

Denim and the City:
Sustainable Development of the Denim Cluster in Amsterdam.

Student Name: Benedetta Gilling

Student Number: 526773

Supervisor: Prof.Dr. Valeria Morea

Cultural Economics and Entrepreneurship

Erasmus School of History, Culture and Communication

Erasmus University Rotterdam

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ABSTRACT

The role of the creative industries has been discussed as highly relevant in impacting cities' development. Over the last years, cultural economists have become interested in examining the role of creativity in the urban economy while policy makers have started developing new models in which culture and creativity are seen as fundamental drivers of innovation. By analysing the role of stakeholders in the development of urban growth, this study focuses on examining the benefits of denim-related stakeholders to cluster in Amsterdam. In fact, Amsterdam has been developing as a 'second tier' fashion industry in which the denim industry plays an important scene in the sector's economy while influencing the branding of the city as the 'denim capital'. The thesis aims at analysing whether clustering in Amsterdam allows the development of fashion creative hubs related to denim production and distribution and how denim-related stakeholders, such as designers, brand owners and freelancers benefit from agglomerating in the Dutch capital. Additionally, policy making regarding circularity and sustainability of the sector is analysed, aiming at better understanding how governments can invest in creative industries to foster the city's development and decrease the environmental impact of production and distribution of denim garments within society. Qualitative data are collected by conducting semi-structured interviews to a representative sample of entrepreneurs and workers within denim companies and organizations that can benefit from the clustering in Amsterdam. Findings show that stakeholders that cluster in Amsterdam greatly benefit for a variety of reasons, such as social circumstances, international settings and the access to events and initiatives that support the industry. Both cooperation between parties and the investment in infrastructures are proven to provide a competitive advantage for the development of the denim cluster.

Keywords: creative clusters, creative class, policy making, creative hubs, denim industry.

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1. Introduction

In the past decades, interest regarding the development of creative clusters within cities has increased among scholars and urban policy makers. The discussion about the role of creative economies and their impact on a city's development and image has gained significant academic and policy significance since the 1970s. In 1998, the UK's department of Culture, Media and Sport (DCMS) was one of the first to analyse the creative industries' role in creating jobs while increasing wealth among citizens and therefore created a mapping document to stimulate their development (Nijzink et al., 2017; Throsby, 2001). Creativity and growth have been analysed in relation to the expansion of creative cities and creative clusters: it is acknowledged that creativity and innovation lead to urban growth and symbolic re-branding of cities (Pratt, 2008). Drawing on previous literature regarding the impact of creativity on the growth of cities and the role of the creative class in fostering innovation, this thesis engages in the role that the government and creatives play in shaping clusters while fostering creative processes (Florida, 2002; Throsby, 2001).

While research has been conducted on cities' symbolic power in attracting the creative class and new entrepreneurs within major 'fashion cities' such as London, Tokyo, Milan and Paris (Jansson & Power, 2010), not a great deal of attention within literature has been given to the role of policy making in impacting the development of fashion hubs in Amsterdam. In particular, this study focuses on analysing the agglomeration of creatives that focus on denim or denim-related initiatives. Thus, the aim of this research is to better analyse the benefits of creative stakeholders that decide to cluster in the city of Amsterdam. The choice of investigating Amsterdam's denim industries derives from the high agglomeration of denim brands in the city such as Scotch and Soda, Kings of Indigo, Mud Jeans, G-Star Raw among many others and the development of new initiatives such as the Denim Days, Denim City, The House of Denim Foundation and United Repairs, leading Amsterdam to be considered the 'Denim Capital'. This is interesting because Amsterdam does not have a historical background of denim production, but in recent years it has developed as a denim cluster in which new companies and initiatives thrive, impacting the city's branding image and fostering innovation within the sector. Thus, the research question is:

How do denim-related stakeholders benefit from clustering in the area of Amsterdam?

By answering the research question, interesting insights regarding the role of economies of agglomeration and the competitive advantage for both stakeholders and the city can emerge, better investigating the relevance of place for the development of creative economies. As stakeholders, the research considers designers, artists and workers that focus on denim or denim-related activities in their work. Additionally, to get a deeper insight into the case, two sub questions complement the overarching one:

- 1) *How do denim stakeholders invest in sustainability and circularity in their work?*
- 2) *How does Amsterdam's denim cluster benefit from the city's policy making?*

Therefore, the research intends also to investigate whether the implementation of policies that focus on developing sustainable initiatives within the denim industry impact sustainable production processes and the crowding in of new initiatives, fostering the development of the creative cluster studied. Sustainability and circularity are taken into account since the fashion industry is considered one of the most polluting sectors. Due to a high level of volatility combined with society's levels of consumerism, the supply chain is characterized by high levels of pollution (Noris et al., 2021). The denim industry can also be harmful for the environment: high water usage for washes, energy consumption and chemicals used in cotton fields are few of the examples of unsustainable approaches adopted to produce denim. Thus, companies are evolving and increasingly investing in new technologies such as diminishing the water usage during the washes, using eco-friendly materials, ozone and laser fading, enzyme-based bleaching and renewable energy sources (Periyasamy & Periyasami, 2023). Governments are also aiming to decrease textile industry CO2 emissions and negative environmental impact through policies that can foster circularity and sustainability within a city (Noris et al. 2021). Henninger (2016) describes sustainability as a concept based on a philosophical idea that focuses on minimizing environmental pollution while ethically tackling conditions of workers. In the movie *The True Cost* (2015), sustainable fashion is analysed from a social and natural perspective: the economic 'price' that it is paid is not only profit based but considers all the spillovers that are reversed on society and in the ecosystem (Henninger, 2016). Thus, in contrast to the traditional economic models derived from neoclassical theory, highly focused on the homo economicus and monetary profit making, new models that focus on ethical and social aspects are being developed. For these reasons, in addition to analysing clustering theories applied to the case study of Amsterdam's denim

industry, this research investigates the role of the government in creating policies that can help reduce negative spillovers from the creative cluster's perspective.

The relevance of this study can be investigated at both an academic and social level. From an academic perspective, this research contributes to analysing the relevance of clustering theories developed by researchers and the role of policy making for benefiting various stakeholders and affecting the clustering of creative companies in a city. By applying clustering, spin off and agglomeration theories to the case of the denim industry, research can be practically evaluated through a relevant case study. By analysing theories on a micro-level, interesting insights that can be applied on a macro level within cultural management, cultural economics and cultural planning research emerge. In the case of the fashion industry, as Jansson and Power (2010) suggest, the agglomeration of fashion brands, entrepreneurs and activities can strengthen the branding and image of the city and is therefore relevant for policy making. Moreover, this research is socially relevant because it explores how stakeholders can benefit by clustering in a 'second tier' fashion city, providing insights for readers that are interested in working in the creative environment. Moreover, the research explores the government's impact in enabling the development of circular initiatives in the city, analysing how environmental damages can be reduced and whether it influences the crowding in of practices that aim at sustainability within denim production. Thus, the research not only can be useful to better understand stakeholders' perspectives on sustainable development of the denim industry in Amsterdam, but also provides an insight from a micro-economic level which can be useful to policymakers.

Since the aim of this work is to analyse the benefits offered to denim-related stakeholders that cluster in the city of Amsterdam, qualitative research is conducted to a sample of Amsterdam-based stakeholders to view their motivations, perceptions and views in regard to the benefits derived from the city, its policy making and the opportunities to produce and distribute in a more sustainable way. Thus, primary data is collected by conducting semi-structured interviews to a sample of Amsterdam's stakeholders such as creative workers in denim-related companies that shape the creation of denim clusters.

2. Theoretical framework

This section focuses on providing a theoretical background that can be useful when trying to answer the research question *How do denim-related stakeholders benefit from clustering in the area of Amsterdam?*

Firstly, the relevance of agglomeration economies and clustering theories is examined. Secondly, the relationship between creativity and the city is discussed in relation to theories about the impact of creativity on growth within cities. Both theories of clustering of creative cities and the role of the creative class in allowing urban growth are examined. Following this, the concepts of cultural planning and urban policy making within cities are analysed, exploring the position that the municipality can take in allowing initiatives that can influence and shape its image. Finally, the relationship between fashion and the city is explored, discussing the relevance of place within fashion while presenting the case of the denim cluster in Amsterdam.

2.1. Agglomeration theory: clustering and spin-off dynamics

Influenced by Marshall's (1920) work on agglomerated economies, the concept of clusters has been analysed by many researchers through a variety of disciplines and has been applied to various sectors (Lazzetti, Sedita & Caloffi, 2014). Lazzetti et al. (2014) point out how two concepts in relation to the economies of agglomeration have emerged: clusters and industrial districts. While industrial districts mainly refer to the industrialization of areas and specialization within production processes (Marshall, 1920), Porter (2000) defines clusters as "geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate" (Porter, 2000, p. 15). Thus, clusters are not only defined by industrial production but can also be viewed as an agglomeration of interconnected activities in which knowledge-spillovers are created. In fact, according to Massey (1991), place can be viewed as a network of social relations. During the first half of the 20th century, Marshall (1920) already referred to the significance of networks for the formation of industrial areas in the UK. Instead of considering places as areas with boundaries, these can be considered as created by a network of social relations and understandings that culturally and socially influence how they are considered (Massey, 1991). Polanyi (1944) mentioned how economic activities are embedded within social circumstances and, for this reason, economic developments take place in areas

that are characterized by dynamic exchanges and a high pace of innovation (Massey, 1991). The dynamics and vibrancy of large cities create environments where firms can rely on “cultural creativity, productive efficiency, and competitive advantage” (Scott, 2001, p.12). Scott (2001) argues that large cities function as creative basis for cultural and economic developments since they represent a “dense agglomeration of social life” and emerge when individuals are interconnected by interdependent activities (Scott, 2001, p. 12). In *Cities in Civilization*, Hall (1998) points out how economic activities emerge in cities during historical moments of high levels of creative and dynamic energy. Florence during the renaissance or Paris during the mid-19th century are examples of cultural and economic developments due to the agglomeration of creative and technological innovations. In the current cultural economy, cities such as London, Paris, Milan, New York or Tokyo manage to maintain constant streams of their specializations such as fashion, film, publishing or music, while innovating based on new digital technologies (Massey, 1991).

Therefore, contrary to what contemporary, globalized and interconnected society might imply, the geographical location of industries is relevant for business. While many developments in technology and competitiveness may have lessened traditional responsibilities of location since firms can connect over long distances, due to the tendency of companies to cluster, location remains relevant for social and economic activities (Porter, 2000). Thus, a firms’ competitive advantage relies on making a productive use of sources by relying on innovation and new technologies. Not only internal management is fundamental for companies’ growth but also the creation of external networks and relationships is relevant for companies’ competitive advantage. Moreover, the creation of clusters leads to an advantage not only within national borders but also between international countries. Competition is shaped by clusters in three ways: firstly, by boosting local businesses’ productivity; secondly, by determining the direction and rate of innovation; finally, by stimulating the emergence of new start-ups that are influenced by the established companies, leading to the crowding-in of similar businesses (Porter, 1998). Therefore, even with the advance of technology and the emergence of the Internet, it is empirically shown how innovation and competitive success are geographically concentrated in specific areas such as the movie production in California, the gaming industry in Japan or the textile industries in the north of Italy (Porter, 1998).

Moreover, scholars point out how, since the late nineteenth century, urban economies have shifted from being service based to knowledge based, focusing on creativity and innovation as drivers of economic growth (Pratt, 2008). Until the 1970s, markets were highly

homogeneous and based on mass standardized production (Scott, 2006). During the 1970s and 1980s, the economic system shifted to becoming more specialized and flexible, based on firms' networks and on individuals' preferences. Thus, human creativity has become relevant for production, filling products with symbolic meanings (Scott, 2001). Additionally, human interchange can be beneficial to clusters since it can expand innovation and productivity through both collaboration and competition, boosting entrepreneurial activities (Porter, 1998).

Drawing this theory on the relevance of human creativity, one of the most influential scholars who discussed the role of location within agglomeration economies is Florida. In his book *'The Rise of the Creative Class'* (2002), Florida (2002) introduces the concept of the 'creative class', discussing the relevance of creatives within the economy. He describes the creative class as formed by people with 'creative occupations' such as architects, scientists, designers, entertainers, or artists (Florida, 2002). Florida (2002) points out how creative cities attract the creative class, leading to innovation. Additionally, the concentration of creatives within cities, and especially specific areas, leads to the creation of cultural clusters and hubs, which then attract more members from the creative class, further fostering innovation and creativity. The clustering of similar businesses can also be explained through the concept of spin off dynamics. The presence of already established business can reduce risks of new companies establishing within similar sectors (Porter, 2000). Through spin off, knowledge spillovers derived from established companies or educational infrastructures can be transferred to new firms, enhancing their competitive advantage in an international context. Boschma (2015) points out how the exchange of knowledge through spin off dynamics can boost the level of agglomeration of firms, entrepreneurs and businesses within certain areas. Wenting (2008) discusses how the spin off dynamic is influential within the global fashion industry: his study shows how pre-entry experiences can affect the success of designers, debating how experience knowledge and tacit knowledge transferred between firms can influence the success of potential new stakeholders within fashion. Drawing on Breschi's and Lissoni's (2001) analysis regarding knowledge spillovers, Wenting (2008) discusses how designers located within clusters have more advantage than isolated creatives due to access to imitation of established companies and the exchange of both practical and tacit knowledge. This knowledge is not only useful for the acquirement of practical skills and the involvement within the industry but also for the incorporation of symbolic knowledge into fashion products (Wenting, 2008). Moreover, Wenting's (2008) research shows that clusters benefit not only because of similar firms from which knowledge is transferred but also due to the increase of demand of the products related to the specific cluster in the areas analysed,

proving the clustering of fashion cities in areas of high request of specific products. The relevance of spin off dynamics in enhancing the clustering of business has also been confirmed by Golman and Klepper (2016), who discuss that the geographic clustering of industries is affected by spinoff dynamics. The authors empirically show that innovation within clusters can lead to opportunities for spin off entries while driving the development of a region. Thus, their model proves that the level of innovation and spinoff formation can influence the development of clusters and agglomeration economies (Golman and Klepper, 2016). Access to inputs, competitive advantages and a dynamic of spin off in which knowledge is transferred between businesses are some of the explanations that can reinforce the relevance of place in the clustering process of similar activities.

Having established the significance of agglomeration economies, clustering theories and spin off dynamics, the following section discusses the emergence of specific clusters: the creative clusters. Since economic development has been proven as linked to human activity, innovation and creativity, the creative industries are analysed as relevant for agglomeration economies and for bringing positive spillovers to society from an economic, social and cultural perspective.

2.2. Creativity and the city: creative clusters and cultural policy making

Within cultural economics research, it is highly discussed how economic production and consumption of culture are related to the development of modern cities and their image (Scott, 2006). For example, the agglomeration of fashion-related industries within cities such as Milan, New York and Paris have shaped the geography of fashion and consequently the cities' image and reputation as 'fashion cities', bringing benefits to the metropolises such as expanding tourism, enhancing organizations and creating the space for new start-ups and designers to thrive (Gilbert & Casadei, 2018). Therefore, the role of the creative industries has been analysed and argued as being relevant within a city's economy due to the intrinsic characteristics of creativity and innovation that these industries have. Creativity, art, and innovation are viewed as linked to each other, leading to cultural production (Frey, 2002). Many scholars have discussed the role that creativity and innovation play in urban economic growth. As Florida (2005) mentioned, creativity is the "principal driving force in the growth and development of cities, regions and nations" (Florida, 2005, p. 1). For this reason, the creative industries, which are based on human creativity and the creation of symbolic meaning, developed within cities where cultural and creative production had become key

ingredients for economic and urban development. Throsby (2001) argues that the ‘cultural sector of the economy’ can be defined by three characteristics: “the activities concerned involve some form of creativity in their production, [that] they are concerned with the generation and communication of symbolic meaning, and, [that] their output embodies, at least potentially, some form of intellectual property” (Throsby, 2001, p. 4).

However, according to Flew (2002), it is hard to define the creative industries as a coherent industry. Nijzink et al. (2017) distinguish the creative industries in two sections: the ‘art organizations’ and the ‘creative organizations’. The first group consists of organizations that focus on traditional arts such as heritage sites, museums, theatres and libraries while the second group represents organizations that focus on the commercial exploitation of intellectual property such as architecture, fashion, radio and television broadcasting. The distinction does not imply excludability between the sectors since creative organizations can create art while art organizations can also be commercial. The distinction between art sectors and creative sectors is also relevant for the implementation of policy making. In The Netherlands, the creative industries are categorized in three sections: art and cultural heritage, media and entertainment and finally the creative services. While the first sector focuses mainly on intrinsic properties and values of art, the other two rely more on commercial exploitation (Nijzink et al., 2017). Since the focus of this thesis is the fashion industry, the theoretical position that this study undertakes is based on what Nijzink et al. (2017) define as ‘creative organizations’.

The impact on cities’ growth of the creative industries can also be measured through their direct, indirect and induced economic spillovers within society. Direct benefits consist of expenditures by cultural institutions that affect both suppliers and local workers due to the job provision and the production of goods and services. Indirect benefits are related to a “second round of expenditure” (Lavanga, 2002, p. 11). This relates to the salaries earned from the expenditure of goods, in which returns are considered. Finally, the induced impact consists of economic benefits derived from other spendings around cultural activities such as tourist expenditure which can be measured through transportation, hotels and shops’ earnings. Additionally, the creative industries bring important social and cultural spillovers within society, which increase both economic development and people’s wellbeing (Lavanga, 2002). Within a knowledge-based economy, human capital is viewed as the main driver of growth and, for this reason, the production of cultural goods and the emphasis on creativity are fundamental (Scott, 2006).

Thus, having proved the economic, cultural and social impact of knowledge-based industries within cities and countries, policy makers started giving attention to the clustering of creative industries for urban development and for the consolidation of the city's image. Clusters' relevance suggests for new roles within policy making: governments' interventions can inevitably be influential at both macro and micro-economic levels. Among the influences, giving priority to the growth and development of emerging clusters is relevant for policymakers due to the economic and cultural spillovers that can emerge, such as determining a competitive advantage for the industries, attracting more creatives, and influencing the crowding in of new start-ups and initiatives (Porter, 2000). The concept of 'cultural planning' is essential when analysing policy making since it considers the various goals and objectives of various sectors within the cultural industries. It is fundamental that cultural policies, when coordinated with other urban policies, have an important position in determining the development and competitive advantage of cities. Cultural policy making can improve the quality of life and help the development of unique features that define places. Cultural planning considers public, private and voluntary sectors, analysing various disciplines (Lavanga, 2002). By investing in infrastructures and education while supporting both directly and indirectly the formation of clusters, cities can develop as creative, social and economic hubs, impacting their image and boosting the opportunities offered to stakeholders. Thus, once acknowledged the benefits of cultural planning and the creation of clusters, policy making can be adopted to foster economic and social growth.

In 2009, Potter (2009) published a report with policy recommendations for the investment in initiatives that can influence the emergence of clusters and consequently benefit cities' development and overall economic growth. After researching the impact of clustering on innovation and creativity, Potter (2009) provides policy recommendations for the emergence of clusters, such as encouraging entrepreneurship, stimulating collaborations, facilitating the access to finance and coordinating policies with bottom-down initiatives. Encouraging entrepreneurship and innovation can be achieved by supporting small start-ups and firms' collaborations and promoting the development of new technologies within clusters. To ensure a high quality of human capital, policies should invest in updating education and training programmes to meet the cluster's requirements and ensure appeal for the area while attracting foreigners. Facilitating access to funding can be done by encouraging both public subsidies and private investments (Potter, 2009). Finally, Potter (2009) points out how clusters should operate transparently and inclusively to avoid social divisions: this can be done by offering educational and training programmes related to those

clusters while investing in infrastructures, public structures and housing. Additionally, to involve local communities, policy recommendations aim at creating a mechanism to inform about the clusters and initiatives (Potter, 2009). Such initiatives within the “symbolic economy of publications, promotional activities and events” can consequently also impact the geographical output of these clusters and, as in the case of this research, of the fashion industry (Gilbert & Casadei, 2018, p. 80). Thus, creative clusters have two functions for policy making: they create workspace for creatives, stimulating the geographical location, and they generate spillovers within society, improving the aesthetics of a city and citizens’ wellbeing by creating safer environments (Mommaas, 2004). Therefore, these theories show the relevance of the support of the creative industries since they are proven to be relevant in fostering culture, innovation and economic growth.

The following section focuses on analysing a specific creative sector: the fashion industry. Fashion is an interesting case when analysing clustering theories and urban policy making due to its impact on cities’ image. Major fashion houses in Milan, Paris, Tokyo, New York or London have influenced the image of cities as ‘fashion hubs’. The case of fashion in agglomeration economies can be interesting because, while the supply chain is highly globalized, designers and brands still tend to cluster in specific cities. Moreover, the fashion scene of Amsterdam is examined, analysing the clustering of denim related companies in a city that is not traditionally defined as one of the major fashion clusters, but is increasingly gaining the reputation as a ‘second-tier’ fashion city, in which the production and distribution of denim-related garments are thriving (Wenting et al., 2011).

2.3. Spatial formation of the fashion industry: the denim cluster in Amsterdam

The role of place within fashion is interesting to analyse because, while manufacturing is highly globalized, companies tend to cluster in specific regions. Worldwide recognised fashion houses are concentrated in a few cities such as Milan, London, Tokyo, Paris and New York that have a high reputation for their fashion scene (Wenting & Frenken, 2007). Additionally, these cities host globally known events such as the major ‘Fashion Weeks’, providing both direct, indirect and induced benefits to the cities and countries in which these are hosted. Therefore, various studies have analysed the clustering of fashion industries in major cities and the re-branding of their image connected to fashion: Wenting and Frenken (2007) explored the post-war period in Paris, Gornostaeva and Rieple (2014) in London while Merlo and Polese (2006) analysed the emergence of fashion hubs in Milan. Additionally,

Scott (2002) points out how the emergence of fashion industries does not only rely on the agglomeration of the creative class creating clusters but also on the development of infrastructures, trainings and institutes that promote innovation within creative industries. Creative clusters can be fostered by both bottom-up activities pushed by creatives and top-down initiatives encouraged by governments and institutions. Moreover, Jansson and Power (2010) discuss how fashion and design industries highly contribute to the city's image and branding position. Thus, global fashion centres such as Paris and Milan are attractive spaces for the creative class, leading to higher degrees of innovations and shaping the cities' branding image (Jansson & Power, 2010).

However, while the monopoly of major fashion cities is acknowledged, new fashion clusters are increasingly emerging in cities such as Amsterdam, Copenhagen and Stockholm. Specifically, Wenting et al. (2011) explore the emergence of a smaller fashion cluster in Amsterdam and highlight the relevance of urban amenities in enabling fashion companies and houses to thrive. As a second-tier fashion city, Amsterdam is an example in which the fashion industry is clustered since it is increasingly attracting headquarters of both Dutch and International fashion, clothing and retail companies (Wenting et al., 2011). Major fashion brands such as PVH, Patagonia, Tommy Hilfiger and Calvin Klein are few examples of companies that settled their headquarters in the Dutch capital (Pandolfi, 2015). Access to transportation such as the proximity of Schiphol Airport and the harbour combined with a favourable tax system enhanced the decision making of firms to establish in Amsterdam (Pandolfi, 2015). Additionally, since the 1980s, The Netherlands has experienced an increase in the number of creatives graduating from fashion academies: the Amsterdam Fashion Institute (AMFI) and the Gerrit Rietveld Academie are examples of institutions that foster the flow of designers in the city. Moreover, the city hosts many events that strengthen the fashion scene, such as Amsterdam Fashion Week, the Dutch Sustainable Fashion Week and Modefabriek while supporting initiatives such as 'Fashion For Good', which focuses on the circular and sustainable development of the sector (Pandolfi, 2015). In line with the spin off dynamics theories, innovation within fashion can derive from collaboration and the exchange of knowledge between similar business and the emergence of activities and events in which businesses are pushed to exchange knowledge (Storper & Scott, 2009). Moreover, the fashion scene benefits from also the clustering of other creative activities both in the creative sectors, such as arts, photography and media, and in the academic and design sphere derived from the educational infrastructures provided (Gilbert & Casadei, 2018). Thus, the combination of

infrastructures, a favourable tax system and spin off dynamics can be viewed as some of the reasons why Amsterdam is increasingly becoming a hub in the fashion scene.

As shown by the clustering theories related to specialization, often a specific sector of the creative industries becomes significant for the development of a city's image and its growth. This can be seen in the case of the 'denim cluster' in Amsterdam (Foord, 2009; Pandolfi, 2015). While major denim brands such as Scotch and Soda, G-Star Raw, Denham the Jeanmaker and Tommy Jeans clustered in Amsterdam, initiatives such as the Denim Days and The Kingpins Tradeshow fostered the growth of the denim scene in this city. Denim eventually became a recurring motif defining Amsterdam's fashion industry and influencing the image of the city itself (Pandolfi, 2015). As Jansson and Power (2010) show, particular places provide an image that can encourage businesses from a specific sector to locate in the area due to its image. In fact, the Amsterdam area has been characterized by the emergence of multiple denim fashion-related businesses, educational institutions and other activities, creating a 'denim cluster'. An example of one of the most influential initiatives that impact the image of Amsterdam as the 'denim capital' is the House of Denim Foundation, a non-profit organization that promotes the industry while building a network to promote entrepreneurship, innovation and education within the denim field (House of Denim Foundation, n.d.).

The impact of the denim industry on both economic and social developments is not to be underrated. Denim is part of the majority of peoples' wardrobes, and it is one of the most used materials among many generations. Jeans and denim garments have been a part of the transformation from 'clothing' to 'fashion' statements, highly impacting the business and creative fashion economy. Denim is a robust cotton twill, stronger than the jean fabric. Traditionally, indigo yarn is used to weave and dye denim, which has an unbleached fill. Due to this manufacturing process, denim can develop faded patterns over time, providing a 'vintage look' to the garment. The term 'denim' derives from the French fabric 'serges de nîmes', which dates to the seventeenth century. The French textile was originally created from wool, not cotton: during the eighteenth century, the term denim developed to describe the hardy cotton twill. Additionally, denim jeans are often referred to as dungarees: the term derived from a dyed blue fabric used to make work pants. However, the first official pair of jeans was created by the tailor Jacob Davis in Nevada and a retailer named Levi Strauss from San Francisco: the two collaborated to create the first garments in 1873. Originally, the garments were produced as working clothes for miners and workers in California (Gordon, 2010). Many consider the Levi's 501, which originated in 1890, as the "archetypical pair of

jeans” (Gordon, 2010, p. 273). With the denim trousers, Levi-Strauss had the monopoly of the market. However, competition emerged since many companies entered the market by creating denim work pants. Few of the examples of companies that entered the market are Blue Bell, which evolved into Wrangler, and the Lee Mercantile, which started selling waist overalls and producing clothing for the US Army during World War I. Until the mid-twentieth century, denim garments were mainly used for workforce or comfortable clothing: during the 1920s and 30s, waist overalls were adopted by cowboys: in 1924, the Lee Mercantile introduced their 101 cowboy pants, which are still the symbol of the authentic western cowboys’ imagery. During the Second World War, the image of waist overalls changed: to save fabric, silhouettes were streamlined, and raw fabrics were used. Following World War II, denim started to become linked to leisure: young people became the target group for denim campaigns and new fits were launched by major brands. Additionally, Hollywood films were relevant when influencing the image of the garments: movie stars such as Marlon Brando in *The Wild One* (1953) and James Dean in *Rebel Without a Cause* (1955) influenced political and social statements attributed to the trousers: denim jeans embodied rebellion and anti-establishment ideals around the world (Gordon, 2010). Thus, in line with Peterson’s and Anand’s (2004) theory of appropriation of culture as a dialectic of resistance, the youth cultures adopted the garments as a rebellion statements, shaping the image of the garment itself and the symbolic meaning attributed to it. For these reasons, from being working clothes, denim garments were transformed into means of cultural expression in various countries. Denim jeans are both viewed as an everyday clothing product for the masses but also as a symbol to express individuality (Gordon, 2010). Remarkably, jeans can convey both individuals’ personalities, hobbies and styles while representing social status. New designers, production models and innovations are constantly evolving to meet the demand of popular trends (Gordon, 1991). Thus, in an extremely knowledge intense business, value and profits are not only created through mass intensive production process but also by analysing symbolic values of garments through branding and marketing strategies. However, while the denim industry can impact economic, cultural and social growth, it can also provide negative spillovers that can harm the environment. The production process involves energy uses, a high level of water consumption and bleaching techniques that can be harmful for the environment (Periyasamy & Periyasami, 2023). Therefore, producers, designers and entrepreneurs that work with denim are increasingly investing in initiatives and projects that aim at reducing the environmental impact of the sector, both due to ethical reasons and for the reputation of the industry itself (Hamilton, 2020). For this reason, in this research, clusters

are analysed also in relation to their activity to implement sustainability while examining the role of governments to enhance circular initiatives, investigating the clustering of denim related initiatives also from their focus on sustainability and circularity, which may influence the crowding in of similar businesses.

To connect the emergence of the denim cluster to the investment of sustainable processes in the production and distribution of denim garments, the following section presents the case study of Amsterdam's policy making in enabling a clustering of sustainable initiatives within the denim sector. Policies that foster the agglomeration of initiatives and that aim at developing circularity and sustainability in the city are presented. The relevance of these policies is based on the fact that they can impact the branding and image of the city as the 'denim capital' while pushing the implementation of goals that aim at reaching more sustainable and circular production and distribution within one of the most polluting sectors of the creative economies.

3. Case study: policy making for sustainable development of fashion in Amsterdam.

The publication of *The Competitive Advantage of Nations* (Porter, 1990) influenced the emergence of new cluster initiatives at a national, regional and local level (Porter, 2000). To increase social and economic development, governments tend to invest in initiatives and programs to increase clusters' growth and productivity within cities. For example, often public-private partnerships are created to promote local innovation (Potter, 2009). Since 2009, in the Netherlands, the creative industries have been an important area of interest for policy making (Nijzink et al., 2017). Municipalities support local creative hubs to promote their region such as the CLICK NL (Topteam Creatieve Industrie, 2011). CLICK NL is a platform, supported by the government, that aims at encouraging knowledge exchange and collaborations within the creative industries. By collaborating with creatives and researchers, the network builds the Knowledge and Innovation Agenda (KIA) that can impact social and cultural activities and developments within the sector while creating events and projects that can help support the creative industries (CLICKNL, n.d.). By comparing Dutch policy making with Throsby's (2001) definition of the 'cultural sector economies' it is possible to view mainly the first two characteristics: involving "some form of creativity in the production" and "the generation and communication of symbolic meaning" rather than embodying "some form of intellectual property" (Nijzink et al., 2017; Throsby, 2001, p. 4). While in the UK, for instance, definitions rely on the exploitation of intellectual property and commercial effects, in The Netherlands policy making tends to focus on the aesthetic and symbolic values produced by these industries (Nijzink et al., 2017). Additionally, the Dutch government aims at creating a strong cultural policy, focusing on three main objectives: 1) achieve a stronger Dutch culture sector in order to enhance the country's profile through art and culture; 2) create space for the arts to contribute to safety, diversity and freedom of expression; and finally 3) focus on cultural diplomacy as a tool to strengthen positive international relations (Government of the Netherlands, n.d.).

Overall, cultural policy making and urban planning have been focusing on the development of the creative industries while reinforcing clusters. However, within recent years, nations and cities have increasingly been creating policies and regulations to tackle the environmental crisis and reduce the negative impact of each sector. As previously mentioned, the fashion sector, and in particular the denim industry, are considered as highly polluting for the environment (Noris et al. 2014). Thus, the European Union is increasingly adopting regulations towards sustainability and circularity. Few of the examples can be seen in the EU Strategy for Sustainable and Circular Textiles, which aims at covering every stage of the

cycle of textile production and distribution, supporting ecological transitions and the Ecodesign for Sustainable Products Regulation, which was issued in 2022 with the goal to create a framework to increase circularity and energy efficiency within the textile sector (Recovo, n.d.). The framework includes requirements such as product durability, reusability, energy efficiency and recycled materials. Additionally, it aims at implementing transparency, such as with the new ‘Digital Product Passport’, in which information about the product’s sustainability is provided on the garments, increasing the transparency of production processes. The European Commission reported that the new framework for sustainable products has the potential to save 132 Mtoe of primary energy by 2030, which is comparable to 150 billion cubic meters of natural gas (European Commission, n.d.).

From a regional level, the Municipality of Amsterdam is also focusing on implementing practices and strategies to make the city more circular and sustainable. These strategies are based on the circular economy and the doughnut economics model by Raworth (2017). The circular model developed by the British economist in 2017 and presented in her book *Doughnut Economics: seven ways to think like a 21st-century economist* (2017) manages to combine economic, social and environmental principles in order to reduce negative spillovers of production within society (Raworth, 2017). Raworth (2017) discusses how economic thinking has been based on profit maximization and the countries’ wellness measured through GDP growth as an indicator of progress. Thus, she discusses how the 21st century entered a phase in which economists shift focuses: “from ‘good is forward-and-up’ to ‘good is in-balance’”, transferring the idea of progress from an endless GDP growth to a balance in the ‘doughnut’ (Raworth, 2017, p. 53). Her model is encouraging policy makers to take into account inclusivity and environmental pollution for cities’ development, shifting the attention to social, environmental and cultural indicators for progress. In the Circular Report 2020 – 2025, the Municipality states:

By constantly innovating, testing and making sensible choices, we will incorporate more and more aspects of Amsterdam’s economy and society in the ‘doughnut’. In this way, the doughnut offers a perspective on how a society can thrive in a safe, equitable and sustainable way (Circular Report 2020 – 2025, p. 13).

Image 1. Raworth's doughnut model applied to the city of Amsterdam (Circular Report 2020 – 2025).

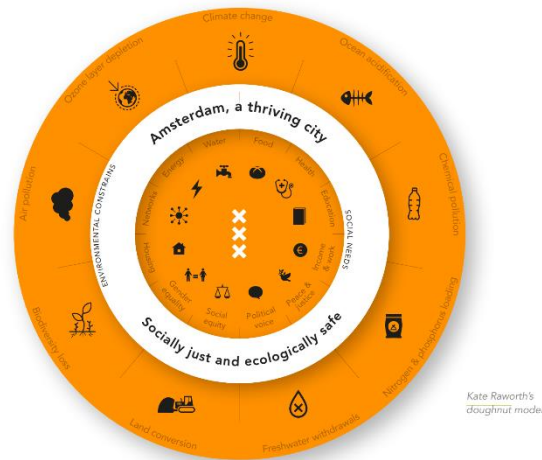


Image 1 shows the application of Raworth's (2017) model by the Municipality of Amsterdam. The model presents a limitation towards prosperity when providing an equitable existence to all inhabitants. The limit is presented by the boundaries that enter pollution and unsustainable production: thus, the Municipality reports as a goal to maintain production and distribution within the model, without overarching the boundaries that are presented as outside the centre of the doughnut. Examples of the spillovers that are presented outside the doughnut are chemical pollution, biodiversity loss, ozone layer depletion and ocean acidification, which can all be also caused by environmentally unsustainable processes developed by the fashion industry (Circular Report 2020 – 2025; Noris et al., 2014). Moreover, the Municipality of Amsterdam reports that, based on the five value chains distinguished by The National Raw Materials Agreement, the city focuses on three chains that impact the circular economy: food and organic waste, consumer goods, and built environment. Since the focus of this study is the denim industry in Amsterdam, the emphasis is on policies created for the circular development of 'consumer goods'. As stated in the report, from the value chain, the Municipality aims at creating initiatives for the trading and reuse of materials in order to enhance circularity within the textile economy. In the Amsterdam Circular 2020-2025 Strategy, the Municipality reports the city's objectives and actions to make Amsterdam circular. The report presents the ambitions and objectives of the city of Amsterdam: by 2030 the city aims at decreasing the use of raw materials up to 50%, aiming at becoming fully circular by 2030 (*Table 1*).

Table 1. Amsterdam’s circular economy objectives (Circular Report 2020 – 2025).

General objectives	By 2030, use 50% less new raw materials in Amsterdam By 2050, our city will be 100% circular.
Interim objectives	By 2022, 10% of the City’s procurement will be circular. By 2023, all of the City’s invitations to tender in the built environment will be circular.

Following Raworth’s (2017) model, the municipality takes top-down initiatives, such as setting objectives, regulations and funds while also giving space to bottom-down initiatives such as projects to foster sustainable production, distribution and consumption. The Municipality of Amsterdam reports to aim at stimulating the cooperation between organisations and innovation within businesses such as implementing education and the design of products that can be repaired and reused (Municipality of Amsterdam, 2020).

Looking in more depth, in the Amsterdam Circular 2020-2025 Strategy, the policy plan for consumer goods is reported with the following objectives. The city of Amsterdam sets the goal to work as an example by reducing its consumption while supporting circular services. Additionally, the city mentions to support collaboration and initiatives to increase the awareness to reduce consumption patterns, for instance, by promoting repair stations. Finally, from a social and cultural perspective, the city aims at increasing consumers’ awareness to increase the value of discarded but useful goods. Some of the instruments adopted by the city include spatial planning, direct financial support, benefits for collaborative infrastructures, regulations and awareness-raising through the development of platforms (Municipality of Amsterdam, 2020, p. 52, 53, 54). Thus, the instruments adopted are divided in 1) Regulatory and Legislative instruments, 2) Economic Instruments and 3) Soft instruments (*Table 2*). The first section consists of regulations, such as spatial planning, environmental assessments and monitoring, and legislations such as labelling processes, performance standards and prohibitor provisions. The second framework consists of financial incentives, subsidies, the investment in infrastructures and public-private partnerships. Finally, soft instruments consist of the investments of educational programmes, information campaigns, collaborative projects, lobbying and partnerships between the industry and the government.

Table 2. Policy Instruments (Circular Report 2020 – 2025).

Regulatory & Legislative Instruments	Regulations	Strategy & objectives Spatial planning Environmental assessment & permits Monitoring & enforcement
	Legislation	Prohibitory provisions Performance standards Technical standards Labels Other legislation
Economic instruments	Fiscal Framework	Positive financial incentives Negative financial incentives
	Direct financial support	Subsidies Circular procurement & infrastructure Debt financing
	Economic frameworks	Tradable permits Strong producer responsibility Public-private partnership
Soft instruments	Knowledge, advice and information	Research activities Educational Programmes Information campaign Capacity building
	Collaboration platforms and infrastructures	Data and information exchange platforms Matchmaking platforms Participation platforms Living labs
	Governance	Institutional design Public-private partnership Voluntary agreements Lobbying

While these policies can be applicable to the general consumer goods sector, regulations to increase a sustainable and circular production within the denim sector in Amsterdam are also relevant. Fundamental for this study is the ‘Denim Deal’, an initiative created by James Veenhoff and Mariette Hoitink, co-founders of The House of Denim Foundation, who created an international network of parties from both the denim industry and the government to tackle sustainability and circularity challenges related to the sector. The Denim Deal unifies various parties to simulate the production of sustainable denim. Stakeholders who participate set the goal to develop three million denim jeans with a minimum of 20% of recycled garments.

Among the firms that agreed to the Denim Deal are KOI International B.V., Kuyichi B.V., MUD Jeans International B.V. and Scotch & Soda B.V. (Government of The Netherlands, n.d.). This information is relevant for this study since the fact that companies are involved in the Denim Deal might influence their perspectives and actions toward sustainability and circularity. The strength of the Denim Deal consists of the fact that a variety of stakeholders participated and decided to collaborate, such as the government, retailers, production companies, brands and weavers.

Another initiative developed by the Municipality of Amsterdam that is relevant for this study is the ‘Amsterdam Green Campus’, a non-profit organization of the University of Amsterdam that focuses on providing an educational platform to increment social awareness regarding the topics of sustainability and circularity related to the city. Overall, based on the doughnut model, the City of Amsterdam reports to promote sustainable practices and circularity for consumer goods while pushing educational platforms to increase consumers’ and producers’ awareness.

4. Methods

The previous section has explored the existing literature on topics and theories that are relevant for this study such as clustering theories, the impact of the creative industries and cultural policy making, and the clustering of denim stakeholders in Amsterdam. Additionally, the case study of Amsterdam's policy making to increase sustainable and circular initiatives within the fashion industry has been explored as relevant since it may foster the crowding in of sustainable circular initiatives and sustainable businesses that strengthen the denim cluster in the city. Each section discussed is relevant for the study since agglomeration theories, clustering of the creative industries and the spatial formation of the fashion industry are key factors that can push towards the progress of the city and the sector analysed. In this section, the methodological approaches adopted in this study are illustrated to provide an answer to the research question: *How do denim-related stakeholders benefit from clustering in the area of Amsterdam?* and to the sub questions: *how do denim stakeholders invest in sustainability and circularity in their work?* and *how does Amsterdam's denim cluster benefit from the city's policy making?* Information regarding the research method, the choice of the sample and the process of data collection is reported. Finally, an overview of how variables are operationalised to respond to the research question is provided.

4.1. Research design

The research design provides the framework in which the collection of data takes place. The research method that best fits this study is qualitative: through qualitative research it is possible to grasp deeper layers of social and cultural phenomena such as opinions and views of target groups (Bryman, 2016). Fossey et al. (2002) point out how qualitative methods are essential to grasp meanings and experience dimensions of people. Since the denim cluster is composed of a diverse range of people who focus on different activities and implement sustainability and circularity in different ways, through qualitative data collection it is possible to better understand respondents' views and opinions while grasping meaning. This study aims at understanding the benefits of stakeholders derived by clustering in Amsterdam. For this reason, semi-structured interviews are conducted by interviewing a representative sample of stakeholders that work within denim clusters. Thematic analysis (TA) is then applied to the data in order to find, identify and analyse patterns among responses (Braun & Clarke, 2006). Thematic analysis is the most appropriate tool for this study because it reduces

a significant range of data into key themes that can overall describe respondents' views in a coherent way.

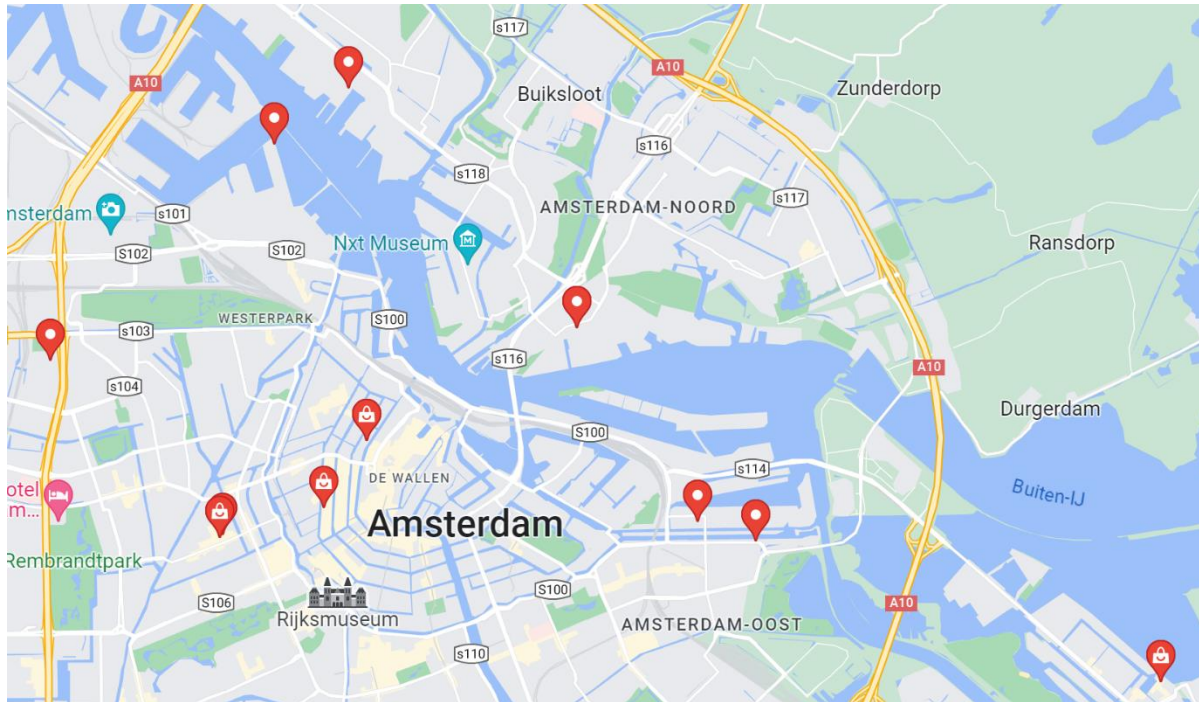
4.2. Data sampling and collection

To answer the research question about the benefits of denim stakeholders to cluster in Amsterdam, semi-structured interviews are conducted with a sample of representatives of people within the denim industry in Amsterdam, i.e. workers within denim brands and organizations, entrepreneurs and designers that focus on denim (*Table 3*). The population of the study consists of Amsterdam-based denim firms and organizations: people who work for denim and denim-related companies and organizations are interviewed regarding the topic of policy making and sustainability in the denim cluster. To define the population of this research, a mapping of the denim creative cluster is created. The mapping is categorized into three main groups. The first one consists of both Dutch and International fashion firms that focus on denim production and distribution, defined as 'Brands' (A). The second group consists of organizations that act as intermediaries, such as non-profit organizations, educational platforms educational programmes, knowledge institutions and initiatives such as events and tradeshows: these are defined as 'intermediaries' (B). Finally, the last group consists of designers, tailors and artists that focus on denim: these are named as 'independent' (C) (*Table 3, 4*). The first and the third group can overlap since designers do often work for a self-made brand. Other relevant features are taken into consideration when defining the population, such as location and their focus on denim and sustainability. 'Location' is highly relevant because of the clustering and agglomeration theories analysed. Stakeholders taken into consideration are located in the Metropolitan Region Amsterdam (MRA), which is reported as one of the top five Europe's strongest regions from an economic perspective: thus, companies should tend to agglomerate in the area to benefit both economically and socially (Metropoolregio Amsterdam, 2023). Based on these criteria, the population which represents Amsterdam's denim cluster consists of 15+ denim-related organizations. All of them are located in the central area of Amsterdam except for Mud Jeans and Scotch and Soda which are located slightly outside the centre, in Laren and Hoofddorp. *Table 3* shows the list of major firms and organizations that are part of the population while *Image 2* is a visual representation of their positioning within the Amsterdam Metropolitan Area.

Table 3. Mapping of denim companies and organizations (researcher's construct).

	Name	Location	Type of organization
A	Amsterdenim	Spijkerkade 11, Amsterdam	Brand
C	Atelier Reservé	Herengracht 442, Amsterdam	Atelier
A	Benzak Denim	Veemarkt 207, Amsterdam	Brand
A	BluePrint Amsterdam	Ferdinand Huyckstraat 26, Amsterdam	Brand
A	Denham	Prinsengracht 495, Amsterdam	Brand
B	House of Denim Foundation	Hannie Dankbaarpassage 47, Amsterdam	Intermediary
B	Jean School	Hannie Dankbaarpassage 47, Amsterdam	Intermediary
A	Kings of Indigo	Krijn Taconiskade 440, Amsterdam	Brand
A/C	Mickkeus	Bergstraat 3, Amsterdam	Brand
A	Mud Jeans	Amersfoortsestraatweg 117, 1251 AV Laren	Brand
A	Scotch & Soda	Jacobus Spijkerdreef 20-24, 2132PZ Hoofddorp	Brand
A	Tommy Hilfiger	Danzigerkade 165, Amsterdam	Brand
B	United Repair	Hannie Dankbaarpassage 47, Amsterdam	Intermediary
B	Denim Days Festival	Hannie Dankbaarpassage 47, Amsterdam	Intermediary
B	Kingpins Trade Show	Hannie Dankbaarpassage 47, Amsterdam	Intermediary

Image 2. Mapping of Denim organizations and firms in Amsterdam (researcher's construct).



As shown in the map (*Image 2*), most brands are agglomerated in the heart of Amsterdam. Particularly, the Jean School and the House of Denim Foundation are agglomerated in the same building 'De Hallen Amsterdam'.

Interviewees from the population were contacted mainly by email, LinkedIn and Instagram. Among the mapping of part of the population presented, seven agreed to be interviewed and are part of the sample (*Table 4*). Additionally, through snowball sampling and personal networks, three young designers and a freelancer entered the sample, reaching a number of eleven respondents. The sample is diverse and representative: from young designers in their 20s, established workers in their 30s to more experienced entrepreneurs and designers that have been part of the industry for many years. Additionally, their different occupations, reported in *Table 4*, such as designers, freelancers, managers and co-founders is useful since it provides a variety of perspectives regarding the topic. Thus, the sample that was chosen as representative of the population of denim-related stakeholders that comprises Amsterdam's denim cluster is diverse. For this reason, goals and objectives of each interviewee can be different since members interviewed are part of the denim cluster in various ways. While this could be a limitation since the responses can be fragmented, it can also be a strength of the research because a variety of views and different opinions emerged from the responses, developing a critical debate regarding the topic. Thus, insights from each respondent should not be transportable to other cases of members within the industry

analysed. However, although some differences on views have been spotted, patterns regarding major themes have been reported and are therefore discussed in the results section.

Interviews were conducted both online and offline based on the preference of the interviewee. Online interviews were conducted through Zoom or phone call. Offline interviews were conducted in either the office or atelier of the interviewee. All interviews were conducted in English and lasted within a range of time from 40min to 1h and 30min, adding up to more than 10 hours of data collection. Bryman (2016) points how, within research, ethical concerns must be taken into account for the privacy of respondents. Thus, each respondent formally agreed to be recorded and that their name could be used for the purpose of this research.

Table 4. Overview of the sample.

	Name	Brand/Organization/Atelier	Position	Setting
C	Carel van Wijk	Denim City / Nudie Jeans	Tailor/Designer	Online
C	Florian Regtien	Private atelier/studio	Artist/Designer	Offline
B	James Veenhoff	The House of Denim Foundation / Jean School	Co-founder	Online
A	Jason Denham	DENHAM the Jeanmaker	Founder	Offline
C	Marco Blažević	Hvmble Hvstle Patchwork Family	Founder/designer	Online
A	Mariska Stolwijk	Kings of Indigo	Manager	Online
A	Lennaert Nijgh	Benzak Denim Developers	Founder	Online
C	Leon Blok	Freelancer	Designer	Online
B	Mariette Hoitink	The House of Denim Foundation / Jean School	Co-founder	Offline
A	Mick Keus	MICKKEUS	Founder/designer	Offline
C	Sam Cruden	C.CRUDEN S.A.MPLE	Designer	Online

An interview guide was created based on four major themes that are relevant for this study (see *Appendix B*). *Table 5* is a visual representation of the structure of the interview, showing

the major themes that underlined the questions. Firstly, an introduction to the interviewee was provided. Secondly, clustering theory applied to the respondents' case was investigated through open questions regarding the reasons and benefits of agglomerating in Amsterdam. Following, the subject regarding sustainable processes within the businesses and developments was tackled followed by questions on the benefits of policy making and opinions on governments intervention (see *Appendix B*). Since the semi-structure allows the interviewee to elaborate on answers, a great deal of space was given to respondents to talk about topics that were relevant for them (Babbie, 2008). This was useful since it allowed for in-depth interviews, which permit “the researcher to explore fully all the factors that underpin participants' answers: reasons, feelings, opinions and beliefs” (Legard et al., 2003, p. 141). Thus, reflexivity was taken into account in order to make sure that the researchers' views wouldn't affect the interviewees' answers (Holstein & Gubrium, 2012). Reflexivity was applied by being aware of biased ways of thinking and asking open-ended questions that could limit the researcher's influence on answers.

Table 4. Outline of the interview guide.

1	<i>Introduction</i>	Questions regarding the respondents' background.
2	<i>Clustering theory</i>	Questions regarding the reasons of clustering in Amsterdam, the opportunities and the benefits.
3	<i>Sustainability</i>	Questions regarding the implementation of sustainable processes within the businesses and creative work.
4	<i>Policy making</i>	Questions regarding the role of policy making for their creative processes and business.
5	<i>Conclusion</i>	Questions regarding objectives and future goals for their businesses.

Finally, interviews were transcribed into Word documents and analysed through the software Atlas.ti to create codes that could be then traversed in overall categories and relevant themes. The following section provides an explanation of how data was analysed and how themes emerged.

4.3. Data analysis

The analysis of data collected through semi-structured interviews is based on thematic analysis: a systematic approach of coding and categorization is adopted for the creation of relevant themes that can be helpful to answer the research question (Bryman, 2016).

Thematic analysis best fits the research's aim since it manages to categorize a large set of data derived from the interviews into fragments which are then organized into major themes. Braun et al. (2018) mention how thematic analysis can provide a "coherent and compelling interpretation of the data" (Braun et al., 2018, p. 6). Meanings are coded, organized and interpreted following the six stages presented by Braun et al. (2018). The first step consists of becoming familiar with data, followed by a second step of initial coding. Thirdly, general themes relevant for the research emerged based on the categorization of codes. Following, themes were revisited based on the codes and on theory while, finally, results were reported in relation to the research's aims and the theoretical framework. To connect data collection to the theoretical framework, data are analysed both deductively and inductively since codes emerged from raw data but then operationalised in categories that are relevant for the case study and based on theory. The reflexivity of the method allows deduction and induction to support and inform each other, shifting from an inductive analysis of codes to an evaluation of meanings based on the theoretical framework. A number of 227 codes derived from raw data were created through Atlas.ti. Among these, 141 codes were selected as relevant for the research and operationalised in four main categories: policy making, sustainability, education and ecosystem. *Appendix C* reports the codes derived from the analysis of data and the visual representation of the categorization process (see *Appendix C, D*). The overall categories (code groups) were then operationalized in four major themes that are discussed in the results section.

The following section provides the results derived from the thematic analysis of data. The results are discussed in relation to theory, aiming at responding to the research question regarding the benefits of denim stakeholders to cluster in the area of Amsterdam.

5. Results

This section focuses on providing the results derived from the analysis of the data collected through eleven semi-structured interviews. A short introduction to each company and organization analysed is provided, followed by a discussion of relevant themes and topics that emerged from the interviews and that are relevant for answering the research question *How does Amsterdam's policy making allow circular initiatives within Amsterdam's denim cluster?* and the sub questions 1) *how do denim stakeholders invest in sustainability and circularity in their work?* and 2) *how does Amsterdam's denim cluster benefit from the city's policy making?*. Three main themes that are relevant to answer the research question emerged: 1) variety of motivations for clustering in Amsterdam, 2) clustering as beneficial for sustainability and circularity, and 3) investing in education and infrastructure to foster clusters and sustainable processes. The first theme describes the reasons and motivations of respondents to cluster in Amsterdam, both from a personal and business perspective. Secondly, the benefits of circular and sustainable developments derived by clustering in Amsterdam's denim hub are discussed. Finally, the third theme that emerged relates to discourses around the development of education and awareness within the denim cluster. Before exploring each theme, an overview of the respondents is reported to provide a better understanding of the context analysed.

The first interviewee was Jason, the founder of the brand DENHAM The Jeanmaker (Denham, n.d.). With a background in Fashion Design and Business at the University of Manchester, Jason mentioned how he took a “job working for a fantastic St. Martin's designer in London”, after which he started working for Pepe Jeans: “in the UK, there was Pepe, it was the main one”. Jason remarked how he moved to Amsterdam when relocated by Pepe Jeans, the brand he had previously been working for. [Pepe Jeans] “decided that they wanted to relocate to Amsterdam. And that's how I moved to Amsterdam”. When based in Amsterdam, he established a denim consultancy agency named Clinic+ and in 2002 he co-founded the label Blue Blood. In 2007, Jason sold the company and started Denham: “I started Denham because it's my family name and I knew it's what I wanted to do. And I took all the good learnings from my Blue Blood experience and my consulting experience. And then I started this brand”. With a great passion for premium quality denim, Jason works with advanced mills and companies that focus on high quality materials, such as the Italian denim mill Candiani, which is well-known for its attention to sustainability, quality and innovation:

we work very well with advanced denim and I think it's probably one of the more sustainable mills in the world today. You know, so we try and learn from these guys and partner together and do what we can to keep to making the product as long lasting and as sustainable then as ethical as we can (Jason).

Today Denham has a wide global network, with stores located in more than twenty countries, including Japan: “I opened a beautiful store in 2010 in Daikanyama in Tokyo because for me, Tokyo is the real Denim capital of the world”. With a passion for good quality denim and for Japanese culture related to denim, the goal is to have a positive impact within the denim market (Denham, n.d.).

The second interviewee was Lennaert Nijgh, founder of the denim brand Benzak Denim Developers. Founded in 2013, the company focuses on creating high-quality made-to-last garments, prioritizing craftsmanship and time-less designs (Benzak Denim Developers). As Lennaert remarked “we have a high focus on raw denim”, highly sustainable since it minimizes the washes and waste of water. After studying at the Amsterdam Fashion Institute (AMFI) and graduating with a project related to denim, he started working for other companies while building up his brand. He mentioned about building “my own brand on the side while also working for other companies”. Their production is done in well-known transparent environments, such as mills in Italy or in Japan as he mentioned:

we still use beautiful fabrics, both from Japan and from Italy. And the construction is like really tight and really good. So you get like a high quality basic product for that [...] it's all made in either in Europe or in Japan [...] so it's fairly transparent, we have a good understanding of the source of the materials, we have visited our factories on a regular basis, we are actually inside like literally inside the factory where they are sewing our jeans (Lennaert).

Moreover, interesting insights for the research emerged from the interview by Mick Keus, founder of the denim Atelier MICKKEUS. With a background in Fashion and Design at the Amsterdam Fashion Institute (AMFI), Mick started his own brand and atelier in Amsterdam in 2012. On scheduled appointments, customers can buy his upcycled jeans. Pushed by a great passion for the Levi's 501 jeans, he adjusts vintage pairs found at kilo sales, creating new fits that can be reused by consumers. He mentioned: “the first jeans I made was a Levi's and I just fell in love with it. And I think it's the best quality and the best fit for everybody.

And the easiest to adjust to another model, another pair, other size”. In line with Gordon (2010), the Levi’s 501 model is socially viewed as the classic long-lasting pair. Customers can request specific adjustments and denim repairs. MICCKEUS is an interesting case because it manages to introduce circularity: vintage jeans are locally bought, and a new life is given to them.

Two of the most innovative and impactful initiatives in Amsterdam are The House of Denim Foundation and Jean School. The House of Denim Foundation is a non-profit organization that aims at promoting the industry as well as building a network for collaborations and projects while training the next generation regarding innovation within the denim industry ‘Towards a Brighter Blue’ (House of Denim Foundation, n.d.). As an initiative created by James Veenhoff and Mariette Hoitink, the platform is defined as an innovation campus where students, designers and people from the industry can be educated regarding denim and sustainability, collaborate, and become part of projects. The platform is physically located in Denim City, a hub that not only contains a shop and showrooms but also sewing and washing machines, innovation technologies such as laser machines as well as a classroom for students and an archive. Denim City is also the location for the Jean School, an innovative educational platform created by The House of Denim Foundation and ROC Amsterdam to train students to become designers and industry professionals (Jean School, n.d.). Additionally, The House of Denim Foundation offers courses to develop craftsmanship’s skills and knowledge regarding the industry to students from other academies or educational institutions. As Mariette mentioned “we are a non-for-profit foundation, we have no other goal than educating the next generation. And the next generation of both industry and students. It’s like end consumers. So, it’s three groups that we are here for education”. Thus, The House of Denim Foundation is a platform that manages to connect various stakeholders such as students through the Jean School and the courses offered, workers from the denim industry through collaborations, and policy makers through initiatives such as the Denim Deal. In line with Scott (2002), the fashion industry is not only created by the agglomeration of the creative class but also by the emergence of infrastructures and institutions that promote trainings and innovative developments in the sector.

Another unit of the sample is composed by Leon Blok, designer who created his own studio named LEBL. As a freelance designer, Leon focused on creating tailored denim garments on measure and demand of the consumer. According to Leon, fashion should be about products and their quality rather than focusing on concepts. He decided to quit the fashion industry “because it’s just too much hate instead of love” and due to a rejection

towards the overproduction and overconsumption of masses, mentioning that “people have so many clothes, [...] like for me there's still no use of like sustainable goods because what's sustainable about like having so much of everything?”. Nowadays, Leon mainly works as a carpenter but is also involved in other projects such as teaching skills in an Art Academy and as building décor for films.

Interesting insights derived also from the designer Sam Cruden. While Sam lives in Rotterdam, she is highly involved with the denim industry and the initiatives that are based in Amsterdam and therefore relevant for this research. After graduating from Willem de Kooning Academy and working for international brands such as Diesel and Kuyichi Jeans, Sam is currently working as a designer for her two brands C. CRUDEN and S.A.MPLE. Sam remarked on how she likes working with denim because it is “very individual” and because it “fades in life”, becoming a very personal garment. Additionally, she also stated how she likes to give meaning to products that are meaningless: by doing upcycling projects and giving a personal touch to garments, she manages to give life again to clothing: “it was always my interest, to make from existing garments of existing products something new in another context”.

Finally, two young designers and a tailor were interviewed. The first one is an Amsterdam-based artist named Florian Regtien. After doing a one-year course at the Jean School, Florian opened his Atelier in De Pijp, the neighbourhood of Amsterdam that inspires him the most as he created the symbol of a pipe as his logo. Showing his love for Amsterdam and attachment for the neighbourhood, he mentioned:

I'm from De Pijp. I've been extremely proud of it. And I just, I'm in love with my neighbourhood and the city. And then when I was like seventeen, eighteen, nineteen I created this. Yeah, this smoking pipe figure. And I just wanted to express this, express this pride. So I started sewing it once with jeans or painting it onto jeans. And from that I just couldn't let go of this logo. It's the signature (Florian).

Florian works in his atelier, mainly focusing on denim garments but also sculptures and canvases while doing other projects to become more familiar with other crafts and disciplines. The second young designer interviewed is Marco Blažević. Graduated from ArTEZ Fashion Academy and winner of the fashion show Lichting 2021, Marco established his own brand Humble Hustle, an up-cycled streetwear clothing brand. Additionally, he created and is part of the collective The Patchwork Family, a fashion community that

connects designers with artists. While each member of the collective has creative freedom in designing and creating garments, the foundation of the collective relies on a strict focus on up-cycling. The last interviewee was Carel van Wijk, a designer and tailor who graduated from Jean School and is currently working as a tailor for Nudie Jeans in Amsterdam. As Sam, also Carel revealed that what he likes about denim is that it ages: “what initially made denim really appealing is that it ages and stuff. The indigo, like the whole story behind that is really cool as well”. Thus, with a passion for denim materials, Carel focuses on craftsmanship and the repairing of jeans while designing some products for close friends.

The following sections reports the findings derived from the semi-structured interviews with the sample previously reported. Three major themes that can help to respond to the research question emerged. Each theme is analysed in relation to theory and finally in the conclusion, themes are merged to discuss the findings in a coherent way.

5.1. Variety of motivations for clustering in Amsterdam

Amsterdam is proven to be a cluster of denim related companies, organizations and designers. Both because of business reason and personal reasons, stakeholders tend to agglomerate in the area. As Lennaert Nijgh pointed out, “most of things happening around denim are here, so it made total sense to have the company as long as it's affordable to keep it here”. As Mariette stated: “we have the biggest density of denim companies in and around Amsterdam. That's the reason the brands became global brands. So we are not the biggest, but the density in such a small Global Village is huge. So global brands like G-star, Scotch and Soda [...] and big brands as PVH, Tommy Hilfiger, Calvin Klein, super big, they are here. Kings of Indigo [...] they're based in Amsterdam”. Thus, in line with Scott (2001) and Hall (1998), cities function as basis for social, cultural and economic developments since they are a “dense agglomeration of social life” during specific periods (Scott, 2001, p. 12). The dynamics and continuous shift of synergy within the city lead to innovation and cultural developments (Hall, 1998): as Jason mentioned “I think it's our job to keep our eyes and our ears open to every new development in the technology of denim. And that's changing every day. And the good thing is, we will continue to change every day”. Additionally, the development of Amsterdam’s denim cluster is influenced by spinoff dynamics. The majority of respondents have a fashion educational background, mostly from the Amsterdam Fashion Institute (AMFI) such as Mick Keus and Lennaert Night and the Jean School such as Florian Regtien and Carel van Wijk and have worked for denim related companies. For many, studying in Amsterdam influenced their choice of living and working in the city. Others, such

as Jason Denham, moved to the city because of denim related jobs, such as the case of Pepe Jeans. As Porter (2000) discussed, “while local entrepreneurs are likely entrants to cluster, entrepreneurs who are based outside the cluster frequently relocate, sooner or later, to a cluster location” (Porter, p. 263). While the respondents do not all define themselves as entrepreneurs, they are still highly attracted by the agglomeration of companies in Amsterdam and the opportunities that the city offers. Amsterdam is indeed considered the ‘denim capital of Europe’. When trying to understand the reasons why the city is socially evaluated as the major European cluster of the denim industry, various explanations emerged from different perspectives such as social, cultural, economic and marketing reasons. As proved by the high agglomeration of denim-related industries, one of the most relevant reasons is the high number of companies that started to emerge in the area during the end of the 20th century such as Scotch and Soda and G-Star Raw. However, while the reason could be associated with Amsterdam’s tax system or proximity to the harbour and to the international Schiphol airport (Pandolfi, 2015), most of the respondents explained that the clustering of denim appeared in Amsterdam mainly due to social and cultural circumstances such as attitudes, norms and lifestyle of the Dutch population. As Jason mentioned “The Dutch wear denim all day long”. According to Mariette:

It's because denim really fits the Dutch mentality. Dutch people are very down to earth. Jason Denham always said - Dutch people wear denim for breakfast, lunch, and dinner-. We don't have the heritage in denim, but we have the innovation. Companies like G-Star really are the game-changers and have been so for a long time. By lack of heritage, you also have an advantage for innovation (Mariette).

In line with other respondents, Mick Keus also stated that he decided to move his Atelier to Amsterdam since it “is the capital of jeans”. According to him, Dutch consumers “want the jeans for a good price [...] that last forever”. Thus, he explains that his consumers, both locals and tourists, aim at investing in a good quality and long-lasting product, and that Amsterdam is the perfect city where those buyers can be found.

Thus, the casual lifestyle has been reported as one of the major reasons why the denim scene developed in Amsterdam since Mariette describes the Netherlands as a “casual country” with “casual wear”. Additionally, she mentioned the symbolic and political meanings attached to denim saying that “denim is part of our history” and that “after the Second World War, everyone started to wear jeans [...] also with the liberation of women”.

In line with Peterson and Anand (2004), human beings tend to appropriate products as an expression of personal identity or as a dialectic of resistance. Mariette explained how jeans are the symbol of freedom since they decrease the barriers of social stratification since “everyone wears jeans”. Thus, the power of denim is not only considered as an economic opportunity for the region, the brands and stakeholders but also for social and cultural meanings that are viewed as part of the garment. Moreover, Mariska from KOI mentioned that the development of denim in Amsterdam has to do with a boost of innovation and technology in the region, mentioning that “The Netherlands is always good in innovation” and that the “Dutch sustainable brands are starting in Amsterdam”. In line with Scott (2001), a dense agglomeration of creativity and innovation are shown to be indicators of the clustering in Amsterdam.

While most respondents tend to associate the clustering of denim to cultural and social circumstances, according to some respondents, the definition of Amsterdam as a ‘denim capital’ has been also created and used as a marketing tool. According to Leon Blok, it is true that the Dutch population tends to have a casual lifestyle since “jeans is just something that everyone wears here” but the whole concept around the ‘denim capital’ has been created and enforced as a marketing tool by people within the industry and the city of Amsterdam. According to him, it is “just a marketing story” and “if you say Amsterdam is the biggest denim city of the world and you put a lot of effort in that, then it will happen”. Therefore, Leon stated that different reasons created the capital of denim such as the agglomeration of companies, the casual lifestyle and a good marketing strategy. Overall, as Jansson and Power (2010) wrote, “positionality, acclaim, recognition, and reputation of places” are relevant resources for these industries and as a consequence the reputation of Amsterdam a ‘denim capital’ does indeed influence the opinion of designers, entrepreneurs and people who discover about the city’s industry (Jansson and Power, 2010, p. 891). Thus, while Porter’s (2000) clustering theory does not focus on the social aspects such as associations, beliefs and attitudes in creating a cluster, this study shows the power of social networks and exchange of beliefs in reinforcing the image of a place. Moreover, Jason Denham stated: “I think people like myself help to create that”. Therefore, a variety of reasons create the ‘denim capital’: casual lifestyle attributed to the Dutch population, the agglomeration of industries and innovation possibilities and marketing tools created by the stakeholders and the City of Amsterdam to promote the industry.

The symbolic power of a place created by discourses, lifestyle or agglomeration economies can also have a strong effect on the inspiration of stakeholders within the cluster

while attracting new creatives (Florida, 2002). In fact, “sensibilities and thematic associations” of place combined with the images of that place relate to the type of products created (Jansson & Power, 2010; Scott, 2000, p. 10). Clare (2013) refers to the relevance of place, especially within the cultural sector, in relation to both urban aesthetics and the social networks that enable clustering in a specific area. Associations are not only intangible, such as lifestyle, cultures and marketing values but also as tangible products such as architecture, parks and art (Clare, 2013). Images function as sources of inspiration that are then implemented in the final product (Scott, 2006). This can be viewed in the case of Florian Regtien’s work, which is highly inspired by the city and especially by the neighbourhood De Pijp. When talking about Amsterdam, he mentioned “I’m in love with the aesthetics, the houses, the architecture. It’s hard to say what I like, I was born and raised here, and it’s just my bubble, an extent of my body, you know?”. Additionally, he mentioned about being highly inspired by the city for his work, starting from the buildings and infrastructures to the people as “everything that happens here is one big inspiration”.

Moreover, the size of the city has been mentioned as a relevant potential for initiatives and collaborations. As Florian mentioned “it’s really big and busy. But then again, I feel like it’s so small and cute. And we’re a metropolis. But then again, I can bike from south to north and a half an hour”. The opportunities created by the size of the city have also been mentioned by Marco Blažević and Mariska Stolwijk: Amsterdam is a very international city, but it is also not as big as other major fashion cities, giving the opportunity to brands, start-ups, designers and freelancers to be able to connect.

Amsterdam as a creative cluster also impacts the emergence of initiatives that relate to the denim industry and vice versa. Many respondents mentioned the Denim Days Festival and Kingpins Show. Each person interviewed was aware of these two initiatives or mentioned them since they are the major events that connect the denim industry. Answers differed regarding how these initiatives are perceived. Jason Denham stated that he used to participate to support Amsterdam and “everything that’s going on in the city”. However, recently he stopped participating to protect marketing budgets while investing “marketing into our end consumer”. Oppositely, Lennaert mentioned that “the most beneficial part is the direct contact with the end consumer”. The two brands’ approaches for reaching the end consumer are different. Denham relies on several stores all around the world while Benzak Denim Developers sell to other stores or through the webshop. Thus, Lennaert mentioned that “these kind of events are very good for direct feedback, [...] focusing on the end consumer”. Another benefit derived from the Denim Days and Kingpins is the fact that designers can

showcase their products. Leon Blok stated that at Kingpins he could source new fabrics from Japanese suppliers while making “connections with them”. Mariska from KOI discussed the relevance of the Denim Days in allowing her brand to host some repair stations. Florian Regtien pointed out how these initiatives, especially Kingpins are quite commercial and based on brands’ promotion. However, he mentions how these events can be interesting to socialize and they can be “hopefully sustainably wise for a good cause”.

Clustering in Amsterdam is also beneficial for collaborations between brands, mills and designers. Data shows that three of the interviewees collaborated with the Italian sustainable denim producer Candiani. For example, recently Denham released a collection of sneakers in collaboration with Nike, using materials provided by the Italian mill. Jason showed the benefits from collaborating with another industry:

we learned a lot from the sneaker industry, how they function and how they work, [...] we learned a lot in terms of communication, and timing, and drops and exclusivity and all these kind of things. The sneaker world is very, very, very big. When we launched those products, we put them online. And we sold it in seconds. It was crazy. I mean, the demand for that was unbelievable (Jason).

Florian also mentioned about collaborating in a project regarding the testing of textiles produced by Candiani. To assess the materials, pairs of jeans were buried in three different locations for six weeks:

they buried jeans over the whole world. So, in the Sahara or Italian wine yards, or Amsterdam canals to see what will happen with them if they were buried in the ground for six weeks. So, for instance, in the Italian wine yards, they were completely eaten, except for the seams (Florian).

Thus, collaborations between stakeholders are also created to test materials, aiming at a more sustainable production. Additionally, Leon Blok also referred to a collaboration he made with AMFI, Jean School and Candiani which was then showcased at the Denim Days.

Findings show that Amsterdam is a real denim hub and that stakeholders highly benefit from agglomerating in the area. Multiple opportunities emerge from education, events, networking and collaborations with producers or other industries. Thus, clustering benefits denim stakeholders by allowing a competitive advantage by boosting networking,

local and international opportunities and stimulating the emergence of new designers and start-ups (Porter, 1998).

5.2. Clustering as beneficial for sustainability and circularity

Many respondents from brands focus on sustainability and circularity as part of the brand itself and their way of working. Often, they criticize the marketing and greenwashing created around the topic of sustainability and circularity:

I hate the fact that a lot of brands and people in the industry, focus only on sustainability, because for me, it's our responsibility that we should do every single day, we should always try and be better every day. And we should always do everything that we can to be as ethical and as sustainable as we can. And I think that's in denim brands in lifestyle, in everything that we do (Jason).

Jason Denham remarked that it is the producers' job to "work with a very high quality, high standards ethical factories". Additionally, he criticised the discourses presented by the media regarding denim and sustainability because, according to him, consumers expect brands to work in an ethical and sustainable way, in disregard of the industry or garments produced. Florian Regtien also expressed his opinion regarding the topic of sustainability in his work, mentioning that he tries to not make it as "the main subject" since "it should be evident that it's there". As an artist, his interest is to make art that conveys a message: some of his work does indeed address the topic of the environmental crisis but this should not be the focus but an underlying process that should just be naturally present in the production and distribution of artworks and garments. Thus, both designers and workers within denim related organizations mentioned that sustainability and circularity are part of what they are doing since they focus on creating high quality products that should last long. For this reason, their view regarding what 'sustainability' is differs based on the product and production processes. Leon Blok described the word sustainability as a "bit of a dirty word", mentioning that, according to him, focusing on lifetime products is then sustainable. For this reason, he started questioning what sustainability is:

My question is like, okay, what is sustainable? [...] When you recycle plastic and you make something out of it, so you go to all the steps of getting the plastic, make it into a

yarn and knitted into like a t-shirt, and then it breaks in six months. Is that a good concept? [...] if we start using less, if we make good products like repairable products, if we make decent quality stuff, then we don't have to focus so much on all these things they focus on now (Leon).

Moreover, Lennaert focuses on the concept of sustainability and criticizes society's emphasis on new technologies rather than aiming at creating durable products. Therefore, he stated: "my waste is more sustainable because we don't wash at all. [...] So, all these techniques to age it or to use lasers and whatever, great that it exists, but we don't care because we don't have to use it". Benzak Denim Developers focus on raw denim, which, according to Lennaert, is more sustainable since it decreases the number of washes used, saving a large amount of water. Another approach used when aiming at becoming more sustainable within the denim industry is up-cycling, which is the closest to Raworth's (2017) model. As part of the Patchwork Family, Marco Blažević focuses on creating collections of garments that derive from upcycled projects, re-using already existing materials. An example he mentioned is through a collaboration with Mariette Hoitink from The House of Denim Foundation. Marco stated that Mariette helped him by providing second-hand Denham jeans and letting him use the laser machinery from Denim City. According to him, upcycling should not be done on wearable good quality materials but should be used to fix waste and give life to new clothes. This is in line with Sam Cruden's approach since she also takes "existing garments" to make "something new in a different context". Additionally, Mick Keus's approach is highly circular since he readjusts and upcycles Levi's 501 that he finds in thrift shops. However, he mentions that he does not do this for a sustainable cause but just because of his passion for the jeans, stating: "I don't do it with the purpose. Okay, this is sustainable, so, it is good. [...] I will never make jeans from new and use so much water and the cotton".

Lennaert wrapped up the concept of awareness regarding ethics and sustainability during production, stating that "if I have to do a choice between these, a more sustainable variant and a less sustainable variant and that more sustainable variant is more expensive, I would still go for that one". The concept to invest in more sustainable options even if not the most profitable from a monetary short-term perspective is in line with Raworth's (2017) doughnut model since the focus is not on profit making but rather on returning positive spill overs to both society and the environment, shifting the "image of economic progress from endless GDP growth to thriving-in-balance in the Doughnut" (Raworth, 2017, p. 53).

The variety of discourse and opinions regarding processes to produce and distribute in more sustainable and ethical ways is highly context dependent and hard to generalise. In line with Henninger (2016), sustainability aims at minimizing environmental pollution while ethically tackling conditions of workers and is therefore a highly broad concept that can be tackled in a variety of ways. For this reason, it can be hard to create general policies that work for each stakeholder analysed. However, Jason argued that since Amsterdam is defined as the Denim Capital, the city has a “big responsibility to support that industry”. One of the policies that have been implemented within Amsterdam’s denim cluster is the Denim Deal. As part of the sample, the only brand that is part is Kings of Indigo. Mariska mentioned that KOI joined the deal to implement recycled materials in their collections. However, she pointed out how it is often hard to trace where recycled products are originated and often the quality of textile is harmed and thus, by creating a different garment with a high percentage of polyester could harm the recyclability of the next product created. For this reason, it is not only about the percentage of materials recycled but also what and how textile is re-utilized. Additionally, she criticized the sorting of recycling clothes in Amsterdam since it is not based on a system that distinguishes products and materials, making it harder to recycle. Other brands decided not to be part of the deal since it is not relevant for their work as they are already implementing sustainable measures:

what I like about the circularity in my own brand is that I buy back or get back from my customers my own denim jeans. So, I know the roots. And then I fully recycle it. A lot of other people are recycling, but they don't know what they're recycling (Jason).

By recycling materials that consumers bring back, the company manages to trace the type of materials recycled rather than outsource textiles without knowing the provenience. Additionally, Jason showed that Denham is aiming at reaching circularity also within other products, such as furniture. A whole section of the office in Amsterdam is dedicated to repairing and recreating furniture that has been collected from the city. Moreover, Lennaert mentioned regarding the Denim Deal that Benzak did not join since they focus on raw denim and long-lasting textiles: “We are using already recycled material in the collection. We're using a lot of organic cotton. Wash techniques are only limited to simple rinse washes. We produce in first world countries”.

Thus, recycling policies have been viewed as not highly relevant for the interviewees since most respondents discussed the fact that they are already implementing those features. On the other hand, an investment in the sorting and recycling system of Amsterdam has been reported as necessary by other interviewees. When looking at brands, financial incentives for sustainable production have not been reported as well as monitoring from the government. However, the companies analyzed reported great satisfaction for the support given by the city to initiatives such as the Denim Days, Kingpins or The House of Denim Foundation, as Jason stated: “I think Amsterdam is incredible for supporting the denim industry” and “I think the initiative from James, and from Mariette is great with the whole denim school”. Additionally, young designers reported positive attitude towards the opportunities offered by the Dutch government, mentioning that a number of subsidies are offered to young artists and designers to rent studios or travel for projects.

However, while a positive attitude towards the city of Amsterdam as offering initiatives was supported by the brands interviewed and the young designers, Mariette Hoitink and James Veenhoff from the House of Denim Foundation and the Jean School underlined the difficulties that emerged from setting a non-profit organization and maintaining it, mentioning a limitation to the support given by the city. Mariette expressed: “we applied for several things but no one was interested at first. There was nothing from education. No one wanted to invest in what we were doing. We applied for European funding for gentrification of a neighborhood”. James also explained the hard process for starting the project of The House of Denim Foundation and Denim City, stating that the procedure to apply for public funds was “quite deadly” and, for this reason, he aimed to find some private investors by going “around to companies, brands, everyone” to ask for support for the project. After some initial difficulties receiving funding, they managed to get support from the European funding that tackles gentrification of neighborhoods and from private investors, managing to set Denim City in De Hallen Amsterdam. Additionally, Mariette remarked that “we knew what we wanted and we wanted a school, a facility, innovation, sustainability, craftsmanship, I thought we were pretty clear. But it was not clear for other people. You just have to wait for a wave when people understand it”. By combining some public funds and private investments from companies while selling courses to students and renting spaces to other companies, The House of Denim Foundation creates a space for the industry and for students to develop skills and knowledge, collaborate and inspire new generations. As Scott (2002) discusses, the development of fashion industries relies also on the emergence of institutions and infrastructures that promote the industry and innovations within the sector. Thus, supporting

these platforms can be a beneficial investment for creative sectors and consequently cities. Additionally, Mariette pointed out how the Municipality of Amsterdam is not supporting the ‘Incubator Program’, an initiative created by The House of Denim Foundation in collaboration with PVH to educate young people that do not have the chance to enter higher education degrees and have no financial means to complete their education. The program aims at helping students by offering coaching programs to enter the labor market. Industry networking and professional development are part of the course. As she mentioned, she has “twenty-five kids right now in the program, who are really the new generation and they are really infused with sustainability, circularity, innovation, they all work in the lab and craftsmanship”. Thus, the program focuses on talent and underlies the human element in order to provide inclusion and access to young students.

Findings regarding discourses around the implementation of sustainability and circularity support the clustering of denim initiatives and the emphasis on the investment of technologies to foster innovation for a more sustainable production. Creativity and innovation, as Scott (2001) points out, are relevant for the development of clusters and, consequently, for the crowding in of companies, initiatives and designers that invest in sustainable processes.

5.3. Investing in education and infrastructure to foster clusters and sustainable processes

As discussed by Mariette through the ‘Incubator Programme’ developed by The House of Denim Foundation, education has been stated by many as one of the most efficient channels to promote the industry and to increase awareness regarding sustainability and circularity within the sector. James remarked that students highly benefit from the initiatives since they “find a place where they can study, where they can develop, find themselves, be proud of what they do [and] feel worthy”. The House of Denim Foundation and the Jean School have been mentioned by many as great initiatives that manage to educate both the industry and the next generation. When talking about the benefits of the Jean School, one of the graduated students mentioned:

I feel like it's the whole big combination of it all. It's location. It's other possibilities, machine wise. So I have a lot of machines and fabrics and ways to treat the fabric. There's a lot of knowledge walking around, the people, books, etc. The teachers are great. My classmates are great. And other people who work there also have a lot of connections and this creates this crazy creative denim bubble where a lot can come from (Florian).

Most respondents, except for Mick Keus who is highly independent in his projects, have a connection or did a project with either The House of Denim Foundation or the Jean School. As Mariette discussed, “Denim City Amsterdam is the blueprint for the world. Consumers, the industry together, we created our own ecosystem”. Thus, the platform created by Mariette and James is an example of one of the most innovative projects that manages to connect and enforce the denim cluster while educating the next generation regarding topics of sustainability. When talking about The House of Denim Foundation, Sam Cruden remarked that the people working there and the teachers “have loads of experience, and their experience is combined with the new way of thinking of the new generation”. Thus, the knowledge of experienced workers combined with the “modern mentality” of students boosts innovation and creativity in the heart of Amsterdam.

Moreover, as James pointed out, “the transition [to more sustainable processes] is something that nobody can do alone” and, for this reason, James and Mariette’s organization acts as an intermediary that can connect stakeholders from both the industry and the government, impacting the market. In line with Scott (2002), clusters are reinforced by institutions and infrastructures within cities. Additionally, Potter (2009) underlines the importance of private-public investment for the development of creative sectors: these platforms embody the idea of collaboration between non-profit entities, the government and the public sphere. A need for a higher investment for educational platforms and activities to educate consumers has been manifested by Leon Blok and Lennaert Nijgh, who stated that a lot of work must be done for consumers’ awareness regarding the topic of sustainability in fashion. Leon pointed out that “people just handle with clothes like they just throw them away, there’s no emotional attachment to it. They just want to look good in that moment. And they don’t care so much after that anymore”. According to Lennaert, the problem remains in the system and how people would rather focus on quantity than quality of garments:

if people still shop there because it's cheaper, then we need to maybe put more money into educating people rather than giving incentives to brands. Because if they prefer to buy Primark because they can get like ten t-shirts for the price of one Benzak t-shirts, that's the problem, I think. And not that the small part of increasing your collection with more recycled fibers or something. I mean, that's where a lot of the change can happen as well, the consumer side, as long as the consumer doesn't buy it, then there's also no point of offering it (Lennaert).

Therefore, Lennaert mentioned how “in the end, the consumer decides”. Furthermore, Leon also discusses the relevance of educating consumers. However, he remarked that people should also be educated outside of the ‘denim bubble’, mentioning how textile should be “focused on social things, [...] creating workshops for kids, and just make it fun by taking care of your clothes”. According to him, the government should focus on implementing educational programs in schools and tackle the subject by inspiring young generations rather than just repeating numbers regarding pollution and ethical concerns: according to him “you shouldn't push, you should inspire”. By inspiring students and focusing on personal attachment to garments rather than pushing the cause by only stating the negative impact of people’s actions, the next generation can be educated to become more aware of sustainable causes not only in the denim industry but also within other sectors.

Thus, the investment in initiatives and infrastructures that promote both the industry and inspire the next generation is not only beneficial for the clustering of companies since it acts as an intermediary, but it also pushes both the awareness and the investment of stakeholders into the cause of making more sustainable denim. By investing in infrastructures and non-profit organizations that promote the industry while educating people, the city can greatly benefit both because it emphasises its image as the ‘denim capital’ and because it helps reaching the circular and sustainable goals pointed out by the Municipality.

6. Conclusion

This research analysed the case study of Amsterdam's denim cluster, aiming at answering the research question: *How do denim-related stakeholders benefit from clustering in the area of Amsterdam?* and the two overarching sub questions 1) *How do denim stakeholders invest in sustainability and circularity in their work?* and 2) *How does Amsterdam's denim cluster benefit from the city's policy making?*

The aim of the research was to investigate the benefits derived from the clustering of denim-related stakeholders in Amsterdam, investigating the motivations of brands, designers and workers that focus on denim to agglomerate in the area analysed. Academic relevance has been found in the fact that, by presenting a case study of a specific type of clustering, agglomeration economies and cluster theories can be analysed, verifying theoretical discussions with a practical example: interesting insights emerged for both cultural policy and cultural economics research. Additionally, social relevance has been supported since the in-depth interviews provided an analysis from a micro-level, which can be useful for policy makers to create regulations that can be applied on a macro-level to develop the city, its branding and the implementation of sustainable and circular initiatives as part of the Municipality's goals. Therefore, after conducting qualitative research through thematic analysis of data derived from eleven semi-structured interviews, three themes which are relevant to the research questions emerged: 1) variety of motivations for clustering in Amsterdam, 2) clustering as beneficial for sustainability and circularity, and 3) investing in education and infrastructure to foster clusters and sustainable processes.

Overall, results show that stakeholders focusing on denim-related activities greatly benefit from clustering in the Amsterdam area for a variety of reasons. Firstly, due to the Dutch culture and habits, denim has been stated as part of daily life of consumers as 'casual wear'. For this reason, the most common answer for explaining the development of Amsterdam as the 'denim capital' was not based on benefits derived from the tax system and the proximity to the harbour and the Schipol airport as discussed by Pandolfi (2015) but rather on social and cultural understandings and attitudes of the country. From an academic perspective, this result is interesting because social and cultural motifs are not analysed as being of major importance within traditional clustering and agglomeration theories (Scott, 2011; Porter, 2000). Moreover, findings show that Amsterdam is considered a highly international city while still being relatively small and, for this reason, it is great for start-ups and for creating a solid and personal network within the sector. Within the dynamic environment provided by the city, the spin off dynamic is highly relevant: knowledge is

transferred between businesses and through educational platforms such as the Jean School. The relevance of spin off dynamics and the transfer of knowledge was also proved by the fact that most respondents mentioned denim related activities such as the Denim Days and Kingpins, showing great exchange of knowledge and collaboration. Moreover, many respondents reported cooperating not only with the Italian mill Candiani but also between each other, proving that collaboration can be beneficial as a competitive advantage since it reinforces the cluster. This shows a great potential for non-profit platforms such as The House of Denim Foundation as an eco-system for brands to connect and people to be educated. Thus, this study is in line with Potter's (2009) emphasis on public-private partnerships to promote local education, creativity and innovation. Finally, young designers remarked that Amsterdam offers great opportunities and grants to start a studio, putting the spotlight on emerging artists.

Another interesting result that emerged from the interviews is related to discourses regarding circularity and sustainability within the denim industry. Most respondents mentioned how implementing sustainable processes for the production and distribution is part of the way of creating denim as a good quality product. Thus, each respondent is highly involved with adopting measures to reduce environmental pollution and unethical concerns. However, each interviewed person applied different methods to achieve this goal: this shows how sustainability is a broad term and that, depending on the context, it can be approached in various ways such as producing raw denim to reduce washes or recycling materials that are already existent but, for instance, may be of lower quality. For this reason, the discussion on how to decrease pollution in the industry is highly fragmented and context dependent. Thus, the topic should not only be analysed at a macro-level, such as approaching it only by using the doughnut model, but also at a micro-level, analysing each case as independent. This is highly relevant for policy making since policies can be context dependent and can take a variety of approaches to be applied to various cases. On the one hand, policies can focus on making sustainable goods more accessible for both producers and consumers by implementing financial incentives for companies to invest in better materials and a tax system to decrease prices of such excludable products, affecting the crowding in of sustainable initiatives. On the other hand, as mentioned by many respondents, policies should focus on investing in educational platforms and programmes that can train both the industry and the next generation 'Towards a Brighter Blue'. By creating infrastructures and promoting educational platforms that push towards good causes, consumers' awareness can be increased and the shopping of 'fast fashion' garments can be decreased. Thus, this study proves that

denim stakeholders within Amsterdam's fashion hub are all investing in sustainability and circularity in different ways and for a variety of reasons, such as to create high quality products, to give value to 'meaningless' garments or to decrease their environmental impact for ethical reasons. Furthermore, the three groups that compose the sample mentioned about benefiting from the city's policy making in different ways. While brands and companies did not find any benefits such as financial incentives or monitoring by the government, the two young designers admired the support provided by the city such as financial incentives to rent a studio or for travelling to showcase their products. Finally, the non-profit organization The House of Denim Foundation criticized the lack of support for new programmes that aim at educating the new generation.

The strong point of this study is the fact that it analyses the sector from a micro-perspective, viewing the benefits of clustering in Amsterdam and better understanding the views and opinions of stakeholders regarding the topic of sustainability, circularity and the support that the city offers. However, the major limitation remains that the sample is limited to stakeholders that are part of the industry, without considering policy makers. Thus, further research could be conducted to a sample of policy makers from Amsterdam, aiming at creating a connection between the two groups and filling the gap in the industry to better understand the needs of the city, the people and the creatives and to foster the city's growth while reducing negative environmental and ethical spillovers within society.

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Appendices

Appendix A. Overview of the sample.

	Name	Brand/Organization/Atelier	Position	Setting	Length
C	Carel van Wijk	Denim City / Nudie Jeans	Tailor/Designer	Online	0h30m
C	Florian Regtien	Private atelier/studio	Artist/Designer	Offline	01h00m
B	James Veenhoff	The House of Denim Foundation / Jean School	Co-founder	Online	01h00m
A	Jason Denham	DENHAM the Jeanmaker	Founder	Offline	00h40m
C	Marco Blažević	Hvmbly Hvstle Patchwork Family	Founder/designer	Online	01h20m
A	Mariska Stolwijk	Kings of Indigo	Manager	Online	01h00
A	Lennaert Nijgh	Benzak Denim Developers	Founder	Online	01h00
C	Leon Blok	Freelancer	Designer	Online	01h20
B	Mariette Hoitink	The House of Denim Foundation / Jean School	Co-founder	Offline	01h30
A	Mick Keus	MICKKEUS	Founder/designer	Offline	01h00
C	Sam Cruden	C.CRUDEN S.A.MPLE	Designer	Online	00h40

Appendix B. Interview guide

1	<i>Introduction</i>	Questions regarding the respondents' background.
		Aim: better understand the background of the respondent, the studies and the motivations regarding their focus on denim.
		Examples of questions: <ul style="list-style-type: none"> • When did you start working for this company/atelier? • What do you like about working here?

		<ul style="list-style-type: none"> • Since when have you started? How did you manage to get the job? Which department are you involved in? What are your main tasks? • What are your background studies? • When did you get passionate about denim?
2	<i>Clustering theory</i>	Questions regarding the reasons of clustering in Amsterdam, the opportunities and the benefits.
		<p>Aim: better understand the motivations of moving to Amsterdam, both on a business and personal level.</p> <p>Examples of questions:</p> <ul style="list-style-type: none"> • How do you benefit from being located in Amsterdam? • Amsterdam is considered the Denim Capital, do you think this influences your brand and vice versa? • Why do you think Amsterdam in particular is the Denim Capital? • Does your brand participate to denim events, such as the Denim Days/Kingpins? • How do you benefit from these initiatives? • Is it easy to start new collaborations within Amsterdam's denim cluster?/ have you done any collaborations with other brands in Amsterdam?
3	<i>Sustainability</i>	Questions regarding the implementation of sustainable processes within the businesses and creative work.
		<p>Aim: better understand whether sustainable processes are implemented, the motivations for implementing them.</p> <p>Example of questions:</p> <ul style="list-style-type: none"> • How is your brand/work implementing sustainability? • Does the brand invest in any projects or collaborations for sustainability? • What do you think should be done/is being done for sustainability and circularity within your organization (or outside)?

		<ul style="list-style-type: none"> • How do you benefit from the denim deal? Does it impact your activity? Do you believe it to be a successful policy?
4	<i>Policy making</i>	Questions regarding the role of policy making for their creative processes and business.
		<p>Aim: better understand whether the interviewee benefits from any policy implementation and their view regarding governments' intervention.</p> <p>Example of questions:</p> <ul style="list-style-type: none"> • Do you benefit from any government interventions (in general)? <ul style="list-style-type: none"> a. Regulatory and Legislative instruments <ul style="list-style-type: none"> • Was it an easy process to settle your HQ in Amsterdam? • How is monitoring being done? • How are labelling and transparency processes done with your garments? b. Economic instruments <ul style="list-style-type: none"> • Are there any financial incentives to produce in a more circular and sustainable way? • Do you receive any subsidies to implement circularity and sustainability? Or are there any other incentives (that come from outside)? c. Soft instruments <ul style="list-style-type: none"> • Do you think there are enough educational platforms about denim and sustainability? • Do you believe there should be more government's intervention to push the sustainable production or should it be more privately pushed? • Do you think there is enough talking around the topic of sustainability? Are there enough initiatives pushed by the government? • Do you believe that being located in Amsterdam allows for more circularity and sustainability of your brand because of initiatives and policies?

		<ul style="list-style-type: none"> • What do you believe the municipality should do to push the sustainable process? (if anything)
5	<i>Conclusion</i>	Questions regarding objectives and future goals for their businesses.
		Aim: give the space to respondents to better dive into relevant topics and understand their needs to gain their future goals.
		<p>Example of question:</p> <ul style="list-style-type: none"> • What are the future goals for your brand and for sustainability of denim?

Appendix C. Codebook

	A	C	D	E	F	G
1	Code	Code Group 1	Code Group 2	Code Group 3	Code Group 4	Code Group 5
3	adding value to garments					
4	admiration for th denim industry in Amsterdam		Creative Cluster			
5	agglomeration in Ams		Creative Cluster			
6	amsterdam as a secon tier fashion city					
7	Amsterdam as denim capital		Creative Cluster			
8	art vs commerce					
9	attracting international companies					
10	audience for repairing					
11	audience type					
12	awareness regarding the topic of sustainability					
13	benefits of kingpins		Creative Cluster			
14	benefits of the new generation					
15	candiani					
16	certifications of products					
17	change			ECOSYSTEM		
18	circular initiatives					Sustainability
19	circularity					
20	collaborating for transitioning			ECOSYSTEM		
21	collaboration		Creative Cluster	ECOSYSTEM		
22	colonialism/western mentality					
23	comapnies agglomerating					
24	companies as responsible					
25	consumers' awareness	Awareness and education				Sustainability
26	creating connections/ networking					
27	crowding in of sustainable industries					
28	demand for denim					
29	denim bubble	Awareness and education		ECOSYSTEM		Sustainability
30	denim city as a physical space					
31	denim days/kingpins			ECOSYSTEM		
32	denim deal				Policy	
33	denim related projects		Creative Cluster			Sustainability
34	differences between other 'denim cities'					
35	different business models					
36	differentiation of product					
37	discourse around ethical concerns of production factories					
38	distinguishing through design					
39	down to earth mentality					

	A	C	D	E	F	G
1	Code	Code Group 1	Code Group 2	Code Group 3	Code Group 4	Code Group 5
40	Dutch culture related to denim		Creative Cluster		Policy	
41	economic benefits of locating in Amsterdam					
42	education		Creative Cluster	ECOSYSTEM		Sustainability
43	enterprise and activities in Amsterdam					
44	entrepreneurial activities					
45	entrepreneurship					
46	environmental disasters					
47	events/tradeshows		Creative Cluster	ECOSYSTEM	Policy	
48	exhibition					
49	expenditures					
50	exploitation for production					Sustainability
51	fast fashion					
52	financial benefits to brands					
53	financial incentives				Policy	
54	focus on high fashion					
55	focus on the international market					
56	funding	Awareness and education			Policy	
57	gentrification fund					
58	government's support				Policy	
59	house of denim foundation	Awareness and education	Creative Cluster			Sustainability
60	Imported comment					
61	improvements for sustainability					
62	independence in design					
63	industry coordination					
64	industry in Brazil					
65	innovation	Awareness and education		ECOSYSTEM		Sustainability
66	inspiration for creativity	Awareness and education				
67	inspire	Awareness and education				
68	international experiences			ECOSYSTEM		
69	international networks					
70	japanese craftsmanship					
71	jean school					
72	labelling system				Policy	Sustainability
73	lack of monitoring					
74	lack of public support	Awareness and education				
75	limitations of the dutch market					
76	limitations to governments					

	A	C	D	E	F	G
1	Code	Code Group 1	Code Group 2	Code Group 3	Code Group 4	Code Group 5
76	limitations to governments					
77	location/atelier/studio					
78	love for Amsterdam					
79	low tax system					
80	marketing		Creative Cluster		Policy	Sustainability
81	mentality of young people				Policy	
82	monitoring				Policy	
83	need for talent					
84	non-monetary benefits					Sustainability
85	passion for denim	Awareness and education	Creative Cluster			Sustainability
86	passion for indigo					
87	passion for other art forms					
88	plans for travelling					
89	pollution of the denim industry					
90	previous education		Creative Cluster			
91	previous experience					
92	private funding				Policy	
93	public funding				Policy	
94	quality of denim					Sustainability
95	quantity of denim in Amsterdam		Creative Cluster			
96	recycled materials	Awareness and education			Policy	Sustainability
97	recycling logistics					
98	recycling materials					
99	relevance of students					
100	repair of denim					
101	responsibility of sustainability		Creative Cluster			Sustainability
102	shift of how denim is viewed					
103	social aspect of denim					
104	struggles with recycling			ECOSYSTEM	Policy	Sustainability
105	students benefiting				Policy	
106	sustainability as context dependent					
107	Symbolic power of location		Creative Cluster			
108	target group/consumer	Awareness and education				
109	the impact of the house of denim foundation			ECOSYSTEM		Sustainability
110	the making of the denim capital					
111	timelessness of denim					Sustainability
112	towards a circular economy					Sustainability
113	training the next generation					

	A	C	D	E	F	G
1	Code	Code Group 1	Code Group 2	Code Group 3	Code Group 4	Code Group 5
113	training the next generation					
114	transparency of the supply chain				Policy	Sustainability
115	turkish storytelling regarding denim					
116	unethical system of production					
117	upcycling	Awareness and education				
118	use of social media					
119	waiting time for repairing denim					
120	young mentality	Awareness and education				
121	denim in history					
122	dutch mentality					Sustainability
123	down to earth mentality					
124	modern mentality					
125	support to emerging artists	Awareness and education			Policy	
126	beauty of Ams architecture		Creative Cluster			
127	size of the city					
128	opinions on major fashion cities					
129	testing materials					Sustainability
130	arts education	Awareness and education				
131	practicality of skills					
132	lack of recycling containers				Policy	
133	attitudes of denim-related stakeholders					
134	benefits of the Jean School	Awareness and education		ECOSYSTEM	Policy	
135	knowledge spill overs		Creative Cluster			Sustainability
136	crowding in of sustainable industries		Creative Cluster			
137	lack of cooperation					
138	the Japanese denim industry					
139	admiration for Japanese denim					
140	educational platforms	Awareness and education	Creative Cluster	ECOSYSTEM	Policy	Sustainability
141	designers' independence					
142	criticism towards the media					
143	inspiring young people	Awareness and education			Policy	Sustainability
144	negatives of fast fashion	Awareness and education				Sustainability
145	exclusivity of fashion				Policy	
146	second hand shopping					Sustainability
147	individuality	Awareness and education				
148	social power of denim	Awareness and education	Creative Cluster			Sustainability

Appendix D. Code Network

