FORCE Cities Cooperating For Circular Economy

Circular Economy, Waste and Cities

Handbook for Value Chain Based Partnerships

A practical guide for cities to promote resource efficiency and circular economy policy implementation

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A practical guide for cities to promote resource efficiency and circular economy policy implementation

Donald Alimi, Jörg Knieling
HafenCity University Hamburg

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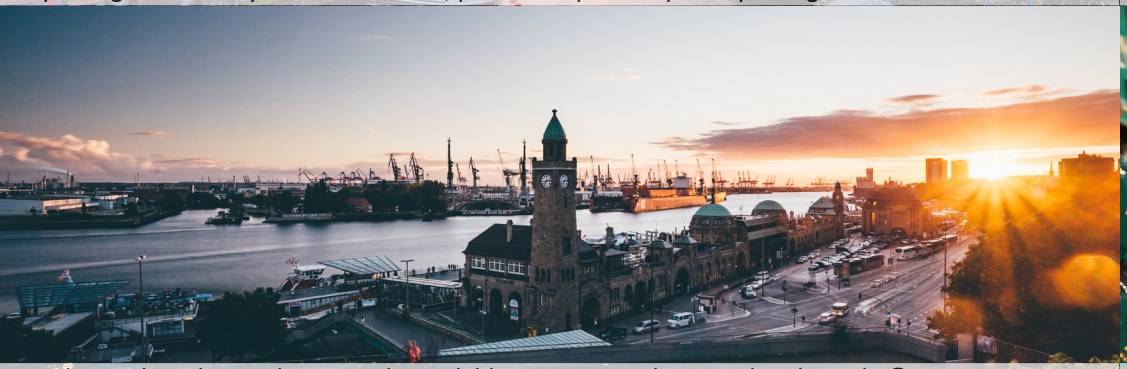
Plastic waste. Photo provided by the City of Copenhagen ©



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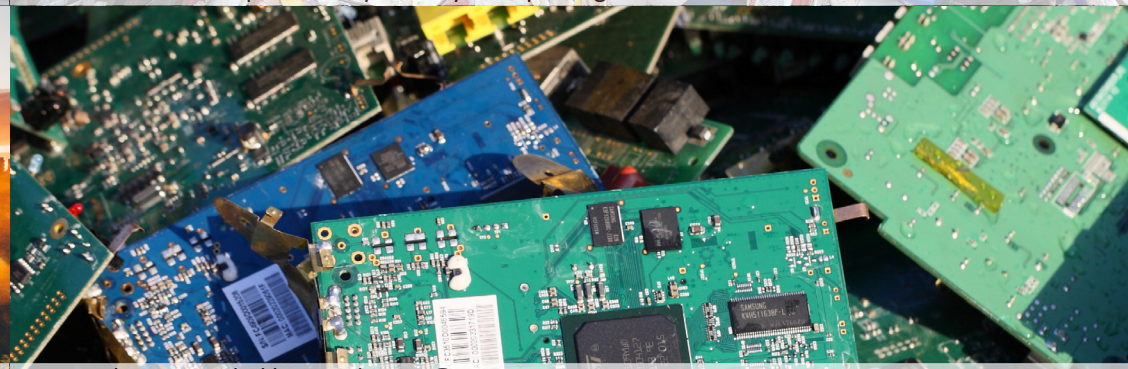

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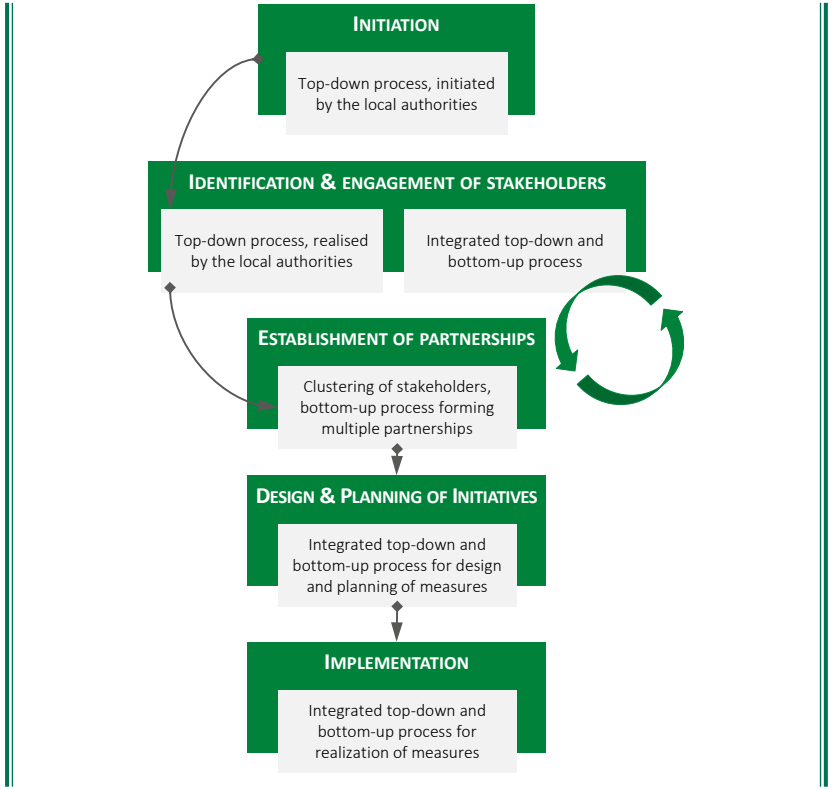
About this Handbook

This handbook builds upon one of the main results of the FORCE project, the transferable governance model for cities based on the Value Chain Based Partnership (VCBP) concept[1]. It summarizes the methodological pathway for the application of the governance model, the **VCBP Process Model**.

Overall, the model seeks to enable knowledge exchange and integration alongside different stakeholders throughout targeted material or product (resource) streams, and as a result create new knowledge and opportunities to reduce leakage and increase circularity of specific value chains. Hence, its application aims to identify and formulate problems or opportunities for resource efficiency improvements, and to provide answers to these by developing, testing, and implementing tailored approaches and solutions. The participation component and the action-oriented evidence within the model is anchored in various types of partnerships – initiated and/or enabled by local authorities – in the spirit of urban experimentation to investigate what 'works' and then based on initial evaluation upscale, replicate or make permanent interventions. As a result, not only does this approach provide for new testbeds for experimenting with technical and social innovations, but it also facilitates the integration of the generated knowledge at the decision-making level as well as the building of awareness and acceptance of interventions amongst citizens and other relevant stakeholders in cities and regions.

The Process Model (Figure 1) includes five stages: (1) initiation, (2) identification and engagement of stakeholders, (3) establishment of partnerships, (4) design and planning of initiatives, and (5) implementation. It does not present a step-by-step tutorial, but a flexible and adaptable guideline for cities to promote innovation for resource efficiency in urban areas through enhanced cooperation among relevant stakeholders of targeted value chains[2]. Hence, it mainly addresses local authorities and policy makers, thus supporting cities to reach ambitious circular economy and waste management targets in Europe.

Figure 1: The Process Model stages



Source: own figure

[1] *See FORCE Deliverable 7.4: Governance models for value chain partnerships*

[2] *The Process Model is applicable in the context of (at least) the four resource streams addressed in the FORCE project: plastic waste, strategic metals, food surplus and bio-waste, and wood*

About FORCE

The overarching goal of the FORCE project is to minimise the leakage of resources from the linear economy and transform towards a circular economy. In this context, the project engaged stakeholders in 16 participatory VCBPs across the four participant cities of Copenhagen, Genoa, Hamburg and Lisbon. The VCBPs created the right preconditions for demonstrating eco-innovative solutions in the context of four resource streams: 1) plastic waste, 2) strategic metals (from electronic and electrical equipment, EEE), 3) food surplus and bio-waste, and 4) wood waste.

The VCBP is a novel concept and at the same time the cornerstone of the FORCE project. It is defined as an overarching partnership which is developed following the value chain generic framework (Figure 2). Its aim is to identify and engage stakeholders from the different steps or sectors of a specific resource stream, from product design and manufacturing to waste reprocessing, as well as policy makers, research institutions, industry and environmental organisations.

The VCBPs focused on increasing the resource efficiency of the four targeted streams through the development, implementation and assessment of various measures in the four cities. Thus, the leakage of plastic and strategic metals in the FORCE project was minimised through activities to prevent waste generation (reuse), to prolong the life of products (repair), to reuse spare parts (remanufacture), and through recycling and recovery of waste materials. The efficiency of the biological resources was addressed through activities to prevent waste generation (donation of food surplus; repair, remanufacture and reuse of furniture), used as raw material in biochemical processes, recycled in agriculture, or recovered in energy production.

Figure 2: The FORCE value chain generic framework

Source: own figure, adapted from FORCE[3]

[3] *City of Copenhagen (2016): The model of the Value Chain Based Partnership of the FORCE project; Horizon 2020 project; Grant Agreement no. 689157.*

Stage 1: Initiation

The overall process for the establishment of partnerships starts with the identification of an initiation factor as the trigger for cooperation, formulated by the local authorities in the role of promoter and initiator of this process. Hence, the initiation has a top-down approach and is a direct response to a triggering problem or opportunity for improvements within the circular economy paradigm and its action fields. As the leading actor, local authorities should first and foremost accomplish three initial tasks:

(I) Identify and formulate the overarching issue to be dealt with;

(II) Define overarching goals and targets;

(III) Set up an enabling context for the establishment of multi-stakeholder cooperation.

Decision-making on all these fronts should be based upon a comprehensive dialogue with relevant local stakeholders and potential members of the partnerships.

According to the triggering problem or opportunity for improvements, local authorities should clearly define what **(I) overarching issue** is to be dealt with through the implementation of the partnerships in the form of VCBPs. Such definition implies the identification of the target resource stream framework, the way how circularity is hindered and whether it relates to other local issues.

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Examples of **overarching issues** from the FORCE project include: the incineration of a high share of potentially recyclable plastics (Copenhagen); excessive disposal of food-waste (Lisbon); short life-time and incorrect disposal of electronic and electrical devices (Hamburg).

The appropriate definition of the issue should then lead the local authorities to the development of **(II) overarching goals and targets** to be achieved through cooperation.

Infobox

Examples of **overarching goals** from the FORCE project include: decrease the consumption of virgin plastics through the provision of high quality secondary raw materials (Copenhagen); decrease the disposal of food-waste through the redistribution of food surplus (Lisbon); prolong the lifetime of electronic and electrical devices through repair and reuse practices (Hamburg).

Finally, local authorities should act on a strategic level to ease **(III) multi-stakeholder cooperation** and partnerships, and promote initiatives that could foster the achieving of the established goals and targets. Hence, such initiatives can be supported by existing or new *ad hoc* policy frameworks that promote voluntary cooperation among value chain stakeholders and the circular economy implementation. Some examples include: strategic action plans addressing the identified issues; incentives for cross-sectoral collaboration; innovation procurements; grants for research and innovation projects.

Stage 2: Identification and Engagement of Stakeholders

The identification and engagement of stakeholders can take place in at least two phases. It is initially a top-down process, in which local authorities act to bring strategic stakeholders together. Later, a bottom-up approach is integrated in which the initially engaged parties identify new relevant stakeholders in accordance to the more specific issue, goals and targets. The second phase of this process is outlined in the following stage "establishment of partnerships".

As the first step, local authorities should identify those stakeholders that can significantly contribute to the defined overarching goals and targets for the addressed resource stream. In principle all stakeholders, from product design and manufacturing to waste reprocessing, are significant for a product's life cycle. However, it is the initially defined goals and targets that may narrow down the necessity of participation to stakeholders in specific sectors of the value chain. Moreover, the same goals and targets may also lead to the necessity to include specific stakeholders beyond the value chain generic framework i.e., not designers, manufacturers, retailers, consumers/waste producers, etc. For instance, expertise in different areas such as information technology, research, communication, etc., was required in the development, implementation and assessment of various measures in the FORCE project.

Once the strategic stakeholders are identified, local authorities should:

(I) **Determine what motivations could each stakeholder have to engage or not in the collaboration process.** It is fundamental to verify how the identified stakeholders could benefit from the endeavour, sometimes engendering advantages to encourage them to move away from the status quo and promoting innovations for resource efficiency.

(II) **Act to motivate and engage all relevant stakeholders through a direct and goal-oriented dialogue between the parties, supported also by means of policy frameworks (incentives, grants, etc.) where needed.** In order to engage all strategic stakeholders, it is important to seek for and to create win-win situations: the perception of cooperation as a promising opportunity for individual gains which cannot be reached alone can ease the establishment of partnerships.

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It was identified that actors from different sectors in the FORCE project have different **motivations** to cooperate and respond differently to possible incentives. In the case of local authorities and municipal companies, the commitment to reach ambitious climate change policy goals and waste management targets through the abilities of non-state stakeholders were powerful incentives for collaboration. On the other side, beyond direct financial benefits, main drivers for the private sector stakeholders (mainly SMEs) to engage in cooperation with the local authorities and other non-state stakeholders were the visibility and networking reasons in the local and broader "sustainability arena", acquisition of new knowledge on circularity practices emerging from the cooperation, and sometimes also seeking for the support of the public authorities to overcome legislative burdens that hinder business models.

Stage 3: Establishment of Partnerships

The power shift through the integration of a bottom-up approach is likely inherent to this stage of the process. Thus, such an approach seeks to further involve new stakeholders in the definition of the overarching issue, goals and targets, which might be appropriate to ensure not only a holistic view of these aspects, but also the necessary resources, expertise and legitimacy of the process and its outputs. Two key actions are inherent to this stage:

(I) The development of VCBPs typologies;

(II) The establishment of communication and collaboration structures.

First, the engaged stakeholders up to this stage will likely cluster around the smaller parts of the identified issue, which implies the development of **(I) different typologies of VCBPs**. This will be a result of the way in which different types of stakeholders combine in partnerships e.g., public-private partnerships, private-private partnerships, public-civil society partnerships (or citizen empowering), etc. The establishment of different typologies of VCBP should not only aim to gather resources from multiple sources, but they should foremost promote and bring together sectors of the value chain that are not usually thought of collectively. Hence, the establishment of any partnership should seek in principle to bring forward the possibility of engaging stakeholders that are not usually aware of each other, fostering the production of innovative approaches and solutions due to novel knowledge exchanges.

Second, the establishment of **(II) communication and collaboration structures** represents the rules for cooperation and these should be agreed on by all stakeholders, thus fostering a lasting and legitimate process in which all involved parties perceive that their perspectives

and concerns are considered in the decision-making. Therefore, the definition of clear rules for engagement since the beginning of the process, besides eventual mediation for the solution of conflicts can be necessary for productive communication among stakeholders. In the case of longer time frames of collaboration, it may be necessary to formalise the collaboration structures and protocols using charters, regulations, by-laws, etc[4].

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The overarching issue in Hamburg concerned the leakage of strategic metals from the incorrect disposal of EEE and WEEE from citizens. The engaged stakeholders clustered around specific aspects of this issue: 1) improving the separate collection infrastructures for EEE and WEEE, 2) increasing repair and reuse of devices, and 3) providing information to consumers so they would dispose of discarded devices correctly. To do so, three different working groups came together to develop, test, and implement tailored approaches and solutions. These groups represent the **VCBPs typologies**.

It is also significant to highlight that local authorities may have different roles in the partnerships. Beyond their role to provide the "grounds" for the demonstration of innovations, they can at the same time be active members of the collaboration and act beyond their roles as regulators, thus becoming promoters of circular economy implementation through, for example, acting more as facilitators of business synergies and models along value chains and thus support the demonstration of innovations (leading by example).

[4] *Emerson, Kirk, Tina Nabatchi, and Stephen Balogh. "An Integrative Framework for Collaborative Governance." Journal of public administration research and theory, 2012: 1-29.*

Stage 4: Design and Planning of Initiatives

The establishment of clear and effective communication and collaboration structures in the previous stage is fundamental also for the successful design and planning of initiatives. Reasoned communication, mutual understanding and commitment to process are key characteristics of the design and planning process, and they are easier to exist within a predefined protocol for the multi-stakeholder interaction.

Furthermore, the establishment of **specific goals**, availability of **resources**, and **timeframe** definition are key aspects within the deliberation for the design and planning of initiatives. The definition of clear goals for an initiative refers to final and intermediate objectives which are fundamental in two fronts. The first refers to the monitoring of the initiative, as the accomplishment of goals and targets are a concrete way to measure whether the initiative is working or not. The second refers to intermediate goals, as their accomplishment signifies small wins for the stakeholders and contributes to trust building among partners[5].

The discussion of availability of resources and timeframe is fundamental to the design and planning process. It is central for the stakeholders to be aware of what resources they can pool within the partnership and what limitations hinder the accomplishment of their goals. Moreover, the rise of **leadership** is relevant at this point of the discussion, with specific stakeholders championing initiatives and seeking means to acquire resources that may be unavailable within the partnership (e.g., identification of grants and funding opportunities, hiring of experts, etc.).

[5] *Ansell, Chris, and Alison Gash. "Collaborative Governance in Theory and Practice." Journal of public administrative research and theory, 2008: 543-571.*

Finally, another element that can be incorporated into the deliberation process for designing and planning initiatives is **citizen involvement**. Thus, local authorities should pay particular attention to the engagement of citizens as key stakeholders in the value chains, which through their behaviour as consumers and waste producers can highly impact the resource efficiency in cities[6]. Hence, an early, targeted and active engagement of different citizen groups in the decision-making and collaboration process can significantly support the effective implementation of innovations, while contributing above all to the awareness rising and the required mindset shift to enable and accelerate circular economy practices.

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Experiences within the FORCE project demonstrated that funding was the main **resource** and at the same time incentive for the collaboration among the involved stakeholders in the context of socio-technical experiments and innovations which involve a failure risk.

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The municipality of Lisbon supported citizens interested in bio-waste composting through a dedicated training programme aiming at the development of a domestic and community composting network in the city. Such experience demonstrated the **involvement of citizens** as the core of an initiative which promotes above all awareness rising, waste avoidance and community development.

[6] *See FORCE Deliverable 7.5: Recommendations for citizen involvement*

Stage 5: Implementation

The implementation of approaches and solutions itself is very particular to the intended initiatives in a given context. In any case, the major attention in this stage of the process should be on the **assessment of outcomes** of the VCBPs, in order to investigate what 'works' to then upscale, replicate or make permanent interventions that improve the resource efficiency of the targeted resource stream.

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The activities carried out through the VCBPs in the FORCE project include the demonstration of integrated eco-innovative cost-efficient technologies, approaches and solutions for waste prevention, treatment, enhanced collection, recycling and recovery of high-grade valuable materials from waste.

However, there are also intangible outputs expected from the implementation phase. These refer to the development of **"trust networks"** due to the expected increase of trust as the stakeholders successfully work together. It implies the emergence of bonds between the various stakeholders, enabling the success and expansion of partnerships for the development of new initiatives and the furthering of innovations. Hence, the development of networks among stakeholders of multiple sectors is central to enable the continuity of the implemented projects and development of similar partnerships for other initiatives.

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The development of a decision support tool in the Hamburg case (cycel.de) based on Big Data on the market of second-hand EEE, aims to inform decision-making for future initiatives in the waste collection and prevention areas.

Finally, the development of a strong cross-sector network of stakeholders - including the public, private, and civic sectors - also fosters a culture of collaboration and the possibility for these groups to inform decision-making for public policies in local and upper levels. Thus, it is expected that the results of VCBPs and the novel knowledge exchange and generation will promote support for policy-making on various levels and thus contribute to the overall goal of circular economy transition in cities and regions. It is the role of local authorities to ensure the continuous capture and integration of results and generated knowledge throughout the collaboration process at the policy-making levels, seeking to further unlock innovation potentials for resource efficiency and thus also contribute to the achievement of ambitious circular economy and waste management targets in Europe.

Imprint

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Authors

Donald Alimi, Jörg Knieling

HafenCity University Hamburg, Germany

Credits

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