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Organizing Outside Mobility of the Elderly People in Lorraine Region, France. How to Create and Capture Value.

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Abstract:
The aim of this article is to propose an analysis framework for better identifying the value creation and capture mechanisms in innovation ecosystems. We start our questioning with investigating the literature on ecosystems and what they are, continue then with the one about what value is, what are the difficulties in defining what value creation stands for, and the one on mechanisms for value creation and capture, pointing out to the fact that the majority of literature if focusing on economic value. We exploit our research question in the context of the innovation ecosystem concerning the mobility of elderly people in Lorraine region, France, given the context of ageing population and more and more actors wondering how to satisfy the needs of the respective group of people. We found out that the innovations are of social nature, business model related, and of technological one.

Key words: **value creation, value capture, ecosystems, mobility, elderly people, France, social innovation**

JEL **Classification: O18, O32, O35**

Organizing Outside Mobility of the Elderly People in Lorraine Region, France. How to Create and Capture Value.

Introduction

"Europe's population is getting older" states the EU 2018 Ageing Report (*The Ageing Report 2018*, 2020). In this context the mobility of elderly population becomes a more important problem for the society, politicians, and businesses. The ability to move among various destinations like home, hospital/doctor, family, friends, is a public health issue, the lack of it conducting to social isolation and depression. In this article we aim at investigating the problem of mobility of elderly population by exploring the value creation and capture mechanisms used in ecosystems.

The usual paradigm to manage innovation of leading industrial facilities switched at the beginning of the 21t century from a closed model to an open one (H. W. Chesbrough, 2003) innovation activities being carried out in an open manner. A fundamental change in the way innovation is happening occurs and organisations are more and more interested to develop relationship with the various actors around them for the purpose of creating and capturing value. Therefore, innovations of complex products and technologies occur nowadays within the framework of ecosystems (Moore, 1993). Thus, an ecosystem is often developed around a product or a fundamental technology, accompanied by the development of a set of products and services that will only be usable with the key product (Adner & Kapoor, 2010; Gawer & Cusumano, 2014; Iansiti & Levien, 2004; Moore, 1993). Given the distributed character of these socio-economic spaces, one of the challenges their stakeholders have is to face is to develop business models (BM) (H. Chesbrough & Rosenbloom, 2002) that will allow them to create and capture a part of the economic value that is created in ecosystems (Adner, 2006; Adner & Kapoor, 2010; Bowman & Ambrosini, 2000; Lepak et al., 2007; Ritala et al., 2013; Van der Borgh et al., 2012). However, in the literature on innovation economics and management there are two types of limitations. The first type limit is related to the definition of value. Specifically, it is rather addressing the economic value, while the social value is rather

seen as a consequence. Simultaneously, the literature on social innovations states that innovation can also have social motivations and that these social innovations play an important role in the dynamics of socio-economic development (Cajaiba-Santana, 2014; Surie, 2017; Van der Have & Rubalcaba, 2016). Products, services and knowledge that are created in ecosystems also have a social value, through the impact of social innovations, (e.g., contribute to the development of local social links/connections or for the creation of jobs, improve the life quality of the inhabitants of a community, facilitate the creation of services for certain social categories, improve the health condition of a certain group of people), an environmental one (e.g., reduce polluting emissions), or a different one.

The social dimension is poorly approached in the ecosystem literature. Therefore, this article is considering introducing the dimension of social value when analysing an ecosystem. This involves thinking about what social value is, how can it be measured, what are the criteria and indicators that could be considered when doing so.

The second limit comes from the fact that value created and captured by an enterprise has traditionally been seen as the result of its activity, depending on the organisation BMs. However in case of ecosystems, value is co-created by the ecosystem stakeholders (Adner & Kapoor, 2010; Autio & Thomas, 2014; Ritala et al., 2013; Teece, 1986), and the developed value may be a common good (Cohendet et al., 2018; Muller et al., 2019), in the sense of being "collective, non-rival and non-exclusive" (Muller et al., 2019, p. 4), or benefit everyone without discrimination, or be accessible to all.

Therefore, we come to our research question: how these value creation activities are organized between the various stakeholders when carried out in ecosystem framework and how would the value be distributed inside the ecosystem. Better understanding it will help us to build and organize a sustainable society.

This article involves investigating the concept of "value" in two of its dimensions: economic and social. Indeed, if adopting an ecosystem perspective on organisation, it becomes more difficult to clearly characterize its contribution to the creation of different types of value. While a better understanding about the creation and capture of different types of value is a fundamental strategy issue for companies, being important for figuring out how markets are created and how ecosystem stakeholders can achieve their own and common business objectives (Ritala et al., 2013), it is also important from a public policies perspective. Although they may refer to diverse sectors, all ecosystems have in common the fact that they must be based on development and exploitation of resources and, in most of cases, of digital networks. This paper is not about classifying ecosystems as other researchers have already done (de

Vasconcelos Gomes et al., 2018; Scaringella & Radziwon, 2018; Tsujimoto et al., 2018; Valkokari, 2015), nor about characterizing the relationships established in these ecosystems (Jacobides et al., 2018), or understanding their management (Adner, 2006; Iansiti & Levien, 2004). *This work is questioning how value is created and captured in innovation ecosystems.* A reason why this is important is because for an organisation to survive it needs to both create and capture value in a repetitive way.

The research paper shows in the first part why ecosystems are socio-economic spaces that are relevant for approaching organisations nowadays. It addresses the concept of "value" and its meanings across literature. It continues with showing how the issue of value creation and capture in ecosystems is approached, existing gaps and how we came to our research question concerning the mechanisms allowing or impeding value creation and capture in ecosystems. We will follow with details about the framework of creative ecology as a methodology to approach value creation and capture in ecosystems. In a second part, we come with details about our case study, that of the ecosystem of the mobility of elderly people in Lorraine region, France, data collection and data processing. In the third part we present the results we got by now, empirical orientations and expected contributions to the literature. We will end up by presenting conclusions and discussion.

In the context of a continuous ageing of the population in the developed countries, finding new organizing forms and exploring the theoretical corpus about hybrid organizations (Battilana & Dorado, 2010), meta-organisations (Gulati et al., 2012), and innovation ecosystems are elements to be considered to address the problem of mobility of elderly population. This research project is aiming at helping the society to organize for a sustainable future and tackle societal grand challenges (George et al., 2016), so as to support individuals in participating to the socio-economic progress for as long as possible.

Thus, the article better contributes to the questioning about organizing innovation and entrepreneurship in and for a sustainable society, as it investigates new aspects of how innovation and entrepreneurship processes are organized in the context of open innovation and innovation ecosystems.

Part 1 Conceptual background

In this part we will address ecosystems as socio-economic spaces through definitions and issues. We will follow with details about the framework of creative ecology as a methodology to approach value creation and capture in ecosystems.

1.1Ecosystems as socio-economic spaces: definitions and issues

The pioneering author who introduced the concept of ecosystems applied to business was Moore (Moore, 1993). Nowadays there is a misalignment concerning what an ecosystem is, as well as related to the types of ecosystems. Various scholars use different concepts: business ecosystems (Iansiti & Levien, 2004; Moore, 1993; Teece, 2007), business networks (Iansiti & Levien, 2004), innovation ecosystems (Autio & Thomas, 2014; Jacobides et al., 2018), entrepreneurial ecosystems (Prahalad, 2009), knowledge ecosystems (Valkokari, 2015), knowledge based ecosystems (Van der Borgh et al., 2012), platform ecosystems (Gawer, 2014; Gawer & Cusumano, 2014). However, we consider that in fact, all approach more or less the same phenomenon, but from complementary angles (Scaringella & Radziwon, 2018). Thus, the work will consider the concept of ecosystems, without falling into categories.

For the purpose of this article we will define ecosystem as a network of *"actors with varying degree of multilateral, non-generic complementarities that are not fully hierarchically controlled"* (Jacobides et al., 2018, p. 2264). However, further we will refer to more features of the ecosystems that are referred in the literature and we consider relevant for our research.

These socio-economic spaces may include or not a leader organization. They contain both production and use side participants (Autio & Thomas, 2014), both complementors (Adner & Kapoor, 2010; Teece, 2007). They may include suppliers, regulatory authorities, standard-setting bodies, the judiciary, educational and research institutions (Teece, 2007). They are *"the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize"* (Adner, 2017, p. 40), combining individual offerings into *"a coherent, customer-facing solution"* (Adner, 2006, p. 2). They are network-centric constructs (Autio & Thomas, 2014) with a modular structure (Baldwin & Clark, 2000; Jacobides et al., 2018) and varying degrees of multilateral, non-generic complementarities that are non-hierarchically managed and require alignment for value creation (Jacobides et al., 2018). They are creating and appropriating value, under the form of service, product or knowledge, through

innovation. Therefore, value itself is an issue in ecosystems. Further on we will address how value is defined across literature and what the difficulty comes from.

The difficulty of defining value comes from the fact that it is a has multiple meanings across multiple sciences and fields of life. In economics, the concept of value is defined in relationship with the concept of price. In the classical theories of value, like labor theory of value of Karl Marx, value is linked to labor (wage), the substance of value being labor, while the measure of its magnitude is labor time (Marx et al., 2004) in (Orléan, 2011) required to make a good. According to the neoclassical theory of value, in the utility theory, the money is a peripheral fact, coming after the utility (Orléan, 2011, p. 13). According to it, "value" stands for "the quality of a thing based on its objective or subjective utility", two opposed terms being used: "use value" and "exchange value" (Bowman & Ambrosini, 2000; Van der Borgh et al., 2012). *"*Perceived use value" (Bowman & Ambrosini, 2000) is subjective and it is defined by customers, both person or organisation, based on the usefulness of the product/service. There are both economic value and monetary value that are used as concepts. Total monetary value represents the amount the customer is prepared to pay for the product. "Exchange value" is "realized when the product is sold, being the amount paid by the buyer to the producer for the perceived use value" (Van der Borgh et al., 2012). Orlean proposes to "grasp the market value in its autonomy, without seeking to identify it with a pre-existing greatness, such as utility, work or rarity.", with the help of "currency" (Orléan, 2011, p. 12). (Orléan, 2011, p. 12). In agent theory, individuals favour activities with higher marginal returns (Jensen & Meckling, 1979). There is no agreement in economic theory related to what value stands for. However, as Schumpeter put it, the problem of value "must always hold the pivotal position, as a chief tool of analysis in any pure theory that works with a rational schema" (Schumpeter & Schumpeter, 1994, p. 560).

In management science, and specifically in strategy, value has a different sense. It is defined by generated margin, but also by the social and partnership value. We distinguish between two key meanings of value. The first one is that of concrete value, that of use value, exchange value, measurable value. On the other, when it comes to sociology, anthropology and organisational development, organisational culture we can speak about abstract values as personal or collective judgements, norms, ways of thinking. For example, Hofstede (Hofstede et al., 2005) used this meaning of values in his research on national cultures and cultures in organisations.

In sustainable development (Brundtland et al., 1987) and corporate social responsibility, value may have a different meaning, as social/societal and ecological value are as important as the

economic value. The social and environmental dimensions are introduced into the discussion in the '70s (Brundtland et al., 1987) in (Martinet & Reynaud, 2004) when speaking about value. In social innovation literature various terms are used to designate value. For example in social innovation we come across "benefits"(Lawrence et al., 2014) and "impact", concepts that are used in close relationship to value.

For the purpose of our article we will retain the concrete meaning of value in management sciences, that of use value, exchange value as our intention is to look at the value of products/services and knowledge that are created in an ecosystem framework.

The lack of clarity related to definition of value makes it difficult to define what value creation is. First, this comes from the diversity in terms of sources of value, targets of value and level of analysis. And secondly, because it refers to both content and process (Lepak et al., 2007). As we already stated, there is no agreement related to what value creation is (Scaringella & Radziwon, 2018), the process by which it is created, mechanisms allowing the creator of value to capture it (Lepak et al., 2007).

The concepts of value creation and value capture frequently overlap or are confounded. In this article we will consider them separately. It is generally accepted that value creation is a precursor of value capture (Adner & Zemsky, 2006; Brandenburger & Stuart Jr, 1996). While value creation is frequently associated with the innovation side of an ecosystem, value capture is associated with the business side of it (de Vasconcelos Gomes et al., 2018). One may be considered to have a more important role then the other, as there is the case of value creation in case of networks as compared to value capture (Adner & Kapoor, 2010; Teece, 2007). For value creation we will retain the definition given by Ritala et al., according to which value creation is *"the collaborative process and activities of creating value for customers and other stakeholders"* (Ritala et al., 2013). We will define value as the process of both organisational-level and individual level value appropriation activity. In other words, value capture is the process of taking the value, be it in the form of economic or "social returns" (Van der Have & Rubalcaba, 2016).

More than that, in the management and business literature there is an emerging idea linking the two types of value – the economic and social one. According to is, *"creation of economic and social value by firms are not strictly separate or necessarily at odds with each other*"(Van der Have & Rubalcaba, 2016, p. 1931) making reference to the works of Emerson (Emerson, 2003) and Ramirez (Ramirez, 1999). Van der Have is using the concept of blended value proposition that would integrate both financial and social returns (Van der Have & Rubalcaba, 2016). Our assumption is that this alliance between social and economic value is not only valid for

organisation-level, but also for ecosystems, especially considering when they are made of a variety of stakeholders, from public to private, from individual to collective.

When it comes to value creation and value capture in ecosystems, value is co-created (Adner & Kapoor, 2010; Autio & Thomas, 2014; Ritala et al., 2013; Teece, 1986, 2007). And more than that, ecosystems allow firms to create value that no single firm could have created alone (Adner, 2006). Additionally, ecosystems are more inclined to distribution of value across the ecosystem as compared to hierarchical structures (Kapoor & Lee, 2013). However, distribution is done frequently in the favour of the focal firm, if there is one. Therefore, it is considered that fair distribution across the ecosystem is essential for the ecosystem existence (Kapoor & Lee, 2013). In the same time, the role of complementors in value creation and the capacity of a leader company to create value from an innovation/new technology depends on the capacity of a complementor (Adner & Kapoor, 2010) to face an innovation challenge and do the required investments, while complementors need to adjust their activity to the focal company (Adner & Kapoor, 2010; Pisano & Teece, 2007).

Given the above issues, and the fact that an organisation needs to relaunch value creation and value capturing cycles in order to stay on the market, for the purpose of this project we will, first, determine what is value for the ecosystem stakeholders and how do they create and capture it.

Speaking about value creation and capture mechanisms classification in ecosystems literature, we came across two conceptual frameworks. The first one is considering two phases of the innovation ecosystem life cycle: ecosystem building phase and ecosystem management phase (Ritala et al., 2013), splitting these mechanisms into tangible and intangible. The perspective is rather that of the leading firms, the case study being run in innovation ecosystems from the ICT and aerospace and defence sectors. The second framework was developed based on a case study in innovation ecosystems for renewable energy via social entrepreneurship, being "especially relevant for new market creation renewable energy for rural and bottom of pyramid populations"(Surie, 2017). It is classifying the value creation and capture mechanisms considering the level of analysis, dividing these mechanisms into macrolevel mechanisms and microlevel mechanisms (Surie, 2017). However, we will be using none of the respective frameworks.

In order to conclude this section, we would like to underline that ecosystem literature does not approach the topic of how value creation activities are organized between the various stakeholders when carried out in ecosystem framework, especially when it comes to social value. Neither it covers the topic of how the value would be distributed inside the ecosystem

and creative territory provides an analytical framework through which an ecosystem could be analysed. Therefore, we chose to explore a case in depth, specifically that of the outside mobility of elderly people in Lorraine region, France.
The analysis framework we decided to use for our current article is that of creative ecology, we will be presenting in the following section.

1.2. The framework of creative ecology as a methodology to approach value creation and capture in ecosystems

In order to address our research question, that of how are value creation activities are organized between the various stakeholders when carried out in ecosystem framework and how would the value be distributed inside the ecosystem, we considered the creative ecology framework (Cohendet et al., 2018; Mehouachi et al., 2016). According to the respective framework, creative systems (industries or territories) are nesting three different economic strata:
The upperground, that concerns public and private institutionalized actors. It is the privileged level for the economic valorisation of innovations, whether technological or organisational. It includes traditional institutions (State, local authorities, universities/schools, etc.), but also for-profit companies.
The underground, that brings together individual creative actors, hackers, citizens, ingenious activists, tinkerers and inventors, artists, makers (Berrebi-Hoffmann et al., 2018; Fisher & Amabile, 2008; Haefliger et al., 2008). It is characterized by creative, artistic and cultural activities taking place outside any formal organization linked to an economic activity, or even "in their garage".
The middleground is made up of innovation communities (Sarazin et al., 2017), one-off events such as a competition (Dechamp & Szostak, 2016; Liotard & Revest, 2015), physical platforms such as Fablabs, third places, and coworking spaces, or virtual platforms such as crowdsourcing (Burger-Helmchen & Pénin, 2011) or social and solidarity economy structures. This level aggregates creative ideas from the underground. It forms a transition "airlock" between the ideas developed within the framework of the exploration activities of the middleground and their economic valorisation within the middleground.
The ecosystem is dynamic in the sense that layers interact between them. The hypothesis is that each layer involves actors whose actions have both an economic and a social dimension. The supposition is that the actors in the underground and middleground might be essentially motivated by social goals. Therefore, these layers might be more inclined towards social

innovations as compared to the upperground that has rather an economic motivation underlying his actions, be it rather interested to get a profit, or to provide a public service.

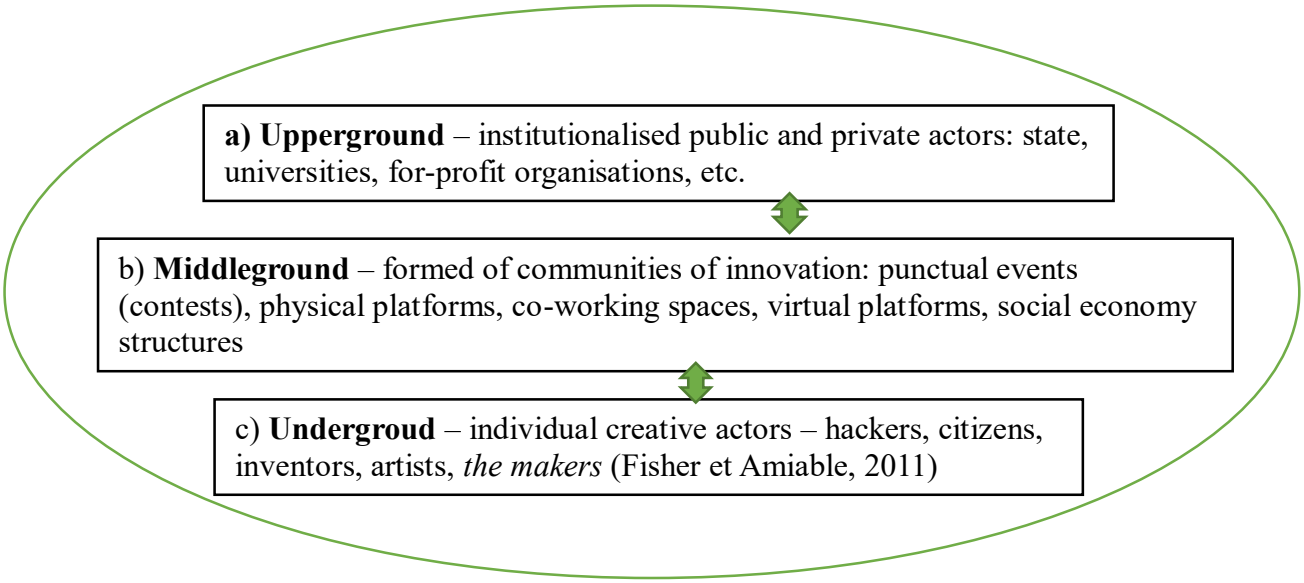

Figure no.1 – Creative ecology framework (Cohendet et al., 2010, p. 100)

Middleground is made up of different mechanisms: places, spaces, projects and event (Cohendet et al., 2018, p. 6). Middleground is closer to the market, this determining it to be more inclined to look at exploiting its idea in the market (Muller et al., 2019). Actors in the middleground and upperground develop collectively complex forms of innovation, exploiting common goods and resources as defined by Ostrom (Cohendet et al., 2018; Ostrom, 2010). In the context of ecosystems there are mentioned three types of commons that are created (Muller et al., 2019): commons of knowledge, commons of innovation (eg. forums, places), platforms understood in the sense of meta-organisations (Gulati et al., 2012). Commons of innovations also called "innovation commons" and are the result of collective action to contribute shared resources, knowledge and information to create an "innovation resource pool" is the creation of "innovation commons" (Cohendet et al., 2018, p. 5). These commons, in case of creative cities also called "local commons", are an "analytical concept at the crossroads between international business and economic geography" (Cohendet et al., 2018). How would the creative ecology framework would help us answer our research question on how value creation takes place in ecosystem framework, is by helping us understand how is each layer is contributing to the creation of these types of commons and to the infrastructure that is necessary

for the innovation to happen. Eventually, this will lead us to also understand how value capture happens in ecosystems.

Part 2 Case study

We address our research question about how value creation activities are organized between the various stakeholders when carried out in ecosystem framework and how would the value be distributed inside the ecosystem in the case of mobility of the elderly people in Lorraine.
Before augmenting why we chose this case study, it would be necessary to define mobility. The sociologist Vincent Kaufmann is defining mobility as "the intention and then the realization of a crossing of geographical space involving social change"(Kaufmann et al., 2020). This definition underlies two aspects: the one that mobility is a movement in space and then that the movement is a way to achieve a goal and not an end in itself. It can cover the time span of a day or the time span of a life. It can involve mobility of persons or that of objects. There are more classifications of mobility. One of them is considering eight types: daily mobility, pendularity (between job-home), excursionism, travel, residential mobility, migration, virtual mobility and the mobility of goods (Kaufmann et al., 2020). Our study is focusing on *daily mobility*, defined as the "*totality of the movements of daily life"* (Kaufmann et al., 2020). It is characterized by patterns and refers to the time span of a day. If the one taking place in a city is referred as *"urban mobility"* (Kaufmann et al., 2020). The term of mobility is interchangeably used with that of transportation.
Once the definition of mobility done, we would present the reasons of choosing it, which are two. Firstly, mobility is one of main issues for a sustainable society considering an ecology perspective (less pollution) and a social one (more car sharing, carpooling, public transport). Moreover, mobility is of interest for the socio-economic actors, politicians and researchers as both transportation of goods and persons concern each of us. Secondly, the elderly people need to move among different places: home, hospital/doctor, retirement residence, friends/family). But as in a context of population aging more and more of them are fragile and vulnerable, the mobility services they use must adapt to their needs. And the governmental burden to support this population is also growing year over year. Therefore, it is important for both public and private organisations to propose solutions that would help old people to stay healthy and

autonomous as long as possible. Besides, this is a business opportunity for for-profit or non-profit organisations.

Further on we will present the context of mobility for elderly in Lorraine and how the data collection and data analysis was done.

2.1. Context of mobility for elderly in Lorraine.

This project considers focusing on mobility given the fact that in case of mobility ecosystem we have complex forms of innovation, with both economic and non-economic components (Muller et al., 2019). For this research we chose to focus only on the mobility of persons.

In France mobility is the responsibility of the public authorities and involves several actors: the State, the regions, departments and municipalities and their groupings. Except for them there are major companies, operators and universities with research laboratories. However, the positioning of the regulatory authority and the major transport manufacturers and operators is nowadays being disrupted by the emergence of new players basing their business models on digital technology.

When it comes to Lorraine, this is a cultural and historical region situated in the North-East of France currently located in the administrative region of Grand Est. It has four departments: Meurthe-et-Moselle, Meuse, Moselle and Vosges. Lorraine has external borders with Belgium, Luxemburg and Germany and internally - with Champagne-Ardenne, Alsace and France-Comte regions. It is only in 2015, following an administrative reform, that Lorraine, along with Champagne-Ardenne and Alsace, formed the Grand Est Region with the new regional capital in Strasbourg (*Lorraine*, n.d.). Lorraine has two cities of equal size – Nancy and Metz.

Lorraine has an area of 23547 km and a population of 2.307mln inhabitants (Institut national de la statistique et des études économique, 2019). Demographically speaking the population of the region is declining due to out-migration, especially of youth and a decrease in the birth rate (*Lorraine*, n.d.). The population is relatively poor, ageing, notably several phases of severe deindustrialisation (Similie Popa, 2011). Therefore, it is common to have isolated rural population the situation of which is becoming more difficult with ageing. In this context, sustainable mobility is among the areas of specialisation of the Grand Est region which Lorraine is part of (Lorraine, n.d.). Finding innovative solutions for the mobility of elderly people is a challenge for all the major stakeholders.

2.2. Data collection and analysis

The research is qualitative. It consists in collecting primary and secondary data available in different formats. Data collection has been run in two phases. The first one took place between May 2018 and May 2019, during which there were run 13 semi-directive interviews with experts in the transport and mobility ecosystem, as well as beneficiaries and public institutions representatives, and analysed about 1500 pages and nearly 7 hours of speeches - from secondary sources such as web, press and verbal from conferences, and a second one that is in process and consists in an investigative inquiry, using funnel method, that will have a total of about 20 semi-directive interviews. If the first phase considered national and regional stakeholders, the second phase of data collection is aiming as focusing exclusively on the mobility of elderly population in Lorraine region.

For the second phase the primary data are supposed to be collected via 14 semi-directed interviews, out of which 9 interviews have been already conducted, and the other 5 are supposed to be scheduled for the next months. The interview guide was adapted depending on the economic strata it belongs to according to the creative ecology model we presented above. We completed our primary data with data from various publications, documents, text of laws, web-sites, reports that were published by institutions, non-profit organisations, for-profit organisation, programmatic documents, analyses.

Data processing consisted in transcribing the interviews, writing detailed abstracts and writing a narrative.

The research phase was aiming at identifying the key issues and answer some key questions:

What are key factors that has impacted the mobility for elderly population ecosystem in the last years? What are the challenges in the mobility for elderly population in Loraine? How stakeholders subjectively define mobility? Who is the elderly population in Lorraine? How the actors subjectively define it. What is the target group most in need in terms of mobility solutions and to narrow the target group that is relevant for our research project? What are the ecosystem stakeholders and how are they organised? What is the geographical research area for further investigation that would help us better understand how value is created in this ecosystem? How is this value captured?

We would like to underline the fact that the originality of this research projects is on two levels: on one hand at a conceptual level aiming at investigating the social value creation and capture mechanisms in ecosystems and not exclusively the economic one as the majority of studies do,

and on the other - in terms of the empirical data to be analysed, focusing on the mobility for elderly population.

Part 3. Results

Below we present the preliminary results[1] we have obtained. We will start with defining what elderly people and what is the relationship between mobility and transportation. In the same time we investigated how do the actors in the ecosystem define them. Further on, we will continue with kay factors that impacted this ecosystem, present this ecosystem, what types of value is created in this ecosystem, how is value created and how the value capturing is happening.

3.1. Elderly population in Lorraine

First of all, it would be necessary to define the term of *elderly people* we are using in this study. Sociological studies consider mainly the belonging to the retirement population group when defining elderly population (Gaillard & Ragot, 2008). Therefore, for the purpose of this article *we will define elderly population as the population that is retired*. However, both criteria of age and level of dependency/autonomy are important when addressing the topic of mobility for this population, criteria that are considered by the sociology literature.

We focus our research on the population of 60+population, as this is the age used by the French authorities when defining levels of dependency for elderly population. According to the national grid AGGIR[2] (Autonomy Gerontology Group Iso-Resources) there are 6 levels of dependency, used as GRI1-GRI6, with GRI1 as the less autonomous person. Starting with GIR4, they have the right to Personalized Autonomy Allowance (APA)[3] and the state health insurance is paying more attention to them. For our research we considered only people that are in the category GRI6 and GRI5 that are autonomous and do not benefit from APA, as they would be able to use independently mobility services. Following the results obtained from the

[1] These are not final results. Work in progress.

[2] AGGIR (Autonomie Gérontologie Groupe Iso-Ressources), AGGIR allows the evaluation of the applicant's dependence on the personalized autonomy allowance (APA). The levels of dependence are classified into six groups known as "iso-resource groups" (GIR). Each IRM corresponds to a level of need for aids to perform essential acts of daily living. The AGGIR grid assesses the elderly person's ability to perform ten physical and mental activities, known as discriminating activities, and seven domestic and social activities, known as illustrative activities (Institut national de la statistique et des études économique, 2019)

[3] Allocation personnalisée d'autonomie (APA)

interviews, it might be possible to narrow our group of interest further down, when it comes to age criteria, to a population of 70+.

In terms of defining the aged persons, the persons we interviewed are not necessarily aligned, some underline the level of dependency/autonomy (Interview no.6), some the age. Some introduced the criteria of level of mobility, in the sense of how much they can walk (Interview no. 4), or the criteria of being or not working. One reason for considering the retirement age as a criteria in defining this group of population is the fact that retirement comes with an increase in social isolation.

Table 1 – Population 60+ in Lorraine (INSEE, 2020)

	Population 60-74 y.o., inhabitants	**Population 75+y.o, inhabitants**	**Total 60+y.o. inhabitants**
Meurthe et Moselle	124,808	66,742	191,550
Meuse	36,898	19,031	55,929
Moselle	186,864	96,830	283,694
Vosgs	75,920	41,544	117,464
Lorraine	**424,490**	**224,147**	**648,637**

In Lorraine we have a proportion of persons of 60+ that is higher as compared to metropolitan France (26.44%), the proportion for each of fur departments being as follows: Vosgs – 31.87 %, Meuse – 30.11%, Moselle – 26.81%, Meurthe-et-Moselle – 25.80%. [4] For a number of persons in France of 1.300.000 who benefit from APA, the estimated number of persons 60+ in Lorraine who do not benefit from APA, i.e. are autonomous belonging to GIR 5 and GIR 6, is of 599,612 inhabitants out of a total number of 648,637 inhabitants contained in the age group 60+ (see Table no. 1).

A key player in France in terms of developing mobility services for this category of population, is considering the target group of 70+ y.o., living in rural or peri-urban areas with poor public transportation infrastructure.

3.2. Mobility of elderly population. Definitions, Challenges

It is important to underline the fact that the terms “transportation” and “mobility” are used interchangeably both by the ecosystem actors we interviewed, as well as by the legislators.

[4] Calculated based on National Statistics Institute population estimated data for 2019) (Insee - Estimations de population (résultats provisoires arrêtés fin 2019).

Some underline the distinction between the two, however some state that the concepts are overlapping, the distinction between the two not being very clear. This distinction has been done rather recently. For example the Law no 2019-1428 (Loi d'orientation des mobilités, 2019) is using the terms "mobilite"/"mobilites"(mobility/mobilities) 114 times, while the word "transport"/"transports" (transport/ transportation (s)) 341 times. The interviewed persons mention that the distinction is rather semantic and is not necessarily that important when it comes to practice (Interview no 1). Mobility is perceived as *"integrating the transport of persons in the social question of autonomy of persons"*, *"ideally the mobility is the capacity to move in the social space in an autonomous way"* (Interview no.1). Mobility is concentrating on the individual (Interview no 4), while transportation – on infrastructure. A nice graphic description was used to describe the difference between transportation and mobility, *"if transportation is a succession of lines, the mobility is a set of points, where the points represent individuals and places"* (Interview no.4). *"Mobility is the ability to set up travel for everyone"* (Interview no. 4).

The type of needs elderly population has in terms of mobility, are related to current daily needs like going to the doctor or for shopping. These persons suffer from isolation, from impoverishment, and health problems. The problem is even more prominent when it comes to rural or suburban areas (Interview no.1) with poor transportation networks. There are different types of services that meet the needs of elderly population that is in our target group: carpooling, solidarity transportation, transportation on demand.

Terms that are used for naming the mobility services for elderly people are: *"solidarity mobility", "solidarity transportation"*. It was interesting to notice that in a convention the used term is that of transportation, while in the communication it is mobility.

3.3. Key factors that has impacted the mobility for elderly population ecosystem in the last years

Key factors that has impacted the mobility for elderly population ecosystem in the last years are mainly of legislative, fiscal and technological nature. In terms of *legislative changes*, in France in the last period there were adopted three laws that were aiming at decentralisation. Following these laws, mobility issues move to the region and to the intercommunity level. Following the Mobility Orientation Low (Loi d'orientation des mobilités, 2019) the legal entity in charge with the role of Mobility Organising Authority has changed. If historically the responsibility of mobility management was primarily at the region level, with this new law it

moves to the actors that are *"closer to the ground*" (Interview no.1). A *"a larger diversity"* (Interview no.1) of actors governing the mobility services is resulting. According to the new law, each mobility organising authority must set up at least one review per year with representatives of companies and users. The purpose is to present advances in terms of mobility services and collect the requirements of users.

In terms of *public acquisition related*/legislative changes that occurred, an important one is the one allowing that the public acquisition of innovative projects based on Law n° 2018-1225 as of December 24, 2018, allows an experimental period of three years, till December 25, 2021, when the buyer is allowed to waive publication and competitive tendering requirements for innovative purchases for less than 100.000EUR excluding taxes (*Guide pratique de l'achat public innovant*, n.d.). The purpose is that of "continuous improvement of public services and optimisation of expenses » (*Guide pratique de l'achat public innovant*, n.d.).

In terms of *fiscal changes*, the Decree No. 2019-850 allowing associations in 3 departments in Grand Est to provide transportation services of social utility for certain categories of population that have limited access to public or private transportation, the service being financially supported by local authority up to a total certain amount per year, volunteering drivers being paid for the service they provide.

There are a few technological changes that impacted that happened in the industry, in general and impacted also this ecosystem. One of them is the availability of google maps and equivalent apps. Another one is that of open source software, that changed the way software engineering, making it easier to develop a software, as free code line, free software libraries are available online as an open source software. Cloud technology, and "easiness to get hardware in the cloud", software modularity and software integration allowed for the software development to be broken into smaller services, and more competitors developing the same software.

Another important technological element that influenced this ecosystem is that of interoperability between various transportation services providers taking place. Mobicoop established with the French Federation of Carpooling, RDEX[5]. I*nteroperability* and "*cascade model*" of searching a solution for a mobility request for Solidarity Transportation increases the chances to get classical transportation solutions for elderly population, in the end allowing to get the lowest possible price.

[5] Ridesharing Data Exchange, The RDEX protocol, which stands for Ridesharing Data EXchange, is a standard designed to facilitate the exchange of carpooling data between different operators in order to pool the hundreds of existing services in France and Europe, http://www.feduco.org/articles/actus/rdex/

3.4. Key ecosystem stakeholders and how the ecosystem is organised

There is a multitude of actors in this ecosystem. Considering the information from the interviews, it would be possible to classify them into four layers, the *upperground*, *middleground, underground and end user.* We decided to adapt the creative ecology model (Cohendet et al., 2018; Mehouachi et al., 2016), by introducing a fourth layer – that of the final user and his family. We consider that this layer is situated inside the ecosystem. We decided to create this separate layer because the final users (elderly population) and their families do not have the same needs as the ones in the underground, represented in this case by volunteers, volunteering drivers and citizens. And what they get from this ecosystem is different from what an underground actor would get. In order to help ourselves to classify the actors, we used the three questions formulated by Muller et al. (Muller et al., 2019): (i) are they groups of isolated actors or individuals? (ii) in case of groups of actors, are they formal and sustainable structures? (iii) does the structure have direct access to the market?". The classification is relevant "in order to specify the nature of innovations in this ecosystem" (Muller et al., 2019) and also to understand the motivations underlying the actions of each layer, specifically if they are rather social or economic. The ecosystem is dynamic in the sense that different layers are interacting among them (Muller et al., 2019). We represented the ecosystem of mobility for elderly population in Lorraine below in fig. no.2.

It includes both classical transportation operators, and public transportation companies, and disruptive new players whose Business Model (H. Chesbrough, 2010; H. Chesbrough & Rosenbloom, 2002) is mainly based on digital technologies.

It is important to notice that the market of *daily mobility* (Kaufmann et al., 2020) services for elderly population is extremely fragmented. This fragmentation is also influenced by the laws that lead to decentralisation for certain mobility organisation tasks, the role of mobility organising authority moving at the end of 2019 from department level to PETR (intercommunality) level, following the Law no.2019-1428 (Loi d'orientation des mobilités, 2019). Following that, there are many initiatives especially in the rural and sub-urban areas, with "geographically and financially" (interview no.1) isolated population.

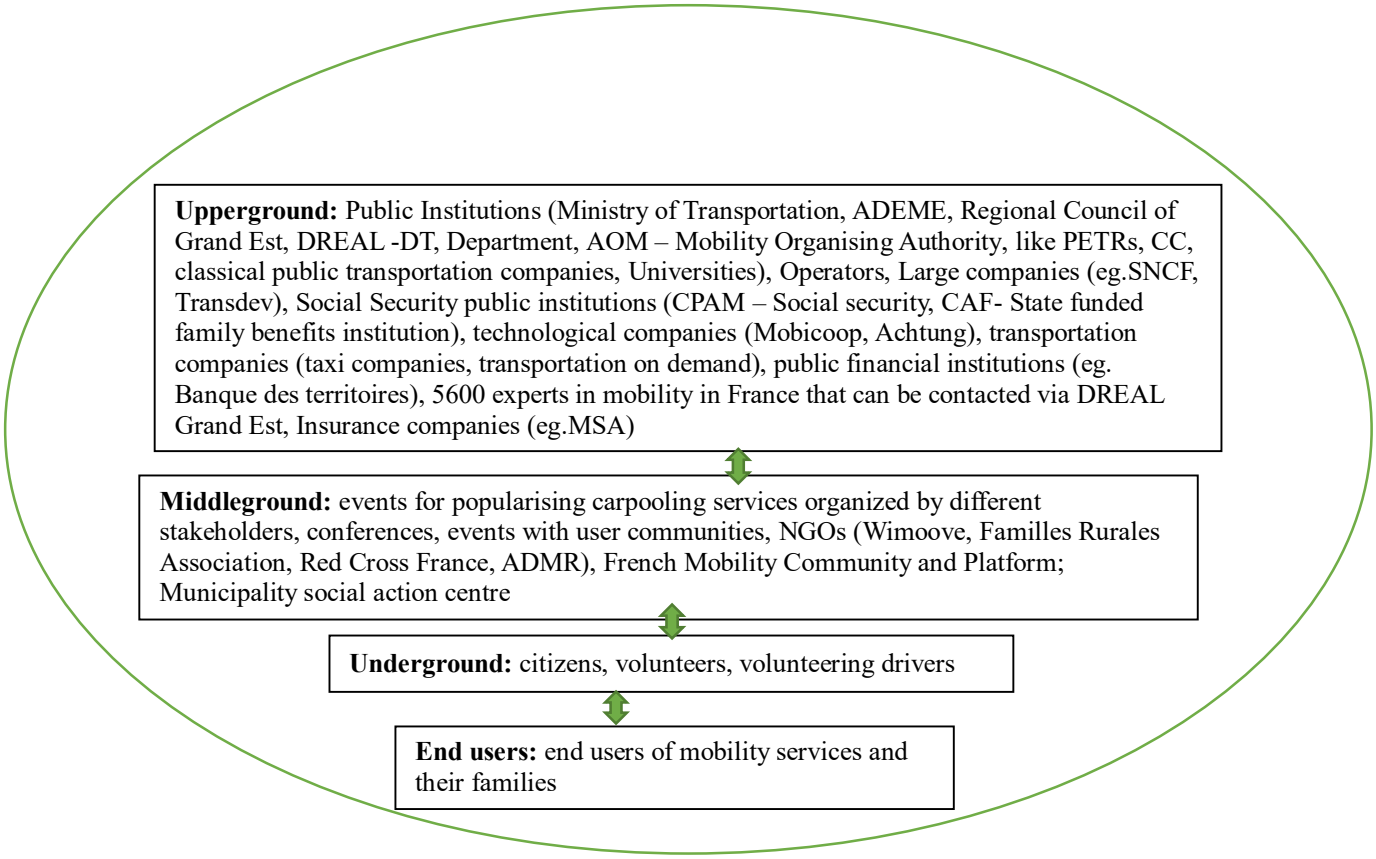

Fig.no2 – Mobility for elderly population ecosystem in Lorraine

And for each initiative, there are several stakeholders that get involved, some stakeholders being involved in more projects at once. We will explain in a sub-chapter below the role of key stakeholders in this ecosystem. We should not neglect that the classical transportation companies and transport operators continue to be part of the ecosystem. Their services continue to be used by elderly population where their networks are available. However, in our interviews, we noticed that there is happening a lot in the areas where the respective networks are not available, i.e. sub-urban and rural areas where public transportation infrastructure is absent. Therefore, we paid more attention to stakeholders involved in projects in such areas. Further on we will first try to summarize the types of value that is created in this ecosystem, and afterwards we will investigate how this value is created and captured by ecosystem stakeholders and what is the role each stakeholder or group of stakeholders has in it.

3.5. Value created in the mobility for elderly population ecosystem in Lorraine, France

In the following lines we included a first attempt to summarise the types of value that are created in this ecosystem. Before doing that, it is important to mention the approach we take.

Considering that an ecosystem is created with the purpose of creating and appropriating value, in the form of service, product or knowledge, we will look at value as an output, or the resulted value for a specific actor, and not at the value it creates. Therefore, our attempt is to look at the actors and categories of actors in the ecosystem socio-economic layers and formulate what is the type of value each category of actors is getting in this ecosystem. We can speak about the value for the final user, and about the value for every other stakeholder in this ecosystem. It is important to mention that given the diversity of actors, each has a different perception of what value is. The classification we included below needs further investigation.

Table no.1 – Types of value created in mobility ecosystem for elderly population in Lorraine

Agent	Verbatim	Type of value
End User		
end users of mobility services and their families	"capacity of the system we put in place to respond to the needs […] and to provide a support solution" (Int.1); "an impact on well-being, on health, "social bond" -with the volunteer who want to add; "life quality", "solidarity and social value", "psychological value for the elderly people" - "confidence", "ability to live alone and do my staff"(Int. 4); classical value - "to move" (Int.5) "human bond"	social (well-being, health, social integration)
Underground		
volunteering drivers		social
citizens, volunteers, user communities		social
Middleground		
NGOs (Wimoove/French Red Cross/ADMR)	"a managerial tool" (Int.1)	economic, social
French Mobility Community and Platform		economic, social
Events (Annual review meeting of each AOM with companies and users, events for popularising carpooling services, events with user communities)		economic, social
Centre Communal d'action Sociale (Municipality social action center)		social
Upperground		
Public Institutions (Department, Regional Council of Grand Est, DREAL-DT, ADEME-French agency for the environment and energy management)		economic
Public Institutions (AOM – Mobility Organising Authority like PETRs, eg. Pôle d'Equilibre Territorial et Rural du Val de Lorraine, Pôle d'Équilibre Territorial et Rural du Pays du Lunévillois, CC eg.CC de Seille et Mauchere Grand Couronne, Municipality, public transportation compagnies)	"means to get to respond to their responsibilities in terms of mobility"(Int.1); "a political communication matter"- "highlighting this type of service gives them also the means to value their actions as political decision-makers" (Int.1); "transportation of social utility"- "service of collective interest" (Int.1) ; "very very small economic value"; "the social and image value are much bigger"(Int.4), "humanistic value" - "we want to reach everyone"; "mobility of public that is geographically and financially isolated"- "complementarity between the existing offer of public transportation, carolling and transportation by demand (transportation assured by a voluntary driver)" (Int.1)	political, economic (financial value), social, ecological;
Public research institutions (Universities)		economic, knowledge
Financial public institutions (eg. Banque des territoires)		economic
Social Security public institutions (CPAM – Social security, CAF- State funded family benefits institution)		economic, social
Technological companies (Mobicoop, Achtung)	"network value" (interview no.1)	economic
Transportation companies (taxi, transportation on demand)		economic
Insurance companies (eg.MSA)		economic

Further on we will address how value is created in this ecosystem and how is it captured.

3.6. How is value created in mobility ecosystem for elderly population?

First of all we will remind ourselves that value creation is "the collaborative process and activities of creating value for customers and other stakeholders" (Ritala et al., 2013) and that the reason why ecosystem actors "need to interact in order for a focal value proposition to materialize" (Adner, 2017, p. 40), combining individual offerings into "a coherent, customer-facing solution" (Adner, 2006, p. 2). In our ecosystem the value proposition stakeholders have is linked to developing mobility solutions for elderly population, even if they are approached as a separate group, or included in a larger group of people "geographically and financially isolated" (Interview no.1).

There are more ecosystem actors who are essential for innovating in this ecosystem. We will refer to them below. In terms of roles stakeholders have, we can look at the roles in the ecosystem and roles in the projects that are run in this ecosystem. Our research is mainly interested to examine the roles in the ecosystem. However, we will make reference to the role an ecosystem actor has in a project, too, as we find that useful to understand how exactly that actors is getting involved.

There is not an ecosystem *leader* (Adner & Kapoor, 2010). There are both top-down and bottom up initiatives (Muller, 2020).

The actors in the *upperground* may have various roles, depending if they are a public institution or a company, their activity profile, or if they are higher in the hierarchy, or lower (Ministry versus PETR). Central public institutions, such as Ministry of Transportation, ADEME, initiated legislation supporting innovation in this ecosystem, created the framework and infrastructure of French Mobility Community, an actor in *middleground.* Some of the public institutions in the territory, Regional Council via DREAL-DT, have the role of *intermediator*, supporting the implementation of a project, bringing in the necessary experts they can access via their network, making the connection with some of the financing structures (5600 experts – Interview no.4). Universities are involved in running research that would help innovate. Among the institutions that have the role of financing various projects in the ecosystem are: Department, Social Security public institutions (CPAM – Social security, CAF- State funded family benefits institution), public financial institutions (eg. Banque des territoires), Insurance companies (eg.MSA), Local authorities. The PETR, according to the law, has the role of AOM-

mobility organising authority. It may be either an *intermediator* between project initiator and leader (an NGO), and other stakeholders in the ecosystem that can bring in financial, legal,

Table no. 2- Value creation and capture mechanism – 1st part

Agent	Type of value	Mechanisms to create value	Mechanism to capture value
End User			
end users of mobility services and their families	social well-being, health, social integration)	using the services; participating at community events;	by using the service for their daily mobility needs (going to the doctor, shopping, for social activities); by staying socially integrated;
Underground			
volunteering drivers	social	volunteering to drive, volunteering for other activities; participating at community events;	by supporting their neighbours without a financial income;
citizens, volunteers, user communities	social		
Middleground			
NGOs (Wimoove/French Red Cross/ADMR)	economic and social	building trust and communication of common vision (Ritala et al., 2009); practicing constant open communication (Doz, 1996, Ritala et al., 2009); putting at stake organisation infrastructure; initiating projects and working to get them financed and implemented; ; contributing to the BM design; running a call center that intermediates between elderly population and drivers; intermediating between various stakeholders (Muller et al.2019); helping to promote successful innovation initiatives; connect and attract participants; preparing and depositing the project file; recruiting volunteering drivers; events (events for popularising carpooling services, events with user communities)	Juridical: setting up contractual frameworks (Dhanara and Parke, 2006); Taking into account the motivation of each actor (Ritala et al., 2012) Getting payment for some services from state subsidies; or having a part of the cost with an employee in call centre paid; Fulfilling their mission of NGO;
French Mobility Community and Platform	economic and social		
Centre Communal d'action Sociale (Municipality social action center)	social, economic		

Table no. 2- Value creation and capture mechanism – 2nd part

Agent	Type of value	Mechanisms to create value	Mechanism to capture value
Upperground			
Public Institutions (Department, Regional Council of Grand Est, DREAL-DT, ADEME-French agency for the environment and energy management)	economic	Legislative: adopting legislation that determine decentralisation and encouraging bottom-up innovation; simplifying public acquisition procedures; adopting fiscal measures to encourage NGOs to provide social mobility services in certain areas; initiating top-down innovation; Infrastructure related: creating the infrastructure and invest the resources for creating French Mobility Community – a key middleground actor; creating structures (formal and informal) that "connect and attract participants" (Ritala et al., 2013), such as events for popularising social mobility, get-togethers with users; creating platforms: French Mobility platform initiative taken by the leading actors (Pellinen et al., 2012); gathering and attracting ecosystem participants (Dhanaraj and Parke, 2006); creating a network of experts on mobility that can be involved in projects; intermediating ecosystem stakeholders; Marketing related: create a national brand "French Mobility" that helps in promoting the project; Research related: running academic research, market research, investing in R&D; Communication related: building trust and communication of common vision (Ritala et al., 2009); practicing constant open communication (Doz, 1996, Ritala et al., 2009); Financing role: providing financing for the projects under the form of direct financing or as state aid for employing, or under the form of subsidies; technological: trying to extend AdInnov method (Cortes-Cornax et al., 2016), an intentional-based modelling method aimed to support the analysis, the diagnosis and innovations for socio-technical ecosystems, negotiating and establishing technical standard allowing interoperability between more platforms providing carpooling services; establishing with RDEX, a RDEX protocol, a standard designed to facilitate the exchange carpooling data between different operators. BM related: practicing two business models for Mobilite Solidaire, trying to move to an integrated platform for all the areas; Intellectual Property related: the developed software they put at the disposal without licencing rights and "without an intentional technical opacity that would impede continuing the service without its intervention" (Interview no.1)	Legislative: setting up legislative framework; Juridical: setting up contractual frameworks (Dhanara and Parke, 2006); Infrastructure related: putting stakeholders together with the help of infrastructure; after structures they create function and deliver value; Research related: Providing research services on a contractual basis to a third party or as a public service; Communication related: when they have their image as public institution, or service provider improved; Financing role: getting profit on investments; getting impact following a public investment; BM related: economic value, obtained from providing the services and technical solution under different BMs
Public Institutions (AOM – Mobility Organising Authority like PETRs, CC, Municipality, public transportation compagnies)	communicational, political, economic, social, ecological; financial value		
Public research institutions (Universities)	public service, knowledge		
Financial public institutions (eg. Banque des territoires)	economic, economic		
Social Security public institutions (CPAM – Social security, CAF- State funded family benefits institution)	economic, social		
Technological companies (Mobicoop, Achtung)	economic		
Transportation companies (taxi, transportation on demand)	economic		
Insurance companies (eg.MSA)	economic		

business, technological resources to implement the project (eg. project run by PETR in CC de Mad et Moselle), or a *project leader* (eg. project run in CC de Saille et Mauchere) and owner in the experimentation please, and a kind of tutelar authority after it is transferred to an administrative sub-unit, like a CC. Technological companies, such as Mobicoop, provide technological solutions allowing the mobility of "geographically and financially isolated public" on the territory (Interview no. 1). On-demand transportation, existing in France since 1974 (Gaillard & Ragot, 2008), is assimilated to public transportation companies. Taxi companies provide classical transportation services. Insurance companies – for the time being as per information from interviews, they have been providing some financial support in one project.

In the *middleground* we have France Mobilites (French Mobility) Community and Platform, "a partnership and collective approach designed to support the experimentation and deployment of concrete projects that meet the mobility needs of our fellow citizens" (*France Mobilités*, 2020). French Mobility has also the role of associating a strong national brand to a local project in order to help promote that project and create brand awareness. We also have NGOs that play an essential role. They may have the role of *project initiator* (eg. Familles Rurales Association in the project in CC de Mad et Moselle[6], or partner (*"partner in the organising of the Solidarity Transportation local project*", (eg. French Red Cross in case of the project in PETR du Pays du Lunevillois). They are the actors that have been trying to find solutions for isolated population by intermediating the relationship between the old person and volunteering driver they used to recruit, even before the technological era of platforms. Therefore, in some communities, it is these NGOs that initiated a project when technological means arrived. Then we have events for popularising carpooling services organized by different stakeholders, conferences, events with user communities that take place in physical places put at disposal by local communities. What is very important is that in the BMs adapted to elderly people and using a technological platform, usually it is the NGO who is running a one man show call center who is intermediating the service request coming from the old person and volunteering driver. It is the NGO who is continuously recruiting volunteering drivers.

For the *underground*, the members we could identify based on the interviews by now are volunteering drivers, other volunteers and citizens that are involved in these ecosystems. The A volunteering driver is a driver who is proposing a transportation by demand service without

[6] CC stands for the abbreviation from fr. Communauté de Communes [joint local authority]

a profit", "who did not necessarily considered to make a specific trip" (Interview no.1). But further investigation is required at more local level.

For the *end-user* layer we have the end user, old person and his family who is benefiting from the innovation mobility solutions created in this ecosystem.

Actors from all the strata need to collaborate in order to produce and deploy a mobility solution for elderly people and for this solution to be found out about and adopted. It is necessary for various actors to contribute with human, financial, legal, knowledge resources to implement a project. The technological advancements allow creating new value. It also allows to experiment new business models, trying to simplify the procedures for services subsidized by the state. We mentioned earlier in the article how legal framework that changed over years has influenced the value creation and capture processes. When it comes to financing such a project, you may have three or four key stakeholders (Interview no.1, Interview no.4): ADEME, DREAL, state representative at the local level and bank of territories. To get an idea of the number of ecosystem stakeholders contributing to a single project, we would give as example the financing structure of a project started in 2015 run in CC du Pays de Saintois: (48607 EUR yearly budget) : Lorraine region (20%), departmental council (20%), two CC (20%), CAF of two departments (10%), state aid to hire the animator (20%) and the support of a foundation. In another project in PETR of Lunévillois Territory, that is not yet deployed, we have three stakeholders: Pôle d'Équilibre Territorial et Rural du Pays du Lunévillois[7], French Red Cross and Mobicoop.

We may conclude that in the upperground we have both economic valorisation of innovation, while in the middle and underground the stakeholders are rather motivated by the social motivations. We may conclude that value that is co-developed by actors in this ecosystem and is also based on the development of commons (Cohendet et al., 2018; Muller et al., 2019).

Barriers to value creation

In our research we noticed that among the barriers to both social and economic value creation there is the one determined by the way the mobility for elderly persons projects are financed. They are primarily funded from public funds. And given the decentralisation that came especially with the Law for orienting the mobility (Loi d'orientation des mobilités, 2019), the responsibility for organising the mobility moved to the intermunicipality level. Given the fact

[7] Pole of Territorial and Rural Balance of the Pays du Lunévillois

that some decision makers at local level are politically elected, they are interested in using the respective projects for political communication purposes. Therefore, when for example they are supposed to decide if they buy a separate platform of their own, with their logo, as compared to scenario when they may buy a space on a national platform of the same technology provider, they prefer the first variant. For example, for "it's especially important that the systems come out before the elections" (Interview no.1), in order to be used by a local state authority for campaign related purposes. More than that, a local public authority is open to pay an overprice just to have its own website. This comes with pluses and minuses for the end user. On one hand, a platform that is only limited to a municipality (Communaute de Communes), will not provide a solution for someone going from village A in municipality B, to village C in municipality D. In the same time, for the actors in the middleground and underground having a locally branded solution is helping to build the community spirit. This idea needs further verification. Therefore, market fragmentation comes with both advantages and disadvantages for the end user in this case.

Another barrier to create value in these ecosystems is that these services may remain not accessed for various reasons. Either the BM is not adapted to the specificity of needs of elderly population, for example it does not have human assistance, for reasons related to digital illiteracy, or there is small public awareness and too little "animation" (Interview no.1) about the existence of such a solution among elderly population. One of the persons we interviewed and that is doing research on software development for mobility for elderly population, identified three blocking points when it comes to the use of carpooling services by the old people. These blocking points are as follows: trust (in the company, in the driver, in the co-riders), need of being accompanied (to the final point, eg. including the segment car-doctor, preferences (eg. not liking smoking, talking, etc.) (Interview no.2)
It is definitely worth investigating further barriers to value creation. But we will not d it in this paper. In the following lines we will look at how value is captured in these ecosystems.

3.7. How is value captured in mobility ecosystem for elderly population?

Before addressing how value is captured in these ecosystems, we will recall what value capture stand for. According to Ritala et al., value capture refers to "an individual firm-level actualised profit taking; that is, how firms eventually pursue to reach their own competitive advantages and to reap related profits" (Ritala et al., 2013). As this is referring to exclusively to economic

value organisation level, we would extent it to individual level and adapt it by saying that it is the action by which an ecosystem stakeholder appropriates value, be it social or economic.
In table no. 2 we included our first attempt to organise value creation and capture mechanisms based on the socio-economic layer in the ecosystem to which one the actor belongs.
In the innovation is organisational, BM related and also technological (eg.AdInnov method (Cortes-Cornax et al., 2016).

4. Conclusions

Based on the data collected by now and the analysis we have run, we may draw several conclusions. First, in our case study we have both social and economic dimensions when it comes to value. The actors in the underground and middleground may rather be characterised by following to create social value, while the ones in the upperground – by the economic value. We considered the value captured from developing public services by state institutions as being of economic nature. As related to how value creation activities are organized between ecosystem stakeholders, a stakeholder would rather act considering the layer he belongs to. So, if it is in a layer that is closer to the market/state, it will try to search for economic value. If it is more in the underground – it is driven by the social value. For the end user, we consider that it gets both an economic value, the value of the service he contracts, as well as social value that definitely plays an important role in the life of the respective old person. Value creation and value capture in these mobility projects alternate or are happening simultaneously. For example, events for popularising a new platform happen before and after the project deployment, while drivers shall be recruited continuously. To speak about ecosystem value, we need to consider the perspective of each ecosystem stakeholder. In our research we assume that value creation and capture mechanisms have common points, some generating both economic and social value. We found out to draw a line where value creation stops and value capturing starts when it comes to social innovation and how should we address the issue when it comes to developing public services. Our first classification of mechanisms of value creation and capture needs much more work. However, it allowed us to notice that this is a terrain that will continue to be dynamic in the period to come. Some learnings may be drawn based on that, even from a public institution perspective. Decentralization related to the authority in charge with organising mobility and market fragmentation has both positive and negative effects.

On the other hand, when it comes to BM, social value created requires the stakeholders to propose new business models in the sense given by Chesbrough (H. Chesbrough, 2010), allowed by the online platform technology that can integrate several stakeholders, that can be developed given the current technologies. However, this also relies a lot on human connections and not exclusively on the virtual/digital when it comes to the elderly population that still needs more human contact. This population of travellers cannot be treated like other groups. The consequence is that the digital business models targeting elderly population has to involve more humans.

By trying to address some of the above questions, it aims to contribute to the literature about the value creation and value capture in innovation ecosystems (Adner & Kapoor, 2010; Ritala et al., 2013; Van der Borgh et al., 2012).

Annex I – interviews run for the first phase of research

List of experts met for the research (in alphabetical order)				
Name	**Scientific field**	**Organization**	**Duration**	**Date**
« Upperground »				
Anonyme	Economy	University	30 min	20th Sept. 2018
Amandine Crambes	Engineer	ADEME	1h	6th Sept. 2018
François Giordani	President in Grand-Est region	FNAUT (traveling association)	1h	2nd April 2019
Dominique Laousse	R&D Director of Chef /Innovation &Prospective	Tech4Mobility/ SNCF INNOVATION & RECHERCHE	1h30	17th May 2019
Aurélie Mercier	Economy	University	1h	20th Sept. 2018
Sylvestre Piam	Public Law	University	1h30	21st & 28th Sept. 2018
Cédric Verpeaux	Sociology	« Banque des territoires, direction d'investissements »	1h	4th Sept. 2018
« Middleground »				
David Caubel	Economy	Communauty France Mobility	1h30n+ mails	8th April 2019
Denis Pansu	Management, digital	Association (Think Tank) : FING (Fédération Internet Nouvelle Génération)	1h30 + 30 min	21st of Aug,2018, 2 Apr 2019
Gabriel Plassat	Engineer	Association Fabrique des mobilités	1h	10th Sept.2018
Claire Schreiber	Political sciences	Association Club des villes et territoires cyclables	1h	1st April 2019
Stéphane Schultz	Consultancy	15 marches	1h30	5th of April 2019

Annexe no 2– List of interviewed persons second phase (May 2020-June 2020)

No.	Organisation	Duration	Date
"Uppergroud" level			
1	Mobicoop, project manager	1h30; 1h50; 55min	May 7, 2020, May 14, 2020, May 20, 2020
2	Grenoble Informatics Laboratory, SIGMA team, and Mobicoop PhD Student	1h16min	June 2, 2020
3	PETR Val de Lorraine Sustainable mobility representative/Communaute de communes de Seille et Mauchere Grand Couronne, Mobility representative	1h20	June 15, 2020
4	New Mobilities, Transborder Relationship Responsible, Regional Environment, Development and Accommodation Division, Grand Est Region	2h11min	May 1st, 2020
5	Greater Nancy Metropolis, Transportation Division Director	2h09min	June 16, 2020+a second one in July
6	Association Bompard Foundation, Director General	45min	May 6, 2020
7	Person in charge with mobility with PETR of Lunéville Territory		to be scheduled
8	Mobility platform provider for the project in Saile et Mauchere Grand Couronne (after its selection)		to be scheduled
"Middlegroud" level			
9	" Famille Rurales" Association representative in Mad et Moselle mobility project		to be scheduled
10	General director at regional level of an association providing mobility solutions for fragile public running a mobility platform in Grand Est involved in the mobility project in Saint Avold, Moselle, Lorraine; *(Wimoove Association director in Grand Est)*		to be scheduled
11	person involved with the project in PETR of Lunéville Territory on behalf of Red Cross France		to be scheduled
"End users" level			
12	Nancy, old person, autonomous, wishout a personal car	15min	June 2, 2020
13	Vandeuvre le Nancy, old person, autonomous, with a personal car	2h50	June 2, 2020
14	ASSAD Association, part of ADMR54 federation, employee	1h24min	May 20, 2020

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