

INNO-FOREST

SOCRATES ERASMUS IP



PERSONAL REPORT:

GPS-aided educational trail “Landscapes and forests of the
Pusty Hrad”

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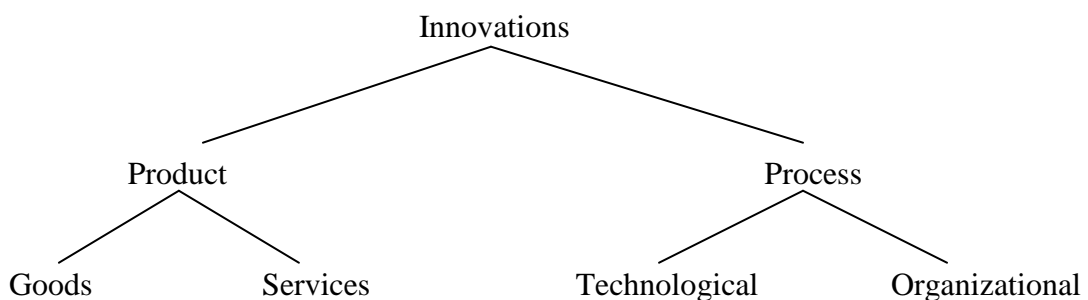
1. INTRODUCTION

1.1 What is Innovation?

Innovation means successful introduction of novelties into the enterprises activities. These novelties could be changes in the inputs, outputs and processes of an enterprise or also creation of something that has not existed before. Due to another definition is innovation a renewal, which gives more turnover, less costs or in other way better competitive advantage.

We recognize different classifications of Innovations. At first could be an Innovation new to the firm. It means something that already exists in the market, but is new to the firm and it is an instrument how to enhance the success on the market. On the other hand could be Innovation new to the market. It means something that doesn't exist on the market at all.

The second classification is following:



We can see that Innovation could be a product. It depends on the enterprise what would it be. In wood processing enterprise would it be some wooden goods and in the Forest owners association it would be some new services. But Innovation could be also a process. In this case would Wood processing enterprise use a new technology of board cutting or the Forest owners association could be reorganized in different organizational levels.

If we want to innovate, it is useful to provide three tests:

1. Is there potential for new market innovation?
2. Is there potential for low-end disruption?
3. Is the innovation disruptive to all of the significant incumbent in the industry?

The implementation of Innovation has 6 phases.

- Prior conditions: prior conditions are the first impulse to do some Innovations. There could be bad business results or need to stay competitive on the market or some other problems that guide to innovative activities.
- Knowledge: it's necessary to have knowledges if somebody wants to innovate.
- Persuasion: author of the Innovation has sometimes very difficult task to persuade his colleagues about necessity and expedience of Innovation
- Decision: very important is to well decide what kind of Innovation should be implemented and how to innovate.
- Implementation: is bringing of the Innovation in use. Depends to previous phases. If they are well done and prepared, than should be also Implementation without problems.
- Confirmation: after implementation is important to control how is everything working and if some problems appear, they must be solved.

1.2 Innovation policy

There are few strategies and foundations regarding innovations in the European even in national policies. European Union: Lisbon Strategy on competitiveness and innovation; EU Research Framework Programmes 6 & 7; EU Research Project Lines and Infrastructures.

Ministries or Agencies on Innovation; Founding programmes and initiatives are tools used in the national level.

Focusing forest sector:

- European union
 - Forest-based Sector Technology Platform “Innovation & Sustainable Development” initiative
 - New institutions, initiatives & programmes in new areas (e.g. bioenergy, carbon)
- MCPFE
 - Vienna Resolution 2 on economic viability & work programme
- UNECE/FAO
 - European Forest Sector Outlook Study: competitiveness as major issue

- National policies & strategies
 - Rather new topic, few coherent policies & programmes
 - Focus on specific topics, partly covered by policy makers outside forest sector (e.g. biomass)

1.3 Why is Innovation important for an entrepreneurship?

Nowadays seem Innovations necessary for big even for small enterprises. One of the main features for today's is very quick economical growth and development in all possible sectors. In modern European forestry are also used modern high technologies, close to nature forest management, modern and environmental technologies of wood processing, new ways of using wood and biomass, new types of forest properties and forest uses, needs and demands of environmental education etc. If the enterprise wants to be competitive, needs to provide Innovations. We can say that Innovations are engines for economic growth, competitiveness, for income creation and firm profit, for employment creation, changes towards environmental improvement and sustainable development, for meeting changing customer needs and demographics.

1.4 Innovation and economic growth

It is proved that innovations lead to economic growth. That is mostly also the main incentive why to be innovative. Economical growth is measured by gross domestic product (GDP). Economic growth is defined as positive rate or change in real GDP. A satisfactory rate of economic growth is when the economy grows faster than the population, thereby increasing standards of living for individuals in an economy. Economic growth improves the overall standard of living of individuals in an economy and is one way to reduce unemployment and poverty in an economy.

1.5 Innovation and competitiveness

The OECD defines competitiveness as *“the degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long-term”*. Overall competitiveness, is a result of many factors: macroeconomic environment, ICT, innovation, public institutions – these all have a strong influence on increased productivity. International competitiveness is also seen as an important component of economic growth.

1.6 Innovation and employment creation

Long-term international statistical trends show that there is a strong correlation between national productivity and the level of unemployment (higher productivity means lower unemployment). The more productive an enterprise, the more income it can save for new investments and therefore create new jobs. There can appear short-term negative effects of productivity on unemployment, but are outweighed by long-term benefits.

1.7 Innovation and sustainable development

Sustainable development is very popular expression nowadays. In connection with SD are Innovations necessary, e.g. for using new markets (carbon sinks, bioenergy), new trends (wood construction) and new business/ marketing models/ tools (forest certification). Also customer needs and socio-demographics are changing, like an attitude to nature, urban lifestyle, changing of urbanization, family, age structure, mobility, ...

Innovation is seen as driver of economics, its effects are difficult to quantify. Innovation is risky and prone to fail but not to innovate is risky too (or too risky).

2. ENTERPRISE

2.1 Description of the enterprise and the business area

2.1.1 Short history

History of Zvolen Forest goes back to 13th century. Majority of forests in the region of Zvolen used to belong to Arpad parentage. Royal town Zvolen had also in property a part of those forests and it use to be much larger area like today. Nowadays manages the City of Zvolen Forest Enterprise, Ltd. approximately 1530 ha of forest stands in cadastral territory of the city of Zvolen, and villages or Lieskovec, Bacurov, Dubove. There are mostly healthy deciduous forests and resistant to abiotic factors. These forests fulfil productive (commercial) and non-productive functions. From the sight of differentiated management are 248 ha in the protective forest category (mostly with the function of soil protection), 580 ha of forests with special determination (nature conservation, medical purpose, water springs etc.) and the rest of 702 ha are commercial forests with the main purpose of wood production. User of this property since April 1993 is the City of Zvolen Forest Enterprise, Ltd. that got this property back from state after 43 years of state proprietary during communism. This enterprise is a firm of managerial type. It manages a rented forest area owned by the city of Zvolen. The mission of Enterprise is also to manage the street green in Zvolen.

2.1.2 Main ratios

The company of Zvolen Forest Enterprise belongs with 100% participation to the city and has forest ground rented from the city of Zvolen. After 10 years of its existence, has the enterprise paid SKK 2 978 500 (€ 78 380) rental costs and real estate tax SKK 1 343 000 (€ 35 340). The company has invested SKK 6.683 mil (€175 870) to development, SKK 14 852 mil (€ 390 840) to road network repairs, to service of buildings SKK 1.4 mil (€ 36 840). Turnover per year is very different. It was one year, when the turnover was SKK 90 mil (€ 2 368 420), but the enterprise has invested in the building of two blocks of flats. An average turnover is about SKK 15 mil (€ 394 740) from the wood logs production and services.

This enterprise has 7.5 employees on an average. There are only few experts and administration offices engaged. All the productive activities are carried out by trade suppliers. We can say, that it is innovation according to reality in Slovakia. State Forest Enterprise hasn't been always successfully reformed but in the City of Zvolen Forest Enterprise, Ltd. is it already 10 years applying.

2.1.3 Main products markets and customers

Main product is of course wood, than game and also can say that all non-productive functions, that are filled by forests. The enterprise doesn't process wood, but products only wood logs that are sold mostly in domestic trades. Wood market in the view of type of wood is very variable. Nowadays is big demand on deciduous trees wood, mostly oak. Forests in property of company are in the surrounding of Zvolen and very often visited by many people, like the forest park locality Pustý Hrad, that's why those forests have to fulfil also all non-productive functions including recreational.

Another group of products, not regarding forests are services for the city and other institutions (e.g. hospital) in the managing of street green (cutting trees, hedgerows, shrubs, greens) and dignified presentation of the city of Zvolen.

The main target of the enterprise is to fulfil the mission of suburban forests. It means by the wood production also the recreational function. The suburban forests managed by the City of Zvolen Forest enterprise, Ltd. must serve to public. It's necessary to regulate and organise visiting of those forests by building of tourist trails, educational trails, cycling roads, parking places, banks, places where is possible to make a fire etc.

Target in the business area is to reach stable standing in market places and if possible also profits but it's not primary target.

Business is realized mostly in domestic trade markets, because it is generally cheaper for the producer that has to transit wood logs to the customer. There is also international cooperation through ZOLKA, what is described in the chapter of present innovations.

2.1.4 Financial and other material resources

There are two main resources and that are: own wood production. Like already mentioned that are none processed wood logs sold mostly in domestic trade markets. Second main resources are services for the city of Zvolen and other institutions with managing of street green. There is also the third resource and it is recommendation concerning forestry.

2.2 Present situation regarding innovation aspects and future innovations

Described innovation is not the only one in the case enterprise. There are few innovations concerning organisation of the enterprise and business. First of all is necessary to mention ZOLKA. It is a commune (towns and villages) forest owner association, where are associated many town and villages that own forest. Their forest areas are mostly not very large and it's useful to collaborate and do some activities central (like selling wood). The second present innovation is the way of managing of forests. It was already mentioned that all the productive activities are carried out by trade suppliers and only few experts and administration officers are engaged.

Case forest enterprise has also all presumption for present and future innovations. The main positive presumption is cooperation with many other organisations including the most important forest research organisations in Slovakia, among them the Faculty of Forestry of Technical University in Zvolen, the Forest Research Institute, the Slovak Academy of Sciences institute for forest ecology.

To the strategies could I write, that the most important for this case enterprise is to serve people and to manage forests by sustainable forest management, to save healthy and stable forests for next generations.

3. INNOVATION CASE

3.1 Chronology and subject of the innovation

There were three main problems before the innovation was created and implemented. Two of them have motivated the innovators to do something. First of all the problem was increased public interests in primeval forests. On one side is it joyful, that people are interested in this unique heritage in temperate zone, but it was also followed by many mass

excursions into more National Nature Reserves (e.g. NNR Badin primeval forest). Such a huge visiting of those untouched ecosystems was unfavorable and unacceptable. Faculty staff together with students was looking for solution. They didn't want to apply repressive measures, but to find a way to show people close to nature forests and don't endanger National Nature Reserves. That's why they have chosen locality of Pustý Hrad with the category protect forests. This locality has more advantages. The forest looks really similar to primeval forests, it is close to the city with good infrastructure and it is also interesting because of archeological locality of European value.

Second problem was old educational trail, that hasn't filled its function any more. Its panels are destroyed difficult to read the texts and unreadable pictures.

The problem situation before the innovation was an intention of archaeologists too, who want to uncover the ruins of ancient castle Pustý Hrad. Because of this intention was necessary to cut the trees in the area of our interests too. Therefore, we must lay out another trail, which was a little bit further from original planed track. It was also necessary to persuade the city of Zvolen and archaeologists about availability of our plans and to unite our intentions.

In the beginning there was an idea from staff and students of the Faculty of Forestry in Zvolen after uncovering those two already mentioned problems. After that started student to collect basis documents and knowledges. They started to discuss theirs intentions with city administration, City of Zvolen Forest Enterprise, Ltd., archaeologists, forest planning management institution, etc. and they learned about the intention of the City of Zvolen Forest Enterprise to establish an educational trail. Then they needed to find a support in University to realize their ideas. After that, with help of University staff and the City of Zvolen Forest Enterprise, Ltd. was arranged the project for forestry education trail in Pustý Hrad locality. Cardinal challenge was to find a financial support. The main sponsor was the Slovak Saving Bank, Inc. and PDA Win, Ltd. was software developer. In October 2004 was the trail trenched and panel boards installed by students of Technical University in Zvolen. Opening ceremony took place on October 27th 2004 at 9:00.

3.2 Description of the innovation

Forestry educational trails are usually conceived as a series of panels providing relatively self-contained information packages on various topics, such as site description, plants, wildlife, forest management etc.

Compared to that approach, the innovative component of the presented educational trail consists in its story-telling concept. The panels narrate the history of landscapes and forests beginning from Neogene until now and project their future development with a particular focus on the man's impact on them.

This approach builds on an assumption that facts can better be digested and realized by recipients if they are presented as a story. That assumption has been tested on a group of students prior to drafting the texts on the information panels.

The trail also uses a powerful dynamic visualization feature. Groups may apply for a guided tour of the educational trail that involves pocket computers connected with a GPS-receiver that controls a series of animated sequences such as migration of tree species after the Ice Age, past geological developments, fragmentation of forests caused by the spread of settlements and other topics.

In addition to that, the trail also includes a panoramatic relief panel for visually impaired or disabled people who are able to recognize the landscape features and read the texts written in Braille alphabet.

3.3 Actors network analysis

The list of entities that were active in the innovation process includes the City of Zvolen Forest Enterprise, Ltd., and Faculty of Forestry of the Technical University Zvolen, State Nature Conservancy, Slovak Saving Bank, Inc. and Hewlett-Packard, Ltd. as sponsors and PDA Win, Ltd. as software developer.

City of Zvolen Forest Enterprise, Ltd. has initiated an establishment of an educational trail in its forests in the Pustý Hrad locality that is frequented by citizens of Zvolen and visitors who feel attracted by the ruins of an ancient castle overlooking the City of Zvolen.

Students of the Faculty of Forestry in Zvolen learnt about this intention through a communication with faculty staff who were involved in the planning of forestry operations related to archaeological research in the area. Subsequently, students took up the initiative and the construction of the new forestry educational trail was formulated as a forestry policy/forestry public relations issue. The aim was to provide the general public with information that would help them to understand the needs and importance of the forestry sector.

Such idea was then raised as a master thesis. Students completely worked out the related problems. Faculty staff arranged for sponsors who partly covered the costs of the panels, GPS and Pocket PC devices and the education trail construction.

The educational trail was opened for public in the presence of more than 200 visitors in October 2004.

3.4 Analysis of the innovation process

Coordination was the role of staff of Faculty of Forestry. It coordinated the cooperation between all entities involved in innovation process. In this case innovation was mostly applied horizontal cooperation between enterprises, city administration and research and educational institutions. One example of vertical cooperation is between students and their teachers in the university.

Sources of information were all entities involved. Informations were mostly collected by students and faculty staff and than together worked and used.

Almost all of financial sources were external (Slovak Saving Bank, Inc.).

4. GOALS AND FUTURE PLANS

The main goal of the enterprise is to fulfil the mission of suburban forests. It means by the wood production also the recreational and sanitary function. The suburban forests managed by the City of Zvolen Forest enterprise, Ltd. must serve to public. It's necessary to regulate and organise visiting of those forests by building of tourist trails, educational trails, cycling roads, parking places, banks, places where is possible to make a fire etc.

Goal in the business area is to reach stable standing in market places and if possible also profits but it's not primary target.

Future innovations the enterprise is planning to work with are connected with the suburban forest mission to serve the public. They want to build a Centre for Environmental Education in the cooperation with the city of Zvolen. There should be more programmes for pupils and target is to guide every day one school class. Also to build a sufficient network of touristy roads, hiking roads, bicycle-roads, educational trails concerning nature, history, etc.

5. ANALYSIS AND EVALUATION

5.1 How to enhance the innovations

Competition in the forestry regarding wood production is quite big today. There are many small forest owners that cannot manage forests with profit. In such a cases is profitable to create some association. Such a possibility has also used my case enterprise. But there are always free markets with environmental or educational services in Slovakia. I think that this case enterprise has all presumptions to be active and successful in this area. Enterprise's

forests are located close to city and visited by many people. The case enterprise has also opportunity to cooperate with many professional research and educational forest institutions that have domicile in Zvolen and it should use it in the future too.

5.2 Evaluation

I tried to evaluate case innovation from several points of view. It's too early to say if the target to attract people in forests and indirectly decrease visiting of National Nature Reserves was successfully fulfilled, but first step was very well done. All possibilities and opportunities were used. There were no big problems in cooperation or coordination. GPS aided educational trail was established on time due to plans. Now after winter it is prepared to satisfy curious nature lovers.

There are no economic outcomes visible yet. It was not also the target of this innovation. But it is possible when the guide service for schools will work and will meet also demand from schools. It is necessary to manage it.

The innovation was extremely well received by public and media. There have been about seven articles in the local and nation-wide press and footage on regional TV. It raised the reputation of all the subjects participating in it. Feedback from visitors vindicates the efforts. It can be assumed that the perception of forestry by public will be considerably and positively influenced by the educational trail. The envisage number of visitors per year is about 10 000.

In front of the innovator are staying many challenges now. First of all guide service for schools needs to be established and well provided. It needs good manager and enthusiastic voluntaries. Other challenge to the future is already mentioned Centre for Environmental Education.

6. LESSONS LEARNT/RECOMMENDATIONS

Perhaps, the lessons learnt is that the enthusiasm of students can work well if there is a framework, in which their activities may be embedded (master thesis projects). The faculty staff may then function as a link or go-between between students, organizations that wish to implement the innovations but do not have the necessary know-how, and potential sponsors.

I would recommend following to enterprise concerning this case innovation:

- to stay active in this field, because it will be possibility how to use and evaluate forests in the future (like for example already in Austria),
- to keep in touch with all institutions that have know-how,

- to cooperate and learn from more experienced institutions in forest pedagogy (e.g. Forest School in Vienna, Forest School Jezirko in Brno),
- to cooperate with students as guides for schools.

7 CONCLUSIONS

This innovation stands out and is rather isolated. Incentive schemes for students as a driving innovative force should be set up to by forestry subjects that wish to keep in touch with the forefront of developments in the respective areas. As a payback they may expect brand-new solution to their problems. Universities may act as go-betweens and facilitators in these processes.

8. SUPPLEMENT



1. Opening ceremony with 200 visitors and student Marian Homolak of Technical University in Zvolen during the speech to short description of panels.



2. First visitors in the educational trail "Landscapes and forests of the Pusty Hrad"



3. Pocket computer connected with a GPS-receiver that controls a series of animated sequences



4. Pocket computer iPaq with GPS receiver Pretec



5. Panoramic relief panel for visually impaired or disabled people who are able to recognize the landscape features and read the texts written in Braille alphabet.