

Appendices

Table of appendices

Appendix 1 - Comparison between vertical integration, open innovation and user innovation.....	127
Appendix 2 – EnoLL waves system enrolment	127
Appendix 3 - Stakeholders' cartography	128
Appendix 4 - Terms used in the literature to describe the Living Lab concept.....	129
Appendix 5 - Categorization of Living Labs depending on the Living Lab's driver	134
Appendix 6 - Advantages of Living Labs in terms of innovation outcomes.....	135
Appendix 7 - Advantages of Living Labs in terms of risks, resources and investments	136
Appendix 8 - Advantages for the different stakeholders	136
Appendix 9 - Corporate social responsibility and ecological implications in Living Labs	138
Appendix 10 - Additional considerations for networks of Living Labs	139
Appendix 11 - Creation of a viable business model for Living Labs	142
Appendix 12 – Interview guide realized for the purpose of interviewing M. Schuurman at Imec iLab.o	158
Appendix 13 – Interview guide realized for the purpose of interviewing M. Lomba at Makilab	161
Appendix 14 – Transcript of the interview with Dimitri Schuurman, from Imec iLab.o (June 28, 2017)	164
Appendix 15 – Transcript of the interview with M. Lomba, from Makilab (June 20, 2017)	181

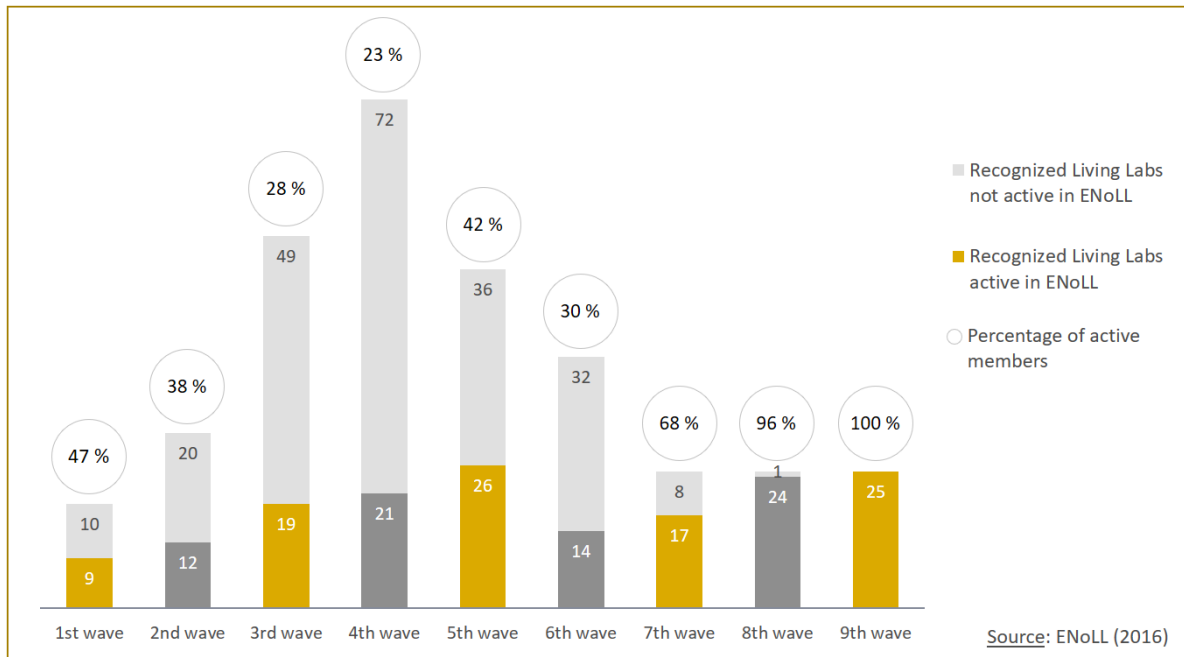
Appendix 1 - Comparison between vertical integration, open innovation and user innovation

	Vertical integration	Open innovation	User innovation
<i>Objective</i>	Control end-to-end innovation processes	Maximize innovation effectiveness	Support users to innovate
<i>Key stakeholders</i>	Firm	Firm and other firms in the value network	Users and producers
<i>Locus of innovation</i>	Within firm	Outside firm	Within users
<i>Motivations</i>	Pecuniary	Pecuniary	Utility
<i>Key success measures</i>	Profit	Profit	Quantity of innovation

Source: Adapted from Bogers and West (2012)

Appendix 2 – ENoLL waves system enrolment

ENoLL (2016) explains the annual system of waves by stating that “the wave process is an open call and invitation to join the network for public and private organizations from across the world actively committed to engaging and empowering users and citizens to take part in sustainable innovation processes” (ENoLL, 2016, p.36-37). After the application period, a group of experts assesses the candidates based on a series of criteria that follow the ENoLL values: Organization, Openness, Resources, Users & Reality, and Value. Until now, nine waves have occurred for a total of 400 Living Labs ever registered since 2006. Currently, about 170 Living Labs are active members within the network dispersed in the EU Member States and across the world (ENoLL, 2016). The Figure 10 represents the nine waves of Living Labs recognition realized by ENoLL since 2006.

Figure 10**Active and total number of ENoLL recognized Living Labs per wave**

Appendix 3 - Stakeholders' cartography

<i>Users</i>	This category includes all the potential customers who will use the innovative product or service in their everyday life. The users can be individuals, groups or organizations. This category also includes all the different stakeholders who would be interested to use the product or service along the vertical value-chain.
<i>Companies</i>	Companies involved in a Living Lab can be SMEs, larger companies, but also micro-entrepreneurs, service providers and start-ups.
<i>Researchers and developers</i>	Researchers and developers are responsible for the initial innovation design to be tested and validated within the Living Lab. Those stakeholders can be part of one company or they can be involved in a specific collaboration created with the purpose of developing a Living Lab.

<i>Public agencies</i>	In public agencies, we include all the policy makers and the public regional organizations that are responsible for the development of innovative systems to improve the public sector's operations.
<i>Universities and specialists</i>	All stakeholders who are involved in the academic sphere as well as the specialists in public administration or in a particular industry are comprised in this category. Their presence is necessary to give advices and to make sense out of the Living Lab's experimentations.
<i>Investors</i>	Investors bring resources to the Living Lab with the expectation of a financial return on their investment.

Appendix 4 - Terms used in the literature to describe the Living Lab concept

Term used in the literature	Definition	Authors
<i>Milieu</i>	"The people, physical, and social conditions and events that provide the environment in which someone acts or lives." (Cambridge Dictionary, 2017, p.903)	• Bergvall-Kåreborn et al. (2009)
<i>Environment</i>	"The sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage." (Business Dictionary, 2017)	• Ballon, Pierson, & Delaere (2007) • Schaffers & Kulkki (2007)
<i>Methodology</i>	"A system of broad principles or rules from which specific methods or procedures may be derived to interpret	• Eriksson, Niitamo, & Kulkki (2005) • Mulder & Stapper (2009)

	or solve different problems within the scope of a particular discipline. Unlike an algorithm, a methodology is not a formula but a set of practices.” (Business Dictionary, 2017)	• Schuurman et al. (2013) • Almirall, Lee, & Wareham (2012) • Dell’Era & Landoni (2014)
<i>Approach</i>	“A line of thought in the management field which stresses the interactive nature and interdependence of external and internal factors in an organization. A systems approach is commonly used to evaluate market elements which affect the profitability of a business.” (Business Dictionary, 2017)	• Bergvall-Kåreborn et al. (2009) • Seys et al. (2013)
<i>Intermediary</i>	“Firm or person (such as a broker or consultant) who acts as a mediator on a link between parties to a business deal, investment decision, negotiation, etc. In money markets, for example, banks act as intermediaries between depositors seeking interest income and borrowers seeking debt capital. Intermediaries usually specialize in specific areas, and serve as a conduit for market and other types of information.” (Business Dictionary, 2017)	• Schuurman et al. (2012) • Lehmann, Frangioni, & Dubé (2015)
<i>Network</i>	“A system that enables users of telephones or data communications lines to exchange information over long distances by connecting with each other	• Leminen, Westerlund, & Nyström (2012) • Leminen & Westerlund (2012)

	through a system of routers, servers, switches, and the like.” (Business Dictionary, 2017)	• Leminen, Westerlund, & Nyström (2014)
<i>System</i>	“An organized, purposeful structure that consists of interrelated and interdependent elements (components, entities, factors, members, parts etc.). These elements continually influence one another (directly or indirectly) to maintain their activity and the existence of the system, in order to achieve the goal of the system.” (Business Dictionary, 2017)	• Ballon, Pierson, & Delaere (2007) • Eriksson, Niitamo, & Kulkki (2005) • Oliveira, Fradinho, & Caires (2006) • ENoLL (2016) • Lehmann, Frangioni, & Dubé (2015)
<i>Partnership</i>	“A type of business organization in which two or more individuals pool money, skills, and other resources, and share profit and loss in accordance with terms of the partnership agreement. In absence of such agreement, a partnership is assumed to exist where the participants in an enterprise agree to share the associated risks and rewards proportionately.” (Business Dictionary, 2017)	• Niitamo et al. (2006) • Feurstein et al. (2008) • Lepik & Varblane (2010) • Arnkil et al. (2010) • Westerlund & Leminen (2011) • Ferrari, Mion, & Molinari (2011)
<i>Ecosystem</i>	In biology: “Self-sustaining community comprised of interdependent organisms (plants, insects, animals) and their natural environment. It provides the food chain through which energy flows,	• Lievens et al. (2011) • Schaffers et al. (2012) • Schuurman et al. (2013) • ENoLL (2016)

	and the biological cycles that recycle essential nutrients and wastes.” (Business Dictionary, 2017) In business: “The network of organizations – including suppliers, distributors, customers, competitors, government agencies and so on – involved in the delivery of a specific product or service through both competition and cooperation. The idea is that each business in the "ecosystem" affects and is affected by the others, creating a constantly evolving relationship in which each business must be flexible and adaptable in order to survive, as in a biological ecosystem.” (Investopedia, 2017)	
<i>Platform</i>	“A business model that creates value by facilitating exchanges between two or more interdependent groups, usually consumers and producers. In order to make these exchanges happen, platforms harness and create large, scalable networks of users and resources that can be accessed on demand. Platforms create communities and markets with network effects that allow users to interact and transact.” (Applico, 2017)	• Pallot et al. (2010)

Appendix 5 - Categorization of Living Labs depending on the Living Lab's driver

	Utilizer-driven	Enabler-driven	Provider-driven	User-driven
<i>Driver of the innovation process</i>	Utilizers: private or public firms	Enabler: public agencies	Provider: universities or other educational bodies	User: user communities
<i>Focus</i>	Strategic development of a business	Local and regional development	Research and knowledge development	Solve daily problems
<i>Objective</i>	Quick value creation for the development of new products/services	Data collection and co-creation towards societal improvements	Pool resources and knowledge to solve complex issues	Build a solution for everyday-life problems through informal collaboration
<i>Duration</i>	Short-run	Short to long run	Short to long run	Long run

Source: Adapted from Leminen, Westerlund & Nyström (2012)

Appendix 6 - Advantages of Living Labs in terms of innovation outcomes

User involvement	• Detection of new and emerging behaviors and user patterns • Deep knowledge about the users' expressed and unexpressed needs at the early stage of the product or service development • Concrete feedback on the prototypes • Early assessment of the socio-economic implications • Validation of the products and services under experimentation
Iterative process	• User feedback at each phase of the product or service development • Reliable evaluation of the market needs • Achievement of a product-market fit • Reduced time-to-market
Market launch	• Stimulation of the market demand before the market launch • Faster market acceptance • Broader utilization • Higher societal impact and value of the product or service
Diversity of stakeholders	• Active dialogue and collaboration between key actors • Synergies of ideas and capabilities • Creation of a community between the different stakeholders • Improved research results • Rapid and global mass customization
Real-life settings	• Tackle complex real-life problems • Integration of a multi-contextual sphere that immerses the end-users in a real-life context

	• Access to a real interaction data in real application contexts • Increase the user acceptance rate • Decrease the probability of unexpected user behavior
Combination of various research methods	• Take advantage of the strengths of each research method while compensating for its limitations • Deeper insights in the profiles of users • Broader view of the market needs by combining the different datasets

Appendix 7 - Advantages of Living Labs in terms of risks, resources and investments

Development process	• Reduced risks related to the development of new products and services • More cost-effective development process
Resources and investments	• Reduced duplication of efforts • Optimization of resources allocation • Less investments in products that won't reach the market
Market launch	• More investments in products with a higher probability to be launched in the market • Lower risks in launching a new product or service

Appendix 8 - Advantages for the different stakeholders

Users	• Influence the development of products and services • Answer to a specific need that is not met yet by the current market offering • Solve a problem that affect their everyday life • Develop more functional solutions • Reinforce the users' capacities and competences to innovate
-------	---

Companies	• Develop, validate and integrate new ideas • Get a cost-efficient access to end-user data and user experiences • Quickly expand local offering in new markets • Increase the innovation process effectiveness • Reduce the development cycles • Reduce costs by making changes at the early steps of the product development • Develop a product or service that is “right the first time” • Get access to state-of-the-art technologies • Increase the brand recognition and the customer loyalty
Researchers and developers	• Foster new hypothesis and research scenarios via an inductive approach • Get a privileged access to communities in a real-life context • Use a wide range of research methods and techniques • Get access to new opportunities and resources
Public agencies	• Deliver common processes for validating market offer • Harmonize national and regional initiatives in a specific field • Optimize investments in the targeted market • Create new market demand • Adopt common business taxonomy • Attract further investments to invest in a particular domain • Involve SMEs in collaboration initiatives • Initiate a dialogue between citizens and the government • Stimulate value chains that have a positive social and economic impact in a regional context • Improve the public sector operations

Universities and specialists	• Drive research and knowledge forward in a specific domain • Foster interdisciplinary research • Position themselves as a pioneer in experimentation in a particular field
Investors	• Better evaluation of the technological risk • Reduced time-to-market • Increased market acceptance • Diversification of usages and markets

Appendix 9 - Corporate social responsibility and ecological implications in Living Labs

In their paper, Von Geibler et al. (2014) bring to light the continuous intensification of natural resources consumption even though more efficient and consistent production methods are regularly developed. According to them, this overconsumption of natural resources by the human technological system calls for the development of innovative, low-resource technologies, products and services. In that view, research and innovation systems are a key component to reduce our impact on the environment. However, they observe that “over the last decades, a large number of potentially more efficient technologies as well as products and services were developed without considerable integration of consumers” (Von Geibler et al., 2014, p.577), such as car sharing or alternative light bulbs or detergents. Those innovation failures were due to unexpected user behavior and changing life styles (Von Geibler et al., 2014).

Those negative systemic effects lead us to consider even more the user integration in new innovation processes. Indeed, Von Geibler et al. (2014) add that “the inclusion of users in an early phase of the development of products and services can help to preclude problems and to define and compare demands and strategies. Thus, it can enhance the competitiveness and ecological soundness of socio-technical innovations” (Von Geibler et al., 2014, p.577). Nonetheless, the authors reveal that facilities for experimental research in real-life settings, such as household laboratories, are lacking, which can explain the little attention addressed towards socio-ecological transformation of consumption patterns. For this reason, Living Labs

for sustainable development appear like a good alternative to overcome those environmental challenges (Von Geibler et al., 2014).

Von Geibler et al. (2014) define the Living Labs for sustainable development as Living Labs involving users in the development of resource and energy efficient innovations in real-life environments that considers the specific cultural and social context. The additional challenge is that the users' needs have to be aligned to specific sustainability criteria during the entire development process (Von Geibler et al., 2014). However, we can easily deduce the positive impact of those sustainable initiatives on the market acceptance, which increase the probability of success of those sustainable innovations. Angelini (2016) build on this thematic by arguing that Living Labs naturally facilitate the implementation of an ecological approach, as they deal with the target users in their own environment and they provide multi-level actions around the target population (Angelini, 2016). Eriksson et al. (2005) already agreed with this opinion, stating that "the Living Lab as a research approach may deal with social and environmental sustainability as well as other socio-techno-economic impacts" (Eriksson et al., 2005, p.10).

Appendix 10 - Additional considerations for networks of Living Labs

As demonstrated earlier, one of the main advantages of Living Labs is the real-life context and the multi-contextual sphere in which product and services are developed. Compared to individual Living Labs, studies show that developing a network of Living Labs, such as the European Network of Living Labs (ENoLL), extends this sphere to new regional specificities. Feurstein et al. (2008) support this idea and precise that this real-life context is extended across valuable dimensions, such as regional attributes, languages, cultural particularities, climatic conditions, sectorial specializations and sociological characteristics. Also, according to Eriksson et al. (2005), a network of Living Labs "strengthen the opportunities to integrate social innovations with technological innovations in wider scale" (Eriksson et al., 2005, p.10), which ultimately creates new job opportunities, contributes to socio-economic dynamism, foster growth and increases the global competitiveness of Europe. In addition, SMEs get the opportunity to approach new markets through the network of Living Labs, which would otherwise not be possible (Feurstein et al., 2008).

In terms of the user involvement, Feurstein et al. (2008) declare that networked Living Labs permit a better understanding of users' needs and enable the localization of products to

specific regions. Hence, each Living Lab gets an “immediate feedback about the possible acceptance of [its] product from specific communities in specific regional settings” (Feurstein et al., 2008, p.6). Those feedbacks provide more insights on the requirements coming from diverse social and cultural environments and improve the development of customized products. As a consequence, we can assess the suitability of a product or service for the targeted market and there is ultimately an increased rate of success of the developed product or service (Feurstein et al., 2008).

If we look at the knowledge and expertise developed in networks of Living Labs, we observe that there is an increasing trend of specialization in Living Labs. Generally, each Living Lab focus on a particular topic that coincides with the regional development policy or the core regional industry sector, and each sectorial specialization therefore brings an added value in the network (Feurstein et al., 2008). On the other hand, there is higher standardization of data in networks of Living Labs. The main advantage is “the comparability with the results of other Living Labs in the network and the confirmation of the expected output in the run-up to the usage of the Living Labs” (Feurstein et al., 2008, p.4). Those two aspects are expected to increase expertise within the network, while optimizing the data analysis amongst regions.

A last aspect that enhances the value of networked Living Labs is the question of investments and infrastructures. Feurstein et al. (2008) argue that bringing together different stakeholders can optimize the allocation of resources and lead to a better use of investments within individual Living Labs. Indeed, “double investments into similar research infrastructure can be avoided and centers of excellence for specific sectors or technologies can be established within Living Labs” (Feurstein et al., 2008, p.7). They add that the complementarity of infrastructures set up in different Living Labs allow for a distribution of tasks depending on each Living Lab expertise. In that sense, products and services can be co-created in one or several specific Living Labs, while the development and the validation stages can take place in different Living Labs (Feurstein et al., 2008). This approach optimizes the deployment of the product or service in the most appropriate infrastructure and context.

Until now, we have described the benefits and the added value of building a network of Living Labs compared to individual solutions. However, setting up such a network raises several challenges related to integration and cooperation issues. As regard to the integration of the infrastructure, Feurstein et al. (2008) expose the issue of heterogeneous infrastructure

amongst different Living Labs. Indeed, the advantages in terms of infrastructure mentioned above are only achievable if there is an efficient collaboration between individual Living Labs. However, this heterogeneity poses significant challenges in terms of interoperability and increases the complexity of collaboration between Living Labs, which in turns decreases the benefits of networked Living Labs (Feurstein et al., 2008).

A second element concerns the integration of political goals across regions. Feurstein et al. (2008) mention that a convergence between the political will of regional and national stakeholders is essential to set up a network of Living Labs, but it represents a significant challenge. The objective here is not to harmonize political goals, but to enable complementarities amongst the political visions through collaboration by taking advantage of the social and cultural diversity (Feurstein et al., 2008).

Finally, a last challenge refers to the plethora of methods and tools used in individual Living Labs. As there are no best practices defined, Feurstein et al. (2008) consider the decision to use a certain research method as arbitrary and this reduces the opportunities of comparison between Living Labs. This challenge calls for the harmonization of best practices and the creation of a toolset to be used in networks of Living Labs. The objective would be to train all stakeholders in different regions to use this toolset in order to allow a later comparison of the results throughout the network (Feurstein et al., 2008). Relating to this last challenge, an interoperability cube for the harmonization of Living Labs has been developed attempting to define a common framework for harmonizing methods and tools (Mulder et al., 2007). This "interoperability" or "harmonization" cube is based on the assumption that the desirable elements to be shared between Living Labs form an adequate basis for the harmonization of methods and tools. The cube identifies these exchange possibilities and explicitly defines the interoperability of the organizational elements, techniques and contextual perspectives associated with Living Labs. Moreover, the cube gathers best practices, lessons learned and other topics that could be exchange in the following headings: user involvement, service creation, infrastructure, governance, innovation outcomes, and methods & tools used. Those six areas represent in fact the six facets of the ENoLL cube. Beyond the representation of these six dimensions, the main advantage of this type of model lies in the fact that a matrix of sub-elements to consider is derived from each dimension.

Appendix 11 - Creation of a viable business model for Living Labs

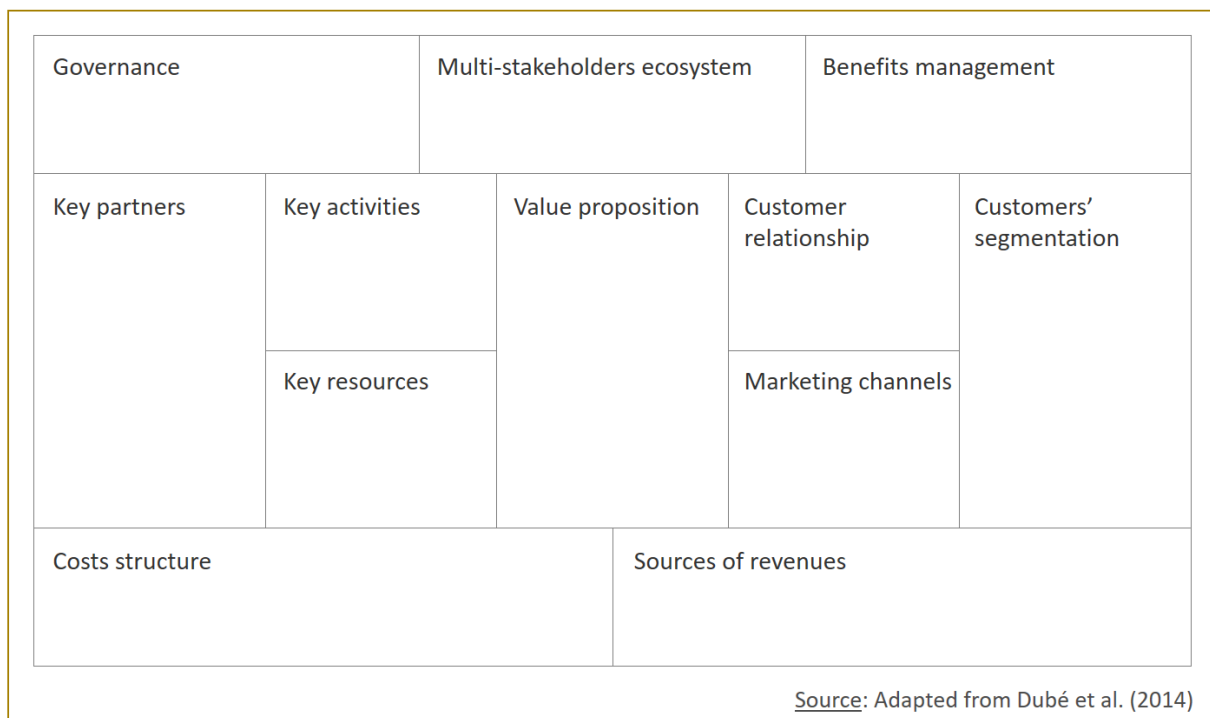
The fit assessment model presented in this thesis is an instrument available to any enabler assisting him in the choice of the innovation approach to be implemented. Once the Living Lab implementation seems to be the required path to follow, the creation of a viable business model ensures the establishment of a self-sustaining Living Lab. In this appendix, we will give some insights on what to explore when building a business model for Living Labs.

An adapted business model for Living Labs

According to Dubé et al. (2014), several tools have emerged to facilitate the communication of business processes through an approach incorporating an explicit design dimension, such as the Business Model Generation (BMG) proposed by Pigneur, Osterwalder and Smith (2010), which is now considered as a benchmark in this field. The authors argue that the first advantage of the BMG model is certainly to represent the information about a project in a topological framework where space has a real meaning. The authors consider this model flexible enough to represent the complexity of a Living Lab reality and therefore adapted the BMG model to the Living Labs context by adding three components: (1) governance issues, (2) multi-stakeholders issues, and (3) benefits management (Dubé et al., 2014). This adapted business model is represented in the Figure 11.

Figure 11

Adapted business model generation for Living Labs



Dubé et al. (2014) add that this adapted BMG canvas can be used for the Living Lab implementation, as well as during the running of its operations. This method is particularly helpful for several reasons: (1) illustrate visually to the members of the Living Lab all at once an overview, the role of everyone and the dependency relationships among these roles, (2) easily illustrate how the Living Lab is a fundable, viable, profitable and sustainable system, (3) align the vision of the various stakeholders, (4) help translate the vision of stakeholders into strategic and business processes, (5) establish a common language and framework among stakeholders, (6) graphically illustrate the creation of value, (7) foster understanding of the linkages between the Living Lab's dimensions, (8) engage stakeholders in a holistic way (Dubé et al., 2014).

We will now dig deeper within the adapted canvas exposed above and look at each component in which a series of issues have been defined to assist the project promoter in carrying out the first modeling effort. This analysis will be broken down into 12 parts: (1) governance, (2) multi-stakeholders ecosystem, (3) benefits management, (4) key partners, (5) key activities, (6) key resources, (7) value proposition, (8) customer relationship, (9) marketing channels, (10) customer segmentation, (11) costs structure, and (12) sources of revenues.

1. Governance

As we saw in the section 7 of the chapter 2, part 3, establishing a good governance structure is one of the key success factors for Living Labs. Indeed, shaping the main strategic decisions and the day-to-day management, the governance structure should be considered carefully when implementing a Living Lab (Mulder et al., 2007). This structure will serve as guidelines to ensure the co-creation dynamic process, the management of day-to-day activities as well as to handle ethical issues. By building a clear framework based on good governance principles, the Living Lab improves its chances of success. The Table 9 summarizes the key issues regarding the establishment of a governance structure, as well as the recommendations on how to set up a good governance structure based on the work of Mulder et al. (2007) and Dubé et al. (2014).

Table 9: Establishment of a governance structure for Living Labs

Issues	Recommendations
<i>Strategic implications</i>	• Define the Living Lab's drivers and objectives • Define the funding strategy • Define the level of openness and the degree of involvement of each stakeholder group • Assess the coherence between the stakeholders' expectation • Build an agreement in terms of intellectual property rights
<i>Management team</i>	• Define the roles and responsibilities of each member of the management team • Nominate a director, a steering board, a technical program committee and a user committee
<i>Management of day-to-day activities</i>	• Define the working practices • Build an internal communication network • Set up a progress monitoring methodology • Organize regular audits
<i>Ethical issues</i>	• Codify the acceptable experimental limits of the projects • Establishment of an ethics committee

Source: Adapted from Mulder et al. (2007) and Dubé et al. (2014)

2. Multi-stakeholders ecosystem

As Living Labs are characterized by an ecosystem of multiple stakeholders, key issues should be addressed in order to define an optimal composition of the ecosystem to reach a better performance. Based on the literature, we defined four issues to build a good ecosystem when implementing a Living Lab: (1) ecosystem composition, (2) value creation, (3) management of interactions, and (4) common values. The Table 10 summarizes the recommendations regarding those issues.

Table 10 - Building a multi-stakeholders ecosystem

Issues	Recommendations
<i>Ecosystem composition</i>	• Identify the different potential stakeholders, their profiles and their interests (see Table 10) • Build a mix of various stakeholders in terms of backgrounds, knowledge and experience
<i>Value creation</i>	• Define the priorities and restrictions of the project based on all stakeholder groups' interests at the beginning of the collaboration • Detect the opportunities of knowledge sharing between the different stakeholders • Create a partnership between the different stakeholders based on the potential value creation for each party
<i>Management of interactions</i>	• Determine the optimal degree of interaction between the different stakeholders • Coordinate and foster the interaction around common objectives • Hire an independent innovation intermediary to handle conflicts • Use collaborative tools, such as prototypes, mock-ups, and digital collaboration platforms • Promote dynamic feedback to support reflexive learning • Evaluate lessons learned and prepare further initiatives to improve the collaboration
<i>Common values</i>	• Build common values, such as openness, patience, passion and creativity

	• Share a culture of learning • Develop mechanisms to promote the culture and the values
--	---

Sources: Eriksson et al. (2005); Veeckman et al. (2013); Hakkarainen and HyysaloHow (2013); Geibler et al. (2014); Dubé et al. (2014)

3. Benefits management

The next component of the adapted business model is the management of benefits. In order to gather different types of participants around the same project, it is essential to pay attention to their underlying motivations. In order to make the ecosystem work, each stakeholder group should find a value in the collaboration and get specific rewards or recognition. We already explored what are the different stakeholder's motivations and we can derive that each stakeholder values different kind of benefits. Moreover, fostering users' motivation will be essential in order to increase their commitment and retain them in the long run.

Table 11: Dealing with the benefits management issues

Issues	Recommendations
<i>Motivations and interests identification</i>	• Identify the motivations and expectations of each stakeholder group in terms of knowledge generation, social and economic benefits
<i>Recognition and motivation of users</i>	• Implement intrinsic and non-intrinsic rewards • Set up an incentive mechanism • Promote trust and good communication • Promote the merit system to reward users who provide valuable ideas and improve the innovation • Provide a preferential access to products and services
<i>Intellectual property rights</i>	• Secure a minimum level of legal knowledge to negotiate and generate the legal documentation

	• Build a value creation model to recognize each stakeholder group's contribution • Create a rewarding and incentive system • Sign an agreement regarding intellectual property rights on an ad hoc basis at the beginning of each project
--	--

Sources: Eriksson et al. (2005); Feurstein et al. (2008); Veeckman et al. (2013); Von Geibler et al. (2014); Dubé et al. (2014); Clermont & Fionda (2016)

4. Key partners

In order to build an optimal ecosystem, it is important to identify the potential stakeholders, their profiles and their interests. Afterwards, a mapping can be realized to assess their importance within the Living Lab in terms of influence and interests (Dubé et al., 2014). Hence, understanding from which stakeholders come the different core resources will help creating long-term partnerships with the key partners. The Table 12 summarizes the issues and recommendations related to the identification of the key partners.

Table 12: Identification of key partners and their contribution to Living Labs

Issues	Recommendations
<i>Stakeholders identification</i>	• Identify the potential stakeholders from the different categories: users, companies, researchers and developers, public agencies, universities and specialists, and investors
<i>Resources provided by partners</i>	• Identify the resources provided by each category: collaborative technologies, know-how and skills, investments, infrastructures, etc.
<i>Interests identification</i>	• Identify the stakeholders' motivations: return on investment, end-user data and user validation, experimentation in real-life settings, territorial development, fundamental research, etc.

<i>Relative importance of stakeholders</i>	• Compare the degree of influence of each stakeholder compared to its interests on a map • Identify the key partners, namely the ones having a lot of interests and a high influence on the mapping
--	--

Source: Adapted from Dubé et al. (2014)

5. Key activities

Within the Living Lab, the value proposition stems from the different activities monitored by the various stakeholders. We identified three main activities that create the value of Living Labs: (1) innovation activities, (2) outreach activities, and (3) recruitment activities. First, the key activities needed to support the innovation process have to be pinpointed. Second, outreach activities are necessary to share the takeaways and the knowledge generated through the Living Lab's projects, but also to improve the Living Lab's image and reputation. Third the recruitment activities should be set up for the purpose of making the Living Lab known and hence attract user communities. The Table 13 summarizes the key activities and some broad-based recommendations.

Table 13: Identification of the key activities

Issues	Recommendations
<i>Innovation activities</i>	• Develop the four key activities of the innovation process: exploration, co-creation, experimentation, and evaluation activities • Provide support towards all the innovation steps • Develop quantitative and qualitative analysis of usage • Organize meetings and working groups to enhance stakeholder's interaction and coordination
<i>Outreach activities</i>	• Manage the time and budget devoted to scientific publications, conferences and events

<i>Recruitment activities</i>	• Be involved in the user communities • Manage the interaction with digital communities
-------------------------------	--

Source: Adapted from Dubé et al. (2014)

6. Key resources

After the key activities, the next component of the adapted business model is the key resources that must be defined in the establishment of a Living Lab. Resources can be tangible or intangible, such as the infrastructure, skills, intellectual and financial resources. The optimal goal is to mobilize the resources required to ensure the effective functioning of the Living Lab as well as the mission realization. The Table 14 helps identifying the different types of resources needed in a Living Lab.

Table 14: Identification of the multiple types of resources needed within a Living Lab

Issues	Recommendations
<i>Technical infrastructure</i>	• Define the infrastructure needed depending on the types of projects and the Living Lab's field: physical resources, software, tools, etc. • Implement technological and ITC systems • Get flexible storage and computing resources to cope with large amount of data • Set up digital collaborative platforms and co-creation spaces • Set up a technical testing for monitoring purposes
<i>Methods and tools</i>	• Set up a mixed set of methods: participatory tools, ethnographic tools, etc. • Get digital manufacturing tools and prototyping equipment • Verify if you need any data sets or technology license
<i>Knowledge and skills</i>	• Identify the skills required for all activities: project management, innovation steps, etc.

	• Identify the specific knowledge required for the purposes of each project: anthropologists specializing in digital uses, community leaders, etc.
<i>Financial resources</i>	• Define the financial resources needed for pre-start and start-up investments • Get the support of public agencies and private companies • Look for research funding opportunities

Sources: Mulder et al. (2007); Veeckman et al. (2013); Guzmán et al. (2013); Dubé et al. (2014)

7. Value proposition

As we already mentioned earlier, the engagement within a Living Lab should be valuable for all stakeholders involved in order to motivate their participation. Hence, while establishing a Living Lab, an emphasis should be set on the value that the Living Lab brings to stakeholders taking part in each step of the innovation development. The goal is to align what the customers expect from their engagement in Living Labs with what the Living Lab is able to offer to the stakeholders. In that way, defining explicitly the expectations of customers will help in the value creation proposal. The Table 15 summarizes our findings and recommendations in order to generate a value proposition in Living Labs.

Table 15: Value creation delivered to stakeholders within the Living Lab

Issues	Recommendations
<i>Identification of the potential value delivered to stakeholders</i>	• Based on the motivations and interests identified in the Table 13, identify the potential source of value for the different stakeholders concerning the economic, social and planet aspects • Identify the needs related to those interests: costs reduction, usability, reduction of innovation cycles, discovering new technological uses, personalization, etc.

	• Verify that the ecosystem is sufficiently complementary to promote value sharing and answer the stakeholders' needs • Verify that you have the necessary infrastructure, methods and tools to answer those needs • Promote mechanisms to share this value amongst the ecosystem, such as networking, creating spin-offs in the knowledge, society and business sector... • Make sure that the products and services delivered are in line with the users' needs
<i>Identification of issues in the market that could be addressed by a Living Lab</i>	• Set up a market analysis to detect the unsatisfied needs, gaps in the market offer, non-adoption issues, etc. • Detect the advantages, disadvantages and risks related to the different innovation methods in terms of funding, risk assessment, time-to-market, etc. • Check that the infrastructure, methods and tools can address those issues
<i>Value proposition</i>	• Based on the stakeholders' interests and the identified market issues, define a value proposition that will fulfill the stakeholders' needs and create economic and social value

Sources: Eriksson et al. (2005); Guzmán et al. (2013); Dubé et al. (2014); Leminen (2015); Clermont & Fionda (2016)

8. Customer relationship

As we analyzed in the section 2 of the chapter 2, part 3, the manager in Living Labs is a relationship and ecosystem manager. Therefore, as multiple stakeholders take part in the development process, relations should be well handled to optimize the success of the outcome. In that view, four aspects have been identified through the literature in order to handle relationships within Living Labs: (1) user communities, (2) trust and commitment, (3) conflicts management, and (4) impact on the business model. Recommendations regarding those four aspects are summarized in the Table 16.

Table 16: Relationships management and identification of their impact on the business model

Issues	Recommendations
<i>User communities</i>	• Identify the expectation of users in terms of interaction and level of involvement • Identify the type of user community willing to be involved in the Living Lab; community of interest or community of practice • Develop mechanisms to foster the user involvement based on the users' expectations and motivations
<i>Trust and commitment</i>	• Promote long-term partnerships • Hire a moderator to foster trust and understanding between the different stakeholders • Provide services to improve the relationship between the different stakeholders: mechanisms of integration of the product or service, mechanisms of facilitation for co-creation activities, and standardization of data
<i>Conflicts management</i>	• Define the most important issues with the stakeholders • Plan regular face-to-face meetings • Review regularly the needs of the different parties

	• Hire an innovation intermediary to mediate conflicts between the parties
<i>Impact on the business model</i>	• Identify the importance of interaction between specific stakeholder groups in the innovation process • Identify the incidence of the relationships on trust and sustained user participation

Sources: Mulder et al. (2007); Hakkarainen and Hyysalo (2013); Veeckman et al. (2013); Von Geibler et al. (2014); Dubé et al. (2014)

9. Marketing channels

Communication will take place within the lab as well as outside the lab. Different marketing channels can be used depending on the objective: (1) promoting the Living Lab, (2) evaluation of the Living Lab's offer by the stakeholders, (3) subscription, and (4) value proposition delivery (Dubé et al., 2014). The objective here will be to identify the most suitable channels, integrate them to the Living Lab's value proposition and test their efficiency. The Table 17 summarizes our recommendations regarding the channels' selection.

Table 17: Identification of the most suitable marketing channels

Issues	Recommendations
<i>Channels identification and integration</i>	• Identification of all the different channel opportunities for each of the objectives: ○ Promotion options: conferences, partnerships with territorial development organizations, publications... ○ Evaluation options: references, creative workshops, becoming a secondary partner in an existing project, creation of pilot projects covering part of the innovation process... ○ Subscription options: membership for standard services, service "à la carte" ...

	○ Service delivery options: one-time services, experimentation projects... • Identification of the most suitable channels according to the stakeholders' targeted and the user communities • Integration of the different selected channels to offer a cohesive offer
<i>Channels efficiency</i>	• Identification the most efficient channels amongst the selected channels • Increase of investment in the most efficient ones

Source: Dubé et al. (2014)

10. Customer segmentation

Another component of the adapted business model is the customer segmentation. According to Dubé et al. (2014), a focus can be put on the most valuable stakeholder group among the plethora of stakeholders involved in order to build the Living Lab's identity and drive the innovation process (Dubé et al., 2014). Imec iLab.o is a good example to illustrate this point. By targeting mainly the entrepreneurs, Imec iLab.o's business is basically about offering a service to this specific stakeholder group with the help of the other members of the ecosystem. Dubé et al. (2014) add that other Living Labs can have a more community-based focus and therefore target mainly citizen associations for example. Obviously, even though the Living Lab identifies the most important stakeholder group, a value creation should still be applicable for the other members of the ecosystem. In order to identify this customer segment, two steps can be followed: (1) stakeholders' categorization, and (2) identification of the most importance source of value (Dubé et al., 2014). The Table 18 summarizes some recommendations to identify the most valuable customer segment.

Table 18: Customer segmentation within Living Labs

Issues	Recommendations
<i>Stakeholders' categorization</i>	Segment the different stakeholders into groups having the same characteristics: SMEs, bigger companies, user communities, territorial collectivities, etc.
<i>Sources of value</i>	- Identify the stakeholder group having the highest interests into the Living Lab - Identify the potential value that those stakeholders can bring to the ecosystem in terms of resources, skills, financial contribution, etc. - Target the stakeholder group having the highest interests and who brings the highest contribution

Source: Dubé et al. (2014)

11. Costs structure

At the bottom of the adapted business model stands the cost structure. Here, an in-depth analysis of the structure costs is required for the establishment of a sustainable Living Lab (Dubé et al., 2014). For that purpose, a categorization of the expected variable and fixed costs can be realized, as well as the expected investments and one-time costs that should be funded at the launch of the Living Lab. Based on this categorization, the most important costs can be pinpointed. By mapping the costs of activities against the added value of those activities, we can identify the strategic expenses from the routine expenses. This costs analysis, summarized in the Table 19, can then be the basis for the Living Lab's funding strategy.

Table 19 - Costs structure

Issues	Recommendations
<i>Costs categorization</i>	Identification of the fixed and variable costs for the Living Lab's activities

	• Identification of one-time costs and investments • Identification of the most importance expenses
<i>Costs mapping</i>	• Identification of the costs of each activity • Identification of the value generated by each activity • Mapping of the activities in terms of costs and value generated to detect the strategic expenses

12. Sources of revenues

The last component of the adapted business model is the sources of revenues. Here, an understanding of the sources of incomes can be achieved in two steps: (1) market analysis, and (2) sources of revenues. Firstly, the challenge will be to determine the price for the Living Lab's services based on a competitive pricing strategy and a costs strategy. The market analysis will also permit to determine the expected demand, which should be compared with the Living Lab's capacity in order to determine the quantity offered to the customers. Secondly, a categorization of the different sources of revenues can be carried out and an estimation of the revenues for each category can be performed based on the market analysis in order to determine the most important sources of revenues. The Table 20 summarizes the recommendations regarding those two questions.

Table 20 - Identification of the sources of revenues

Issues	Recommendations
<i>Market analysis</i>	• Identify similar value propositions in the market and their price • Identify the price sensitivity and the willingness to pay of customers for Living Labs' services • Determine the price of the service based on a market comparison and the costs structure • Identify the expected demand for Living Labs' services

	• Check the Living Lab's capacity to deliver services
<i>Sources of revenues</i>	• Categorize all the different sources of revenues: asset sales, services delivery, Living Lab membership fee, rental of creative spaces, etc. • Based on the expected price and quantity offered, estimate the revenues for each category • Identify the most important sources of revenues

Source: Dubé et al. (2014)

The creation of a viable business model represents a key success factor in the establishment of a self-sustaining Living Lab and by addressing each angle and tackling every issue encountered; the project promoter increases the probability of success of the Living Lab. As we saw in this section, Dubé et al. (2014) proposed an adapted business model for Living Labs, including three additional elements to the traditional business model: (1) governance, (2) multi-stakeholders ecosystem, and (3) benefits management. Those elements added to the nine others permit the coverage of the Living Labs' specificities and thus provides an adequate tool to build a viable business model for Living Labs. Hence, the business model canvas presented here can serve as a general guide for the implementation of Living Labs. As a matter of fact, this model can obviously be customized depending on the context and on the sector in which the Living Lab is created. A parallel can be made between the business model canvas and the fit assessment model developed in chapter 3 of the part 4 in the sense that they are both considered as a tool available to any project promoter willing to put into motion a Living Lab project.

Appendix 12 – Interview guide realized for the purpose of interviewing M. Schuurman at Imec iLab.o

General questions

- How would you describe a Living Lab?
- According to you, what are the origins of the Living Labs concept?
- What are the main characteristics of Living Labs?
- What do you think of our proposed definition? “A Living Lab is an open innovation ecosystem taking place through a public-private-civic partnership that aims to develop new products, services, businesses or technologies through active user involvement and co-creation as of the early stages of the innovation process by using multiple innovative methodologies to create, test and validate innovations in real-life settings within a multi-contextual sphere.”
- Could you state your opinion concerning the main advantages and disadvantages Living Labs?
- What is the added-value of taking part in a network of Living Labs (e.g. ENoLL)?
- Would you say that Living Labs are approaches “for users”, “with users” or “by users”?
- Do you think the Living Lab can have an impact on the environment?
- Would you consider this approach as more suitable to develop sustainable innovations?

Questions concerning the fit assessment model Living Lab – Fab Lab

Types of projects, scope and ownership

- What are the types of projects suitable for Living Labs initiatives in general?
- What are the types of projects launched at Imec?
- What is the duration of the projects in average?
- How would you rate the complexity of the projects tackled in LLs?
- Do you work on several projects at the same time?
- How do you handle IPR issues?

Commercialization of new products/services

- Do you think that involving companies is necessary in Living Labs?
- Do you always launch projects with an objective of commercialization?

Goals definition and user selection

- Who is in charge of defining the goals of the project?
- Do you select the users before involving them in the project? Based on which criteria?
- Do you look for lead users in your user selection?

Funding and infrastructure

- How do you fund the Living Lab's activities?
- Could you describe the infrastructure needed at Imec?
- How heavy was the initial investment?
- What are your fixed and variable costs?
- Do you often invest in new machines, methodologies, research tools?

Importance of control in co-creation

- Could you describe the co-creation activities that are organized?
- Is there somebody in charge of managing the co-creation activities?
- Do you use specific methodologies or processes to foster co-creation?
- Could we assume that co-creation is a requirement to participate in Living Labs?

Innovation process

- Could you describe your innovation process?
- How long does each step take in average?
- Do you always go through all the steps of the process?
- Could you describe the set of tools and methodologies used here? Do you use a wide range of tools?
- What are the typical methods used at each step of the process?
- Is there somebody in charge of defining the experimentations or the methodologies that should be used?
- What is your degree of control in the innovation process?

Observable needs and real-life context

- How would you describe the real-life context set up in a Living Lab?
- Do you often use observation techniques to understand the users' needs and habits?
- What kind of insights do you get when observing users?
- How would you rate the importance of observing users in their real-life environment?

Degree of market uncertainty

- Do you consider the market as uncertain, that unexpected customer behavior is possible when launching a new product/service?
- Would you consider that launching a new product/service is risky without a deep understanding of the users' needs?
- To what extent do you consider that the user's input is decreasing the risk of market unacceptance?
- Do you consider that the experimentation in real-life context increases the probability of market acceptance?

Lead users

- Do you think that lead users are an important source of ideas?
- Do you think that the presence of lead users fosters the innovation process?
- Do you consider that the presence of lead users is different in specific markets?
- Do you use lead user techniques? Do you try to translate their needs into solutions?

Appendix 13 – Interview guide realized for the purpose of interviewing M. Lomba at Makilab

Questions générales

- Comment définiriez-vous un Fab Lab ?
- Quelle(s) est (sont) selon vous les principales différences entre un Living Lab et un Fab Lab ?
- Quelle(s) est (sont) selon vous les principales ressemblances entre un Living Lab et un Fab Lab ?
- Quels types de personnes viennent dans un Fab Lab ?
- Quelles sont les activités prenant place dans un Fab Lab ?
- Quelles sont les motivations de créer un Fab Lab ?
- Les usagers doivent-ils payer une participation pour entrer dans le Fab Lab ?
- Quels domaines d'activité sont représentés dans un Fab Lab ?

Questions concernant le modèle de décision Living Lab – Fab Lab

Participation des utilisateurs

- Un Fab Lab est-il « for », « with » ou « by users » ?
- Comment expliqueriez-vous la participation des utilisateurs dans le processus d'innovation ?
- Sur une échelle de 0 à 5 (0 = l'utilisateur ne fait rien, 5 = l'utilisateur contrôle le processus d'innovation), où placeriez-vous l'utilisateur dans un Fab Lab ?
- Y a-t-il une certaine sélection pour pouvoir entrer dans un Fab Lab ?
- L'utilisateur est-il présent à chaque étape du processus d'innovation ?

Profils des participants

- Quelles sont les différents profils des membres du FabLab ?
- Quel est le type de profils-utilisateurs le plus récurrent ?
- Est-ce que chaque personne participe dans la création ?
- Quels sont les objectifs des personnes qui participent dans le FabLab en général ?
- Est-ce qu'il est possible de venir dans un Fab Lab avec des idées et trouver un designer qui va traduire ces idées dans un prototype à notre place ?

Activités et co-création

- Quelles sont les activités typiques au sein d'un FabLab ?

- Qualifieriez-vous le processus de Fab Lab comme de la co-cr  ation ?
- Les utilisateurs co-cr  ent-ils avec d'autres parties prenantes ? Si oui, lesquelles ?
- Structure pyramidale (avec l'utilisateur au-dessus et les autres parties prenantes en dessous) ou structure lin  aire (toutes les parties prenantes au m  me niveau) ?
- Est-ce qu'il est possible de venir dans un Fab Lab juste pour cr  er notre propre prototype et de ne pas s'investir dans les projets des autres ?

Collaboration

- Les Living Labs sont caract  ris  s par un partenariat entre la sph  re publique, priv  e et les usagers finaux. Quant est-il dans votre FabLab ?
- Sous quelle forme collaborez-vous avec les membres ? Abonnement, partenariat, etc.
- Quelles sont les conditions de collaboration dans un FabLab ?
- Est-ce que tous les membres participent dans le test de nouveaux prototypes d  velopp  s par un membre du Fab Lab ? Est-ce obligatoire ou est-ce d      l'esprit de communaut   ?
- Est-ce que vous collaborez et co-cr  ez de mani  re syst  matique avec les membres ou est-ce qu'en g  n  ral ils sont plut  t libres de faire ce qu'ils veulent ?

Expertise dans le FabLab

- Quelle est l'expertise disponible dans les FabLabs ?
- Est-ce que le r  le des experts est simplement de guider les membres dans leurs projets ou ont-ils un r  le plus large ?
- Quel est le r  le du designer dans le processus de cr  ation d'un Fab Lab ?

Contexte laboratoire vs environnement r  el

- Est-ce que toutes vos exp  riences et tests se font dans un laboratoire ferm   ou est-ce qu'il vous arrive de laisser les utilisateurs ramener leur prototype chez eux et le faire tester par leur famille par exemple ?

Processus d'int  gration

- Comment se passent les d  marches pour accepter de nouveaux membres ?
- Quelles sont les conditions pour faire partie du FabLab ?

Processus d'innovation

- Quelles sont les méthodes d'innovation que vous utilisez dans le FabLab ?
- Avez-vous mis en place des méthodes précises de R&D pour inclure les membres dans le processus ?
- Est-ce que vous observez l'utilisation faite des outils par les membres pour tirer des conclusions sur leurs besoins, pour créer vous-même de nouvelles technologies ?
- Quel est votre degré de contrôle dans le processus d'innovation ?
- Est-ce qu'il est possible d'utiliser le FabLab comme un outil pour simplement une partie d'un projet ?
- Quelle est la durée moyenne d'un processus d'innovation dans un Fab Lab ?

Appendix 14 – Transcript of the interview with Dimitri Schuurman, from Imec iLab.o (June 28, 2017)

“Good morning M. Schuurman. As part of our master thesis, we would be glad to ask you a few questions regarding the Living Lab concept. But first, could you please present yourself?”

My name is Dimitri Schuurman, I am team leader of the user expertise at Imec Living Lab. So basically, I lead a team of mostly user researches but now I have a business modeling guy in my team, a product designer in order to gather different expertizes in the team. We mostly day by day do bilateral projects with entrepreneurs in the broad sense. So it can be start-ups, SMEs but also entrepreneurs in the public sector for example. What we do is we define a project along LL methodologies where we involve end-users in the creation and development of the innovation. So what we do is we call LL as a service. We can be regarded as a LL, we are also part of ??? Living Labs with Imec Living Lab. But we tend to work on our own as a division of researchers who offered this as a service to the market. So it's a specific form of Living Labs. We have less organization particles and helix stakeholders although quintuple helix are present in our projects in some way. In a lot of Living Labs, the private sector is also part of the organization while we do projects for the private sector but they are not part of the organization. So we still have quintuple helix, we have public involvement. We are a research institute so we have some public needs, we also tend to use public subsidy money so public sector is involved. We have or end-users panels, we have of course academia researches multi-disciplinary and then we do this for companies.

“How would you describe a Living Lab?”

In your model, for me, Living Lab can have all three of the other types. In a Living Lab, you can have Lead User innovation that you can use as a method or as a tool. You can have a Fab Lab integrated to your Living Lab activities and you can have testbeds in your LL. It can be part of your LL but the main idea, the goal of all LL is the quintuple helix innovation thing. So you try to innovate taking into account the aspects, assets, resources of all the different stakeholders being private, users, public and academia research to help innovation getting better, to improve innovation in a way. Of course, our focus is more on private sector innovation where you use the other resources to help this. But you can see that different LL have different intentions and there you can see that the definition sometimes starts to get messy but if you take quintuple helix innovation and the tree model, it can get clearer. I did a PhD on Living

Labs and my main conclusion was indeed, the definition is not so clear because they mix up level of analysis. They sometimes talk about the organization of LL, then they talk about the toolbox, about the user involvement and then they are talking about projects. So my outcome was: separate this in the discussion and make a distinction between the organizational level that goes on for a longer term. Organizations saying that they are a Living Lab, positioning itself as a Living Lab and really work with actors that form the consortium. Why do you do a LL? Because you do projects and projects are more short in term of time but you do multiple ones. As a LL organization, you will have multiple innovation projects. Otherwise, you describe LL as a project. You do a project for three years and you say you're a LL. But in my opinion, it's not really a LL. It's only if you're sustainable and you do multiple projects with your organization. And then, you have a distinction on the project layer. For me, the key element in a LL is interaction with users and interaction is two sided. It's about active user involvement and about co-creation with users. And for me, it's the bottom layer that you do co-creation activities not in one stage but in multiple stages. That is the bottom layer: the individual co-creation activities. If you use this framework to discuss and analyze, then you get a clearer conceptualization of LL and you can have a better discussion of what is on what level and what should be a LL. Then you can have a discussion model. So I didn't answer your question completely. So what is in a LL? The three layers, quintuple helix on the top layer in terms of the projects. You have some real-life interventions or real life experimentation somehow. It's why it's a LL, not just a simple R&D project. And of course the active co-creation user involvement. These two elements should be there, somehow at least. Also, it tends to have an iterative process of an iterative character. It's not only one intervention or interaction but multiple ones.

"According to you, what are the origins of LL?"

There is quite a lot of stuff happening before that tends to have somehow merged in this LL concept. We have the Scandinavian design movement, participatory and cooperative design. In fact, it was first cooperative design on the work floor where you involve the workers in the process of implementing IT. In Sweden, they've got resistance when launching the first computer from the trade unions which complained and feared for their jobs. Because they were very powerful, they demanded that the workers could also influence the process of implementation. Because of the strength of these trade unions, you've got the bottom co-

creation process: how will we implement it? And this was referred to cooperative design. And then the participatory design and user-centered design also. It is still very strong in Scandinavia, LL are very much focused on user-centered design. In Europe, you have the social experiments in the 80s which was a term that almost were like LL at that time. Everyone was talking about, there were conferences on social experiments. But they were so different that you couldn't have a concept about it. Really close to LL, it is also about real-life testing, implementing in user context and get feedback. Although it was more seen as a societal pilot and it was about IT (e.g. free internet for people to test, the minitel in France). Social experiments are predecessor of Smart cities. And now, smart cities and LL sometimes merge. Smart city which is also a LL, I tend to use the term urban LL like in Austria where they're really infusing city innovation with LL approach. But of course, not all smart cities are LL. But in my opinion, if you have a LL organization in a city, you are very likely to become a smart city if you do it well. And lastly, in America, you have LL as a concept popping-up but that was more a laboratory that you make to look like a living room and where you observe users. This was the real origin of LL. Although even before, they use it in biology. For example, you have a paper in the 60s where they referred Kenya as a LL. They observed the animals in Kenya and they said it's like a LL because you can extrapolate findings towards other countries but we use this as some kind of separate environment, real-life that we used to study and there they used the word LL. But the problem of American sense of LL, there is no co-creation. If you fuse ideas of living environment observations with the user-centered design and participatory design, you get the European sense of LL.

"We tried to define the nature of LL because there is a plethora of terms in the literature: (1) a milieu, (2) an environment, (3) a methodology, (4) an approach, (5) an intermediary, (6) a network, (7) a system, (8) a partnership, (9) an ecosystem, and (10) a platform. We decided for the following of our paper to see the LL as a partnership and as an ecosystem. Would you agree with those two terms being the nature of LL?"

I agree but then you're taking into account the organizational level. If you look at LL as an organization, then it is indeed a partnership between actors. And by means of that partnership, you generate some kind of an ecosystem. Ecosystem comes a little bit on the territory of the project because doing projects is within an ecosystem and then you expand it. But yes, I agree.

“What do you think of our definition: A Living Lab is an open innovation ecosystem taking place through a public-private-civic partnership that aims to develop new products, services, businesses or technologies through active user involvement and co-creation as of the early stages of the innovation process by using multiple innovative methodologies to create, test and validate innovations in real-life settings within a multi-contextual sphere.”

It is gathering a lot of stuff around but I tend to agree. But if you use it very strictly, I think a lot of LL will not adhere to your definition. At some point, they will not have everything. For example, multiple methodologies, a lot of LL have sometimes only one. For me a methodology is never finished and it is also what a LL is about. And it is a bit a criticism. Because as a LL, you are very open to inputs, you iterate, you pilot the innovation but you should also do that for yourself and look at yourself also in that way. By doing projects, you should learn yourself and that is really the key to be a good LL. To be a good open innovation network, you should learn through all the projects that you do and then you get smarter and better in what you're doing. In fact, you're accumulating knowledge. The project is applying the resources you have on the organizational level and by this application, you generate new knowledge. And therefore, you are a LL which generates, accumulates the knowledge and then reinvests, redistributes it in the project or in the actors who are involved. And it is exactly this process that is interesting but not all succeed in doing that. This is the hardest part of LL practitioners and researchers because you have like a two-sided nature of your research. You have the applied research on the project level. But you also need a more fundamental research on top of the project. For example, we have just done five projects, what have we learned? What can we do better in the sixth and seventh project? And you tend to get too much in operational mode and your project but then you're not for me a LL. This is the real challenge. Adopting multiple approaches also depend on the strengths of your consortium of your organization because I see in practice LL that start from European funding which covers a couple of years. There is a strong consortium doing the project and then afterwards, they keep on claiming that they are a LL but the effective active people on the organizational layer are maybe or two three. That's too few. And in the project layer, they source in some PhD students from university doing this or that project but you still need people to get the ??? captured on the organizational level. And that should be the defining characteristic and the differentiator from other initiatives but it's not always the case.

“What are, according to you, the main advantages and challenges of LL?”

The biggest advantage I think is first: following the methodology to approach the projects, for an entrepreneur or for the utilizer of the LL, it goes much faster than doing it yourself and you can spend your resources more wisely. We always say that a very good start up or a perfect entrepreneur doesn't need LL, they can do it themselves like in the lean start-up and other types of do-it-yourself methods. But the problem is as an entrepreneur you have limited resources and you need to choose wisely so in that way, we're good at helping them in a structured way. We have operations, we can do it and we can handle the project while they're developing or already doing business development or whatever. So I think that is a strength. The ecosystem approach also should be a strength that you have already buy in or from all the different actors. So you have the users involved, you have some public sector involved, researchers involved. It is still a challenge to prove this point, we still need proof points for that, it's still theoretical. And the real life, we also need proof points there but I strongly believe that the validity of your research results are higher because you do it in real-life. Of course, it is harder to do it but you get better insights. And the downsides are if you are part of a LL yourself, a lot of efforts are required, a lot of work and shifting between the levels. Very practical doing user interactions then looking at what is best for the project, then looking at what can you learn as a consortium, how can we go further? So it's not easy, it's a lot of collaboration and the more partners you have, the more relationships you have, the more complex it gets and the more chances of having some relationships that don't work or trust issues between partners, conflicts, power issues, one actor dominating the all system. That's why we tend to have most of the actors inside the organization, research institute. It's also not easy but at least we are all part of Imec. Different divisions, different research groups but we're part of the same business.

“Is there a person organizing all these relationships?”

It should be in a way. Normally, it should be the LL manager or director. But we don't have formal director anymore, we have a program manager, we have a business units director and we have multiple levels but it is hard now to really pinpoint who really is the one managing the relationships. So it is really a challenge for us now, who does what. And it is more organically, you have to define a clear mission and vision to align what stakeholders or partners are doing. I think this is important. And then, there is like a core team that come

together quite often to discuss what to do next, how to run the operations but also vision and mission. As an example, we are in Antwerp doing city activities Living Lab. We had an off-site yesterday with the people involved and there we have a bit of a problem because it's a lot of people involved and it is a bit complex. One is more from a research perspective, we are really from the LL as a service perspective. So let's do stuff, let's make things that are valuable for other players/places???. We see that it's not easy to align everyone with each other.

"Imec is part of ENoLL right?"

Yes and even founding member as well. But it was still iMinds at that time.

"According to you, what is the added-value of being part of the network?"

Very good question because the network is also in transition. The real question is what should we be as EnoLL members? For us now, it's networking, business development and match making for European projects basically. It should be more than that, I think we should more exchange knowledge, experiences and also collaborate in terms of the research on LL because it's now about how can we be in projects. But accumulating the knowledge on LL as a concept is tricky. I'm also the leader of the special emphasis group on research but in fact we didn't do almost anything. Not a lot has happened yet and I'm also waiting for the right time to really kick start this but it's not the right time yet. Also because, so busy here internally. But we should move more towards that. The best thing now is open LL days every year. We have our own conferences, we have some papers, workshops, etc. So the value for me now is open LL days. For the rest, it's slower. Of course, it gives you the quality label and the review process. If you get the label, it means something but you should get it temporary. They are also changing that because more than 40% were inactive. They try to get rid of the ones who don't pay their fees but of course it's not the best way of defining if you are still a LL and if you are still active if you pay the fee. It should be more than that in a way. It should be that you prove that you're still doing active user involvement, real-life experiments, etc. But how to do this is also not easy.

"In the literature, we have distinguished the "for users", "with users" and "by users" approaches. What approach is followed in LL, Fab Labs, Testbeds and Lead User innovation?"

Lead user innovation is innovation by users. Because the lead users themselves control the innovation process and they innovate themselves. In a LL, for me, it's innovation "with users" because it's a two way process. It's not the user who innovates him or herself, it's some kind

of entrepreneur or innovator but the LL facilitates interaction. It's also why LL are also called mediator or ????. In a Fab Lab, normally it's also "by users" because users have the control and they create stuff. You can use Fab Labs as "with users" doing it together but you can position it as innovation "by users". And testbeds is innovation "for users" because you use a testbed to capture feedbacks but it's not two ways. Users simply say: "I like it" or "I don't like it" or even not that. Users could only be just seen as subjects of observation.

"The co-creation feature of LL doesn't bring the LL in the "by users" approach?"

For me not because in innovation "by users", users have complete control of process. Of course, it's shifting, it's never completely one approach or the other. But I tend to put LL in the "with users" approach.

"And the fact that LL is "with users" doesn't decrease the importance of user involvement?"

No. A lead user method is where user takes complete control. There, user is most active. It is the work of Von Hippel. User innovates her or himself. But as an entrepreneur, what should you do with lead user innovation. Should you get it in? Should you learn from it? Or is lead user becoming entrepreneur? It is also a possibility. If a lead user entrepreneur already knows the needs from users and only needs validation, he will follow the "for users" approach, its traditional voice of the customers method or the traditional user-centered usability testing. It's innovation "for users", you check if everything work but you don't go into the fundamentals of innovation. If you do that, it's innovation "with users" then you have participatory design, a real co-creation. It is a two ways process. But it is interactive and as an entrepreneur, you can choose what to do with the inputs. In some LL, it's innovation "by users" but here for example, you want the citizens to solve their own problems. Heekaton is an example here. You empower users to create their own solutions. But especially in what we do, they will not create their solutions but they will give inputs for the solutions, it's a two way process. In my research, I found that most of the LL follow innovation "with users" and rarely innovation "by users".

"Would you consider the "by users" approach in Lead User innovation as co-creation method as well?"

No. Well it's a little bit tricky. If you take the original Von Hippel Lead User method, yes it's a way of co-creation but the co-creation is there because you involve domain experts, technical experts. You put them together and something will come up. They co-create a solution but

the users take complete control. That's why I said it's innovation "by users". That's multiple expert users who engage in co-creation. For example, in a work of Von Hippel in the surgery domain, they put together a make-up artist, an experimented surgeon, a fabric specialist and they worked for a couple of days and they came up with a completely new product. From the perspective of the company that launched the product on the market, it is innovation "by users" because the company had nothing to say, it's really users who created the innovation. Lead user innovation is really "by users". You really should pinpoint who is doing the work. "With users", the work is done together, you have the ones who will bring the solution to the market, the ones who develop the solution, etc. Then a government can enter into discussion with citizens in innovation "with users". If the government asks the citizens; what should we do? Create your own legislation, it's innovation "by users".

"What could you tell us about the duration and the domains of LL, Fab Labs, Testbeds and Lead User innovation?"

A real LL is long term by definition, especially if you consider the organizational level. But my criticism on the comparison is that the four approaches are not on the same level. A Lead User method is a method that you apply to one project whereas a LL organization is more multiple projects. In terms of duration, a company can say that they apply Lead User methods every time they want to have a new product. Lead User methods can be part of LL. Or you should consider the LL as a method but then it's not really in focus with your definition. In a way, you can leave it like that. At a Fab Lab you miss the organizational part, it's more about infrastructure and it depends on who runs the Fab Lab. A LL could be a perfect organization to run a Fab Lab and to use it into projects. As a LL, you have the choice of what method is the most suited and then it depends on the domains because LL is domain agnostic. You can have all kind of domains I think. In a way, Lead User methods also although a lot of Lead User innovation especially is in B2C. It's like in sporting, hobby related stuff where users tend to take control. In Germany is still quite popular but it's not always really Lead User. They call it Lead User but it's more co-creation that they do with selected users for co-creation based on Lead User characteristics. In Germany, it's in shoes, clothing, sporting equipment, stuff like that which can be considered as fast moving. And food as well where I think that the step towards becoming an entrepreneur lead user is quite easy. I think a Testbed should also be long term because you have infrastructure. Infrastructure gets old at some point so it is related

to the type of infrastructure you have. But a Testbed could be a perfect piece of resources for a LL because your project can also offer a test where you have a living room or an office environment where you can do experimentation. That's perfect to have also an experiment in a more close setting before going to completely open setting. It is what we are trying to do in city as well, to have some gateways, sensors in the city trying to align them as a Testbed to also enable to come and test the equipment. But it's more like the infrastructure is there, you don't need to operate it.

"So according to you, LL is above the other three methods cited earlier."

It should be. These methods can be used as a resource, as an asset to help your project. Lead User method can even be on the micro level. As a first step for ideation, we will do some Lead User method to see what comes out of it. We tend to use Lead User theory to do user selection. So not to let them come up with their own innovation but use a theory to have identified characteristics relevant to the innovation so we have a session with Lead User types but it's a co-creation session. By this, we want to maximize the inputs and thus to have the best possible session. We believe that you have a better session if you have Lead User types combined with ordinary users as well. You have then a richer session, a richer discussion than simply random sample of people.

"So selection occurs."

Yes.

"For the model, we differentiated the Fab Lab and the LL according to several criteria. The first one is about the types of projects, the scope of application and the ownership (IPR). What are the types of projects suitable for LL in general?"

It can be a little bit of everything although the asset of a LL could be present in the all innovation process for very early ideation towards testing and even implementation. In theory, LL can help you through all these phases whereas the other methods such as the Lead User method is not suited for implementation. Lead User method is about the creation, the act of shaping or even creating innovation. And if a Lead User becomes an entrepreneur, he will continue by himself.

The Fab Lab is a little bit in between, you can use Fab Labs to have also ideation, but you let people make stuff to gather what are their needs, or to use it as a creative technique, but you

can also use Fab Labs to really create solutions or prototypes, but less for the implementation. If you really go to the implementation, then you need more standard production. A Fab Lab is also less suited for software, although you could use the Fab Lab to use a user story but it is not generally the case.

In testbeds is more focused on the implementation side: you should before have a stable or working prototype at least before using a testbed. If you map them, the Living Lab should be able to do most of the steps, although they are more specialized on a specific topic in practice.

"I can show you the first version of the fit assessment model we designed: the real focus is on Living Labs. What would be your opinion about it?"

Concerning the commercialization aspect, you could also talk about the implementation aspect; it would be a little more neutral, because then you include more socially-oriented innovations, which can also be part of what the Living Labs do.

"Actually we talked about commercialization because of the private sphere, including firms and start-ups, that is generally present in Living Labs."

Yes, that is true. Concerning the uniqueness of the goal, at first we tended to define the whole project and one bilateral contract, but what we learned by doing is that we found out that it is sometimes not possible; first in terms of funding and resources, as we do not always have the means to fund a project from A to Z. And if they succeeded, they got some feedback or some ideas meanwhile and insights they need to work on at some point, which can delay the project, and you end up after two years without having finished the project. This is the reason why they decided to cut the project into smaller pieces; in that sense, they can continue working and come back to us afterwards to do a follow-up project. So they chop up the project in different smaller projects; where you could say "if we only do the first part, it is not a Living Lab project", as you don't have for example the real-life testing or field trial, but we do the exploration phase in the first project and the then experimentation phase in the second project. Actually, this is not really reflected in your model, I don't know if you could do it, or if you should. Because you are right: in theory, the whole project process is realized in a Living Lab, but we see in practice that it is not always possible to do that.

Also, we observe that entrepreneurs sometimes already have done stuff before coming to us, so it is also about pragmatism. If you only say "oh no, you can only come to the Living Lab if you are still at the very early stage", then you lose a lot of potential and interesting projects,

cause we got several projects that came and were already quite developed. Those people came to test and realized that they got it wrong, so they iterated, went back and started again like this. And for me, as a Living Lab, you should be open to that kind of projects as well. And now it seems that you say “this kind of projects should go to a Fab Lab”, but if you already have something that is tangible, then why should you use or need a Fab Lab.

Coming back to your decision tree, it really depends to who you are asking this question: who for you should go through this decision tree; someone with an idea, someone who wants to innovate?

“According to us, it was for project promoters, a person who has an idea and who is hesitating between implementing a Fab Lab or a Living Lab”

Is that person willing to develop this idea himself in a Fab Lab or is this person willing to let other people create stuff in a Fab Lab?

“We think it is more about implementing a Fab Lab in general, so let users come and create”

So you mean it is more like a project promoter who is wandering “do I build a Fab Lab or a Living Lab?”

“Yes”

Ok. Then what would you like to achieve?

“For example, the government would like to invest in some projects, tackle a specific issue, a situation, and they would like to invest their money in that topic. They are wondering what would be the best investment; in a Living Lab or in a Fab Lab, depending on the issue”

The Fab Lab is there with the objective of going in the innovation with the “by user” mode; it is more open-ended. It is there and you need creative users that can be company users, private users, organizations or whatever. In the Living Lab, you take a little bit more the control of the process. I think it is also about the freedom and the control that you want to take. It is also different communities that you want to address; in the Fab Lab, if you go more for the “technical”, “geeky”, “nerdy” community that is already able to work with these stuff, and you can include education for regular users, or workshops to also engage them and let the creativity blossom. In Living Labs, it is more about finding for the entrepreneur who will take up ideas, and who wants to be assisted. So there you need to target more general user communities, because you need a testing panel and different kind of people willing to

collaborate. So I think that in the Fab Lab, it is more a niche group; while Living Labs are broader; you need a broader group of people in your panel or you need connections to other panels. I still believe that as a Living Lab, you need to build your own panel; it will help you to build a base to participate in multiple projects; a lot of Living Labs do that.

“So the public targeted would be an important criterion according to you”

And also here, if you are more in a Fab Lab, you can also offer your Fab Lab for other projects; you “sell” the resources. The manager of a Living Lab can be considered more as an infrastructure manager, while in a Living Lab you are more a project and customer manager, because you need customers to come to your Living Lab.

“So the Living Lab is more about managing relationships than infrastructure”

Yes definitely. In the Living Lab, it is more about creating the ecosystem, while in a Fab Lab it is more about creating an asset that can be used. I think that it comes down to goals; in a Living Lab, people are more about realizing more societal bigger goals, Fab Labs it is more about concrete tangible goals. The Fab Lab is more solution-oriented (getting the solution there), and the Living Lab is maybe a little bit more problem-oriented (choosing the problem and go find a solution).

I really think it is about goals and about what you already have. If you maybe already have a good incubator and strong roots and bottom-up initiatives, then you should take a Fab Lab, because there is already a lot there and you can use the Fab Lab as an extra asset. If you are still in an unknown territory, then go for the Living Lab.

Also the Living Lab is very nice to connect organizations, but if you already are a very strong organization, and you have your own offering, it is less likely that you will get involved in a Living Lab, because you already have a long way of working. And I think that it is a bit more there that the choice is; it depends on the strengths of your current ecosystem: “how strong is it?”. And “is it already working together or not?” If there are already strong relationships, it might be good to add the Living Lab player to it and have one manager or organizer extra in order to fulfill the quarterly helix. Fab Lab is more considered as an extra asset; if there are many strong players that cannot collaborate, then Fab Lab may be a better option; or a testbed. It is more about the willingness to collaborate in your current ecosystem.

“Above that, do you think that a comparison model between the Fab Lab and the Living Lab makes sense?”

It can be from the project owner perspective, but you can also make this from a customer perspective. If I am an entrepreneur, where should I go? Then it is about the maturity of the entrepreneur's innovation, what he already has... A testbed will be more suited if the innovation is a little bit more mature; it depends on where you are in the stages, and who you ask these questions to. There are the entrepreneurs, and the enablers.

“In terms of funding, how do you fund your activities at imec, what are your costs?”

Our customers pay for our services to do projects, so we are kind of funded by them. Of course, they sometimes apply for funding to fund the project; you have Flemish innovation models, the feasibility studies, or innovation projects, and then you get funded for 50% and they use part of this funding to pay us. Sometimes we also have other collaborative models. Every SME can apply for 10 000€ of funding for technology exploration. We also tend to use part of that money. Before it was 75% and now it is only 50%, but still in majority they pay. In terms of funding, we also have some people working on European projects, so there is also some transfer of knowledge of these European projects who do Living Labs as well. Part of the methodology development happens in the research groups, and research groups are sometimes part of European projects or other models; so it is part of the methodology development. At Living Lab central, we do the translation towards a market offering. It happens a bit like that. In terms of the project offering, it is paid.

“What about the infrastructure?”

Most of our infrastructure is the panel, but the panel management is also part of our projects so it is also being paid for. There is one thing that is funded by imec itself; it is the diameter, which permits the study of ICT usage and adoption. This diameter gives imec exposure because there is a report every year, but we also use that activity in recruitment panels. So it is a win-win situation; you can use the data to publish the reports, and this gets exposure, so it is an investment in marketing for imec. We can also reuse the data in our research projects and get new panel members in. So some parts of activities are funded by imec central, but the majority is bilateral project business.

“Is there a big initial investment to implement a Living Lab?”

You have to take the leap. At some point, we were part of a Flemish project that had some funding to put into Living Labs; there were three Living Labs working alongside each other, and then we started this service model, and at some point we created enough business to have researches. We need to have enough projects to fund the researchers and people from universities. It works like this: if you have one project, you cover one person working here for a couple of months or a year. As we have quite small projects, we need multiple projects to be able to fund the people working. So we need to work more quickly; it is a different model. Normally, academic pace is slower; you have more time to go in-depth. In Living Lab research, you need to go faster; you need to do more on a surface level. So this is a big challenge to make both live in harmony together; the academic pace with the Living Lab pace, because we also require the Living Lab to publish on what they do; only 60% of the time is project-time, the rest of the time is used to do researches and this is why collaboration with research groups is so important. If you do it by yourself, you won't get far. It is about collaborating amongst each other and with people that we can also make publications on what we are doing. In a way, we also co-create in terms of the publications and the knowledge development. It is why it is important to co-create yourself in a Living Lab, not only applying.

"How would you describe the innovation process at imec, the innovation steps?"

We have an exploration stage and an experimentation stage. The exploration is about identifying what the users are doing now, what are their needs, what are the problems to be solved. The experimentation stage is about what the solution offers for these users, would there be a mean to solve those problems, and would it be a market for that. These are the big two stages, but they sometimes get a little bit mixed. The observation in real-life settings is more in the experimentation stage, to identify the practices and the habits. In imec in general, they tend to follow the entrepreneurial process of Bill Aulet; it is a 24-steps process for entrepreneurs. It has nothing to do with Living Labs but they involve us in this process to help us get in touch with the users.

"We identified two types of processes in Living Labs in general; a phased process and an iterative process"

Ah I see the phased process; but I think this also works with an iterative process. In fact here we simplify this process into the two stages; it started from this phases approach, and we evolve towards a more iterative. So we based ourselves on this model. In the iterative process,

you really take control of the process. In our cases, we mostly have an entrepreneur who already is developing and we are an additional process next to his own process; we intervene, help him and give him input to develop his own innovation process, and this is why it is more in a phased model. But it is also iterative, because every time we interact, they get inputs from us, they iterate their innovation. Iteration happens on their side; we give inputs they can iterate. Then, we also look at the next steps and think about the validity of the next steps in order to know if we have to change something. So we are also iterative in terms of the methods; but it is on our own. If you look at the FormIT process, it is more like “we do everything” and “everything happens at once”, so you take the control of the whole process. Our role is mostly intervening and we do not take control of the whole process. Although today, we will move towards the iterative model you presented in order to have more freedom; so it will be co-creation between development people, users and researchers.

“Do you use a typical set of methods or tools?”

We have a toolbox; it is like lead user methods, co-creation methods, ideation techniques, survey techniques... A project is composed of several of those techniques. Also in one session we use several techniques. For example, habits analysis is used in co-creation sessions. It is a process where you structure a process of a habit, with positive and negative experiences, but we do not use only this technique. I will refer you to this links; you can look at the toolbox online; but if you google “innovation toolbox”, you should find it.

“You spoke about entrepreneurs coming to imec with projects, is one of the reasons why the come the fact that they don’t really understand the users’ needs, because there is a significant level of market uncertainty?”

The motivations are different depending on the types of entrepreneurs; there are (1) opportunity entrepreneurs, and (2) lead user entrepreneurs. Opportunity entrepreneurs spot an opportunity in the market or there is a gap in the current offering, and they are more open towards the needs research and the co-creation with users, because they do not know how the solution will look like. They have ideas, but they are open. Lead user entrepreneurs innovate based on their own needs. We tend to see that they are more about validation: “how big is my market?”, “what is the willingness to pay?”. So we tend to engage in more traditional market research with lead user entrepreneurs, which is not completely in line with what we do best. So we prefer opportunity entrepreneurs even though you would think otherwise

intuitively and think that Living Labs usually match with lead users. So it really depends on the type of entrepreneurs; it is not always the right reason why they come to imec. The right reason should be: "ok, I want to be open towards the users' input, I want to cooperate and I want to discover together, but a lot of them simply consider it as market research or as branding, the fact that they collaborate "with imec". It also good for us in terms of branding, if they say that they collaborate with imec and then they develop a really good app and become bigger; it's good for us.

"How do the real-life contexts really look like?"

That's a challenge. We usually roll out the innovation; for example for the app, we generate a link so that users can download it. There was a call to action so that people could download the app. Then there is an intermediate feedback through surveys and logging files to see what users actually do in the app. We can then juxtapose the survey's results with the actual behavior detected in the app. Sometimes, it can be a small set of users that you follow, or you organize a testing day and you let users test innovations throughout the day and you observe them. It can also be longer term; it really depends on the type of innovation and the possibilities that you have. Sometimes you can organize a day and discuss how it works, you explain the users, then they are away for a week and use the innovation, and then you come together and discuss. But it is also important to capture the log data to understand what they actually did during that week and confront it with what they say. Now we are also building a platform Duxis, where we can do experience sampling measuring; it will be based on an app or something that you can capture the context or a wearable so that we can also track movements of users and action triggers. An example is an app in traffic or on smart streetlights; for example it is the night, a user is walking in the street and we can ask a question about the streetlights; there is some intelligence built in that. We have a system of triggering questions that is based on context. This really helps capturing real-life contexts.

"Just briefly, do you think Living Labs can have a positive impact on the environment in terms of CSR?"

By having a quadruple helix, yes because innovation is a compromise between the different actors; in that way, they can all have a "say" in it and they can share their inputs in advance. I believe in the positive impact of Living Labs, although we are not working on sustainability per se. However, sustainable projects are big goals and it is better to start from the practice; do

the project without caring too much about the types of projects, and then you can evolve towards what you really want to do.

Appendix 15 – Transcript of the interview with M. Lomba, from Makilab (June 20, 2017)

« Bonjour M. Lomba. Dans le cadre de notre mémoire, nous voudrions vous poser quelques questions par rapport à Makilab. Mais tout d’abord, comment définiriez-vous un Fab Lab ? »

Un Fab Lab c’est un atelier de fabrication numérique, communautaire et collaboratif. Ça rassemble tous les aspects, c’est-à-dire que tout le monde peut venir, on met à disposition des machines à commandes numériques dont les fichiers sources sont tout à fait standardisés, ce qui permet de créer un réseau international. Si on va dans un Fab Lab à Boston, on va trouver exactement le même genre de fichiers et on va pouvoir collaborer et réaliser exactement les mêmes projets ici. Communautaire parce que c’est une communautarisation de biens et collaboratif parce qu’on essaye de créer un espace d’échanges où quelqu’un qui travaille sur un projet va pouvoir regarder une autre personne travailler sur un projet différent et apporter son point de vue et parfois ses connaissances techniques.

« Quel est l’objectif de faire participer tout le monde dans un Fab Lab selon vous ? Pourquoi l’avez-vous créé ? »

On a créé un Fab Lab parce qu’on était fan du mouvement et qu’on trouvait dommage qu’il n’y en ait pas dans la région, à l’époque où on l’a créé il fallait aller jusque Liège ou au centre de Bruxelles pour avoir accès à un Fab Lab et on avait des projets qu’on voulait réaliser et qui sont fortement facilités par le fait d’avoir un Fab Lab à disposition.

« Vous avez des exemples de projets typiques que vous faites ici ? »

Ça va vraiment dans toutes les directions, on n’a pas un public cible, on travaille avec tous les publics mais ils ont tous leur spécificité, on a par exemple des *étudiants* en architecture qui adorent la découpe au laser et qui font simplement des maquettes d’architecture. On a des étudiants en électromécanique et en mécanique qui font une partie de leur robot ici, on a des mémorants qui viennent ici pour utiliser nos machines pour des objets de thèse, on a eu un prototypage d’éolienne, ça c’est vraiment pour le public étudiant dans le cadre académique. Maintenant, on est en contact avec le kot mécanique entre autre, où ils font des activités de vulgarisation du Fab Lab, où ils font une activité de tee-shirt. Ils passent leur après-midi ici, ils font visiter les lieux et ils font des tee-shirts sur mesure personnalisés pour tous les visiteurs. On a un public des *start-up* avec qui on ne travaille pas mal sur le concept de pré-prototypage, prototypage, NVP. On va essayer de les aider à réaliser un objet qui va concrétiser leur idée, qui va pouvoir valider certains concepts, qui va pouvoir être présenté

devant d'éventuels financiers. Là c'est beaucoup plus professionnel, c'est semi-professionnel, le Fab Lab a énormément de souplesse mais il reste limité par l'accessibilité de ses machines. On a des techniques d'assemblage, le minimum d'électromécanique. Pour le lourd, on sort vite du potentiel. Et puis alors on a le *tout public* qui va venir ici le mardi soir ou le dimanche après-midi. Le projet type, c'est la personne qui va venir ici pour construire une cage pour sa poule qui s'ouvre et se ferme toute seule automatiquement à quelqu'un qui va venir faire un cadeau à sa maman pour la fête des mères. L'éventail des possibilités est vraiment très large. Nous ce qu'on essaye de faire au maximum c'est de se déconnecter du concept de ce qui amène les gens ici et de les aider à faire eux-mêmes les choses et de leur apprendre à faire eux-mêmes. On va leur donner les bases, comment fabriquer quelque chose et leur apprendre à apprendre eux-mêmes. Tu veux faire une boîte, tu dessines une boîte et tu vas voir ce qui marche et ce qui ne marche pas. On peut très vite itérer sur les essais de fabrication parce que la fabrication est bon marché et qu'on a soi-même les outils pour réaliser les projets.

« Donc, il n'y a pas de lien entre les projets, chacun vient indépendamment avec son projet ? »

On a essentiellement des porteurs individuels mais il y a aussi des gens qui veulent s'occuper, on a alors un projet robot où les gens viennent pour réaliser leur robot, ils partent d'une page blanche. Au début, ils ne savent pas à quoi va servir le robot. On travaille avec des starters, avec 2 ou 3 personnes. A part pour le projet robot, on n'a pas 10 personnes qui viennent à la fois.

« Vous dites que les gens se regardent travailler, il y a donc des interactions entre les gens même s'ils ont des projets différents ? »

Oui bien sûr, les tables ne sont pas cloisonnées. La machine va tourner 20 minutes pour un projet moyen soit il y a quelqu'un qui attend donc les gens vont se poser des questions : est-ce que quelqu'un sait comment je pourrais faire ça ? Maintenant la partie « community management » aussi bien en interne qu'en externe c'est quelque chose qui fait partie de la définition du Fab Lab mais c'est aussi la plus difficile à créer. Avoir un local, mettre des machines dedans, tenir une permanence c'est quelque chose de concret, il y a une « target », une « check list ». Avec le « community management », c'est plus subtil.

« Comment définiriez-vous les activités dans le Fab Lab ? Est-ce que c'est plus du design ? Plus axé technologie ? J'imagine que c'est plus axé dans la technologie. On a remarqué que les

Living Labs étaient plus répandus dans la santé, dans le social. Où est-ce que le Fab Lab opère le plus ? »

En général c'est plus orienté par l'organisme qui supporte le Fab Lab que par le Fab Lab lui-même. Si on regarde le Fab Lab de Liège, on voit que ça a été créé par un designer du quartier St Lambert, forcément les premiers outputs que l'on va trouver sur les étagères c'est des objets qui sont orientés design. Maintenant, il ouvre un magasin à côté et il en ouvre un à Bruxelles. Ici on a un Fab Lab qui est accueilli par l'ingénierie mécanique, les 3 porteurs du projet sont sortis de l'UCL ingénieur civil et un de nos principaux supporter c'est l'OpenHub qui est le hub créatif du Brabant Wallon. Forcément on va être plus axé technologie que design, maintenant les hobbyistes ils viennent faire des objets pour chez eux. C'est le cadre qui va l'imposer plutôt que le Fab Lab lui-même.

« Est-ce qu'il y a des personnes, des chercheurs qui sont là pour aider les personnes dans leur projet ? Ou c'est plus se débrouiller par soi-même ? »

On va pousser les gens à se débrouiller par eux-mêmes, pour avoir un accès régulier au Fab Lab, on a une formation machine, on passe en revue les machines, comment les utiliser, on explique quel type de fichier on a besoin pour telle situation, quel logiciel peut convenir, ça c'est une formation qu'on donne. Ensuite, on a des permanents ou des personnes qui ont envie de partager leurs connaissances et qui organisent des formations très spécifiques genre. Par exemple, moi je suis bon en dessin 3D, j'ai envie de partager est-ce que ça vous dit une petite formation ? On en organise quelques une par an, pas énormément, c'est plus des initiatives personnelles de nos membres. A part ça, pendant les permanences, il y a toujours un permanent qui va répondre aux questions des utilisateurs, qui va évidemment partager son expérience, c'est donc de l'apprentissage par l'expérimentation, par l'échange mais ce n'est pas du coaching strict, tiens fais ça, dessine ça etc... C'est beaucoup moins dans nos gênes.

« Je rebondis sur ce que vous dites, je fais le parallèle avec le living lab. Dans un living lab on a vu qu'il y a 3 techniques : « For users », « With users » et « By users. Il y a pour l'utilisateur, avec et par, pour résumer. Le living étant dans le « by users ». Le produit est vraiment créé par l'utilisateur, on pourrait mettre le Fab Lab dans cette catégorie là aussi ? »

Pas nécessairement, si tu as un projet et que tu veux faire tourner et que quelqu'un d'autre l'utilise, tu n'es pas obligé de l'inviter.

« *Comment ça ?* »

Imagine que ton voisin te demande de faire une porte pour les poules, tu peux le faire ici sans demander à ton voisin de venir. Ce sera fait par toi pour lui.

Quand on travaille avec les start-up ou les PME, on travaille sur le produit qu'eux ont en tête. Evidemment s'il y a plusieurs porteurs de projet on va les inviter à critiquer positivement et négativement les projets des autres. Quand quelqu'un arrive, s'il ne pose pas de questions sur la finalité de son projet on ne va pas l'embêter. C'est créé par le créateur.

« *Il n'y a pas quelqu'un qui peut venir et dire j'aimerais bien faire ça, est-ce que vous pouvez le faire ?* »

Il peut essayer mais en général on l'envoie promener.

La gestion d'un Fab Lab au jour le jour demande une certaine énergie. Faut se rendre compte qu'ici on est uniquement bénévoles, on a quelques missions à droite, à gauche organisées par l'Openhub. Mais à chaque fois c'est des trucs ponctuels qui durent une durée limitée, identifiée et qui sont financées exceptionnellement. Les permanences, c'est bénévole, c'est sur notre temps libre. Si quelqu'un vient nous demander de faire quelque chose pendant une permanence si c'est une vieille dame, on va l'aider à réaliser les premières pièces mais on ne va pas faire le projet pour elle.

« *Justement vous disiez que c'est ponctuel, les projets des gens, au niveau de la durée du projet est-ce qu'on arrive à faire une moyenne ? 2 mois, 6 mois, 2 semaines ou est-ce qu'il peut y avoir des projets qui durent 1 semaine et d'autres 1 an ?* »

On n'a pas de chiffre sur ce genre de chose, en général, les utilisateurs on les voit souvent quelques permanences d'affilée, rarement plus de 4, 5 fois. Et puis ils reviennent avec un nouveau projet, parfois y en a qui mettent tout en une seule fois, si les machines sont disponibles, ils vont tout faire tourner.

« *Donc si les projets sont faisables en quelques séances ou même en une fois si les machines sont libres on peut dire que ce sont des projets à petite échelle alors ?* »

Dans ce cas-là oui. On a un programme comme le facemaker où les porteurs de projet vont venir pendant 8 semaines d'affilée pour pouvoir réaliser quelque chose. En général, c'est des start-up et après 8 semaines, le résultat dépend d'un projet à l'autre, y en a qui auront encore besoin de 6 mois de travail, y en a qui ont déjà bien de la gueule.

« En général les projets restent ici ou c'est possible de partir avec un prototype et de revenir et le faire tester par un des membres de sa famille par exemple ? »

Ce que les gens fabriquent, ça leur appartient. On ne voit pas tellement de projets parce que tout le monde repart avec.

« Il y a une grande liberté ici, on laisse chacun faire ce qui lui plaît ? »

Oui.

« Et au niveau des IPR ? »

On s'en fout. Ce n'est pas notre problème, c'est le problème du créateur. On a déjà signé des NDA ou des trucs comme ça pour faire plaisir aux gens, on leur dit vous venez avec votre clé USB et vous vous assurez que ça reste sur votre clé USB, nous on ne fera rien derrière. Maintenant si vous commencez à ranger tous vos fichiers sur nos ordinateurs on ne va pas repasser derrière pour les effacer.

« Donc le créateur est responsable de sa création ? »

Nous, on encourage à partager. J'expliquais tantôt que les Fab Lab c'est un réseau international, tous les Fab Lab ont les mêmes machines, c'est la même gamme de machines qui fonctionnent avec les mêmes fichiers. On peut reproduire d'un Fab Lab à l'autre un projet qui a été créé à droite ou à gauche. L'intention derrière est plutôt d'inviter à partager ses connaissances plutôt qu'à les garder pour soi. Si la personne ne documente pas son projet on ne va pas le faire pour elle, ça va dans les 2 sens. La propriété intellectuelle est vraiment la responsabilité du porteur de projet.

« Est-ce que les seules règles seraient la charte MIT ? »

Puis il y a le ROI, ça peut se résumer à se comporter en bon père de famille.

« Pour tous les projets type entreprise, de start-up qui viennent ici pour faire des prototypes, est-ce qu'il y a des personnes extérieures qui viendraient participer à ce genre de projet ou c'est vraiment les personnes de l'entreprise entre elles qui font ça ? Par exemple quelqu'un qui serait intéressé par le projet et qui voudrait l'acheter à la fin de la création viendrait tester, voir comment ça marche ou aider et donner ses idées ? »

Ça dépend du programme qu'on met en place, ici on parle plus dans l'activité de Fab Lab en tant que tel on n'a pas ce genre de programme maintenant on peut les héberger pour d'autres. L'Openhub, le hub créatif c'est avec lui qu'on travaille, qu'on organise le facemaker,

qu'on organise les classes d'innovation de l'UCL et l'Innofaster. Les classes d'innovation demandent à une grande entreprise de poser une problématique à des étudiants, les étudiants vont réfléchir, sortir un MVP. Dans le déroulement de la classe d'innovation, ils vont présenter les résultats à l'entreprise qui a posé la question. On va faire une démo, ça fait partie du programme qu'on a autour mais c'est plus la responsabilité du hub créatif que de celle du Fab Lab de définir ce genre de chose. C'est comme on va accompagner un MVP dans les semaines qui viennent, on y va comme expert technique et pas comme coach de réflexion, on est très conscient de ce qu'on peut faire dans un Fab Lab donc on va orienter les discussions dans ce sens là. Si quelqu'un veut faire un MVP trop compliqué et qu'il dit qu'il n'a aucune connaissance, il va apprendre progressivement, il va le tester, c'est l'objectif mais ce n'est pas le rôle du Fab Lab de guider. On va promouvoir la création itérative et l'apprentissage par soi-même mais on ne va pas l'imposer.

« Tout ce qui est financement des machines et tout ça, c'est qui qui finance, c'est l'UCL ? »

L'UCL nous offre gracieusement le local. La découpe laser a été financée sur Crowdfunding. L'imprimante 3D, la première nous a été offerte par un distributeur d'imprimantes 3D. La découpeuse vinyle, la première on l'a eu d'occasion pour 200-300 euros chez un copain qui s'était lancé dans le textile. C'est plutôt à la débrouille et puis maintenant on demande à nos membres une légère participation, quand on participe à un programme on est payé. On rémunère le permanent qui se libère et on développe notre parc machines. On n'a personne sur notre dos et le seul coût récurrent c'est les assurances et internet. On est relativement cool. C'est notre seul financement. Le modèle n'est pas vrai pour tous les Fab Lab, à partir du moment on va devenir plus disponible ce sera plus compliqué. Par exemple on a un étudiant moniteur qui vient une fois par semaine en période académique, lui il est payé par l'UCL, on lui ouvre les portes.

« Vous avez quand même un partenariat avec l'UCL ? »

Oui, on a des partenariats dans toutes les directions. On est plutôt un outil qu'on met à la disposition des gens s'ils veulent l'utiliser ils sont libres, maintenant on est clair, on n'a pas les ressources humaines pour le faire tourner donc on est tout à fait libre de partager l'accès, on est très ouvert sur ce sujet-là. De nouveau c'est propre à notre Fab Lab. Si vous allez à Liège au milieu de la place St Lambert faut peut-être pas laisser les clés au premier gars qui passe.

« Pour confirmer il n'y a aucune sélection dans le public qui va venir dans un Fab Lab ? »

Pas par nous, maintenant si tu fais un appel à projet, le projet facemaker par exemple, pour que ce genre de projet fonctionne bien on va quand même se créer les porteurs de projet si on a le loisir de choisir on va choisir. Par exemple, le premier facemaker, on avait dit qu'on voulait 6 participants et il n'y avait que 6 projets. Quand on a eu une vieille dame de 50 ans à qui tu essayes d'expliquer comment on fait bouger sa souris sur son ordinateur qui a la moitié de son âge, c'est épuisant et tu fais le quart du tiers, ça ralentit tout le monde. Il faut à un moment donné vérifier les aptitudes.

« De nouveau pour confirmation, si on mettait sur une échelle de 0 à 5 l'utilisateur si c'est 0 il ne fait rien dans le processus de création et 5 il fait tout, vous mettriez 4-5 ? »

C'est « project-dependent ». Si je fais un projet pour moi, je vais mettre 5, si je fais un projet pour quelqu'un d'autre, la gamme est ouverte. C'est comme si tu prends le département de la R&D, c'est à eux de faire la démarche, c'est au porteur de projet de faire la démarche d'aller vers son utilisateur, c'est un aspect qu'on ne promeut pas.

« Ce n'est pas votre job. »

Non ce n'est pas notre job. Si un projet est inutilisable on va lui dire c'est foireux, si c'est génial on va lui dire aussi mais de nouveau si on fait des programmes spécifiques de prototypage pour start-up ou une PME c'est un concept qu'on va mettre en avant quand même, essayez de penser à l'utilisateur final, réfléchissez, prenez l'objet en main. Quand on fait du prototypage, c'est pour très vite avoir quelque chose en main. On va pouvoir avoir une expérience d'utilisateur. Maintenant ce n'est pas nous qui allons organiser la campagne. Une fois il y a un gars qui a créé une trottinette pliable, le but de l'objet était de pouvoir le donner aux gens, de le manipuler et lui aussi voir tous les désavantages, les défauts que ça avait mais ce n'est pas nous qui avons organisé derrière, ok si t'es content maintenant, si tu veux valider ton projet, avant de le valider il faut changer ça, parce que ça saute aux yeux mais ce n'est pas nous qui allons dire si un jour tu fais une start-up va le montrer à 50 personnes et demande leur ce qu'ils en pensent .

« Au final, est-ce que vous pensez qu'ici c'est de la co-crétation entre les personnes qui organisent le Fab Lab, les personnes qui viennent aider et la personne qui crée son projet ou la personne qui crée est plus indépendante ? »

Ça dépend du contexte. Ce serait intéressant que vous rencontriez Quentin D'apresmont de l'Openhub, c'est lui qui organise la plupart des programmes qui ont lieu ici, là on parle du hub

créatif. Vous connaissez le hub créatif ? C'est quelque chose qui s'interface un peu entre les hubs créatifs qui sont supposés avoir des programmes de dynamisation de développement de la créativité et de l'innovation dans les provinces. Il y en a 1 par province, ils sont dans un même réseau que les living lab et en général, ils sous-traitent avec les Fab Lab. Les Fab Lab, eux, ils vont créer un contexte qui est propice. En fonction du visiteur et du cadre dans lequel se présente le visiteur, cette démarche de co-crédation va avoir lieu ou ne va pas avoir lieu. Et nous, si on accueille un programme qui va mettre ça en avant, on va le supporter. Maintenant dans notre permanence au jour le jour, on va essayer de créer une dynamique de communauté, on ne va pas nécessairement s'appuyer ou ne fut-ce que l'avoir consciemment dans la tête que ce truc là ce serait génial pour celui-là ou des trucs comme ça. Vous devriez échanger ou donne lui, essaye avec. C'est un lieu propice à la co-crédation, c'est d'office. Non ce n'est pas dans le rôle des Fab Lab de l'imposer ou de le mettre en valeur autre que par la réalisation des échanges.

« Donc c'est une opportunité de venir pour co-crédater mais il n'y a pas de règles là-dessus et vous êtes ouverts pour accueillir des projets de co-crédation ici. »

Pour la co-crédation, quand on voit tout ce qui est open source, open hardware sur internet, le fait qu'on ait des machines qui s'intègrent dans un réseau international permet de participer à ce genre de programme facilement. Donc je pourrais participer, y a un projet de brasserie amateur sur internet qui est basé aux Etats-Unis, je pourrais me dire tiens je participe, je crée le lien. Il y a une initiative « precious plastique », voilà c'est ce genre d'endroit où on va trouver dans un ancien Fab Lab l'opportunité de s'intégrer dans ce genre de projet, il y a moyen de faire de la co-crédation, y a des forums en ligne mais peut-être que votre voisin sera sur un forum tout à fait différent. Ce serait intéressant que vous regardiez « precious plastique ».

« Les utilisateurs payent par carte, par visite ou il y a des cartes avec un nombre de visites ? »

On a différentes formules d'abonnements, par carte, c'est pour les personnes qui se tâtent un peu, c'est 80 euros ça donne droit à 7 permanences plus la formation machines. Sinon il y a l'abonnement à l'année à 150 euros. En plus les gens payent les consommables, c'est un peu différent d'une machine à l'autre : les tee-shirts c'est les consommables uniquement, la CNC c'est les consommables plus si on casse la mèche il faut la payer, l'imprimante 3D c'est consommable uniquement et la découpeuse laser, c'est les consommables plus un petit forfait

à l'heure. On essaye de viser pour entrer dans nos frais, on n'achète pas 10000 machines par an non plus. On essaye de viser l'autonomie du projet sans aller au-delà.

« Et j'imagine que la réponse va être non, est-ce que vous regardez ce que les autres font pour donner vous-même des idées de créer quelque chose, vous observez les utilisations qui sont faites des outils ou vous laissez libre accès et ça ne vous intéresse pas ? »

Moi personnellement ça m'intéresse, c'est super intéressant d'encadrer les permanences parce qu'on va voir qu'il y a 1001 manières d'utiliser nos machines. Maintenant, moi en tant que permanent, je suis très bien placé pour observer ça. Alors qu'un utilisateur lambda qui est juste sur son projet et qui va juste poser une question sur le projet d'à côté, il est plus restreint dans ses découvertes et donc dans une dynamique plus personnelle.

« Donc les organisateurs sont aussi là pour apprendre des expériences des autres ? »

C'est un phénomène naturel, on va acquérir énormément d'expériences. C'est vraiment l'apprentissage par l'expérience. C'est agréable, on aime bien faire ça, c'est naturellement, ce n'est pas un processus calculé.

« Il n'y a pas de méthode, de processus ? C'est plus naturel. »

C'est tout à fait naturel. Même positivement, si tu me poses une question comment est-ce que je peux faire ça, on va réfléchir pendant 5 minutes, toi tu vas faire le travail mais on va avoir réfléchi ensemble à comment tu peux y arriver.

« Est-ce que les permanents ont besoin de skills particulières pour encadrer ces utilisateurs ? »

Il faut savoir utiliser les machines, en général, nous les 3 premiers permanents, les fondateurs on est tous ingénieur civil au niveau du dessin 2D, dessin 3D et un peu de programmation, de prototypage électronique, on n'a pas dû aller chercher bien loin pour avoir accès à ce genre de compétences. Après on a continué à développer nos compétences par apprentissage. Pour revenir à la question précédente, on s'est développé en fonction des opportunités. Tout le monde a un petit peu son domaine de prédilection. Pour revenir sur l'apprentissage, la démarche qu'on veut mettre en avant c'est essayer de faire des choses et en faisant ces choses vous allez apprendre. Nous, on ne doit pas faire des choses mais on doit conseiller sur pleins de choses.

« Au niveau du processus d'innovation, quelqu'un vient comme vous le disiez pour le robot avec une page blanche et pourrait ressortir d'ici avec le robot. Le Fab Lab donne accès à toutes les étapes du processus d'innovation ? »

En gros, il y a une personne qui s'est posée en porteur de projet, tiens j'avais envie de créer un groupe de projet commun au Makilab sur un sujet robot et il prend tout en charge sur lui. Maintenant, il va trouver énormément de supports sur internet, dans la littérature open source etc, c'est internet qui fournit ce n'est pas nous, nous on fournit internet.

« En tout cas le Fab Lab est un cadre où toutes ces étapes peuvent avoir lieu ? »

Oui c'est un espace de travail collaboratif, ça peut être un endroit où tu dis on va se voir tous les dimanches à 4 et on va se mettre autour d'une table, on va regarder, on va en profiter pour utiliser les machines. Maintenant si tu as envie d'oublier les méthodes de projet, de juste prendre ton outil de dessin et de dessiner. Il y a beaucoup de logiciels de dessins sur internet. Ici on a plutôt la démarche inverse qui consiste à dire choisissez le logiciel qui vous convient. J'ai recommandé aux utilisateurs de faire leur marché en fonction de ce qu'il cherche à réaliser. Au niveau de la méthodologie, on essaye de se détacher des outils structurants et on fournit plus les machines, outils. Mais à nouveau on offre un cadre sur lequel les gens qui ont envie de déployer ces méthodologies sont plus favorisés.

« Est-ce qu'il y a juste un minimum de contrôles sur les projets type robot ou c'est à nouveau totalement libre ? »

C'est un débat parce que le porteur du projet robot est un de nos permanents qui voulait absolument créer un groupe et nous à l'intérieur on dit est-ce que c'est le projet au Makilab ou du Makilab ? Si on dit que c'est un projet du Makilab, c'est le Makilab qui coordonne tandis que l'opposition qui dit c'est un projet au Makilab, c'est juste ce permanent qui prend une initiative tout à fait personnelle et qui gère cette histoire-là comme bon lui semble. On a les 2 écoles, ça se joue à une lettre et in fine ça ne change pas grand-chose. La gestion du Makilab pourrait avoir son mot à dire si on le souhaite si on dit « arrêtez vos conneries et allez voir ailleurs » mais ce n'est pas dans la mentalité. Nous c'est plus : « Tu as envie de faire ça, fais-le ». Limite si tu as besoin d'un coup de main ou d'un peu d'argent pour acheter des pièces ou d'une salle, on le fait comme on le ferait pour n'importe quel collègue ou porteur de projet.

