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Entrepreneurial Discovery Processes through a Wicked Game Approach:

Civil Society Engagement as a Possibility for Exploration

Antti Mäenpää & Niklas Lundström

4.1 Introduction

The entrepreneurial discovery process (EDP) is one of the central concepts in S3 because it is the main instrument facilitating evidence-based regional specialisation. The combination of local expertise and market knowledge is a mix that is hard for any region to resist. EDP is primarily designed to create something new out of existing capabilities or resources (Mariussen and Virkkala, 2018, the introduction to this volume). Current cases of EDP, however, seem to indicate something more evidence based and perhaps fewer new ideas (Kroll, 2016; Perianez Forte et al., 2016; Teräs and Mäenpää, 2016) – a situation that could eventually lead to regional path dependency. One indication of such path dependency may be the fact that the concept of domain has not been expressly mentioned by many regions (Mäenpää and Teräs, 2018), even though the domain concept is meant to highlight the novel thinking in the region and is officially stated to be an outcome of successful EDP.

As Mäenpää and Teräs (2018) observe on the subject of domains, the exploration is often based on analysis of the existing capabilities and previous knowledge. After choosing the domains, the process seems to stop. Results from Kroll (2016:4) show that EDP continues 'strongly and comprehensively' in only a little over 20 per cent of the 179 cases analysed. Why is this happening and what should be done to encourage actors to maintain the cooperation that forms the core of whole EDP? One example of good practice is presented by Rodrik (2004), who suggests that there are ten issues that must be addressed in policy design (see also Chapter 1 in this volume, Virkkala and Mariussen, 2018). Of those ten principles, only one (incentives) addresses the collaboration between actors directly. This chapter argues that the failure to make EDP an ongoing process may be because the EDP does not explore all the options offered by a complex world. A failure in exploration may thus lead to lock-in on existing strong sectors, which may lead to long-term challenges.

One explanation may stem from previous research about the role of wickedness in regional development policies. Wicked problems are problems that defy a clear solution and are subject to

constant change (Rittel and Webber, 1973). Their changing status means it is impossible to find an objective solution to these kinds of problems in which subjectivity always plays a crucial role. The previous research has concluded that regional development practices, such as S3 or EDP, are themselves wicked *games* – a viewpoint that emphasises the active role of the stakeholders in the problem formulation and any attempts to find resolutions (Lundström, 2015, 2016; Lundström and Mäenpää, 2017; Lundström et al., 2016). This viewpoint of a wicked game also highlights the actors' roles in EDP. The concept of the wicked game makes it possible to study EDP in practice and offers insights into how EDP works in a wicked environment, where there are no easy processes to advance regional development. Only by accepting the complexity of regional innovation can one focus on finding the optimal procedures and solutions.

Previous literature argues that one possible way to discover new solutions is to elicit citizens' views. The utilisation of the fourth helix (i.e., civil society) has been debated at great length; some studies (e.g. Marinelli and Perianez Forte, 2017) indicate that the use of citizens in strategy formulation has been useful, but others come to the opposite conclusion (Kroll, 2016; Vallance, 2017). The question is why in some cases civil society involvement enhances EDP while sometimes it does not.

Usually the fourth helix or civil society refers to more organised, or categorised citizen involvement (Carayannis and Campbell, 2012), but the authors have included individual citizens in the same concept. This is based on suggestions that individual citizens could be a good addition to EDP as they may provide new insights on regional innovation and help to challenge the thinking behind its implementation (Aranguren et al., 2017; Benner, 2014; Lundström and Mäenpää, 2017).

The key research questions of this chapter address the complexity surrounding EDP and especially how to utilise civil society in a meaningful manner, and they also examine where new ideas appear. To answer these questions, we focus on the following:

- How does the wicked game approach describe EDP exploration?

- How might such exploration be enhanced through civil society engagement?

This chapter continues by demonstrating how EDP can be seen as a wicked problem. This also provides a starting point for the discussion of the wicked game concept and how it affects EDP. We also discuss the somewhat paradoxical idea that the inclusion of more actors could enhance emergence, or generation of ideas, while bearing in mind that involving more actors has not worked in all S3 cases – something that demands an explanation. After this discussion, the chapter focuses

on turning the complexity aspect into a positive driver for new ideas and suggests that different actors could support that. Finally, in the conclusion section, we answer the research questions presented above.

The chapter is based on literature analysis and aims to explore the relevance of the concepts of the wicked problem and wicked game in the interpretation of the EDP. This means that EDP is conceptualised using the notions of wicked problems and the wicked game to build a new kind of understanding of EDP. This kind of investigation is needed because the current practices do not seem to comprehend the EDP itself as a complex process, which may result in good ideas being omitted.

4.2 Wicked problems and the wicked game

Rittel and Webber (1973) originally introduced wicked problems and the term has been used to describe wicked policy issues, although it was also a critique aimed at the planning theory of that time. The original study emphasised that the crisis facing planning was not about the planners' lack of knowledge or intelligence, but about the very nature of the problems they tried to address. The main idea of Rittel and Webber was to divide problems into two different categories: tame and wicked.

First of all, tame problems have an objective solution and once that solution is found, the problem ceases and does not reappear; an example offered by Rittel and Webber (1973) was that of a chess player trying to achieve a checkmate in five moves. In this example, the objective is clear and there is no question of whether the problem has been solved. That is because the game is governed by rules known by each player. In addition, according to Mason and Mitroff (1981), tame problems can be separated and reduced. This means that the problem can be removed from its context and broken down into pieces, which can in turn be solved individually. In addition, Lundström and Raisio (2013) underline that in societal problems the tame aspect is found in the repeatability and lucidity of the process. Once a solution is found, similar problems can be solved in the same way. Of course, this is not the case with most societal problems. Rittel and Webber (1973) described tame problems as relatively easy, but wicked problems as far more stubborn. Tame problems might be complicated, but are not complex per se. From the complexity point of view, being complex and being complicated are not synonymous. When we use the terms complex and complexity they refer to the worldview of complexity, especially complexity thinking (Richardson and Cilliers, 2001) unless otherwise stated; see also Chapter 7 in this volume (Aasen, 2018) for clarifying variations in complexity thinking.

Wicked problems cannot be solved for good, and even the definition of the problem is ambiguous. Some examples are healthcare or environmental issues, as they are never solved (Levin et al., 2012; Vartiainen, 2005). It is impossible to deliver a definitive solution because the stakeholders have contending views and beliefs. Of course, the backgrounds of stakeholders and their value systems play a crucial role as well. For some the proposed solution is the only option, while others cannot even live with that proposal. The environment or the outside also change the problem and impose new limitations on the process. Rittel and Webber (1973) originally stated that every wicked problem is a symptom of another wicked problem – something identified as at the core of wicked problems (McCall and Burge, 2016). When one problem is temporarily resolved, it then transforms into a different problem. This property has been portrayed as resembling the Hydra of Greek mythology; when one head was chopped off, the monster would regrow a couple more (Mason and Mitroff, 1981). It also resonates with the complexity point of view and especially the concept of emergence as random change and something that emerges from nothing when looking from the perspective of the whole (Goldstein, 1999; Lundström and Mäenpää, 2017; see also Aasen, 2018).

In addition to the original list of the properties of wicked problems (see Box 4.1), researchers have compiled a number of lists of their characteristics (cf. Conklin, 2005; Danken et al., 2016; Norton, 2005, 2012). Danken et al. (2016) conducted a literature review on the core properties of wicked problems. According to their analysis, the present understanding of wicked problems can be summarised in three interrelated properties. First, wicked problems do not have a clear solution. Property one forms the basis of the second property, which leads us on to the role and properties of the stakeholders, who have diverging values and interests. Third, wicked problems are not fully understood, and therefore the definition of the implications and the nature of the problem differ, too.

Box 4.1. The Properties of Wicked Problems Summarised

1. No definite solution
2. No stopping rule
3. Solutions are not true/false, but good/bad
4. No immediate or ultimate test of a solution
5. Every solution has consequences; every solution is a one-shot operation
6. Do not have an exhaustive set of potential solutions
7. Are essentially unique
8. Are a symptom of another wicked problem
9. The causes can be explained in numerous ways
10. The planner has no right to be wrong

Source: Based on Rittel & Webber (1973)

The worldview of complexity, especially complexity thinking (Richardson and Cilliers, 2001), and wicked problems share similar presumptions (e.g. Zellner and Campbell, 2015). Wicked problems are seen to influence and are influenced by complex systems. The boundary between wicked and complex is somewhat vague. To begin with, wicked problems and complex adaptive systems (CAS) have similar characteristics (Waddock et al., 2015). They must both be treated holistically, both involve emergence and co-evolutive patterns and both are unpredictable. They both acknowledge that relationships are non-linear, emphasise the significance of initial conditions and interpret the systems as open (Peters, 2017). However, wicked problems are not just complex problems. Wicked problems are regarded as '…intractable masses of complexity, so conflict-prone and/or knotty that they defy definition and solution' (Alford and Head, 2017:399), while merely complex problems are problems where the definition is agreed upon but the consensus on how to solve it is missing (Roberts, 2000). Interestingly, Interestingly, Peters (2017:385) sees the recognition of wicked problems as a precursor to the complexity sciences in the social sciences (see also Zellner and Campbell, 2015). The notion of wicked problems can be seen as a way to practicalise complexity (Raisio, 2010).

If wicked problems are truly problems that cannot be solved, what approaches can be applied to them? No one owns the wicked problem, and every stakeholder owns only a part of the truth, while no one is in total control (Lundström and Mäenpää, 2017; Roberts, 2000). The importance of collaboration is emphasised in the literature about wicked problems. Danken et al. (2016:25) identified that scholars underline the importance of cross-boundary collaboration and public leadership and management when seeking to live with wicked problems. In the segment of cross-boundary collaboration, stakeholder deliberation and dialogue are seen as a fruitful way to address wickedness. In Roberts' (2000:13) words, we need to get 'the whole system in the room' and the citizens' perspective should be included (Lundström et al., 2016). Stakeholder participation also enables the emergence of shared knowledge (Conklin, 2005). In addition, when it comes to management, policy-makers need to know how to separate tame problems from wicked problems (Danken et al., 2016). If a wicked problem is treated as a tame one, the outcomes will not be desirable (Lundström, 2016; Lundström and Mäenpää, 2017). It is about tackling the right problem with the broad participation of stakeholders. One could argue that communication and interaction are at the heart of the process (Zellner and Campbell, 2015). The worldview of complexity shares this same presupposition. Therefore, they both see the process as one of continuous exploration and discovery because the problem formulation and problem resolution are unknown.

It is suggested that this kind of interaction, where no one is in charge, where the stakeholders might share the concern over addressing the same problem (not always), but where their remedies may be

totally different, should be interpreted as a wicked game (Lundström, 2015; Lundström and Mäenpää, 2017; Lundström et al., 2016). The concept of a wicked game is a quest to emphasise the role of the actors or players instead of only theorising about the quality of the problems. The wicked game perspective incorporates both tame and wicked aspects similar to Rittel and Webber's original dichotomy of wicked problems.

A tame game can be seen as the opposite of a wicked game. In a tame game, the problems are not seen as wicked, and even if they are, they are treated as if they were tame. This kind of gaming has certain outcomes. First, if the problems are treated as tame, the answers are engineered solutions and therefore mechanistic. This approach can also lead to categorising problems into similar types, which means that the problems are treated in a similar way in many regions. The tame game also has a stopping point; the problem disappears when the problem is solved, and the next issue can be addressed. The tame game is the framework in which the taming of wicked problems takes place (Conklin, 2005; Daviter, 2017; Roberts, 2000). The results will be sub-optimal if the players do not address the reality sufficiently, that is, if they get involved in playing a tame game instead of a wicked game (Lundström and Mäenpää, 2017). Daviter (2017:578–579) describes that treating wicked problem as tame '…allows public authorities to limit participation and debate, assign administrative responsibility, reduce the need for cross-sector coordination, take swift action, draw on the available expertise, and apply pre-existing policy instruments and evaluative criteria'. All of this is understandable if the resources limit the process, but it does not sound very innovative. It is argued later in this chapter that the presence of a tame game can be seen in past experiences of EDP.

The development of a region can be a wicked problem (Lundström, 2015; Lundström and Mäenpää, 2017) because the definition of development per se is ambiguous, let alone when the context is as wide as a region, which includes so many different players, organisational levels, ambitions, goals, etc. The wicked game (Lundström, 2015; Lundström and Mäenpää, 2017; Lundström et al., 2016) is a framework in which the region is developed in the presence of wicked problems. The wicked game includes players from different horizontal and vertical regions or arenas as outlined by van Bueren et al. (2003). Although the aim of the game is to develop the region, the aims and interests of the various players sometimes clash. Actors may also have different ambitions or perceptions of the goals, so some try to be a negotiator and some pursue only their vested interest. It is clear that not all of the players are interested in acting for the benefit of the region. However, it is also possible that different actors have mutual goals, and that the cooperation may be very efficient as the collaborators all focus on developing the aspects that they know well or can influence. In such cases, the wicked game may also include coalitions of different kinds of players. The key point is that the players' involvement

changes constantly and that the importance or role of a certain player might change during the game, and some players may be totally dismissed; in addition, some players influence the game more than others do. These characteristics have also been noted in the context of S3 (Lundström and Mäenpää, 2017; Mieszkowski and Kardas, 2015).

Generally, wickedness has a negative connotation, but that is not the case with a wicked game. On the contrary, the very idea of a wicked game must be interpreted as the positive side of wickedness and as something to be embraced and perhaps to benefit from (Raisio, 2010) and not merely something that must be tolerated (Norton, 2012). The wickedness cannot be eliminated or resolved for good; therefore those affected by it must change their perception of it. One way to do so is to study how innovation could prosper in a complex environment and perhaps even benefit from it.

4.3 EDP exploration in the wicked environment

Regional development as a whole has been recognised as a wicked problem (Lundström, 2015; Lundström and Mäenpää, 2017) and this suggests that EDP itself falls into the same category. As Aranguren et al. (2017:170) state: 'A region is a complex system and in a complex system the knowledge necessary to overcome challenges and take advantage of opportunities is distributed, and not only among other territorial actors, but at a global level.' The idea of a wicked game is thus encapsulated in the thought that EDP is a continuing process (Marinelli and Perianez Forte, 2017; Perianez Forte et al., 2016), as final solutions cannot be found for regional innovation or development. This adds to the idea that EDP might be seen as a wicked game. It is also the reason why EDP cannot stop when the domains are found; exploration must continue if new ideas and solutions are to be found.

The typical players involved in smart specialisation are actors from the research and development sector and representatives of civil society, but also include research leaders, education institutions, inventors, non-governmental organisations (NGOs), societal associations, researchers, suppliers, manufacturers, service providers, entrepreneurs and consumers (Mieszkowski and Kardas, 2015). But this is of course only the official side of the game. According to Lundström and Mäenpää (2017), the players involved with S3 can be divided into three different major player groups: the public sector, companies, and universities. Each group has a different role and diverse aims in the wicked game. To summarise, the university's role in the wicked game of smart specialisation is to be a research partner, and the public sector tries to be a mediator, negotiator, or enabler of RIS3. Companies bring market

knowledge to the game and seek partnerships and opportunities for future profit. The role of different actors has been discussed recently (Kroll, 2016; Marinelli and Perianez Forte, 2017) and some studies (Kroll, 2016:7–8; Lundström and Mäenpää, 2017) indicate that regional governments are perhaps the major actors aiming for the original goals of S3, whereas the other actors are acting more or less according to their own interests.

One could argue that overall EDP exploration consists of three distinct phases (see Figure 4.1.). Existing knowledge of the region (usually gathered by regional governments and sometimes involving research commissioned from universities) forms the basis. After that there is some sort of stakeholder participation. Stakeholders from the public sector, firms and universities (known as triple helix, or 3H) with the addition of civil society (known as quadruple helix, or 4H) are involved and the established knowledge is either verified or adjusted to meet the views of the regional actors); and, lastly, formulation of the ideas or concepts to promote regional strength (Mäenpää and Teräs, 2018).

This presentation of the phases of an EDP may seem simplistic, as the RIS3 process can involve numerous iterations and rounds of dialogue between various actors. There are, however, indications that several regions have utilised a quite similar style when deciding upon their regional specialisation (Aranguren et al., 2017:172; Mäenpää and Teräs, 2018), and this process-like approach (where regional innovation is analysed and then 'solved') may be an indication of tame practices to develop regional innovation. Ideally, EDP should be an ongoing process (Perianez Forte et al., 2016) but evidence suggests that EDP has slowed down after the RIS3 implementation (Kroll, 2016:4), which supports the view of a tame process appearing in problem-solving.
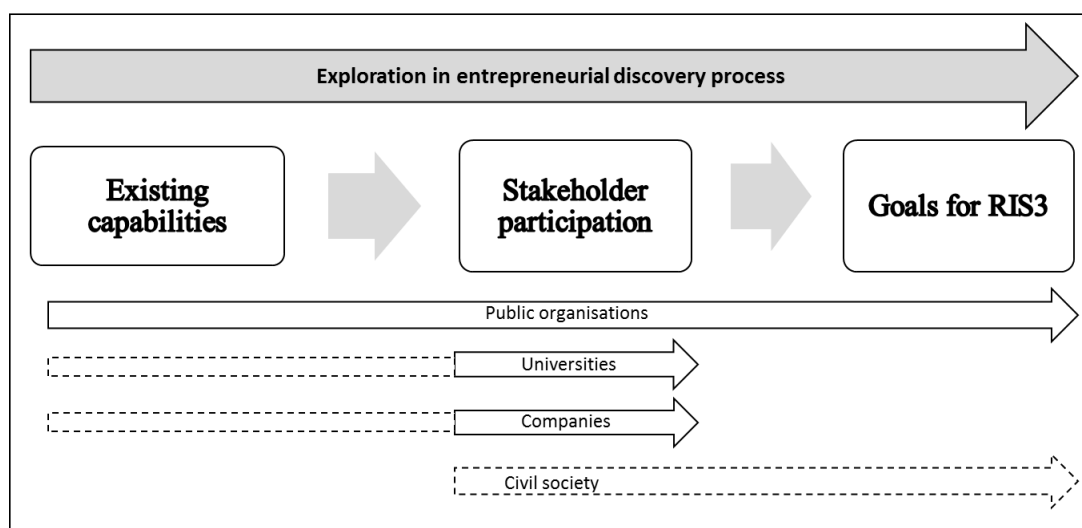

Figure 4.1. The distinctive phases of exploration in the EDP and usual stakeholder participation in a linear model.

A particularly interesting phase of EDP exploration is that in the middle, as the different stakeholders can then have their say on issues around innovation. Discussions in the triple/quadruple helix (3H/4H) setting are often mentioned in the official RIS3 documents as they explain the decisions being made and what should be done in the future to enhance the chosen specialisation aspects or goals. Several cases seem to verify this pattern where 4H is utilised, but not necessarily throughout the whole process (Teräs and Mäenpää, 2016; Vallance, 2017).

The overall outcome of EDP can be affected by the configuration and participation of different types of stakeholders (Benner, 2014; Lundström and Mäenpää, 2017) and even by the actual individuals involved (Aranguren et al., 2017). The role of stakeholders and individuals is particularly highlighted in the preparation process as local public actors might adjust the outcomes of EDP when they compose the RIS3 document and set its goals. This phase is interesting because it shows that within EDP exploration there is still room for regional politics. EDP is usually understood as 3H or 4H cooperation, but it is important to see that it includes phases with varying degrees of cooperation. Some research indicates that the RIS3 process may even involve a 'mix and rotation of leadership' during specific phases of its formulation and implementation (Aranguren et al., 2017:172). Indeed, different stakeholders hold different positions and may therefore have greater or lesser influence during the strategy process (e.g., universities might lead a regional analysis, while companies might lead EDP). However, only regional governments can influence and react to the whole process. This is understandable of course, as public actors are usually the only regional stakeholders who know which resources are available, which obviously can affect their decisions on the chosen domains and on their implementation, which then transforms into regional innovation. This reality suggests, however, that rotation of leadership is perhaps a little artificial as regional government has control of the process.

In addition to the internal game played within a region, a wicked game is also played between regions (Lundström and Mäenpää, 2017). This is also integral to the idea of S3, because the regions compete with each other if they are working on similar types of products or services, regardless of whether the regions are in Europe or even in the USA. Consequently, the different regional levels interact, which brings the wickedness to the fore. The interconnectedness is also due to players from various fields participating in the wicked game and the environment causing mixed messages to be brought into the game. After all, the environment plays a crucial role in the game.

The environment here means exogenous properties, in other words, what takes place outside a certain region that affects that region and its actors. Such properties would embrace the trends and

flows in the global economy, the political climate, and actual climate issues, innovations, and public will. These issues often have an unexpected influence on regional innovation and may exert different effects on individual actors. They also can change unpredictably, are often emergent, and the results may be chaotic (see Raisio and Lundström, 2017; Zellner and Campbell, 2015). Very often these environmental effects are not included in RIS3 owing simply to resource issues or because they are difficult to predict.

A wicked game does not stop even if some temporary resolution is found. Zellner and Campbell (2015:464) describe the problem-solving process as 'one of on-going exploration and discovery, where the system is understood by trying to define and explain it through explicit representation, simulation, and evaluation and reflection from a variety of perspectives and with a variety of tools'. Therefore, the EDP should not stop at any point. According to the literature, many of the experiences of EDP indicate that the game played is often tame, as the processes have slowed down after the initial implementation rounds (Kroll, 2016; Mäenpää and Teräs, 2018). The regional consensus does not seem to generate very new ideas and, therefore, there is a need to deepen and perhaps to reinvigorate the EDP in order to fully utilise regional capabilities and to evaluate whether they are having a sufficient impact on innovation.

In addition to the above findings, Benner (2014) emphasises the importance of even single actors, such as employees, directors, students, and professors, as innovators. The objective of the game is the same for all players in theory – to identify the domains of specialisation – but when considering the wide spectrum of possible participants, clearly interests and agendas can collide. This might be one of the reasons for tame answers and the tame game: the need to keep the participants satisfied, and the belief that the problems can be solved. Nevertheless, a coping strategy involving a broad collaboration is not unproblematic (Roberts, 2000), especially if the participants are not satisfied with the results. The question of collaboration is a wicked one; when only experts and recognised players play the game, the results are somewhat tame or predictable, but when more players are introduced, the risk of conflict and regional disparity rises. The problem of the role of single actor is already built into EDP. The people who are summoned to the table are the ones who get to have their say (Lundström and Mäenpää, 2017). The public sector representatives have an important role in considering who they call to attend and, ultimately, they also formulate the RIS3 and thus decide what specialisation benefits the region. A single political actor may have huge impact on the overall process.

Interestingly, Foray (2015:29) has mentioned the possibility for 'radical foundation', which can be understood as specialisation without necessarily having a direct existing knowledge base. This sort of inclusion might benefit regional innovation and especially EDP. Radical foundation also paves the way for the introduction of new stakeholders, as it is not based purely on existing knowledge and therefore does not require prior expertise on regional matters. The authors find this to be innovative as it allows for true citizen participation and therefore opens the innovation discussion to the whole of the region not merely 3H actors and experts. This inclusion of radical elements may truly influence or enhance regional innovation discussion.

4.4 Enhanced EDP exploration through civil society inclusion

As mentioned above, current EDP exploration practices may be based on a more tame view of regional development, even though EDP operates in a wicked environment and is in itself a complex entity. One way to bypass the mechanistic process and to elicit new ideas is to accept that there are no certain truths and ready-made tools for the task. In practical terms that means that every idea counts, so to have the best chance to obtain optimal results, one has to understand and utilise the whole system (Roberts, 2000:13). This adds to the challenges of EDP, as a process based on such an understanding of the whole system must include citizens and end users of innovations alongside the usual 3H stakeholders.

This inclusion of citizens has been mentioned in the original strategy guidebook, where the fourth helix is mentioned (Foray et al., 2012) and thus it has been endorsed right from the beginning of the S3 process. Despite this, however, the fourth helix has been undermined in RIS3 implementation, as a recent study by Marinelli and Perianez Forte (2017:8) states: '…EDP emerges as largely a 3-ple helix business, with some interesting signals emerging from the 4th helix.' There are also several other studies emphasising that despite good intentions, 4H collaboration has not been very comprehensive, even when the focus has been on living labs (Vallance, 2017), or even involved EDP steering group participation (Aranguren et al., 2017). Indeed, even when civil society has been involved in the process, there are indications that it is engaged more often in a monitoring role, whereas companies and universities are approached to formulate and assess proposals (Marinelli and Perianez Forte, 2017:10). Essentially this means that the fourth helix is engaged after the decisions have been made. This sort of engagement is rather limiting, and we would suggest there should be citizen participation at the beginning of the EDP to improve insight and ideas.

It is understandable that citizen activation can be a challenge in EDP, as citizens are not perhaps that keen on discussing innovation (Lundström and Mäenpää, 2017). This may be due to a lack of expertise or interest in regional development. People are usually keener to address issues that concern them on a practical level, and matters of regional innovation activities are perhaps not among those. Another issue lies in the disparity of the fourth helix. It is far easier to target companies or universities as their leaders/experts are known. The fourth helix consists of various types of citizens and some know more than others. And all are difficult to contact.

Civil society inclusion has been studied in an S3 setting by Aranguren et al. (2017), who investigated 4H utilisation in Navarre and the Basque Country. Although the base premises for both Spanish regions were quite similar, the results indicated that 4H inclusion was perhaps more profound in Navarre, but the results were perhaps more concrete in the Basque Country, as dialogue was established between the actors. The authors of the study indicate several reasons for their results, including notions on the regional institutions. For example, the Basque Country had a more collaboration-heavy culture and lots of locally-owned companies, which made collaboration easier, even without full 4H participation. Navarre, on the other hand, utilised 4H in its EDP process and even included civil society representatives (e.g. politicians and labour representatives) in the steering group. However, because of larger companies and a more political EDP process, there was relatively little evidence of consensus on the directions the region should take.

Another study of a pair of 4H cases examines health-based domains in Tampere (Finland) and Northern Ireland (United Kingdom) (Vallance, 2017). Both regions had based their domains on an existing knowledge base, although they had different specifications (health technology in Northern Ireland and ICT in Tampere). Although he considered both cases to be good examples of domain construction, Vallance (2017:140) states that: '…emerging innovation systems have yet to take the form of a quadruple (rather than triple) helix arrangement in which societal users are centrally integrated. This is despite both regions exhibiting aspirations to move in this direction.' Vallance explains that civil society participation in actual innovation-related matters is quite minimal as they are mostly used to gather data in a living lab fashion.

The participation of civil society is important despite the issues involved because the citizens' view complements the ideas and thoughts of the regional experts. Citizens are able to view the innovation environment that surrounds the region, as they do not necessarily know about all of the megatrends or latest research. This environment includes some relatively fixed characteristics (location, history, etc.) but is also subject to change, as new trends (products, ideas, companies, etc.) come and go.

Citizens' views are therefore valuable, as they may represent the 'local buzz' of the region (Bathelt et al., 2004:13) and thus offer insights into what sort of activities are supported by the local citizens. Knowledge of the environment adds more elements that are spontaneous because it is impossible to know when new ideas arise and how they affect the region or its citizens. By adding the fourth helix into the mix, the region can receive information from the ground level and this may even include hints about future sunrise industries (Lundström and Mäenpää, 2017). Citizens can also pitch new ideas and challenge existing ones, which further enhances the thinking process and may lead to new ideas concerning RIS3 implementation (Cavalli et al., 2016:130).

When should citizens be involved? The authors suggest that because of the nature of S3, the regional governments who are officially responsible for the formulation of RIS3 should lead the overall process. However, this does not mean that a living lab model (Vallance, 2017) should always be utilised, where citizens simply provide data for analysis. Citizens should be engaged in all the different phases of EDP exploration, and especially during the collation of existing capabilities, as wider participation generates more ideas, which ensures that the chosen specialisation is truly relevant to the local residents. This is especially important in regionally based solutions, as local citizens may have deeper insight into the region itself than some experts (who might live in a different region altogether). According to Hajer (2005:461), planning should not be based on 'facts-as-information but on facts-as-experience'. It has already been suggested that civil society actors may spot future sunrise industries (Lundström and Mäenpää, 2017) and that in itself should be a reason for the more extensive inclusion of members of civil society (see Figure 4.2).
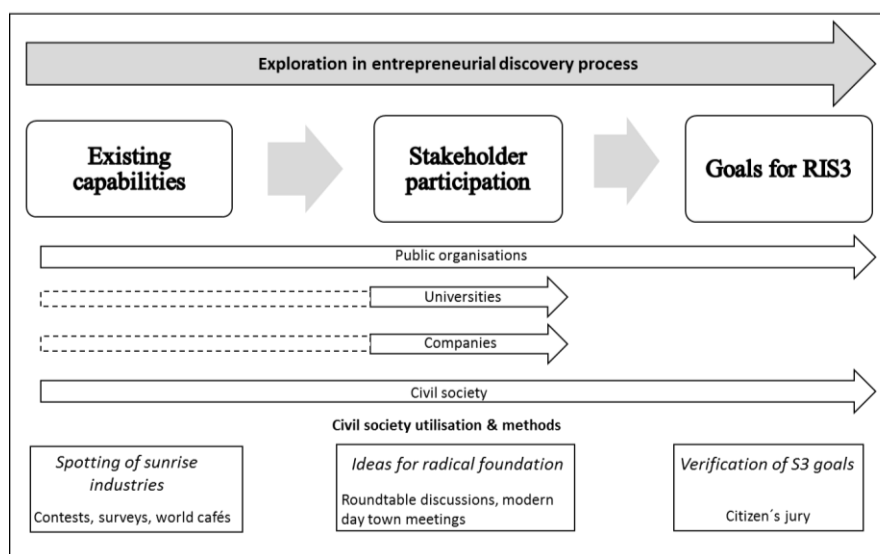

Figure 4.2. Suggested civil society inclusion methods with possible benefits for the EDP exploration process.

One could also argue that spontaneous ideas (or the radical foundation suggested by Foray, 2015) might come more naturally from regular citizens, who see the possibilities because they do not know of all the limitations. Experts can then consider these ideas and evaluate if they are feasible to implement. This process would help with the verification of the EDP as well because the experts would have to explain why suggestions do or do not work for the region. The importance of citizens' external knowledge can also be viewed through the literature of innovation. For example, Strambach and Klement (2012:1844), who apply the notion of combinatorial knowledge to describe the combination of different bases and scales of knowledge, also seem to acknowledge the benefits of micro-level inclusion and point towards the options individual actors can provide by operating 'between networks of firms and organizations'. The study does not specifically mention civil society, but the principle is applicable.

Methods of deliberative democracy, such as citizens' juries (Crosby and Nethercut, 2005) are one possible specific tool to harvest citizens' views (Lundström et al., 2016). In short, operating citizens' juries means that the citizens' perspective is acknowledged alongside that of the usual experts or the recognised players. Possibilities for innovation stem from the pure unpredictability of wicked problems; if the problem (such as regional innovation) is undergoing constant change, the resolutions must be dynamic as well. Of course, there are many more possible methods besides the citizens' jury, for example, world cafés, modern-day town meetings, planning cells, consensus conferences, twenty-first-century town meetings, to name but a few (cf. Lukensmeyer and Brigham, 2002; Fung, 2003; Wilson, 2009). The number of possible methods helping to foster public deliberation has continued to grow in the twenty-first century, as new technologies, methods and applications have been developed.

It is important to understand that different kinds of methods may be used to elicit different sorts of ideas and forms of verification from civil society. For example, world cafés are useful mechanisms to gather good ideas and hear, for example, about sunrise industry suggestions or even radical ideas. This happens naturally as the respondents are not necessarily aware of the regional economy or only understand some parts of it well. Their suggestions are then based on their subjective views and experience and are therefore unique. Radical foundations for innovation can also be sought by utilising semi-formal modern-day town meetings where there is some sort of event for discussion (cf. Fung, 2003; Lukensmeyer and Brigham, 2002). Citizens' juries, in contrast, are more structured, and regional experts give the respondents additional background information before they have discussions and try to reach conclusions (Lundström, 2016). This sort of method would be ideal for the later stages, where the strategy is verified. This sort of verification would also help in the introduction of

the strategy, as civil society members are well equipped to spread the word and the strategy could thus slowly alter the whole image of a region.

The citizens' view is also a tool for making the EDP a more bottom–up approach. This idea of cross-boundary collaboration is the most recommended approach in the literature on wicked problems (Danken et al., 2016) and has also been advocated in the context of S3 (Lundström and Mäenpää, 2017).

4.5 Conclusion

The main aim of this chapter was to look at EDP and 4H collaboration especially via the wicked game approach. In addition, the chapter focused on how EDP might be enhanced through engagement with civil society. The chapter's main findings can be presented as three suggestions regarding civil society engagement:

1. Focus on civil society members in addition to the experts
2. Civil society engagement requires proper methods
3. Development projects are one way to bring people together

The idea of including more members of civil society than are currently involved stems from a wicked game viewpoint, which illustrates how the EDP could function in a more actor-based framework. Accordingly, it is clear that some of the chosen methods, such as 4H application, might be a very useful addition to the EDP, as the inclusion of a spread of civil society has been seen as one way to enhance the search for solutions to wicked problems. The authors nevertheless agree that contributions in S3 should come from all possible sources and not just from civil society actors (Cavalli et al., 2016:135). However, members of civil society may offer new ideas and solutions, without the constraints arising from relying on a too narrow expertise of the regional experts. At the very least, the ideas originating from civil society could be given due consideration and help develop the thinking in the region, as the experts will need to explain their decisions on feasibility. By utilising the right methods during the right phases, civil society can be a good additional asset in the strategy formulation process.

Examination of former 4H collaboration in the S3 setting revealed that there have been cases when EDP has benefitted from 4H collaboration, and some when it has not. The potential reasons for that are intriguing. Closer EDP analysis distinguished three major phases in the EDP during the exploration phase and this allowed for closer examination of the possible civil society enactment

methods. It was discovered that multiple methods could be used but different tools work better during different phases, and there is no single tool or method that has proven optimal throughout the EDP exploration. This may explain why some studies of 4H involvement have had mixed results. However, this success may be insufficient for the overall EDP, especially if civil society actors are engaged only after the decisions have been made. If the tools are insufficient, the results are often very impractical or lack emphasis, which makes them unlikely to be approved by local people.

One way to engage civil society members might be the utilisation of bottom–up framework programmes (Kuznetsov and Sabel, 2011:5). That research suggests that micro-level interaction can change the macro level, if there are sufficient projects that can be scaled up to make a difference. Indeed, the EDP itself can be seen as one development project aiming to affect macro-level economic interaction within the region. Interestingly, Kuznetsov and Sabel (2011:2) also highlight the issue that 'no agent has a panoramic view of the economy' and also add that 'all views are partial', which could be seen as an invitation for more civil society collaboration to maximise the harvesting of new ideas.

One of the major challenges for regional decision-makers might be the need to accept that civil society should be a part of the process, not an afterthought or artificial addition in the S3 project report. This also means that there should be resources directed towards civil society inclusion that allow for the widescale participation of actors throughout the EDP process. Even during the exploration phase there are three distinct phases that may require different tools to maximise the benefits of civil society inclusion. The authors also wish to emphasise that civil society inclusion enhances the domains, as the idea of the domain transforms into public speech and thus becomes the norm for the region. These discussions may even help in building up the regional image, which slowly works as one sort of specialisation in itself. With some resources and time for proper engagement, there might be much to gain.

This chapter illuminates some new topics that merit further exploration. As research literature has shown, there have not been many successful 4H processes where the voices of civil society have been taken into consideration throughout the EDP. Therefore, some empirical studies regarding the various citizen activation methods, used in innovation activities, would help the RIS3 organisers. There could also be more studies regarding the wicked gaming in S3, as a better understanding of the player groups would help the regional actors attract more participants into the EDP. This would generate more ideas and make the process more collaborative than it is currently.

Finally, this chapter is based on a literature analysis of the EDP exploration and 4H collaboration. The authors would like to emphasise the importance of empirically testing its findings by using participatory methods in one pilot region, for example, to obtain a broader view of the discovery process. The methodology used should not be based only on the existing options but involve the whole region. The EDP is unique in including all of the different regional levels and players, and thus providing a solid framework for regional innovation, and it therefore warrants a profound analysis of suitable methods in the future.

References

Aasen, T.M. (2018). Approaching entrepreneurial discovery and knowledge conversion from a complexity perspective. In Mariussen, Å., Virkkala, S., Finne, H. and Aasen, T.M. (eds) *The entrepreneurial discovery process and regional development: New knowledge emergence, conversion and exploitation*. Abingdon: Routledge.

Alford, J. and Head, B.W. (2017). Wicked and less wicked problems: A typology and a contingency framework. *Policy and Society*, 36 (3), pp. 397–413.

Aranguren, M.J., Navarro, M. and Wilson, J.R. (2017). From plan to process: Exploring the human element in smart specialisation governance. In McCann, P., Goddard, J. and van Oort, F. (eds) *The empirical and institutional dimensions of smart specialisation*, pp. 165–191. London: Routledge.

Bathelt, H., Malmberg, A. and Maskell, P. (2004). Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28 (1), pp. 31–56.

Benner, M. (2014). From smart specialisation to smart experimentation: Towards a new theoretical framework for EU regional policy. *Zeitschrift für Wirtschaftsgeographie*, 58 (1), pp. 33–49.

Carayannis, E.G. and Campbell, D.F.J. (2012). *Mode 3 knowledge production in quadruple helix innovation systems: 21st-century democracy, innovation, and entrepreneurship for development.* New York: Springer.

Cavalli, S., Soldi, R., Friedl, J. and Volpe, M. (2016). *Using the quadruple helix approach to accelerate the transfer of research and innovation results to regional growth.* Brussels: European Union: Committee of the Regions.

Conklin, J. (2005). *Dialogue mapping: Building shared understanding of wicked problems.* Hoboken, NJ: Wiley.

Crosby, N. and Nethercut, D. (2005). Citizens' juries: Creating a trustworthy voice of the people. In Gastile, J. and Levine, P. (eds) *The deliberative democracy handbook: Strategies for effective civic engagement in the twenty-first century*, pp. 111–119. San Francisco: Jossey-Bass.

Danken, T., Dribbisch, K. and Lange, A. (2016). Studying wicked problems forty years on: Towards a synthesis of a fragmented debate. *der moderne staat – dms: Zeitschrift für Public Policy, Recht und Management*, 9 (1), pp. 15–33.

Daviter, F. (2017). Coping, taming or solving: Alternative approaches to the governance of wicked problems. *Policy Studies*, 38 (6), pp. 571–588.

Foray, D. (2015). *Smart specialization: Opportunities and challenges for regional innovation policy.* London: Routledge.

Foray, D., Goddard, J., Goenaga Beldarrain, X., Landabaso, M., McCann, P., Morgan, K., Nauwelaers, C. and Ortega-Argilés, R. (2012). *Guide to research and innovation strategies for smart specialisation (RIS 3).* Occasional report. [Sevilla]: European Commission.

Fung, A. (2003). Survey article: Recipes for public spheres: Eight institutional design choices and their consequences. *Journal of Political Philosophy*, 11 (3), pp. 338–367.

Goldstein, J. (1999). Emergence as a construct: History and issues. *Emergence*, 1 (1), pp. 49–72.

Hajer, M.A. (2005). Rebuilding Ground Zero: The politics of performance. *Planning Theory & Practice*, 6 (4), pp. 445–464.

Kroll, H. (2016). *Policy brief on smart specialisation*. Occasional report. Karlsruhe: Fraunhofer ISI.

Kuznetsov, Y. and Sabel, C. (2011). New open economy industrial policy: Making choices without picking winners. *Prem Notes*. Washington, DC: World Bank.

Levin, K., Cashore, B., Bernstein, S. and Auld, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sciences*, 45 (2), pp. 123–152.

Lukensmeyer, C.J. and Brigham, S. (2002). Taking democracy to scale: Creating a town hall meeting for the twenty-first century. *National Civic Review*, 91 (4), pp. 351–366.

Lundström, N. (2015). *Aluekehittämisen pirullinen peli [Wicked game of regional development].* Vaasa: Vaasan yliopista.

Lundström, N. (2016). Exploring the theoretical foundations of a wicked game. Presented at *Building bridges: Cities and regions in a transnational world*, 2016-04-03. Graz: Regional Studies Association.

Lundström, N. and Mäenpää, A. (2017). Wicked game of smart specialization: A player's handbook. *European Planning Studies*, 25 (8), pp. 1357–1374.

Lundström, N. and Raisio, H. (2013). Kansalaisraadit aluekehittämisen pirullisissa peleissä: deliberaation mahdollisuuksista muuttaa näkemyksiä alueen kehittämisestä [Citizens' juries in the wicked games of regional development: About the possibilities of deliberation changing views on the development of a region]. *Hallinnon Tutkimus*, 32 (3), pp. 179–196.

Lundström, N., Raisio, H., Vartiainen, P. and Lindell, J. (2016). Wicked games changing the storyline of urban planning. *Landscape and Urban Planning*, 154, pp. 20–28.

Marinelli, E. and Perianez Forte, I. (2017). *Smart specialisation at work: The entrepreneurial discovery as a continuous process.* Luxembourg: Publications Office of the European Union.

Mariussen, Å. and Virkkala, S. (2018). Introduction. In Mariussen, Å., Virkkala, S., Finne, H. and Aasen, T.M. (eds) *The entrepreneurial discovery process and regional development: New knowledge emergence, conversion and exploitation*. Abingdon: Routledge.

Mason, R.O. and Mitroff, I.I. (1981). *Challenging strategic planning assumptions: Theory, cases, and techniques.* New York: John Wiley & Sons.

McCall, R. and Burge, J. (2016). Untangling wicked problems. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 30 (2), pp. 200–210.

Mieszkowski, K. and Kardas, M. (2015). Facilitating an entrepreneurial discovery process for smart specialization: The case of Poland. *Journal of the Knowledge Economy*, 6 (2), pp. 357–384.

Mäenpää, A. and Teräs, J. (2018). In search of domains in smart specialisation: Case study of three Nordic regions. *European Journal of Spatial Development* 68, pp. 1–20.

Norton, B.G. (2005). *Sustainability: A philosophy of adaptive ecosystem management.* Chicago: University of Chicago Press.

Norton, B.G. (2012). The ways of wickedness: Analyzing messiness with messy tools. *Journal of Agricultural and Environmental Ethics*, 25 (4), pp. 447–465.

Perianez Forte, I., Marinelli, E. and Foray, D. (2016). The entrepreneurial discovery process (EDP) cycle from priority selection to strategy implementation. In Gianelle, C., Kyriakou, D., Cohen, C. and Przeor, M. (eds) *Implementing smart specialisation: A handbook*, pp. 14–35. Brussels: European Commission.

Peters, B.G. (2017). What is so wicked about wicked problems? A conceptual analysis and a research program. *Policy and Society*, 36 (3), pp. 385–396.

Raisio, H. (2010). *Embracing the wickedness of health care: Essays on reforms, wicked problems and public deliberation.* Vaasa: Vaasan yliopisto.

Raisio, H. and Lundström, N. (2017). Managing chaos: Lessons from movies on chaos theory. *Administration & Society*, 49 (2), pp. 296–315.

Richardson, K. and Cilliers, P. (2001). Special editors' introduction: What is complexity science? A view from different directions. *Emergence*, 3 (1), pp. 5–23.

Rittel, H.W.J. and Webber, M.M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4 (2), pp. 155–169.

Roberts, N. (2000). Wicked problems and network approaches to resolution. *International Public Management Review*, 1 (1), pp. 1–19.

Rodrik, D. (2004). *Industrial policy for the twenty-first century*. Faculty Research Working Papers Series. Cambridge, MA: Harvard University, John F. Kennedy School of Government.

Strambach, S. and Klement, B. (2012). Cumulative and combinatorial micro-dynamics of knowledge: The role of space and place in knowledge integration. *European Planning Studies*, 20 (11), pp. 1843–1866.

Teräs, J. and Mäenpää, A. (2016). Smart specialisation implementation processes in the north: Lessons learned from two Finnish regions. *European Structural and Investment Funds Journal*, 4 (2), pp. 75–86.

Vallance, P. (2017). The co-evolution of regional innovation domains and institutional arrangements: Smart specialisation through quadruple helix relations? In McCann, P., Goddard, J. and van Oort, F. (eds) *The empirical and institutional dimensions of smart specialisation*, pp. 127–144. London: Routledge.

van Bueren, E.M., Klijn, E.H. and Koppenjan, J.F.M. (2003). Dealing with wicked problems in networks: Analyzing an environmental debate from a network perspective. *Journal of Public Administration Research and Theory*, 13 (2), pp. 193–212.

Vartiainen, P. (2005). Wicked health care issues: An analysis of Finnish and Swedish health care reforms. In Savage, G.T., Chilingerian, J.A., Powell, M. and Xiao, Q. (eds) *International health care management*, pp. 159–182. Bingley: Emerald Group Publishing.

Virkkala, S. and Mariussen, Å. (2018). Self-discovery enabling entrepreneurial discovery processes. In Mariussen, Å., Virkkala, S., Finne, H. and Aasen, T.M. (eds) *The entrepreneurial discovery process and regional development: New knowledge emergence, conversion and exploitation*. Abingdon: Routledge.

Waddock, S., Meszoely, G.M., Waddel, S. and Dentoni, D. (2015). The complexity of wicked problems in large scale change. *Journal of Organizational Change Management*, 28 (6), pp. 993–1012.

Wilson, P.A. (2009). Deliberative planning for disaster recovery: Remembering New Orleans. *Journal of Public Deliberation*, 5 (1), pp. 1–23.

Zellner, M. and Campbell, S.D. (2015). Planning for deep-rooted problems: What can we learn from aligning complex systems and wicked problems? *Planning Theory & Practice*, 16 (4), pp. 457–478.