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# Projet M-Learning

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*Launch of an application of Self-directed Learning on Smartphones.*

**Tutor : V.Boly**



*Year 2011*

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# Introduction



## 1. Introduction :

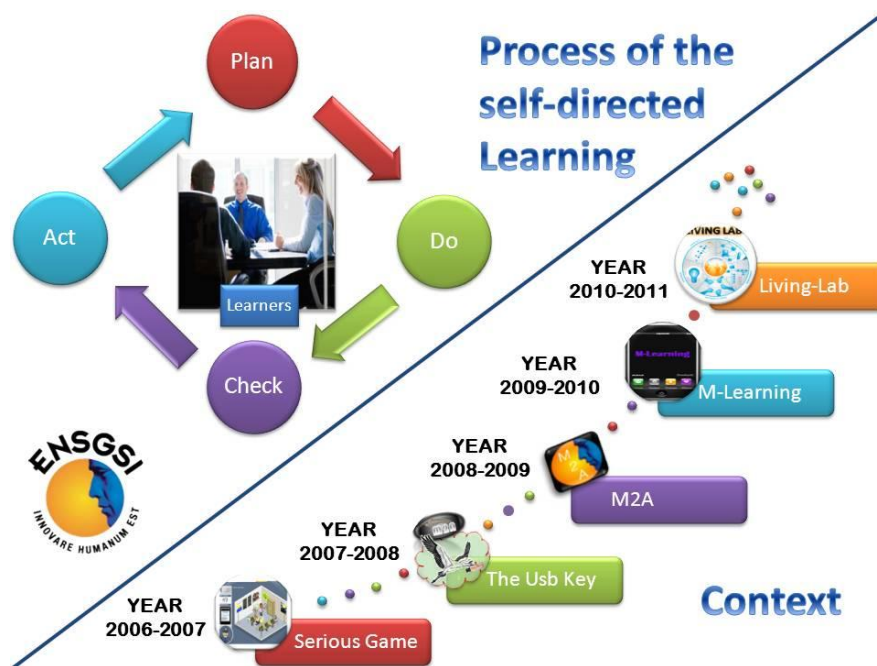
The group M-Learning project is composed by Matthieu BOUGEANT, Laura CHÍA, Marie-Claire MATHIAS, Quentin MATHIEU and Tom ROCUET. We are working on the development and the implementation of a Smartphone application. Thus, our goal is to develop English self-directed learning for every people who could be interested in (from students up to the professional world) whatever their level.

The application was designed in order to be used as a tool outside the classroom. Several activities are available to users and are chosen according to the learning style of the learner. They will also have the opportunity to view their progress in English, share their knowledge and experiences of the learning process with other users through the interface M-learning online with a forum. The M-learning application can be downloaded directly by the users on their Smartphone; it only requires an internet connection.

The group continued with the work done by previous year's group. Initially, we worked on the study of identity register of the project and on the marketing study of this new application. As a result, we obtained two different scenarios. In a second time, we made the identification of potential testers for the application within the ENSGSI. At this moment, we are working on the development of an experimental protocol in a Living Lab context with the help of the Professor Mauricio Camargo and on the creation of activities for the application with the professional advice from Mike Rees. We expect concrete results at the end of experimentation stage on the use of the application in order to improve it and to be able to increase it before a market launch.



## 2. From self-directed learning to the M learning application:



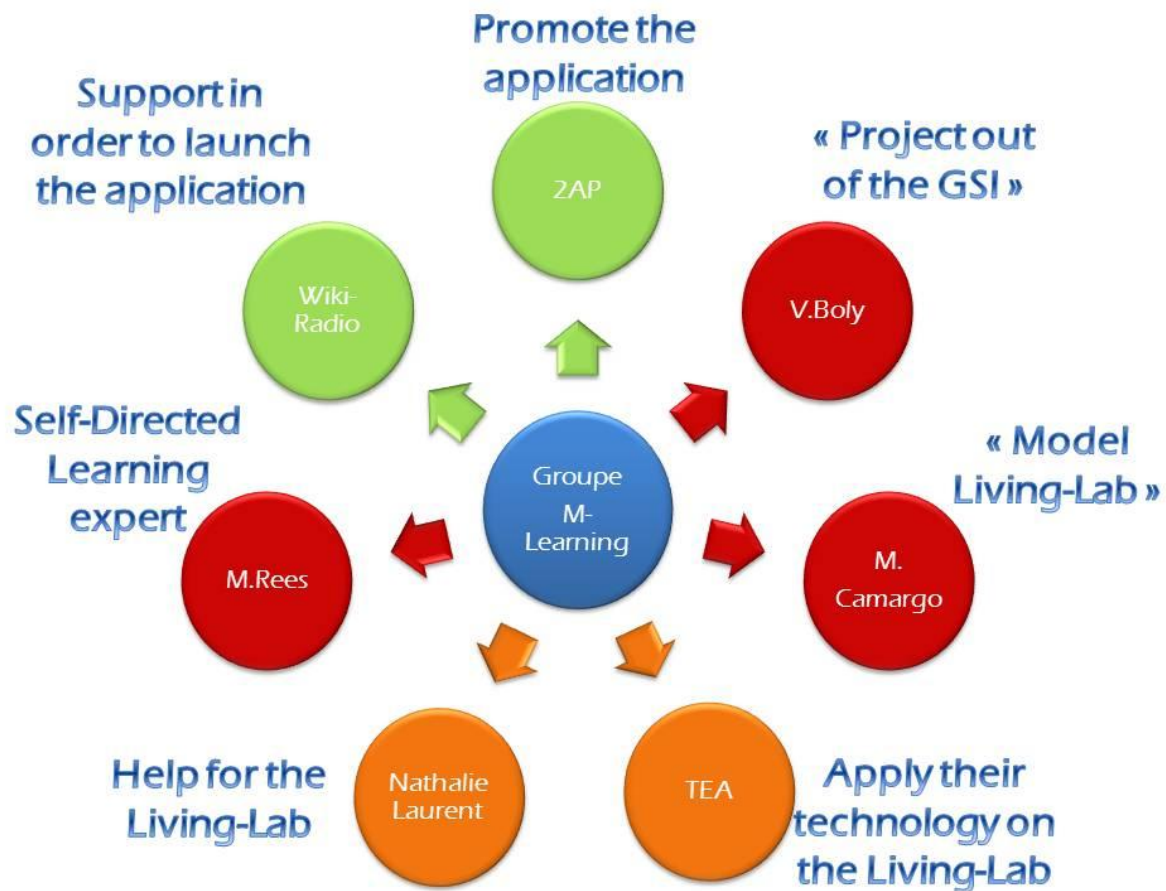
Since 2001 and the coming of Mike REES, the self-directed learning of English is part and parcel of our engineer ENSGSI's training. As part of this learning, we work in group with wished tools (internet, podcast, video games, films and series) and we also choose activities (listening, writing, reading and speaking). Adapted exercises to keep motivation and self-evaluation are principles of the self-directed learning to allow students to progress in English. The aim of this method is to get loose the "classic" system of language learning whose exercises are imposed and to target activities which matches with the learning style of the student (active/reflexive; verbal/visual...). To increase the learning method every time, self-directed learning follows a PDCA (Plan Do Check Act) process. Consequently this learning is always as pleasant and efficient as possible.

Our project was launched four years ago in order to create a support tool for the self-directed learning. Since, it has evolved into the creation of a virtual learner community to a USB key concept and lately to the development of a Smartphone application.

This application will allow anyone to learn quickly and anywhere at any time (five minutes in transports for example). Of course, it will answer to every needs of self-directed learning.

At first, the learner has to answer to a test to know his learner style thanks to the ILS (index of learning style) test. After that the application will propose him different activities which match the best with his learning style. Consequently, the application has to contain many kinds of activities and many activities for every learning style. That is why the application has to be participative, to permit to every learner to add his own activities to share it with other learner. The aim is to create a learning community which would make the exercises, under the control of the administrators.

### 3. The project now:



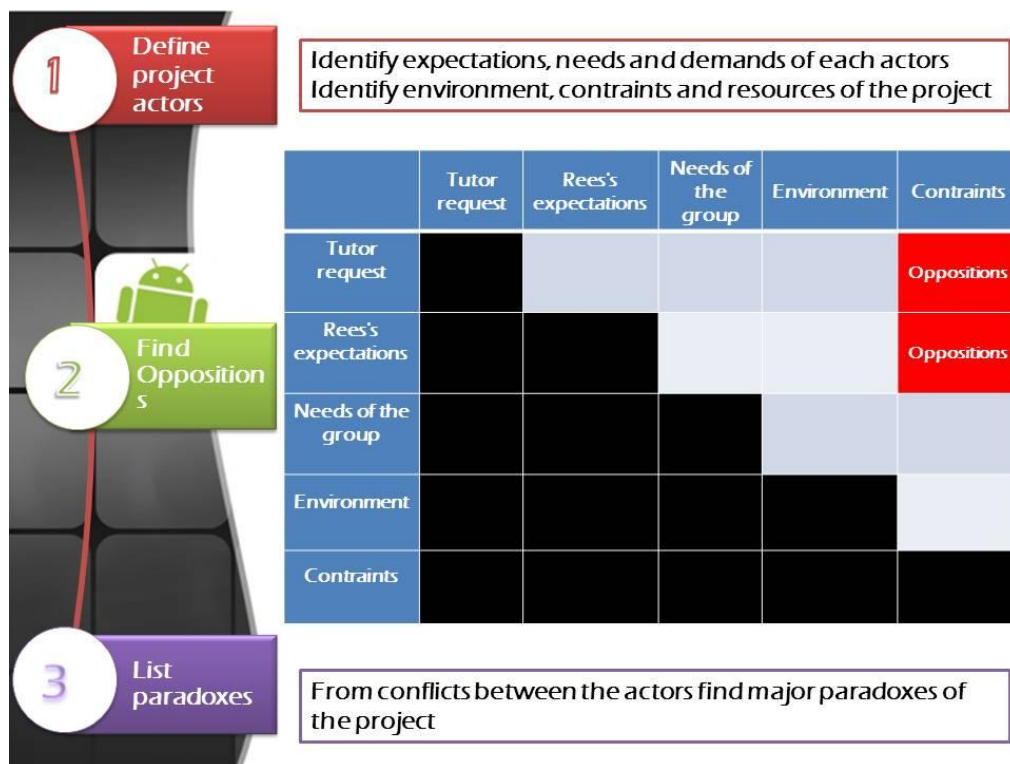
When we received the M learning project in October, we discovered of the direction that the preceding group (and his former mentor Mike Rees), had given to it.

But for the first time since the beginning of this project, the mentor changed and Vincent BOLY (the new one) did not expect exactly the same things from us. While Mike REES wanted that the application stay in the ENSGSI in a first time, Vincent BOLY thinks that it has to come out and be used by as many people as possible. Consequently, after our marketing study, the target changed.

Our project is not intended to assist a company. As a consequence, we haven't any contact with a manufacturer who expects results. Nevertheless, to offset this aspect, we are in collaboration with several groups. First, there is the 2AP group which is responsible for promoting the application and finding English teacher social network. We helped them to make their conceptual issue and we meet them sometimes, to keep them informed of our progress and of the state of the application.

We also work with the TEA group to prepare the protocol of the living lab that we are going to do in order to test the application and the OIC (Outil Intermédiaire de Conception).

## 4. Conceptual issue approach



We have adopted an approach of conceptual issue: the first work consisted to identify all actors participating in the project. We had then to define expectations, needs and demands of each. This project depends not only on actors involved, but also the environment, resources and external constraints, that affect the conduct and the progress of the project.

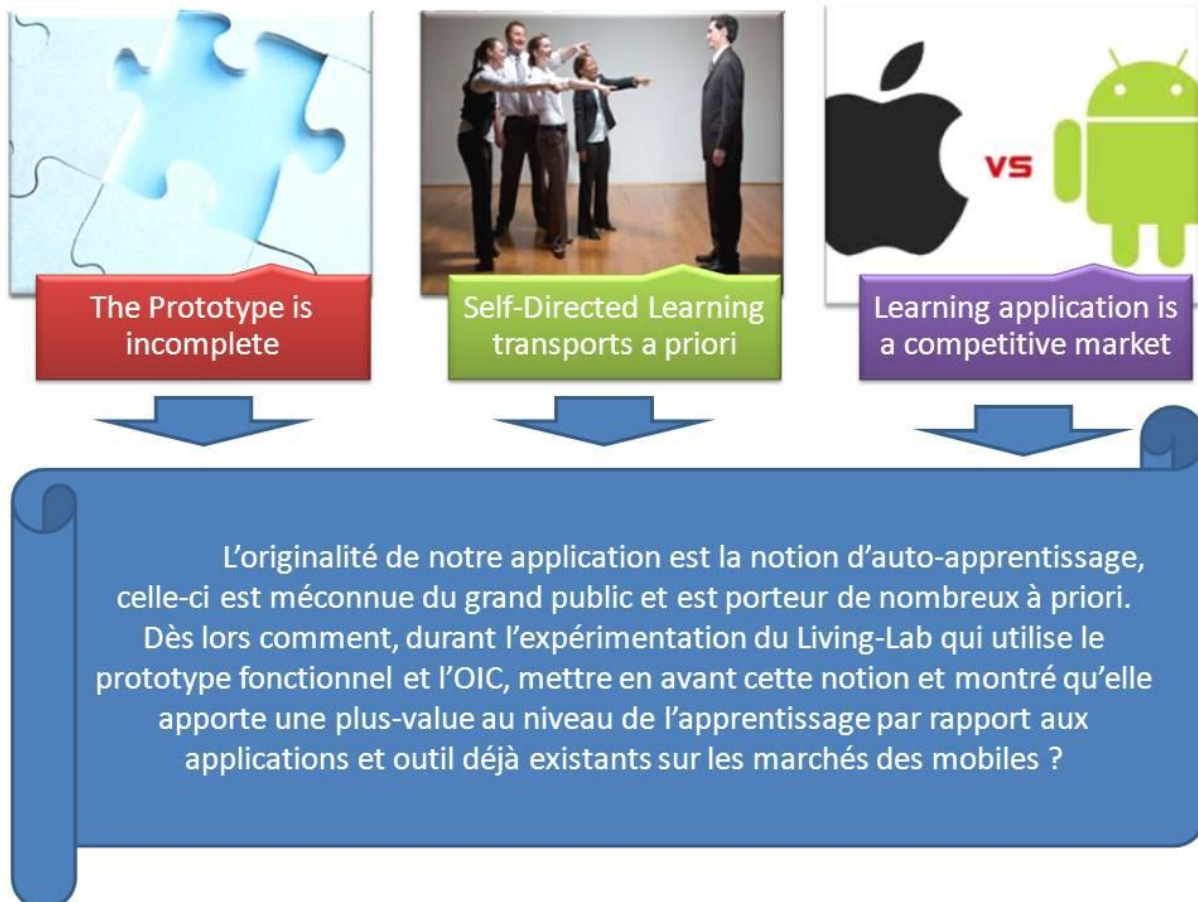
Then, we compiled a table to compare these factors influencing the project. Criteria by criteria, we watched if there were oppositions between requests, expectations, needs, constraints, resources of each actor. Once these objections showcased, this table allows to not forget any factor, and to analyze the overall context of the project, to finally find different and many paradoxes.

Once we **had** identified all these conflicts between the various actors, we wrote the paradoxes of these objections. Among them we have chosen the most important and representative of the project. The three paradoxes that emerged are:

- Originality of our project is the self-learning, but this concept is not very well known and suffers from many prejudices.
- The competition of learning applications on Smartphone is strong, how to stand out and be competitive on the market of mobile?
- The prototype made by the ESIAL students is incomplete and does not yet show the originality of the application.

This selection allows the establishment of the conceptual issue of the project, i.e to set what will be the frame and what trails we will follow throughout the year

## 5. Conceptual issues:



The prototype of the application produced by students of the ESIAL is functional but does not show the originality of the application (the concept of self-directed learning) yet. That's why we must find a way to highlight this idea: it will be one of factor of success of our project. Therefore, the prototype will evolve over time thanks to the Living Lab.

The originality of the application which is self-directed learning is an ENSGSI-specific concept, it is therefore understood by ENSGSI students, but for external users, this notion is very fuzzy and is the victim of numerous a priori and prejudices. We must retransmit the knowledge we learned at ENSGSI to disseminate the concept of self-directed learning.

Today, many operating systems offer millions of Smartphone applications. That's why it is a certainty that competition in learning applications market is already enormous and growing every day. Our product must be efficient and competitive and show the added value of our project.

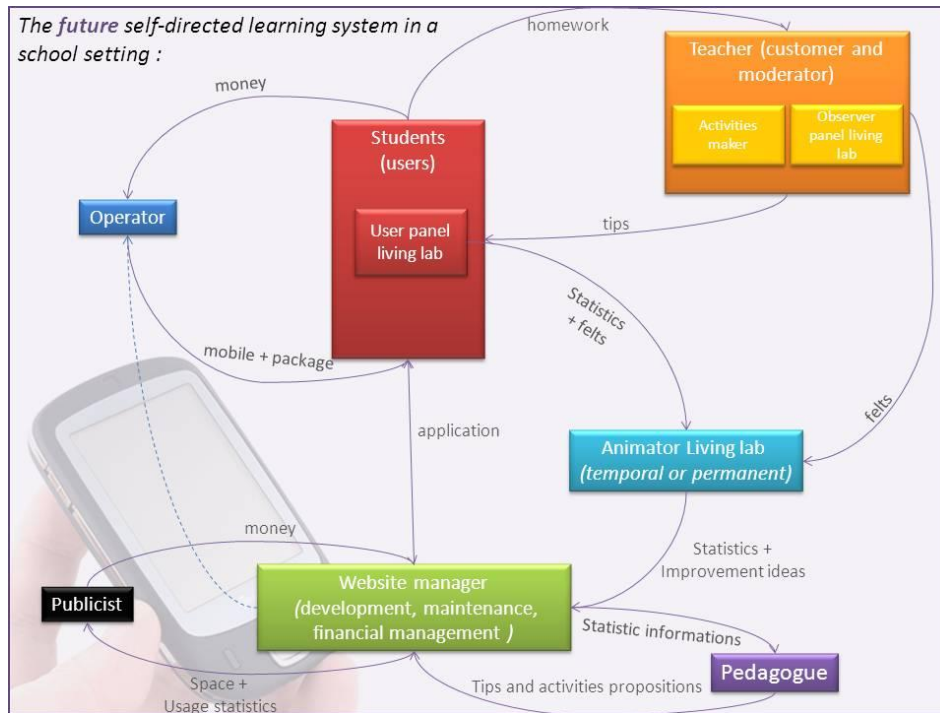
We thus obtain the following conceptual issue:

L'originalité de notre application est la notion d'auto-apprentissage, celle-ci est méconnue du grand public et est porteur de nombreux à priori. Dès lors comment, durant l'expérimentation du Living-Lab qui utilise le prototype fonctionnel et l'OIC, mettre en avant cette notion et montré qu'elle apporte une plus-value au niveau de l'apprentissage par rapport aux applications et outil déjà existants sur les marchés des mobiles ?



## 6. Marketing analysis: The aim is to reduce the risk and to make value

- Marketing studies



### Needs analysis :

In this picture, we identified all the actors who are concerned by our product, and the links between all of them. Thanks to this analysis, we realized that there is something wrong: we would like to be associated with an operator but we did not identify the links between the website manager and the operator yet. After that, we thought it could be a selling argument if it made part of subscription mobile, and thus sell more.

Then, to make sure that the users need something new as our product, we made needs analysis: RAR of each user in a current self-directed learning system in a school setting and RAR of each user in a future self-directed learning system in a school setting. Finally, the missing needs in the current system are:

- To have more resources like web sites
- To have an dressed evolution every time
- To have saved data that is only accessible to users
- To learn English or to learn about oneself everywhere, at any time, even when it is a short time
- To have a product that the specialists advise (in our case teachers could be the 'prescriptors')
- To exchange with other users
- To make one's own activities (quiz) and to give one's opinion about it

We did the same thing for a personal self-directed learning system.

We can thus conclude that there are needs in actual self-directed learning system.



Competitive aspect:



The mapping we made shows that there are not a lot of competitors with a guide about self-training and monitoring changes, and they are not on application's mobiles. So our system has something new to bring and can find a place in the marketplace.

The concurrence analysis shows that there are a lot of competitors and 90% of them are paying. It means that our product is competitive.

### Macro-environmental objectives

In order to do the macro-environmental analysis, we use the tool 'PESTEL' and then the tool 'SWOTED PESTEL'. This study shows that there are a lot of opportunities to develop our product like the development of formations, the optimization of the time.

However we have to pay attention to threats, like the fact that teachers do not like to change, main course material is paper.

There are more opportunities than threats but the fact that teachers don't like to change is a big brake and we should work hard on it (this point will be more developed in the strategic marketing).

## Market Analysis (resources):



On this picture, we can have an idea about a type profile of an Android user. It means that we have to consider all these points to choose the target in the strategic marketing.

Several market data show that there are more and more Smartphone applications and competitors on the market, consequently it will be more and more difficult to bring the application on the marketplace and to be known. But it also means that the market is in expansion, open to new technologies and more and more sensitized to others way to learn. This point represents an opportunity for the market product.

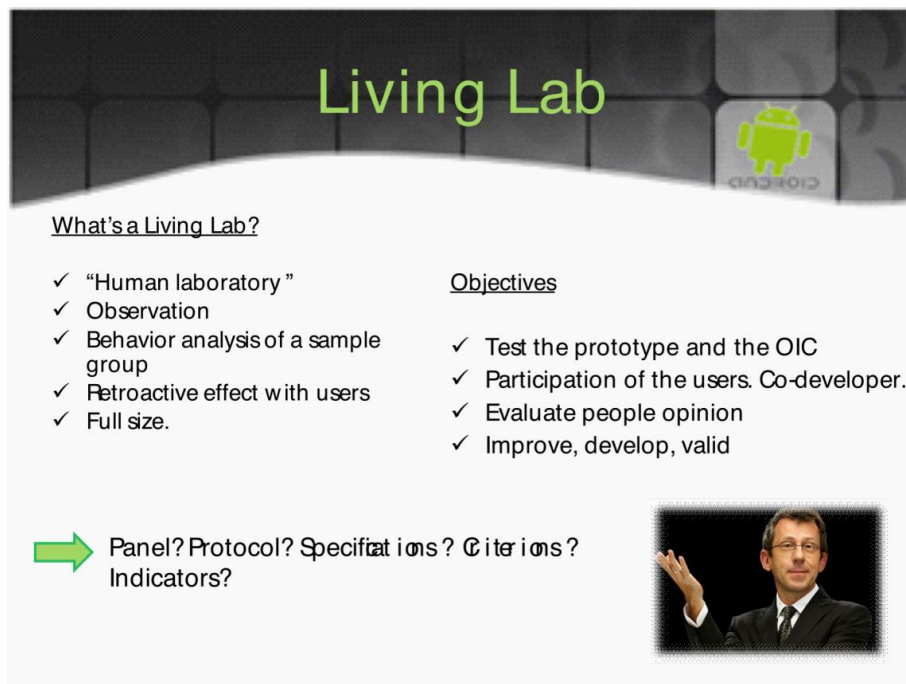
For our product, four markets need to be analyzed: first, the mobile phone market with Smartphone sales in France elevated to 700,000 mobiles in 2009 and will amount to 1,8M in 2010 because Smartphone sales are in a growth phase. Secondly, the Android market with 140,000 existing applications (October 2010) whose 36% are paying. The third market is represented by students, target population: they are 70,000 in Nancy University and 3,750 in the INPL. The last market to study is the market of internet user. In this one, we point out that 70% of students use Internet in order to make research for their studies. Moreover we find a study which show that more and more people use Smartphone to surf online.

If you need more information, a complete analysis is developed in the market report.

- **Marketing strategy**

This part permits to identify the target. This reasoning is in the market report. The results show that we target indirectly students. In fact, teachers will advise the product to students, in this case, they could guide students in their reflection. Therefore, the first target is teachers and we have to convince them that our application is efficient. This is the 2AP's job: to make sure that the target could be interested in the application and afterwards, make a promotional message, integrate social networks of English teachers and, if it is possible, to find specialist of self-directed learning who can help them and be "prescriptor".

## 7. Living-Lab:



The slide features a dark header with the text "Living Lab" in green and an Android robot icon. Below the header, the text "What's a Living Lab?" is followed by two columns of bullet points. To the left of the bottom text is a green arrow pointing right, and to the right is a small photo of a man in a suit gesturing.

**Living Lab**


What's a Living Lab?

- ✓ "Human laboratory"
- ✓ Observation
- ✓ Behavior analysis of a sample group
- ✓ Retroactive effect with users
- ✓ Full size.

Objectives

- ✓ Test the prototype and the OIC
- ✓ Participation of the users. Co-developer.
- ✓ Evaluate people opinion
- ✓ Improve, develop, valid

→ Panel? Protocol? Specifications? Criteria? Indicators?



The functional prototype is now finished. Consequently, we can make different tests in order to have a feedback from the different users to improve, develop and valid the application. Besides, we are now working on an OIC ("Objet Intermédiaire de Conception") which could be complementary to the prototype. Indeed, this OIC will be more complete than the prototype which offers only two activities. That is why we would like to make the OIC very close to the final application, in aim to test an object representative of what we expect.

As a consequence, the next step of the project is the setting up of a Living Lab.

### What is a Living Lab?

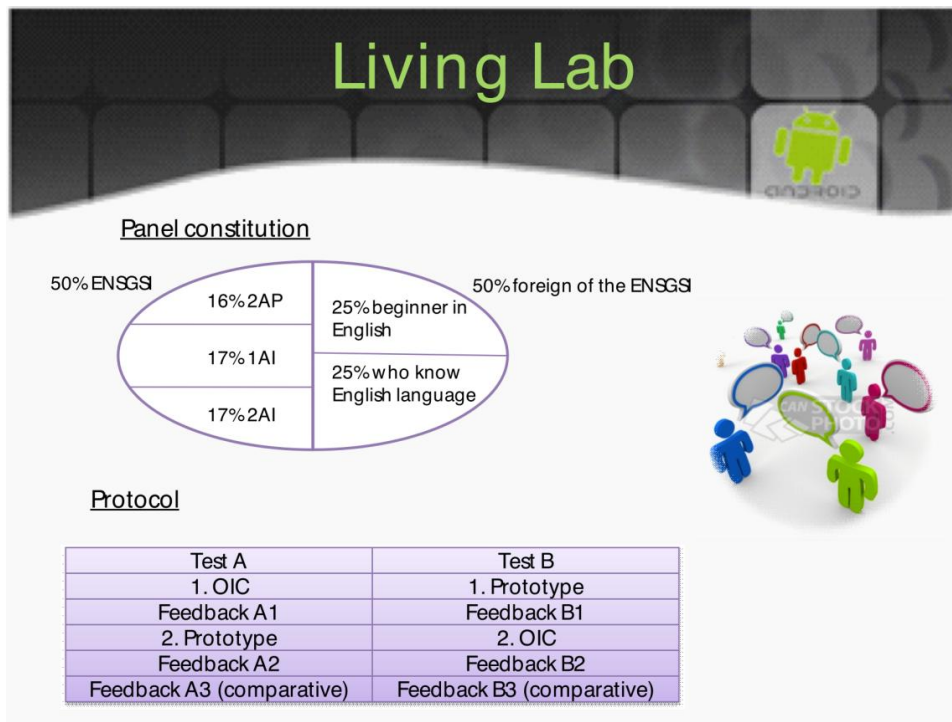
The Living Lab consists in the analysis of the behavior of different people compared to products. For this, we need to observe a sample group representative of the population (people are volunteer). It is also necessary to focus on several indicators which could be interesting to measure, and to work on a protocol which will decide of the sequence and plane the deadline. Thanks to significant parameter, it could be possible to make some conclusions and assumptions on the pertinence of the product, the future prospects in order to improve the product or simply to have the main tendencies of human behavior.

The three main features of our Living Lab are:

- Participation of the users. They are co-developer of the application.
- Retroactive effect with users
- Full size.

Thanks to the prototype, the OIC, simple tests which permit to evaluate people opinion and questionnaire to have a feedback of the users, it is possible to develop this kind of experience.

- **The specification**



We are now working on the specification of our experimentation. It is very important to define the aim of this Living Lab: “What do we want to test? Why? What do we want to show? Which are the criterions to test? Which are the indicators? What is the protocol?”

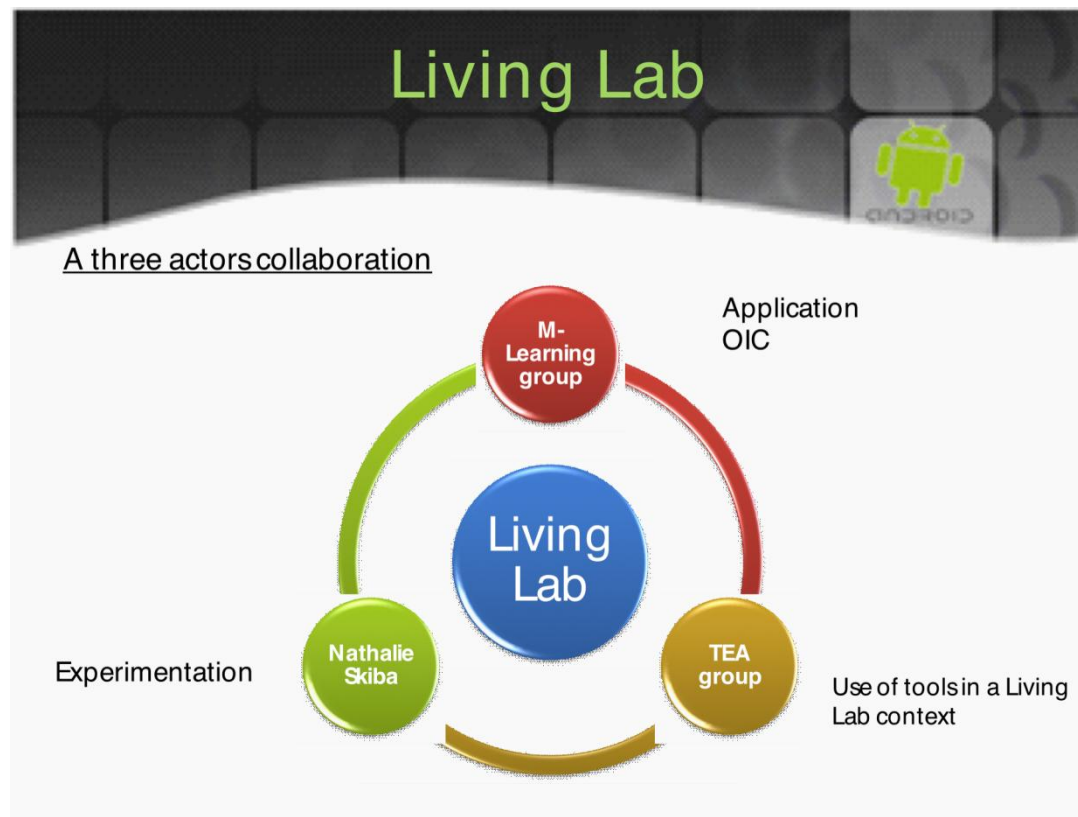
We also need to structure the panel if we want compare the results. It will be necessary to know the specifications of the population panel. In fact, the results could be different if the user comes from the ENSGSI or another school, because ENSGSI students are sensitized to self- directed learning. As a consequence we will know precisely the specifications of each tester. We will make a questionnaire in order to have informations about the users and so to constitute the “ideal” panel with different profiles in order to obtain representative results and compare between each population. For example, if we notice that people who are not in the ENSGSI are not comfortable with the application and the aspect of self-directed learning, we will improve the learning of self-directed learning.

That’s the reason why we try to constitute a representative panel including several user profiles in order to have interesting data and to draw pertinent conclusion.

Moreover, we thought about different protocols to lead this experimentation. You can see an example on the slide at the top which is, for us, the more adapted to our experimentation because for this one we don’t need a lot of people, only two equal group of ten or twenty people. The group A will first test the OIC and next the prototype. The group B will do the contrary. After each test, each group will make a feedback and answer to a questionnaire (to know for example: where are they using the products? How many times? Which moment of the day are they using the product? ...). The final step is to organize a final feedback with the participant to have their opinion about the two products and to compare them.



- **Establishment of a collaboration**



In order to carry out this experimentation and to have pertinent results we will need several tools. In fact, it could be very interesting to see where users' eyes are looking and how much time users need to find the good button to click. That is why it was decided to collaborate with the TEA group. Indeed this group work for the firm called TEA ("Technologie, Ergonomie, Applications") which is a corporation specialized in the development, equipment and the implementation of sensors, measuring device and analyzing the physical activity of the Man at work. They also make tools to analyze the movement of the head, the eyes and the look. The TEA group goal is that the compagny gain a foothold in the Living Lab market. Consequently, they would use our experimentation to test TEA tools inside a Living Lab. Therefore it is a great opportunity for us and TEA to collaborate. As a consequence, TEA group could dispose of several tools for this experimentation, like a system of "Eyes Tracking" which could be very useful to measure different criterions.

A collaboration with Nathalie SKIBA, who is an ENSGSI engineer, is also more than expected. Nathalie is actually working on the Living Lab for her thesis, that's why it will be interesting to work together. She could help us in the preparation of the Living Lab and the establishment of the experimentation.

## 8. Conclusion

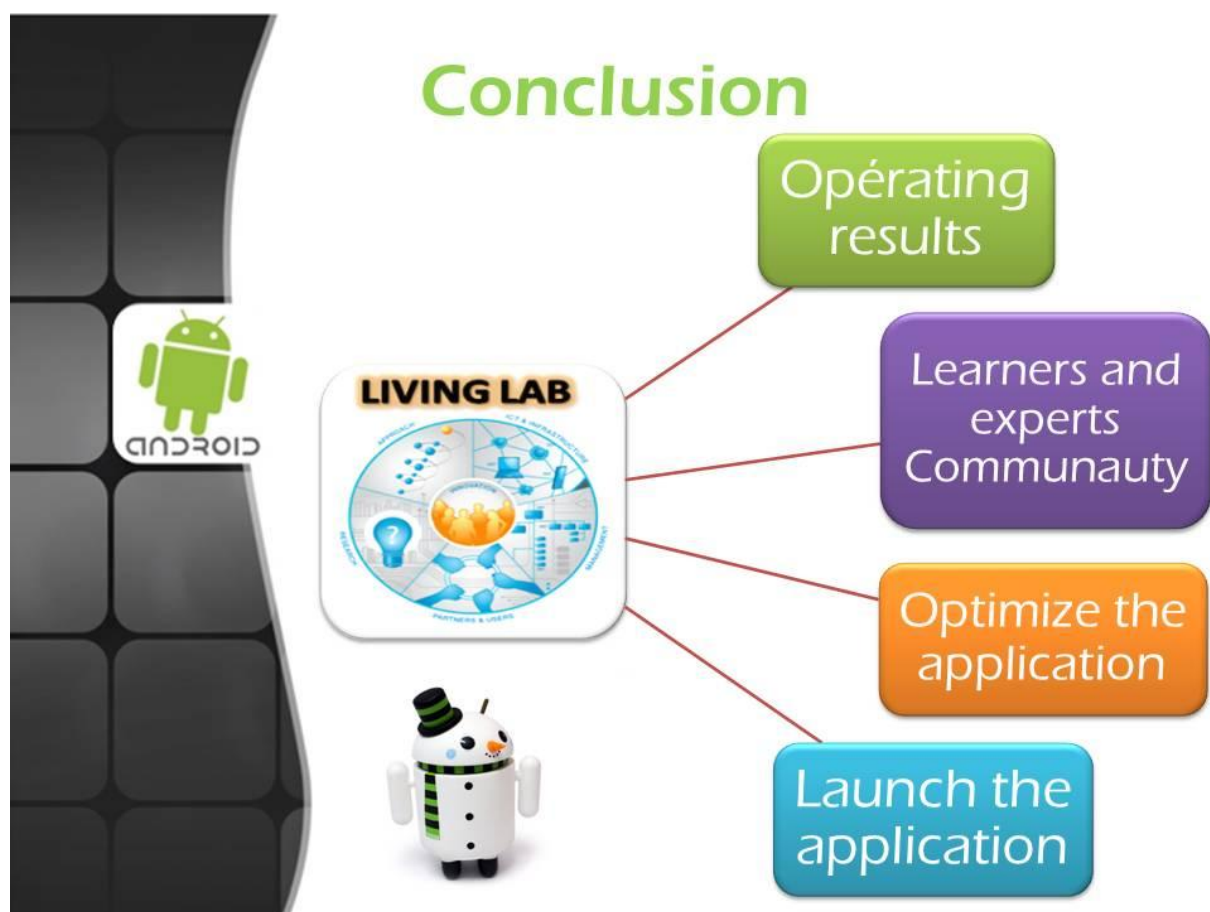
The first objective is to realize the protocol and the documents which are necessary for the setting up of the project in a Living Lab mode. Our deadline to make these documents is late February. It will permit us, in a second time, to launch the experimentation as soon as possible in order to have the first feedback quickly, which will enable us to create a Learners and Experts community. Thanks to this community it will be possible to develop the application and the OIC. The application will thus become more and more optimized and competitive on the market. The next stage will be to promote it on social networks by using the promotional message which is going to be made this year by the 2AP group.

After the launch of the self-directed learning application for English, the aim is to use the process (the approach used this last two years from the creation of the project to the launch of an operational application) again in other fields like innovation for example.

At personal level this is an interesting and rewarding project in relation to the development of the managerial ability and the learning processes:

- We work with a concept that is increasingly developed in the enterprise world: Living Lab.
- We are the managers of a project that involve the work and the interaction of many actors inside and outside of the ENSGSI

This project allows us to have a realistic approach to our future profession, both for management and learning.



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