

Knowledge Weaving for Social Innovation:

Laying the First Strand¹

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Abstract: Society consists of a web of interconnected communities. A large body of research and practice exists on how to make communities work. Still, the intersection and interaction of multiple communities - the development and use of their inter-communal commons - is ill-understood. Social innovation is the process in which relevant stakeholders jointly develop solutions to wicked problems that none of them can solve on their own. As such, it is a prime example of the need for multiple stakeholder communities collaborating. We propose a process for building a networked community-commons called knowledge weaving. This is a reflective sensemaking effort in which existing communal knowledge sharing practices, initiatives, and resources are tied together into coherent commons-based knowledge fabrics that support intercommunal collaboration, such as for social innovation. We illustrate the approach with the case of the European Social Innovation Week 2015 pre-events.

Keywords: Knowledge creation, sensemaking, communities, commons, social innovation, collaboration

Introduction

Community is no longer defined as a physical place, but as a set of relationships where people interact socially for mutual benefit (Andrews, 2002). Communities revolve around shared purposes, interests and needs, their members becoming attached to the community as a whole - common identity - and to individual members - common bonds (Ren et al., 2007). However, there is also a world outside the community. It is important to take this world into account in community building efforts. First, there is always the risk that communities become self-centered and sometimes even turn against one another. From a communitarian point of view, however, society consists of a supra-community, a "community of communities", in which the interests of these various communities need to be actively aligned around shared societal values (Etzioni, 1993, p.147,160). Second, communities do not operate in a vacuum, but always draw on a network of social and other resources, as explored in the literature on community networks (Carroll, 2012) and grassroots-initiated networked communities (Gaved and Mulholland, 2005). Wenger et al. see communities and networks as two interrelated aspects of social structures in which learning takes place. The community-aspect refers to the development of a shared identity around a theme or set of challenges, while the network-aspect concerns the set of relationships, personal interactions, and connections that provide affordances for learning, such as information flows, helpful linkages, joint problem solving and knowledge creation (Wenger et al., 2011, p.9). This is a useful perspective, also when communities have purposes beyond learning (e.g. collaboration or innovation). Key is that networked communities provide context for one another, which can help them to grow, become more relevant and increase their societal impact.

The space where communities meet and mingle often is the commons. The commons is any collectively owned resource held in joint use or possession to which anyone has access

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without obtaining permission of anyone else (Nemeth, 2012). As a passive resource, the commons is not of particular interest to us. From a community perspective, "being in common" is an active process that is always emerging in a mode of being and working together for the greater good of the community (Wong, 2011), or, in our case, the networked communities forming society.

What do these active commons processes look like? They include the governance of the intercommunal collaboration processes and the design of the socio-technical systems in which these take place (De Moor, 2015). However, commons being dynamic public spaces, they can also encourage innovation (Nemeth, 2012). It is this interplay between multiple communities, commons, and innovation, in particular social innovation, that we focus on in this paper. We first explore the characteristics of such social innovation by networked communities in the commons. Next, we define the concept of knowledge weaving as an essential commons building process. We then make this concept come alive by painting a rich picture of knowledge weaving in practice in the case of the European Social Innovation Week 2015 pre-events. We end the paper with a discussion and conclusions.

Social innovation by networked communities in the commons

Many commons-based innovation initiatives focus on creating the right physical and networking conditions for individuals to meet up and get to help one another develop innovative projects. Typical examples include incubators and urban innovation zones where (social) entrepreneurs and start-ups can get to know one another, as well as get access to expertise and resources to develop innovations, from initial ideas into products and services.

Although providing support for business innovation processes is relatively well-understood, it becomes much fuzzier when addressing social innovations. One way to define a social innovation is as a novel solution to a social problem that is more effective, efficient, sustainable or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals (Phills et al., 2008). Social innovations typically deal with thorny, wicked problems. These are ill-structured, suffer from social complexity, and the stakeholders involved have different views about what the problem is and what constitutes acceptable solutions (Conklin, 2006). We therefore propose a shorter, more generic definition: social innovation is the process in which relevant stakeholders jointly develop solutions to wicked problems that none of them can solve on their own. At the heart of each social innovation initiative is a *core community* of problem owners, intersecting with a *developer network* that helps to get the innovation implemented from a rough idea to - ideally - a mature set of products or services, a *user network* that embodies the requirements and applies the innovation in their daily practice, and an embedding *stakeholder network* that helps to provide the resources and participants which make the innovation grow from promise to activity with societal impact (De Moor, 2013). At the level of a single social innovation, social complexity is therefore already high. However, many social innovations overlap, their webs of interdependencies multiplying social complexity.

To address wicked problems, traditional notions of "competitive innovation" are no longer sufficient. Gurstein argues that, instead, community-driven forms of innovation are needed. Such innovations are bottom-up, done by, with and in communities, instead of for communities. It allows for those in local communities to find meaningful, efficient, and effective ways to respond to their local challenges, while, equally, finding ways to share their challenges with multiple communities globally. Community innovations, rather than trickling down from elites and high-performers, therefore "trickle up" from local adaptations and community-based novelty and change (Gurstein, 2013). How to get community-driven innovation going is still wide-open research and development territory. The field of Community Informatics has a mission to design appropriate strategies and support for the specific types of community knowledge acquisition, assimilation and processing required (Gurstein, 2013). An example are community inquiry processes and methodologies (Rhinesmith and Wolske, 2014). However, just working with individual communities is not

enough. As we have argued, to develop effective, lasting solutions for wicked problems, multiple communities need to work together on and across social innovations. These include local communities of, for instance, citizens affected by a wicked problem, communities of interest and practice that can contribute relevant thematic expertise and resources, and the collaborative communities that emerge in the development of the social innovations addressing the problems. Key is therefore to be able to make sense of how communities collaborate in the commons.

Knowledge Weaving: Making sense across communities

Given the white spots on the intercommunal sensemaking map, we aim for a case-based inductive exploration rather than a theory-based deductive approach to further our understanding. We first explore what we mean by sensemaking for social innovation, then propose a metaphor to frame the sensemaking problem: knowledge weaving.

Sensemaking for social innovation

We live in an era of participation and co-creation. Traditional top-down forms of organizing work and society are no longer adequate. The glitz and power of social media is tantalizing. One can therefore easily come to believe that "letting go" in terms of having random information exchanges on social media suffices to reshape the world. However, this suggestion is false. It is not enough to merely passively provide a global online communications infrastructure that supports serendipitous information exchanges. Even in the case of single users, there is already a difference between users ad hoc "encountering" news stories through their social network sites like Facebook and Twitter on the one hand, and users exploring these sites purposefully for gathering news and information about public affairs on the other hand: exactly how these technologies are being put to use turns out to be most significant for predicting civic activity (De Zuniga and Shahin, 2015).

If the civic activity of individuals already requires the purposeful design of their socio-technical systems, this design is even more complex when talking about collaborative stakeholder engagement networks. In these networks, shared (wicked) problems and opportunities are at the center of networks of stakeholders who reflect upon and co-design their value-creating stakeholder engagement communication practices (Aakhus & Bzdak, 2015). So what is the nature of this collaborative design complexity? According to Conklin, to develop mutually acceptable solutions for socially complex wicked problems, stakeholders need to create a shared understanding about the problem, as well as shared commitment to the possible solutions. This common understanding does not necessarily mean that the stakeholders fully agree on the problem. Still, they at least need to understand each other's positions well enough to have intelligent dialogue about the different interpretations of the problem, and to exercise collective intelligence about how to solve it. In Conklin's view, achieving coherence is key to better shared understanding. In a project context, this means that stakeholders try to arrive at shared meaning for key terms and concepts, that they are clear about their role in the effort, that together they have a shared understanding of the background for the project and what the issues are, and that they have a shared commitment to how the project will reach its objectives and achieve success (Conklin, 2006). However, social innovation often goes far beyond the project level, making achieving coherence that much more intricate.

Sensemaking is the key process to reach deep understanding and coherence. Sensemaking is the reciprocal interaction of information seeking, meaning ascription and action (Thomas et al., 1993 in Vlaar et al., 2006). It is a crucial process in interorganizational relationships, as these entail not only issues of coordination, control and legitimacy but also problems of interorganizational understanding (Vlaar et al., 2006), Such sensemaking is even

harder to do in value-creating stakeholder networks for social innovation. First, unsatisfied social needs, understood as human needs whose satisfaction is largely the responsibility of society are at the core (Bund et al., 2015). Such "societal problems" - and their solutions - are owned by everybody, and nobody at the same time. Second, many of the stakeholders are not clearly bounded and resourced organizations, but fuzzily defined communities. Although they do have a need to collaborate, they often do not know with whom, how, or even why. The paradigms from which these communities think and work, the scope of their collaboration in terms of themes, topics and research questions, their interests and resources, and coordination processes are all even more ill-defined than in more constrained business innovation settings. New critical-interpretive ways therefore need to be found for fostering civic intelligence, which is a form of collective intelligence towards the ameliorization of shared social and environmental challenges (Rhinesmith and Wolske, 2014; Schuler, 2009).

Knowledge weaving

How do we start to make sense of the sensemaking between communities? What is the role of the commons in this sensemaking? How can the required information seeking, meaning ascription, and action be facilitated in practice? Sensemaking by networked communities working on social innovation is itself a wicked problem, with many ways to interpret the problem and an open-ended range of solutions. We therefore turn to a metaphor to anchor our investigation.

Metaphors matter. They profoundly influence how we conceptualize and act with respect to important societal issues, helping us to shape understanding and reasoning (Thibodeau and Boroditsky, 2011). For intercommunal sensemaking on social innovation taking place in the commons, we propose the metaphor of knowledge weaving.

Weaving is a process of creating fabrics out of existing threads or strands, which may have different suppliers. On their own, the threads do not have much value, but they can be woven into strong, durable fabrics, with a wide variety of applications. When weaving, it helps to follow a pattern, although many degrees of freedom still remain, depending on the skill and experience of the weaver.

Knowledge weaving refers to the process in which resources, practices, and initiatives (threads) of participating communities (suppliers) get woven together into knowledge fabrics. These knowledge fabrics can have many different applications, e.g. facilitating social innovations. Each knowledge weaving process is unique, but there may be reusable collaboration patterns that can inspire cross-case weaving processes. The weaver-role is played by what we call social innovation catalysts. They can be representatives from one or more of the participating communities, but not necessarily so. Public libraries, for instance, are natural public sensemakers and social innovation catalysts (De Moor and Van den Assem, 2013).

Summing up, we define knowledge weaving as (1) an intercommunal sensemaking process (2) facilitated by social innovation catalysts (3) in which existing community-owned knowledge sharing practices, initiatives, and resources are tied together (4) into commons-based knowledge fabrics that (5) support intercommunal collaboration.

Next, we explore what this definition of knowledge weaving could mean in practice, and what could be a starting point for the collaboration patterns guiding the weaving process by exploring the case of the European Social Innovation Week 2015 pre-events.

Case: the European Social Innovation Week 2015 pre-events

In this section, we present what we think to be a prototypical case of knowledge weaving: creating cross-overs between communities collaborating on social innovation in the region of Midden-Brabant around the southern Dutch city of Tilburg. Social innovation has

been a leading collaboration theme there for many years, creating a strong regional social innovation ecosystem.

The Tilburg regional network of social innovation catalysts

In 2013, the Tilburg region submitted a bid for the EU European Capital of Innovation Award. As part of this bid, an analysis was made of the regional social innovation ecosystem (Municipality of Tilburg, 2013). One component of this analysis was a network visualization of this ecosystem, as well as a description of its elements and their interrelationships.

To represent the ecosystem, it was observed from three different levels ("altitudes"). The 10 km-level concerned the "Strategic Agenda": the formal organizational stakeholder agreements that provide the necessary conditions for social innovations to get organizational support and resources for scalability. The 1 km-level described the actual social innovation initiatives taking place in the real world. Different 1 km sub-analyses were made for different domains, such as logistics, labor market and new forms of government. This is the level where bottom-up innovations, for instance, citizen initiatives for promoting solar energy panels in the neighborhood can also be described.

Most interestingly, from a knowledge weaving point of view, is the 5 km-level: at this level, the regional network of social innovation catalysts was charted. These catalysts are not (necessarily) social innovations themselves, but rather initiatives that help to accelerate and connect operational social innovation initiatives. Social innovation catalysts come in many forms: agreements, organizations, collaboratives, events, awards, and so on. Fig. 1 shows this network of catalysts.

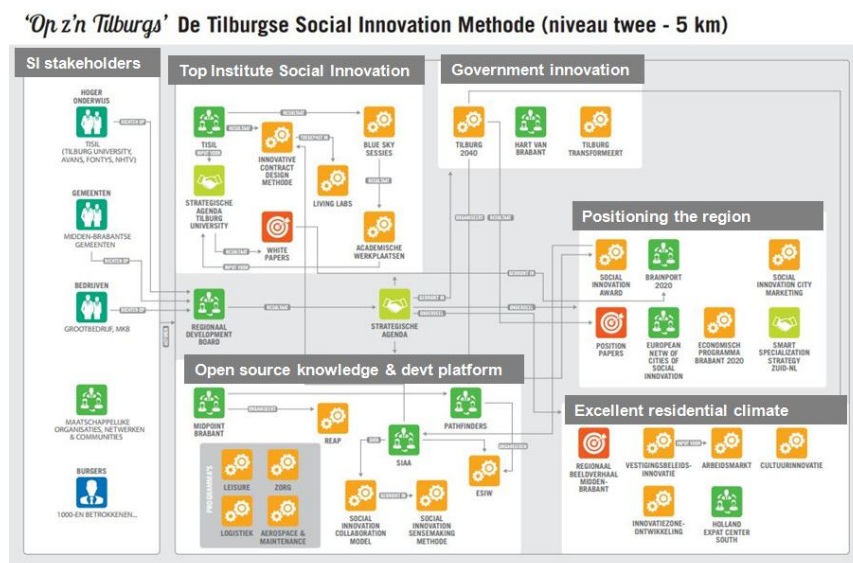


Figure 1: The Midden-Brabant regional network of social innovation catalysts in 2013 (Source: Municipality of Tilburg, 2013)

Catalysts were grouped in clusters ranging from *Top Institute Social Innovation*, *Government Innovation*, *Positioning the Region*, *Excellent Residential Climate*, and *Open Source Knowledge and Development Platform*. Many causal links between catalysts were identified, both within and across clusters, indicating which catalysts led to the generation of other catalysts. For example, an early *Positioning the Region*-catalyst was the creation of a Social Innovation Award, which over time led to an unexpected spin-off *Open Source Knowledge & Development Platform*-catalyst: the Social Innovation Award Academy in which winners of the award still keep meeting and have regular informal lunch meeting discussions. Another *Platform*-example was the Pathfinders-network, in which staff members

from a large variety of regional organizations met regularly to jointly study how social innovation could be made to work in practice within and across their organizations. Together, these catalysts came up with the idea to organize the European Social Innovation Week. The third edition of that event was organized in 2015, with even more organizational support than before, so it is an example of yet another social innovation catalyst emerging in the ecosystem.

Social innovations go through various process stages from initial idea ("prompt") all the way to systemic change (Murray et al., 2010). The European Capital of Innovation Award bid book concluded that the Tilburg regional social innovation ecosystem is thriving in terms of collaborations established and the number of social innovations emerging, many having scaled up considerably already. An observed weakness, however, was the lack of knowledge sharing about the development process and results of these social innovations. In particular, significant knowledge sharing gaps were identified between the top-down worlds of formal (organizational) stakeholders and the bottom-up world of citizen initiatives.

The ESIW 2015 pre-events

One effort to promote social innovation knowledge sharing in the region was by the public library KnowledgeCloud hosting a series of "pre-events" prior to the European Social Innovation Week 2015.

European Social Innovation Week

The annual European Social Innovation Week (ESIW) was organized for the third time in 2015². During the week, people from different backgrounds and disciplines come together to inspire one another and strengthen their ties by meeting, presenting and discussing projects, products or ideas that focus on social innovation. Citizens and entrepreneurs, stakeholders in government, education and science co-create ideas for new products and services, in close collaboration with their end users. The week long program is filled with interactive workshops, lectures and meetings.

ESIW is all about the meshing of networks and communities. Each of the social innovations presented itself is a network of communities. Many ad hoc encounters had taken place between ESIW participants in the previous two editions. Still, there was the feeling by several stakeholders involved that more could be achieved in terms of establishing more cross-overs between the "co-organizers" of the ESIW events. How to do that was still unclear, however.

The KnowledgeCloud

The Tilburg public library took up the challenge to foster more cross-overs by organizing ESIW pre-events as part of its KnowledgeCloud initiative. Public libraries are taking on a new role as stewards of communities of social innovation: "meshed communities" rooted in other communities, networks and organizations and aimed at improving the way things are done in society (De Moor and Van den Assem, 2013). The KnowledgeCloud consists of an online platform³, a methodology for strengthening stakeholder networks, and a growing network of members and thematic knowledge groups they can subscribe to. While the online platform so far is mainly used as a reference platform to log and connect digital traces, the real interactions happen in face-to-face meetings and events. A range of services and applications is being developed to put the KnowledgeCloud infrastructure to effective use. These connect and provide context to events and meetups of members, which is essential for learning, collaboration, and innovation to take root. One service is the role of the community

² <http://www.esiw.nl/english/>

³ <http://kenniscloud.nl/>

librarian who, among other tasks, helps knowledge group administrators to grow the member network, events, and collaboration around their theme, as well as make links with other thematic groups. A prototype version of the KnowledgeCloud is described in (De Moor and Thijssen, 2015), but the platform, methodology, and network continue to evolve.

The pre-events

The goal of the pre-events was to establish cross-overs between ESIW co-organizers. Three pre-events were organized: a "pre-pre-event" (June), the first actual pre-event prior to the summer holidays (July) and one towards the end of it (August). The pre-events were organized in the KnowledgeMakery, a "living lab" space of the Tilburg public library used to explore innovative library formats and services, focusing on organizing meetups and events.

Prior to the main pre-event, a pre-pre-event was held in June to set the stage. Its goal was to determine how to organize cross-overs during ESIW, how to organize the main pre-event, and how to use the KnowledgeCloud before, during, and after ESIW. Eight people from four co-organizing organizations participated in the pre-pre-event. Ideas were captured in a mindmap and were also shared in the KnowledgeCloud.

The main pre-event⁴ was held in July, with the aim of sowing the seeds for the ESIW cross-overs. 33 people representing 26 organizations took part. Two types of cross-overs were sought out: thematic and event cross-overs.

Thematic cross-overs concern themes and topics that are to serve as conceptual bridges around which regional social innovation initiatives may fruitfully emerge over time, spanning boundaries between communities.

Event cross-overs have a more immediate focus: community-boundary spanning events meshing activities, participants, and resources of, in this case, ESIW co-organizers.

In line with the workshop format, participants divided themselves into six breakout groups of four to seven participants each. They were asked to join as much as possible groups consisting of people whom they did not know yet, to increase the chance of unexpected cross-overs emerging. The groups were tasked with looking for thematic and event cross-overs in a free-form group discussion. As a discussion aid, each group received an empty poster sheet and stacks of post-it notes in three different colors: pink post-its represented organizations/initiatives/activities participating or to participate in ESIW, blue post-its denoted possible thematic/event cross-overs and green post-its listed tags capturing ideas about how these cross-overs might be designed.



Figure 2: A ESIW pre-event #1 breakout group

⁴A photographic impression of this event can be viewed here: <http://kenniscloud.nl/events/event/view/28414/esiw-pre-event-1>

After the group breakout sessions had been completed, the pre-event continued with a plenary session. A representative of each group presented the cross-overs identified. The audience, in turn, suggested refinements for these cross-overs, new cross-overs, and links between the cross-overs already suggested. At the end of the discussion, an agenda of next actions was also agreed upon, including the idea for an additional joint physical follow-up meeting to work out the proposed cross-overs in more detail, as well as doing this online on the KnowledgeCloud platform.



Figure 3: ESIW pre-event #1 plenary session

At the final pre-event in August, about ten people showed up for taking stock and doing the finishing touches. Although at the end of the first pre-event participants had expressed interest in further plenary interaction to work out the ideas, both face-to-face and online, not much joint activity had actually happened. No follow-up plenary meeting had been organized and little discussion had taken place on the KnowledgeCloud platform since the first pre-event. Some possible explanations proposed were the difficult timing of this period (summer holiday, when most projects come to a standstill in the Netherlands), no time by ESIW co-organizers for follow-up, and a still too-complicated online platform. Still, several bilateral conversations had continued and some notable event cross-overs – described next - were in the works.

Pre-event cross-overs

Here we present some of the thematic cross-overs and event cross-overs that were a result of the ESIW pre-events.

Thematic cross-overs

An immediate thematic cross-over outcome of the first pre-event was a list of 31 topics, grouped into six themes, which the participants thought to be the conceptual basis for strengthening and growing new cross-overs between social innovation initiatives in the Tilburg region. The main themes were: *Security, The Elderly & Care, City & Countryside/Nature, Education, Society, and Social Innovation*. These intercommunally defined and owned themes and topics are relevant starting points for further sensemaking and knowledge weaving of regional organizational and community stakeholders.

Event cross-over: Fire security brainstorm session

One event cross-over emerged around an already planned regional fire department ESIW brainstorm session on exploring innovative ways to improve fire security for elderly people still living at home. At the first pre-event, a connection was made between various fire department representatives and a lecturer from an applied research university, who was looking for rich cases for his students to research during ESIW. Several of his students did attend the ESIW brainstorm session, participated in the discussions, and reported back their findings in their student presentations.

Event cross-over: The Tilburg Water Debate

Two further participants in the first pre-event included De Kwekerij and the Environmental Café Tilburg.

De Kwekerij⁵ is a Tilburg-based site-specific theatre company. This community of artists creates multidisciplinary performances in unexpected locations in urban and rural settings. Besides producing beautiful and intense experiences, the artists also want to encourage their audience to start thinking more deeply about the themes they put forward in their performances. This year's performance was about a historical event: a hundred years ago the first water purification laws were passed in the Netherlands, leading to the first water purification plant of the country being constructed in Tilburg. The performance took place at the site of this plant, which was decommissioned and turned into a landscape monument a couple of years ago.

The Environmental Café Tilburg⁶ is held five times annually. It focuses on issues related to nature, environment and sustainability and is organized by professional journalists. By combining in-depth interviews with entertainment they consistently manage to draw a large crowd. A wide range of stakeholders has been interviewed since the inception of the café in 1993, including environmentalists, employers, researchers, and politicians. It has built a reputation of being a watchdog, putting issues on the regional agenda and monitoring whether the promises made by, for instance, politicians, have actually been held.

At the July pre-event, there turned out to be a strong match between the interests of De Kwekerij and the Environmental Café. Although De Kwekerij wanted and could draw public attention to the theme of water purification, they did not have the focus nor the resources to further develop that theme. The Environmental Café, however, was willing to organize the "Tilburg Water Debate", as a follow-up to the performances. They researched the theme, invited six experts, including the Tilburg city councillor responsible for water purification, his provincial counterpart, and the chairman of the regional Water Board. They were interviewed by a journalist and exchanged views in the ensuing expert debate, of which a report was made by the Environmental Café⁷. The location for the Water Debate was the decommissioned water purification plant where De Kwekerij was having its performances that week. Furthermore, the city councillor and the chairman of Water Board presented a symbolic covenant on joining forces in two so far separate city projects aiming to make water management more sustainable.

The story continues, however. The city councillor came to know about the KnowledgeCloud through this Water Debate. He expressed interest in the KnowledgeCloud being a potential tool for supporting a city-wide participatory agenda-setting process on the themes of water and environment. As of the publication of this paper, the feasibility of such a process is being explored by the Tilburg public library and city civil servants.

⁵ <http://www.dekwekerij.nl/>

⁶ <http://www.milieucafe.nl/>

⁷ <http://www.milieucafe.nl/programma/waterdebat-20-september-2015/het-grote-tilburgse-waterdebat> (in Dutch)



Figure 4: The signing of the symbolic covenant during the Tilburg Water Debate

Discussion

In this paper, we presented a rich case exemplifying what we mean by knowledge weaving: the European Social Innovation Week (ESIW) pre-events. We showed how various communities involved in co-organizing ESIW met in an experimental intercommunal sensemaking process, facilitated by the Tilburg public library. Existing initiatives and networks were tied together into new knowledge fabrics such as thematic and event cross-overs. These fabrics lasted beyond ESIW, leading to new spin-offs between communities, as in the case of the Water Debate. The particular process in which this knowledge weaving experiment took place was still rather ad hoc. We aim to investigate how to enrich this intercommunal inquiry process with pedagogical and process insights from, for example, the proven Community Informatics Studio methodology, in which community learning and research processes are meshed, with students, teachers, and community partners meaningfully engaging with one another to produce benefits for all (Rhinesmith and Wolske, 2014). Such critical-interpretive modes of inquiry are especially essential when contributing to an intercommunal commons that is to be legitimate and trustworthy, in order for social innovations to take root and scale.

Our goal was to inductively find out what the knowledge weaving metaphor means in practice and how it may be used to capture knowledge and reason about communities interacting in the commons. This means that the approach presented here is but a set of socio-technical design hypotheses, to be further tested and developed in future cases. Not everything worked out as planned, such as the still limited follow-up activities to the first pre-event and modest associated use of the online KnowledgeCloud platform. How can we learn from across different cases and grow our understanding of the role of the commons in mediating intercommunal collaboration? To be able to contrast and compare across cases, we aim to further develop the knowledge weaving methodology by combining Carroll's scenario-based design and claims analysis method with our approach to capturing reusable lessons learnt in collaboration patterns (Carroll, 2012; De Moor, 2013). A scenario-based design starts from core scenarios and tries to identify hypotheses about human activity that are implicit in that design. These hypotheses are claims about positive and negative effects on human activity that implementing these scenarios could have, to be tested in future research (Carroll, 2012, p.39-40). An example of a claim derived from our case could be that "ad hoc breakout group discussions, followed by plenary follow-up discussion produces useful thematic and event cross-overs". Furthermore, collaboration patterns may be of use. Pattern languages encourage stronger and more effective participation on the part of users in the design of their (socio-technical) environments (Schuler, 2009). What we would add from our collaboration pattern approach (De Moor, 2013) are ontologies: these allow claims not to be

just individual free text-expressions, but to be ordered in “generalization hierarchies”, showing which patterns can be derived from others. This property can be used to more efficiently index and filter these claims, allowing for more precise cross-case comparisons. For example, a more generic pattern distilled from the ESIW pre-event scenario (which is specific to the Tilburg region) could be a "Drumbeat-Event Pre-Event", with "ESIW" having been replaced by the more generic concept type of "Drumbeat Event", and the "KnowledgeCloud" (specific to Tilburg) by the more generic concept type of "Local Knowledge Broker". In this way, the scenarios with their associated set of claims inductively arrived at from the ESIW case, could be implemented and tested in, say, other European regions that also strongly emphasize social innovation, but with a very different specific stakeholder and social innovation catalyst ecosystem from the Tilburg one.

The commons is all-important for society to thrive. In civil society, communities ideally pursue their own interest, but limit themselves when the common interest is concerned (Etzioni, 1993, p.217). However, the Tilburg knowledge weaving case illustrates that the sum is sometimes more than the whole of its parts. So, instead of focusing on communities limiting themselves, perhaps the focus should be on how they can together enlarge the pie. Knowledge weaving then becomes a true commons building process.

Issues of public control are key in the commons (Nemeth, 2012). Knowledge weaving as an intercommunal sensemaking process could help communities take partial control, while simultaneously fostering the growth of a joint "public space" of interwoven concepts, resources, and initiatives. This was illustrated by the thematic and event cross-overs generated in the case discussed. Knowledge weaving could also be a flexible process to help address the imbalance experienced in many commons-oriented peer production initiatives. These create common pools of knowledge for the whole of humanity, but are currently still dominated by either start-ups (and individuals) or large multinational enterprises (Bauwens and Kostakis, 2014). Community lending and publishing platforms, stewarded by public libraries, help stimulate local enterprise, where people move between borrowing, bartering, buying and/or ordering (Naylor, 2014). Knowledge weaving processes could help grow and connect the networks of communities around these locally anchored socio-economic hubs. Knowledge weaving thus helps to ground these hubs in the commons, creating a kind of societally-owned "meso-level" between the "micro" individuals/start-ups and "macro" multinationals, giving a new meaning to "fair trade".

A significant role for communities is to empower people by enabling them to participate openly and directly in making the decisions that govern their lives (Etzioni, 1993, p.142). Knowledge weaving as proposed here is a useful step in that direction, as social innovations are being designed and implemented from the bottom-up, aligning interests from many different communities over time as knowledge fabrics grow and become stronger. The win-win situations created by knowledge weaving may also help deal reduce democratic tensions between citizens and municipal administrators both vying for empowerment (Bødker and Zander, 2015), as the strengthened local commons reduces a lot of governance and legitimacy complexity.

People often reason through a patchwork of metaphors, with different metaphors leading to different ways of constructing knowledge and reasoning about complex issues (Thibodeau, and Boroditsky, 2011). The knowledge weaving-metaphor could be further enriched and extended, making use of specific local knowledge. In Tilburg, the textile industry used to be the most important economic sector. Although mass production has declined, there still is a large base of innovative textile companies. Much R&D on new techniques is also performed in the “TextielLab” (Textile Lab), part of the “TextielMuseum” (Textile Museum)⁸. We intend to further explore and extend the metaphor by monitoring one or more "Knowledge Weaving" workshops to be organized by the TextielMuseum together with the local social innovation hub MCSI. Furthermore, knowledge weaving is but one metaphor that could be

⁸ <http://www.textiellab.nl/en/>

associated with complex, ambiguous constructs like networked communities, commons, and social innovation. It would be interesting to explore other metaphors as well, and see how they interact and relate to one another. An example could be concepts associated with the former Tilburg railway yard which now houses many social innovation initiatives.

Conclusion

Society is a network of communities, which somehow have to make sense of one another for society to work. Much is understood about the inner workings of communities. So, what about their *outer* workings? The commons is where they (should) meet. We explored what it takes to have communities interact effectively in the commons around the theme of social innovation. To this purpose, we explored the metaphor of knowledge weaving as an interactive process of sensemaking between communities. We illustrated the meaning of this process in practice by giving a rich description of how it was applied in the case of creating cross-overs via the European Social Innovation Week pre-events.

In this paper, we have laid the first strand for understanding the concept of knowledge weaving. We hope that future research will lay - and connect - many more, so that knowledge weaving will become a strong, useful process for connecting communities in the commons.

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