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Living Lab (LL) Business Models for Local Development

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Abstract: The paper is focused on analysis of economical processes and management methods inside Living Labs. The study is built on eight year of experience of forming such Living Lab. It tries to compare practical experience from Living Lab building with some theoretical approaches. Current research about LL environment is mainly focused on social and technological aspects of Living Labs, but economical point of view is missing. Also paradigm of openness is in current research not analysed from economical point of view. The objective of analysis is open real economical discussion about LLs.

1. Introduction

Information technologies are in the process of the rapid development. In the whole Europe were established centres with the ability to provide alternative solution of mobile applications and technologies more quickly and effectively. These centres were the base stones for unites called Living Labs (LL). Living Labs respect users´ defined requirements and offer services where users can be involved into research, development and testing and can actively contribute to innovation process of new technologies and their final design. This active connection is a base of modern partnership between research, test centre of LL and end-user [1]. The European Network of Living Labs (ENoLL) was launched by the Finnish EU Presidency on 20 November 2006, as a step towards European Innovation System. In the first wave of ENoLL 19 Living Labs from 15 European countries joined the network: One of them, Czech Living Lab - WIRELESSINFO, was established as the first Living Lab in Czech Republic.

The paper tries to compare experiences from this LL, with analysis of different studies, focused on regional ICT deployment and suggest models for successful building of LL and discusses also advantage and disadvantage of Open Source business model inside and outside of LL

2. Objectives

The objective of this paper is open public discussion focused on sustainable development of LLs. Current research work is focused mainly on social and societal aspect of LL building and there exists no relevant studies answering the basic economical problems of LL sustainability. There exist many social and societal studies about LL, but economical research was not opened. The main objective of this paper is to define until now non answered questions about economical and management issue of living lab and provide some initial opinion. This has to be later study by specialist from economy, management, and probably also legislation. These questions are:

1. What are the economical rules for successful cooperation inside of LL environment?
2. What are key factors influencing successful and sustainable building of Living Lab, what are the advantages and disadvantages of top down and bottom up approach?

3. How to manage ad hoc team?
4. Is Open Source Model of Software Development optimal business model for LL, what are advantages and disadvantages?

This paper is not able to answer deeply above mentioned questions. It can define important objectives for future studies, which have not been discussed by Living Labs communities yet. There are only given some hypothesis, which are formulated on the base of practical experiences.

3. Rules of Benefit

Collaboration inside of LL represents normal economical relation among different subjects. Living labs are usually not chains, but they use more complicated models using both horizontal and vertical collaboration. To manage the potential conflicts among all partners within the LL, a suitable model must be defined and accepted by all partners e can define simple rule of benefit in the case of two cooperating SMEs.

We could expected, that SME 1 has initially profit A and SME 2 has profit B before collaboration. The result of collaboration will be such, partner 1 will lose part of its initial profit (lose is C),, because probably part of its activities will be taken by partner 2- But in the some time, he will also increase its profit as result of collaboration (increasing of profit is D) So it will have final profit

$A - C + D$.

Similar for partner 2 his final profit will be

$B - E + F$

Where E is lose and F is increasing profit from collaboration

The objective for successful collaboration is to define such rules, that the final result has to such that

$D - C > 0$, and $F - E > 0$.

Important question is, how to find good balance of D - C and F – E.
This question is more complicated in collaboration of more organization. Solving such problems could be done by using methods of linear programming.

The problem of currently used methods of LL environment analysis is that the main attention is focused more on qualitative aspects than on quantitative. The qualitative aspects are important, because they differentiate LL from other forms of collaboration. Without solving basic economical problems will be not possible to guarantee long time sustainability of any LL

4. Bottom Up Versus Top Down Model of Living Lab Building

The innovation process inside the LL has three components, which play important role and which are core principle of existence of any living lab. These components could be described by triangle product – project – business.

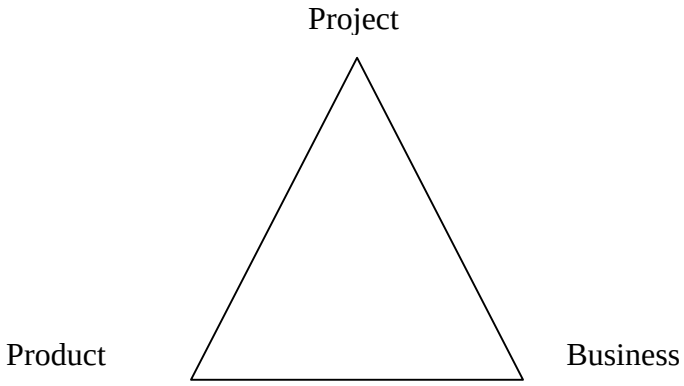
Product – is the object of business of one or more members inside or outside of the LL and which is developed and innovated during the entire life of LL. Project includes all innovative processes improving products quality and business is a commercialization of product (not necessary only B2B or B2C, but it could be also B2G).

Real innovation process inside of LL has necessary compose from all from these three components. There exist also models, where one component is missing_ For example reduction on business – product: is typical case of selling existing products without any innovation. It tends to lead in long term period to losing competitiveness on the market. Other often case is project – product, which is: often used model in university, which represent research, without real business. The model project – business: is the methods of

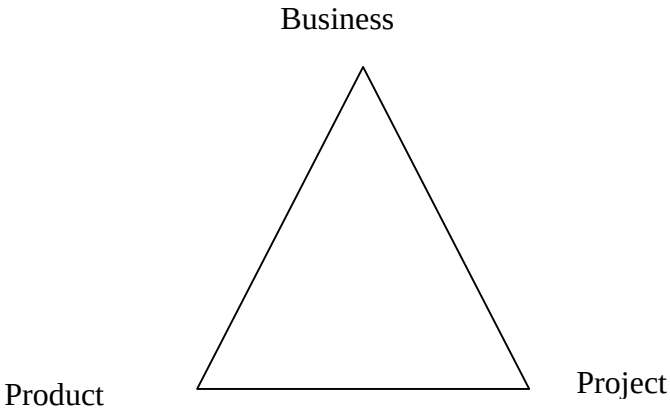
some organization, where they business strategy is to participate in project without needs of any concrete output), but this models cannot be real business model for LL.

The important aspect of LL business strategy is that, which is from these three components on the top of triangle. We recognized next three models:

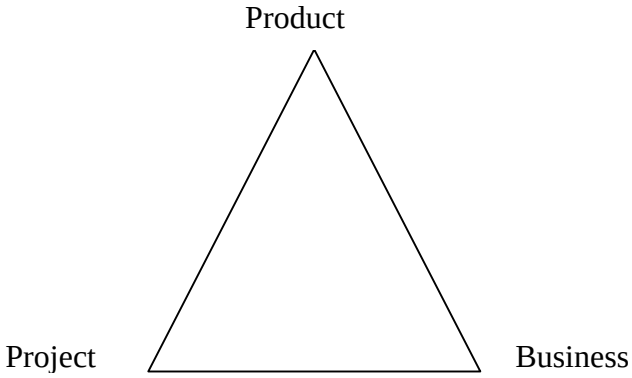
1. Project driven LL – is probably most often model, which represent classical top down approach. This model is usually used for building of technological or innovating parks and drivers are usually regions, regional development agency, universities or research organization. The primary goals of building of such LL are usually social, for example increasing employment in region. The big advantage of this approach is existence of political and economical support, which helps in phase of LL building. The potential threat could be lack of interest from the side of SMEs and end users.



2. Business driven LL- the core principle of this LL is the existence of a large investor (industry, join venture capital, but it could be also government), which needs to solve some concrete economical problem (to developed new product, build regional technical infrastructure, etc.). This investor brings together researchers, SME developers and end-users. Finally he finances the development of this product. As in previous cases, there is big advantage in start phase of LL. Orientation of LL is mainly on economical profit. Threats could be for SMEs that they could become only supplier for this big investor.



3. Product driven LL is example of bottom up approach to LL building. LL is established mainly by SMEs, to be more competitive on market. The primary objectives of such LL are economical, because activities are driven by local and regional SMEs. This kind of LL has also strong social aspect. Advantage is strong interest of all players, threat could be financial situation. The members have to compete for financial resources on market or compete for research money.



These are only border examples, in reality here could be all scale of other alternatives, which depend on fact how strong are interrelations among single components of triangle. WirelessInfo is an example of the third approach and we believe that it is good strategy for long time development of LL.

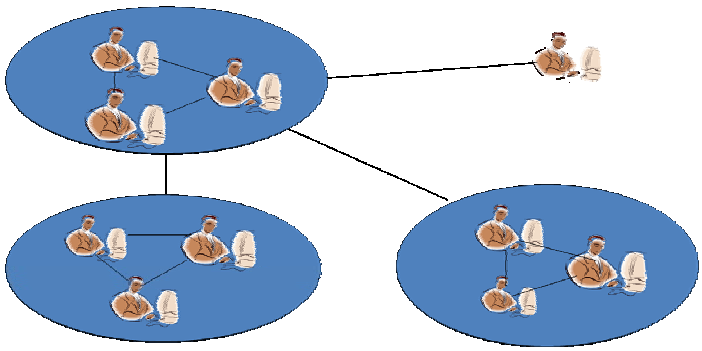
Our experiences, in accordance with [3], have shown, that strength of WirelessInfo development projects was their bottom-up approach This was driven by SMEs need rather than centralised intervention. However, the narrow focus of bottom-up projects complicates the extrapolation of sustainable business models or quantitative cost-benefits. While further funding may also be jeopardised, the greater problem may be the difficulty in learning lessons from what is already being done. Living Lab is an innovative approach, but there exist some commonalities with other models, which are used in local and regional development like e-communities of Digital Business Ecosystems. Probably some aspects are more critical for Living Labs, then for other models. Important questions are: “Why exist successful Living Labs in some regions? Why exist they in some regions without direct regional interventions? Why is the LL development so slow in some regions?” Our experience demonstrates that key success factors are presence of so called local or regional champions. This term was introduced by [2] and also other studies focused on this issue [3], demonstrate importance of Local Champions. In local and regional rural context, where WirelessInfo is mainly active, they could be defined as:

1. Local actors who are not interested in technology but take up the role for the greater good of the communities they live in
2. Younger and higher educated people moving to the rural areas, who wanted to have the some level of services as in cities,
3. Local business with clear innovative and knowledge based grooving strategy, which need access and sharing of knowledge

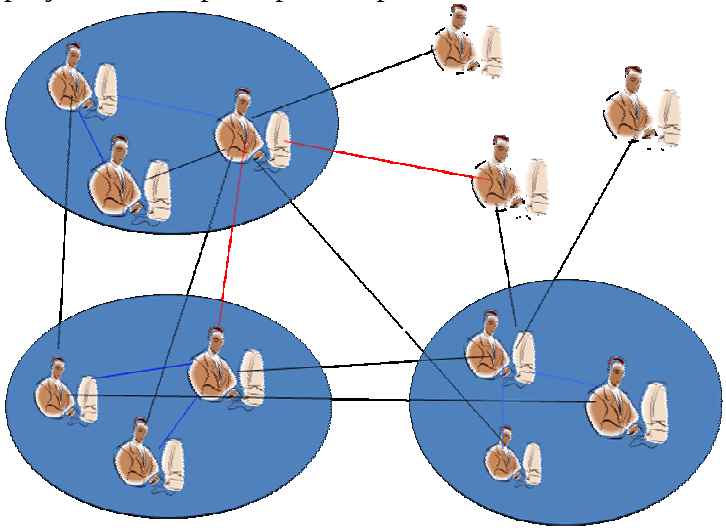
Our experience show, that identification of these Champions is key success factor for successful and sustainable building of Living Lab.

5. How to Manage Ad Hoc Team

LL is new model of collaboration. What is difference between LL and classical chain model. In chain economy exist simple inter organisational relations.



There exist clear hierarchy and model respect hierarchies inside of organisation. If we compare this models with ad hoc cooperation models, which is often used inside of LL, we could see, that there exist two levels of hierarchies, inside of organisation and inside of projects and in principle one person could work on more projects.



So, there is an important question for management specialists: “How to manage these two hierarchies? How is possible to find the successful models for such kind of collaboration?”

6. Guarantee Open Source Software Development Model Sustainable Development of Living Lab

The current paradigm is that not only development of software, but all knowledge inside of Living Lab has to be built on principle of Open Source. This could of cause speed up innovation inside of Living Lab, but on opposite side, these models doesn’t guarantee long time sustainability of Living Lab and cannot be implemented as single unique model. We compare our practical experiences with theoretical results of Humboldt project [4] and we could conclude our experiences into next topics:

There exist real of SME IT developers to use Open Source for building application. As main advantage was mentioned:

a. There can be found the program which suits the end user’s needs absolutely
b. The end user can be engaged into the development directly and “leave there his own footprint“
c. Sometimes the program could be very simple and the end user can easily grasp how it works
d. User can just cut off the usable part of the code and starts his own project on this
e. It is possible to use a source code from another project if both licenses allow that

On the opposite side, there is small interest of SME developers to publish their components as Open Source. As main threats are mentioned:

a. According to the open philosophy it is hard to get some fees for the program usage
b. It is necessary to change the business mode. Source of money revenue is not the sales of program, but additional services
c. The user are sometimes quite ungrateful or even rude, so it is hard to deal with them
d. The group can split apart with all the source codes and found the new company, so called „fork“. This is mainly caused by personal arguments inside of a team. Or simply rival company can take over the development and introduce better business plan.
e. It can happen, that very important developer can leave the company and the right substitution will not be found. The reason for this (leaving the company) may be also very ridicules.

The above-mentioned points are very important and it is difficult to overcome this opinion. Also our analysis demonstrated that most of useful open source products were in the beginning supported by certain form of public subsidies (direct intervention or development on universities). Our experiences based on eight year of Open Source usage and development from point of view of SMEs could be concluded into next points:

a. For successful opening your products as Open Source on the market you need to have certain, strong market position, which guarantee you, that your profit from opening of your solution will be higher, then your potential loses of part of market
b. It could be very useful to open or your older solution or product, which is not main part of your portfolio. This could bring you big marketing profit
c. It is useful to open as an Open Source such product, which could support selling your other products, for example libraries or solutions, which depend on your commercial products.

Another question is the openness or sharing of knowledge directly inside of Living Lab. Also here is our opinion, that Open Source model cannot be recommended universally From this reason, we introduced new type of a licence (WirelessInfo licence [5]), which combine both approaches and advantages from commercial development and open source developments. Source code is managed by one organisation as for open source, but it is not generally free. The source is open for other organisation (SMEs) after signature of this licence, which guarantee to initial developer certain amount of money after selling applications, which will used this components. The number of payments is usually limited on selling first 10 or 20 licences, after is usage free. New users cannot distribute source code to third persons.

7. Results

WIRELESSINFO is a base stone of the Czech Living Lab (CLL). It is a non-profit consortium, which was established in 2003 on the basis of Living Lab principles. The practical existence of this LL brings new important scientific questions for different specialist. On the base of these questions, paper criticises current research in the area of LL, which is mainly socially and societal oriented. The paper put four questions related to economical and to the management aspects of LL. The results of paper are hypothesis, which has to be analysed by team composed from different specialists.

8. Business Benefits

Authors see business benefit of LL labs as whole, but also business benefit of single members of any member of LL as one from necessary conditions of long time sustainable existence of LL. The social and societal aspects are important, but do not guarantee sustainability. There is a strong need to refocus the current research in the area of Living

Labs and to look for good balance among social, societal and economical aspects of their existence.

9. Conclusions

This paper introduces four questions, which authors see as important for successful building of living labs. These questions are:

1. What are the economical rules for successful cooperation inside of LL environment? – authors have suggested to define rules of benefits based on comparison of profits and losses of every partner and use theory of game or linear programming for optimization of profit. Further research is needed
2. What are key factors influencing successful and sustainable building of Living Lab? What are advantages and disadvantages of top down and bottom up approach? Authors promote support bottom up approach and support of local champions, which could be core of future LL. This idea is supported by some previous studies, but it is necessary to compare it with other models, when LL situation will be analysed after few years of existence, when there will not be more support for top down formed LL.
3. How to manage ad hoc team – authors don't know the answer
4. Is Open Source Model of Software Development optimal business model for LL, what are advantage and disadvantage authors promote good mix of any kind of licence and eventually to use some combined licence.

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