Achieving Social Innovation with Citizen Co-Creation

A Minor Field Study with a public entity in Medellin, Colombia

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This study has been carried out within the framework of the Minor Field Studies Scholarship Program, MFS, which is funded by the Swedish International Development Cooperation Agency, Sida.

The MFS Scholarship Program offers Swedish university students an opportunity to carry out two months' field work, usually the student's final degree project, in a country in Africa, Asia or Latin America. The results of the work are presented in an MFS report which is also the student's Bachelor or Master of Science Thesis. Minor Field Studies are primarily conducted within subject areas of importance from a development perspective and in a country where Swedish international cooperation is ongoing.

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The International Relations Office at KTH, the Royal Institute of Technology, Stockholm, Sweden, administers the MFS Program within engineering and applied natural sciences.

Katie Zmijewski
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Abstract

The world is facing severe and complex issues and the sustainable development challenges are immense. In order to meet the challenges, social innovation is crucially needed. Developing social innovation is however challenging and collaboration among stakeholders is an important factor to overcome this. A way to collaborate with citizens is with citizen co-creation.

The aim of this study was to investigate how citizen co-creation is used as a mean to achieve social innovation. This was done by investigating the research questions “Which factors have a positive impact on the citizen co-creation process to achieve social innovation?” and “What are the challenges of using citizen co-creation to achieve social innovation and what are the potential solutions?”.

Literature within social innovation and citizen co-creation was reviewed and a case study was performed. The case study was executed in Medellin, Colombia, together with a public entity working with the transformation of the city. A program for a citizen co-creation process called MiMedellin was studied. Interviews were performed with team members working with the program and stakeholders involved in a specific project. Secondary data regarding type of challenges and the citizens behaviour on the platform was also analysed in order to confirm information collected in the interviews.

This master’s thesis revealed a strong link between citizen co-creation and social innovation. The ways to work in citizen co-creation align with key factors in the social innovation process and citizen co-creation is therefore a mean to achieve social innovation. Factors with a positive impact in the citizen co-creation process were found to be related to ways to work, methods for citizen participation and leadership. Challenges of achieving social innovation with citizen co-creation were found to be related to trust, engagement and the complexity of the process. This master’s thesis suggests ways to overcome the challenges as well as gives practical and theoretical implications and areas for future research.

Keywords: Social Innovation, Open Social Innovation, Citizen Co-Creation, Minor Field Study, Sustainable Development Goals
Sammanfattning

Världen står inför stora svårigheter med enorma globala utmaningar. För att möta de utmaningarna är social innovation avgörande. Att utveckla sociala innovationer är däremot komplext och samarbete mellan intressenter ses som en viktig faktor för att övervinna detta. Ett sätt att involvera medborgare i samarbetet är genom citizen co-creation.

Syftet med denna studie var att undersöka hur citizen co-creation används som ett medel för att uppnå social innovation, genom att undersöka följande forskningsfrågor: ”Vilka faktorer har en positiv inverkan på citizen co-creation processen för att uppnå sociala innovation?” och ”Vilka utmaningar finns med att använda citizen co-creation för att uppnå social innovation och vilka är de potentiella lösningarna?”

Litteratur inom social innovation och citizen co-creation granskades och en fallstudie genomfördes. Studien genomfördes i Medellin i Colombia tillsammans med en statlig organisation som arbetar med transformation av staden. Ett program för en citizen co-creation process som kallas MiMedellin studerades. Intervjuer genomfördes med gruppmedlemmar inom programmet och intressenterna som deltog i ett specifikt projekt. Sekundärdatalar för tidigare utmaningar och medborgares beteende på plattformen analyserades även för att bekräfta information som samlats in i intervjuerna.

Denna masteruppsats avslöjade en stark koppling mellan citizen co-creation och social innovation. Arbetssättet inom citizen co-creation går väl samman med nyckelfaktorer i processen att utveckla sociala innovationer. På det sättet är citizen co-creation ett medel för att uppnå sociala innovationer. Faktorer med en positiv inverkan på citizen co-creation processen var kopplade till sätt att arbeta, metoder att involvera medborgare och ledarskap. Utmaningar med att uppnå sociala innovation med citizen co-creation var kopplade till tillit, engagemang och processens komplexitet. Denna masteruppsats föreslår sätt att möta utmaningarna och ger även praktiska och teoretiska implikationer samt områden för framtida forskning.

Nykterord: Social Innovation, Open Social Innovation, Citizen Co-Creation, Minor Field Study, Sustainable Development Goals
This thesis is the result of the master’s degree Integrated Product Design within Innovation Management and Product Development at Royal Institute of Technology, KTH in Stockholm, Sweden. The study was performed from January to June 2019, together with the public entity Ruta N in Medellin, Colombia. It was carried out within the framework of the Minor Field Studies Scholarship Program, MFS, and was funded by the Swedish International Development Cooperation Agency, Sida.

We would like to express our sincere gratitude to the ones that have made this study possible. To our supervisors at Ruta N, Jaime Rugeles and Paola Pollmeier, for giving a great support and contacts for the interviews. To the participants in the study for taking time to contribute with expertise and experience within the field. To our academic supervisor, Jennie Björk, for the valuable support and feedback throughout the process and for ensuring academic quality of the study. Finally, to Sida for funding the study and providing a valuable preparation course.

Mimmi Isacsson Larsson and Jasmin Sabir Tairlbahre
Stockholm, June 2019
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1 INTRODUCTION

The world is facing severe and complex problems such as violent conflicts, refugee crises, urbanization and environmental issues (van Wijk, Zietsma, Dorado, de Bakker, & Martí, 2018). Sustainable development challenges are immense as billions of citizens in the world are living in poverty (United Nations, 2015). Countries are working together towards achieving a more sustainable world. 2030 Agenda for Sustainable Development has gathered world leaders from poor, rich and middle-income countries to together fight poverty, inequalities and tackle climate change. 17 Sustainable Development Goals (SDG) with 169 associated targets were developed in September 2015 in the UN Summit, where world leaders pledged common action and effort towards achieving the goals (United Nations, 2015).

Innovation is one of the 17 building blocks in the SDG’s and is seen as an important factor to achieve a more sustainable world (United Nations, 2015). Social innovations are new ideas that aim to meet social needs (EU, 2014; Mulgan, 2006; Howaldt & Schwarz, 2010). Social innovation is suggested as a way to, among others, overcome the challenge of achieving economic growth (Mulgan, Tucker, Ali, & Sanders, 2007). To realize social innovation is however described as challenging and the special conditions of social innovation must be considered in the development (Brandes, Cattacin, Evers & Zimmer, 2016).

In order to develop social innovations, it is crucial to get support from a range of different stakeholders throughout the process (Phillips, Alexander & Lee, 2017). One important stakeholder is the government who has the capacity of scaling up the innovation (Mulgan, 2006). Another stakeholder is the society where the innovations often occur (Dawson & Daniel, 2010). The collaborative process is an important part of social innovation (Dawson & Daniel, 2010; Martins & de Souza Bermejo, 2015), which is also the main characteristic of open innovation (Martins & de Souza Bermejo, 2015).

Chalmers (2013) was first to introduce the concepts social innovation and open innovation together as open social innovation. Building on the concept, Chesbrough and Di Minin (2014) defined open social innovation as “the application of either inbound or outbound open innovation strategies, along with innovations in the associated business model of the organization, to social challenges” (Chesbrough & Di Minin, 2014, p.170). Openness is seen as a useful way to overcome barriers to social innovation (Chalmers, 2013). Santoro, Ferraris and Vrontis (2018) argue that openness in the social sector can facilitate the sharing of social solutions, improve them and make them more efficient. Including users in the development of social innovation facilitates the introduction of the solution since it is developed from a broad range of expertise (Arvaniti, Stylios & Papadakis, 2017). It also encourages the society to use the innovation and reduces the risk that it is rejected (Lenart-Gansiniec, 2016). However, the research about open social innovation is scarce and several authors within open social innovation call for more case studies to better understand the phenomenon (Martins & de Souza Bermejo, 2015; Santoro et al., 2018; Tardivo & Santoro, 2017).

Another theme in the literature focusing on including people into the innovation process is co-creation. Co-creation was according to Bason (2018) first introduced in 2004 by Prahalad and Ramaswamy and means the creation process where solutions are designed with people (Prahalad and Ramaswamy, 2004). For co-creation in the public sector, the people are citizens (Voorberg, Bekkers and Tummers, 2015). Bason (2018) means that co-creation with citizens, henceforth mentioned as citizen co-creation, is crucial to deal with social issues in the society. This, since citizens are close to the problems, they use products and services and possess valuable experience and knowledge that can be used for innovation in the public sector (Nambisan & Nambisan, 2013).

According to Voorberg et al. (2015), policy makers and politicians are evaluating citizen co-creation as a necessary condition to create innovative public services and products. Many governments operate with strict budgets and resources (Sanders & Stappers, 2008; Nambisan &
Nambisan, 2013) and citizen co-creation is seen as a way to meet the public sector’s challenges (Alves, 2013). However, the lack of proof of benefits of citizen co-creation calls for trust issues and hinders the implementation of the innovation process (Roberts et al., 2013; Voorberg et al., 2015).

Taking together, to meet the sustainable development challenges in the world, social innovation is crucially needed. Developing social innovation is however challenging and collaboration is an important aspect to overcome this. A way to collaborate with citizens is citizen co-creation which is described as crucial to deal with social issues in the society. Despite the theoretical arguments, there are very little evidence of the outcomes of citizen co-creation. Voorberg et al. (2015) review of 122 articles in the field revealed that most articles within citizen co-creation focus on influential factors and hardly any on outcomes of co-creation processes. To address this issue, the aim of this master's thesis was defined as follows: *The aim of this study is to investigate how citizen co-creation is used as a mean to achieve social innovation.*
The aim of the study is to investigate how citizen co-creation is used as a mean to achieve social innovation. In order to do so, literature within social innovation, citizen co-creation and related areas have been reviewed. Important findings are presented in the sections below.

2.1 Social Innovation

The theory about social innovation is increasing but has an unclear concept and several different definitions (Brandes et al., 2016; van der Have, & Rubalcaba, 2016). Previous research has however shown that social innovation is crucially needed to overcome the severe and complex problems our world is facing today (van Wijk et al., 2018). Through social innovation, economic growth that enhances human relationships and well-being can be achieved (Mulgan, Tucker, Ali, & Sanders, 2007).

Many articles are focusing on trying to clarify the concept and create a common definition (Cajaiba-Santana, 2014; Marques, Morgan, & Richardson, 2018; van der Have & Rubalcaba, 2016). A founder of the debate regarding the meaning of social innovation was according to van der Have & Rubalcaba (2016) the authors Moulaert, Martinelli, Swyngedouw and Gonzales in 2005. Moulaert et al. (2005) describe three dimensions of social innovation and emphasize interaction between these: changing social relations, satisfying unmet human needs and increasing access to needed resources and socio-political capabilities. Several articles that have entered the debate and are trying to define social innovation state that the goal of social innovation should be to meet social needs in contrast to maximizing profit (EU, 2014; Mulgan, 2006; Howaldt & Schwarz, 2010). Marques et al. (2018) on the other hand, argue that one definition is not sufficient and propose four categories of social innovation.

The first category called structural social innovation, refers to innovations that have contributed to wide social change. The second one, called radical social innovation, refers to activities that aim to contribute to a significant change in the production or delivery of a product or service. The third one, called complementary social innovation, refers to activities that aim to improve the production or delivery of a product or service, without radically reshaping it. The last category, called instrumental social innovation, refers to rebranding activities and initiatives in the practice, policy and academic communities. The research by Marques et al. (2018) is however new and further studies are lacking. This study will therefore be limited to the most commonly used overall definition, defining social innovation as an innovation developed with the aim to meet social needs and not to make a profit.

Many factors influence the development of social innovation and Mulgan et al. (2007) state that it often is a matter of luck if initial ideas come to fruition. The development of social innovation is described by Brandes et al. (2016) as complicated and many are therefore left behind. A reason for this is that social innovation often is treated the same way as other types of innovations even though there are special conditions that need to be considered (Brandes et al., 2016). Cajaiba-Santa (2014) describes the differences as substantial and is arguing for a new paradigm. The main distinction of social innovation is that the aim is to meet social needs and not to maximize profit (Marques et al., 2018). Beyond that, the literature is discussing several differences and factors that influence the outcome of the social innovation process. These have been categorized into process, leadership and culture, which all are crucial parts in the process of social innovations. In the coming sections, social innovation literature within these themes will be presented to serve as a base for the analysis of the studied case.
2.1.1 Process of Social Innovation

A difference regarding the process of social innovation is that the process itself often is as highly valued as the actual outcome (Marques et al., 2018). Hillgren, Seravalli & Emilson (2011) argue that even though activities do not develop into actual products or services it reveals questions and discussions that can contribute to social change in the long run. The development of social innovation contributes to challenges that require different processes than other innovations (Cajaiba-Santana, 2014).

To start with, Mulgan (2006) describes that the basic ideas often come from unfulfilled needs that are expressed by engaged or angry individuals and groups, by social or political movements or in campaigns. The ideas can also be found through thorough observations and it is therefore crucial that the innovators are good at communicating and listening to people's needs, as well as digging below the surface to understand them (Mulgan, 2006). Mulgan (2006) also accentuates the importance of brave innovators that are willing to take risks to develop solutions to human needs.

As a next step, Lettice and Parekh (2010) describe that it is crucial to determine that the ideas have a market, which can be achieved through scanning of the environment to identify opportunities and threats. These actions can also help determine the right time for the innovation (Lettice & Parekh, 2010).

When developing the ideas into social innovations, it is crucial to work iterative and be adaptive (Dawson & Daniel, 2010). To have the capacity and patience to deal with the complex and systemic challenges social innovation often entails, it is crucial to have a reflective approach (Lettice & Parekh, 2010). The innovators need to try the solutions often and adjust them quickly to the experiences (Dawson & Daniel, 2010). To do this, the environment needs to be safe so mistakes can be made with no penalty and instead result in reflection and learning (Bason, 2018).

Prototypes that are tested with the citizens are by Bason (2018) described as crucial to develop social innovation. Prototyping is according to Brown and Wyatt (2010) the core in the design process of social innovation (Hillgren et al., 2011). Bason (2018) argue that prototyping allows for dialogue about the solutions and can result in a common understanding. A prototype should be characterized by its high tangibility which can be achieved with graphical illustrations, or through virtual or physical models. Services can for example be prototyped through a service journey where all steps in the process are visualized and described in text (Bason, 2018). It is then important to try the prototypes with niche segments even if the mainstream is the object, to start with a more controlled spread of the innovation (Lettice & Parekh, 2010).

On the contrary to the adaptive and iterative approach, public organisations, where social innovation often is created, are limited by regulations and agreements that decide their activities (Bason, 2018). Governments often want to avoid risks and are therefore more likely to fund incremental innovations (Westley & Antadze, 2010). A large challenge is that politics are characterized by a short-term focus to win votes, while social innovation requires time (Bekkers, Tummers, & Voorberg, 2013).

Further on, the implementation and diffusion of social innovation is described as challenging (Baldrige & Burnham, 1975; Bason, 2018; Harrisson, Klein, & Browne, 2011). The literature discusses two actors that are important to overcome these challenges: the government and the network (Harrisson et al., 2011; Mulgan, 2006, Westley & Antadze, 2010). The government often has a crucial role in the scaling of social innovation since they have the capacity to passing laws, allocating resources and authority to public agencies (Mulgan, 2006). Regulations and legislation can make the diffusion of social innovation more effective (Harrisson et al., 2011). The government also has the possibility to raise awareness by using social marketing strategies. However, to do this, the government's ambition to truly support the innovation is crucial (Westley & Antadze, 2010). The social network also has a fundamental role for the diffusion of social innovation, given that the innovation can provide value and that it is promoted by the creators and
first users (Harrisson et al., 2011). If the solution has been developed through co-creation with the people that are going to use it, the likelihood of successful implementation increases tremendously (Bason, 2018). Mulgan et al. (2007) state that diffusion depends on two factors: effective demand and capacity to grow. The environment must provide an effective demand to get public agencies to provide contracts, charitable founders to provide resources or citizens to pay for the solutions. Several aspect influences the capacity to grow. Two key factors are to straddle different sectors and communicate (Mulgan et al., 2007).

Learning is a last important step in the process of social innovations. Due to the iterative approach, the ideas often turn out very different from the initial expectations. It is therefore important to evaluate and understand the process to be able to develop best practices (Mulgan et al., 2007). To do that, feedback on the quality of the process must be collected from the key actors involved (Bason, 2018). However, social innovation is challenging to evaluate, and the evaluation requires time (Baldrige & Burnham, 1975). To overcome this, Bason (2018) propose that two questionnaires should be sent out to the key individuals in the process, one immediately after the project and one after the implementation phase. The questionnaire can contain both closed and open questions about the process, methods, management, involvement of citizens, output, implementation and generated value (Bason, 2018). Bason (2018) also argue for the importance of actually go out and see how the project turned out, which often is under the responsibility of the leader.

2.1.2 Leadership when Developing Social Innovation

Several articles, related to social innovation, highlights the importance of leadership throughout the process (Bekkers et al., 2013; Mumford & Moertl, 2003; Mulgan, 2006). The leader needs to be flexible and play different roles in different stages in the development of social innovation (Mulgan, 2006). The early stages require visionary leadership (Mumford & Moertl, 2003), where the leader has the passion to follow through and gather people around the problem (Bekkers et al., 2013). The leader has according to Bekkers et al. (2013) the role to connect the political realm of the social innovation to collect necessary resources and increase the validity of the project. The leader also needs to have a convincing ability to receive both support and financial resources (Mumford & Moertl, 2003). Further on, the leader needs to go from a flexible approach to a more structured organization and build a robust network. For the final step the leader needs skills to scale the innovation (Mulgan, 2006). Mulgan et al. (2007) name this person a connector and argues that it often is the most important role in the whole process. Another responsibility for the leader is to provide an innovative culture in the organization (Ahmed, 1998), which is essential when developing social innovation (Mulgan et al., 2007).

2.1.3 Culture when Developing Social Innovation

The culture when developing social innovation needs to have a high openness and variety (Bekkers et al., 2013; Dawson & Daniel, 2010). Openness can help to overcome barriers to social innovation (Chalmers, 2013) by improving the solutions, facilitating the diffusion and making them more efficient (Santoro et al., 2018). Having a collaborative approach and involving multiple stakeholders to tackle social problems is introduced as open social innovation by Chalmers (2013). Chesbrough and Minin (2014) argue that using open social innovation is especially useful when developing prototypes, scaling the solutions and sustaining the innovation efforts. Collective actions by people collaborating to meet social change are however crucial in the whole process of social innovation (Cajaiba-Santana, 2014; Dawson and Daniel, 2010). Phillips, Lee, Ghobadian, O'Regan, and James (2015) state that social innovation is characterized by an interactive process where knowledge is collectively shared between a wide range of organizations and institutions that can affect the social development in certain areas. Network activities can however be challenging and to succeed, appropriate support is needed (Philips et al., 2015). Lack
of network is described as a great barrier to social innovation and is often the reason why social innovation fails (Mulgan et al., 2007). To overcome that and to produce sustainable, appropriate and relevant innovations for the society, the development of suitable networks must be addressed (Phillips et al., 2015). However, innovative ideas often origin from actors that are not centralized in the network and instead relative outsiders. It is important to consider that actors that do not know each other often result in new ideas, insights and perspectives (Bekkers et al., 2013).

Social innovation is also usually integrated in specific relationships which can make the innovation more bound to its context (Brandes et al., 2016). Compelling and inclusive social relationships are often developed among individuals and groups which can have a great influence on the involved people and can in addition facilitate establishment and diffusion of the innovation (Marques et al., 2018; Mulgan et al., 2007). However, it can also result in issues due to different experiences and interpretations of the task. To handle this, Dawson and Daniel (2010) emphasize the importance of close collaboration to be successful with the innovation. It is also crucial to have common visions and expectations of what should be achieved (Dawson & Daniel, 2010). Another tool is communication (Mulgan, 2006). It is important to have an open discussion and constructive negotiation since dialogue is a crucial part of the process of social innovation (Dawson & Daniel, 2010).

It is important to have a high diversity in the network (Bason, 2018), since diversity is a source of creativity and thereby also social innovation (Moulaert, 2013). When having a high diversity, power relations must be considered, and attention must be paid to social exclusion and weaker voices (Hillgren et al., 2011). In relation to this, the literature says that to achieve diverse input, innovation should be seen as a co-creation process with its end-users. To get support from end-users is a critical factor for the success of the innovation (Bekkers et al., 2013). It can facilitate the implementation since it is developed from a broad range of expertise (Arvaniti et al., 2017) and can encourage the society to use it which reduces the risks of the innovation (Lenart-Gansiniec, 2016). On the other hand, if the end-user feels that their input not has been considered it might have the opposite effect and they will resist the innovation (Bekkers et al., 2013).

2.2 Citizen Co-Creation

To develop social innovation, Chalmers (2013) suggests involving multiple stakeholders and have a collaborative approach, mentioned as open social innovation. Co-creation has also been described as a form of open innovation (Perks, Gruber and Edvardsson, 2012), where people are involved in the creation process (Prahalad & Ramaswamy, 2004; Sanders & Stappers, 2008, Voorberg et al., 2015). This argues for a connection between the concepts of social innovation and co-creation. This chapter will elaborate on theory within citizen co-creation.

The definition of co-creation varies in the literature. Co-creation can be seen as the creation process where solutions are designed with people (Prahalad & Ramaswamy, 2004), or as Sanders and Stappers (2008) define it, as an act of collective creativity that is shared by two or more people. Voorberg et al. (2015) review of 122 articles in the field summarizes co-creation as the process of including end-users in different stages of the production process. Perks et al. (2012) further elaborates on co-creation as the joint creation of value by the firm and its network where the outcomes of the interactions are innovations. The definition by Perks et al. (2012) is the base for this master’s thesis since its aim is to identify how citizen co-creation is used as a mean to achieve social innovation.

In the private sector, co-creation is mainly centralized between the firm and the customers (Piller, Vossen and Ihl, 2012). For co-creation in the public sector, the end-users are citizens (Voorberg et al., 2015). The inclusion of end-users in the creation process of value is described to have the benefits of access to resources, enhanced experience, cost reductions and more competitive offerings among others (Frow, Nenonen, Payne and Storbacka, 2015). Co-creation with citizens
for public services has gained attention lately because of its potential. The stakeholders involved in the citizen co-creation process can all benefit from the collaboration because insights and expertise can be shared from different angles, but also since it strengthens the collaborations (Scherer, Wimmer and Strykowski, 2015). The organizations can gain more efficiency in producing goods, learn from the citizens’ experiences and respond to problems that society face (Voorberg et al., 2015). For the citizens, it can result in higher satisfaction (Scherer et al., 2015). Co-creation is considered a crucial part in creating social innovation in the public sector (Voorberg et al., 2015). In the literature, the importance of a structure, process, understanding the stakeholders’ roles in the process as well as choosing the right methods depending on the situation have been recognized. In order to successfully manage co-creation and make use of its potential, understanding the challenges is important. In the coming sections co-creation literature within these themes will be presented to serve as a base for the analysis of the studied case.

2.2.1 Structure for Citizen Co-Creation

In order to successfully co-create, whether it is in the private or public sector, an innovation ecosystem (Nambisan & Nambisan, 2013) and an innovation platform are needed (Nambisan & Nambisan, 2013; Lee, Olson & Trimi, 2012; Frow et al., 2015). The innovation ecosystem serves as a way to gather people to co-create service offerings (Nambisan & Nambisan, 2013). The authors explain that the innovation ecosystem can be exemplified as a community, where participants from varied backgrounds are co-creating to feed the ecosystem and solve problems together. In the public sector the people are citizens, government agencies and other actors that can contribute to a shared perspective of the environment (Nambisan & Nambisan, 2013). The innovation platform on the other hand, serves as a way to gather people on a virtual or physical venue to interact, share knowledge and jointly solve problems (Nambisan & Nambisan, 2013). The innovation platform should enhance collaboration and experiences among stakeholders (Lee et al., 2012) and provide an infrastructure to support interactions, either face-to-face or online communities. The platform should create engagement between the actors and serve as a resource to enable an efficient and effective co-creation (Nambisan & Nambisan, 2013).

In order to achieve citizen co-creation, the attitude of the public officials and politicians is important. The degree to which they are positive to co-creation will affect the extent to which it happens (Voorberg et al., 2015). It is recommended to have a lead actor that focuses on the co-creation solution and chooses the co-creation that fit the context and the relevant actors (Frow et al., 2015). In a similar concept to citizen co-creation, named social government by Scherer et al. (2015), the authors explain that the government can collaborate with citizens and businesses. Also, a possibility is that the citizens collaborate with businesses with the purpose to identify, design, create, perform and share ideas regarding public and societal challenges (Scherer et al., 2015).

2.2.2 Process for Citizen Co-Creation

In the public sector, a traditional top-down waterfall-like method is often used for the production of public services. However, Toots et al. (2017) argue that this method no longer fits the context when open data becomes common in the government. Furthermore, the authors suggest an innovation process for data driven public service, aiming at producing and leading the creation of services in a more efficient and collaborative way, to fit the needs of the citizens and create customized and responsive services. The framework consists of different actors, processes and drivers that adopt an iterative and agile approach, based on methods from agile development and co-production. The different steps in the process are discovery, design, development and test in a circular process. Throughout the cycle the authors explain that close collaboration with users and the involved stakeholders is important in order to ensure quality in the developed solutions and get frequent feedback. The feedback can be received through a digital feedback mechanism integrated into the service, social media or user workshops (Toots et al., 2017).
Nambisan and Nambisan (2013) present a co-creation process for the public sector where the first step is to identify, discover and define the problem. Thereafter, the conceptualization of solutions follows, the design and development of solutions to finally end with the implementation of the solution. In a similar way, Scherer et al. (2015) define their co-creation process, social government, to support co-creation of public services, but with an addition of also monitoring and track the public services in order to know where to make improvements. In accordance with Toots et al. (2017), Scherer et al. (2015) also stress the importance of adopting an iterative process throughout the steps in the co-creation process. In Table 1, a summary of the different steps in the co-creation processes is presented.

Table 1. Summary of different steps in the co-creation processes within data driven public service, social government and public co-creation.

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<td>Data driven public service</td>
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</tr>
<tr>
<td>Discovery</td>
<td>Identification of problems and needs</td>
<td>Identify, discover or define problems</td>
</tr>
<tr>
<td>Design</td>
<td>Development of ideas</td>
<td>Conceptualize solutions</td>
</tr>
<tr>
<td>Development</td>
<td>Design of public services</td>
<td>Design and develop solutions</td>
</tr>
<tr>
<td>Test</td>
<td>Implementation of public services</td>
<td>Implementation</td>
</tr>
<tr>
<td></td>
<td>Monitoring of public services</td>
<td></td>
</tr>
</tbody>
</table>

2.2.3 Stakeholders and their Role in the Co-Creation Process

For the identification and discovery of problems in the co-creation process, both citizens and businesses can report problems and needs (Scherer et al., 2015; Toots et al., 2017). Nambisan and Nambisan (2013) name the citizen an explorer in that role, whereas Voorberg et al. (2015) and Toots et al. (2017) name the citizen co-implémente in the role. However, being a co-implémente or explorer means interacting with the government (Nambisan & Nambisan, 2013). The citizen can contribute with identifying and report problems through for example mobile apps to report local problems (Voorberg et al., 2015; Nambisan & Nambisan, 2013; Toots et al., 2017) or e-petitions if for example the citizens want to request a political change, address corruption, inefficiency or other issues. The e-petitions should then gather a number of persons in order for the government to take it further (Nambisan & Nambisan, 2013).

Another way for the citizen to be an explorer is to indirectly contribute with data to the government on potential problem areas (Nambisan & Nambisan, 2013; Toots et al., 2017). This can be done by for example letting the government collect data from citizens through mobile apps (Nambisan & Nambisan, 2013). The gathered data could then be further analysed to understand issues in the society, either by the government or by the citizen by contributing with its skills (Nambisan &
Nambisan, 2013). When the government finds the problems, the citizens’ role is then often to ideate on finding solutions (Scherer et al., 2015).

As an ideator, the citizen can give ideas on new solution to well-defined problems in the public service, often on online open innovation platforms as a contest (Nambisan & Nambisan, 2013; Scherer et al., 2015; Hilgers & Ihl, 2010). The fact that the citizen delivers the whole solution is not the important part in this role, instead to deliver the general idea that can be further refined and developed by the government or businesses (Scherer et al., 2015; Nambisan & Nambisan, 2013). Nambisan and Nambisan (2013) mean that online contests and competitions, as well as web page submissions, fit the context when the problems are narrow and well-defined. They further argue that innovation intermediaries should then help to connect organizations that seek solutions with innovators that can contribute to solutions and ideas. For broader problems, forums that facilitate sharing different perspectives of the problem or building on each other's ideas are described as necessary. That can also be done by innovation jams, a form of online brainstorming sessions (Nambisan & Nambisan, 2013).

In the third step, the design of the solution, the citizen can be a designer (Nambisan & Nambisan, 2013; Voorberg et al., 2015). Voorberg et al. (2015) mean that the local government can invite citizens to help design or develop the process of a service. Nambisan and Nambisan (2013) also point out this role of the citizen where the development of implementable solutions is done to well-defined problems in public services. Piller et al. (2012) mean that the firm then should offer the tools for making the co-design possible. When the citizen is not engaged in the design of the solutions, the ideas gathered in the ideation step of the process is further refined and developed by for example the government or businesses. It is also possible that this is being made with all three actors jointly in order to reach implementable and practical solutions (Scherer et al., 2015).

For the implementation of the developed solution, the citizen, businesses and government agencies can collaborate to implement the solution online and offline. It is also possible that citizens self-organize to implement the solutions individually or with resources from the government (Scherer et al., 2015). Nambisan and Nambisan (2013) mention the citizen as a diffuser in the role and means that the citizen itself can help to spread the innovation and solution to targeted populations. The monitoring of public services as Scherer et al. (2015) mention, citizens and businesses can provide information about how third-party companies implemented the services, if they for example got contracted by the government for the implementation. Toots et al. (2017) argue that the government and the citizen should be partners all the way from ideation to the implementation of the service and stresses the importance of an early release of the public service in order to get feedback from the users that could be improved. In Table 2, a summary of the different roles in the co-creation is summarized.

Table 2. Summary of the different roles in the co-creation process for the stakeholders

<table>
<thead>
<tr>
<th>Role</th>
<th>Task</th>
<th>How to</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explorer/co-implementer</td>
<td>Discover problem areas or contribute with data.</td>
<td>Mobile apps, e-petitions, indirectly contribute with data.</td>
<td>Nambisan &amp; Nambisan, 2013; Scherer et al., 2015; Toots et al., 2017; Voorberg et al., 2015</td>
</tr>
</tbody>
</table>
2.2.4 Methods for Citizen Co-Creation

In order to develop products and services in the public sector, different methods are suggested in the literature. The suggested methods for co-creation are both online and offline activities with the purpose to gather different stakeholders to share experiences and collaborate on finding solutions to problems (Scherer et al., 2015).

Online methods suggested in the literature are mainly focused on different types of platforms where citizens can participate in the co-creation process. Lee et al. (2012) mean that the platform is where organizations can create value since several actors are gathered. Scherer et al. (2015) describe the platform as module based, where different collaboration features, social technologies, open data and services are integrated. The platform can also have interfaces with other social network websites (Scherer et al., 2015). Charalabidis, Triantafillou, Karkaletsis and Loukis (2012) describe three generations of e-participation tools. Government websites with predefined topics that allow for discussion, social media establishment and advanced technology for opinion mining and sentiment analysis for obtaining citizen’s input in social media. Frow et al. (2015) further elaborates on different types of engagement platforms and describes digital applications such as websites that reach and allow for interaction among different actors as well as tools and products provided by for example other companies in order to connect actors continuously.

Scherer et al. (2015) mean that experts such as programmers and analysts are an important part to make a platform work. They can provide the platform with user interfaces to visualize data. Toots et al. (2017) mean that in a data-driven public service, users should be able to upload their own data, suggest changes to datasets or collect data for a service, for example through apps and sensors, in order to assure that the user is involved in the creation of a product and is listened to. Scherer et al. (2015) further elaborate on open data as a way of improving the transparency, since citizens themselves can reach the data and draw conclusions on that.

In order to ideate on solutions, a common method used by companies is what is called a broadcast search. A broadcast search is a kind of innovation contest where the organization calls on customers, users or experts to ideate on a solution for a technical challenge within a given timeframe. It is common that a award is given to the participant that generate the best solution, especially in technical problem-solving contests (Piller et al., 2012). Piller et al. (2012) argue that it is important with an award in these kinds of ideation contests since it encourages more and better customers to contribute with ideas and can increase the quality of the provided solutions. However, in regular ideation contests, awards are less common but they still attract participants. Nambisan and Nambisan (2013) mean that awards for participation is an important aspect for creating incentives for the participation, whereas Piller et al. (2012) mean that participants seem to have other motives than monetary to invest time and effort in ideating on solutions.

Offline methods described in the literature are for example physical resources, events, personnel groups and workshops with stakeholders to collaborate on specific needs and problems (Scherer et al., 2015). Toot et al. (2017) mean that workshops are the best way to include end-users in the design of services, since it combines individual ideation with group discussions. The workshops

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuser</td>
<td>Spread the innovation and solution.</td>
<td>Implement the solutions individually or with resources from the government.</td>
<td>Nambisan &amp; Nambisan, 2013; Scherer et al, 2015</td>
</tr>
</tbody>
</table>
are proposed to be repeated continuously throughout the innovation process and the different steps, in order to address issues and potential solutions for the service that is being developed. The information from the workshop can help the government to work with citizens and other stakeholders to better understand the service and its functions and goal (Toots et al., 2017).

Prahalad and Ramaswamy (2004) mean that online and offline methods should be combined in the co-creation process. Nambisan and Nambisan (2013) further stress the importance of finding the right co-creation approach to the context for the problem solving. In Figure 1, a summary of when to use the specific approach suggested by Nambisan and Nambisan (2013) is presented.

<table>
<thead>
<tr>
<th>Approach/Mechanisms</th>
<th>Duration (Short-Term or Long-Term)</th>
<th>Individual or Collective</th>
<th>Prerequisites: Data and Tools</th>
<th>Problem Partitioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contests and competitions, web-based suggestion box, etc.</td>
<td>More suited to short-term engagement</td>
<td>More suited to individual inputs</td>
<td>More suited when prerequisites are minimal</td>
<td>More suited when both problem and process can be partitioned</td>
</tr>
<tr>
<td>Workshops/brainstorming sessions: innovation jams, participatory design workshops, etc.</td>
<td>Suited for short-term and long-term engagement</td>
<td>More suited to collective inputs</td>
<td>More suited when prerequisites are minimal or moderate</td>
<td>Suited even when problem and/or process cannot be partitioned well</td>
</tr>
<tr>
<td>Data collection: Mobile apps, e-petitions, open source databases, etc.</td>
<td>More suited to short- to mid-term engagement</td>
<td>Suted for individual inputs</td>
<td>More suited when prerequisites are minimal</td>
<td>More suited when both problem and process can be partitioned</td>
</tr>
<tr>
<td>Data access and virtual tools: virtual design and prototyping tools, databases (for mashups)</td>
<td>Suited for short-term and long-term</td>
<td>Suted for individual and collective inputs</td>
<td>Suitable even when prerequisites are high</td>
<td>Suited even when problem and/or process cannot be partitioned well</td>
</tr>
<tr>
<td>Dedicated communities: data analysis communities, online citizen communities, etc.</td>
<td>More suited to long-term engagement</td>
<td>Suted for individual and collective inputs</td>
<td>More suited when prerequisites are minimal or moderate</td>
<td>Suited even when problem and/or process cannot be partitioned well</td>
</tr>
</tbody>
</table>

*Figure 1. Recommended co-creation approaches for different situations (Nambisan & Nambisan, 2013).*

### 2.2.5 Challenges in the Citizen Co-Creation Process

Nambisan and Nambisan (2013) see citizen co-creation as a necessary condition to create innovative solutions in the public sector. Nevertheless, there are still politicians, managers and professionals that do not trust the co-creation process which affects the willingness to implement it (Roberts et al., 2013; Voorberg et al., 2015). The approach of seeing citizens as companions rather than service receivers is fairly new and requires a transformation of governments to invite citizens in the creation of public services. The lack of proof of the suggested benefits of co-creation such as budget savings, increased customer interest or improved public services, is something that hinders the implementation of the innovation process (Voorberg et al., 2015).

Co-creation requires the inclusion of people that are willing to participate and that understand how and where they can have an influence on public services (Voorberg et al., 2015). Getting citizens to engage in co-creation initiatives (Hussein, Mahmoud, Mat and Ab Razak, 2017; Beltran Laguna, 2016), as well as gaining trust from citizens in collaborating with governmental authorities (Hu, Yan, Pan, Raza, Piao, 2018; Izvercianu, Şeran & Branea, 2014), has been identified as challenging in the co-creation process. Voorberg et al. (2015) and Vrabie & Tiriziu (2016) mean that all citizens should have the possibility of contributing with ideas, however co-creation initiatives have shown to attract citizens with intrinsic values such as loyalty, civic duty and the willingness to influence. The education level also affects the citizens’ willingness to contribute with ideas, especially when it comes to contributing with ideas on web-based platforms (Wise, Paton and Gegenhuber, 2012; Vrabie & Tiriziu, 2016). Vrabie and Tiriziu (2016) mean that an online platform calls for some risks. For example, if communication can be made with anonymous profiles there are risks for the uploaded content. Also, for the cases when internet is a requirement
for co-creation, exclusion of people with limited access and knowledge of how to use internet will be done (Vrabie & Tiriziu, 2016).

Citizens need to trust the co-creation initiatives. An important factor for that is to have social capital in order to fulfill the promises that the collective action is expecting (Voorberg et al., 2015). Through citizens participation in co-creation activities, challenges to scaling the projects has emerged (Gascó, 2017; Timeus, Vinaixa, Pardo-Bosch & Ysa, 2017). Limited humanitarian resources, sustainability in terms of that co-creation initiatives require an initial economic investment as well as spreading it to the citizens is something Gascó (2017) mentions as challenges.

### 2.3 Literature Framework

The identified challenges and solutions in the reviewed literature within citizen co-creation and social innovation are summarised into a literature framework in Table 3. The challenges are presented in three different categories that have been identified as being the main challenges in the process of citizen co-creation. To achieve social innovation from a citizen co-creation process, challenges within implementation, engagement and the complexity of social innovation is suggested to be considered. The literature framework was developed to structure the reviewed literature and connect the two areas of social innovation and citizen co-creation with presented solutions to meet the challenges. The aim of connecting the areas is to enrich learnings and give important implications of how to successfully involve people and other stakeholders in the process of creating social innovation.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solutions suggested by co-creation literature</th>
<th>Solutions suggested by social innovation literature</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stakeholders trust in the process.</td>
<td>- Positive approach to co-creation by public officials and politicians. - Transformation in approach to seeing citizen as a companion. - Have a lead actor that focuses on the co-creation solution and chooses the co-creation that fit the context and the relevant actors.</td>
<td>- Have convincing leadership. - Create validity for project. - Get support from end-users. - Co-create.</td>
<td>Co-Creation Frow et al., 2015; Lenart-Gansiniec, 2016; Voorberg et al., 2015 Social Innovation Bekkers et al., 2013; Mumford &amp; Moertl, 2003</td>
</tr>
<tr>
<td>Limited humanitarian resources in public sector.</td>
<td>- Iterative and agile innovation process to produce and lead the creation of services</td>
<td></td>
<td>Co-Creation Scherer et al., 2015; Toots et al., 2017; Voorberg et al., 2015</td>
</tr>
</tbody>
</table>
in a more efficient and collaborative way.  
- Utilize the network of stakeholders.

### Engagement

| Citizens engagement in the co-creation process. | - Create a community and a platform that enable an efficient and effective co-creation between different actors.  
- Citizens need to trust the co-creation initiatives. Must have social capital in order to fulfil the promises that the collective action is expecting. | Co-Creation  
Nambisan & Nambisan, 2013;  
Voorberg et al, 2015 |
|---|---|---|
| Co-creation attracting mainly citizens with intrinsic values and high education level. | - Build an innovation ecosystem/community with people with varied background. | Co-Creation  
Nambisan & Nambisan, 2013 |
| Online co-creation excludes people with limited access and knowledge of how to use internet. | - Allow co-creation on both a virtual and physical venue  
- Use workshops to include end-users in the design of services. | Co-Creation  
Nambisan & Nambisan, 2013;  
Toot et al., 2017 |

### Complexity

| Complex social relationships among stakeholders. | - Have close collaborations.  
- Create common visions and exceptions.  
- Communicate: have open and constructive discussions.  
- Pay attention to social exclusion and weaker voices. | Social Innovation  
Dawson & Daniel, 2010;  
Hillgren et al., 2011;  
Mulgan, 2006 |
| Identify unfulfilled needs and markets. | - Let citizens and businesses report problems to the government through e.g. mobile apps or e-petitions.  
- Citizens contribute with data that are further analysed to find problem areas in the society. | - Observe, listen, communicate, dig below the surface.  
- Scan the environment  
- Develop suitable networks. | Co-Creation  
Nambisan & Nambisan, 2013;  
Toots et al., 2017;  
Voorberg et al., 2015  
Social Innovation  
Lettice & Parekh, 2010;  
Mulgan, 2006;  
Phillips et al., 2015 |
| Manage complex and systematic issues. | - Work iterative: Be adaptive and have a reflective approach.  
- Prototype: Try the solution often and include users.  
- Focus on learning and evaluation.  
- Have a safe environment.  
- Co-create. | | Social Innovation  
Baldridge & Burnham, 1975;  
Bason, 2018;  
Bekkers et al., 2013;  
Dawson & Daniel, 2010;  
Lettice & Parekh, 2010;  
Hilgern et al, 2011;  
Mulgan et al., 2007;  
Mumford & Moertl, 2003;  
Murray et al., 2010;  
Santoro et al., 2018 |
| Implement and scale the projects. | - Citizens can self-organize to implement the solutions individually or with resources from the government. | - Get support from government.  
- Have a wide network.  
- Leadership skills.  
- Be open and involve multiple stakeholders.  
- Co-create. | Co-Creation  
Arvaniti et al., 2017;  
Nambisan & Nambisan, 2013;  
Scherer et al., 2015  
Social Innovation  
Baldridge & Burnham, 1975;  
Bason, 2018;  
Chesbrough & Minin, 2014;  
Harrisson et al, 2011;  
Mulgan, 2006;  
Santoro et al., 2018;  
Westley & Antadze, 2010 |

Some challenges have suggested solutions from both social innovation and citizen co-creation, while others have solutions from one of the literature areas. Some of these solutions have however not been fully developed and have no practical implications. For a number of challenges within implementation, no solutions could be found in the reviewed literature. Two of these were challenges related to the government. The government wants to avoid risk and often only funds incremental innovations (Westley & Antadze, 2010). In addition, the government often has a short-
term focus, while social innovation requires time (Bekkers et al., 2013). Another challenge without identified solutions is the lack of proof of the benefits of citizen co-creation (Voorberg et al., 2015). Gascó (2017) also mention the requirement of initial economic investment as a challenge, but no solution has been suggested.

2.4 Research Questions

The combination of the two literature areas gives important implications on how to achieve social innovation with citizen co-creation. It is however clear that there are challenges that still are unsolved, and solutions are lacking practical implications in the literature. By investigating a case with a citizen co-creation process, further implications can be made. In order to achieve social innovation with citizen co-creation it is important to understand what works well in the process, what the challenges are and how they could be solved. Accordingly, the study will investigate the following two research questions:

**RQ1:** Which factors have a positive impact on the citizen co-creation process to achieve social innovation?

**RQ2:** What are the challenges of using citizen co-creation to achieve social innovation and what are the potential solutions?
In this section, the method of the study is presented. Firstly, the research setting is described to give the reader an understanding of the context of the study. Next, the research design is described and motivated. Further on, the process of collecting and analysing the data is presented. In the last section, a critical review of the selected method can be read.

### 3.1 Research Setting

The study was performed in Medellin, Colombia. Medellin is the second largest city in Colombia and is seen as one of the main industrial, commercial, financial and service centres in the country (Universidad Pontificia Bolivariana, n.d). Medellin has however a dark history of violence and had at the end of the 20th century big issues with poverty, social exclusion and inequality. Since then, the city has undergone a great transformation that internationally is seen as a success story for urban transformation and social innovation (IESE, 2018). For its transformation to a more inclusive and sustainable city, wall street journal announced Medellin as the Innovative City of the Year 2012 (Wall Street Journal, 2013).

One of the actors working with the transformation of the city is the entity Ruta N, which the study was performed with. Ruta N’s mission is to lead the economic development of the city in an inclusive and sustainable way through science, technology and innovation. Their vision is that, based on a world-class ecosystem, innovation should be the main driver of the city's economy and well-being. To fulfil their main purpose, improving the quality of life of the citizens through innovation, Ruta N develops different programs and services (Ruta N, n.d).

A program developed by Ruta N, which was the case of this study, is the citizen co-creation program MiMedellin. MiMedellin is an open innovation strategy where citizens’ ideas can contribute to the transformation of the city. MiMedellin opens up for direct communication between the government and the citizens in an efficient, accessible and proactive way. The mission is to go from smart cities to smart citizens. MiMedellin is a co-creation process used to implement innovations in the public sector. The process allows citizen participation mainly through an online platform, but also through physical events like workshops.

### 3.2 Research Design

The research design was chosen to suit the purpose and setting of the study. The study was based on the case MiMedellin, which was selected based on relevance, accessibility and of the experience the program had within the theme. An in-depth case study is according to Dubois and Gadde (2002), the best way to understand the interaction between a phenomenon and its context. Like Eisenhard (1989) argue, a case study was well-suited since the existing theory of the research areas in the study was scarce. This, since a case study has the potential to rich empirical description and the development of literature (Saunders, Lewis, & Thornhill, 2015), which this study aimed to contribute with. A single case was used since it often results in deeper and more accurate insights (Dyer & Wilkins, 1991). With the same purpose, a project within the overall case was studied. The project was selected since it had a clear process with an actual outcome, which was important to fulfil the purpose of the study. It was also a process that was active during the time of the study which resulted in accurate information and several engaged participants in the study.

Exploratory research was conducted since it is a useful way to clarify and understand a phenomenon (Saunders et al., 2015; Sreejesh, Mohapatra, Sanjay, & Anusree, 2014). Exploratory research is also useful to determine critical issues of problems (Sreejesh et al., 2014), which was
the aim of this study. Exploratory research often focuses on qualitative approaches but can also include quantitative approaches to test ideas that have been developed in qualitative studies (Hair Jr, Celsi, Money, Samouel, & Page, 2016). Accordingly, this study was mainly based on qualitative approaches, but also included a quantitative approach. In this way, triangulation could be achieved for some parts of the result, which according to Jick (1979) can be used to enrich the result and make it more trustworthy.

3.3 Data Collection

The data collection was performed in Medellin, Colombia for eight weeks. For a case study, it is fundamental to understand the context (Saunders et al., 2015) as well as the environment before the execution of the study (Schatzman & Strauss, 1973). Jarratt (1996) means that a deeper understanding of the participant and the problems are developed when experiencing the context. In order to understand the context, the researchers lived in the city Medellin during the whole data collection. In that way, an understanding of the city and its different parts could be achieved. By interacting with citizens, both in the organizations for the case study but also with local people, the behaviour of the people and the culture of the city could be understood. Diverse guided tours in the city and visits to museums were also performed in order to get a deeper understanding of the history of Medellin, the difficult times it has had and it still going through as well as the transformation the city is undertaking at the moment. These activities were performed both ahead of the data collection, but they also continued throughout the data collection in order to learn more about the context and deepen the understanding. The co-creation platform of MiMedellin was also tested and studied before conducting interviews. The platform was tested as a user and insights were written down. This deepened the understanding of the data that was collected in the interviews.

Both primary and secondary data was collected, which according to Bell, Bryman and Harley (2018) are useful to enable comparison. The primary data was collected through interviews. Secondary data was collected from the online platform for previous challenges and the activity of registered participants. Secondary data was used since it is considered as a useful way to save time and receive data of high quality (Bell et al., 2018). A survey was also developed with the purpose to collect quantitative primary data to test and complement ideas that were found in the interviews about the citizens’ motivation and behaviour on the platform. However, it was concluded that the survey could not be included in the research due to different reasons. The case organization was responsible for sending out the survey by email. The survey was sent out late so the time for the data collection was limited to only a few days. As a result of this, the response rate was low. 33 percent of all members of MiMedellin received the email with the survey and only one percent of these answered the survey. In addition, the case organization did not communicate that the survey was to be used for research and it was therefore not considered ethically to include the answers in the report. However, the survey could give valuable feedback to the case organization and give implications on how the platform could be improved. The final data collection methods used in the research are summarized in Table 4 and described below.

Table 4, Summary of data collection methods

<table>
<thead>
<tr>
<th>Data collection method</th>
<th>Approach</th>
<th>Data classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>Qualitative</td>
<td>Primary</td>
</tr>
<tr>
<td>Secondary platform data</td>
<td>Quantitative</td>
<td>Secondary</td>
</tr>
</tbody>
</table>
3.3.1 Interviews

With the purpose to understand the process and identify challenges and learnings in the citizen co-creation process, individual qualitative interviews were conducted with two different samples. Qualitative interviews allow for rich, detailed answers that convey the participant’s point of view (Bryman & Bell, 2007).

Sample

To select participants for the interviews, non-probability sampling was applied which often is the most practical sampling in exploratory studies and suits qualitative approaches (Saunders et al., 2015). Two sample groups were chosen to be interviewed, one to get an overall understanding of the process and another to get a deeper understanding of a project. The first sample was a group of team members of MiMedellin. Some of these participants also provided data regarding the specific case project. The second sample was a group of stakeholders involved in the case project. In addition to the two sample groups, one interview was performed with a director at Ruta N to understand the connection between Ruta N and the project MiMedellin.

Within the group of team members, participants with different roles and characteristics were chosen with the help of a gatekeeper at the organization in order to gain access to desired participants. At the beginning of the study, the gatekeeper was the contact person of the researchers as well as the coordinator of the project MiMedellin. The gatekeeper played an important role in the credibility of the study and it was crucial for the researchers to build up trust in the relationship to achieve that. The gatekeeper could demonstrate the potential value of the study for the organization and in that way increase the willingness to participate in the study (Saunders et al., 2015). To build up trust, the researchers had close contact with the gatekeeper before the study, was open with the purpose of the study and made consensual decisions on the research design and the purpose of the study. When starting the data collection, the gatekeeper resigned, and a new contact person was given. It was then crucial to build up a new relationship to create a trust to be able to gain access to needed persons and data. For the group of stakeholders involved in the case project, participants with different roles and characteristics were chosen as well. These were accessed through the participants in the sample of team members.

The aim when performing the interviews was to achieve saturation. To be able to achieve data saturation multiple participants should be asked the same questions according to Guest, Bunce & Johnson (2006). This was done by developing interview guides. Fusch and Ness (2015) also describe that the gatekeeper can be used to get access to who may have the key information and thereby achieve data saturation. The participants were also asked who else could be interesting to interview in the study which made it possible to determine that the relevant persons had been reached. In addition, after performing the interviews the researchers experienced that similar information was repeated. The groups, final sample size and purpose of the interviews are described in Table 5.
Table 5. Sample groups, size and purpose of interviews

<table>
<thead>
<tr>
<th>Sample</th>
<th>Sample size</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team members of MiMedellin</td>
<td>5</td>
<td>Get a deeper understanding of the overall process, learnings and challenges for the development of the platform.</td>
</tr>
<tr>
<td>Case stakeholders</td>
<td>4</td>
<td>Get a deeper understanding of the process in a specific case with outcomes.</td>
</tr>
<tr>
<td>Director Ruta N</td>
<td>1</td>
<td>Understand the connection between Ruta N and MiMedellin</td>
</tr>
</tbody>
</table>

*Interview preparations*

Individual semi-structured interviews were conducted since they are flexible and allow focus on specific topics (Bell et al., 2018). They are therefore suitable for exploratory studies (Saunders et al., 2015). Understanding the respondents’ opinions was a crucial part in the study and using semi-structured interviews allowed the respondents to deepen their answers which facilitated the understanding of their opinions (Osvalder, Rose, & Karlsson, 2010). The interview guide in semi-structured interviews should contain themes and some key questions that need to be covered. The order of the questions can vary, and additional questions may be added during the interviews (Saunders et al, 2015). Based on that, interviews guides were developed with the aim to answer the purpose of the study.

For the group of team members, the same interview guide was used, see Appendix 1. For the group of stakeholders, the interview guides were adjusted depending on which part of the process the respondent was involved in, see Appendix 2. For the director of Ruta N, a separate interview guide was developed, see Appendix 3, since the purpose of the interview was different. The interview guides followed the funnel model, described by Voss, Tsikritzis and Frohlich (2002), starting with broad and open-ended questions continuing to more specific questions. To minimize the risks of misinterpretations when conducting the interviews and make sure that questions were asked in the right way, the gatekeeper reviewed the interview guides. Before the interviews, the participants were informed about the aim of the study and the themes that would be covered in the interview, which allowed them to prepare for the interview.

Two pilot interviews were conducted, which according to Kvale and Brinkman (2014) can improve the quality of the interview guide and improve the interview technique. The pilot interviews were conducted with two Swedish organizations working with a similar project as the case study and was therefore suitable pilot cases.

*Conduction*

The interviews were conducted in person in a calm and safe environment. The interviews with team members were mainly held in the organization's office except for two, where one was held in the participant's home and another one in a café. For the interviews with stakeholders from the particular case, the interviews were held in the organization’s office. No compensation was given for participation. The interviews were mainly held in English. However, the participants had the possibility to speak Spanish whenever needed, in order to fully express themselves. One interview was held completely in Spanish. A colleague to the participant then attended the interview so that the researchers could ask clarifying questions in English and whenever something in the interview was not understood. The interviews lasted between 47 and 82 minutes. During the interviews, both researchers participated. Both were responsible for the interview by asking questions and follow-
up questions and to make sure that all themes and questions were discussed. When feeling insecure, follow-up questions were asked in order to make sure that the Spanish was understood correctly. The interviews were also recorded to enable transcription and avoid errors. A summary of all conducted interviews is presented in Table 6.

Table 6. A summary of conducted interviews containing the role of participant, length and language of interview.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Length</th>
<th>Language</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team members MiMedellín</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication/public relation expert</td>
<td>67 min</td>
<td>English</td>
<td>Clarifying process description sent by email after the interview</td>
</tr>
<tr>
<td>Founder</td>
<td>59 min</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Open innovation coordinator 2016-2018</td>
<td>65 min</td>
<td>English</td>
<td>Clarifying process description sent by email before the interview</td>
</tr>
<tr>
<td>Product owner</td>
<td>80 min</td>
<td>English/Spanish</td>
<td></td>
</tr>
<tr>
<td>Urban Planner</td>
<td>58 min</td>
<td>English</td>
<td>Clarifying process description sent by email after the interview</td>
</tr>
<tr>
<td>Case stakeholders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Representative from analytical company</td>
<td>53 min</td>
<td>English</td>
<td>Follow-up questions asked through email.</td>
</tr>
<tr>
<td>Representative from the mayor’s office</td>
<td>34 min</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Representative from museum</td>
<td>72 min</td>
<td>English/Spanish</td>
<td></td>
</tr>
<tr>
<td>Representative from public urban development company</td>
<td>47 min</td>
<td>Spanish</td>
<td>Translator present. Follow-up questions asked through email.</td>
</tr>
<tr>
<td>Director Ruta N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director of foresight</td>
<td>62 min</td>
<td>English/Spanish</td>
<td></td>
</tr>
</tbody>
</table>

3.3.2 Secondary data

Secondary platform data was used to analyse the behaviour of the registered users on the platform. The secondary data was obtained from the organisation and extracted directly into an Excel sheet from the platform. The data included the previous challenges on the platform with its classification and the number of ideas, comments, likes and votes that had been collected for the respective challenge. The data was used for the understanding of the studied case and what types of challenges that had been performed on the platform. Data of the activity in the platform for each registered user was also accessed. The number of ideas, comments, likes and votes each participant had given was presented. The data was used to understand the participants’ activity on the platform to enable comparison with the experience of the informants.
3.3.3 Ethical Considerations in Data Collection

The study has taken ethical aspect into consideration for the treatment of participants in the study as well as in how the data has been stored. This with the goal of building trust between the participants, the case organization and the researchers (Hair Jr et al., 2016). The participants were informed about the participation rights, how the data was planned to be analysed and stored ahead of the data collection, as Saunders et al. (2015) suggest. They were also informed that the participation was voluntary and that they could withdraw from the study at any time as well as choose to not answer a question. The information was distributed both written as well as orally before the data collection started. Like Saunders et al. (2015) recommend, the participant was asked to sign a consent form, see Appendix 4, to ensure that problems for the researchers would not occur due to presentation of obtained data. The signed consent form was also a way for the researchers to ensure that the participant was fully informed about how the data was to be used and had given consent to it.

The participants’, as well as the organization’s, anonymity could not be guaranteed in the study since the organization and the roles of the participants were presented in the report. This, because that would add value and credibility to what the participants had expressed as well as to the findings in the study (Collis & Hussey, 2009). However, confidentiality was assured to the participants since it would not be possible to trace a specific expression or research data to a participant. This was important to allow bigger freedom in the respondent’s expressions (Collis & Hussey, 2009). The collected data was treated with anonymity by giving each participant an ID (Saunders et al., 2015). In this way, only the researchers could know whose transcript was whose, in case of that someone would mistakenly access the transcripts. The ID was also used to make sure that the result was based on data from different participants. When quotations were presented in the result, it was only linked to the participants’ ID. To ensure anonymity, the ID was not connected with the role of the participant in the report. The stored data was treated with confidentiality meaning that only the researchers accessed the raw data from the interviews, as well as that the records were deleted after the transcript was written (Collis & Hussey, 2009).

3.4 Data Analysis

The primary data from the qualitative study and the received secondary data were concluded into a common result, where the secondary data was used to strengthen and contrast the data from the qualitative study. The data sets were analysed separately due to their nature and the methods are described below.

3.4.1 Interview Analysis

The qualitative data from the interviews used a thematic analysis approach since it provided a systematic approach to handle an unstructured set of data from different transcripts (Saunders et al., 2015). The analysis followed the process described by Voss et al. (2002). The interviews were transcribed as a first step. This was done close after the interviews to maximize recall and allow for follow-ups to fill possible gaps. The transcripts were then coded with a short phrase so that the code summarized the key takeaway from an important extract in the transcript. The extracts in Spanish were translated to English with the help of the researchers’ knowledge of Spanish, Google translate and dictionaries. The codes were categorized within different themes that were treated in the interviews. These were among others history, process, idea selection, difficulties and learnings. Similarities and patterns in the different interviews could be found and were summarized into the final result that served for further analysis and conclusions.
3.4.2 Secondary Data Analysis

To understand the users’ activity on the platform, the secondary data from the platform was analysed. The analysis was performed in Excel, where the data was received. The number of given ideas, likes, comment and votes by each member of MiMedellin were made into four separate pivot tables. Another one was created for the sum of all ways of participating to show how many times the members had participated in some way. From these, scatter diagrams were made to show the spread of the values. As a result, groups of the members could be identified depending on the level of activity. From these groups, bar charts were made to make a clear visualization of the members’ activity on the platform. To further analyse the behaviour, it was investigated how the different types of activities were related. Since giving ideas is the main activity on the platform, the other activities were compared with given ideas. Two groups were made with the participants that had not contributed with ideas and the ones that had contributed with one or more ideas. It was then investigated how many that had commented or liked an idea or voted on a challenge in each group. A percentage was calculated, and the result was summarized into a table. The secondary data was also used to analyse the type of questions used on the platform. A pivot diagram was created from the categorization of the challenges, in order to understand the distribution of the different types of challenges that had been performed on the platform. The pivot diagram was then used to create a bar chart to visualize the distribution of the types of challenges on the platform.

3.5 Critical Review of Research Method

The study was based on a qualitative approach and included a quantitative part to enable triangulation, which is a strategy to improve the validity and reliability of the research findings (Golafshani, 2003). However, Bryman and Bell (2007) argue that qualitative studies should be evaluated on other criteria parallel to validity and reliability. Lincoln and Guba (1985) and Guba and Lincoln (1994) propose that qualitative studies should be evaluated on trustworthiness, made up of four criteria to ensure the quality of the research. Three of them were considered relevant for this study: credibility, transferability and confirmability.

Credibility refers to ensuring that the presented result represents the participants’ reality (Bryman & Bell, 2007). This has been done by asking clarifying questions and sending follow-up emails if something was unclear in the answers, so they were understood correctly. The participants had the possibility to prepare for the interview since the covered themes were introduced ahead of the interview, which strengthens the credibility (Saunders et al., 2015). The gatekeeper was utilized to validate the data by coordinating the findings during the data collection. This was apart from credibility, also a way to ensure confirmability which means that no personal values have affected the findings of the study (Bryman & Bell, 2007). Moreover, the collected data were checked with the participants to make sure that the interpretation of the results in the study represents the participants’ reality and that no personal values affected the findings of the study. Both researchers also participated in the studies which allowed confirmation of results. The interviews were also recorded to increase the confirmability. To further confirm the information, some of the collected data were compared with secondary data received from the platform.

Saunders et al. (2015) present the concept cultural of reflexivity as a way to prepare for bias and threat to reliability when the research setting is multicultural. Ways of doing it are exemplified by observing, listening and participating in informal discussions which were done by interacting with citizens and the employees of the organization when living in the city for eight weeks. Doing so, the customs of the culture could be understood which ensured a more accordingly behaviour to meet the cultural differences for the data collection.

The quality measure transferability responds to the degree which the study can be replicated (Bryman & Bell, 2007). With a full description of the purpose, the research questions, the research design, the context of the study, the findings and the resulting interpretations that are all described
in the report, the research can be replicated. It was considered important to provide thick
descriptions so that other researchers could understand the database that was used for the study in
order to design similar research projects but in a different, but suitable research setting. The
specific context of the study might limit how the findings can be applied in other contexts.
However, the empirical findings were contrasted with literature which can enhance the theoretical
significance. The findings that were new and not confirmed in the reviewed literature, were
presented as results that need to be further studied.
In this chapter, the result from the study is presented. The first sections present the result from the interviews with team members of MiMedellin, explaining the background and purpose, process, challenges and learnings of MiMedellin. In the last section, the background, process, challenges and learnings from the studied case project are presented based on interviews with the involved stakeholders. The result is further built on secondary data from the platform to contrast the findings from the interviews.

4.1 Background and Purpose of MiMedellin

When Medellin was announced as the most innovative city in 2012, Ruta N decided to extend the innovation strategy of the city in order to spread the innovative environment to every citizen. The purpose was to get innovative citizens and not just be an innovative city. A part of the strategy was to use open innovation methodologies to understand the problems that the citizens and the public sector were facing. As a result of this, a citizen co-creation platform called MiMedellin was created in 2014. MiMedellin was a new innovation approach in the public sector where the mayor's office for the first time was opening up to talk with the citizens about issues in the city. The platform was named MiMedellin (MyMedellin) to generate a sense of ownership of the city among the citizens. Through the platform, the citizens could be a part of transforming the city with their own ideas.

As a result of a huge marketing campaign through social media, offline activations in different parts of the city and with the help of secretaries in the mayor's office, 22 thousand people were registered on the platform a year after it was launched. MiMedellin won several awards, both international and national, and it was decided to be shared with other cities. To do that, a conference with 1200 participants from all over the world was held in 2015 with the aim to connect cities and discuss the challenges the world was facing. As a result of the conference and the success of MiMedellin, Ruta N developed Cities for Life. Cities for Life is a program were experts, citizens and students from all over the world can be connected through local platforms in each city, called MyCity. With Cities for Life, an innovation process was developed for MyCity to make it a whole program to include citizens in innovations. In the program, strategies for involving citizens in the different parts of the innovation process were developed and, in excess of the platform, different types of workshops were included. One informant expressed it as:

"Why not connect and share that and use co-creation and open innovation methodologies to solve everything faster, with less resources, more transparency and in the most environmentally friendly and collaborative way. For me that is the only way to thrive as human species."

- Informant 3

Before spreading Cities for Life to other cities and enlarge the network, the goal was to make the program sustainable and get strong in Medellin. The outcomes from MiMedellin had resulted in products, but not innovations since there had not been a market for the developed products. When a new mayor was selected in Medellin 2016, the program did not receive any funds and almost died. To generate income, it was decided to start selling the program to other cities interested in solving city challenges. Platforms were started in four other municipalities: Zapopan (Mexico), Quito (Ecuador), Santander and Envigado (Colombia). In 2016, it was also the first time a company paid for using MiMedellin, which allowed for money to be invested in the program.

Since then, the focus has been on making the program more sustainable, focusing on MiMedellin. Several parts of the innovation process have been and are being developed. MiMedellin is today a
citizen co-creation process where citizens can contribute with ideas that can be used to solve city challenges. The process is described as an effective way to open up for communication between the citizens and the government which can facilitate decision making in the city. Criticism can be transformed into actual solutions that can improve the city. In addition, hidden human talents can be found. However, the aim is not only to solve challenges and implement ideas but to bring people together and do something for the city. As one informant in the study expressed:

“We wanted to create a project that was not only to solve a challenge. It was aimed to bring people together and to do something for the city. Normally, you don’t need like a huge resource to do that transformation, you just need something that bring people together.”

- Informant 3

Stakeholders from both the public and private sector can be involved in the process. By using MiMedellin, the informants expressed that the public sector can be transparent by showing which challenges they are working with. The co-creation process is described as an important way to empower the citizens by showing that the public sector believes in them and that their inputs are important. To give the citizens a voice has also gained Medellin a reputation which has increased the interest of the city in the world. In addition, the government can generate useful data, both qualitative and quantitative. Transparency is also important in the private sector and the process is described to be used to show openness for the citizens and show that their input is of value. The informants also described that it also is a chance to create real impact in the social environment and in a fast way to be able to see results. In addition, the actors will access a large community where they can get new ideas and validate solutions.

4.2 Citizen Co-Creation Process of MiMedellin

The citizen co-creation process around MiMedellin contains different activities. The activities in the process are presented according to categories that were encountered during the interviews and in received documents about the process. The categories are problem identification and challenge formulation, citizen participation in the co-creation process, idea analysis and development of solutions.

4.2.1 Problem Identification and Challenge Formulation

The process starts with the problem identification, which is based on the topics that Ruta N, together with the local government, have decided to focus on. A problem within a topic is identified based on objective information from institutions or open data obtained from the local government. As a next step, actors that can help solve the problem are invited to participate in the process. Together with the actors, the problem is transformed into a challenge where the citizens are invited to participate. A challenge consists of a description of the problem and a question that the citizens can answer.

The description of the challenge is seen as crucial by the informants. It is described that the citizens often just have the perception of the problem and they must therefore be provided the needed data. They could for example be given statistics to enable comparison with other cities. It is considered important to empower the citizens with information, so they can participate in the challenges with correct arguments. Developing the description is described as a balance since it must be easy to read so everyone can understand, but still, provide all the needed information.

When formulating the question, the informants described that it is important to consider what is desired from the citizens: a specific answer, their opinions or new ideas. There are three different kinds of challenges that are classified on the platform as open, citizen participation and multiple selection. For the open challenges an open question such as “How do you imagine that the mobility
can be improved in the city?” is asked. The informants explained that questions like these are asked when the quantitative data is unknown. The citizen will be given a context and a question, and the answers can be written freely. For the citizen participation challenge, a narrower and directed question is asked. The citizens are given a context, where ideas and comments are collected for the question. The question could be: “How to achieve that people share their car to move around in the city?”. The multiple selection challenges are only used when quantitative data is known. The citizens will be given a context and a question and can participate in the challenge by voting for the option they prefer. The informants described the question as limited, and one example is: “Which of the following problems related to public transport are most important for you?”. Sometimes the different types of challenges are being combined and the challenge starts with an open question to collect ideas and opinions from the citizens. Based on the result, a limited question can be asked to let the citizen vote for their preferred option and get quantified data. A narrower question can also follow to collect ideas and comments for a specific subject.

The analysis of secondary data showed that open challenges are the most common ones on the online platform. 43 of 79 challenges that have been performed on the platform since 2013 have been open challenges, which corresponds to 54,4 percent. Narrower questions in citizen participation challenges correspond to 19,0 percent of the challenges, whereas the citizens have been able to vote in 21 multiple selection challenges, corresponding to 25,6 percent of the challenges. In figure 2 a bar chart of the number of times the different categories of challenges have been performed in the platform.

![Bar chart of the frequency for the different categories of challenges on the platform.](image)

**4.2.2 Citizen Participation in the Co-Creation Process**

The citizens are invited to participate in the process in two different ways. Digitally through the platform MiMedellin and physically in workshops such as organized events or in different places in the city. Money is described as an important resource in order to organize the different types of citizen ideation. The main actor is recommended to hold both workshops and ideation in the platform, but it is up to the actor to decide in what way the citizens can participate.

When a challenge is launched on the platform MiMedellin, the citizens can participate during around two to three months. To participate, the citizen has to become a member of MiMedellin by register with their email on the platform. For the challenges in the categories open and citizen participation, the members can give ideas, comment and like other’s ideas. The given ideas can be
expressed in text, photo or video. For challenges with multiple selection questions, the members can vote between different options. The platform is described as a tool that helps the ideation process, but that is not the main driver. The informants stressed the importance of letting people participate in a digital channel, but also to be able to participate physically in workshops. The platform was seen as both exclusive and inclusive by the informants. The informants described that people are excluded from participating if they do not have access to internet or are not used to technology. At the same time, it is inclusive since people that cannot participate physically in the workshops have a possibility to participate online. When the aim is to integrate a bigger group of the citizens, the challenge is marketed through Ruta N’s and Cities for Life’s social media channel since that allows for reaching a big amount of people.

To reach people that do not use social media or the platform, workshops are organized in different places in the city. The chosen places for the workshops depend on the public that should be reached, for example if students want to be reached, a park or another place near a university is chosen. The workshops are often open for participation for everyone passing by. They are usually in open public spaces and citizens are asked questions in order to collect their ideas and thoughts about a problem that is defined in the challenge. Sometimes, selected people are invited to workshops to give their ideas and have a discussion around the ideas, product design or project formulation. The workshops are seen as the most successful ideation events since they allow for discussion and getting deeper answers, something that has been experienced as hard to do on the platform.

How many citizens that participate in challenges are very relative. Some topics have been described as more popular than others, for example mobility compared to waste management. The informants explained that subjects that are for a more specific group usually do not attract many people. 14,648 of the 22,941 registered members of MiMedellin, which represent 63.9 percent, have not contributed with any ideas. 25.4 percent have submitted one idea and 10.3 percent have submitted two to ten ideas. 0.5 percent have submitted more than ten ideas, where the most active member has submitted 342 ideas. Figure 3 shows a bar chart of the number of submitted ideas by the members of MiMedellin and a scatter diagram to visualize the extreme values.

![Figure 3. Bar chart and scatter diagram of the number of submitted ideas.](image)

95.8 percent of the registered members of MiMedellin has not commented on any ideas. 2.5 percent have given one comment and 1.5 percent have commented two to ten times. 0.1 percent have commented more than ten times and the most active members have given 166 comments. Figure 4 shows a bar chart of the number of comments given by the members of MiMedellin and a scatter diagram to visualize the extreme values.

![Figure 4. Bar chart and scatter diagram of the number of comments.](image)
81,3 percent of the registered active members of MiMedellin have not liked any ideas. 5,7 percent have liked one idea and 10,7 percent have liked two to ten ideas. 2,2 percent have liked more than ten ideas and the user that have liked most ideas has liked 3748 ideas. Figure 5 shows a bar chart of the number of liked ideas by the members of MiMedellin and a scatter diagram to visualize the extreme values.

73,2 percent of the registered active members of MiMedellin have never voted in a challenge. 24,9 percent have voted one time and 1,9 percent have voted more than one time. The user that have voted most times has voted twelve times of a total of 15 multiple selection challenges. Figure 6 shows a bar chart of the number of votes by the members of MiMedellin and a scatter diagram to visualize the extreme values.

38,3 percent of the registered active members of MiMedellin have not participated in any challenge, neither with ideas, likes, comments, or votes. 36,6 percent have participated one time and 21,6 percent have participated two to ten times. 3,5 percent have participated over ten times
and the user that has participated most times has participated 2801 times. Figure 7 shows a bar chart of the number of times the members of MiMedellin have participated on the platform and a scatter diagram to visualize the extreme values.

![Bar chart and scatter diagram](image)

*Figure 7. Bar chart and scatter diagram of the number of times the MiMedellin’s members have participated in a challenge.*

Table 7 describes the behaviour on the platform depending on if the user has contributed with an idea or not. Among the users that have not contributed with an idea, 2.7 percent have commented an idea, no one has liked an idea and 37.6 percent have voted in a challenge. Among the user that have contributed with one or more ideas, 6.7 percent have commented an idea, 52.0 percent have liked an idea and 7.6 percent have voted in a challenge.

<table>
<thead>
<tr>
<th>Given ideas</th>
<th>Users that have commented an idea</th>
<th>Users that have liked an idea</th>
<th>Users that have voted in a challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of users [psc.]</td>
<td>Percent of users [%]</td>
<td>Number of users [psc.]</td>
</tr>
<tr>
<td>0</td>
<td>401</td>
<td>2.7</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 0</td>
<td>556</td>
<td>6.7</td>
<td>4312</td>
</tr>
</tbody>
</table>

How to get people to participate in challenges is a topic with mixed answers by the informants. Some of them mean that prizes or awards should not be given in order to attract the citizens that truly want to participate and change the city. Others mean that prizes or awards should be given to encourage participation. Marketing is seen as a crucial part to get people to participate. The marketing process is however difficult and costly, and therefore a crucial part is to get citizens to sign up in the platform. This, to be able to inform by email when a new challenge is available and participate.

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1 A t-test was performed to test if there was a difference in the behaviour on the platform for participants who had given ideas or not. The test showed statistical significance and confirmed a difference in the amount of comments, likes and votes between the two groups. The data was however not normalized and therefore the data was described in a table.
4.2.3 Idea Analysis and Development of Solutions

When the citizens have participated in challenges, the next step is to analyse the ideas and inputs. Depending on the type of question, the data varies in its form. When the citizens are participating in a challenge by voting on alternatives, the most voted options will be shown directly on the platform, which an informant described is making it easy to draw conclusions and see trends. In open and citizen participation challenges where the citizens can give their ideas on how to solve a problem in both workshops and the platform, it was described that a more thorough analysis is needed in order to gain insights, find categories and trends. Other companies are sometimes contracted for doing the analysis of data, but that also depends on the responsible stakeholder in the process that should consider and implement the ideas.

In the analysis of the ideas, it is according to the informants important to consider and investigate both qualitative and quantitative data. The analysis of the data will allow seeing trends of each challenge that can be evaluated based on the criteria that are developed with the actors in the co-creation process. Quantitative data can be collected from open questions by analysing for example how many times some specific words are mentioned in the ideas. This, in order to see the most frequently mentioned idea. To select ideas to consider further it is important to set parameters so that ideas can be filtered out. That could for example be to filter away ideas with less than five words.

The informants described the analysis of ideas as a crucial part of the process. It was explained to be important to be done carefully in order to understand the collective desire. Data analysis companies are seen as valuable for the analysis of the ideas for MiMedellin, however it is not always possible to contract them due to budget limitations. When the ideas are analysed it is a conjunction of ideas and the interest of the different stakeholders that shape the final solution. The solution can be chosen based on different criteria such as the expected impact, budget, team or organization that can implement the solution or that the solution can be sustainable in the future.

To develop a solution from the co-creation process and the analysis of the ideas, MiMedellin has sometimes used the innovation lab on Ruta N. The innovation lab is a place on Ruta N where ideas can be further explored and developed into products. Citizens or companies can develop and push an idea or solution further in the innovation lab. In order to develop an idea further, funds can be received from Ruta N. It is also possible to use Ruta N’s database of start-ups, research groups, investors and enterprises to develop solutions from the ideas or solve city challenges. MiMedellin can use the platform to identify suitable start-ups, research groups or enterprises that can solve the city challenge and make a sustainable solution out of it.

MiMedellin’s involvement in the process ends when the trends and the best ideas to solve a city challenge have been identified and the right companies, the mayor’s office, the innovation lab or a start-up has been integrated into the process to take the ideas further. The solution process is not considered to be under MiMedellin’s responsibility. MiMedellin offers a platform and process where people can work together, and they create a network between different actors and citizens to solve city challenges. MiMedellin is involved in defining the challenge, support with gathering ideas, finding the best ideas and solution to be handed over to start-ups, companies, social initiatives or the local government to be developed further.
### 4.2.4 Summary of the Process

Table 8 presents a summary of the methods and tools within each category of the process. The content is based on the informants’ descriptions of the overall process of MiMedellin.

*Table 8. Methods and tools used in MiMedellin’s co-creation process.*

<table>
<thead>
<tr>
<th>Problem identification and challenge formulation</th>
<th>Citizen Participation</th>
<th>Idea analysis</th>
<th>Development of solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify a problem that affects the citizens - based on objective data.</td>
<td>MiMedellin online platform - citizens can participate by vote or give ideas expressed in text, video or photo. Citizens must sign-up and they get emails when new challenges are published.</td>
<td>Limited questions - most voted option is shown. Conclusions can be made and trends can be identified directly.</td>
<td>To develop solutions the ideas can be handed over to the stakeholders.</td>
</tr>
<tr>
<td>Translate into challenge with stakeholders.</td>
<td>Workshops around the city - People passing by can participate by giving ideas and thoughts about challenges.</td>
<td>Open questions - thorough analysis is needed. Can be based on mentioned keywords or set parameters to filter the ideas.</td>
<td>New stakeholders can be found through Ruta N’s innovation lab or data base with start-ups, research groups, investors and enterprises.</td>
</tr>
<tr>
<td>Describe the challenge and give access to needed data.</td>
<td></td>
<td>Use external data analysis companies if budget allows.</td>
<td></td>
</tr>
<tr>
<td>Formulate open or limited questions depending on aim.</td>
<td></td>
<td>The best ideas can be selected based on different criteria, e.g. the expected impact, budget, team or organization that can implement the solution.</td>
<td></td>
</tr>
</tbody>
</table>

### 4.3 Challenges in the Co-Creation Process

Throughout MiMedellin’s presence, several challenges have been identified in the co-creation process. These have been expressed by the informants and are related to trust, how to get the projects executed, difficulties when engaging a lot of people in the process, resources, analysing data and implementing ideas. The challenges are described below.
In terms of trust, the informants express that convincing the public institutions that co-creation is valuable is a challenge and the public institutions must trust the process in order to invest resources into co-creation. The informants described that results from a co-creation process are often not tangible. The benefits are often indirect, and a lot of work needs to be done in convincing the different stakeholders to believe in the project. One informant expressed:

“If you imagine having a global citizen community, which processes city challenge that would be already a plus. So I think it generated a lot of indirect benefits which we mainly do not see directly because it is not tangible in a product. But you created a community, you sensibilised institutions around the importance of citizen participation.”

- Informant 5

According to the informants, resistance can be met by stakeholders thinking that it is a waste of time and money. The government is described to sometimes be afraid that people would think that they are not doing their work and that they instead let the people do it for them. The informants also expressed that the government might be afraid that a lot of complaints will be expressed. In order to get stakeholders to believe in the process, it is seen as important to be able to show tangible results from the co-creation process.

When the government is a main actor in the citizen co-creation process, the projects can be affected by the change of mayor. This is something that Ruta N has experienced since the change of mayor often affects the topics Ruta N focuses on. When a new mayor is selected, the projects can be stopped and disappear if they are not connected to stakeholders that can push them forward. The public sector is temporary, which the informants described, is making it difficult to innovate if the new mayor has another focus. In order to avoid that projects are abandoned when a new mayor is chosen, it is suggested to link the city challenges to a bigger challenge, like a vision for the development of the city. Based on that vision, measurable missions can be identified and developed into projects. The informants also expressed the need of connecting projects to stakeholders outside the political structure in order to make them more stable and have a chance to survive when the mayor changes.

The private sector is suggested as an actor to keep the projects running. However, challenges in getting companies to understand the benefits of co-creation and to do it for the common good, without profit, has been experienced. Companies have been interested in the beginning of the process, but to keep the interest throughout the process, especially when the requirement of investing money into the process is mentioned, is a challenge. From the very beginning of MiMedellin the private sector was not involved, but it was then difficult to get a proceeding and implementation of the projects without the private sector. NGOs (Non-Governmental Organization) are also seen as valuable since they could focus on selling the projects and in that way get money to invest in sustaining the project and the co-creation process. To let the public sector, private sector, academic sector and NGOs work together is considered important to get a continuation of projects, which is described below by an informant:

“The public sector is temporary and runs every fourth year, and after that everything disappears if you don’t get connected with all the stakeholders - public, academic and NGOs. And the public sector is the one that has to be working with this. But for me, after the experience I have, this has to be run by independent companies. This should not depend on public companies, because in the end everything is going to be like money related or conditioned in a way that just search the needs of the specific administration or the specific stakeholder that is in charge of that challenge.”

- Informant 3

An important part of a citizen co-creation process is to get citizens to participate in the challenges. Identified difficulties have been to attract people and to find the best mean to reach them. Not all read the emails that have been sent out, and not all citizens of Medellin can access the online
platform MiMedellin. Also, a challenge has been to convince citizens to participate in the challenges. Some citizens want awards and to be recognised, and some citizens are tired of not getting feedback about what happens with their ideas after the ideation processes. It is also explained that it is challenging to catch the interest of the citizen in a short amount of time and to explain technical things in an easy way.

In order to run the co-creation process in a successful way with both the MiMedellin platform and workshops, it is described that resources are needed. Money is needed in order to do the required citizen ideation processes, both physically in different spaces around town and digitally in the platform. For the platform, marketing of the challenge is crucial in order to get citizens to participate. An allocated budget for all the crucial activities is described as important in order to have a successful co-creation process with citizens. It also expressed that it needs to be people passionate and believing in the model to keep it alive and to make the program sustainable throughout the years.

A big challenge that has been experienced in the process is the analysis of data. A separate data analysis company is considered as important for understanding the best solution to a challenge. However, resources have been lacking to be able to contract a company to do it. To select the best ideas has therefore been a big challenge in the process. The resources for the projects are however often invested in creating engagement for getting people to participate, for the events of bringing together experts and to integrate them and other stakeholders in the process. One informant expressed:

“Selecting the best ideas. I think that is the biggest challenge.” and continued: “We once contracted an analytic company and we said we have to find the ideas, how can we do it more easily, identify good ideas and bad ideas. They created a really interesting concept. They said, we are going to filter it out. If the idea has less than five words for example, gone. They created categories. They created word clouds so we could identify what the categories were. But in the end we realized that we always had to look through it manually. Because it is very hard. It is like artificial intelligence to select the best ideas, but it does not work yet.”

- Informant 5

To implement the ideas and solutions from the co-creation process is also described as a challenge. The lack of innovations and results from the ideas in the co-creation process has been a problem in the process. A reason for this, expressed by an informant, is that the process not has been thought-out until the end. It was also described that it had been difficult to find a start-up or a social initiative that could keep developing the solution or to find a leader that wants to push the ideas forward and make something out of them. An informant explained:

“When you talk about innovations like new products, it must always be a leader behind it. You know, like every successful start-up has a CEO or a founder who really wants to push it forward. And if you have a solution which a citizen throws in and you like oh this is great, it was the best solution. But when there is no mind and no mover behind it, then it is really hard to keep it going because in the end the solutions that were developed, no one felt responsible for.”

- Informant 5

The informants also explained that the lack of results sometimes has been because of that the market has not been ready, or because of lack of money or priority from the public institutions.
4.4 Planned Changes of MiMedellin

Based on the challenges in MiMedellin’s co-creation process, learnings have been made. As a result, the team of MiMedellin has identified some needed changes in the process that are planned to be executed in the launch of a new version of the platform. A change at the beginning of the process is to give the partners, for example the different departments in the mayor’s office or companies from the private sector, a document where they can write down their requirements. The document would contain the identified problem, the questions they want to ask in the challenge, the goal of the challenge and the actors they wish to involve in the process. This, in order to make the process well thought-out from the beginning and to give the team of MiMedellin a chance to track and put together all the required information and actors for building the challenge.

The topics that are considered in the platform is also a learning. Previously, the topics have been based mainly on the topics that the mayor was giving. An important part of the new platform is to give the citizens the chance to prioritize the topics that affect them the most. This, as a way to get more participation and people involved. The treated subjects should be the ones that affect the majority of citizens, but also to those where there exist resources of solving the challenge.

The new platform is built with the same type of navigation and process, but it has new features in order to make the citizen participation more complete. In the new platform, videos are the main visualisation of the challenge, as well as the possibility to connect data sets and statistics, are new features. The new platform will allow the citizens to participate through prioritizing problems in the society and giving ideas to the challenges as before, but also see the solutions of the ideas. Chosen ideas will be possible to display on the platform and make a continuation to that. A new way for the citizens to participate in the platform will be to share their own start-ups, companies or city initiatives in order to solve a challenge.

To give the citizen feedback about what is going on in the process has been identified as a crucial part in the process and therefore new features have been integrated into the new platform. The citizen will be able to be recognized in the platform by showing the best ideas and also encouraging the community to congratulate the citizens. Awards are planned to be given to people which will also be shown in the platform. The awards could be in terms of free tickets to the movies or money to implement the idea. To give feedback to the citizen by explaining which part of the process that is active has also been identified as important, to make sure that the citizen knows what happened with the ideas.

4.5 Case Project: Edificio Mónaco

In the following section, the citizen co-creation process of the case project Edificio Mónaco that included the MiMedellin platform is described. The result is based on interviews performed with different actors involved in the project.

4.5.1 Background and Purpose of the Mónaco Project

Medellin has a dark history of drug trafficking with 46612 victims between 1983 to 1994. Despite this, the city seldom talks about its history. Instead, many people have tried to ignore it to move on. Because of this, citizens have a lot of pain and horror inside from the time that is described as terrible. It was described that some citizens believe that the conflict is not related to them and, incorrectly, assume that the victims are from a certain group of people. To change the mindset and create a closure for the citizens, the mayor's office of Medellin decided to start a project to embrace the history of Medellin and honour the victims. This was also seen as crucial in order to make sure that the history not is repeated.
A subproject to the project started by the mayor’s office in September 2018, was to demolish a building with a high symbolic value, called Edificio Mónaco. Edificio Mónaco was the house of one of the most famous drug traffickers in history, Pablo Escobar. It was also one of the first places a bomb was sent in Medellin, which killed 60 people. The bomb affected many people since the building was located in the middle of the city, with streets full of people. Beyond creating memory and honouring the victims, the decision of demolishing the building was made due to a serious problem with narco-tourism. The narco-tourism has increased the reputation of Medellin being a narco-city, which is something the city is actively working on diminishing. In addition, the building had been abandoned for six years and maintaining the building would be more expensive than demolishing it. In February 2019 the building was demolished. It was described as an important day for the citizens of Medellin and a first step towards honouring the victims of the drug trafficking.

To decide what to do with the space after the building was demolished, the mayor's office decided to work closely with the citizens and use co-creation. Since the topic really affects the citizens, it was considered as a must to get their opinion. Co-creation that allowed all people to participate was seen as fundamental to get all versions of the history and create memory. The aim was to make the process democratic and use the citizens’ ideas and dreams of what they wanted to do with the space. By using co-creation, the mayor's office wanted to give all citizens the possibility to participate and feel as a part of the solution. It was also used as a way to start a discussion about the topic to collect different opinions, criticism and ideas which all are required to create memory according to the informants.

4.5.2 Citizen Co-Creation Process in the Mónaco Project

The project was led by the mayor’s office and before the citizen co-creation process started, other actors were involved to identify the problem and create a challenge. To start with, a museum working with embracing the history of Medellin was involved to contribute with their expertise in history and experience from working closely with the citizens within the topic. The museum assessed the project with tools and ideas of how to approach the citizens in the right way. A public company working with urban development in the city was also involved because of their experience of including the citizens in the urban development. Their responsibility was to develop and perform workshops to involve the citizens in the project. To start with, the company did a workshop in the area around the building to collect the neighbours’ experiences, opinions and ideas of what to do with the space. This information was then brought to a committee with representatives from different institutions. Beyond the museum and the public company, the committee had representatives from different secretaries of the mayor's office and MiMedellin. MiMedellin were involved since the online platform was seen as an additional way to open up for the whole city to participate and get a broad citizens consultation. In that way, both an online and an offline tool was used so that everyone could have the possibility to participate.

The committee had a session where they discussed the topic and created questions from the information collected in the first workshop. From that, the public company and MiMedellin selected the questions they wanted to use in their respective tools for citizen co-creation. The questions focused on what the citizens wanted from the Edificio Mónaco building, not only physically but also emotionally. In the challenges, it was important to rebuild the memory so that the participants would remember the situation and base their answers on real information.

In the platform, the citizens were given a text with the background to the project and information of what had happened in the building. They could also access more information through documents that could be downloaded from the platform. The question that was asked to the citizens on the platform was: “What could you imagine for transforming the Edificio Mónaco building into a new place of memory to honour the victims of the drug trafficking?”. It was an open question were the citizens could freely write their thoughts and ideas. They could also comment and like others’
ideas to show support, question or criticize them. The challenge was available for about three months on the platform. To increase the participation, the challenge was marketed on the social media networks of Ruta N, the public company, the local government and the Mayor with over 500 000 followers on one of his social media channels. Through the local government’s Instagram account, the citizens could also directly send in ideas by answering a question in a story on Instagram. The information that was given was that a place to honour the victims would be created in the space of the Edificio Mónaco building. The question that was asked was: “What could you imagine in this place?”.

The workshops were performed in different locations to collect information from the entire city with citizens from all socio-economic and educational level. At the location, a team from the public company set up a tent with a wall containing the selected questions. Citizens passing by could then stop, take a post-it note, write down or paint their thoughts and put it on the wall. To rebuild memory, the participants were encouraged to reflect on the past. The team was also there to give information and discuss with the citizens. During the conversations with the citizens, notes were taken. These notes and post-its were then computerized and systematized to facilitate the analysis.

To analyse the data and understand the collected information, an investigating company was used. With the systemised data from the workshops and the data from the platform, a team from the company started with creating a guide to structure the data into categories. Since many ideas had different elements connecting them, the process had to be iterative by classifying and separating in several steps. Keywords were also identified to find trends among the suggested ideas. From the analysis, the team tried to understand the bigger structure of the data and decided, in discussions with the other actors from the committee, how to limit the final result. As a final result from the analysis, a document with a story was created for the citizens. The document describes the background to the project and the opinions of the citizens collected in the different methods. To make it possible for the citizens to follow the process, the document was published on MiMedellin.

As a next step in the process, the mayor's office decided to have a contest with architects to develop the solution for the location. The document from the idea analysis was given as the base of the contest. All architects that participated in the contest had to take the elements from the document into account in their solutions, which was also evaluated when the winner was selected. The solution that went most with what the citizens wanted, won. The winner was selected by a jury with architects and a representative from the mayor's office.

An implementation plan was created, and the final design of the winning solution was being determined. A great effort was also put on making the solution sustainable for the future. The mayor's office was trying to find actors that could be responsible for maintaining the project in order to guarantee that if a new government is selected, the project can still continue. The museum was being considered to be one of the responsible since they are the specialists in memory in the city. The methods and tools used in the co-creation process of the case project are summarized in Table 9.
Table 9. Summary of the co-creation process used in the case project.

<table>
<thead>
<tr>
<th>Problem identification and challenge formulation</th>
<th>Citizen participation</th>
<th>Idea analysis</th>
<th>Development of solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop with neighbours to collect their experiences and ideas</td>
<td>MiMedellin platform - could participate by freely write ideas and comment and like other ideas. Available three months. Marketing on social media</td>
<td>Investigating company was hired to analyse the data.</td>
<td>Contest with architects to develop the solution based on the document. Solution with most ideas from the citizens won.</td>
</tr>
<tr>
<td>Committee with actors discussed the subject and developed questions for the citizens</td>
<td>Workshops around the city - people passing by could participate by writing ideas or painting. Notes were taken from discussions and conversations with the team. Encouraged to reflect on the past to rebuild memory</td>
<td>Iteratively categorized the data and identified key words to understand the bigger structure.</td>
<td>Developed implementation plan</td>
</tr>
<tr>
<td>Selected questions for MiMedellin platform and workshops</td>
<td>Direct participation on Instagram - could participate by answering questions on Instagram story</td>
<td>Created a document with a story based on the idea analysis, including background and the citizens’ opinions</td>
<td>Trying to find an actor that can be responsible for maintaining the project to make it sustainable</td>
</tr>
</tbody>
</table>

Developed challenge description to rebuild memory and provide real information

Developed description in text and documents with more information available on the platform
4.5.3 Result from the Co-Creation Process of the Mónaco Project

The informants described that the co-creation process resulted in a high engagement because of the importance of the topic in the city. A lot of people were affected by the topic and many were therefore interested in the project. Even those who did not know about the building could according to an informant imagine what could be done with the location. In total, 1500 people participated through the different tools, which was seen as a successful result. However, more answers were expected from the platform MiMedellin which had 156 participants and received 97 ideas, 17 comments on ideas and 137 likes. By the ones who gave comments, all of them also gave ideas. The tool that received the largest amount of participation was the questions posted directly on social media, which resulted in over 1000 answers.

An informant described that duality was found between memory and forgetting in the data analysis. The majority wanted to focus on memory to remember and avoid future repetition, but some preferred forgetting to erase the memories. The company doing the analysis, designed the resulting document as a reflection of the duality. This, to be able to consider both sides when designing the solution and expose the result to the citizens to make them feel included. From the analysis, it could be concluded that most of the victims wanted a quiet green place that was open for everyone to go to. As explained by informants, the conclusion could easily be made since most opinions were similar, regardless of tool or neighbourhood.

The participation in the architect competition was high and people from several different countries participated. The competition resulted in 50 selected solutions before one was selected as the final winner. In line with the conclusion from the idea analysis, the winning solution was a park created by four architect students from Medellin. The park is called Inflection and will contain several monuments honouring the victims. The winners were selected because of their way to incorporate the citizens’ ideas to create a place for memory. In the moment of the data collection of the study, March to April 2019, the final design of the solution was being determined. The implementation of the solution was planned to be started in May 2019. The park was expected to be finalized in November 2019 and inaugurated in December 2019.

Beyond the tangible result, several other important outcomes were achieved from the citizen co-creation process. One of the informants described that the articulation between different stakeholders in the project, that usually not are connected, showed the importance of collaborating to integrate the different capabilities. Another informant described that the project allowed them to try a new process, integrating different methodologies to collect the citizens’ opinions. It was also one of the first time the process was aimed for all citizens, despite socio-economic scale or education level, and the result showed that the process worked well. An informant explained:

“We have allowed people to participate, to understand that the city is its people, to understand that the best architect is the old man of the corner that every day is faced with his difficulty. This has made the city transform itself in a very very positive way.”

- Informant 6

Finally, it was described that the project resulted in a valuable discussion among the citizens and made them feel included in the final solution. One of the informants expressed:

“Only when I feel part of a thing, I can feel responsible for it. And co-creation allows people to feel part of, and I believe that is what marks the difference between what happens in Medellin compared to other cities.”

- Informant 6

Including the citizens in the solution was described as a success for the mayor's office, as explained by one informant:
“We are going to have a park that is made by citizens. It is by citizens in a public context. (...). Because when we finish in December, we are going to build a place where people feel comfortable being there because they dreamed it. This will be nice, it will be really good.”

- Informant 8

4.5.4 Challenges and Learnings in the Mónaco Project

In addition to the successful result, some challenges were faced during the process. Regarding the citizen participation, it was described as a challenge to reach some groups of the citizens that chose not to participate. It was for example groups that do not trust the government or do not think that their opinion will be considered. Others did not like the process or did not care about what is done in the city. Another difficulty with the participation expressed by the informants was that the MiMedellin platform had less participants than expected, which was thought to be a result of MiMedellin not having enough publicity.

Another part of the process that was described as challenging was the challenge formulation and description. Since the project was focusing on a very sensitive subject in a difficult field that many people were affected by, it had to be described correctly. It was therefore according to the informants crucial to refer to the victims in the right way and use the correct words. To do that the museum was involved as an advisor since it had previous experiences from working with the citizens in the subject. An informant explained:

“For us it is a difficult process because not everybody knows how to refer to the victims or how to do a kind of process like this. (...). Politics are difficult, everything you say is a problem. If you use the wrong words, you enter in a difficult field and everything that they say in a wrong way is a problem for us.”

- Informant 9

The analysis of the data was described as challenging by the informants, even though it was said that the majority of the participants had similar ideas and opinions. To start with, the company that analysed the data was not included from the beginning of the process and could therefore not influence the methodology. The analysis had to be done on the already collected data, which was experienced as challenging. When doing the analysis, the company believed that some data was missing, and they wanted to go deeper, asking follow-up questions to the suggested ideas. Due to the set methodology and a restricted timeline, that was not possible and was therefore a limitation in the analysis. One informant described the dilemma when analysing the data:

“We need to go deeper with this fantastic idea, we want to make another question to this person, but in a way, you know that you are out of time for that. We had a schedule and we had to respect the timeline.”

- Informant 7

Analysing the data from the workshops was described as more challenging since it was missing a normalized structure, which the data collected in the platform had. In addition, the data from the workshop was not complete since not all words in the conversations could be noted and digitized.
4.6 Summary of Challenges and Solutions

To summarize the empirical findings, Table 10 describes the challenges experienced in the co-creation process of MiMedellin and the case project. The table also presents solutions when they were suggested by the informants. To solve the challenges, the informants described changes that are planned to be made on the new version of platform, which also are presented in the table.

Table 10. Challenges, suggested solutions and planned changes of MiMedellin’s co-creation process and the process used in the case project.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Suggested solutions</th>
<th>Planned changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall process MiMedellin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convincing the public institutions that co-creation is valuable.</td>
<td>- Get the public institutions to trust the process and understand that the results are indirect.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Show tangible results.</td>
<td></td>
</tr>
<tr>
<td>Resource restrictions in the public sector</td>
<td>- Allocate a budget for all activities in order to have a successful co-creation.</td>
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</tr>
<tr>
<td>Concerns by the public sector that only complaints will be expressed.</td>
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<td></td>
</tr>
<tr>
<td>Temporary public sector - change of mayor.</td>
<td>- Link city challenges to visions for the city, develop measurable missions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Connect project to stakeholders outside the political structure.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Collaboration between public sector, private sector, academic sector and NGOs.</td>
<td></td>
</tr>
<tr>
<td>Resistance from stakeholders because of thinking it is time-consuming and demands resources</td>
<td>- Convincing the private sector about the benefits of co-creation: That it can be used to solve problems faster, with less resources, more transparent and collaborative.</td>
<td></td>
</tr>
<tr>
<td>Keep the interest of stakeholders from the private sector throughout the process</td>
<td>- Be honest with what investment that needs to be put in to the project from the beginning.</td>
<td>- Together with stakeholders, create a document with requirements that contain the identified problem, the questions they want to ask in the challenge, the goal of the challenge and the actors they wish to involve in the process.</td>
</tr>
<tr>
<td>Show tangible results from the process.</td>
<td>Show the indirect results and benefits of co-creation.</td>
<td>Decide topics in the challenges by giving the citizen the chance to prioritize the topics that affect them the most.</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Attract people to participate in the challenges | - Give awards and feedback to the citizens that participate  
- Include participants in the development of the solutions. | - Make it possible for the participant to follow the development of the ideas.  
- Give feedback to, recognize and award citizens on the platform.  
- Make it possible for participants to share their own start-ups, companies or city initiatives in order to solve a challenge. |
| Find the right means to market the challenges in the platform and reach the citizens | - Get people to sign up to participate to be able to send emails when new challenges are launched | - Have videos in the main visualisation of the challenge  
- Connect participants to data sets and statistics |
| Find the right balance in the challenge description. | - Catch the interest of the citizen in a short amount of time and to explain technical things in an easy way. | |
| Everyone cannot access an online platform | - Do workshops | |
| Analysing the collected data to find the best ideas | - Contract a data analysis company.  
- Allocate a budget for contracting a company to do it. | |
| Implement ideas and solutions | - Plan the whole process until the end before starting.  
- Have a leader that wants to push the ideas forward and make something out of them.  
- Find start-ups that can take the ideas further. | - Together with stakeholders, create a document with requirements that contain the identified problem, the questions they want to ask in the challenge, the goal of the challenge and the actors they wish to involve in the process.  
- Make it possible for participants to share their own start-ups, companies or city initiatives in order to solve a challenge. |
<table>
<thead>
<tr>
<th>Determine if the market is ready for the solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep the project sustainable over time</td>
</tr>
<tr>
<td>- Have people that are passionate and believe in the model</td>
</tr>
<tr>
<td>Receive funds and budget for the project.</td>
</tr>
<tr>
<td>- Selling the program to other cities interested in solving city challenges.</td>
</tr>
</tbody>
</table>

**Case: Mónaco**

<table>
<thead>
<tr>
<th>Reach the citizens that do not participate because they mistrust the government and do not care about what is done in the city.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of participants on platform</td>
</tr>
<tr>
<td>- Increase the publicity of the platform</td>
</tr>
<tr>
<td>Formulate the challenge correctly because of the sensitive subject</td>
</tr>
<tr>
<td>- Include actor with experience of the subject</td>
</tr>
<tr>
<td>Analyse the data</td>
</tr>
<tr>
<td>- Use analysis company and include them when deciding the methodology for the process</td>
</tr>
<tr>
<td>Difficulty to ask follow-up questions on ideas from platform</td>
</tr>
<tr>
<td>Lack of time to dig deep and ask follow-up questions to citizens</td>
</tr>
<tr>
<td>Not complete data from workshops - cannot digitize all words in the conversations</td>
</tr>
</tbody>
</table>
In this chapter, the analysis of the case study is presented. The empirical result is contrasted to literature in order to enable comparison and make learnings. The first section motivates for the link between the two literature fields used in the study. The following sections present the analysis of the two research questions.

5.1 The Link between Social Innovation and Citizen Co-Creation

An important factor of citizen co-creation for fulfilling the purpose of the study, is the fact that the citizen co-creation process results in social innovations. The link between social innovation and citizen co-creation has been described in the literature by several authors. Voorberg et al. (2015) argue that co-creation is a crucial part to create social innovation in the public sector. Philips et al. (2015) mean that social innovation is characterized by an interactive process where knowledge is shared between different organisations and institutions. Collaborative approaches have been suggested ways of working in order to achieve social innovation in the literature. For this, Chalmers (2013) introduced open social innovation to stress the importance of a collaborative and open approach where multiple stakeholders are involved in the process. This, in order to improve the solutions, facilitate the diffusion (Chalmers, 2013), make the innovations more efficient (Santoro et al., 2018) and pay attention to social exclusion and weaker voices (Hillgren et al., 2011). As seen, social innovation and co-creation are strongly linked together in the literature, and it is therefore of importance to consider the two frameworks when elaborating on the two research questions.

5.2 Research Question 1 - Factors with a Positive Impact

The first research question is about identifying the factors that have a positive impact on the co-creation process to achieve social innovation. When elaborating on positive factors in the citizen co-creation process, it is because of the mentioned strong connection between the two subjects, important to consider positive factors for the development of social innovations, ways to work within citizen co-creation and evaluate the studied case. These can all give important implications on how citizen co-creation can be used as a mean to achieve social innovation.

5.1.1 Co-Creation and its Benefits

The definition of co-creation used as basis for this report is the one by Perks et al. (2012) that define co-creation as the joint creation of value by the firm and its network where the outcomes of the interactions are innovations. The network in the case of MiMedellin consist of both local stakeholders such as the mayor's office and its departments, companies, start-ups, citizens and universities in the city of Medellin, and an international network as a result of the connected program Cities for Life. The program allows experts, citizens and students from all over the world to be connected through local platforms in each city. The collaborative approach of co-creation lead to that insights and expertise can be shared from different angles, but also strengthens the collaborations (Scherer, Wimmer and Strykowski, 2015). The organizations gain more efficiency in producing goods and they can learn from the citizens’ experiences in order to respond to problems that society face (Voorberg et al., 2015).

Important benefits of citizen co-creation described in the literature, are the access to resources, cost reductions and more competitive offerings (Frow et al., 2015). These benefits were further
confirmed in the case study, where the citizen co-creation process was seen as a way to solve problems faster, with less resources, more transparent and collaborative. The process was in the case project also described as an effective way to open up for communication between the citizens and the government. The informants described the citizen co-creation process as a way for the government to talk to the citizens and show that their input is valuable. Positive consequences of co-creation were seen as it could facilitate decision making in the city, find hidden human talent and solve city challenges. Also, that the public sector could be transparent by showing which challenges they are working with. In the case project of the Mónaco building, citizen co-creation had the benefit of enabling creation of memory and reproduction of history from the citizens perspective. In addition, allowing citizens to share their ideas was aiming at allowing them to feel part of the solution and to start a discussion about an important topic that for long had been ignored by many.

5.1.2 The Citizen Co-Creation Process

The citizen co-creation process includes different activities. Toots et al. (2017), Scherer et al. (2015) and Nambisan & Nambisan (2013) have defined processes for co-creation that all start with discovery or identification of problems. This in similarity to the co-creation process described in the case MiMedellin. Based on the found problems, a challenge is formulated in MiMedellin’s co-creation process. The following steps in the processes of Toots et al. (2017), Scherer et al. (2015) and Nambisan & Nambisan (2013) are described with different categories compared to the categories that were chosen for describing the activities of MiMedellin’s citizen co-creation process. This will be further compared in the analysis to see the differences and similarities in the processes.

In MiMedellin, citizen participation is the following step, compared to the other authors that mention the second step as design (Toots et al., 2017), development of ideas (Scherer et al., 2015) and conceptualize solutions (Nambisan & Nambisan, 2013). Citizen participation can involve ideation, design or collection of citizens thoughts and ideas with both online and offline methods. For example, an addition in the online methods planned in the new version of the platform MiMedellin, is that the citizens will also be able to share their start-ups or social initiatives in order to solve a challenge. Compared to the other processes presented in the literature, MiMedellin’s consultation of citizens is challenge driven, which can be done in different ways than only gather ideas. When citizens have been consulted in MiMedellin’s process, the idea analysis is the next step. This is a step that is missing in the other co-creation process frameworks. Instead, the processes jump directly into the development (Toots et al., 2017), design of public services (Scherer et al., 2015) and design and develop solutions (Nambisan & Nambisan, 2013). However, Scherer et al. (2015) point out that programmers and analysts are an important part to make a platform work, since they can provide the platform with user interfaces to visualize data. For MiMedellin, the idea analysis was seen as a crucial part in the process in order to be able to develop solutions, which is a contribution to the literature.

Development of solutions is the last step of MiMedellin’s process. However, MiMedellin does not implement solutions themselves. They are handing over the best solutions and ideas to the stakeholders that are in charge of the process, or to the identified actor in the process that could develop the solution further. It is up to the involved stakeholders to implement and develop the ideas further. In the other process descriptions, the fourth step is test (Toots et al., 2017) and implementation (Scherer et al., 2015; Nambisan & Nambisan, 2013). The co-creation process is in the literature described until the solution is implemented, which is different compared to the case MiMedellin. Scherer et al. (2015) also include a fifth step in the process which is monitoring of public services that aim at evaluating the public services and identify problems with them to be improved. A comparison of the co-creation processes is described in Table 11. Further on, the analysis will elaborate on positive factors in the citizen co-creation process to achieve social
innovation, based on the categories of activities that are described in MiMedellin’s co-creation process.

Table 11. Citizen co-creation processes in literature and the case MiMedellin

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Discovery</td>
<td>Identification of problems and needs</td>
<td>Identify, discover or define problems</td>
<td>Problem identification and challenge formulation</td>
</tr>
<tr>
<td>Design</td>
<td>Development of ideas</td>
<td>Conceptualize solutions</td>
<td>Citizen Participation</td>
</tr>
<tr>
<td>Development</td>
<td>Design of public services</td>
<td>Design and develop solutions</td>
<td>Idea analysis</td>
</tr>
<tr>
<td>Test</td>
<td>Implementation of public services</td>
<td>Implement</td>
<td>Development of solutions</td>
</tr>
<tr>
<td></td>
<td>Monitoring of public services</td>
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</tbody>
</table>

5.1.3 Positive Factors in the Citizen Co-Creation Process

Dawson and Daniel (2010) mean that developing ideas into social innovation requires iterative and adaptive ways of working. This is something that Toots et al. (2017) and Scherer et al. (2015) suggest in their co-creation processes. MiMedellin’s way of working iteratively described in the interviews have been in the problem identification and challenge formulation and citizen participation. MiMedellin has started challenges in the platform as insights have been gained in the collection of ideas. The analysis of ideas has led to new insights that have resulted in identification of a new problem and a new challenge to solve. Toots et al. (2017) and Scherer et al. (2015) processes could however have important implications on how MiMedellin can work iteratively in all activities of the citizen co-creation process, and not only in the problem identification, challenge formulation and citizen participation.

A way of working iteratively in the development of social innovation suggested in the literature is to develop prototypes that are tested with citizens (Brown & Wyatt, 2010; Hillgren et al., 2011; Bason, 2018). Bason (2018) stresses the importance of involving citizens in tests of the prototypes that are developed in the process of achieving social innovation. That can give important feedback and insights of the product and increase the probability that the implementation of the solution is successful (Bason, 2018). Also, a close collaboration with users and the involved stakeholders is important to ensure quality in the developed solution according to Toots et al. (2017). Since MiMedellin hands over the process to the stakeholders when the best ideas and solutions have been found, it was not described that the co-creation process included testing prototypes with citizens. Developing solutions were explained by the informants to be under the stakeholder’s responsibility. The theoretical arguments of doing prototypes to test with citizens for developing social innovation are many. This could be an important contribution from the literature to the case MiMedellin.
An important factor to consider in the citizen co-creation process that the informants of MiMedellin mentioned is to have a strong and passionate leader that believes in the model and is willing to push the ideas forward. This has support in the literature of what is considered important to develop social innovations. Mumford and Moertl (2003) mean that the early stages of developing social innovation require visionary leadership and Bekkers et al. (2013) mean that the leader should have the passion to gather people around the problem and follow through the process. It is important that the political realm of the social innovation is connected in order to collect necessary resources and increase the validity of the project (Bekkers et al., 2013). Mumford & Moertl (2003) mean that the leader needs to have a convincing ability to receive both support and financial resources for the initiatives. The informants of MiMedellin mentioned the requirement of having enough resources in order to do all the important activities to include the citizens in the process but also to be able to fulfil the wishes of the citizens. In the case project of the Mónaco building, the local government was the lead actor. Resources were allocated for the project and all the important activities in the process. This was seen as one reason to why the citizen co-creation process had an outcome in terms of a park that honoured the victims of the narco-traffic, which is in line with the theoretical arguments by Bekkers et al. (2013) and Mumford & Moertl (2003).

Something that is also important to consider as both Frow et al. (2015) and Nambisan and Nambisan (2013) explain, is that the lead actor should choose the co-creation approach that fit the context and purpose of the citizen consultation. Prahalad and Ramaswamy (2004) mean that online and offline methods should be combined in the co-creation process, which is further stressed in the case study of MiMedellin. The informants explained that online methods are a way to reach a bigger group of the population. The challenges can be marketed on social media channels to attract citizen participation. In the case project of the Mónaco building, posting a question on Instagram collected 1000 ideas of a total of 1500 ideas. Workshops are however seen as the most successful ideation events for MiMedellin since they allow for discussion and getting deeper answers. Toots et al. (2017) support this by meaning that workshops are the best way to include end-users in the design of services since it combines individual ideation with group discussions.

For a successful citizen co-creation process it is important that the participants are from varied backgrounds and integrated to solve problems together and contribute to a shared perspective of the environment (Nambisan & Nambisan, 2013). Nambisan and Nambisan (2013) further stress the importance that offline methods as workshops are suited when collective inputs are sought, whereas online methods as collecting ideas on a platform are more suited for individual inputs. In the case project, it was one of the first time that a co-creation process was aimed for citizens from different socio-economic scale and educational level. This was achieved by mixing different methods and tools for the citizens to participate in, both online and offline methods. The informants in the case project expressed that this was very successful since it gave inputs from a wide group of people and a result that was created by the citizens. The case project confirmed the importance of mixing methods, by showing that it created value for the project and resulted in an outcome of the process.

The informants from MiMedellin described that when citizens participate in a challenge, it is important that they are empowered with information, so they can participate in the challenges with correct arguments. Furthermore, they described that depending on what information is known before consulting the citizens, the type of question should be adopted. When quantitative data is not known, the informants of MiMedellin suggested that an open question should be asked so that citizens themselves can share their ideas and experiences of the situation. When data is known, a narrow question should be asked in order to allow the citizens to prioritize the best solutions. This is something that the reviewed literature is not presenting. The experiences and insights of MiMedellin could therefore contribute to the literature. Open data has however been suggested in the literature to be used in citizen co-creation to find problems that the society and citizens face (Nambisan & Nambisan, 2013; Toots et al., 2017) in similarity to what the informants of MiMedellin’s recommended. Toots et al. (2017) mean that citizens should be able to upload their
own data, suggest changes to datasets or collect data through apps or sensors. In Medellin, data is collected every day from the citizens which are saved in a database of the government. MiMedellin plan to use the information in the challenge descriptions to empower the citizens with facts in the challenge formulation, which is a contribution from the case of how to make use of the data. In line with what the literature present, the data is also planned to be analysed to understand what problems the city is facing.

In order to develop solutions out of the ideas, the informants of MiMedellin enhanced the importance of the analysis of ideas. For MiMedellin, a data analysis company is described as crucial in order to fully understand the collective desire. In the case project of the Mónaco building, an analysis company was involved which resulted in a thorough analysis that was used for designing solutions in an architecture competition. The integration of the data analysis company was seen as important in the co-creation process of the Mónaco building in order to understand the collective wishes of the ideas. The result of the data analysis was then used for the development of a solution. Nambisan and Nambisan (2013) lift the possibility to hold a competition in the idea collection of the co-creation process, and not in the development of solutions as the case project did. To hold innovation competitions for the design of solutions could be a contribution to the literature.

In the literature, the fact that the leader has the skills to scale the innovation (Mulgan, 2006) is important for developing social innovation. The MiMedellin team has sometimes consulted the innovation lab on Ruta N where citizens can be involved in investigating if the solutions could be scaled. Other ways of developing solutions out of the ideas that MiMedellin has used is to find start-ups in Ruta N’s database that could solve the city challenge. The literature does not elaborate deeply on how to develop ideas further into solutions. Voorberg et al. (2015) however, see that the citizen can take the role as a designer and develop a solution together with the government. MiMedellin could therefore give implications to the literature of how solutions can be developed further together with public institutions focusing on innovation.

A summary of the positive factors in the citizen co-creation process for developing social innovation can be found in Table 12, where the box in which the factor is described is highlighted in different colours. The yellow boxes show positive factors that were found in the case study and that had support from the literature. The blue boxes show positive factors that the case lifted but that were not found in the reviewed literature, which can give theoretical implications if further studied and proved. The green boxes show positive factors in the citizen co-creation process that were described in the literature but not in the case. Those factors could have interesting and important practical implications for the case.
Table 12. Positive factors in the citizen co-creation process to achieve social innovation.

<table>
<thead>
<tr>
<th>Overall process</th>
<th>Problem identification and challenge formulation</th>
<th>Citizen Participation</th>
<th>Idea analysis</th>
<th>Development of solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work iterative in the process.</td>
<td>Empower the citizen with information to base their ideas on.</td>
<td>Choose the right approach that fit the context.</td>
<td>Involve a data analytic company or department.</td>
<td>Start a contest to design solutions.</td>
</tr>
<tr>
<td>Create a feedback loop by developing prototypes that are tested with the citizens.</td>
<td>Find problems through open data.</td>
<td>Combine online and offline methods for involving citizens in the process.</td>
<td>Have a structured process for analysing the data.</td>
<td>Scale up the projects in innovation labs.</td>
</tr>
<tr>
<td>Have a strong and passionate leader that can push the project forward.</td>
<td>Quantitative data known - limited question/voting.</td>
<td>Online methods - platform, questions on social media, data collection. For individual inputs.</td>
<td></td>
<td>Find a start-up that can develop the ideas further.</td>
</tr>
<tr>
<td>Have resources to fulfill all important activities in the process.</td>
<td>Quantitative data unknown - open question for getting ideas.</td>
<td>Offline methods - events, workshops. For collective inputs.</td>
<td>Have a passionate leader that pushes the development of the ideas further.</td>
<td></td>
</tr>
</tbody>
</table>

| | | Include citizens of different socioeconomic and education level. | |

5.2 Research Question 2 - Challenges and Solutions

Research questions two is about identifying challenges of using citizen co-creation to achieve social innovation and what the potential solutions are. To answer the question, challenges and suggested solutions in the two literature frameworks and the case study has been analysed. The challenges were summarized into three categories that described the most mentioned overall challenges in the literature and case study: stakeholders and investments, citizen engagement, and process. The last section contains a table, summarizing the challenges and solutions that were found.
5.2.1 Challenges and Solutions for Stakeholders and Investments

Stakeholders can achieve several benefits from using co-creation and have a crucial part in enabling the projects with investments. Several challenges regarding stakeholders’ involvement in the citizen co-creation process and required resources to enable the projects, have been mentioned in the literature and in the case study.

To receive financial resources from the public and the private sector for the citizen co-creation process, was described as challenging both in the case study and the literature. In the public sector, humanitarian resources are also described as an issue because of restrictions. The literature review revealed no direct solutions to the challenge of receiving resources, but Toots et al. (2017) suggest that an iterative agile approach makes the innovation process more efficient. To convince stakeholders to invest in the process, one informant in the case study suggested allocating a budget for the needed activities, in order to be transparent with the costs and show where the benefits can be achieved. Being honest with the investments from the beginning of the project was also described as crucial to keep the private sector interested throughout the process, which is described as challenging by the informants. As an alternative to being dependent on investments from stakeholders, MiMedellin started the program Cities for Life that enabled selling the platform to other cities. Consequently, they earned money that could be invested in the projects.

Roberts et al. (2013) and Voorberg et al. (2015) argue that getting the stakeholders to trust the citizen co-creation process is another challenge that is crucial to get stakeholders to implement it. This challenge was also confirmed in the case study. The informants had experienced issues with convincing the public sector that co-creation is valuable, and it was mentioned that the public sector was concerned that only complaints would be expressed in the citizen involvement. The informants could also meet resistance from the private sector, thinking that co-creation is time-consuming and demands too many resources. Voorberg et al. (2015) argue that the attitude from the public sector is crucial and can determine to which extent co-creation will happen. To get the public sectors support, it was in the interviews suggested to show tangible results. To show tangible results is however mentioned as challenging, both in the literature and the case study. Instead of showing tangible results, some informants expressed the importance of showing indirect benefits. Marques et al. (2018) describe that the co-creation process often is as highly valued as the actual outcome and Hillgren et al. (2011) argue that the process can reveal questions and discussions that contribute to social change in the long run. Mumford and Moertl (2003) also describe that the leader plays an important role in order to convince the stakeholders to get support and financial resources. Frow et al. (2015) argue that the leader needs to choose a co-creation process that fit the context and is relevant for the stakeholders in order to convince them of using it. Having a leader that has this role and the described abilities, could be important to consider in the case of MiMedellin.

Social innovation often results in compelling and inclusive relationships between the stakeholders which can lead to challenges due to different interpretations and expectations of tasks (Dawson & Daniel, 2010). Dawson and Daniel (2010) describe that it is important to have close collaborations with the stakeholders and develop common visions and expectations on what should be achieved. In line with that, the team of MiMedellin has planned to in the future, together with the stakeholders, create a document with requirements that contains the identified problem, the questions they want to ask in the challenge, the goal of the challenge and the actors they wish to involve in the process. Communication is by Mulgan (2006) described as crucial. Dawson and Daniel (2010) argue that it is important to have an open discussion and constructive negotiation with the stakeholders, which motivates for creating a requirement document together with the stakeholders, as suggested by MiMedellin.

Another issue that was mentioned in the case study was the collaboration with the public sector. The government is temporary and change, in the case, every four years, which according to the informants can result in unfinished projects. As a result, Bekkers et al. (2013) describe that the
government often focus on short term projects to win votes, while social innovation require time. No solutions to these challenges have been found in the reviewed literature, but informants from the case study had suggestions based on their experiences, which could give implications to the literature. One informant suggested linking the city challenges to a bigger challenge, like a vision for the development of the city. Based on that vision, measurable missions can be identified and developed into projects. Another suggested solution was to connect projects to stakeholders outside the political structure in order to make them more stable and have a chance to survive when the major changes. A challenge in the process of developing social innovation together with the government expressed by Westley and Antadze (2010), is that the government often wants to avoid risks and thereby mostly fund incremental innovation. This was however not mentioned as a challenge in the case study.

5.2.2 Challenges and Solutions for Citizen Engagement

To get citizens to engage in the co-creation process is by Hussein et al. (2017) and Beltran Laguna (2016) described as challenging. Also, the case study, both the interviews and the analysis of the secondary data, showed that getting people to participate in the challenges on the platform is an issue. In line with Hu et al. (2018) and Izvercianu et al. (2014), the informants believed that one reason is because of a mistrust of the government. They further explained that some citizens do not think their opinion would be considered and do therefore choose to not participate. Bekkers et al. (2013) describe that if involved end-user do not feel that their input has been considered, they might resist the innovation.

To increase the trust, Voorberg et al. (2015) argue that social capital is needed in order to fulfil the promises that the collective action is expecting. The informants also argued that it is important that the citizens can relate to the challenges in order to participate. To achieve relatable challenges the topics in the challenges on the new version of the platform, will be based on what the citizens have prioritized as important topics for them. To increase the motivation for using the platform, it will in the new platform be possible to give feedback to the citizens that have contributed with ideas and make it possible for them to know what has happened with their idea and follow the development process. The citizens whose ideas have been selected can also be recognized on the new platform to encourage engagement. It is also planned that awards will be given to participants, for example a free ticket to the movies or money to implement ideas. In the literature, the opinions about awards differ. Nambisan and Nambisan (2013) argue that awards are important to create incentives for participation. Piller et al. (2012) argue however that the motivation to invest time and effort to participate, needs to be more than monetary. To find new incensement to participate, the new version of the platform in the case will enable the participants to share their own start-ups, companies or city initiatives in order to solve a challenge. The literature on how to increase the engagement on the platform is limited and the case could have an important implication on how to do that.

To reach out to the citizens, several informants thought it was important to get the platform more famous and focus on marketing the challenges. On the other hand, it was described as costly and difficult to find the right means to reach the citizens. How to reach out to the citizens with the co-creation process was not found in the reviewed literature and the suggestion from the case could therefore have implications to the literature. To facilitate the process of marketing the challenges on MiMedellin, the citizens have to sign up to participate. In this way, the citizens that have signed-up can easily be reached through email when a new challenge is launched. MiMedellin also uses social media channels to reach the citizens with new challenges. Using internet will however exclude people with limited access and knowledge of how to use internet (Vrabie & Tiriziu, 2016). The same issue regarding the online platform was expressed in the interviews. Since not everyone in the city has access to internet, everyone cannot participate in the co-creation process on the platform. Nambisan and Nambisan (2013) suggest that the co-creation process should involve both virtual and physical activities to be able to include everyone. Also, MiMedellin has included both
online and offline participation in its process. MiMedellin often holds workshops around the city in addition to their online platform. Workshops are described in the literature as the best way to include end-users (Toot et al., 2017). Another challenge to include everyone in the process that is described in the literature is that co-creation initiatives have shown to attract citizens with intrinsic values (Voorberg et al., 2015; Vrabie & Tiriziu, 2016) and with high education levels (Wise et al. 2012; Vrabie & Tiriziu, 2016). It is according to Nambisan & Nambisan (2013) important to build an innovation ecosystem with people with a varied background. This issue had however not been investigated in the case and it was not described as a challenge but could still be important to consider.

5.2.3 Challenges and Solutions in the Co-Creation Process

In the different steps of the co-creation process, the case study revealed several challenges. The literature review did not show many concrete challenges in the process but mentions overall challenges that can be connected to the experienced challenges in the case. To start with, Mulgan (2006) describes that the basic ideas often come from unfulfilled needs and Lettice and Parekh (2010) describe that it is crucial to determine that the ideas have a market. This had been experienced as challenging in the case and the informants described products, developed through the co-creation process, that did not succeed because they did not have a market once they were released. To avoid this issue, Mulgan (2006) argues that good communication is crucial and describes that it is important to listen to people’s need and dig below the surface to understand them. Another way to identify unfulfilled needs and problems is to let citizens contribute with data to the government, either by reporting problems or indirectly through open data (Nambisan & Nambisan, 2013; Toots et al., 2017). Correspondingly, MiMedellin often uses open data, obtained from the government, when identifying problems. In addition, the new version will let the citizens be actively involved in the process of deciding topics for the challenges. In the case, it was also described that it is important to involve different relevant actors when identifying the problems and developing the challenges. Phillips et al. (2015) also describe that a suitable network is needed in order to produce relevant innovations.

The next step in the co-creation process of MiMedellin is to formulate the challenge. To do this correctly when having sensible subjects, was described as difficult by the informants. To deal with the issue, an actor with experience within the subject was involved as an advisor in the case project. Lettice and Parekh (2010) describe that to handle the complex and systematic challenges of social innovations, it is crucial to have a reflective approach. Dawson and Daniel (2010) argue that the innovators need to try the solutions often and adjust them quickly to the experiences. To do that, Hillgren et al. (2011) claim that is crucial to prototype, which is usually not included in the innovation process of MiMedellin and could therefore be important to consider. It is also according to Bason (2018) important to have a safe environment to allow mistakes that can lead to reflection and learning. Another issue that was described by the informants when formulating the challenges is to find the right balance in the description. The informants described that they need to catch the interest of the citizens in a short amount of time and explain technical details in an easy way. The literature review did not show this challenge and did not reveal any solutions to it. MiMedellin’s experience could therefore give implications to the literature. To solve the issue on MiMedellin citizens will be given links and downloadable files containing more data and information about the challenge on the new version of the platform. It will also be possible to add videos in order to visualize the challenge. According to the informants, it is crucial to give the participants data, so they can take decisions based on correct information.

To analyse the collected data from the challenges, in order to find the best ideas, was described as difficult by the informants. How to perform the analysis of ideas collected from citizen co-creation was however not found in the reviewed literature and the case study could give implications to that. MiMedellin has sometimes solved it by contracting an analysis company that has performed the analysis. That was however described as costly and not always possible due to budget
limitations. An informant did therefore express the importance of allocating a budget for the analysis of the ideas. In the case project, it was also experienced that the analysis got complicated since the contracted analysing company not was involved in deciding the methodology of the co-creation process. To improve the analysis, it was emphasized that the analysing company should be involved from the start of the process. Another issue about the analysis of the ideas from MiMedellin that was brought up by the informants, was when follow-up questions were needed. Some ideas are sometimes not fully explained, but there is no easy way to ask follow-up questions once the analysis has started. It was also described that it is often no time to ask follow-up questions to the citizens, especially when working with the public sector, due to time limits. It was also described as challenging to analyse the data collected from workshops, mainly since it was missing a normalized structure. Also, since not all words in the conversations are written down and can be digitized, this results in lack of information. Despite the emphasis on workshops in the literature of citizen co-creation, it was not found how to analyse the data in the reviewed literature.

To scale and diffuse the projects is described as challenging both in the literature and in the case study. MiMedellin has not resulted in many innovations that have been developed, despite several challenges that have collected ideas. One reason for the lack of results was described to be because the market was not ready when the products or services were implemented. To determine that the market is ready, Lettice and Parekh (2010) describe that it is crucial to scan the environment to identify opportunities and threats. Informants also described that the lack of outcome is because no one feels responsible for taking the ideas further. To avoid this issue, one informant described that it is important to have a leader that wants to push the ideas forward and make something out of them. The leader’s role when implementing social innovation is also described as crucial by Mulgan (2006) who argue that the leader needs the skills to scale the innovation. Another reason for the issue with the implementation described by the informants, is that the process has not been thought-out until the end and it is therefore not set who should lead the process and who should take it further. To solve this issue, it is again suggested to create a document with requirement together with the involved stakeholders to set the responsibilities from the start of the process.

When challenges are developed on the platform without other stakeholders involved from the start, the team of MiMedellin tries to find start-ups that can take the ideas further. This is done by using Ruta N’s internal innovation lab or platform with start-ups. The new MiMedellin platform will also make it possible for participants to share their start-ups, companies or city initiatives, which can be a way to identify suitable stakeholders that can be involved to develop the ideas. Scherer et al. (2015) argue that it is possible that the citizens can self-organize to implement the solutions. According to Nambisan and Nambisan (2013) the citizen also plays a crucial part in spreading the innovation, which could be important to consider in the case of MiMedellin. The government is also described as an important actor in scaling the innovations since they have the capacity to passing laws, allocating resources and authority to public agencies (Mulgan, 2006). The government can also raise awareness with social marketing strategies (Harrisson et al., 2011). How to use the government to spread the innovations could have important implications in the case of MiMedellin. Toot et al. (2017) mean that the government and the citizens should be partners all the way from ideation to the implementation. However, to achieve that, the government's ambition to truly support the innovation is crucial (Westley & Antadze, 2010). Santor et al. (2018) also enhance the importance of openness and involving multiple stakeholders, which MiMedellin does with their co-creation process together with citizens and other actors in the city.

5.2.4 Summary of Challenges and Solutions

Table 13 shows a summary of the challenges and solutions found in the literature review and the case study. The findings in the literature about citizen co-creation and social innovation have been merged to enable comparison with the case study. Similar challenges have been connected and suggested solutions from the two sources are presented. Colours have been set to the rows
depending on where the data come from to visualize the gaps in the literature or in the case study and to show theoretical and practical implications from the study.

The yellow rows are challenges that in the case study have been suggested to be solved in other ways than presented in the reviewed literature. These could therefore give both practical and theoretical implication since the literature can contribute to new solutions for the case and the solutions from the case can contribute to the literature. The blue rows show challenges and solutions from the case that have not been found in the reviewed literature, which mark possible gaps in the literature. Both the yellow and the blue rows give important theoretical implications. The implications are however based on suggestions by informants with experience within the subject and would therefore need further research to conclude. The green rows show input from the literature that could be used to solve a challenge in the case and give implications to the case. The white rows show challenges mentioned in the literature that have not been mentioned as challenges in the interviews. The challenges have however often been mentioned as important factors for the process in the case and could therefore give practical implications for the case. The white rows also include the challenges and solutions that have been found in both the case and the literature.

Table 13. Summary of challenges and solutions suggested in literature and case study.

<table>
<thead>
<tr>
<th>Challenge in literature</th>
<th>Challenge in case study</th>
<th>Solutions suggested in literature</th>
<th>Solutions suggested in case study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders/Investments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stakeholders trust in the process.</td>
<td>Convincing the public institutions that co-creation is valuable.</td>
<td>- Have convincing leadership. - Create validity for project. - Get support from end-users. - Positive approach to co-creation by public officials and politicians. - Transformation in approach to seeing citizen as a companion. - Have a lead actor that focuses on the co-creation solution and chooses the co-creation that fit the context and the relevant actors.</td>
<td>- Get the public institutions to trust the process and understand that the results are indirect. - Show tangible results. -Convincing the private sector about the benefit of co-creation: That it can be used to solve problem faster, with less resources, more transparent and collaborative.</td>
</tr>
<tr>
<td>Lack of proof of benefits.</td>
<td>Show tangible results from the process.</td>
<td></td>
<td>- Show the indirect results and benefits of co-creation.</td>
</tr>
</tbody>
</table>
| Requirement of initial economic investment. | Keep the interest of stakeholders from the private sector throughout the process. | - Be honest with what investment that needs to be put in to the project from the beginning.  
- Together with stakeholders, create a document with requirements. |
|---------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Limited humanitarian resources in public sector. | Receive funds and budget for the project. | - Allocate a budget for all activities.  
- Sell the program to other cities interested in solving city challenges. |
| Government has a short-term focus; social innovation requires time. | Resource restrictions in the public sector. | - Iterative and agile innovation process to produce and lead the creation of services in a more efficient and collaborative way. |
| Government wants to avoid risk and often only funds incremental innovations. | Temporary public sector - change of mayor. | - Link city challenges to visions for the city.  
- Connect projects to stakeholders outside the political structure.  
- Collaborate between public sector, private sector, academic sector and NGOs. |
| Complex social relationships among stakeholders. | - Have close collaborations.  
- Create common visions and expectations.  
- Communicate: have open and constructive discussions.  
- Pay attention to social exclusion and weaker voices. |

**Engagement**

| Citizens engagement in the co-creation process. | Attract people to participate in the challenges. | - Create a community and a platform that enable an efficient and effective co-creation between different actors.  
- Citizens need to trust the co-creation initiatives. Must have social capital in order to fulfil the promises that the collective action is expecting. |

| Citizens trust in co-creation initiatives. | Reach the citizens that do not participate because they mistrust the government and do not care about the city. | - Have social capital in order to fulfill the promises that the collective action is expecting. |

- Give awards and feedback to the citizens that participate.  
- Include participants in the development of the solutions.  
- Include citizens when deciding topics in the challenges.  
- Let the participant follow the idea development.  
- Give feedback to, recognize and award citizens on the platform.  
- Let the participants share their own start-ups, companies or city initiatives in order to solve a challenge.  
- Increase the publicity of the platform.
<table>
<thead>
<tr>
<th><strong>Find the right means to market the challenges in the platform and reach the citizens.</strong></th>
<th></th>
<th><strong>- Get people to sign up to participate to be able to send emails when new challenges are launched.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-creation attracting mainly citizens with intrinsic values and high education level.</td>
<td>- Build an innovation ecosystem/community with people with varied background.</td>
<td></td>
</tr>
<tr>
<td>Online co-creation excludes people with limited access and knowledge of how to use Internet.</td>
<td>Everyone cannot access an online platform.</td>
<td>- Co-creation on both a virtual or physical venue. - Do workshops to include end-users in the design of services. - Do workshops.</td>
</tr>
</tbody>
</table>

**Process**

<table>
<thead>
<tr>
<th>Identify unfulfilled needs and markets.</th>
<th>- Let citizens and businesses report problems to the government. - Collect data indirectly from the citizens. - Observe, listen, communicate, dig below the surface. - Scan the environment. - Develop suitable networks.</th>
<th>- Use objective data or open data collected by the government - Involve different actors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage complex and systematic issues that social innovation often entails.</td>
<td>Formulate the challenge correctly because of the sensitive subject.</td>
<td>- Work iterative: Be adaptive and have a reflective approach. - Prototype: Try the solution often with users. - Focus on learning and evaluation - Have a safe environment. - Include actor with experience of the subject.</td>
</tr>
</tbody>
</table>
| Find the right balance in the challenge description. | - Catch the interest of the citizen fast and explain technical things easy.  
- Connect participants to data and statistics.  
- Have videos in the main visualisation of the challenge. |
| Analysing the collected data to find the best ideas. | - Contract a data analysis company.  
- Allocate it a budget.  
- Include the company when deciding the methodology. |
| Difficulty to ask follow-up questions to ideas on platform.  
Lack of time to dig deep and ask follow-up questions. |  |
| Not complete data from workshops, cannot digitize all words in the conversations. |  |
| Scale and diffuse the projects.  
Implement ideas and solutions  
Determine if the market is ready for the solution. | - Scan the environment for opportunities and threats.  
- Leadership skills.  
- Citizens can self-organize to implement the solutions individually or with resources from the government.  
- Get support from government.  
- Have a wide network.  
- Be open and involve multiple stakeholders. |
|  | - Have a leader that pushes the ideas forward and make something out of the them.  
- Plan the whole process before starting.  
- Together with stakeholders, create a document with requirements.  
- Find startups that can take the ideas further.  
- Let the participants share their own startups, companies or city initiatives in order to solve a challenge. |
In this chapter, the discussion of the findings in the case study is presented. The researchers discuss why it is important to show results from a citizen co-creation process, how the process of citizen co-creation could be more efficient and elaborate on factors in citizen participation that are important to create engagement in the process.

6.1 Results from the Citizen Co-Creation Process

The aim of the study is to investigate how citizen co-creation is used as a mean to achieve social innovation. This master’s thesis argues for a strong link between citizen co-creation and social innovation, where methods, tools and ways to work within citizen co-creation are seen as means to achieve social innovation. However, challenges in the citizen co-creation process have been identified, where one challenge that was pointed out by both the literature and the case study, was the stakeholders’ trust in the process (Roberts et al., 2013; Voorberg et al., 2015). Without stakeholders trusting the process, the chance of implementing citizen co-creation in the public sector is low, which consequently reduces the chances of achieving social innovation.

One solution that has been suggested in the case study in order to increase the stakeholders’ trust in the process is to show results. One way of showing results is that tangible products or services are the outcomes of the process. However, this is challenging. As in the case of MiMedellin, citizen co-creation processes have not shown many results in products or services that actually are implemented and valuable for the society. In addition to losing the trust of the stakeholders, not developing anything from the process is also a waste of financial resources and potential social innovations. According to the informants in the case study, an issue regarding the engagement from the citizens is that they do not trust the co-creation process since they do not think that their contribution would count. Bekkers et al. (2013) argue that end-users that do not feel that their input have been considered might lead to them resisting the innovation. Showing tangible results would consequently also be important to prove that the citizens’ ideas have been considered and, in that way, increase the engagement on the platform.

To achieve tangible results, resources to perform all required activities in the process are needed as stressed in the case. To get resources, connect the project to the political realm and create validity for it as Bekkers et al. (2013) argue for, is hard to achieve without trust in the process by stakeholders. Overcoming the challenge of stakeholder’s and citizens’ trust in the process, is a vicious circle where no results can result in mistrust and lack of investment for the projects, and no investments will lead to no results. It is therefore important that the literature presents cases that show results. This is something that this case study has been able to show with case project Edificio Mónaco.

It is important to remember that the definition of social innovation is an innovation that meets social needs (EU, 2014; Mulgan, 2006; Howaldt & Schwarz, 2010). This is therefore also considered as a result of the citizen co-creation process in this report. Marques et al. (2018) argue that the co-creation process often is as highly valued as the actual outcome. Hillgren et al. (2011) further stress this by arguing that questions and discussions are revealed in the process of social innovation that can contribute to social change. In the case project of the Mónaco building, a park was the final result of the citizen co-creation process that took place in Medellin to honour the victims of the narco-traffic. To argue that a park is an innovation might meet resistance. However, with the definition of social innovation as a benchmark, the argumentation for the project as social innovation is supported. The stakeholders experienced that the process started a discussion about
an important topic in the city that had been ignored for a long time, as well as it allowed citizens to share their ideas and feel part of the final solution which opened up for social change in the city.

The informants from the case study stress that the results from the co-creation process often are intangible. Arguments for citizen co-creation in the literature and in the case study, are that less resources are needed since a community of people from mixed backgrounds can be reached, city challenges can be solved faster, and costs can be reduced. However, stakeholders still have difficulties in trusting the arguments. They see the initial costs and investments for the implementation of co-creation, and the case study revealed that it sometimes is hard to convince them about the benefits of co-creation. An intangible result that the case study lifts, is that the public sector can show transparency, both with what it is working on and in the relation with the citizens. MiMedellin is described as a way to open up for communication between the citizens and the government and show that the government cares about the citizens. Case studies could show that the intangible results of the process have been valued which can prove the benefits of co-creation. This might be helpful to overcome the trust issues among stakeholders, the government and the citizens.

6.2 Process of Citizen Co-Creation

In the case of MiMedellin, the lack of results was described as a consequence of the issue of finding a suitable leader for the development of the innovation. The importance of leadership when developing social innovation is also highlighted in the literature (Bekkers et al., 2013; Mumford & Moertl, 2003; Mulgan, 2006). MiMedellin often leads the co-creation process, but it is no longer their responsibility when it comes to the development and implementation of the idea and does therefore not follow through the whole process. Instead, they need to find an actor that can be responsible for the development of the innovation, which was described as challenging. If no sustainable leader is found, the informants explained that it is a risk that the projects disappear and are closed down. In the case project, the mayor’s office was responsible for the project, but having the government responsible for a project was described as a risk since they are set for a limited period. Like the informants in the case study expressed, a solution to this issue would be to connect the project with the private sector. However, it might not be sufficient to do this at the end of the project for MiMedellin. Mulgan (2006) argues that the leader needs to follow the different steps of the process in the development of social innovation. Finding a leader from the start of the process might therefore be an important implication for MiMedellin.

The leader does not just play an important part in the development and implementation of the solution, but as the literature argues, also in creating an innovative culture (Ahmed, 1998), connecting the political realm of the social innovation (Bekkers et al., 2013) and gathering financial resources (Mumford & Moertl, 2003). The literature describes important characteristics that the leader should have and setting up requirements for the selection of a leader might therefore be important. The leader should among others be flexible (Mulgan, 2006), have a visionary leadership (Mumford & Moertl, 2003), be passionate about the subject (Bekkers et al., 2013) and have a convincing ability to receive support and financial resources (Mumford & Moertl, 2003). If finding a suitable leader is challenging, it could be considered that MiMedellin extends their process and continues working with the development and implementation of the process as well. This would however require both humanitarian and financial resources and might not be a sustainable solution for MiMedellin that runs several projects, and is owned by a public entity, which according to themselves limit their resources. Another solution could be to find an actor that takes over the project, but where MiMedellin stays involved in the process to make sure that the actor follows through. In this way, the process and result could also be evaluated, which is described as an important step by Mulgan et al. (2007) to be able to develop best practices.
Another part that is described as crucial in the literature, both about citizen co-creation and social innovation, is to work iteratively and being adaptive. MiMedellin has worked iteratively in the problem identification and challenge formulation of the process as a way of finding the needs of the citizens. However, Toots et al. (2007) and Scherer et al. (2015) argue that it is important to work iteratively in the entire process. In the case project of the Mónaco building, which followed a linear process, the idea analysis was described as challenging, although a data analytical company was contracted. Some ideas in the analysis were hard to understand and follow-up questions were needed. To solve that, an extended conversation with the citizens was desired, however time was not sufficient. If an iterative approach would have been adapted, the ideas could have been tested in several steps and question marks in a first loop could have been answered in a second loop. It could also facilitate the analysis since it would allow the citizens to be part of selecting the best ideas. Resources are often not sufficient for consulting a data analysis company for the idea analysis for MiMedellin, and to make use of the community’s knowledge and integrate the citizens into the analysis process could be a way of meeting the difficulty. Including the citizens more in the process, would also make it more transparent which is seen as a motivation for stakeholders to use co-creation by the informants in the case study. In addition, Toots et al. (2017) argue that an iterative agile approach makes the innovation process more efficient. Making the process more efficient might minimize the needed resources and could therefore be a way for MiMedellin to reduce the required investments.

Prototyping could be seen as one way of working iteratively in the co-creation process since it according to Bason (2018) is a way of testing and receiving feedback on different options. Prototyping is however outside the process of MiMedellin. If MiMedellin would be involved in the development of the solution, also the citizens could be involved in that part which the informants described as desired by some of the participants on the platform. Bason (2018) argue that the prototypes can be illustrations or virtual models, which would make it possible to present them on the platform and the citizens could be given the opportunity to, for example, give feedback or vote for the best option. If physical models are preferred, these could be tested through workshops held by MiMedellin. In addition to prototypes, questions and ideas that come up during the development could be tested with the members of MiMedellin. In this way, the citizens would be further included in the process which according to Bekkers et al. (2013) is crucial for the development of successful innovations and can according to Arvaniti et al. (2017) facilitate the implementation.

The online platform and workshops are used for citizen participation. Both methods are described to have benefits and challenges and they could give implications to each other. The platform is by the informants seen as a better way to present the challenges than in the workshops since the participant can be given more data and information. It is however not known how many that actually read the information in the challenges on the platform. Similar information might also be possible to provide on paper or orally to the participant in the workshop. The platform might also be seen as easier to manage since it does not need a physical space or human resources as the workshops do. However, the workshops are described as the best way to reach the citizens both in the literature by Toots et al. (2017) and in the case study since it allows for discussion and deeper answers.

Nambisan and Nambisan (2013) mean that a platform is most suitable for giving individual inputs and that the problems on the platform should be narrow and well-defined. The analysis of the secondary data showed that 18 percent of the challenges have questions related to narrow and well-defined problems and 23 percent have been multiple selection challenges where the citizen can prioritize problems. 54 percent of the challenges that have been performed on the platform are challenges with open questions. The secondary data analysis showed that only 4.2 percent of the participants have ever commented an idea, which shows that the platform is not is used to discuss and build on each other ideas which Nambisan & Nambisan (2013) mean is important for broader problems. One can argue that platforms not are suitable for broad problems, however the open
challenges on MiMedellin allow the citizens to explore problems in the society and give their ideas on what the problem is in the society. To manage the open challenges more efficiently, it would be important to investigate how the platform could enable more discussion and deeper answers. Nambisan & Nambisan (2013) argue that online brainstorm sessions can be used as a way to enable discussion online and that might also be something to consider for MiMedellin.

6.3 Citizen Participation in the Citizen Co-Creation Process

The analysis of the secondary data showed that around 35 percent of the registered users have given one idea or more, and around 25 percent have voted in one challenge or more. In other words, around 64 percent have never given an idea in a challenge and 73 percent of the registered users have never voted in the multiple selection challenges. However, the secondary data showed that around 61 percent of the users have participated at least once with an idea, comment, like or vote. This might mean that citizens are motivated to participate in different ways in the process. The secondary data showed that of the citizens that have not given any ideas to challenges, almost 38 percent of them have voted in multiple selection challenges, in comparison with people that have given ideas where only 7.6 percent of them have voted in challenges. By the ones that have contributed with ideas, 52 percent of them have also liked ideas to compare with the ones that have not given ideas where no one have liked an idea. This data supports the expressed challenges of getting citizens to engage in the co-creation process, but it also shows the importance of offering different ways for the citizens to be involved in the co-creation process on the platform. To achieve a higher engagement on the new platform, MiMedellin has the ambition to let citizens share their start-ups or social initiatives to increase the motivation to participate. In that way, the citizens can be integrated into the design or development of solutions as well as implement solutions as the literature has shown are important ways of co-creating with citizens (Nambisan & Nambisan, 2013; Voorberg et al., 2015). The informants meant that some topics are more attractive than others. They further explained that topics that affect a bigger group of the society have been more attractive challenges, than those that were more specific. For the new platform of MiMedellin, it is therefore planned to connect the challenges to the problems that the case organization Ruta N is working on, in order to work more closely to the strategy of the city. It could also be important to involve the citizen more in the selection of topics to increase the participation. This could be done by letting the citizens vote on which themes they want to have challenges in. The citizens could also analyse data to find problems in the society themselves as the literature suggest (Nambisan & Nambisan, 2013). Another way of increasing the engagement that the new version of MiMedellin will test, is to give the citizens awards for participating. This is a topic that has mixed thoughts both by the informants and in the literature. There are authors arguing that awards are a way to get ideas with high quality (Nambisan & Nambisan, 2013; Piller et al., 2012), whereas arguments for no awards are that people that really care about the city will be encouraged to participate (Piller et al., 2012). The same arguments were found in the case study. If awards for participation should be given or not would therefore need to be further investigated. The informants also meant that an important part of the citizen co-creation process is to show the citizens what happens with the ideas to motivate them to contribute with ideas in future challenges. This is something that is planned into the new version of the platform.
7 CONCLUSIONS

The aim of the study was to investigate how citizen co-creation is used as a mean to achieve social innovation. As previous research has indicated, a strong link between citizen co-creation and social innovation was found in the study. Social innovation is characterized by being an interactive and collaborative process where knowledge is shared between different stakeholders. Citizen co-creation is a process where stakeholders are brought together to jointly solve problems in the society. In this way, citizen co-creation is a mean to achieve social innovation.

In order to further elaborate on the aim of the study, two research questions were investigated: “Which factors have a positive impact on the citizen co-creation process to achieve social innovation?” and “What are the challenges of using citizen co-creation to achieve social innovation and what are the potential solutions?”. To answer the research questions, literature within social innovation and citizen co-creation were reviewed and a case study was performed at a public entity providing a program for a citizen co-creation process. Factors with a positive impact were identified in the citizen co-creation process to be mainly related to ways to work, methods for citizen participation and leadership. Challenges of achieving social innovation with citizen co-creation were found to be mainly related to trust, engagement and the complexity of the process. The literature framework and the experiences of the participants of the study helped to find ways to overcome the challenges. The practical and theoretical implications are described below.

7.1 Practical Implications

In terms of practical implications, the process of citizen co-creation presented in the empirical result, can give important implications on how to achieve social innovation. The process includes phases as problem identification, citizen participation and development of solutions. These include important factors for developing social innovation. Social innovation meets social needs and correspond to a problem that the society face. The citizen co-creation process starts off from an identified problem in the society that the process seeks to find a solution for. In the case, open data has been used as a way to find problems in the society, which the literature also recommend. This use of open data is therefore a practical implication that this master’s thesis points out.

The process of citizen co-creation and social innovation is in the literature recommended to be iterative where citizens are suggested to be involved in all steps of the process to give their input. The study revealed several benefits of using an iterative process when using co-creation to create social innovation. It is in the literature argued that an iterative approach can make the process more efficient. In that way, the needed resources could be reduced which is one of the main issues that both the literature and the case study describe that citizen co-creation can solve. Having a reflective approach is also suggested in the literature as a way to handle the complex issues that social innovation includes, which was described as challenging in the case. The empirical result showed that citizens today are only consulted in some parts of the process in the case study and that the entire process is not iterative. This is however something that the literature argues strongly for and that can give practical implications to the case.

This master’s thesis argues for the importance of having a strong and passionate leader that can push the project forward all the way from start to developed and implemented ideas. Else, the risk is high that projects die before the solution from the co-creation process has been implemented. This has been experienced as a challenge in the case and expressed in the literature as important to consider for developing social innovation. Another challenge in the citizen co-creation process confirmed in both the case study and the literature is to scale and diffuse the project. The leader
plays an important role in solving the challenges by having a convincing ability and will to push the ideas forward, which is a practical implication from the study.

One issue mentioned both in the literature and in the case study, is to get stakeholders and citizens to trust the co-creation process and thereby also participate in the process. To gain trust from the citizens, the result from this master’s thesis argues that it is important to show that the participants’ ideas and suggestions have been considered. This can be done by letting the participant being involved further in the process and keeping them updated on what happened with the ideas. In addition, it was found that it is important to show results, which also is a way to increase the trust among the stakeholders. Since tangible results can be hard to show, the study revealed the importance of showing intangible results that the citizen co-creation process can contribute with. Co-creation can for example be used by the government to show transparency, contribute to an important discussion in the city and make the innovation process more efficient.

Both the literature and the case mean that getting input from a diverse group is important to solve problems since the problem can be viewed from different angles. This is also a source of creativity and can often result in better solutions. A diverse group can be reached with citizen co-creation, especially if different methods in the process are used. Combining online methods, such as a platform, and offline methods, such as workshops, can involve people from different backgrounds which create a holistic view of the problem and better solutions. These are practical implications to the citizen-co creation process in order to create social innovation.

Taking together, the practical implications from this master’s thesis are the following:

- To identify problems in the society, open data can be used.
- The citizen co-creation process benefits from an iterative process where citizens are involved throughout the process.
- The citizen co-creation process needs a strong leader with a convincing ability and will to push the ideas forward to implemented solutions.
- To gain the citizens’ trust in the citizen co-creation process, a solution is to show the progress of the given ideas.
- To gain the stakeholders’ trust in the citizen co-creation process, a solution is to show results, both tangible and intangible.
- To reach a diverse group of citizens different methods in the citizen co-creation process can be used.

### 7.2 Theoretical Implications and Future Research

The case study revealed findings that the reviewed literature has not touched upon. The literature of citizen co-creation mostly treats influential factors and very few describe the process, what works well in it and what the challenges are. This study has achieved depth in the process due to the nature of the research and the study’s focus. The master’s thesis can therefore contribute with theoretical implications to enrich the field of both social innovation and citizen co-creation.

The empirical result showed that the citizens can be asked different types of questions for different purposes. For example, a question that allows the citizens to prioritize the problems by voting for the option that is most important for them, can be used to find a problem with importance to the citizens. Open questions are instead used to collect inputs and ideas about a broad problem in the society when a narrow problem is not defined. The literature touches upon this but does not define how and when questions should be asked. Therefore, the empirical result can give implications to the literature. However, the types of questions and their purposes needs further research. The empirical result also showed the importance of formulating the challenge description correctly and empower the citizens with information before they give ideas. The challenge type and formulation
were described as crucial to get engagement and being able to solve problems. These findings are based on the case organization’s experiences and suggestions and needs further research.

The result of the study argues for including the citizens further in the process. That will however require an increased engagement from the citizens which was described as a challenge in the case. To motivate the citizens to participate, different options have been suggested. Some articles argue for awards, some argue against it and a similar dilemma was found among the informants in the case study. A suggestion in the case study was to give the citizens feedback on their ideas and include them in the development to show what happens with the ideas. Another solution suggested in the case study to motivate the citizens to participate was to let the participants share their own start-ups, companies or city initiatives in order to solve a challenge. To determine what motivates the citizens to participate in the co-creation process, further research is needed. To increase the engagement, it was in the case study argued that the platform needed more publicity. Marketing was described as challenging and it would therefore be interesting to investigate what marketing strategies that would best be applicable into the area of citizen co-creation.

A crucial part of the citizen co-creation process found in the case study that the reviewed literature has not mentioned, is the idea analysis. The case study showed that a data analytical company is important to involve in order to fully understand the collective wishes of the ideas. Idea management is a popular field in innovation management, but it has not yet been transferred into the reviewed literature about citizen co-creation. Further studies could focus on transferring practices from idea management into the citizen co-creation process to understand how the collected ideas could be taken care of.

In the development of solutions, the reviewed literature has not been very specific. The case study showed new ways of developing solutions from the citizen co-creation process that the reviewed literature has not mentioned. The case project showed that the developed solution was a result of an architecture competition, where the ideas from citizens were taken into count. The case study also revealed that the co-creation process can achieve results by connecting the process to innovation labs or start-ups that can take the ideas forward. This however, needs further studies to show if it is an efficient way of scaling up ideas to solutions.

Further research is also needed on the results from the citizen co-creation process. Being able to show results is seen as crucial to gain trust from the stakeholders and citizens. There is however a lack of results, both in the case study and in the reviewed literature. More cases are therefore needed to show results from the citizen co-creation process. With the aim of developing social innovation, it was in the case study argued that the results from the process can be intangible and the case project revealed several. This would however need to be further studied and confirmed in other cases. Research on the intangible results could reveal more benefits from using citizen co-creation and thereby increase the interest in the process.

To summarize, this master’s thesis indicates the following questions for future research:

- What types of questions should be used in the citizen co-creation challenges and for what purpose?
- How should the descriptions in the citizen co-creation challenges be formulated?
- What motivates citizens to participate in the co-creation process?
- What marketing strategies could be applicable to the citizen co-creation process in order to increase participation?
- How should the ideas be analysed to select the best ideas from the citizen co-creation process? What practices from idea management can be transferred into the idea analysis of the citizen co-creation process?
- How should solutions from the co-creation process be developed?
- What are the results of the citizen co-creation process?


APPENDIX 1: Interview Guide - Team Members of MiMedellin

Appendix 1 presents the interview guide used in the interviews with the team members of MiMedellin. All interviews followed the same guide.

Interview guide - Team members of MiMedellin

The aim of our study is to investigate how citizen co-creation is used as a mean to achieve social innovation. To do this, we are going to investigate MiMedellin’s co-creation process to identify challenges and opportunities.

In the study we will perform interviews with people that have been working with the project, participating companies and citizen ideators.

Warm up

- Build trust! - Intro with a background about project, present ourselves.
- Confidentiality - No names will be used, just role. The interviews will be summarized to one result, your exact answers can not be connected to your role.
  - Consent form.
- Voluntary participation. Ok to withdraw from the study as well as choose to not answer a question.
- OK to record and quote?

Start recording

About the participant

- What is your role in the organization?
- How long have you been working in the organization/project?
- How long has the project MiMedellin existed?
- Describe your responsibilities in the project?

Mapping of process

- How would you describe the purpose of MiMedellin?
- How do you work to achieve the purpose?
- Describe the co-creation process of MiMedellin, from start until the end?
  - What is the start?
  - What is the end?
  - How to you decide challenges?
    - Workshops?
    - Requirements for creating a challenge?
    - What do you consider in the formulation of the challenges?
  - How do you collect ideas?
  - How do you manage/select the ideas?
    - Workshops?
What happens next?
Who are involved in the process?
  o Who are the citizens?
  o Stakeholders?
  o What are the roles of the stakeholders?
  o What are the requirements on the stakeholders to participate?

Evaluation of the process
What have you achieved with the co-creation process?
  o Outcomes?
How has the co-creation process been changed or developed throughout the project?
  o Why?
  o What key learnings have been made?
What challenges have you experienced in the co-creation process?
  o Why is it a challenge?
  o How have you overcome them? Examples.
What do you consider as successful in the co-creation process?
  o Why is it successful?
  o Give examples

Ending
How would you like to see the development of the platform in the future?
Is there something you would like to add/ we have missed to ask?
When writing our report, what role would you like us to use?
Can we contact you for further questions?
  o Contact details

Thank you!
APPENDIX 2: Interview Guide - Stakeholders in the Case Project

Appendix 2 presents the interview guide used in the interviews with stakeholders in the case project. Over all the same guide was used, but the part called Mapping of process was adjusted according to the participants’ role in the process. The different versions are presented inside the guide below.

Interview guide - Stakeholders in the case project

The aim of our study is to investigate how citizen co-creation is used as a mean to achieve social innovation. To do this, we are going to investigate the MiMedellin co-creation process to identify challenges and opportunities.

In the study we will focus on the case of Edificio Monaco as an example of a co-creation process in MiMedellin. We will perform interviews with people that have been involved in the project and citizens that contributed with ideas.

Warm up
- Build trust! - Intro with a background about project, present ourselves.
- Confidentiality - No names will be used, just role. The interviews will be summarized to one result, your exact answers can not be connected to your role.
  - Consent form.
- Voluntary participation. Ok to withdraw from the study as well as choose to not answer a question.
- OK to record and quote?

Start recording

About the participant
- What is your role in the organization?
- What have your role been in the Edificio Mónaco project?
- When was it and how long did it last?

Mapping of process - Analysing company
- Describe your part in the co-creation process of Edificio Monaco, from start until the end?
  - What was the start?
  - Who were involved in the process?
  - How did you analyse the ideas?
  - How did you select the ideas?
    - Criterias
    - Processes
    - Tools
- What happened when the ideas were selected?
  - Presentation for actors
• Presentation for citizens
  • What was the final outcome?

Mapping of process - Memory museum
  • When were you first involved in the project?
  • What was the motivation for your participation?
  • Describe the museum’s role in the co-creation process of Edificio Mónaco?
    o What was the start?
    o Who did you work with in the process?
    o How have you interacted with the citizens?
    o What connection have you had with the Mi Medellin team and the platform?
    o What other parts of the co-creation process have you been involved in?
    o Where in the process are you right now?
    o What is the end?
  • What is the final outcome of the process?

Mapping of process - Representative from city hall and public urban development company
  • What was the purpose for using MiMedellin for this project?
  • Describe your part in the co-creation process of MiMedellin, from start until the end?
    o What was the start?
    o Who were involved in the process?
    o How did you identify the problem?
    o How did you decide the challenge?
      ▪ In what way were you involved?
      ▪ Workshops?
      ▪ What did you consider in the formulation of the challenges?
    o How did you select the ideas?
      ▪ Criterias
      ▪ Processes
      ▪ Tools
  • What happened when the ideas were selected?
    o What processes did you follow when you developed the innovation?
    o Did you do prototypes?
  • What was the final outcome?
  • How did you implement and scale it?

Evaluation of the process
  • What key learnings have been made from the analysis process?
  • What do you consider as successful in the co-creation process?
    o Why is it successful?
    o Give examples
  • What challenges have you experienced in the co-creation process?
    o Why is it a challenge?
    o How have you overcome them? Examples.
  • How could the citizen co-creation process have become more successful?
Ending

- How would you like to see the development of the platform?
- Is there something you would like to add/ we have missed to ask?
- When writing our report, what role would you like us to use?
- Can we contact you for further questions?
  - Contact details
APPENDIX 3: Interview Guide - Director of Ruta N

Appendix 3 presents the interview guide used in the interview with the director of Ruta N.

Interview guide - Director Ruta N

The aim of our study is to investigate how citizen co-creation is used as a mean to achieve social innovation. To do this, we are going to investigate the MiMedellin’s co-creation process to identify challenges and opportunities.

In the study we will perform interviews with people that have been working with the project, participating companies and citizen ideators.

Warm up
• Build trust! - Intro with a background about project, present ourselves.
• Confidentiality - No names will be used, just role. The interviews will be summarized to one result, your exact answers can not be connected to your role.
  o Consent form.
• Voluntary participation. Ok to withdraw from the study as well as choose to not answer a question.
• OK to record and quote?

Start recording

About the participant
• What is your role in the organization?
• How long have you been working in the organization?

Ruta N (connection to government)
• How would you describe Ruta N?
• What is the aim of Ruta N?
  o How do you work to achieve that?
• How is Ruta N connected to the government (Alcaldía de Medellín)?
  o How much influence do they have of your work?
• How do you decide which project you work with?
  o Themes? How do you decide them?
  o How do you prioritize the projects?
• How do you fund/finance the projects in Ruta N?

Ruta N and MiMedellin
• What is your connection to MiMedellin?
• How would you describe the relation between Ruta N and MiMedellin?
• How does Ruta N influence MiMedellin’s work?
• How do you distribute resources to the project?
• How are you involved in deciding the problems that MiMedellin focus on?

Evaluation of MiMedellin
• What value do you see in MiMedellin?
  o How can MiMedellin be used to achieve the aim of Ruta N?
• What challenges do you see with MiMedellin?
  o What do you see as the future of MiMedellin?

Ending
• Is there something you would like to add/ we have missed to ask?
• When writing our report, what role would you like us to use?
• Can we contact you for further questions?
  o Contact details

Thank you!
APPENDIX 4: Consent Form for Participants

Appendix 4 presents a consent form that all participants in the interviews were asked to sign.

Informed Consent for Participant
Regarding the project Citizen Co-Creation to achieve Social Innovation: A case study in Medellín, Colombia.

This particular study is a part of the Master’s Degree in Innovation Management and Product Development at Royal Institute of Technology in Stockholm, Sweden. The study is performed by the students Jasmin Sabir and Mimmi Isacsson Larsson in collaboration with Ruta N in Medellín, Colombia.

The aim of the study is to investigate how citizen co-creation is used as a mean to achieve social innovation by examining the case of Cities for Life - MiMedellín.

Participating in the study is voluntary. The participant can withdraw from the study at any time as well as choose to not answer a question. The data will be treated with confidentiality. The findings from the interviews will be presented in a report as a merged result of all interviews, and will therefore not be traceable to the specific participant. The stored raw data from the interviews will only be accessible for the researchers.

If the participant give consent to it, the interview will be audio recorded so that the researchers can transcribe it.

I agree to the interview being audio recorded:
Yes ☐ No ☐

I agree to participate in the study under the conditions set out in this form.

Signature: ___________________________________________
Name: ___________________________________________
Date: ___________________________________________

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