The NREN Business Model

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Abstract

The need for National Research and Education Network (NREN) organisations might be well known within the academic and higher education community, beyond this inner circle a lot of missionary work needs to be done to convince government, telecom providers and even parts of the academic community it self of this necessity.
Every country has its own particular regulations, politics and educational setting, making it impossible to provide a one fits all blue print for a successful NREN. Even though the end result differs per country, a common approach to arrive at the NREN model that is most suitable for the country can be presented. This approach is derived from the common approach in business, namely to develop a business model of the NREN is close contact with the mayor stakeholders, in this case government, telecom providers and the academic community.

Keywords

NREN, sustainability, Business Model

1. The Business Model Approach

The objectives of the various stakeholders in developing the NREN Business Model are very diverse. The academic institutions want affordable Internet and advanced services, government wants to see a sustainable NREN and telecom operators see current and future business opportunities. The various objectives are not always in line with each other and therefore an iterative and joint process is suggested. The concept of the NREN and its characteristics are gradually worked out in a path that leads to the ultimate goal: a sound financial model of the NREN that is approved and supported by all the stakeholders.

First the general case for the NREN is described, including the relation with national policy objectives. Before understanding the need of NRENs is it important to emphasize the need of ICT in (Higher) Education and Research in general. Developing countries are transforming to "Knowledge Societies". This process is part of achieving the goals of the World Summit of the Information Society that was initiated in 2003 in Geneva with a follow-up in 2005 in Tunis. Here ICT is identified as a driving force in transforming to the Knowledge Society: ICT drives educational reform that leads to innovation and then through the development services to the Knowledge Society. In 2010 the International Telecommunication Union (ITU) published a mid term review of the accomplishments towards reaching the Millennium Goals that were formulated by the WSIS. In this review NRENs were identified as important vehicles in reaching four out of the ten Millennium Goals" and it was stressed that "… governments must work with NRENs to ensure that they are fully embedded within the national innovation system and that

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they serve the needs of the local research community". It might seem trivial, but the role of NRENs in the development of a country is very often underestimated by government and it is important that they realise that NRENs are more than vehicles to achieve cheap Internet.

Next the ICT challenges that the academic community faces are listed. Four connectivity levels may been distinguished: the Local Network, the Last Mile, the National Backbone and International Bandwidth. Each country has its own challenges in these network domains, that all need their specific approach.

The ICT analysis is followed by a thorough user (needs) analysis. Here the concept of ICT maturity is introduced and the process of enabling institutions to achieve sufficient ICT maturity to connect to the NREN. An institution needs to have its own ICT Policy in place before connecting to an NREN, otherwise the implementation of advanced services and the added value for education and research will not be achieved. Without restructuring the internal processes, defining necessary ICT services and setting up adequate ICT support systems an institution will not have the required maturity to connect to the NREN.

Once a mutual understanding of the challenges has been achieved one can start to work towards a solution, namely the structure of the NREN, the services it should provide (an NREN is more than an Internet service provider!) and the network architecture. Again here is a moment where all stakeholders need to share a common base. The structuring of the NREN consists of the governance model, the NREN organisation and the tariff model. These issues need to be determined together with the potential NREN members in a transparent and interactive manner.

All this comes together in the financial model of the NREN providing, hopefully, a sustainable long term (4 – 5 years) financial plan. The core of the financial plan consists of the OPEX, defining all operational expenses that are necessary to operate the network and provide the required advanced services. In many cases the NREN members pay for the OPEX through the connection tariffs. Behind the OPEX the CAPEX defines the investments that are necessary to implement the network and the services. Often we see that either government or donors pay for the initial investments and replacement of equipment is financed through depreciation mechanisms.

2. Some case examples

A financial plan for an NREN is in itself not new, neither are many of the components mentioned above. It is the process that leads to the financial plan as end result that is the strength of the Business Model approach. Instead of presenting a finished plan to the stakeholders, this iterative and joint process creates a feeling of ownership: it is no longer "that NREN", but our "NREN". The approach also ensures that the local circumstances are taken into account: the result is not a copy/paste mutation of an existing document.

The Business Model approach has been used in the development of five NREN's in Africa and Central Asia and is being considered by several other NREN's that are at the beginning of their existence.

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In one of the African countries (Mozambique) the NREN Business Model has secured more than five million dollars of donor funding to implement the NREN. The donor decision was based on the Business Model that demonstrated that once the NREN was established and the first three years were supported by external funding the NREN would be financially sustainable and be able to operate without external funding.

In another African country the Business Model convinced the national telecom operator to support the NREN by providing a national Gigabit network backbone free of costs. The telecom operator is on the governance board of the NREN and supports the NREN where it can, having in mind that by creating more ICT awareness and ICT skills in the country revenues will increase. Besides the telecom operator other government organisations provide support for the NREN, for example the national telecom regulator that provides budget to overcome last mile challenges outside of the capital.

In Central Asia the Business Model approach was, amongst other things, the base of creating an active user community that works together with the NREN in creating added value for the institutions. Here the Business Model has convinced the members that the NREN has more to offer than an ordinary ISP.

3. In conclusion

Even existing NRENs and their communities can make use of the Business Model approach. Often the main goal of creating an NREN is to provide affordable Internet for the academic and Higher Education community. Later advanced services are also delivered, often on an ad hoc basis. In the Business Model approach affordable Internet is merely a vehicle to provide the advanced services that their members need. The Business Model describes the architecture for the value creation, delivery and capture by the NREN and presents the case of the NREN in a broader perspective. Further the Business Model is the base for the yearly planning of the NREN and can also be used in the reporting cycle of on-going activities.

Biography

After graduating as Theoretical Biologist at the University of Groningen in The Netherlands Robert Janz has, professionally, mainly been active in the area of ICT and Academia. Since 1981 he is employed by the Computing Centre (now named the Centre for Information Technology) of the University of Groningen. Starting as lecturer he became the Technical Director of the Computing Centre in 1995. In 2005 he switched to the position of senior project manager. In this position the focus was on initiating and implementing large multi-partner ICT projects with the University of Groningen as one of the leading partners, such as the ICT part of the LOFAR project, the Groningen Internet Exchange, the Big data project TARGET and the municipal wireless network of the city of Groningen. In the international context Robert has been active in implementing large ICT projects in the Higher Education sector in Africa and Central Asia. In the recent years the focus has been on developing sustainable NRENs in southern Africa (Zambia and Mozambique) and Central Asia.

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