Assessing the multi-layered value of urban development policy

The case of developing a 'creative' and 'circular' district in the city of Utrecht

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Abstract. In recent years circular economy has become more important for the development of many places including cities. Traditionally, urban development policies have mainly been aiming to improve the socio-economic wellbeing of neighbourhoods. However, technical and ecologic aspects have their effects too and need to go hand in hand. This paper is based on an urban area experiment in the Dutch city of Utrecht. In order to assess urban area developments, typically rather straight-forward quantitative indicators have been used. However, it has proved more complicated to assess multifaceted developments of the area studied in this paper. With the City Model Canvas a multi-layered model is being used to better assess the impact of the urban development being studied. Key findings include that the project studied resulted in more space for companies from the creative industry and the settlement of local 'circular' entrepreneurs and start-ups, although it remains unclear to what extent these benefit from each other's presence. The increase in business activity resulted in more jobs, but it is again unclear whether this led to more social inclusion. From an environmental point of view the project activities resulted in less raw materials being used, although activities and public events bring nuisance to the surrounding neighbourhoods.

Keywords: urban development policy, case study, City Model Canvas, multi-layered value

1. Introduction

More and more urban development projects go beyond what is measured by traditional urban planning policy indicators. This is because next to conventional physical objectives such as impacts on public space, housing and mobility, many cities aim to be frontrunners on themes like sustainability, climate adaptation or circularity, attract new businesses, and create employability as an effect (e.g. [1]), leading to complex policy goals that aim to meet such multiple objectives per urban area. These significant ambitions have led to great initiatives and promising policy, culminating in city officials using terms as Garden Cities, Resilient Cities, Healthy Urban Living and Smart Sustainable Cities [2]; [3].

As multiple objectives of sustainability, economy and society are typically difficult to pinpoint and add up, there are obviously no easy solutions or roadmaps to obtain and monitor these goals. At the same time the importance of the subject is growing, because the aim of achieving multiple objectives in cities is increasingly important, since more and more people with different interests and motivations are moving to urban areas [4].

In order to assess the value added by ambitious urban policies achieving multiple aims we find that traditional indicators are not sufficient to appraise the outcomes of city policy. Many indicators are one dimensional and therefore do not fit the multi-value approach needed to assess comprehensive development of urban areas to become sustainably, economically and socially future-proof. Moreover, key indicators are useful for ex-post evaluation, but don't help policy makers to develop effective measures ex-ante nor adjust the measures ex-durante, on the way.

1.1. Objectives of the paper

The City Model Canvas [5] can be a solution to evaluation issues mentioned above. The tool combines how value is created, delivered and captured in multi-layers, making it possible to assess urban development policy at different stages. By applying the City Model Canvas (CMC) this paper aims to contribute to the understanding and development of a model that enables scholars and policy makers to assess social, ecologic and economic value of urban development policy.

In this paper the experimental urban redevelopment of the former industrial area Werkspoorkwartier in the Dutch city of Utrecht is scrutinized. In addition to understanding the usefulness of the CMC, the aim of this case study is assessing the effectiveness of this policy instrument that has multiple aims, including the settlement of local creative businesses, establishing a local circular economy, increased levels of sustainability in the area, and social impact such as jobs creation for surrounding neighbourhoods. The case study is a promising example because it combines actions on different urban development objectives.

1.2. Outline

The next section provides background on how to assess multi-layered value and the usefulness of the business model approach to do this. Section 3 describes the CMC and the approach taken in the case study in this paper. In section 4 the results of applying the CMC on Werkspoorkwartier are presented. Finally, in section 5 and 6 results are being discussed and conclusions are drawn.

2. Assessing value

Value added is a fundamental concept in business and business studies. Economists define the term as "the amount by which the value of an article is increased at each stage of its production" [6]. For companies it is one of the key indicators to identify business success, and for governments it is the basis to tax each company, based on its role in the production chain. The 'process' of adding values can be clearly distinguished by the subsequent position of different companies within a supply chain, adding value in each step from commodities to making goods and delivering services (e.g. [7]). In business strategy an important question has been to what extend to focus business strategy on cost efficiency or the value that is being added [7]; [8]. This value can be increased by adding services to products [9], or, going further, experiences or transformational occurrences [10].

How value is being added, is at the core of understanding businesses. It gives insight into by what means resources are used to create value. This is where the concept of business models comes into place. A leading definition on business models was proposed by Osterwalder and Pigneur [11]:

"A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams."

A widely used model is the Business Model Canvas [12]. This model is made up out of nine building blocks, representing creation, delivering and capturing value. At the core of the business model is a company's value proposition, the worth of a product/service to a customer. Over time, many additions have been made to the BMC, for example resulting in canvasses to be used for value propositioning, product design, consumer trends and team building. In order to fit sustainability aspects, a triple layer

business model canvas was suggested [13], adding the lifecycle and stakeholder perspective. Other adaptations to assess more than just monetary value include tools for social enterprises [14] and circular economy business models [15].

The business perspective on value is also applicable to other kinds of organizations, such as hospitals, theatres and school. These are just as well providing merit to people, but differ because of their mission-oriented focus. For example Qastharin [16] and Sparviero [14] proposed tools to analyse missions-driven organizations or social entrepreneurs. What differentiates these kinds of organizations from 'typical' businesses is setting missions that are maximizing social impact instead of financial gains [16].

Governmental organizations can be characterized as mission-oriented, but are a category by themselves, because they stimulate, direct or restrict business organisations. To be able to study the value of governmental actions, Timeus et al. [5] developed the CMC. Next to helping understand the creation and delivery of policy initiatives, the CMC is also meant to assess the value of city policy. For the latter the multi-layered approach (e.g. [13]), based on the triple bottom line [17], is used in order to enable a more holistic evaluation of urban development policy, instead of having to rely only on traditional policy indicators only.

3. The City Model Canvas

In this paper we apply the CMC, developed by Timeus et al. [5]. The CMC takes a business model perspective on cities. This means it distinguishes how a certain policy purpose is being delivered, how it is created, and what the value is from social, environmental and economic perspectives.

Mission statement What is the ultimate goal that	the city seeks to achieve?				
CREATE VALUE		Value proposition		DELIVER VALUE	
Key stakeholders Who can help the city deliver the proposed value to the beneficiaries? Who can access key resources that the city council does not have?	Key activities What must the city council do to create and deliver the proposed value?	What specific benefits are created and what specific problems does the proposed service solve or alleviate?		Buy-in & support Whose buy-in is needed in order to deploy the service (legal, policy, procurement, etc.)?	Beneficiaries Who will directly benefit from the proposed services?
	Key infrastructure and resources & key regulatory framework What key resources does the city council have to create and deliver the value? What infrastructure does it need? What is the key regulatory framework required?			Deployment How will the city solve the problems in the Value proposition specifically?	
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Budget cost structure What costs will the creation and delivery of the proposed services entail?			Revenue stream What sources of revenue for the city do the proposed services provide? What other sources of revenue does the city have?		
Environmental costs What negative environmental impacts can the proposed services cause?			Environmental benefits What environmental benefits will the proposed services deliver?		
Social risks What are some of the potential social risks that the proposed services entail? Who is most vulnerable as a result?			Social benefits What social benefits will the proposed services bring about? For whom will these benefits materialize?		

Figure 1. The City Model Canvas (adapted from [5]).

The central advantage of this approach is that it is simultaneously suitable for the design, implementation and assessment of city initiatives. This is especially fitting for complex objectives associated with urban

development policy, because these policies are not limited to a specific policy measure, instead they combine different policy actions at different points in time. Assessing these policy issues therefore calls for a continuous ex-durante approach, making it possible to incorporate different stages of the policy life cycle, and enabling recommendations that can actually be implemented on the go.

The CMC as proposed by Timeus et al. [5] builds on earlier frameworks and adapted these to fit city policy. The model has fourteen elements that can be understood by explaining 5 parts: Mission statement, value proposition, delivering value through policy, enabling value to be created, and capturing financial, social and environmental value.

As shown in Figure 1, the CMC has questions for each of its 14 elements. On top of all is the mission statement, meant to describe to what "ultimate goal" the policy is being rolled out. Fitting the mission-oriented multi-layer approach, the bottom line is made up out of 6 elements: economic, environmental and social benefits and costs/risks.

At the core of the CMC Timeus et al. [5] distinguish nine elements that can be summarized in three parts: central, right and left. Central to the approach is the Value proposition, policy is looked at as a service or set of services. To define the value of these services the gains or pains should be identified, this means working out what the potential benefits are and/or what problems can be tackled. In the words of Timeus et al. ([5] p. 733): "A clear value proposition will help city council managers focus their key activities on the delivery of that value." Second, at the right side, three elements are distinguished to understand how the value of a certain policy is being delivered. Identifying the 'Beneficiaries' is off course key. Besides, 'Buy in & support' focusses on who/what is needed to deploy the service, and 'Deployment' indicates how the service will actually reach the beneficiaries. At the left side, three elements describe how the value of the service is created, by asking questions about 'Key stakeholders', 'Key activities' and 'Key infrastructure and resources & Key regulatory framework'.

3.1. Method

In this paper we apply the CMC to study an urban area experiment in the Dutch city of Utrecht. The goal of this case study is twofold. First of all, the model is applied to get a more holistic understanding of the effectiveness of the urban development case presented. Second, applying the CMC will help to understand to what extend the model is useful to study urban development policy from a multi-layered perspective on value. This will contribute to additional insight on top of Timeus et al. [5] original study on a smart city project. In line with many scholars, we acknowledge the power of a case study.

The case study presented is explorative, and based on both our observations and a document review from different studies. The case study is the European funded Werkspoorkwartier (WSK) project that aimed to develop the WSK area into a "creative circular area" [18]. Our own observations can be characterized as a participative approach, as we had been involved in the project during the 5 years it lasted from 2017 till 2021. The document review uses various studies, on a broad range of aspects, that resulted from the project. In addition, a desk research was done to identify policy documents about the urban area experiment under study.

4. Results

The inner city urban development project Werkspoorkwartier (WSK) was developed in the beginning of the 20th century to facilitate big iron and steel making companies [19]; [20]. After the closure during the 1970s of many of the first movers, the area turned into a mixed industrial area [20]. With the development of a vast residential area at the west side since the 1990s [21], and existing city neighbourhoods on the east side, WSK turned from a peripheral into an inner city industrial area. Many companies have been situated in the area; even though, for several decades the reputation was poor, with disused premises, non-use terrains, isolated activities and lack of local policy interest [22]; [21].

In this case study the focus specifically is on a policy project that was aimed to help realize the City of Utrecht's ambition set for the WSK area. This project was funded by the European Regional Development Fund (ERDF); it started in 2017 and lasted until 2021. In the next subsections the results

with regards to the mission statement, the value proposition, creating value and delivering value, and the bottom line are being discussed. Figure 2 presents the CMC for Werkspoorkwartier.

4.1. Mission statement

The central location within the city and the call for locations where creative businesses can settle were arguments for the City of Utrecht to redevelop the Werkspoorkwartier (WSK) area [20]. In 2012 the municipality presented a white paper on the area's development [20]. In this document the city chalked out a future perspective in which WSK is an urban area that will be a desirable location and hotbed for creative and city-oriented companies [20]; [23]. What the value and identity of the area should become, was presented as something that had to develop organically.

By extension of the city's mission, a consortium was formed that formulated an extensive project that aimed to "improve the business climate of the industrial area WSK [...] into an area for Utrecht, in particular for circular and creative manufacturing companies ([18] p. 2)". Next to creating locations where companies from the creative industry could settle, it was argued that the innovative power of creative companies could inspire local businesses in the area to take up circular economy principles. The project was funded by the ERDF, and within this programme it was part of the thematic priority 'support for physical, economic and social regeneration of deprived communities' [24].

CREATE VALUE		Value proposition		DELIVER VALUE	
Key stakeholders • ERDF project initial partners • Business Club Cartesius • Coworking space facilitator • Established companies in the area • Network of partners	Key activities • Vision development • Convince internal organisation Key infrastructure and resources & key regulatory framework • ERDF • Permits • State aid	ERDF WSK project • 'Office space' for creative enterprises • Circular Hub • Circular building and renovation of buildings • Infrastructural developments • Investment support		Buy-in & support City of Utrecht Municipal organization and clerks Deployment Coworking spaces Investment through ERDF programme	Beneficiaries • New and existing creative and city oriented companies in Werkspoorkwartier • Other companies in Werkspoorkwartier • Property owners
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Budget cost structure • Investment of ERDF: €1.247.107,- • In-kind investment by (social) entrepreneurs			Revenue stream Co-financing of the ERDF project: €2.021.841,- Additional investments in the urban area Increase of local tax revenues due to more business activities Increase of area's perceived (property) value		
 Environmental costs More intensive use of the urban area, e.g. more emissions from traffic and other activities More energy and water use from the area 			 Environmental benefits Circular renovation and circular construction of building leading to less material being used and less (embedded) CO₂ Awareness raising on sustainability and circularity, leading to more efficient use of resources 		
Social risks Nuisance from public events within the area and for adjacent neighbourhoods Car traffic in and around the area Lack of appropriate bicycle infrastructure			Social benefits • Jobs for citizens of Utrecht, but not exclusively • Leisure and cultural activities		

Figure 2. CMC for 'Werkspoorkwartier'.

4.2. Value proposition

Regarding the proposed value of the ERDF WSK project, a distinction can be made between physical and socio-economic developments. To enable both kinds of developments, investment support was made available.

The physical developments were about the realization and renovation of buildings, especially industrial heritage, and infrastructural improvements. Within the project it is being stimulated that these developments are in line with the three circular economy principles from the Ellen MacArthur Foundation: 1. Design out waste and pollution, 2. Keep products and materials in use, and 3. Regenerate natural systems [25]. With the renovation of existing buildings, a lot of material has been reused. Major examples of this renovation are the 'Werkspoorfabriek' and 'Werkspoorkathedraal', these former construction sites for trains were renovated into buildings with e.g., a modular interior, housing several creative entrepreneurs. A different project was the renovation of the central office of the regions energy grid operator. Besides these renovation examples, an influential project was the construction of a coworking space using left-over and discarded materials: 'Hof van Cartesius'. Both kind of examples have primarily contributed to the second circular economy principle.

In order to stimulate the socio-economic development of the area, working spaces for creative businesses were developed. Companies from the creative industry have been stressing their need for affordable working spaces, and the City of Utrecht identified the creative industry as an important business sector which needs it wants to facilitate within the WSK area [20]; [23]. Besides, the area is being presented as a circular hub. This should attract so called city oriented companies, preferably with a circular economy business model. What is more, it enables a better use of materials and in that way contributes to the three circular economy principles mentioned before.

4.3. Create and deliver value

The major beneficiaries of the policy project where value is being delivered to, are companies already situated in the urban area and companies that are attracted to Werkspoorkwartier area. For the latter the policy project primarily focuses on companies from the creative industry and city oriented companies with a circular economy business model. With regards to renovation, the beneficiaries are property owners.

The way in which the solutions are being deployed and delivered to the beneficiaries is mainly by establishing coworking spaces and providing investment support. This fits the needs of the beneficiaries, as companies from the creative industry need working spaces, and investment opportunities can boost circular economy business models.

When it comes to giving support to developments through buy-in and support, the City of Utrecht has been acknowledging its role in stimulating the development of the area. This particularly led to vision development as a key activity in the form of two white papers on the area, giving direction to the urban development [20]; [23]. At the same time bottom-up initiatives have been more ambitious and opposite to current realities, leading to social entrepreneurs having to invest a lot of effort in convincing clerks about development plans. The City of Utrecht has been developing the municipal organisation into one that can enable these kinds of circular economy initiatives as a key activity, though this remains an ongoing process. Consequently, although resources, such as the ERDF fund, are being allocated to developments as WSK, the regulatory framework still needs further development to enable circular economy developments.

The broad range of activities in the project make it possible to reach various stakeholders, even though the set of delivery means will not be beneficial to all. During the project, new partners have joined. This led to a growing network of key stakeholders, in particular a major facilitator for coworking spaces and the business club of the industrial area. The latter has been an important addition, because they represent established companies from the area, who are important stakeholders in the development. Besides, the project is endorsed by a network of partners – also considered as key stakeholders.

4.4. Triple bottom line

With the ERDF subsidy a total of more than €1.2 million euro of public money was invested in the Werkspoorkwartier project [24]. Besides, the project heavily leaned on in-kind investments by social entrepreneurs [26]. As is the nature of this program, an additional sum of over 2 million euro was cofinanced by the project partners. From a city perspective this co-financing can be seen as a revenue, because it leads to more financial means. In addition, other investments were done during the project duration from 2017 until 2021, attracted by the growing perceived property value of the area. On a short term, these investments resulted in space for companies, and thereby more tax revenues for the city.

The main social benefit associated with the project are jobs being created, a total of 400 FTE [27]. This was also proposed as one of the main indicators of the policy project. A large number of the jobs is a result of the settlement of 'creative' or 'circular' companies. The coworking locations situated in Werkspoorkwartier specifically mention they aim at facilitating these 'creative' and/or 'circular' entrepreneurs, and also select on these properties. To what extent these jobs contribute to social inclusion has not been identified. Besides jobs, the policy project stimulated the liveliness of the area by event spaces, small scale festivals, and bars and clubs. This contributed to a significant transformation of the area, but the increase of such events and leisure activities in the area might cause nuisance to adjacent neighbourhoods. Although the walkability within WSK improved, mainly due to a pavement through the area, specific business activities in the area still attract a lot of car traffic, reducing the sense of safety for cyclists.

As part of the project over 14.000 m² of rentable space was created [27]. A major part of this was the renovation of old factories. An important initiative was to redevelop a desolated building into a coworking space for artists and a cooperation for 'creative' and 'circular' companies. In total, these coworking spaces accommodated 189 companies by mid-2021. Besides, there are other circular initiatives and coworking spaces for a wide range of companies [21], including the creation of new buildings for coworking spaces with the use of left-over and discarded materials. This circular renovation and circular construction of buildings led to less material being used and thus also less embodied CO₂ [28]. It should be mentioned that a more intensive use of the urban area does lead to more emissions from traffic and other activities, and more energy and water use from the area. Though, at the same time, awareness raising on sustainability and circularity is leading to more efficient use of resources by companies in the area.

5. Discussion

In this section the results for the CMC analyses of Werkspoorkwartier are being discussed. We successively consider the benefits for creative businesses and the relation with circular economy, limited values, and the holistic assessment of value.

5.1. Creative businesses and developing a circular economy

One of the aims of the City of Utrecht was to create space where businesses from the creative industry can settle. As the creative industry is clearly defined by Statistics Netherlands [29], the progress of this aim can be precisely monitored. The outcome was rather positive, with eightfold as many FTE working at companies from the creative industry being active in the area [23]; [27]. At the same time, it is not so clear which companies are included in the category 'creative and city-oriented companies'; and beside the targets for the ERDF project, the municipality has not set targets for the kinds of companies active in the area.

Therefore, two things are needed. First of all, the City should define what is meant by creative and city oriented companies. Second, the relation between creative industry and the development of circular economy companies needs further analysis. The results of the WSK project show the stimulating hotbed role of coworking spaces. Though, the exact benefits of companies from the creative industry for the creative power of local companies needs further working out. Although, it has been argued (e.g. [30]; [31]) that creativity is a prerequisite for sustainable innovation – and thus a circular economy. What is

more, the lack of precise definitions and action imply a kind of laissez faire approach that is not fit for the urgency.

5.2. Limited values

As has become clear by now, initially the development of the WSK area focused on establishing a desirable location and creating a hotbed for creative and city oriented companies. The diverse aspects of the value proposition are also in line with this objective. Consequently, developments have been rather one-dimensional. When it comes to physical developments, several projects have lacked an integral circular economy approach [32]; [33], meaning that next to reuse due to renovation, new materials have not been used based on circular economy principles such as design for disassembly.

Similarly, the economic development has been successful in creating space for companies from the creative industry. Though, it is not clear to what extent the stimulus to businesses create inclusive jobs, and thereby delivers value that is in line with broader government missions such as social inclusion and combatting poverty [24]. Of course, there can be benefits from newly established businesses, but the development has mainly focused on economic indicators, not taking social development into account. Consequently, urban development policy can take up lessons about establishing social enterprises from projects like Werkspoorkwartier.

5.3. Holistic assessment of multi-layered value

The benefit of the multi-layered value assessment that is possible with the CMC is clear, as the multi-faceted approach is much needed in sustainable and/or circular economy urban development policies. Enabling an assessment of economic, environmental and social aspects is a sound basis for a more holistic urban policy monitoring and evaluation. For example, with applying the CMC it is made possible to put increase in jobs next to financial gains of the investments being done; and, at the same time, pinpoint the risks of the developments for the adjacent neighbourhoods, specifically the possibility of more public events, clubs and bars in the area and nuisance for neighbours as a consequence. Another example is the discrepancy between in-kind investments by social entrepreneurs, and the possible financial benefits due to increased perceived value of the area for property owners. Even though, pinpointing the exact rise in value due to these investments is hard and debatable.

Although the multi-layered approach does provide a basis for a holistic evaluation and monitoring, there is a major risk of subjectivity. The six different aspects i.e. building blocks of the triple bottom line can potentially lead to different focus on especially the environmental and social criteria, which can result in various outcomes. The municipality of Utrecht aims to improve their indicators for monitoring circular economy policy by operationalising circular economy strategies, even though, especially social criteria are still lacking.

6. Conclusion

The assessment of urban development policy with the CMC gives a more comprehensive and better understanding of the value of the urban area studied. In the five years during WSK project presented in this paper the investment has been one of the major impulses in the development of the area. It has become clear that the development has led to more space for companies and start-ups from the creative industry, also leading to more jobs in this field. In particular the coworking spaces have provided space for companies with a circular economy businesses model. However, it is unclear as yet to what extent the one business is benefitting the other. Therefore, more information is needed to thoroughly assess the rationale of stimulating a creative circular area.

With regards to environmental benefits, the project evidently has led to more circular renovation and construction, and as a result, keeping existing materials in use, and reducing the demand for raw materials. At the same time, more activities do mean more energy and water use, and also more emissions and nuisance from local activities, mobility and transports from and to the area. On the one hand, this has led to an increase in employability and liveliness in the area. On the other hand it is

questionable to what extent the jobs and businesses created in creative and cultural sectors within the area will lead to social inclusion, or either to gentrification as an undesired side effect.

To conclude, instead of one-dimensional indicators, the multi-layered approach has demonstrated the possibility to get a more holistic overview of the value that has been added by the urban area development studied. At the same time, it has become clear that more intelligence is needed to study the deeper motivations of individuals and organisations involved. This data is also a prerequisite for the 'promised' ex-durante approach to such studies. Without a proper and timely insight, there would be no base to adjust policy instruments. This is difficult to cope with, also because there are no hard guidelines for an objective analysis of values created or either policy instruments. At the same time the CMC does give the possibility to analyse what developments take place and weigh-up to possible adjustments on the go.

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