

Towards Educationally Self-sufficient Communities

Policy Paper

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Introduction

This policy paper focuses on the methodology used to develop the NetBox Project and provides an insight into how NetBox fits within the innovative policy approaches of the European Union. The text outlines the potentials of NetBox and describes it as a cost-effective response to education provision in rural areas.

This document also outlines the implications for service providers contained within the NetBox model and identifies barriers in terms of attitude, tradition and design of courseware that require change.

The NetBox project focused the primary stakeholders to be found in most rural communities across Europe namely:

- Residents
- Service Providers
- Companies.

Concerning the residents, NetBox promoted the engagement of all persons irrespective of gender, ethnicity, ability and/or age. These persons are all potential users within NetBox and can participate in educational activities in communities and especially in small rural ones.

With a view to service providers several subgroups are important. For example key educational providers play a significant role in areas where broad educational offers are restricted. Also practitioners provide services in rural communities and they act as multipliers in the field of social life and communication processes. In addition to these two subgroups a third one, the statutory organisations which provide services into small rural communities, are to be mentioned as well.

Regarding the companies the main focus of NetBox was directed to business owners, managers and entrepreneurs. Those micro-enterprises based in small rural communities can link between occupational needs and the labour market; they often local knowledge in terms of the regional situation and individual enterprise requirements.

In order to develop educational courses within NetBox, an audit of community needs and assets was undertaken using a participatory research approach across all stakeholders. In this manner, the Community Learning Social Networks had the potential to offer something new and valuable to all stakeholders.

1. Executive Summary

For several years EU policy on education has focused on constructive engagement with courseware and training measures. Nowadays, the EU is actively fostering and encouraging open online learning and the provision of open education resources. The aim of NetBox was “to pilot and validate a model for educationally self-sufficient rural communities where traditional consumers of educational services can become producers of educational services and content” which is exactly an open online learning system.

The idea of NetBox is that persons in rural areas where the access to formal courses is difficult will be able to share their skills and learn new ones through the NetBox website. A major strength of the project NetBox is that exactly this could be achieved. In NetBox a web portal was created that could be visited under the following link: <http://www.netboxproject.eu/>

The cost benefit ratio of NetBox is good. NetBox defines minimum standards to assure course quality and can realise economies of scale. Even the need for online access of the users and the necessity of technical equipment is a point which can be addressed easily and which does not lead to real problems in the daily use of NetBox. However, if somebody wants to take part in accredited high level training, then NetBox is not an appropriate fit for them. The NetBox approach is designed for informal basic learning and education and provides an easy and cost effective way to share knowledge. The Online Course Creator and the Train-the-Trainer Courseware provide persons who possess knowledge and an easy way to come in contact with interested learners and to foster their educational and didactical activities.

The possibility to integrate documents, films, audios and assessments in the courses ensures that learning takes place in a motivating way with a didactical standard.

NetBox enables users and education providers of rural areas to bring different parts of Europe closer together and offers opportunities to do volunteer education as well as personal development.

2. Background and Overview

Actually one of the most important topics for European policy-makers is the field of Open Educational Resources (OER) and Open Educational Practices (OEP). With initiatives like “Opening up Education”, which started in 2013, the Commission launched a new website Open Education Europe. The main idea in this field is to enable educational institutions as well as students and practitioners to share free-to-use open educational resources and to boost innovation. Increasing the use of Open Educational Resources means to ensure that material has to be available to all, especially in the field where educational materials were produced with public funding.

In the vision paper on Open Education 2030 J. M. Pawlowski stated, that education is distributed on a global market. Therefore, he argued it is crucial for Europe to engage a broad community in cross-border collaboration to be successful in this field.

In the vision paper ‘Open Education 2030’ he comes up with 6 recommendations: (see Pawlowski, p. 78)

- (a) to create an inventory of OER and OEP
- (b) to integrate existing communities
- (c) to integrate curricula
- (d) to create regional networks
- (e) to create global outreach programs
- (f) to support Open Education Policy building

This is where NetBox fits exactly to future needs. NetBox offers such an inventory of OER for several rural areas and provides the idea of Open Education within regional networks.

3. The main thesis of NetBox

The primary thesis of NetBox is that in rural areas many persons can be found who possess knowledge, which is needed by other interested persons in the same area. The main problem of rural areas which are addressed by NetBox is the fact that typically both groups of persons do not know each other or are aware of the skills of the other. Moreover, the matching of interests cannot be done in formal courses in rural areas due to the spatial extent and the small number of students at a time. NetBox supposes that this gap of educational offers and measures can be closed by ICT supported networks and online courses. NetBox centred on the provision of a platform to match interests and to deliver the online courses.

A secondary thesis is that everybody can be trained via the Internet to become an adequate online trainer and creator of didactical resources. Therefore, it was necessary to create an easy system, which provides the new trainer with the required information and helps him/her to create his or her own course whilst also establishing a minimum standard to ensure an adequate minimum of learning quality.

4. The Methodology of developing NetBox

The core element of the methodology used in the NetBox project was an approach, which is quite similar to action research.

*“Action research is the term which describes the integration of action (implementing a plan) with research (developing an understanding of the effectiveness of this implementation).”
(State of NSW 2010, p, 1)*

The main advantage of this action research like approach in the context of ICT design is the combination of seven aspects:

- (1) It can be **conducted in normal daily life learning situations**, in NetBox in the field of educational needs in rural areas.
- (2) It is **flexible**, due to the fact that implementations and interpretations are gained during the research and design process.
- (3) It is **working cyclical**, which means that in NetBox there is always a sequence of (a) planning, (b) actions and activities, (c) observation and (d) reflection. And after one sequence another one starts on the basis of the results of the first.
- (4) Therefore it is **planned**, meaning that in NetBox an organised step-by-step procedure is implemented which pursues clear goals and answers design questions.
- (5) It is **active**, due to the fact that all NetBox partners are creating the tool and that the acting partners are also implementing it in different national educational contexts and embed it therefore in an adequate measure.
- (6) It is **observing**, as in NetBox the analysis of the provided results and tools are essential and the description of the implementation is important and basis for reports and hints.
- (7) And therefore it is also **reflective**, allowing to rethink everything after implementation and before designing a new step as well as evaluating the whole process and its results.

To create NetBox during the duration of the project in the KA3 programme a series of overlapping phases occurred.

1. One of the first aspects was to do *initial research* to guarantee the state of the art work. The main focus was to identify best practice in terms of online learning resources.
2. Secondly, to reassure the quality it was also necessary to audit assets and needs within the selected pilot communities. At this point in the project the participatory element and the integration of the target group into the process was essential.
3. In order to involve the target groups in the design process it was necessary to animate the local communities. The involvement of service providers and the business community was crucial.

4. The main aspect of the design process itself was the development of the bespoke technology platform with web 2.0 features that could be accessed easily by community members.
5. The second mayor aspect in the design process was the development of induction training programmes and a step-by-step online Course Creator.
6. Project outputs had to be validated and tested.
7. Also dissemination and exploitation activities had to be conducted to spread information about the pilot model.

Working along this methodological path was crucial for NetBox because this ensured a high quality product at the end of the project: the NetBox.

Furthermore NetBox is accompanied by a transnational approach, which guarantees that a European dimension remains in the spotlight. Such a method fosters the creation of a product, which can be integrated in different European educational and rural systems and contexts. All local areas have their own specifics but are using a common tool, which can be adapted to different requirements and which is one of the major plus points of NetBox.

5. A cost benefit analysis of NetBox

The significant advantage of a cost-benefit analysis is that it makes it easier to focus on a project like NetBox due to the fact that it can be used on programmes and projects with multiple outcomes. As a special Open Learning Network, NetBox uses information and communication technologies (ICT) to provide education.

Focusing on the factors affecting costs of provision of learning provided in the IITE Policy Brief of the UNESCO (UNESCO p.3) four cost categories are relevant:

- Teaching activity
- Teaching infrastructure
- Administration
- Students' costs

All of the above categories exist as either fixed costs or variable costs per course.

Taking this into account we will provide a comparison of the NetBox open learning approach and the standard form of learning – a face-to-face course – here.

(a) Teaching activity

(a.1) Fixed costs concerning 'Teaching activity'

One main point of focusing these fixed costs is *"Teaching and specialist staff design and development of resources and learning activities"* (UNESCO 2011, p.3). This goes hand in hand with *"Differential grades of teaching staff or different teaching activities"* (UNESCO 2011, p.3).

In classical face-to-face courses the trainer/teacher input is usually highly qualified and requires payment of a fixed wage. Therefore the trainer/teacher is able to design resources and learning material in an excellent way and can use the pedagogical knowledge within the teaching process as well as in the design of adequate didactical material.

In the NetBox open learning course the staff of teachers is recruited. But the teachers are not experts and they are not didactically trained or can offer pedagogical knowledge. Therefore it was necessary for NetBox to integrate a Train-the-Trainer Courseware to provide the new trainers with basic didactical and pedagogical information. Concerning costs the trainer staff act for free without a salary. This is very cost efficient but is directly related to the fact the staff is comprised of non-experts in the didactical field which have the knowledge concerning the topic they want to share and teach but not about the way in which they can deliver it. To help the new trainers in this situation also the Course Creator is a part of NetBox which enables them to create learning resources and online-courses in a standardised way ensuring a didactical minimal basis.

A second point concerning fixed costs is the costs for *"Specialist staff for design and development"* (UNESCO 2011, p.3).

Generally in enterprises, which offer courses this is a department with elder trainers and training experts who get salaries. In NetBox these Train-the-Trainer activities are integrated in the NetBox tool and cannot be provided by staff but by the online Train-the-Trainer Courseware.

Therefore, no salaries are necessary anymore to ensure a minimum standard of didactical and pedagogical knowledge. The costs for the development of the Train-the-Trainer Courseware have already been invested during the NetBox project and do not need to be spent again. Therefore, these were first investments, which are no longer fixed costs. Moreover the only fixed costs, which occur with the Train-the-Trainer Courseware is the costs of running the server that provides the NetBox platform which also includes the Train-the-Trainer Courseware.

The third aspect concerning fixed costs is the costs of *“Reuse of existing resources and designed activities”* (UNESCO 2011, p.3).

These costs are not so high in both cases. If an enterprise offers own face-to-face-courses with their own material then reuse will be free. But if the buyer has to purchase designed material on the market for educational and didactical resources and then costs will occur for every new material and purchase of licences. The amount depends on the quantity of the needed material and ratio between self-created material and resources and procured material and resources.

With focus on the open learning approach of NetBox the material and the resources are generated by the community trainers and therefore for free. The course-creator offers several possibilities to integrate different resources like, documents, wikis, images, movies etc. and can be used for free as well.

Another aspect of typical fixed cost is the *“Amount of formative evaluation and redesign”* (UNESCO 2011, p.3).

Focusing on traditional face-to-face courses an enterprise can decide in which way and how intensive they work in this field and therefore, the amount is directly increasing by offering a more intensified redesign and evaluation activities.

In NetBox the redesign lays in the hand of the community trainers and they can also decide on the intensity of an evaluation. NetBox offers the possibility to rate courses and this is a sort of minimum evaluation provided by the system. Typically courses, which offer redesigned material have a better chance for a higher rating.

Also *“Updating and maintenance”* (UNESCO 2011, p.3) requires fixed costs.

This is usually increasing if you use eLearning to a greater extent. Therefore, these fixed costs, which are used for example for the administration of the server, are higher in the NetBox open learning approach than in a traditional course. You need a staff person which is responsible for the server, the software updates and data security; within NetBox this is the responsibility of the technical partner.

(a2) Variable costs concerning ‘Teaching activity’

With focus on variable costs the UNESCO states that there are costs concerning:

- *Group size for teacher guided activities*
- *Cohort size for supervision and marking*
- *Degree of teaching involvement in the types of teaching-learning and assessment activities used*
- *Differential grades of teaching staff for different teaching activities”*

(UNESCO 2011, p.3)

The UNESCO also informs that:

“A critical definition for open learning is the distinction between the fixed costs of the resources

and tools students use, and the variable costs of the per learner support provided by teaching staff. The distinction is important for comparing open learning with conventional modes because open learning achieves improved cost-benefits partly by transferring activities from variable costs to fixed costs, and achieving economies of scale through larger student numbers.” (UNESCO 2011, p.3)

But this is not so relevant for NetBox due to the fact that the focus is set on rural areas and the group size is not as big as the UNESCO has in mind. Also the trainers are not experts but gifted and interested persons in the areas who can offer educational assets. The UNESCO seems to have something like MOOCs (Massive open online courses) in view. Therefore, the shift between variable costs and fixed costs does not exist in NetBox in this way.

The main point is that in NetBox the degree of assessment and supervision can be determined by the NetBox trainers.

(b) Teaching infrastructure

(b1) Fixed costs concerning ‘Teaching infrastructure’

The first part of the fixed costs for teaching infrastructure is the “*Share of institutional physical and technical infrastructure*” (UNESCO 2011, p.3).

Concerning this cost type the NetBox costs are typically higher than in a traditional course. There has to be a server and the technical equipment. But it is only one server, which can be used for the whole rural area. It holds a huge capacity for the virtual educational market and the exchange of online courses and the corresponding course information. Therefore, economies of scale can be realised quite easily. The required size of the server depends on the number of estimated users in the region.

The second part of the fixed costs for teaching infrastructure occurs by “*Staff development and support needs*” (UNESCO 2011, p.3).

This development of the technical staff only focuses on one up to three persons. That is why this amount is comparatively low in relation to the number of users of NetBox.

All in all these fixed costs are higher than in a traditional course where the technical infrastructure is not as much needed.

(b1) Variable costs concerning ‘Teaching infrastructure’

The UNESCO provides merely the same aspects concerning variable cost for teaching infrastructure than for the teaching activities mentioned above:

- *Group size for classroom and lab-based activities*
- *Cohort size for network support*
- *Cohort size for equipment, materials, licences, delivery of materials“*

(UNESCO 2011, p.3)

The main difference is the third aspect of “*Cohort size for equipment, materials, licences, delivery of materials*” (UNESCO 2011, p.3).

While in traditional courses typically the material will be delivered directly to the learner, in the open learning environment of NetBox the user can get all material via his or her computer and that means the material has only provided on the server one time at one place. This is much easier and makes economic sense.

But the server and the software licenses must be procured and prolonged periodically. This produces license costs. However, if the server runs with software, which is available under GNU General Public License the amount can be reduced. This can be regulated by the administrators in the region.

(c) Administration

(c1) Fixed costs concerning 'Administration'

This assumes that administration costs will occur. The UNESCO supposes fixed cost in this sector to the *"Share of administrative infrastructure for market research, marketing, recruitment, enquiries, enrolment, registration, QA, validation, accreditation"* (UNESCO 2011, p.3)

But these costs are occurring for NetBox as well as for a traditional course. Therefore, it is not possible under this element to make a differentiation of the two possibilities – traditional approach and NetBox approach – by taking them into account.

(c2) Variable costs concerning 'Administration'

This variable primarily depends on the "cohort size for administrative processing of enrolment, registration, student support, accreditation" and "Cost of student drop-out" (UNESCO 2011, p.3).

In case of a traditional course the costs of a student drop out are high. But in the open learning scenario of NetBox the user only logs out and creates no additional costs. Also the administration process is much easier because in NetBox the user creates his or her own account with his or her own profile due to the fact that the administration procedure is part of the NetBox tool. Altogether the administrative costs are very low in the NetBox approach and much lower than in a traditional course system.

(d) Students costs

(d1) Fixed costs concerning 'students costs'

The UNESCO sees fixed students costs as the *"Cost to student of course fee, equipment and materials"* (UNESCO 2011, p.3).

In fact this can be said for both traditional and open learning courses. But concerning NetBox the courses are without a fee. Most of them are provided with the opportunity of the trainer to take part in a course he or she is interested in him - or herself. Therefore, most courses go hand in hand and create an educational region where typically formal courses are not available so easily.

(d1) Variable costs concerning 'students costs'

With a focus on students' costs the UNESCO model thinks about two aspects of variable costs:

- Cost to student of access via travel, online communications
- Opportunity costs of time spent on course-related activities other than studying"

(UNESCO 2011, p.3).

Especially for online courses like in the NetBox approach, it is necessary to have access to the Internet. For that reason, a flat rate of an Internet provider is part of the students or users costs. In NetBox with its focus on rural areas the opportunity was provided to access via free Internet, which was available by communities and public institutions to overcome access and cost barriers. In a traditional course with face-to-face contact these variable communication costs will not occur.

The opportunity costs can be stated for both the NetBox approach as well as for the traditional one.

(e) **Benefit**

The main benefit of the NetBox approach is that it can be used in regions where the traditional courses are not available. The approach responds to people who typically would not take part in education neither as a learner nor as a trainer. NetBox provides a surface, which is easy to handle even for persons who are not very skilled in technical aspects. Another part of the benefit is that the NetBox tool is also available for different regions in Europe now and can be used as well to interconnect regions and their educational offers.

(f) **Overview**

Taking all costs into account the NetBox approach is much cheaper than the same educational course system provided in a traditional way. But the costs shift their cost types and the lower costs are also due to a lower quality standard. This leads directly to the pros and cons of the NetBox approach.

6. Pros and Cons of the NetBox approach

NetBox is easy to handle and enables people to exchange their learning resources in a simple way by using ICT based platforms. Especially in rural areas this opens up an opportunity to strengthen the interactions of the inhabitants and fosters their teaching and learning activities as well as their competencies and skills. NetBox makes it possible for new learning partnerships to build. These learning partnerships generate educational resources, which are relevant to local residents. Through learning partnerships common learning needs, assets and goals can be easily promoted. The ICT based interlinked platforms reduce for example costs and barriers when a resident is looking for a special course, learning partnerships or anything else.

A problem, which goes along with the use of ICT is the acceptance of new media by the potential users and their capacity and digital competences to engage with it. Also in the NetBox project this problem occurred. But it was addressed through information workshops, direct interaction with local service providers and the communities to varying results in the pilot communities. This shows that it is necessary to accompany and combine the NetBox tool with local actions. The users of NetBox in the main were open minded and were able to handle the tool. Over the past six months we have witnessed the increased use and growth in the numbers of users engaging with the tool and platform.

NetBox offers a new, innovative and exciting approach to building learning opportunities and networking between residents, different stakeholders and service providers in small rural communities. Therefore NetBox plays an active role in the process of rural development and the field of intercultural exchange. The chance to offer education to everybody, without restrictions on their gender or age as well as their prior knowledge underpins the huge potential that goes hand in hand with NetBox.

Although it was challenging to create the tool and to get the first test persons, the outcome illustrates the success and the educational advantages that the tool presents.

Using the personalised profiles each user has the opportunity to get an overview about his strengths, weaknesses, potentials, activities and skills. By this easy way of documentation NetBox presents a possibility to foster self-reflection and self-awareness. Maybe the combination of NetBox with sessions in which such reflective activities take place can be a special plus in the future when many more rural areas make use of the positive results and opportunities of NetBox.

Moreover it strengthens the spirit within the community and promotes inter-cultural awareness by linking online learning communities in different countries to create an open exchange of ideas. Therefore NetBox allows much more than only the individual development of learning.

7. Recommendations for the future implementation of NetBox

In the future NetBox should run on different servers to ensure that a stable system is available every time. Therefore, a technical staff should be installed and the persons in different regions that are responsible for the technical support should be interconnected. The EU should foster open online courses not only with focus on massive open online courses. NetBox is able to show that this open learning approach is suitable for smaller groups with special situations as well.

For the implementation process a committee in a region is useful. They can address institutions and communities much more easily.

One of the biggest challenges is to involve persons in the rural areas that are interested to act as new trainers and offer courses. To broaden the system it seems to be useful to integrate information about existing educational measures in the region. This will gather a bigger group of interested persons and institutions.

For the communities it is important to integrate NetBox in their rural development concept and to foster it by providing information and redirect interested persons to NetBox. In each region persons who are interested in learning activities (as a trainer or as a learner) get the possibility to access the necessary information.

The platform provides access to *news* about learning in their local area. People can get in contact with other learners, providers of educational measures and courses, other people who have information, a special knowledge to share or to get in contact with multipliers in the region. They can enter their own profile and provide assets or needs via the net as well as their actual and future wishes and perspectives.

Using the *knowledge* base they can search for adequate courses, educational measures and other offers in the region. Moreover persons who want to share their knowledge can create own online courses or blended learning measures. This can be done in an easy way without a huge amount of technical knowledge. To simplify the course creation process NetBox offers a step by step introduction. This is provided via the online Course Creator and a Train-the-Trainer module. This Train-the-Trainer Courseware supports the use with the necessary background information and didactical knowledge to become a trainer.

Using the *market* the individuals in the local region can interact and trade educational products, measures and learning activities.

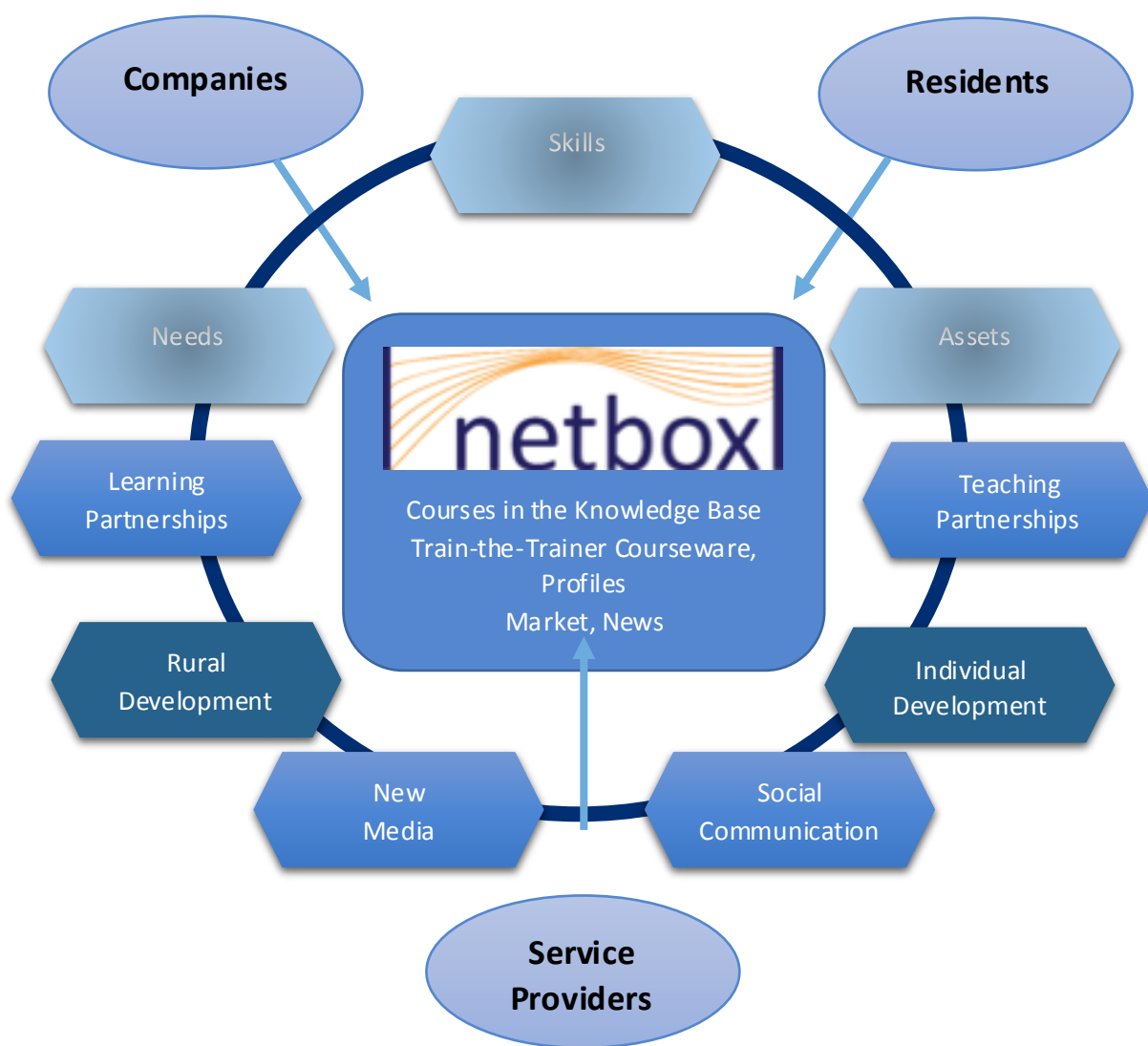
To integrate NetBox into the regional development concept, funding has to be established in the rural area that decides to use it. The committee should also have a closer look on the costs and the benefits each year and come up with a periodically report.

Overtime, the didactical element of the NetBox tool should be addressed and evaluated. The quality of the courses has to be ensured and reflected. Only courses that refer to

the minimum quality standards should be provided. In addition to that each region has to discuss if higher quality standard should be used to attract more users and provide them with adequate and helpful online courses.

This could also be accompanied by face-to-face training courses to foster their didactical knowledge and ways of designing the courses. A sort of online discussion about this could also be helpful in the long run.

Moreover, it seems to be appropriate that the committee focuses on the main parts of NetBox, which can be found in the picture below.



8. Conclusion

NetBox offers a very new, innovative, exciting and positive approach to bring learning needs and assets in small rural communities together and to foster residents of all ages, genders and ethnicities at all educational levels in an individual way.

Regarding European educational policy we unreservedly recommend to integrate NetBox in the educational programmes in the different partner countries of the EU. NetBox is an opportunity by supporting the governments to foster educational processes in rural areas and to develop low structured regions. Using new technology combined with teaching and learning partnerships as well as social communication the special character of NetBox enables communities to reorganise their knowledge base and offers individual possibilities to improve themselves.

Handling NetBox is relatively easy, with minimum digital competences required. This means that there are low barriers have to be overcome. So it offers many chances for people all over Europe to come together and to learn from each other. Cooperation, collaboration and communication between countries and communities on the basis of NetBox highlight the European dimension that is an essential part of the approach.

Key educational providers, practitioners and statutory organisations that are providing services into small rural areas represent a target group to establish and to implement NetBox in other European countries. A more robust model will be created by implementing it in other countries and evaluating it accordingly. Moreover, NetBox is a tool that can be used and adapted also in other contexts of educational development in different regions.

All in all NetBox offers possibilities for learning from experiences of other people, exchange of best practices and it brings together people and countries all over Europe. Because of its success that were demonstrated during the NetBox project in the partner countries by using ICT based platforms education at all levels, NetBox will also provide chances in other rural communities in Europe.

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