-light district where drug deals occurred. Making has contributed to a change in the image of the area from a dangerous place that most wanted to avoid, to a place attractive to people interested in creative and artisan practices who want to create themselves. Making brings new energy and a buzz to the area that attracts amateur makers from all backgrounds. One interviewed course participant was a retired chiropractor; another participant I spoke to during an observation was the director of a large company, and a group of students from the technical university of Delft had taken part in a workshop together with their fathers.

The second sub question addressed in this research is ***What does the Keilewerf mean to the stakeholders?***. The answers provide insight into the role of the Keilewerf in the development of the Maker District. On a micro level, the Keilewerf is a place where they can first find an affordable and properly sized working space to rent, as well as a place to experiment and make their products. The Keilewerf is a place within a community of other professional makers to share commissions, discuss challenges, ask for advice, or meet informally. The Keilewerf is a place where makers can experiment inside and outside the space due to the location and where they can develop initiatives that attract people from the area and the city.

On a meso level, the Keilewerf is a place to pioneer. By locating the Keilewerf is where it is and giving a positive impulse to the area by organising events in and round the space, people from a diverse background and around the city. The Keilewerf is also a way to generate revenue. Both the Keilewerf and Buurman do not receive any subsidies, so they generate revenue themselves to invest in the business and make a living. The Keilewerf generates revenue by renting the space, and Buurman by selling discarded building materials and offering workshops and courses in, amongst other things, furniture making.

On a macro level, the Keilewerf is a means to transform the area. The affordable, but soon to be taken down, real estate is occupied instead of empty and transformed by the makers in the space. These makers are well skilled to transform the space into a workable and attractive hub for people from outside and inside the space. The Keilewerf contributes to the image the city has to develop this area for the future, a hub for artisans, craftsmen, architects, and designers. This image attracts future residents; people who want to spend time in the area, other businesses, and knowledge institutes.

The two sub questions help to answer the main research question, ***What is the place and role of maker space Keilewerf in the context of the urban development?***

The findings show how stakeholders understand and perceive differently the place and role of making in the Keilewerf in urban development. Each stakeholder placed emphasis on different aspects. Makers found freedom, affordability of a space to make, developing a making business, and being within a social context of like-minded people.

The founders wanted to create a vibrant space and it on the map, as well as sustainable awareness, thus creating their own business and helping makers develop their businesses.

The city wanted to revitalise the area and create an artisan image that attracts certain groups of people and businesses in the near future. So, each of the stakeholders differs in their understanding of the temporality of the space, and they have different priorities, but in general the picture is less 'idealistic' than the hype would have us imagine. Making is also about meeting practical priorities, but it's a struggle against commercial pressures at the individual level (e.g. precarious work) and city level (other pressures on the space, e.g. transforming it into a residential area, etc.).

### 5.3. Reflection research

The next two sections reflect on the conducted empirical research. This chapter addresses pitfalls and opportunities based on the results of the qualitative research, the limitation of the research and offers suggestions for further research.

#### 5.3.1. Reflection on the research: Pitfalls and opportunities

This research carries certain pitfalls and opportunities. Based on the meanings and motivations of the stakeholders, making is great but stimulates precarious work. There is an imbalance between time needed to make a high quality design and the economic value, which is often a lot higher than people are willing to pay. Resulting, in makers having less time to spend on making due to jobs on the side, having to quit the making venture altogether. Makers are left uncertain where they will be based next, if they will find an affordable space to work and continue their business at all. The advantages are that the makers have the space to experiment, take initiatives, and develop their network within the community and for future commissions.

The Keilewerf is an experiment. The current space in the wharf and the office building is temporarily. This temporality also impacts the future plans of the founder and the makers. If they stay only one year longer, the founders can consider maintaining the space as it is and develop plans for future activities. Should they stay longer, there would be time to upgrade the space, but also help the makers in the wharf with developing their businesses. On the other hand, the temporality can be considered an opportunity. The founders have the opportunity to develop their innovative ideas – for example, stimulating suitability awareness, teaching makers the opportunities of making with discarded materials, and selling these products. Also, there is the space to develop exciting products and where amateur makers can learn new techniques and meet like-minded people.

Revitalising the area around the Keilewerf has an economic incentive, as we live in a society where economics is a driving force. For the policy maker, making is a way to bring a positive energy, interest people in the area, and eventually sell real estate and stimulate business. The policy maker valued the makers in the area, and wanted to see if they can find a strategy to keep others there. However, if it can be realised, it will be on a much smaller scale.

### *5.3.2. Reflection on the empirical results; limitations and suggestions for further research*

One of the challenges of this research was that the Keilewerf has different functions; therefore, it was not possible to investigate collaborative process as each maker has his/her own studio, whereas makers who take a course or rent a workbench just use the maker space. Also, at the start of this research, the second Keilewerf building (number 2) had just become part of the Keilewerf as a whole and thus not included in this research. Keilewerf 2 does not have an open, accessible space, and is located on the other side of the block and is less visible online than the wharf. Would this space have been more visible, makers from other disciplines could be included in this research. In Keilewerf 1 the majority of the makers are makers working with wood, steel, textiles and less in the field of uncreative arts. Other stakeholders in this development could have been included in this research, such as the Port of Rotterdam. It was interviewed for this research, however, due to time limitations. I can now only base this research on the experiences of the process from the interview with the policy maker.

Future research could look further into more consistent methods of urban development, especially with a focus on a scenario where makers can be based in the area long term. Additionally, alternative non-financial rewards for urban revitalisation could be researched. This research and existing research (Ocejo, 2010; Sennett, 2008) demonstrates the value of craft and skilled labour, including the pleasure of making and making something well, which clashes with our capitalistic system of economic reward for labour and urban development.

#### 5.4. Societal relevance

This following section reflects on the implications of making for society, based on the findings at a macro level. Furthermore, the section addresses the interest of policy for making and attending to maker spaces. The last part of this section addresses the hype of making for city development.

##### *Societal implications of making*

From Banks' (2010) economic view making is a way to earn a living. The capitalistic system emphasises efficiency and mass production to generate revenue, which is contradicting to the time and care needed to make well (Sennett, 2008; Warren, 2014). Although research (Rutten & Koops, 2017) shows those working in the creative industries increasingly contribute to the Dutch economy and boost the local economy, these figures however focus on the economic outcome and overlook the implications for the makers and the value of making for makers and societies.

For urban policy, making in maker spaces such as the Keilewerf, is a way to boost the local economy, by attracting a certain types of profiles (creatives and higher educated) to the area. This development strategy is similar to Florida's idea of revitalisation of urban areas by attracting the creative class (2002). As is shown in metropolitan cities worldwide, this process of gentrification often eventually leads to inequality. According to Florida who focusses on large-scale cities in the US and UK, can be solved by top-down stimulating bottom-up initiatives for more inclusivity (2017). However, the emphasis in this recent work is still on the economic incentive for urban development, instead of including broader social views. Florida however, does not include educational institutes and public services. Including people from poorer areas

and education can stimulate more quality and sustainable employability, which in return contributes to more equality in the development of cities (Hall et al., 2012).

For the future, societies can question what cities they want to develop and live in, and how can we help shape these cities and the possible role of crafts and skills for sustainable societies (Bakhshi et al., 2017; Carr & Gibson, 2016; Scott, 2014). Not so much focussing on economic objectives, but on social networks of producers, valuing the space and time and care for the activities each individual undertakes.

### *The maker-hype and opportunities of making*

The term making has become vague and is being applied in various fields; business development, education, urban policy, climate change (Carr & Gibson, 2016; Banks, 2010; Grodach et al., 2017). The creatives based in the Keilewerf still seem to be the underdogs in this situation. So, can we say making is a misplaced hype? For the city, making and collaborating gives people the tools to create change that impacts society. In this case, the Keilewerf creates a renewed attention to the former harbour and red-light district and attracts people and businesses to the area. In general, making brings a renewed attention to the value of making and finding rewards in creativity, attention for detail, care for the activity one is engaged in, even in monotonous and repetitive jobs. Also, making brings awareness of our capitalistic system, still stimulating consumption over production. The upscaling of collaborative approaches could in the future contribute to more sustainable spaces for makers and sustainable approaches to urban development.





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## Appendices

## Appendix A

Interview questionnaire makers taking part in a short course or one-day workshop (KW09)

(In Dutch)

1). Vragen over deelnemer

1a). Wat is uw leeftijd?

1b). Woonachtig in Rotterdam?

1c). Wat is uw beroep?

1e). Heeft u al eens eerder aan cursussen van Buurman deelgenomen? zo ja welke cursus?

2). Motivatie deelname cursus

2a). Hoe is deze cursus bij u onder de aandacht gekomen?

2b). Wat heeft u doen besluiten aan deze cursus deel te nemen?

2c). Hoe heeft u deze cursus ervaren?

2d). Welke herinnering(en) van deze dag neemt u mee?

3). Ervaringen met maken

3a). Wat vindt u het meest plezierige aan het werken met hout? Zou u uw antwoord toelichten?

3b). Wat vindt u het meest voldoening gevend bij het maken van een product?

3c). Welke kennis heeft u vandaag opgedaan over het maken van een product van hout?

3d). Wat zou nog graag willen leren over het maken van een product van hout?

4). Cursus of workshop in groepsverband

4a). Hoe vond u het om in groepsverband deze cursus te volgen?

4b). Wat vond u de meerwaarde van het maken van uw product in groepsverband?

4c). Wat heeft u van uw mede-cursisten geleerd?

4d). Wat heeft u mogelijk uw mede-cursisten kunnen leren?

5. Setting: de Keilewerf

5a). Was u al bekend met de Keilewerf? Kunt u uw antwoord toelichten?

5b). Wat is uw ervaring met de Keilewerf?

5c). Wat vindt u ervan dat de Keilewerf eind 2019 hoogst waarschijnlijk zal sluiten? Kunt u uw antwoord toelichten?

5d). Welke indruk zal u bij blijven over de Keilewerf?

6. Vervolg

6a). Zou u weer willen deelnemen aan een cursus? Zo ja, wat is uw motivatie hiervoor?

6b). Heeft u nog laatste opmerkingen of suggesties over het maken van producten, deelname aan de cursus, over de Keilewerf, of over iets anders in het kader van deze vragenlijst?

## **Appendix B**

Operationalization questionnaire former project manager of the municipality of Rotterdam (RD04)  
(Interview schedule below in Dutch)



Concept	Dimension	Measurement
Motivation municipality	Urban development	How does the development of M4H fit in the larger context of developments in the city in the past decennium? What is the municipality's initial vision for M4H area? What are the strategies for urban development?
	Social	What are social considerations for developing an urban area? What are possible social consequences for urban development?
	Economic	What are economic considerations for developing an urban area? What are possible economic consequences for urban development?
	Environmental	Why develop the M4H area into the most innovative and green areas of the city? What are the municipality's visions on the M4H becoming the most innovative and sustainable district of the city? What are the municipality's expectations of this innovative and sustainable urban area?
Urban development	Process	Could you describe the process of the development of the Merwe-Vierhavens district? How did this process start and how is the city supporting, facilitating this? And why would they do this? How does a maker space such as Keilewerf fit into wider plans for urban development, in practice and in 'vision'?
	Social	What is the place of collaborative practices in this vision and are maker spaces the tool to achieve this? What are the expected outcomes of creative and sustainability orientated maker space for social cohesion in the area?
	Economic	What are the expected economic outcomes of creative and sustainability orientated maker space the Keilewerf for in the M4H area? How do the activities at the Keilewerf contribute to the economic development?
	Environmental	What are the expected environmental outcomes of the sustainability orientated maker space the Keilewerf for in the M4H area and city? How do the activities at the Keilewerf

		contribute to the environmental aims of the area?
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## Appendix C

### Questionnaire project manager (KW04) (in Dutch)

- 1). Zou u het proces van het ontwikkelen van het Merwe-Vierhavengebied (M4H) kunnen toelichten?
- 2). Hoe is het proces in gang gezet?
  - 2a). Hoe wordt deze ontwikkeling door de gemeente ondersteund en gefaciliteerd?
  - 2b). waarom ondersteunt de gemeente deze ontwikkeling?
- 3). Hoe past een maker space zoals de Keilewerf in de bredere plannen van de gemeente's plannen voor stedelijke ontwikkeling?
  - 3a). Hoe past deze maker space in de praktijk ?
  - 3b). En vanuit de visie van de gemeente?
  - 3c). Welke mogelijke gevolgen hebben de maker space en activiteiten voor de ontwikkeling van het gebied (social , economisch)?
- 4). Welke rol spelen collectieve samenwerkingen tussen makers in deze visie?
  - 4a). Welke tools zijn er nodig dit te realiseren?
- 5). Hoe is de verhouding / is de relatie tussen de visie over duurzaamheid en innovatie (zie document van Drift uit 2015), en de stedelijke ontwikkeling van dit gebied?
  - 5a). How wordt dit 'groene' plan gerealiseerd en afgestemd?
  - 5b). Wat is het gezamenlijk of overeenkomstig doel?
- 6). Wat zijn de verwachte uitkomsten van de ontwikkeling van dit gebied?
  - 6a). Wanneer is de ontwikkeling van een gebied afgerond?
  - 6b). Hoe kijkt u terug op de ontwikkeling van het M4H gebied?

## Appendix D

Operationalization questionnaire founder of maker space Keilewerf (KW06)  
(Interview schedule below in Dutch)

Concept	Dimension	Measurement
Motivation	Personal	What were your initial visions for the development of Keilewerf? How did you experience founding the Keilewerf? What are you most proud of regarding the development of Keilewerf? How has the Keilewerf met your initial expectations? Are there aspects you would do differently next time?
	Societal	What social goals did you have in mind when founding the Keilewerf? How does the Keilewerf in your view contribute to social development of the area?
	Economic	What economic motivations did you have for developing Keilewerf? How does the Keilewerf in your view contribute to economic development of the area?
	Environmental	What were your environmental motivations for developing Keilewerf? How does the Keilewerf in your view contribute to environmental development of the area?
Urban development M4H	Process	Experiences policy development or process Keilewerf? What do you value about the development process? What do you expect the future of the Keilewerf to look like?
	Social	What are your experiences with working with makers? What are your views on the social added value of maker in this area?
	Economic	How do you think the maker space could stimulate the local economy?
	Environmental	How could Keilewerf and the focus on reuse, repair and recycling reduce the city's waste?
Collaborative production	Personal	What experiences do you have in making/collaborating? What is it that you value most in making/collaborating?

	Social	How the could collaborative making, in your opinion, help form inclusivity in an urban area? What are your future visions for collaboration and social equity?
	Economic	How could the collaborative making process, in your opinion, help prosper the local economy? What are your future visions for collaboration and the economy?
	Environmental	How could collaborative making process, in your opinion, help reduce waste? What are your future visions for collaboration and sustainability?

## Appendix E

### Questionnaire founder (KW06)

(In Dutch)

1). Hoe is het process van het ontwikkelen van de Keilewerf tot stand gekomen?

1a). Waarom in het Merwe-Vierhavengebied en dit gebouw?

1b). Wat waren jouw doelen voor de oprichting van deze maker space?

2). Hoe is het proces in gang gezet?

2a). Wat was er nodig /wie waren er nodig om dit proces in gang te zetten?

2b). Hoe is deze ontwikkeling door de gemeente ondersteund en gefaciliteerd?

2c). Waarom ondersteunt de gemeente deze ontwikkeling?

2d). Hoe kijk je terug op dit proces, waar ben je het meest trots op en wat zou je anders willen aanpakken?

3). Wat was jouw persoonlijke visie op het ontwikkelen van een maker space?

3a). Welke tools/personen zijn er nodig dit te realiseren?

3c). Welke rol speelt duurzaamheid, upcycling en re-use in het ontwikkelen van deze maker space?

3d). Nu 4 jaar verder in het proces, is deze visie op veranderd?

4). Wat is voor jou het belang van het ontwikkelen van een maker space?

4a). Welke rol speelt het maakproces een rol in de keuze voor het ontwikkelen van een maker space?

4b). Welke rol spelen collectieve samenwerkingen een rol in de keuze voor een maker space?

5). Welke mogelijke gevolgen heeft de Keilewerf (maken, activiteiten) voor de ontwikkeling van het gebied ?

5a). Op sociaal gebied?

5b). Op economisch gebied?

5c). Met betrekking tot duurzaamheid en innovatie?

6). Hoe zie jij de Keilewerf (en mogelijk, dit gebied) graag dit gebied ontwikkelen in de nabije toekomst?

## Appendix F

### Overview of the twelve interviewees

Participant	Male (M)/ Female (F)	Age	Occupation	Full-/part-time/ for a course or workshop at Keilewerf	Based at the Keilewerf since	Materials
01	F	47	Furniture refurbishing	Fulltime		Textiles
02	M	40	Furniture making	Fulltime	2014	Wood and steel
03	M	36	Surfboard and furniture making		2014	Wood and epoxy
04	M	37	Project manager municipality of Rotterdam	Fulltime	For 4 years project manager of the M4H/RDM district (until beginning 2018)	NA
05	F	25	Manager workshop KW and furniture making	Employed for 3 days at KW, works 3 days as maker at the warf.	As a maker since 1 April (2018) base in the Keilewerf, and works at KW	Wood
06	M	32	Founder Keilewerf, Buurman	Fulltime	2013	NA
07	M	45	Sculptor	Part-time at KW besides commissions	2015	Marble
08	M	26	Product designer	Some evenings and in the weekends		Wood
09	M	30	Workshop manager and mechanic Give a Bike	One day a week - has a job in Amsterdam running a similar company	February 2018	Steel/bikes

10	F	Ret ire d	Retired chiropractor	Followed a 6- evening course in furniture making	From march 2018- April 2018	Wood
11	F	29	Co-founder and manager Buurman	Fulltime	2014	NA
12	F	26	Set designer and designer of felt bags and accessories	Fulltime	2016	Felt and divers materials





