



Development of Open Innovations Association FRUCT

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The thesis presents results of a project that was targeted in development of R&D cooperation ecosystem between Russia and Nordic countries. The main emphasis was on setting up industry-to-academia competence incubator operating in the open innovations format. The need of creation such cooperation framework was recognized by the local industry, academic community and government authorities. In particular Nokia, Nokia Siemens Networks and a number of SMEs in Finland and Russia have contributed in development of the project by providing financial support and competences.

The study seeks to develop philosophical and economic principles of the regional R&D cooperation framework and provides a definition of organizational and operational principles and structure. Special attention is given to sustainability issues, by illustrating how the community was adopted to the various changes that took place in the last years. The thesis summarizes the development work done and provides development plan of the future activities.

Theoretical basis of this study is the open innovations principle proposed by Professor Henry Chesbrough, UC Berkley. In particular this study explores how the open innovation principles can be implemented with minimal administrative overhead. To what extend traditional formal organizational structure that enables operations of open innovations framework can be replaced by less formal association in form of Community of Practice (CoP). The aim is to develop open innovations solution, where majority of organizational and coordination work is performed by CoP. This should help making Open Innovations framework be more cost-efficient, scalable and democratic to better address interests of all participants.

The study is performed using study-in-action principle. New ideas and suggestions are piloted by the Finnish-Russian University Cooperation in Telecommunications (FRUCT) open innovations association. The most interesting findings and trends are analyzed and identified improvements are incorporated in processes of FRUCT association.

The thesis describes FRUCT association structure and principles of operation, defines plan of future development to make it the dominant open innovations association in the region.

I would like to acknowledge great support and contribution to development of FRUCT association provided by Nokia, Nokia Siemens Networks, SUAI university and express my personal grateful thanks to Alexey Dudkov, Veronika Prokhorova, Yevgeni Krouk, Ekaterina Dashkova, Yevgeni Koucheryavy and all other activists of the association.

Key words

Open Innovations, Industry-University, R&D cooperation, EU-Russia, CoP, Action Research and Appreciative Inquiry.

PREFACE

This master's thesis was done in close cooperation with Nokia Research Center and universities cooperation program of Nokia in Russia, from January 2010 till August of 2012, first as a part of Nokia expansion to Russia program and from February 2011 as independent project supported by Nokia.

I would like to thank head of Nokia university cooperation program in Russia Dr. Timofey Turenko for providing valuable comments, feedback and support during the whole course of the thesis work. Also I would like to thank many colleagues from Nokia and Nokia Siemens Network – Jonathan Sparrow, Victor Saeijs, Alexander Bobkov, Alexander Trufanov for their support, comments and cozy work atmosphere.

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Sergey Balandin

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1 Introduction

This study seeks to create a sustainable and cost-efficient industry-to-academia open innovations association for development of well interconnected research and development (R&D) community on telecommunications in Russia and Nordic countries. The community is targeted to support creation of a critical mass of experts and young engineers for scalable EU-Russia ecosystem development projects, which cannot be done without active investment in bridging of scientific, industrial and educational schools in the border region. The mission of development such community was recognized as a crucial required to guaranty competitiveness of the region in modern world.

The Silicon Valley innovation model is well known in the world and many countries are trying to recreate it. But, simply by copying Silicon Valley principles is not possible to transfer success of this model to another region. Silicon Valley has absolutely unique mixture of characteristics. Its success is relying on extreme density of highly educated population, presence of top high-tech companies and universities and very unique culture that inherits attitude of moving to frontiers. Assumption for this study is that successful innovation ecosystem for our region shall be built on another principle and specifically address and use the main regional strengths. Therefore, the mission of this study is to propose principles of a new open innovations framework that is specifically designed to boost cooperation of academia and industry in the border region of Russia, Finland and Nordic countries.

This study was supported by Nokia's University Cooperation Program in Russia (Nokia, 2012), Nokia Siemens Networks (Nokia Siemens Networks, 2012), ENPI Karelia CBC KA-179 and KA-322 (ENPI, 2012) and a number of SMEs, e.g., Magister Solutions Oy (Magister Solutions, 2012). Nokia was the main sponsor of this study during the first two years. Despite challenges in business infrastructure, Nokia is a pioneer in mobile telecommunications and still among the world leading mobile device makers. Its brand is among world 15 top brands and known to almost everyone on the planet without further explanations (Interbrand, 2011). Today Nokia is connecting people in new and different ways - fusing advanced mobile technology with personalized services to enable people to stay close to what matters to them. Nokia also provides comprehensive digital map information through its NAVTEQ unit and equipment, solutions and services for communications networks through Nokia Siemens Networks. More information about Nokia can be found at official web site (Nokia, 2012). It is also important to mention that over the last 20 years Nokia has strong reputation of innovation leaders of ICT industry. For many years Nokia was the top company in ICT industry in

terms of expenses to R&D with the total R&D bill for year 2010 is on the level of \$3.9B (Engadget, 2011).

Nokia was one of the first companies to start developing its cooperation network by applying principles of open innovation (NRC Open Innovation, 2012). By now the network of open innovation partners consists of dozen of top institutions from Europe, America, Asia and Africa, which work in tide cooperation with the co-located offices of Nokia Research Center. In 2005 Nokia has launched the new academic cooperation program targeted in studying R&D cooperation opportunities in Russia and region of Commonwealth of Independent States (CIS). The thesis author was appointed to lead the corresponding investigation team.

In the first 1.5 years of studies we have discovered a number of regional specifics, needs and restrictions. For example, due to relatively low transparency of the scientific organizations it was extremely difficult to directly apply classical principles of open innovations in Russia. To overcome this problem and remain within the budget restrictions, it has been decided to develop friendly academic community, which can more openly discuss academic cooperation with selected partners, break the ice and help to evaluate actual level of the partner teams.

The thesis presents studies that have resulted in development of the new type of R&D cooperation framework, which already has made significant impact on regional R&D ecosystem and helped Nokia and Nokia Siemens Networks to develop R&D presence in the region. This study presents two stages of the community development – the initial stage when community development was primary driven by the needs of industrial partners; and the current stage of academic association, which helps linking member teams and develops joint competences and projects by implementing the win-win principle. Nokia is still the key FRUCT partner, but the community is developing as independent organization that partnering with governmental funds and various private companies.

The main emphasis of this development work is on creating industry-to-academia competence incubator operating by applying the open innovations principles, where the framework management is delegated to the community. The first practical step in this direction was done in the beginning of 2007, when a team of enthusiasts supported by Nokia's university cooperation program in Russia and two universities, established Finnish-Russian University Cooperation in Telecommunications (FRUCT) community (FRUCT 2012).

FRUCT community has been established in 2007 a group of enthusiasts as a framework cooperation program that unites universities, R&D institutions and companies. In the beginning FRUCT did not have regular financial support and was seen by the supporting organizations just as a club. Because of that we decided to apply community of practice (CoP) principles (Adler & Heckscher 2006; Wenger, McDermott & Snyder 2002) in organization of FRUCT management team. As a result we get the framework, which R&D activities are organized following the open innovation principles and the management structure is organized as CoP.

Based on this principle, the FRUCT community started developing its structure and operational principles. In two years it has united teams from 18 universities, Russian Academy of Science, Nokia and Nokia Siemens Networks. The community was recognized by Nokia and start receiving financial support from Nokia's social responsibility department, as well as financial and competence support from a number of Nokia's R&D units, including Nokia Research Center, Nokia MAEMO R&D organization (MAEMO 2009), NSN R&D units and so on, as well as financial support from Nokia marketing Russia and NSN marketing Russia. The FRUCT community was a mental trigger and a formal framework for a number of universities from the EU and Russia, politicians and representatives of Russia Academy of Science to express interest and support and take active role in development of the open innovations R&D ecosystem of the region.

The community has done a lot of studies in various fields and successfully delivered a number of projects. Most of the projects were done in cooperation and in line with research priorities of Nokia and other industrial partners. This helped FRUCT to earned reputation of one of the most respected scientific communities in the region. As the main result FRUCT has provided valuable input that helped Nokia in defining strategy for R&D expansion to Russia and took part in shaping the format of its R&D presence in the region. In November 2010 it resulted in signing memorandum of understanding and in June 2011 an action plan for creation of the Nokia Research Centre in Skolkovo innovation zone near Moscow (Skolkovo 2011).

Development of Nokia R&D presence in Russia together with a number of successful cooperation activities executed between Nokia and FRUCT community member teams gave the clear message that the original mission of FRUCT has been achieved. But fulfillment of the original mission has created a set of new challenges for FRUCT. The main question was whether the community shall continue to exist with a new mission or better to close it. Analysis of this tradeoff has discovered that FRUCT community has a lot of valuable assets and the

level of personal motivation and emotional attachment of the community members is very high. The conclusion was that FRUCT shall continue operations.

Nokia and NSN were not longer interested to outsource relations building and technologies scouting functions to FRUCT. It became a role of the local office of Nokia Research Center, which is working for development of a solid and clear identity for Nokia R&D presence in the region. But from Nokia perspective FRUCT still has the value and role as a friendly regional community and organization to which Nokia could outsource some small R&D projects and products localization tasks. The role could not fuel demanded growth and development of the community, but it at least gave time for internal transformation of FRUCT community. For example, due to change of internal priorities and financial restrictions Nokia has stopped providing FRUCT with management, accounting and other supporting services. This created a need to find another legal entity that can drive community through time of transformation and provide organizational, management, accounting and other services.

In the autumn 2010 the community started looking for a governmental or private partner that can take leading role and drive further development. Despite strong interest to cooperation between Finland and Russia, all our attempts have failed, which partly can be explained by dramatically unfavorable business moment for the regional ICT industry. The next option was creation of an own non-profit organization. Analysis of this option has discovered that the process of creating such organization is rather complicated and will lead to a number of restrictions that in long-term might have unwanted consequences for the community. But more time FRUCT lived without managing partner, more problems appeared and the overall situation has become the live threat for the community. In December 2010 it was decided to establish own company FRUCT Oy, which mission is to drive the community through the time of transformation.

FRUCT Oy is the managing company for the Open Innovations Association FRUCT. The main role of FRUCT Oy is to manage development of FRUCT association and provide it with required supporting services. For example, FRUCT Oy organizes conferences, promotional lectures and trainings based on requests of FRUCT association and its members. The company takes small consultancy and service development projects. FRUCT Oy published over 40 mobile applications in various mobile stores (Ovi, 2012; Android, 2012). Also FRUCT Oy won two ENPI grants for development of EU-Russia cooperation in the field of future cross-platform services. The list of core services provided by FRUCT Oy is as follows:

- Taking outsourcing of high risk ICT R&D projects based on requests of private companies and public funds;
- Implementing localized ICT services based on requests of private businesses and providing own services and solutions for sale in mobile stores (Nokia, Android, etc.);
- Creating professional academic teams with required competences and skills for companies interested in developing presence in the region;
- Providing consultancy to help understand regional specifics by the EU companies that are considering to enter Russia and Russian companies interested to expand to the EU;
- Helping high-tech ICT companies from the EU to building tailored presence in Russia.

The FRUCT ecosystem consists of the association members (universities, R&D labs, partner companies), regional partners, external partners (key world alliances in ICT industry) and FRUCT Oy in the middle that orchestrating processes and providing customer companies (current and potential) with required knowledge about the region, outsourcing of R&D and services, localization of ICT solutions and assistance to enter Russia/CIS and Finland/EU as illustrated in Figure 1.

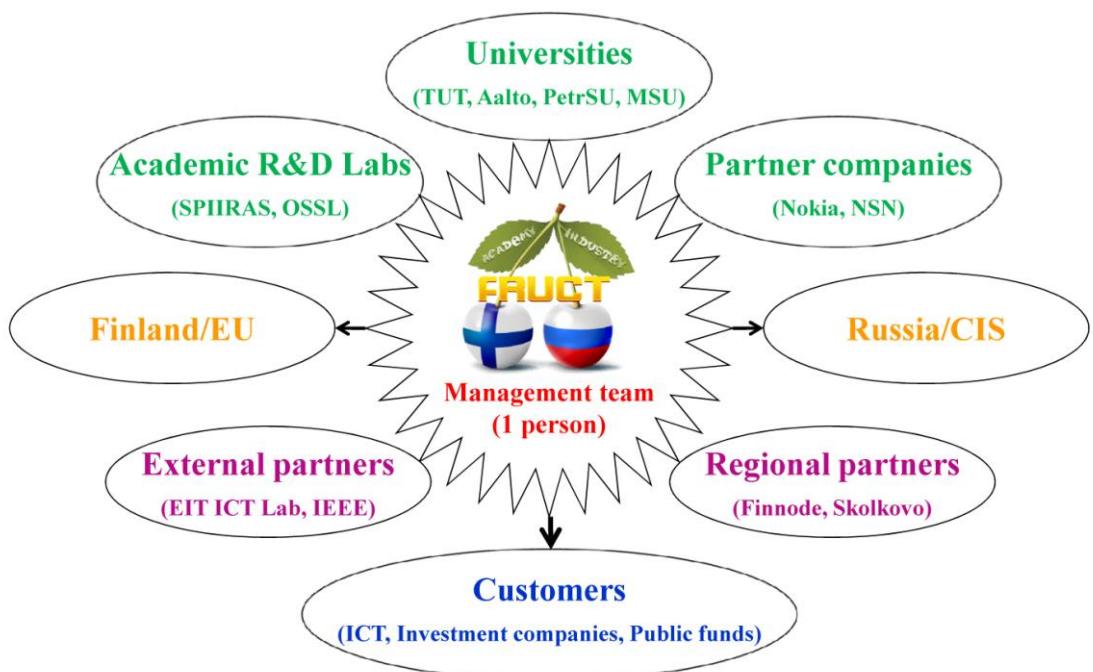


Figure 1: The ecosystem flower of FRUCT Association

Thanks to the structure with FRUCT Oy in the center of the described ecosystem flower, nowadays FRUCT can continue its development as an independent association of researchers and developers that is built on open innovation principles and managed by the steering group that operates as a community of practice. FRUCT is aiming in increasing visibility of the par-

ticipating teams, building trust between the members and helping setting direct R&D cooperation of academia and industry. Another key focus area of the activities is education renewal and joint incubation of the new competences.

This study is organized in the following way. Chapter 2 provides an overview of the general trends and motivations for Nokia R&D expansion to Russia. It starts by the discussion on historical background, motivation and main objectives as they were seen in the beginning of the study. It provides definition of the conceptual frameworks used in the study, main factors that impacted the pre-phase and action research strategy that was adopted and used for evolutionary transformation of FRUCT. In Chapter 2 you can find discussion on proposed idea of using CoPs for managing large distributed communities, description of the features associated with the classical open innovations solutions and new opportunities brought by the great convergence in ICT. The chapter is concluded by discussion on the alternative principles for competence and business incubation under democratic community-driven management and definition of objectives and development drivers for FRUCT framework.

Chapter 3 starts by the definition of research problem that was originally set for the study. This study was targeted in development of a new cost-efficient open innovations framework to support Nokia R&D expansion to Russia. The chapter provides description of corresponding research case, followed by definition of the principles and architecture of the open innovation framework created to address the defined case. It outlines the research methodology used in development of FRUCT framework and provides detailed example of applying appreciative inquiry research for development of FRUCT. The chapter includes analysis of the selected approach and detailed description of the methodology and methods used in the study. The additional three focus topics of Chapter 3 are cross-cultural management of FRUCT community, role of integrated communications for open innovations communities and discussion on the ways to ensure fair access to the results of cooperation by all project members, e.g., issues of intellectual property rights (IPR) management. The chapter is concluded by an overview of the main results and outcomes of the first phase of FRUCT life cycle.

Chapter 4 defines the main challenges and corresponding research problems that arise in FRUCT after successful fulfillment of its original mission. The chapter is focused on explaining the transformation that FRUCT framework had to take, what was the new positioning of FRUCT and how the transformation process was managed, e.g., managing change of the integrated communications and FRUCT brand identify. The chapter gives an overview of the relevant theories and discusses their best use to benefit FRUCT development. The discussion

covers all major aspects of the large community management, including socially-political aspect of competence incubation in Russia and Nordic region. The comparison of several approaches and theories is provided. Analysis of problems and challenges is summarized by FRUCT SWOT matrix, followed by analysis done with help of the confrontation matrix. The analysis is concluded by derivation of a set of strategic intends that defined FRUCT development in the beginning of the second phase of FRUCT life cycle. The chapter is concluded by discussion on current FRUCT status, its ecosystem and issues that require further study and development.

Chapter 5 describes a set of tools and methodologies that were developed to facilitate management of FRUCT framework and association. The chapter is a technical guideline for teams interested to adopt best practices of the developed infrastructure and transfer FRUCT culture and principles to other regions. The chapter provides an overview of the implemented web solutions, including references to the detailed description and explanation on how to reuse the developed tools. It provides current definition of the communicative strategy. The chapter specifies and explains all main research and development activities of FRUCT and gives an overview of methods used for practical implementation of the selected theories. The chapter presents FRUCT activities in education renewal and support of professional communities. It is concluded by overview of the main changes in progress evaluation strategy.

The study is concluded by the summary of the main results and finding, list of references used in this study, list of abbreviations and appendices that provide chronological overview of the FRUCT history and screenshots of the main FRUCT web tools.

2 Background of the study

The chapter provides an overview of the general trends and motivations for Nokia R&D expansion to Russia. It starts by the discussion on historical background, motivation and main objectives as they were seen in the beginning of the study. It provides definition of the conceptual frameworks used in the study, main factors that impacted the pre-phase and action research strategy that was adopted and used for evolutionary transformation of FRUCT. In this chapter you can find discussion on proposed idea of using CoPs for managing large distributed communities, description of the features associated with the classical open innovations solutions and new opportunities brought by the great convergence in ICT. The chapter is concluded by discussion on the alternative principles for competence and business incubation under democratic community-driven management and definition of objectives and development drivers for FRUCT framework.

2.1 Motivation and Conceptual Framework

Nowadays the USA universities are the recognized leaders in adaptation of the academic research and education to the existing industrial needs. For example, one can see the density and quality of industrial presence in Silicon Valley. This situation creates strong demand for quick and adequate actions from universities in Russia and Europe. A number of cooperation frameworks have been built inside the European Union (EU), e.g., Framework Program 7 (European Commission, 2010). However, the cooperation between Europe and Russia still leaves a lot of space for further improvement. This creates a historical chance for Finnish universities to use geographical proximity and traditionally good relations with Russian colleagues to contribute into the process and also strengthen Finnish science. Such cooperation has clear mutual benefits, as among other advantages it will give Finnish academia a priority path for accessing the huge pool of highly qualified talents and new innovative competences available in Russia. It also will help Russian universities to better integrate with the EU academic institutions and consequently contribute to the development of the bridge between academic and R&D worlds of the EU and Russia.

Continues development of the strategic partnership between industrial and academic research is a key success factor of the modern innovation ecosystem. There are many examples of such strategic partnership frameworks functioning in different parts of the world. The main mission of these programs is to benefit all involved parties by fueling their R&D units with new ideas supported by the critical mass of resources to study and implement them. But it is important to remember that the academic and industrial R&D centers have different priorities and mis-

sions. This creates two forces that pull the cooperation programs in orthogonal directions and after a short time majority of cooperation initiatives fall in one of the extremes, i.e., become a form of industrial subcontracting or industrial donations. At this phase the original strong ties of partnership are replaced by weak ties of short-term commercial interest or corporate social responsibility.

Fundamental science driven by the universities and other academic organizations should be independent and take risk of addressing areas that are not yet recognized by the industry. At the same time industrial competences are needed to properly shape and present new findings. Companies pay taxes and expect that university studies will be well supported by the government. The government funds can give enough independence to the academic institutions in the EU and other developed countries. But often state authorities need assistance and external pools of competences to evaluate academic proposals. The efficiency of spending government funds could be improved by involving industrial R&D expertise in the early phase. The industrial research also benefits by early access to the academic results and information about main trends and weak signals in the field. Based on this one can conclude that a reliable ground exists for building strategic partnership between industrial and academic research, but the co-operation principles and methods have to be significantly improved to meet needs and expectations of both sides.

Another key driver for setting stronger connections between academia and industry is that the time between a moment of innovation and its adoption by the industry is getting shorter and shorter. Long-term basic research studies performed by the academic teams have to be highly independent and should not be directly attached to the current industrial needs. At the same time universities must be active in short-term applied research and to be efficient they need feedback from the industry. Open innovations is a new cooperation paradigm targeted to build strategic partnership between industrial and academic research (Chesbrough, 2003a). Such framework programs help to find right research partners and jointly incubate new competences.

Recently most of leading industrial companies started to apply the open innovation principles in-house. The most up-to-date list of open innovation teaching cases could be found at the web site of Exnovate initiative (European Center for Open and Collaborative Innovation, 2012).

The author was not aware of the conceptual framework of Open Innovations in the beginning of this study. It was discovered in the end of the first year of the study and then actively used as the overall conceptual framework for development of R&D cooperation between industry and academia.

But despite clear advantages of this approach, majority of public funded Open Innovation initiatives are not sustainable. There are a few examples of open innovation frameworks driven by an industry, but these solutions are expensive and more short- and mid-term oriented and have no links to teams working on fundamental issues or such links are very weak. Also due to relative high costs, classical open innovation frameworks are usually created together with the main stream partners, i.e., universities with good reputation and well predictable areas of strong competences (Florida & Gulden, 2005). As a consequence traditional definition of the open innovation frameworks is not well designed for catching weak signals and operations on the emerging markets, where the task of selecting proper partners is not clear and risky.

This created a need for new principles of open innovation operations that allow overcoming the above listed limitations and would be suitable for emerging markets. This study does not directly extend theoretical definition of the open innovations conceptual framework according to this need. The main principles of open innovations conceptual framework are preserved and from outside the developed framework looks like the classical open innovations cooperation of academia and industry. But internally the open innovations conceptual framework was significantly modified, by replacement of the classical organization responsible for the framework management by the community-driven management.

The above conclusion to adopt new principle of R&D expansion to Russia following the open innovations principles and making corresponding change of the internal organization of the conceptual framework was the main outcome of the pre-phase of this study. From the point of view of this study, pre-phase was the Russian Cooperation (RusCo) project. The project was initiated by the university cooperation program of Nokia Research Center in December 2005. The preliminary analysis of the case was done by the author of this study by December 2006 and the above conclusion was derived. Analysis of the various approaches to organization of the internal management of the framework has discovered that the conceptual framework of Communities of Practice (CoP) provides the best solution in this case. As it was illustrated by the later study, the open innovations framework under management of CoP illustrates better performance and is much more cost-efficient comparing to the traditional solutions of formal industry driven framework. Development of the management community of

practice for Nokia-centric open innovations framework between Russia and Finland now can be seen as a kick-off of the first phase of FRUCT life cycle. The main phases of FRUCT development and corresponding development of the conceptual framework are illustrated in Figure 2.

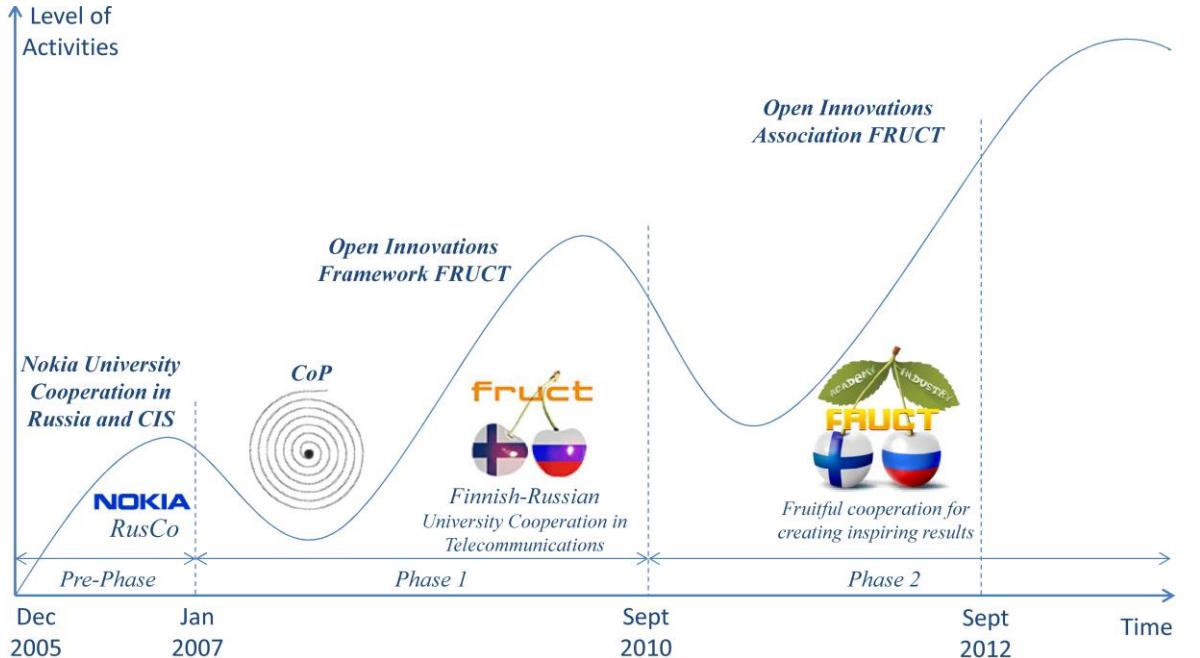


Figure 2: Development of FRUCT conceptual framework

Development of FRUCT framework was done with careful consideration and analysis of the prior art conceptual frameworks and studies on community development models, e.g. onion model (Antikainen, Aaltonen & Vaisanen, 2007) and identity and knowledge management (Waseem, 2008) and so on. The best finding and ideas were adopted by FRUCT. By combining these findings and supporting their adoption by the internal culture on open source, open research and passion for change, the cycle model of FRUCT development was created.

FRUCT development is organized in half a year life cycles of action research. FRUCT objectives are openly discussed with all community members and the implementation work is supervised by CoP that manages the framework. In the end of each cycle all results are carefully analyzed by various methods (e.g., appreciative inquiry, SWOT, causal field model, etc.) and analysis results are reported to the community as an input for planning the next cycle. As a result FRUCT framework can be seen as a symbiosis of the external open innovation conceptual framework and CoP conceptual framework for organization of internal processes, where research is performed following action research principles and organized in cycles, where each cycle is a development of the previous cycle and consists of a number of internal activities and milestones.

The Information and Communications Technology (ICT) industry was selected as a target research area for this study as it is the target market for Nokia and one of the most dynamic industries, which nowadays is in the process of internal transformation and convergence. ICT industry has the clear leadership in involving communities in organization and management of internal processes. The industry associates high value with efficient and flexible R&D management, which creates lot of opportunities for open innovations cooperation.

2.2 Open Innovations Opportunities brought by ICT Great Convergence

The information age is characterized by rapid growth of information and a number and variety of methods for retrieving, processing and delivering it to the users. As a result over the last 30 years a number of industries have emerged and developed to fulfill this growing demand. It started by the fast emergence of the personal computer industry in the eighties, followed by mobile boom in the beginning of nineties, fast growth of Internet solutions starting from the second half of nineties and emergence of sophisticated digital consumer electronics devices in the beginning of the new century. Historically these industries were developed independently, but now it is obvious that they are moving in the same direction and already are in direct competition. Already now one can see a number of clear evidences of this trend, such as internet services that replace classical PC software, mobile widgets that create new mobile services by enhancing content and functionality from web, smartphones that combines functionality of a set of consumer electronic devices and so on. As we see more and more R&D studies targeted to facilitate creation of the cognitive product of ongoing great cross-industrial convergence. Consequently, in future the demand for technological scouting and research exploration will grow.

The term great convergence reflects the global trend on convergence of four top innovative industries of today, i.e., Computer/PC industry, mobile industry, Internet/Web solutions and consumer electronics (Shen, 2010). The corresponding market niche is huge, but the main companies still prefer to stay in their domains and pay less attention to the opportunities created by the market convergence. World economic crisis makes demand for the new cost-efficient and scalable R&D solutions even stronger. In order to ensure sustainable growth in the future, Nokia and Nokia Siemens Networks need to find a way to deal with the challenge of more efficient organization of R&D processes. Current strategy of both companies clearly state a need of more extensive and efficient use of the external R&D resources, urgent demand of building proper frameworks for running these kind of activities and request for prac-

tical help in accomplishing this mission. This creates a huge opportunity for FRUCT and could be the key business driver of the association.

The key commonality of the converging industries is focus on the end user as a target for delivering wide variety of digitalized services. The actual service provision devices are less of the interest for a user, as user primary care about ease of use, availability all time at any place, trust and reliability, plus recently the requirement for seamless access has emerged. Even the first overview studies of industrial trends (Bostrom, 2002) show that the content management and application design principles in all above listed industries are converging following the same principles. As a result a number of quick cross-industrial solutions have been introduced and gain commercial success in the last 5-7 years. But these solutions are just the first “prophesies” of the great convergence and see what is the likely technological “meeting point” for the identified great convergence megatrend.

Let's summarize expectations from the converged solution and analyze whether already is some architectural and technical solution that is targeted to operate in the cross-platform and cross-domain converged space. The first requirement is that it should be platform-independent solution with minimum redundancy toll and ability to deliver maximum functionality and efficiency for each participating device type. It is important to guaranty the new platform naturally enhances main use scenarios associated with original devices and takes into account their physical restrictions and limitations. It is obvious that a sustainable solution should take advantage from joint use of involved devices and be sensitive to user's context and preferences. For commercial success the platform should provided consistency of the UI design principles and has low entering threshold for the new services produced by the third party providers.

A structure and mode of operation of the FRUCT Association should be organized in a way that supports early identification and development of demanded competences. For example, self-organizing Smart Spaces are designed as platform and device independent solution, where information is encapsulated and stored in dedicated semantic information structures that are logically seamlessly distributed over the set of available user devices. The user applications are built on top of autonomous agents that deliver certain set of functions by performing reasoning over information available in the Smart Space. One possible definition of Smart Space is as a context-aware network of user devices, i.e., a subset of user-owned devices, possibly extended by user resources in public domain; that utilizes open web standards and semantic reasoning to retrieve, modify and produce information and deliver it to a software agent or directly

to user that so gets ability to seamlessly use the full shared semantic graph of information from all user devices. The Smart Spaces paradigm works efficiently on different OS and device types thanks to focusing on service distribution through information-based interfaces. The user from any device including PC, mobile phone or even coffee machine could connect to the space by the common shared interface, acquire information in personalized format, interpret and process it differently on different devices, make decisions based on information relevant in the given context and share new information into the space.

The main conclusion of the industrial trends study discovered the high probability of broad adoption of Smart Space principles (Das, 2008). A good example of Smart Space solution is developed by Nokia Research Center and SOFIA partners - Smart-M3 platform (Smart-M3, 2010). Related to this example, one objective of FRUCT community is to gain regional leadership in Smart Space technologies by creating a group with right mix of experts and develop new required competences. Already now FRUCT should take a role of crystallization point and a core for project consortia targeted in development of smart spaces solutions in the region.

Another area recently emerged in the industrial convergence is mobile healthcare (mHealth). The mHealth is targeted to use personal mobile device for continues monitoring of the user health parameters, process collected data and store it in the personal archive. As a result it will allow increasing percent of early detection of health problems and so preventing problems instead of curing their consequences. There is clear demand for such solutions and the market potential is huge. Nowadays FRUCT is one of the most active players in mHealth field and has the largest partner network in the region.

2.3 Objectives and Development Drivers

Idea of establishing FRUCT community has emerged after one year of running universities cooperation program, when it become clear that there is a significant mismatch between the scale and importance of the problems related to development Nokia R&D presence in Russia and amount of allocated resources. The main objective of the pre-study phase was to find a solution that maximizes efficiency of using existing resources. It was the challenging objective that required good understanding of principles of innovations in large companies and processes of running and managing communities. Analysis of this objective has discovered that the closest match for the specified need can be provided using the open innovations approach.

However, the first theoretical conclusions were not sufficient to convince Nokia to setup full scale classical open innovation framework in Russia.

The mission and first set of objectives for new open innovation framework in Russia were set in the end of 2006. At that time the author of this study was a principle scientist of Nokia Research Center and leader of university and R&D cooperation program of Nokia in Russia and CIS. The main objective was to create a partner network and prepare ground to support expansion of Nokia R&D to Russia. The second objective was to study how to overcome management limitations of the classical open innovations solutions by making it cheaper and self-driven. In the beginning of 2007 together with a few enthusiasts, the author established Finnish-Russian University Cooperation in Telecommunications (FRUCT) community to help solving the defined objective.

Development of FRUCT illustrated that community can be used as a cost-efficient and scalable solution for managing open innovations framework. So by the beginning of 2009 FRUCT become successful and fast growing community. However, lack of clearly defined and theoretically supported plan of future development was the key risk, which created the original motivation for author to start the Degree Programme in International Business Management (IBMA) master studies. Continuation of practical project work was combined with the theoretical studies resulted in this study.

The main focus of the first phase of the study was on development of scalable and cost-efficient framework that implements Open Innovation principles for organization of R&D expansion of the large company to the new region. The goal was to remove organizational thresholds, lower cost of open innovations and make the cooperation process and access to results more transparent and democratic. Nokia was interested in concrete proves of the competence availability in the region. The large part of project activities at this phase was targeted in development of management framework for creating and running R&D projects under management of the community of practice interested to make these innovations happen. This resulted in development of the matrix management architecture of FRUCT Framework (presented in Chapter 3) and a set of FRUCT management web tools (presented in Chapter 5).

This study includes extensive analysis of the existing open innovation solutions, search of success stories of using CoPs for managing larger initiatives and alternative methods of competence and business incubation. A number of cases have been under consideration and in anal-

ysis. In addition, this study is going to analyze socially-political aspect of competence incubation in Russia, Nordic countries and the Baltic region.

The first project stage was completed by autumn 2010, when Nokia get all required information and practical tools to setup local presence in Russia (Skolkovo, 2010). Chapter 3 provides detailed report for the first phase of the project.

The main focus of the second phase of the thesis work was on sustainability of the developed framework and its adaptation to the new realities created after fulfillment of the original mission and impacted by unfavorable development of the global economy and market position of Nokia. At this project phase FRUCT could not rely on Nokia as much as before and had to find the replacement points of attraction for the members and new funding sources. At the same time FRUCT had the great team, a number of valuable assets and good visibility. Currently the project is still in its second phase, but the most critical issues have been already resolved and now FRUCT is on the new phase of clear growth. Chapter 4 provides detailed report for the second phase of the project.

3 Development of Community-driven Open Innovation Framework

This chapter starts by the definition of research problem that was originally set for the study. This study was targeted in development of a new cost-efficient open innovations framework to support Nokia R&D expansion to Russia. The chapter provides description of corresponding research case, followed by definition of the principles and architecture of the open innovation framework created to address the defined case. It outlines the research methodology used in development of FRUCT framework and provides detailed example of applying appreciative inquiry research for development of FRUCT. The chapter includes analysis of the selected approach and detailed description of the methodology and methods used in the study. The additional three focus topics of this chapter are cross-cultural management of FRUCT community, role of integrated communications for open innovations communities and discussion on the ways to ensure fair access to the results of cooperation by all project members, e.g., issues of intellectual property rights (IPR) management. The chapter is concluded by an overview of the main results and outcomes of the first phase of FRUCT life cycle.

3.1 Definition of Research Problem

The main research problem of the first part of the study was to develop philosophy, architecture and main principles of the democratic (community-driven) open innovations framework. Comparing to the traditional open innovation frameworks the new architecture should be able to operate without strong industrial drive and to be able to rely on just limited support, generally positive attitude and goodwill of the involved companies. At the same time the framework shall address needs of the member companies and help to develop more equal form of cooperation between business and professional communities. The target is to provide professional communities with a methodology and an example case on how to build self-organized community-driven open innovations. The target solution shall be scalable, cost-efficient, applicable for various industries and attractive for industry and academia.

The set of original objectives for FRUCT framework was defined as follows:

- Identify world-class R&D teams interested in open innovations cooperation with Nokia and Nokia Siemens Networks;
- Develop new competences and corresponding niches for R&D cooperation around Nokia and NSN relevant research topics and technologies;

- Create an innovative environment that gives students a chance to realize scientific and R&D ambitions, promotes out of box thinking and helps to identify and support work of best students and young scientists;
- Develop a long-term strategic partnership between industry and universities in Russia and help development links between Finnish and Russian Universities;
- Promote the idea of Europe without borders and illustrate Nokia leadership as socially responsible company.

The main research question was to define the operational principles and structure of the industry-to-academia R&D cooperation framework, which fulfills the following requirements:

- result-oriented, i.e., it should not be just another R&D center that eats resources and produces primary papers and recommendations, but focus on clear business needs and deliver results;
- cost-efficient, i.e., the investment in creating intellectual property must be considerably lower than for in-house research in industrial centers;
- scalable, i.e., in the beginning all successful solutions experience significant growth in size, so the develop framework shall be ready to deal with it;
- beneficial for all parties, i.e., industrial and academic organizations and individuals directly contributing to the cooperation.

The additional research question is to develop a solution for fair and transparent evaluation of contributions done by the involved parties and their role in the overall success of projects within scope of FRUCT framework. FRUCT framework is targeted to fulfill needs of an industrial partner, but the community shall not be a satellite workforce of a company, so it is important that the community contribution is visible, evaluated and rewarded. There is a need to develop clear rules on how the contributors will share results, especially rights to the created intellectual property, propose ways how contribution could be alternatively compensated and so on. This is an important research question that includes a number of legal and other issues. Legal issues strongly depend on the specifics of regional legal systems and shall be solved separately for each country. The study defines a set of related problems and a selected approach. The approach is based on a set of recommendation for FRUCT partners, which shall take all further responsibility for development of most suitable and region-specific solution for their project.

3.2 Description of the Research Case

The original FRUCT mission was to support Nokia R&D expansion to Russia. FRUCT framework was developed as Nokia-oriented competence incubator that helps academic teams to organize research work, finds Nokia teams interested to fund the work and prepare transfer of the developed results to Nokia. The framework was interesting for Nokia to promote technologies and stimulate research in the priority fields, plus generated knowledge about regional competences and develop partner network. It was also attractive for regional universities and research organizations as via FRUCT they could get in touch with the market leader, present ideas, get financial and competence support in development of the ideas. Another key motivator was the Nokia brand and the desire to learn new technologies and develop solutions of top of them and later come to the market in association with Nokia products. By many universities FRUCT was seen as an opportunity to occupy newly developed niches in Nokia R&D ecosystem in Russia.

Academic and industrial (Nokia) sides had sufficient motives to support FRUCT development. But the case was complicated as both sides did not want to take initiative and were prepared only for minimal investments in development of the corresponding framework. Nokia was very careful in defining R&D investment portfolio and did not want to invest without strong prove that the region has required competences. Universities were suspicious about all new partners, as after collapse of Soviet Union they were often cheated by non-reliable partners and the trust issue became a key in all relations. Moreover, universities experienced quite difficult financial situation and it was really difficult for them to make any investments to the project.

After analysis of the restrictions of selected case the first FRUCT management community was built from a few enthusiasts from regional universities. Nokia agreed to support this community via its university cooperation program and allocated a few thousands of euros for covering direct expenses on development of the open innovation framework in Russia.

3.3 Principles and architecture of FRUCT framework

The internal organization of FRUCT framework is done in a way that it simplifies the implementation of the theoretical principles of running research in the open innovations format. This concept is rather new. First it was proposed in 2003 by Henry Chesbrough, a professor and executive director at the Center for Open Innovation at UC Berkeley (Chesbrough, 2003a). Open innovations can be seen as further theoretical development of an ideas of busi-

ness as an open system and approaches to academic collaboration in post-industrial society (Adler & Heckscher, 2006). The central idea of open innovations is that in a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, but should instead buy or license processes or inventions from other organizations. Open innovations help to address restrictions of the in-house research paradigm, which are slowing down innovation adoption by the large industrial companies. The main assumption is that firms actively use external ideas, create joint R&D teams with academia, open internal Intellectual Property (IP), actively contribute in co-creation and build internal and external paths to market, as the firms look to advance their technology (Chesbrough, 2003a). The boundaries between a firm and its environment have become more permeable; innovations can easily transfer inward and outward. In addition, the internal inventions not being used in firm's business can still give benefits outside the company, e.g., by licensing, joint ventures, spin-offs (Chesbrough, 2003b).

The classical definition of the open innovation solutions assumes that partners involved in cooperation know each other, have good understanding of mutual capabilities and interests and trust is in place. Unfortunately, this assumption was not applicable in the described case. FRUCT's task was first to develop understanding of mutual capabilities, interests and put trust is in place. Moreover, at that time Nokia has not decided whether such cooperation is needed in general, so only very cost efficient solution had chance to get support.

The project started by analysis on how to create open innovations framework with minimal cost overhead. In fact first we had to design cost efficient incubator of open innovations activities. The idea was to create the incubator framework with community management, so that community itself can define that strategy and drive the framework development. This approach allowed to get rid of the largest part of staff related expenses, as all work was done on the volunteer base (Wenger & Snyder, 2000). But it created a number of questions in community building.

The study required to address a large number of related theoretical aspects, such as distributed project management and knowledge creation (Nonaka, Takeuchi & Umemoto, 1996; Nonaka, Umemoto & Senoo, 1996), sociological and organizational drivers of semi-formal organizations build on top of weak connections between the members (Nonaka & Konno, 1998), legal issues and intellectual rights protection in the modern economy, cultural aspects and many other questions.

Organizational structure of open innovations framework FRUCT was built taking into account analysis of the above listed theories. The strategic and executive management are separated and represented by advisory and executive teams correspondingly. The organizational structure of FRUCT implements matrix principle and can be illustrated by Figure 3.

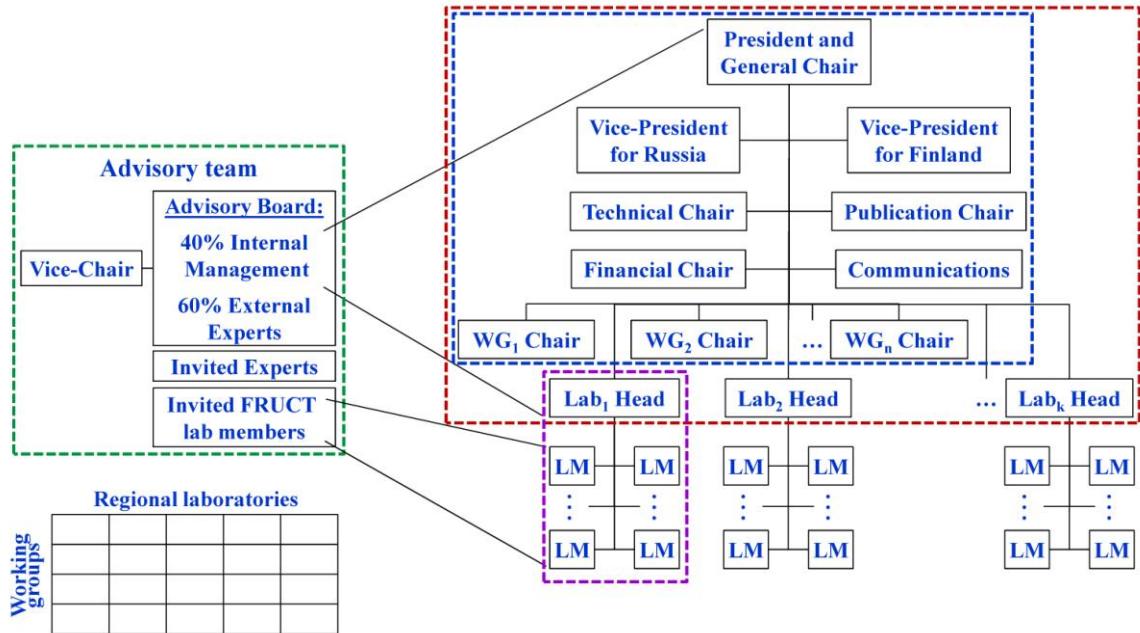


Figure 3: Organizational structure of Open Innovations Framework FRUCT

The association is managed by an executive team headed by the general chair of FRUCT management community and president of whole FRUCT framework. The core executive team includes two regional vice-presidents; chairs of technical, publication, financial and communications chapters of the community and leader of the technical working groups. The extended executive team also includes heads of the regional FRUCT labs.

The executive team implements decisions made by the advisory team. The advisory team consists of the permanent core team called advisory board, which includes members of the executive team (40% of the board) and external experts (60% of the board). The advisory team has regular face-to-face meetings organized two times a year in co-location with FRUCT conferences (in the beginning, the first six events were called seminars). These meetings are attended by the members of advisory board, a number of top external experts (mostly invited guests of FRUCT conference) plus randomly selected members of regional FRUCT labs. These meetings are used to present progress done by the executive team, review achieved results and set new priorities for the next half a year. Special meetings of the advisory board can be organized based on request of any member organization at any time suitable for majority of the board members.

The described management team provided efficient and scalable infrastructure for incubation of open innovation R&D activities. The activities had matrix organization based on research directions and location of involved teams. The matrix organizations helped to organize efficient management of distributed teams that worked on different research topics. The working groups are primarily focused on research problems and regional labs take care of all practical onsite arrangements and support of the team members.

FRUCT started over 40 projects by end of the first period. Majority of projects were done in cooperation of two member partners, but also there were projects with 3 and more partners. After two years, FRUCT management team identified three R&D areas in which the regional universities had world class competences interesting to Nokia. These areas were declared the priority development directions for the framework and the corresponding working groups were established:

- Cross-platform mobile development in Qt working group;
- Development of Maemo/MeeGo architecture working group;
- Smart Spaces and Future Services working group.

In parallel, FRUCT management team decided to introduce the new brand E-WeREST (East-West Research and Education Society on Telecommunication) for incubated activities. The new brand simplified acquisition and merge with independent communities around the corresponding topics. The new brand also reflected that FRUCT activities were not longer covering only Russia and Finland. The first three communities in E-WeREST were: Russian Qt community (qt.e-werest.org), Russian Maemo/MeeGo community (meego.e-werest.org) and Regional Smart Spaces community ruSMART (rusmart.e-werest.org). The corresponding FRUCT working groups took management role in the new communities. FRUCT management team provided general management services to E-WeREST activities and FRUCT framework continued to act as the main incubator of new people and ideas for E-WeREST.

The new communities created regional centers of crystallization of competences in the identified R&D areas, which soon were recognized by Nokia business and research team. This interest resulted in the first joint projects in open innovations form, invitations of experts from Russian teams to temporarily join Nokia for knowledge transfer, publication of joint papers, patent applications, R&D contracts and so on. At the end of the first phase, these areas were considered as priority directions for the Nokia R&D unit established in Russia (Skolkovo, 2010).

In addition, FRUCT's framework played an active role in promoting Nokia technologies in the region and attracting best experts, young scientists and students to FRUCT activities. Together with universities, where number of active members and projects exceeded certain threshold, FRUCT established joint R&D laboratories. The core R&D team consists of people from these laboratories.

By the end of first period, FRUCT established 6 regional FRUCT labs in Russia and one team in Finland, one in Denmark. The core R&D team consists of over 100 researcher and developers. These people are the most active members and contributors of the FRUCT association and embedded into internal matrix structure. Formally they all are employed by local universities, but they are working in joint working groups and projects that are established, delivered and managed by FRUCT. In addition to the core R&D team, FRUCT community had over 1500 active followers in various research organizations and regions.

Existence of FRUCT labs and core R&D team has significantly simplified tasks of developing Nokia R&D presence in Russia. FRUCT framework became an important regional tool for cooperation in open innovations format, customization of Nokia solutions for Russian market and development of Nokia-friendly ecosystem. Also FRUCT is a source of qualified experts and talented staff available for Nokia and its partners in the region.

3.4 Research Methodology for Development of FRUCT Framework

The description of research methodology and methods of this study follows the onion model of research (Saunders, Lewis & Thornhill, 2003). The research philosophy depends on the way how we think about the phenomenon and about the development of knowledge. The first part of this research was targeted to answer major ontological questions that define nature of existence of the open innovations community. The examples of the related questions are: how is it that community exists, what establishes its existence, what is the underlying nature of forces that support its existence and work against it? This part of study also discusses the epistemological assumptions used in the development of community, which were generated as a product of the personal experience and feedback collected involving all members of FRUCT community. In particular, here we discuss how we know and what is known is.

To ensure continues development of FRUCT it was important to follow changes in motivation and expectations of FRUCT partners. Taking this into account, FRUCT framework has

embedded mechanism for continues renovation using the action research principles. It is clear that some parties have hidden agendas and many are in exploration mode studying the potential of such cooperation. But majority of partners are passive so there is a lack of information what forms of the existing cooperation and potential are the most interesting and relevant.

There is no universal truth or silver bullet recipe when planning innovation processes. Action Research is a good research strategy to study problems and limitations of current organizations and find a way to solve them. Appreciative Inquiry (AI) is a form of Action Research that specifically focused on what is good at the moment and what is possible to improve in the future. AI is focused on learning from successes and is a frequently used method for organizational development, because of its transformational approach (Hart, Conklin & Allen, 2008).

AI is a rather new method as there were only a handful of articles published since the turn of the century. After 2001 several books have been published e.g., (Ludema, Cooperrider & Barrett, 2007; Bushe & Kassam, 2005). The literature of AI claims to have two transformational outcomes that distinguish it from other organizational development methods: 1) AI results in new knowledge, models and/or theories; 2) AI results in a generative metaphor that compels new action. A focus is on how people think, rather than what people do (Bushe & Kassam, 2005).

AI is typically conducted using the 4-D cycle orchestrated by (Cooperrider & Whitney, 2001). The 4 Ds represent the four phases of AI: discovery, dream, design and destiny.

1. Discovery phase finds out what is best by finding positive histories. This experience allows participants to appreciate the best of ‘what was’ and ‘what is’ through conversations. This phase finds out the Life Giving Forces (LGFs), in other words, the core values of the organization.
2. Dream phase is spent focusing on the possible future, or ‘what could be’ and ‘what might be’ for the participants. What the organization would be like as an ideal image.
3. Design phase collects the thoughts on what has been shared and forms a clearer understanding about them and then forms suggestions for new structures and processes answering the question ‘what should be’.
4. Destiny phase encourages participants to commit to actions by dialogue and consensus. This step is best summarized by answering the question: “Who will do what by when and how will we know?” (Hart et al. 2008).

The process of conducting AI is based on conversations guided by affirmative questions, which can help generate new insight and awareness. Therefore, language is a key factor in the process. Language is a tool that can be used to create either positive results or negative results. Language is furthermore used to actualize the reality where an organization, community or an individual lives in. Things that people say out loud every day soon becomes a reality for them. Since all organizations (formal and informal) are socially constructed realities, AI should try to involve as many individuals as possible and to focus on verbalizing desirable futures. Effort needs to be put in carefully choosing the wording for the inquiry, in order to enliven and inspire the best in people. Another key issue in understanding AI is its principle of simultaneity. The moment the questions are asked, change begins to happen. This is because observation changes that which is being observed (Bushe & Kassam, 2005).

FRUCT activities are organized in half a year periods with main FRUCT technological schools in the middle and main conferences at the end. FRUCT conferences have the key role in continues monitoring of changes in the member priorities and collecting feedback. The collected feedback is carefully analyzed and its main messages are transformed into actions implemented during the next period. At the preparation to next conference the progress on actions and results are analyzed against detailed description of analysis done for feedback of the previous period. This analysis is prepared in form of overall progress report, the short version of which is presented to the whole FRUCT community during the conference and detailed version is presented and discussed at the meeting of FRUCT advisory team.

The example below illustrates the research process used in FRUCT. The example illustrates research that was done at 6th FRUCT seminar that was held in Helsinki on November 2009 (FRUCT6, 2009).

The process follows the classical action research cycles (Reason & Bradbury, 2007). Before the conference the data is collected by using email questionnaires send to randomly selected FRUCT members, web forums with open discussion on these issues and using other tools of project management. The next round of data collection takes place at the conference during face-to-face meetings of FRUCT advisory team. After the conference the subset of “weak signals” in the set of collected data is published at FRUCT web page in form of prioritization questionnaire, so that all registered member of FRUCT community can vote for prioritization of identified issues.

The data collected before the conference is analyzed with use of qualitative methods (Goldberg, 2001; Hart, Conklin & Allen, 2008) for extracting the key messages in people's agenda. The analysis of key messages resulted in definition of the main research focus of the second round of the study. The following questions were selected for further processing:

1. what are the key motivation factors that make FRUCT attractive for the members
2. what is the value of FRUCT cooperation with industrial partners for your organization, what your organization gets from the cooperation and what need to be improved
3. what are the key points of emotional attachment to FRUCT cooperation personally for you
4. what are the main FRUCT mechanisms that attracting students of your university to joint FRUCT
5. expected outcome of projects within FRUCT framework and feedback of the involved teams on how produced results should be shared between the contributing parties
6. what are the main challenges that your research team faced in FRUCT cooperation

At the second round of the interviews the obtained factors of motivation were presented to the advisory team for extensions and evaluation. After the seminar the collected data is processed and analyzed by the executive team. At this stage the quantitative methods of appreciative inquiry were used for data analysis (Thatchenkery, 2003; Grant & Humphries, 2006).

Table 1 presents the final results table for the AI study on interviews with 10 members of advisory team done at the 6th FRUCT seminar.

Table 1: Result of appreciative inquiry study at the 6th FRUCT seminar

N	Coding based on appreciative inquiry results	1	2	3	4	5	6	7	8	9	10	Σ
1	Access to the world-top academic experts	X	X	X		X	X		X		X	7
1	Chance to learn about other universities and education systems					X			X	X	X	4
2	Importance of industrial feedback and viewpoint	X			X		X	X	X			5
2	Framework to learn how to do and present R&D projects		X	X	X			X				4
3	Feeling of been part of real research work	X		X	X	X						4
3	Feeling of been not limited by frame of own university	X			X	X	X	X			X	6
3	Getting good points for CV		X		X	X					X	4
3	Place to show yourself to industry and career opportunities		X	X		X	X	X				5

4	Place to meet interesting people and make new friends		X	X	X	X	X		X	X	X	8
4	Opportunity to get grants, stipendium and win contests	X	X	X	X	X	X		X			7
4	Place to make first publications for MSc and PhD students		X	X	X		X		X			5
5	Joint publication, open source program or co-owned patent			X		X		X		X	X	5
6	Difficulty to keep most talented students in teams	X		X	X			X		X		5

The result of analysis was done in the table with coding based on the interviews outcome. Based on the replies we managed to extract a number of values that have been most often mentioned by the advisory team members. The first column (*N*) points to the question group from which the value was extracted, e.g., 1 means that originally this value was extracted from the replies to the first question. The next column gives short unified formulation of the value pointed by the interviewed member of advisory team. The next ten columns show whether the given value has been mentioned by the corresponding respondent. When reading and interpreting the above table please take into account the following four points:

1. We did the appreciative inquiry analysis that was targeted to discover how the advisory team members value questions and problems identified by the active members of FRUCT community in the first round of study. The ultimate goal was to see whether these important issues are already well covered in FRUCT framework or improvement is needed. Taking that into account it was not so much important how positive or negative is the person about certain thing, it was enough to know that some issue is important. Consequently we could use the simplest binary coding, where empty space means that person does not mention this value and “X” mark cases when the issue was mentioned in some context. This coding allows using the simplest additive scheme of evaluation importance of the mentioned issues for FRUCT, where every “X” is counted as 1 and empty as 0. The total sum gives importance estimation for the corresponding issue.
2. The source question group mentioned in the first column “N” is here only for the reference purpose to simplify verification of the study, but the actual coding is done based on matching the identified and listed in the table set of issues against all replies of the respondents.
3. In order to get proper data for further analysis, we on purpose decided to “forget” about the declared FRUCT priorities at this stage and built the set of issues only based on the respondents’ replies. Preparation to the corresponding actions after the conference was based on comparative analysis of the identified issues to FRUCT priorities.

4. To simplify further analysis it was decided that the coding table should include only generated issues that collected more than 3 votes of support. Other identified issues were considered at this phase as of minor importance. These issues were forwarded to the third round of study, where all registered FRUCT members were able to vote for them and issues that received over 30 member votes were later included to analysis.

All study results are published at FRUCT web forum and stay open for discussion and commenting for a month after the conference. After the conference the subset of “weak signals” (i.e., identified issues that got one, two or three votes of the advisory team members) is published for one month at FRUCT web page in form of prioritization questionnaire. All registered member of FRUCT community can vote for issues that they see as important. After 6th FRUCT conference none of the “weak signals” get over 30 member votes, so the final list of priority issues stayed as it is defined in Table 1. The described procedure helps to extract and focus on most valid issues and prioritize FRUCT activities accordingly.

From Table 1 we can see that the key values identified by FRUCT members were: “*Place to meet interesting people and make new friends*” (8 votes) and “*Access to the world-top academic experts*” (7 votes). In respond to this message, starting from the 7th FRUCT seminar the large joint social events were organized at the second day (traditionally it is the most attended day) of each seminar/conference, which was free and open for all program members and conference guests. As a result, after 7th FRUCT conference we observed significant increase of positive perception of this value among all members. Another top value was “*Opportunity to get grants, stipendium and win contests*” (7 votes). In respond FRUCT organized regular monitoring and publishing news about existing grant opportunities, stipendium calls and open contests. In the beginning these publications were made at FRUCT web page and summarized in regular newsletters, which were introduced at the previous round of study in respond of members requested to better organize existing information about FRUCT program, its goals and benefits for the members. Later this activity moved to FRUCT pages in social networks. Nowadays FRUCT is doing complete monitoring of all major sources of information and publishing 3-5 such announcements per day, which made FRUCT the most attractive source of grant/stipendium/contest information for Russian students.

The defined set of recommendations was reported to the executive team as the new priorities for development in practice. Later the best practices were used for development of FRUCT philosophy, updating organizational structure, planning internal development and members’ incentives.

The other issues identified at this round of the study were taken for further processing and deeper understand in the next round. By now we can observe significant development and improvement of feedback for all of the mentioned points, which can be easily seen at FRUCT web page and pages in social networks.

All source data and processing discussions are preserved in raw format in the email repositories and in full internal report that summarize the work and contains the full set of derived recommendations.

Before the 7th FRUCT conference that was held in St-Petersburg in April 2010, executive team done a new round of analysis of the impact of actions taken for the identified new priorities. This analysis was included to the next progress report, including detailed analysis of actions against main messages of the previous period. The detailed presentation of progress report was done at the advisory team meeting, where the achieved results get high score feedback. After the status report presentation all members of FRUCT advisory team are asked to evaluate validity and reliability of the obtained results (Healy & Perry, 2000). Other FRUCT member can contribute by leaving feedback at open forum at the FRUCT web page, as it was explained earlier. As a result, a number of new ideas and concept update proposals are usually captured in the meeting minutes. After that the next round AI research was initiated, with the new set of questions. This process is still ongoing and currently FRUCT is in the 11th round.

Once a year results of two rounds are released in form of status report conference paper (Balandin, Dashkova & Koucheryavy, 2012; Balandin, Dashkova & Koucheryavy, 2011; Balandin, 2010; Balandin, Dudkov & Ukhanova, 2009). Also results are included to the internal development plan and the corresponding updated regularly published at FRUCT web.

All major findings of this study are openly published and proactively shared with other activists of the open innovation research paradigm operating in other parts of the world. The main activities and steps of the process are documented using Mantis web tool (Mantis, 2012). Mantis is identified by the community as the most suitable documents handling tool. It is an efficient tool for managing all internal processes and provides valuable supporting services to R&D projects done within FRUCT open innovations framework.

3.5 Cross-Cultural Management

FRUCT unites people with different cultural and professional backgrounds. The association members are from Russia, Ukraine, Finland, Denmark, Italy and other countries. There is significant cultural variation between these groups and even considerable differences inside each group (Lewis, 2008). Another dimension is professional culture, as people with industrial and academic mindsets often have different viewpoints to the same R&D problems.

Culture is defined as a way of life of a group of people which may includes the behaviors, beliefs, values and symbols that they accept, generally without thinking about them and that are passed along by communication and imitation from one generation to the next (Ferraro, 2005). Culture can also defined as everything that people have, think and do as members of their society (Gary, 2006). Edward Tylor defines culture as that complex whole which includes knowledge, belief, art, law, custom and any other capabilities and habits acquired by man as a member of society. By these definitions it could be said that every society, country and nation has its own culture which is completely different from each other. According to Hofstede cultural differences manifest themselves in different ways and differing levels of depth (Hofstede, 1997). Hofstede has devised a composite-measure technique to measure cultural differences among different societies, using power distance, uncertainty avoidance, individualism and masculinity indexes. Symbols represent the most superficial and value the deepest manifestations of culture, with heroes and rituals in between. That is symbols are words, gestures, pictures, or objects that carry a particular meaning which is only recognized by those who share a particular culture.

FRUCT pays a lot of attention to organization of cross-cultural management. Dealing with intercultural problems is organized by regular and detailed analysis of all conflict situations, support of continues communication using all available tools and other means available for the association members. For example, methods of action research described above are actively used for identifying problems and resolving them. This section provide a number of specific examples and key findings that were obtained at various stages of FRUCT community lifecycle with use of action research strategy following the same scheme and principles as generally described before.

Need of proper cross-cultural management was always seen as very important and affected many strategic decision taken by FRUCT. For example, it was the main reasons for FRUCT to delay expansion to India, despite request from six Indian universities. However, internal analysis of cross-cultural cooperation aspects and corresponding expectations discovered that the

cultural difference is too large to rely on e-communications in maintaining healthy operation of the community.

FRUCT members have significant difference in the work culture, environment and related traditions. It is well known phenomenon in FRUCT, when in the beginning members of all teams from various universities that are working on the same project are trying to help each other by actively learning on how everything is organized and correspondingly adopting own behaviors. In fact each team behaves slightly different, but trying to adopt its normal behavior to the new members, so that the entry process would be maximum smooth and comfortable. As a result very often members get incorrect understanding of the culture and processes in the partner teams and after a few months they face serious cultural problem, when the actual traditions start to dominate, which creates completely new work environment in the project.

Such change in behavior, which for many members does not have clear logical reasoning, together with a standard project uncertainty that comes after the end of initial period might lead to deep personal cultural shock and overall depression in the team and loss of motivation. In fact it is one of the most dangerous phases for each project and in the first year of FRUCT existence its cost fails for over 50% of all initiated projects.

Cultural shock is the difficulty people have adjusting to a new culture that differs markedly from their own. Oberg describes culture shock as the anxiety that results when all familiar cultural props have been knocked out from under a person who is entering a new culture (Oberg, 1960). Culture shock is precipitated by the anxiety that results from losing all our familiar signs and symbols of social intercourse. These signs or cues include the thousand and one ways in which we orient ourselves to the situations of daily life: when to shake hands and what to say when we meet people, when and how to give tips, how to give orders to servants, how to make purchases, when to accept and when to refuse invitations, when to take statements seriously and when not. Now these cues which may be words, gestures, facial expressions, customs, or norms are acquired by all of us in the course of growing up and are as much a part of our culture as the language we speak or the beliefs we accept. All of us depend for our peace of mind and our efficiency on hundreds of these cues, most of which we do not carry on the level of conscious awareness (Oberg, 1960). According to Oberg culture shock usually occurs in four stages: the honeymoon, irritation and hospitality, gradual adjustment and biculturalism stages. From the above example we can see that most of project members experience cultural shock immediately after the honeymoon stage. They begin projects in new

joint team with positive attitude and excitement. Normally this stage may last from a few weeks up to six months depending on circumstances.

Moreover, proper organization of teamwork with full acceptance of all members is very challenging task and normally needs considerable time before relations in the new team will be stabilized. Teamwork is defined in Webster's New World Dictionary as "a joint action by a group of people, in which each person subordinates his or her individual interests and opinions to the unity and efficiency of the group." This does not mean that the individual is no longer important; however, it does mean that effective and efficient teamwork goes beyond individual accomplishments. The most effective teamwork is produced when all the individuals involved harmonize their contributions and work towards a common goal (Webster, 2012). In cross-cultural teams this work is even more complicated and requires a lot of attention and careful management.

On the individual level team members getting strong confusion and feel uncertainty whether they got right understanding of local culture, process and ways of operation and communications in the project and which often leads to serious suspicion that something hidden has happened that made him/her unwanted in the team. At the same time other team members start to believe that partner members are already fully integrated in the team and so start to expect "correct" behavior. If no special action is taken at this phase then this mismatch of expectations will result in misunderstandings and even conflicts between the team members.

To address these problems it is strongly recommended to invite local observers to each new project team, who before had joint projects with teams from other regions and professional backgrounds. In the first two years the observers were selected from FRUCT experts, as these people had enough experience to early recognize and guide project teams on how to deal with cross-cultural problems. This practice helped teams to better understand how everything is organized and make faster recovery from cultural shock. Later the members of the first FRUCT project we used as local observers for the new project teams and this practice is valid until now.

The next cross-cultural management issue is related to the process of negotiations (internal and external) that project members have to do as part of daily project work. In fact we have learned that it is crucial to teach the teams carefully "translate" messages of each others. This task is related to a number of cultural challenges. For example, negotiation with Russian and Ukrainian partners is fuzzy and a non-linear process, which is often badly understood and

managed by Finnish and Danish people. Some of them even feel afraid that this way Russians are trying to be unfair, while it is just a part of their normal understanding of work process. It might be good to remember that Russians have to deal with unstable political, legal and tax systems, high level of bureaucracy and all the time make maneuvers to minimize the corruption overhead and problems with different state authorities.

For example, Finnish industrial managers could not understand why once in a year Russian academic partners have to change templates of the previously agreed contracts. While for Russians it is the best way to avoid creation of a “stable schemes of corruption” (nobody wants to pay bribes). Moreover, often changes in tax laws and other regulations have direct impact on paper issues and directly on project processes.

Another significant difference is how people see importance of work and private life. According to Russian work culture, when the project is in troubles the team must act as fast as possible to return to the original timeline. Russian members of the project team start to do a lot of overtime, work during weekends and so on. At the same time Russians expect similar behavior from Finnish coworkers that is against the Finnish culture. For example, both parts of the team become really unhappy when on Friday late afternoon Russian colleagues are trying to setup teleconference with Finnish colleagues to ask something related to the project. Finnish people do not like that they are disturbed at their private time in the beginning of weekend. Russians do not like that “lazy” colleagues not helping to solve problems that the project team has.

Another thing that confuses Russian members is when they get TODO requests not via managers, but from technical experts of the Finnish part of the team. This practice looks very logical and efficient from Finnish side, as technical experts can better explain what is needed plus this approach helps to remove unnecessary management overhead, but at the same time this looks strange and often rude for Russians, as they do not understand how official are these requests and some teams do not like that Finns take direct access to their engineering staff.

In our work we identified a number of other issues that complicate negotiations, e.g., language barrier, different understanding of punctuality, different values associated to organizational hierarchy, different definition of the work thesaurus, differences in the sense of humor and so on.

Based on the results of cross-cultural studies for FRUCT framework the following set of practical recommendations in form of the cross-cultural management guidelines was generated and adopted by the community:

- FRUCT is a large cross-cultural community that has members with various cultural backgrounds. So it is important to organize special cross-cultural training sessions for all new members at the very early stage of their activities in the community. This principle is adopted, e.g., all FRUCT labs organize the corresponding internal cultural trainings and at the opening of each FRUCT conference part about the cultural background is one of the key topics of the main status update presentation.
- All new FRUCT members shall put special effort on observing and learning internal FRUCT culture and cross-cultural management from the colleagues, e.g., seek and learn how others are interacting, communicating and behaving with each others.
- In specific situations where things are not clear, people with more extensive experienced in FRUCT culture shall be asked about their opinion and advice that how they would have handled the situation and what it means in the host culture.
- Verbal communication plays very important role in contributing misunderstandings and misinterpretations if the required information and knowledge is missing.
- Asking questions shall be seen as an effective way of obtaining information. Culturally some people are very sensitive to this issue as they will not ask questions thinking it might introduce them as low-knowledge and inexperienced. But it shall be clearly communicated to all new members that this way he/she is not learning and FRUCT culture is in continues learning. No one can be perfect, so sharing information and skills between people are the best way to diffuse knowledge and solve problems.
- Dressing is important and can lead to misinterpretation of personality and behavior, so when attending the community events it is recommended to dress the same way as others do.
- Managers of FRUCT laboratories shall appoint special lab champion in cross-cultural management, which will be the default contact for the lab members to help questions on cultural issues.

Teamwork is the key aspect of any business in globalized and competitive world. Teamwork is the ability to work together toward a common vision in a friendly environment that is not always easy to create an effective team without challenges (Teamwork, 2011). In order to have a very effective team, it is very important to have a diversified team rather than an identical and similar team where people from the same culture and background work. Diversified team

consists of people with different backgrounds, cultures and working experiences, which makes the team more qualified and rich due to its structure of people that will bring a great amount of diverse innovative ideas, experience and working style for the open discussion. For success competence incubator it is really important not to limit cross-cultural trainings efforts to only formal procedures, but also study ways and mechanisms for informal engagement of the new members from other cultures.

FRUCT framework performs clear communication of expectations from the teams on performance and mode of operation in the joint projects. Special effort shall be put in making team members understand why the team was created, what the project goals are and why the team mission is important.

It is not easy to create an environment where each members of the team contribute effectively. Because people from different backgrounds and cultures see the world differently so the room for the conflicts and disagreements among team members is large. Most of problems identified in FRUCT projects had nothing to do with people competences and ability to do their jobs. It was that people cannot get along with other people. FRUCT is addressing these challenges by developing a highly friendly environment for the teams by:

- Maintaining cozy environment and culture, where it is comfortable for all members to ask for help. People should not be viewed as weakness if they asking for a help.
- Encouraging proactive information exchange between team members and the projects. Engaged all team members to the problem solving and decision making processes.
- Creating the team spirit where every team member feels as a part of the common.

Based on FRUCT's experience one can conclude that certainly Finnish and Russian cultures have substantial differences. Just putting good people with right competences together will not build a team. It is required to understand that the cross-cultural management issues exist and has to be properly addressed. This requires certain conscious efforts of the framework management and members of the project team, if a team has to be built. Teamwork therefore requires an effective communication between all team members and surrounding environment.

3.6 Role of Integrated Communications

The key objective of the FRUCT management team was to make the developed framework visible and attractive for the local universities, industry and authorities. Development of the

integrated communication strategy became the key factor to ensure success of FRUCT community development (van Leeuwen, Winkel & Dijkstra, 2007).

FRUCT is a rather informal organization and integrated communications played a key role in development of FRUCT community, maintaining its sustainable growth and keeping integrity of FRUCT. FRUCT membership is voluntary (Wenger, 1998). Most of involved experts do not receive direct financial reward and only in some cases get compensation of direct expenses related to FRUCT activities. The internal communications are complicated by the fact that the association members have significant diversity in cultural background and located in more than ten different sites in four countries and five time zones.

The main force that supported FRUCT integrity was access to Nokia R&D and new competences that members received in the process of internal cooperation. Relations of Nokia with universities were strictly limited by corresponding Nokia policy. FRUCT could only help in organization of efficient and comfortable knowledge sharing that fulfills preferences and formal requirements of involved members. The developed process of internal communication was based on active use and efficient mix of various electronic media and organization of regular face-to-face meetings. The main tools of e-communication are project and forum pages at FRUCT web sites, open shared file repositories, web sites of supported professional communities (e.g., qt.e-werest.org), mail lists and regular Skype teleconferences organized for working group and task forces. Each of the listed technologies addressing one of the needs and together they provide efficient toolkit for internal communications.

The first open innovations infrastructure was a set of processes and electronic tools provided for free to all FRUCT member organizations. The team of enthusiasts was transformed to the management community that provided leadership services to FRUCT. The author of this study was officially elected as a head of the management community and correspondingly whole FRUCT. Nokia provided first FRUCT infrastructure with such formal attributes as office and account for covering direct expenses.

In the end of the first four months of FRUCT existence we start to see significant loss of interest to the created open innovations infrastructure. We managed to catch it at relatively early stage and could rely on still strong positive attitude to FRUCT. We prepared and distributed special questioner to all members (Iarossi, 2006; Yun & Trumbo, 2000). In addition we organized face-to-face interviews with all members of the management community (Kvale, 1996; Moser & Kalton, 1971). Results of the study have discovered that majority of involved partici-

pants do not follow progress of activities in the developed open innovations infrastructure. Despite all information was freely available via provided e-tools, most of members were significantly out of date and consequently start losing emotional attachment to the initiative. Analysis of the situation and open internal discussions helped defining the way to improve awareness and emotional attachment of the members (Venkatesh, 2003). It was achieved by extending the original open innovations infrastructure with regular, open and free face-to-face events and clear system and schedule of reporting all internal processes.

FRUCT organizes four large events per year. These main events include 1 week long FRUCT conferences organized in spring (in Russia) and autumn (in Finland), winter school (usually 1 week) and summer school (usually 2 weeks). The conferences are the main scientific events, the format stays almost the same and they are organized during the same period every year. Content, time and place of summer and winter schools are defined separately every time based on requests of FRUCT members. The main FRUCT events are free for all participants. Events have minimal budget, as all work is done by volunteers and places are provided by universities for free. The remaining expenses, e.g., catering, preparation of materials, organization of demo zones, social events and so on are organized using contribution of industrial partners, e.g., Nokia.

The main FRUCT events have the cornerstone role in the integrated communications. These events are used as milestones for reporting progress in all activities, synchronizing status information, sharing best practices and so on. The events provide meeting place, where partners from industry and academia can present to each other results of preliminary work and based on measurable achievements discuss next steps of cooperation. Between the main FRUCT events, a number of smaller events for various FRUCT focus groups and working teams are organized.

The events also attract new potential members and clearly illustrate what FRUCT cooperation can give them in terms of new knowledge and partnering opportunities. The main events are free also for externals, which is actively used as a key advantage in external communications. The main FRUCT events attract over a hundred of visitors, out of which some decide to join the framework, or become its partner or supporter. In addition, FRUCT regularly organizes free open lectures and technological trainings. These events attract a lot of students and professors and increase positive visibility in the region.

The main form of cooperation in periods between the main FRUCT events is joint projects, where representatives of member organizations work together to fulfill some clearly defined R&D objective. The working groups are formed for most popular and perspective research directions. The key tool of internal communications is the system of regular teleconferences. Skype teleconferences are held separately for each working group and project. Usually a teleconference lasts 1-1.5 hours once every week or in two weeks. Intensity of using supporting communications, e.g., email exchange, web page, forum, wiki, etc. significantly varies between projects and working groups, e.g., some working groups have more than 10 emails per day.

The main mission of external communications is to attract new talented students and R&D teams to join FRUCT and market its activities to the potential partners and supporters. The external communications are performed via a number of electronic channels and at FRUCT events. The process of selecting communication channels was really complicated. FRUCT has tried many forms of communications, e.g., publication of regular newsletters, ads on similar web sites and so on. One can say that the corresponding search and analysis are ongoing. Among the main electronic channels used by FRUCT we can list: own FRUCT web resources, i.e., www.fruct.org, qt.e-werest.org, forum.fruct.org, social.fruct.org and so on.; FRUCT pages in popular social networks, e.g., facebook.com/OpenInnovations, vk.com/OpenInnovations and so on; regular information messages in most popular blogger and software developer communities, e.g., [twitter](http://twitter.com), [iXBT](http://iXBT.com), habrahabr.ru; and regular messages at web sites of member and partner organizations. FRUCT has good outreach as only main own web resources accounts for ~1'200-1'500 visits per day.

The corporate communication defines the set of activities involved in managing and orchestrating all internal and external communications aimed at creating favorable starting points with stakeholders on which the organization depends. Corporate communication consists of the dissemination of information by a variety of specialists and generalists in an organization, with the goal of enhancing organization's ability to retain its license to operate (van Riel & Fombrun, 2007). The main messages of FRUCT framework were summarized in "About" section of site www.fruct.org and later extended in the special code of conduct page <http://fruct.org/codeofconduct> (available only for Russian version of the site).

The main intension of FRUCT Framework and correspondingly the corporate message was formulated as follows – FRUCT framework unites forces of different teams to jointly incubate and develop new competences in order to occupy emerging niches in IT and ICT research and development. It was shown that such proactive search and incubation of new niches is a relia-

ble way for new teams to find partners and create business cases. FRUCT helps its members in incubation of new competences, searching of partners and provides infrastructure to find sources of funding.

The additional corporate messages are clustered for the main recipient groups:

- 1) For students – FRUCT is a great opportunity to learn latest technologies, get real R&D task and good topic and industrial supervisor for diploma work, get consultancy of professors from top universities and find good job. Also FRUCT provides full infrastructure to make first scientific publications. FRUCT is a large community of most active students and the great place for networking and making friends.
- 2) For university professors and expert team leaders – FRUCT is a network of active professionals and bright, motivated students. It is a community that is open for sharing best practices and working together to improve study curriculum. FRUCT provides relevant informational support of research teams, e.g., about exchange program, grants, positions of visiting professors, industrial internship, etc. FRUCT can be seen as a ground for building consortia to jointly apply for public funding and win large industrial contracts.
- 3) For supporters and sponsors – FRUCT unites the most active and motivated students, professors and industrial experts in the region. FRUCT experts can help to evaluate, implement and adopt new ideas, technologies and solutions. Cooperation with FRUCT is cost efficient with minimal overhead. FRUCT is an influential academic association with good outreach and positive image, which makes it a good target group to illustrate social responsibility of the business.

The integrated communications positioning of FRUCT can be represented by the original brand identity definition. The brand identity was done according to Kapferer's recommendation (Kapferer, 1994) as presented in Figure 4.

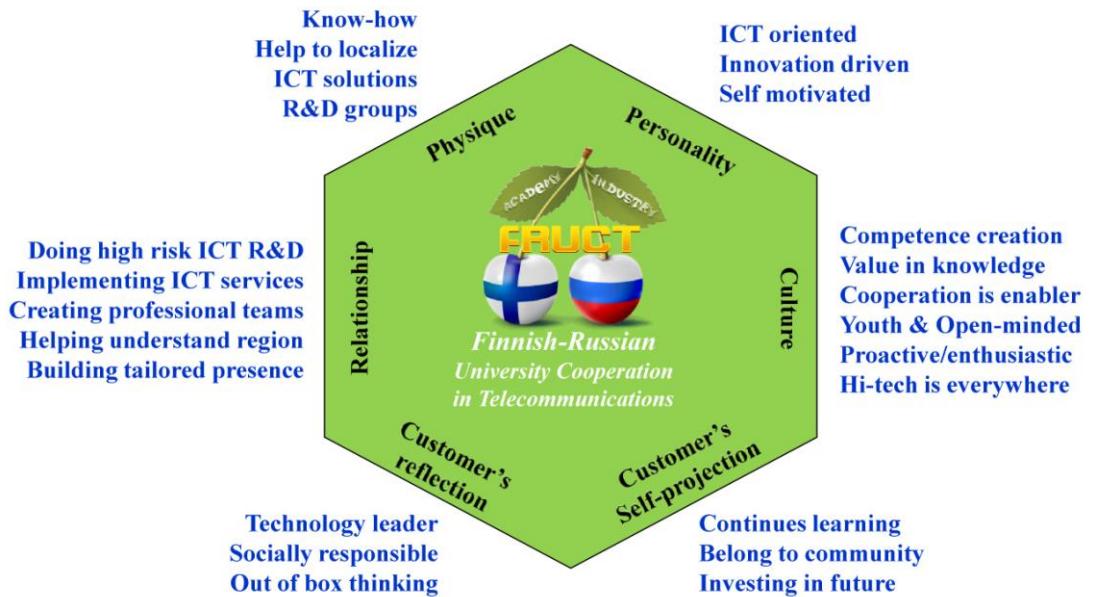


Figure 4: Current brand identity of FRUCT Association

By end of the first period, internal culture of FRUCT framework was defined as continues creation of new competences, where cooperation is seen as the main enabler of framework activities and the main value of cooperation is in new knowledge received by the members. FRUCT promoted adoption of new services and hi-tech solution in all areas of human life. The education culture is adopted for young, open-minded, proactive and enthusiastic students, which are searching for a help to realize own potential. FRUCT member personality was defined as ICT oriented, innovation driven and self motivated person. The self-projection to customers (partners) represented FRUCT as strong community of experts that support continues learning and so performing continues investment in future to be maximum competitive staying at the edge of science and technologies.

Results of surveys shown that customer's reflection of FRUCT could be formulated as the regional technology leader community with strong out of box thinking and clear socially responsible orientation of the activities. In relations with partners and customers FRUCT was positioned as organization that can be used for delivering challenging and hi-risk ICT R&D projects, implementing innovative and region-specific ICT services, providing consultancy support companies interested to enter the region, helping building tailored presence of companies in the region and creating professional teams for internal or external use by the companies operating in the region. Cooperation with FRUCT results in the following types of deliverables: new know-how (e.g., as patent applications), regional localization of services and solutions, development of innovative ICT solutions and services, preparation of R&D teams with required skills and competences.

By the end of first period FRUCT framework built well organized system of integrated communications that supported positive image of FRUCT and contributed to development of positive R&D image of Nokia in Russia.

3.7 Access to Intellectual Rights and Results

The key motivation and consequently main result of FRUCT activities was incubation of new competences and building mutual understanding and trust between the partners. An important question was how to organize actual cooperation and the main problem was how to ensure fair and transparent evaluation of contributions done by the involved parties and their role in the overall success of projects and how to share right to the obtained results, e.g., patents.

According to definition, open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas and internal and external paths to market, as the firms look to advance their technology (Chesbrough, 2003a). Patents are designed to protect company from using its ideas and inventions by others. At first glance the concepts of open innovations and patents protection seem irreconcilable. The open innovations allow knowledge produced in the company to spill over to others, whereas patents that knowledge from others. But we can see that open innovations principle is getting very popular in large IT and ICT companies, especially among player with world-top patent portfolios (NRC, 2012; IBM, 2012; Philips Research, 2012). We can identify three reasons that push these companies to adopt open innovations:

- 1) No single company is able to develop internally all the technology it needs;
- 2) Products have to work well with solutions of other firms, even with direct competitors and solutions build on different business models, e.g., open source software;
- 3) The innovation cycle is very short for these areas, so by time when patent is granted the corresponding technology is out of date.

Taking these factors into account companies have to develop new ways to ensure that they retain some of the profits accruing from “open innovation” projects and development (Bronwyn, 2009). In fact the attention paid to management of intellectual property (IP) assisting them in developing open innovation and general strategies. Ownership of intellectual properties enables companies to conduct the trade in technology that accompanies an open innovation strategy without destroying any competitive advantage they might have. The open innovations model fits very well to the concept of markets for technology (Ashish, Fosfuri & Gam-

bardella, 2001). This allowed concluding that companies would not use patents to block cooperation projects initiated in FRUCT framework. The experience of cooperation with Nokia and Nokia Siemens Network proved this conclusion.

As explained above, FRUCT did not have problems with access to required technologies and IP owned by the companies, but involving non disclosure agreements (NDA) between the partners. Another issue was that FRUCT framework is targeted to fulfill needs of an industrial partner, but the community shall not be a satellite workforce, so it is important that each contribution is visible, evaluated and rewarded. In the first two years we have tried to develop general rules on how the contributors share results, especially rights to the created IP. Soon it became clear that partners are interested in tuning for each particular case. Also there were significant differences in legal relations of Russia and Finland. Because of that, instead of general rules FRUCT framework produced a number of recommendations on how to address results sharing, but the final decision was up to each team:

1. Role of FRUCT projects should be competence development, cooperation building and technology exploration performed together by the partners. The projects shall be organized in relatively small (not more than 24 man/months) phases, with clear deadlines in between (once every half year).
2. Result of each phase of FRUCT project shall become public knowledge, published as a joint work at FRUCT conferences or some other scientific event or journal.
3. It is recommended to do all project development activities under open source licenses.
4. Avoid development of new IP in FRUCT projects. If project scope assumes development of new IP it is recommended to discuss classic cooperation contract outside of FRUCT, as it probably means that the cooperation is already mature enough for it.
5. If the project scope assumes high chance of developing new IP, but partners are not yet ready to classical form of contract-based cooperation, then it is suggested to agree who will make patent applications, if possible agree of mutual ownership of patents, otherwise protect intellectual rights by requiring a royalty-free license to all members for all patents emerging from the research done in the group.

Such position of FRUCT framework was very logical and well accepted by all members, as from the beginning FRUCT is positioned as the incubator of competences and partnering. Development of new IP assumes already quite mature level of cooperation, which can be handled without direct involvement of FRUCT framework.

3.8 Results of the First Period and Drivers of Transformation

Successful fulfillment of the original FRUCT mission resulted in termination of the first period in life cycle of FRUCT framework. In the summer-autumn 2010 Nokia and Nokia Siemens Networks have decided to establish own R&D presence in Russia and signed the corresponding agreements with Skolkovo innovation zone (Skolkovo, 2010). Nokia was not longer interested in FRUCT as the R&D representative in the region. Such functions of FRUCT framework as selection partners and running projects were delegated to own Nokia and NSN R&D units in Skolkovo. But still both companies could benefit of using FRUCT as a framework that facilitates academic networking and university cooperation. FRUCT faced a key challenge, i.e., to stop independent operations and dissolve the framework or to start massive internal transformation to fulfill the new niche and role that FRUCT could take. The starting point for discussion on the internal transformation was the complete review of FRUCT status and assets.

By the end of first period FRUCT was one of the largest academia-to-industry open innovation communities in the EU and Russia. Absolute majority of FRUCT activities were focused on development of EU-Russia cooperation in ICT. In addition the community had activities in other regions, e.g., regular summer schools in India. FRUCT united teams from 18 organizations, including universities, R&D center of Russian Academy of Sciences and companies. FRUCT had good contacts and history of cooperation with large corporations: Nokia, Nokia Siemens Networks and Intel. FRUCT was visible as one of the most active regional organizations promoting continues renewal of education based on industrial feedback and principle of direct open exchange of best practices. FRUCT activities and achievements were recognized by a number of diplomas of regional authorities and awards of various contests.

However, change of Nokia R&D presence in Russia created a number of serious challenges. Nokia was not longer interested to provide FRUCT with organizational infrastructure, such as accounting and office space. So a new hosting organization was needed for the community. Also the new strategy and principles of relations with Nokia and Nokia Siemens Networks had to be developed. Also the direct financial support from Nokia has decreased dramatically. FRUCT need to find the new supporters and new sources of funding. In external communications FRUCT could not any longer rely on pure Nokia-centric strategy. It was important to develop a new message to attract new members and supporters, while keeping current members in the community and continuing internal development.

This was also serious personal challenge for the author of this study. I get two options to either continue to work for Nokia and join newly created Nokia Research Center in Skolkovo, or leave Nokia and focus on FRUCT, i.e., developing FRUCT as an independent organization. I selected the second option and from 2011 I completely focused on developing FRUCT organization and driving it through the changes. The next Chapter tells about the second phase of FRUCT development from December 2010 until now.

4 Driving FRUCT through Changes and Creation of Association

This chapter defines the main challenges and corresponding research problems that arise in FRUCT after successful fulfillment of its original mission. The chapter is focused on explaining the transformation that FRUCT framework had to take, what was the new positioning of FRUCT and how the transformation process was managed, e.g., managing change of the integrated communications and FRUCT brand identity. The chapter gives an overview of the relevant theories and discusses their best use to benefit FRUCT development. The comparison of several approaches and theories is provided. Analysis of problems and challenges is summarized by FRUCT SWOT matrix, followed by analysis done with help of the confrontation matrix. The analysis is concluded by derivation of a set of strategic intents that defined FRUCT development in the beginning of the second phase of FRUCT life cycle. The chapter is concluded by discussion on current FRUCT status, its ecosystem and issues that require further study and development.

4.1 Main challenges

By the end of the first period (December 2010), when the original FRUCT mission was fulfilled, FRUCT community was in the phase of most active and fast internal development. Many new teams joined the community and started incubation of new competences and developing niches for future work. Also there was a number of teams that already have crystallized own cooperation niche with Nokia or NSN and even had contracts. At this stage we start to clearly observe a number of dangerous trends in the regional FRUCT teams. Most of teams that have been in the first phases of competence incubation wanted to define own niche as soon as possible and “catch the leaving train” by signing contracts with Nokia and NSN. Teams that had contracts directed all resources on exploration of the developed niches, i.e., to cash already developed competences and stop joint incubation of new competences. Consequently the main priority of most of the member teams shifted from development of strategic cooperation niches to fulfillment of tactical tasks for getting in some kind of cooperation. In couple of months such behavior resulted in significant decrease of members’ motivation and temptation to play independently. This was very dangerous internal trend and the first problem that had to be addressed by new FRUCT to survive the transition process. As was shown by the later development of situation around Nokia, even teams that had contracts soon faced cooperation problems due to serious cuts of Nokia and NSN R&D budgets. This resulted in further decrease of motivation of the member teams and weakening of the internal links, which were before supported by Nokia authority and leadership.

After establishing own research center in Skolkovo, Nokia was not any longer interested to provide formal infrastructure to FRUCT. Loss of Nokia leadership was complicated by the fast growth of the community size in the last year before the change, which demanded to pay more attention to strengthening internal ties in FRUCT community. At this stage it became clear that FRUCT needs new host organization and management infrastructure. During autumn 2010 FRUCT looked for governmental or private partner to take leading role and drive further development. Despite strong interest to EU-Russia cooperation, all attempts to find new partner for FRUCT have failed, which can be explained by unfavorable business moment and strong identification with Nokia and its technologies. Other option was to create own non-profit organization. Analysis of this option discovered that the process of creating non-profit organization is quite complex and taking into account cross-border nature of FRUCT between Finland and Russia it might lead to restrictions and have serious negative consequences in the future. At the same time it was clear that FRUCT could not operate without managing partner for long time. So in December 2010 FRUCT Oy was established to provide community with the required services and drive through the time of transformation. Also it was decided to transform informal FRUCT framework community to more formal FRUCT Association.

Since 2011 all practical arrangements of FRUCT association are facilitated by FRUCT Oy, which was established specifically to facilitate work of the association. FRUCT Oy provides basic services for reliable and stable functioning of the association and legal formal infrastructure to launch and execute technology exploration projects. The progress and achievements are remarkable. FRUCT Oy managed to preserve and even speed up development of the community, while driving it through the change it managed to deliver all required services, e.g., organized 9 large conferences, over 20 technology trainings, facilitated publication of over 100 papers, plus some other small deliverables. FRUCT Oy is also generally responsible for fast adoption of the association to the new challenges to ensure smooth transition.

The new mission of FRUCT Association is development of regional infrastructure of innovations and ICT R&D ecosystem in Russia, Baltic region and Nordic countries. Its member organizations benefit by expanding their partner networks and developing joint technology exploration projects. The individuals benefiting by getting new knowledge, getting access to the community information on available funding and research opportunities, use of FRUCT infrastructure and making new friends among most motivated and active young researchers and experts.

The new FRUCT strategy is to become an independent incubator of new competences and businesses. FRUCT still see Nokia and NSN as the key partners, but in external communications it is clearly positioned as independent organization, open for cooperation with new partners, which internal values and cooperation targets are aligned with FRUCT culture and principles. The new definition of FRUCT business niche is illustrated by Figure 5.

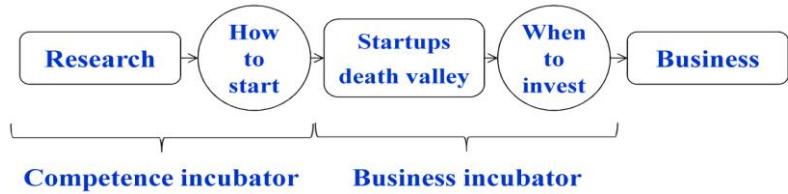


Figure 5: FRUCT as a competence and business incubator

The new strategy definition gives a serious shift in FRUCT priorities and scope of activities. At the first phase FRUCT was positioned only as a competence incubator, while now it is clearly positioned as an organization that support full cycle of business incubation from crystallization of research and development ideas to formation of teams, guiding them through the “death valley” of startups and helping to define right moment to spin off business and find partners and investors.

This mission and strategy form the new unique niche for FRUCT Association and again made it very attractive for research teams. It was especially attractive for Russian and Ukraine teams, as unlike Finland these countries had less developed infrastructure to support incubation of new innovative businesses. Even more important these teams were missing corresponding competences, as through the whole history they acted only as academic organizations and never had to think about incubation of businesses on top of the generated ideas.

Taking these into account, the set of priority activities for FRUCT Association was defined as follows:

- actively participate in development of the scientific, research and training ecosystem of the region and helps to renew courses and training programs in the member organizations;
- establish direct connections and building trust and friendly atmosphere between the member research groups and experts from industry and academia;
- collect, process and distribute information about the most important industrial trends, new technologies, ongoing cooperation projects and other types of new opportunities that are arising in the region;

- build teams capable to perform research and development for most advanced and risky ICT questions with high degree of uncertainty;
- arise prestige of the scientific work to help engaging students and postgraduates in the research and development activities and motivate them to stay at universities and continue studies;
- support preservation of strong ties between best graduates and young researchers and their universities;
- collect, process and distribute information about existing funding opportunities, establish connections and make favorable framework agreements with regional funds and venture organizations to be used by FRUCT members;
- organize teaching of the basics of innovative management and startups development, provide legal, infrastructural and other types of supporting services to the graduate teams;
- when needed and possible play role of business angel for the developed startups.

But FRUCT strategy was also to continue be the regional leader competence incubator. The corresponding activities of FRUCT Association are focused on development of training, research and infrastructural components. The main focus topics developed within scope of the training component are as follows:

- development of new courses and advanced training programs for the regional technical universities;
- active contribution to development of the new educational standards and promoting ideas of integrating new technologies with the classical university disciplines;
- activation of the intercollegiate exchanges of lectures and courses between the member organizations;
- support exchange of students and postgraduates and organization of the new multi-site M.Sc. programs for exchange students;
- organization of regular summer and winter schools and trainings open for all interested students and university staff.

Traditionally, FRUCT attaches great importance to gaining leadership positions in hottest and most promising research areas. The list of priority areas are reviewed and updated every half a year. Current set of key priorities in research are as follows:

- Mobile healthcare (m-Health) - research and development of the prototype solutions for new medical services and so taking the diagnostic principles and e-medicine to the next level of comfort and all time availability for the user;
- Internet of Things and Smart Space technologies - research and development of ubiquitous architectures and proactive future services using whole multitude of users' surrounding devices;
- Cross-platform development for devices with the significant variation of technical characteristics - practical research and piloting in this field;
- Embedded Networks - research and development of corresponding network architectures, communication technologies and solutions;
- Research and development of socially-relevant and ecology-aware mobile service and solutions and promotion of use of the energy-saving technologies.

In order to support development of the selected priority areas FRUCT Oy registered a new internet society East-West Research and Education Society on Telecommunications [E-WeREST]. E-WeREST society was created to help facilitate development of professional communities, by allowing to each professional community preserve feeling of independence and own identity, follow internal policies, have community web, e-mail and other resources.

In the new organization structure FRUCT Oy is serving needs of FRUCT Association, which acts as a competence incubator and E-WeREST society, which develops ground for business incubation. FRUCT Oy facilitates all processes in the corresponding directions, provides additional required services, takes care of managing people and projects, organizes face-to-face events for the members of the managed association and professional communities and other supporting services.

4.2 Required Change of Brand and Integrated Communications

The way organizations adapt and modify their behavior, as manifested through their communication, will determine the success of business in the twenty-first century (Argenti, 2003). For long time FRUCT was seen as Nokia-oriented academic program. Many externals even did not realize that FRUCT is an independent community. This image is still strong and prevents potentially interested companies from developing cooperation with FRUCT. But current FRUCT is large and has competences in many various fields. It needs more partners and could offer to them access to developed teams, competences and advanced partner network in Rus-

sia. The key task was to quickly fix external communications and marketing and prepare the new FRUCT image for potential partners.

Despite good results and sustainable growth FRUCT experiences significant problems in organization of internal and external communications. A way for communicating information about FRUCT to the interested students was needed. For example, FRUCT had to admit that cultural principle “Hi-tech is everywhere” created high entering barrier for many new students, as only people with “technology leaders” mindset can fast adapt to the developed internal communication solutions. As a result 70% of potentially interested students are leaving FRUCT in the first two months due to too high technological standards in the community.

Nowadays FRUCT is managing quite intensive communication processes. In average the number of internal communication exceeds 70 units per day. In addition to the main conference and summer/winter schools, a number of local seminars and workshops are organized by FRUCT laboratories at universities, which acting as local hubs of the association activities. In average FRUCT organizes one large internal event every 3-4 weeks. Definition of the new set of goals and objectives of FRUCT to large extend are driven by such high level and complexity of communication activities.

So far the external communication strategy has very weak message for potential partners, supporters and customers. At the same time this part of the strategy has a key role for FRUCT survival and further development (Clampitt, 2005). Based on this fact our group decided to select this particular topic for further study.

The new identity is about adding values to the kernel of the organization (brand, product, service), on the basis of knowledge (van Leeuwen, Winkel & Dijkstra, 2007). This task requires a new message/image/brand and the corresponding definition of an integrated communication strategy, which will make FRUCT attractive for more business partners, while keep its best parts and points of attractiveness in the eyes of students and academic teams that are already in association or want to join it. It is commonly known that people often determine their first choices on the image they have of an organization, brand, product, or service. Also at the same time they ask “what is in it?” for them should they start to work for that particular organization. Brand identity in nutshell is who you are and what meaning you give yourself (van Leeuwen, Winkel & Dijkstra, 2007). Following this principle the new target brand identity of FRUCT is defined in Figure 6.

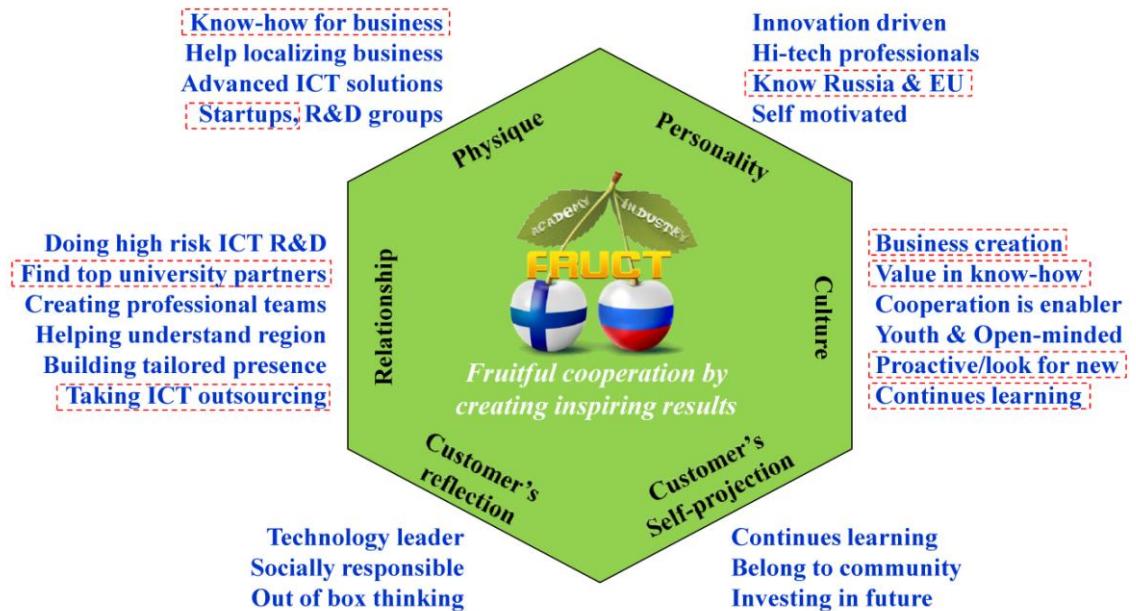


Figure 6: Target brand identity of FRUCT Association

Most of internal communication activities during 2011 were targeted to deal with the above mentioned trends and minimize negative footprint of the transition process to the new mission. As a result we managed to stop disintegration processes in FRUCT. But still a number of problems shall be solved. The key target is to improve internal communications situation to ensure that members understand and support the new FRUCT strategy and are motivated to continue FRUCT development.

The main external communications problem was that the traditional main supporters (Nokia and NSN) were too busy with other activities in Russia. FRUCT had to increase external visibility, broaden scope of offers to ensure healthy financial flow and further development. Also the new communication strategy shall clearly address new challenges of increasing competition on ICT R&D market due to economical crisis.

Nowadays more university teams and research organizations are actively looking for new opportunities and becoming more active players on the ICT R&D market. These teams can use brands of their universities and rely on the university infrastructure and network. Also a number of new hi-tech startups were recently created by people formally employed by R&D units of big companies. In addition one can predict that the level of governmental and public funding support will decrease. However, it is also known that crisis increases industrial interest to innovations. So FRUCT took this situation as an opportunity to reshape and refocus FRUCT towards new partners and develop new cooperation niches. But in order to be competitive the

communication messages shall be very clear, concrete and utilize main strengths of the association.

The new strategy of external communications was done for the following definition of the integrated communications audiences:

- For ICT companies – is required to have clear profile of achievements and available competences and offers portfolio. I was decided to prepare a series of short promo videos where industrial partners from the previous FRUCT projects (from Nokia and NSN) provide feedback on experience of cooperation with FRUCT. The new target partners are all large IT and ICT players operating in the region, e.g., Elisa, Digia, MTS, TeliaSonera, Bee-line, TietoEnator, Rostelecom, Symbio, etc. In addition to approaching general ICT partners, the special attention shall be given to two technological clusters where FRUCT has the strongest competences: 1) mobile healthcare and wellbeing; and 2) future services, internet of things and smart spaces. It is important to maintain FRUCT visibility in the corresponding professional communities and alliances, be strongly visible in all regional meetings, seminars and conferences on these topics.
- For investment companies - the communication messages shall be attractive for financial and investment companies, e.g., Nordea bank and for publicly funded organizations, e.g., Tivit. FRUCT has to have creditable story on how FRUCT is planning to secure cash flow in the long-term perspectives. One of the questions to be answered in the corresponding communication materials is how FRUCT make sure of steady cash flow? Also it is important to prepare clear communication materials around the business plan, long-term strategy (IPO, VC money, etc.), estimations of the financial budget for 2-3 years, customer portfolio and FRUCT dependence on the customers (it is important to show that risks are divided more widely than Nokia and NSN), show how much the member teams are ready to put in incubation of new businesses (own risk) and have short clear prove materials on the creditability of competences (e.g., on deep knowledge and understanding of Russian markets, language skills, public affairs, etc.);
- For Public funds – in addition an answer on how FRUCT will help developing the regional ecosystem. FRUCT already has successful cooperation with ENPI Karelia CBC program [ENPI, 2012], so it would be good to extend it to other regions, i.e., ENPI Southern Finland CBC, explore opportunities provided by ERDF program and other regional programs that support development of ICT ecosystem. In this type of cooperation FRUCT shall participate together with the member organizations (e.g., universities) and preferable external partners are Tivit, Skolkovo, EIT ICT Labs, Ingria, GoldenBridge, Logica, etc.

4.3 Research Methods and Process

This part of research was conducted as a qualitative case analysis. The study was organized in cycles. The first round included intensive interviewing of the advisory team members about current activities and their understanding of the mode of FRUCT organization operations. Then the existing situation was challenged by asking questions on why the activities are organized this way and discussing possible alternatives. Main focus was on collection and joint analysis of expert's opinion on applicability of various alternatives and extensions. The main outcome of this phase was in defining what are the strengths, weaknesses, opportunities and threads that FRUCT has.

Such interviews and brainstorming session were organized with 20 activists of FRUCT. Each session was in one-to-one format. Partly it was done in form of face-to-face interviews and partly via teleconferences. The main goal of the study was to crystallize key competitive advantage of FRUCT and on top of them define the new development and communications strategies.

After the first round, 10 most active contributes of the first round were selected for the second round, then 5 most active were invited to third round. Each next round was based on analysis of the most interesting finding of the previous round and helped to better understand current business and communications position of FRUCT. All finding of the interviews were published FRUCT forum for open reviewing and commenting by FRUCT members. One of the results of these interviews and discussion was definition of a set of priority changes in FRUCT brand identity prism, which are marked at Figure 5 by the dashed line red boxes.

Three rounds of interviews were concluded by detailed analysis of all collected data. The analysis was done based on SWOT matrix (Fine, 2009) and the confrontation matrix (EPM, 2011). The preliminary version of SWOT matrix was extracted and together with the raw data presented for the fourth face-to-face group brain storming session targeted in "out of box" analysis of current FRUCT status was organized. This session was chaired by the thesis author and attended by 6 participants (5 experts from the third round plus most active person from the forum). The meeting goal was to review the SWOT matrix, address the related new questions and problems for the next round of study. This session helped to increase scope of the target activities for FRUCT Oy and define the new positioning of FRUCT Association in respect of the vision to make it competences and business incubator. The result of this meeting and

analysis of data collected from all sources in all phases of the study were combined into the final SWOT matrix presented in Table 2.

Table 2: FRUCT SWOT matrix

Strengths					Weaknesses				
1. Network in Russia with positive image 2. Competences in future oriented ICTs 3. Motivated, well educated young team 4. Operations involve minimal expenses 5. Resources for 1 more year of operation					1. Image of NON-business community 2. Weak business and marketing expertise 3. Cannot give job guarantees for people 4. Market for competences does not yet exist 5. Organization is informal: “weak” links				
Opportunities					Threads				
1. Be visible as top know-how community 2. Strategic governmental/private investor 3. Branded as R&D outsourcing company 4. Expand offer portfolio for new partners 5. Push to make social responsible business					1. Competition is getting more aggressive 2. Economic crisis decreases R&D spending 3. Disintegration: labs play more independent 4. Lab motivation decreasing while unfocused 5. Loss of identity, independence or focus				

The final SWOT matrix and result protocol of the meeting were published at forum for peer-review and commenting by the members. After that we started the second phase of research by analyzing SWOT matrix with use of confrontation matrix.

The idea of confrontation matrix analysis is to help extracting most important strategic intends for the organizational strategy (EPM, 2011). This study started by making SWOT analysis addressing the most important opportunities, threats, strengths and weaknesses of FRUCT.

The opportunities and threats are being combined in the confrontation matrix with the strengths and weaknesses. The result of FRUCT SWOT matrix analysis by using the confrontation matrix is presented in Table 3.

Table 3: FRUCT confrontation matrix

		Strength					Weaknesses				
		1	2	3	4	5	1	2	3	4	5
Opportuni-	1	++	++	+		+	++			++	++
	2	++	+		+	+	-	-/-	-	+	-
	3	+	+		++	+	-/-	-			-

	4	+	+	+	+	+	-	-		+	
	5	++	++	+	+		++		-	+	
Threads	1			+	+	+	-	-/-	-	+	-
	2	+	++		+	+	-	-	+	-	-
	3	++	++				-	-/-	-	-	-
	4			-			-		-	-/-	
	5			-/-		+	-	-			-

The confrontation matrix helps to cluster data on current position and existing opportunities and deriving new strategic intents. The strategic intends are derived based on analysis of the clusters of plusses and minuses in the confrontation matrix. Based on analysis of the confrontation matrix in Table 3 the following four strategic intents were derived:

Intend 1: Become attractive target for investments as the top know-how community in the Region by relying on the developed partner network and ICT competences. (cluster S1,S2 / O1,O2)

Intend 2: Enhance FRUCT image as reliable partner, which members are R&D experts and have positions in the top universities. Maximize use of marketing and business potential of FRUCT alliance network (see Figure 1). (cluster W1,W2 / O2,O3)

Intend 3: Use created ICT competences to get outsourcing contracts from companies that are looking for competitive R&D solutions and ICT services localization for the Region. (cluster S1,S2 / T2,T3)

Intend 4: Deliver contracts to the member teams to strengthen links in the association. Take part of the funding for the future looking R&D activities. (cluster W4,W5 / T2,T3)

But later review of the identified strategic intents has discovered that they do not cover the key FRUCT problem on how to continue expanding network and find new partners. To address this issue the third research phase was started. This phase was based on use of the causal field model (van Leeuwen, 2012) to address need to find new partners and funding sources. The result causal field model for FRUCT is illustrated in Figure 7.

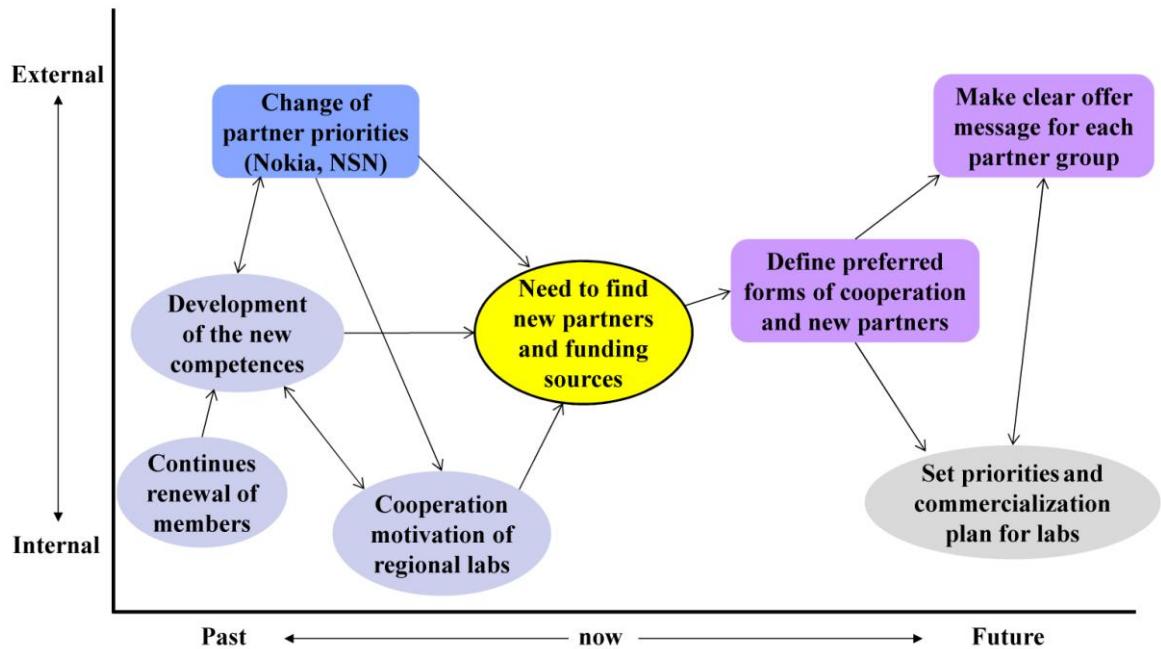


Figure 7: Causal field model for FRUCT

Based on analysis of the causal field model the additional strategic intend for FRUCT was defined – to make FRUCT the preferred partner for Finnish (EU) companies that are interested to explore opportunities in Russia and Russian companies interested to enter Finnish market. For that it is important to ensure positioning of the FRUCT brand among the top three regional organizations providing cross-border services:

- Creating tailored understanding of local culture, existing opportunities and available R&D ecosystem;
- Providing onsite support for business positioning in the region, including all practical and legal issues;
- Taking full outsourcing of the companies services and ICT solutions localization for Russian market;
- Providing a “single door” partner for the companies to approach the top regional universities, help to find best partners, organizing required onsite support of joint R&D team (including trainings) in technology exploration.

4.4 Priorities and Objectives of FRUCT Transformation

The key priority of FRUCT Oy is to extend and diversify the list of business partners and supporters to ensure sustainable development less dependent on Nokia and NSN. This objective requires ensuring continues development of competences and visibility in the new technology niches. It is important to take full business advantage of the opportunities provided by

FRUCT cooperation framework between the EU and Russia and strong relations with the top regional universities. It is also important to maintain visibility of FRUCT association as the top and attractive community for academic teams. The main objective of the communications strategy was to facilitate transition from brand identity of FRUCT framework (Figure 3) to the new target brand identity of FRUCT Association (Figure 5).

Fulfillment of the strategic intends and communication objectives were defined as the main priorities of FRUCT Association for the first two years (till 12th FRUCT conference in November 2012). The communication objectives can be clustered to 3 groups: media objectives, process objectives and effect objectives (Floor & van Raaij, 2011). The media objectives define the target audience reached by the communications, which were defined in the previous section.

The process objectives define the communication processing and content (Fill, 2009). Currently FRUCT can rely on the existing toolkit and continues development communications for the following process objectives. The following concrete objectives were specified with the delivery deadline set for May 1, 2013 (at 13th FRUCT conference) and main review of progress on November 5, 2012 (at 12th FRUCT conference):

- FRUCT web site shall be in the top 10 educational content web resources in Russia with over 2500 visits/day, by November 2012 it shall be in top 25 with over 1800 visits/day.
- FRUCT shall be listed among the top 5 references at Google and Yandex search engines for request “Finnish-Russian”, by November 2012 it shall be in top 20.
- FRUCT group in Vkontakte (Russian) social network shall exceed 1000 members and 100 visits/day, by November 2012 it shall exceed 700 members and 70 visits/day.
- FRUCT shall be visible in Wikipedia and corresponding articles shall appear in English and Russian, , by November 2012 it shall be accepted in Russian.
- Publicity – at least one TV report from FRUCT event and a few promo articles in respected journals;
- FRUCT shall develop own communication identity in Facebook, Skolkovo, Habrahabr and LinkedIn.

The effect objectives define what we want to achieve. Our objective is to make FRUCT visible among 3 top organizations that provide the EU (Finnish) and Russian companies with services on understanding specifics of the adjacent region, building tailored presence and giving

FRUCT outsourcing task of localizing their ICT solutions. FRUCT advisory team decided to take a serious challenge and develop the new communication strategy that will present FRUCT as a provider of a wide variety of services, i.e., not limiting anymore to ICT R&D, but become visible as an organization that helps Finnish/EU companies enter Russia and vice versa. The target is to approach at least 5 new business partners to discuss cooperation in the specified focus areas.

The following three research tasks were defined as the main priorities for the 12th round of FRUCT life cycle (deadline on November 2012) in order to achieve the specified objectives:

1. Define the new development and communication strategy to allow optimal transition from the brand identity of FRUCT framework (Figure 3) to the target brand identity of FRUCT Association (Figure 5).
2. Analyze what additionally can be done to make FRUCT more attractive for the new customers according to the specified set of target groups.
3. Prepare and package the main messages of FRUCT Association in a form that makes them attractive for all groups of customers and partners.

4.5 Current Status of FRUCT Development

Nowadays the core FRUCT team consists of over 100 researcher and developers from 8 regional FRUCT labs in Russia and three regional teams in Finland, one in Denmark and one in Ukraine. FRUCT already managed to set good contacts with large corporations, such as Nokia, Nokia Siemens Networks, EMC², Microsoft, Intel and a number of regional SMEs. FRUCT is developing a partner network in Skolkovo innovation zone (Skolkovo, 2012). Also from autumn 2012 FRUCT will start giving advanced course on Mobile Healthcare for the students of Skolkovo Open University (Skolkovo University, 2012). FRUCT is the sister society of IEEE Communications Society in Russia, Finland, Denmark and Ukraine (IEEE ComSoc, 2011).

As a part of consortia build by FRUCT, FRUCT Oy won ENPI Karelia CBC grant KA-179, where it takes part as an associate member and ENPI Karelia CBC grant KA-322, where it is a full partner that receives a share of the grant funding (ENPI, 2012). FRUCT Oy is a full partner in two more grant applications (KA432 and KA530), which are currently under review by ENPI Karelia CBC board. Also FRUCT is a co-winner of Erasmus Mundus grant EMMC-532450 PERCCOM. These achievements secured funding for next 2.5 years, which is required to ensure further sustainable development of FRUCT Association.

FRUCT teams won 4 Russian Mobile VAS Awards in various categories (VAS Award, 2012) and become the most recognized mobile developers' community in north-west Russia. Regional FRUCT laboratories were visited by the top level officials of Russian Federation, including visit of President Dmitry Medvedev to the FRUCT laboratory at Petrozavodsk State University (PetrSU, 2008). FRUCT managed to achieve strong positive visibility in Russia. Visibility and positions in Finland are still to be improved and it is the next target that will be proposed as FRUCT priority for the next life cycle.

FRUCT is one of the recognized regional leaders in the priority R&D areas defined by the association. The independent regional professional E-WeREST communities on Mobile Healthcare and Wellbeing, Qt and cross-platform development, Mobile Linux, Internet of Things, Future Services and Smart Spaces are managed and steered by the corresponding working groups of FRUCT Association. With help of FRUCT these communities organize regular seminars, trainings and other activities required for the community development. This work was already recognized and highly evaluated by the local authorities (e.g., by special recognition diploma of the first Innovation Forum in St-Petersburg), local business that take active role in the work of these communities, regional funds (e.g., Skolkovo) and academic community (e.g., participation in events representatives of all leading universities and Russian Academy of Sciences).

Currently FRUCT is working actively on increasing cost-efficiency and optimization of all processes in the association. For example, FRUCT helps member organizations to combine partners' efforts in external and marketing communications. One practical example of such cooperation is when FRUCT organized a number of joint events with Aalto University during autumn 2011 – spring 2012 and this activity will be continued in autumn 2012 (NordSecMob, 2012). This model of cooperation allows sharing expenses and makes marketing events more attracting for the externals, as they can at the same time get some technical training and learn about FRUCT Association and about other opportunities provided by the partners.

The next chapter provides detailed description of the main tools and practices already implemented by FRUCT.

5 Implementation of FRUCT Association Principles

This chapter describes a set of tools and methodologies that were developed to facilitate management of FRUCT framework and association. The chapter is a technical guideline for teams interested to adopt best practices of the developed infrastructure and transfer FRUCT culture and principles to other regions. The chapter provides an overview of the implemented web solutions, including references to the detailed description and explanation on how to reuse the developed tools. It provides current definition of the communicative strategy. The chapter specifies and explains all main research and development activities of FRUCT and gives an overview of methods used for practical implementation of the selected theories. The chapter presents FRUCT activities in education renewal and support of professional communities. It is concluded by overview of the main changes in progress evaluation strategy.

5.1 Developed Community Management Toolkit

FRUCT developed a large and advanced toolkit that facilitates organization of the association work. The developed toolkit includes own web resources, community pages, forum, teleconference system, email distributions, laboratory tools, repositories of material. The list of only web tools developed by FRUCT is as follows: <http://fruct.org>, <http://forum.fruct.org>, <http://social.fruct.org>, <http://wiki.fruct.org>, <http://oss.fruct.org>, <http://osll.fruct.org>, <http://yar.fruct.org>, <http://wl.fruct.org>, <http://mbt.fruct.org>, <http://e-werest.org>, <http://qt.e-werest.org>, <http://meego.e-werest.org>, <http://rusmart.e-werest.org> and <http://mhealth.e-werest.org>.

Screenshots of the most important part of the developed toolkit are presented in Annex 3. Information about other tools can be found in the description sections of the corresponding web resources, so I see no need to repeat it in this study, especially as it alone will add approximately 100 pages of text.

5.2 Communicative Strategy

The communicative strategy is a tool for executing general policies of an organization. It is a plan whom to approach and by which methods. Communicative strategy is an integrated communication in all its aspects. Communicative strategy is a system that brings awareness, appreciation and positive intent for an organization (van Leeuwen, Winkel & Dijkstra, 2007). When developing an overall strategy, organizations need to consider their corporate communication effort as manifested in the company's vision and mission statement (Argenti, 2003).

The main target audience for the new communicative strategy of FRUCT Oy is defined in the previous chapter. Its primary goal is to support transition of the organization brand identity from brand identity of FRUCT framework (Figure 3) to the target brand definition of FRUCT Association (Figure 5). The mission of FRUCT Association is to incubate new competences and young professionals through the close R&D cooperation of industry and academia. The organizational vision is to become one of top three bridges between Finland (EU) and Russia. The new brand identity of FRUCT Oy was formulated as “FRUCT Oy - fruitful cooperation by creating inspiring results”.

Since beginning of 2011 FRUCT Association allocated special person, who as a part of learning curve get a task to be responsible for external communications of FRUCT Association and since beginning of 2012 she was promoted to the position of integrated communications manager and now is responsible for implementation of the integrated communicative strategy. Correspondingly, role of this person has changed by shifting from pure implementation of the external communication, to orchestration of internal, external and corporate communications. The new definition of FRUCT brand identity and new FRUCT offers to the customers were processed by the integrated communications manager. To ensure that the new communication messages of FRUCT are visible, clear and delivered using proper communication tools the following communication channels were selected:

- External communication primary focus on FRUCT web sites, preparation of a series of “FRUCT news” publications in respected IEEE journals and active promotion of the main FRUCT message via FRUCT pages in social networks Facebook, Vkontakte and Linkedin and via Skolkovo network;
- Internal communications are organized via all available channels, e.g., email distributions, teleconferences, web sites, face-to-face meetings, all events, but now they get clear and visible schedule, which prevents overlapping and allows members to take part in all communications of interest;
- The integrated communications manager is responsible for conducting more detailed research to decide proper further actions based on the first results and outcomes. As a special activity focused on driving implementation of intend 4 (see section 4.3) and increasing internal engagement and self-motivation of FRUCT Association teams we are adopting the Linking Pin Model of Reijnders organization (van Leeuwen, 2012) in the way that all team members serving as the front line and the communication channel to the customers.

5.3 Research and Development Activities

The well known problem of universities in Russia and Finland is that often they experience serious difficulties when trying to keep the best students at departments. The close partnership with industry gives the departments association with industrial brand, allows setting challenging and concrete research and development tasks and provides additional resources. This significantly increases attractiveness of the department positions for the students and helps solving resource problem.

On the other hand companies are interested in long-term and high-risk research done by the universities. It is also beneficial for innovative companies to get closer to the edge of science, which allows faster adoption of new scientific findings. The early industrial feedback is in mutual benefit as it enables correct tuning and presentation of the results and new findings, by making them more clear from technological point of view and putting to the right perspective from industrial point of view. It was already proven by a number of various FRUCT activities that development of closer cooperation between the academic and industrial research, openness and readiness for joint work, preparation of joint publications and open source software commitments are in the mutual benefit of all involved parties.

The goal of FRUCT Association is development of the long-term strategic partnership relations between the member teams. In the initial phase of relations FRUCT Association is using short- and medium-term not-profitable technology exploration projects, which allows building contacts with minimal initial cost and lowest partnership building thresholds and level of mutual obligations. Students and postgraduates usually take the main role in development of such projects. The role of scientific advisers is taken by the experts from industry and academy. FRUCT helps to each project finding experts that have the best match of competences for the project research and development focus. FRUCT experience has shown that such kind of partnership building procedure is very efficient as it helps to clearly formulate and prepare the most interesting and perspective research areas for the future joint development.

Academic and industrial experts can propose themes for the new FRUCT projects and in this case expert automatically takes obligation to be the project supervisor. Also students and postgraduates can propose themes by themselves and in this case FRUCT will search supervisor for the project. All proposed projects are taken through the content verification and approval process. The preference is given to clearly formulated proposals that address risky and high-technology topics and have good scientific potential. The main target of FRUCT projects is development of the appropriate competences in member universities, acquaintance of aca-

demic and industrial groups and incubation of full-scale project proposals for further business cooperation.

Projects that get FRUCT approval can ask for support in form of materials that are required for implementation of the projects (books, devices, etc.), assistance of FRUCT experts and in certain cases even direct financial support in form of grants and scholarships. Such support can be provided thanks to contributions of industrial FRUCT members. But it is important to mention that industrial partners are not pretending to the intellectual results obtained in the research and development of FRUCT projects.

According to FRUCT rules each project shall result in at least one publication, which after internal review, publication and updating according to the set of recommendations for improvements will be recommended for publication in IEEE Xplore digital library (Xplore, 2012) or submitted to a prestigious international conference or scientific journal. If the paper is accepted to the recommended conference then Russian students and postgraduates - the most active author of the paper, who also done significant contribution to the project work, can apply for the financial support of the trip to the conference. For example, only during the first half a year of existence of such opportunity FRUCT had got 7 applications for the travel grants and all of them were approved and corresponding travel grants were provided by Nokia universities cooperation program in Russia. As a result one paper was presented at DSS 2008 conference in the USA and 6 papers were presented on the WPMS conference in Lapland, where FRUCT for the first time organized own session at external conference. Nowadays FRUCT sessions and seminars are organized in co-location with 7 conferences and the number of partner conference is growing. Also FRUCT has agreements with more than a dozen of conferences that provide free registrations or good discounts for FRUCT participants.

FRUCT is an official sister society of IEEE Communications Society [IEEE] in the region that includes Russia, Finland, Ukraine and Denmark. This gives the program members the huge additional opportunities for publication of their works in the IEEE associated editions and discounted participation in IEEE events.

The long-term mission of FRUCT is creation of a network of research teams and laboratories, which will be formed from the representatives of the European and Russian universities and supported by industrial experts. FRUCT provides a set of tools and a framework for the member teams to help setting effective collaboration, formulate directions for joint work, get know each other and put trust in place and in advance distribute roles in the full-scale cooper-

ation projects. As a result we see development of a core of R&D consortiums that can develop broad scope of projects and are strong teams in competition for Russian and European grants for fundamental research and development. This principle was already successfully used for applying and winning grants of ENPI Karelia CBC and Erasmus Mundus program.

The core network of FRUCT laboratories is built already and includes the following units: Open Source Solutions laboratories at PetrSU (<http://oss.fruct.org>), Open Source and Linux laboratory at LETI (<http://osll.fruct.org>), Wireless laboratory at NNSU (<http://wl.fruct.org>), research and development laboratory at YarSU (<http://yar.fruct.org>), embedded computing for mobile communications (<http://fruct.org/emcomobile>) and mobile applications laboratories at SUAI. In addition the Smart Spaces group was built in SPIIRAS research center. These laboratories play the key role in regional promotion and development of FRUCT principles, develop and maintain set of regional tools available for the association members, actively contribute to the work of FRUCT working groups, run a number of projects and support regional professional communities. These activities increase level of professional preparation of researcher and developers in the corresponding universities and create good ground for searching new FRUCT activists. The laboratory students get an opportunity to follow the latest trends in ICT, which is greatly benefit their professional development and support creation of new startups under FRUCT or IT-parks and business incubators that are operating in the region and sometimes even at the host university.

5.4 Education Renewal and Trainings

Development of FRUCT education renewal and trainings system was done with intensive use of experience of Society for Organizational Learning (SOL, 2012). The first core element in the system of FRUCT training activities are the main FRUCT conferences, which are organized every half a year and open and free for all members and externals. FRUCT conferences are positioned as educational conference, assuming that for majority of authors it is the first or one of the first publications. The conference technical committee consists of very good experts in the field, who carefully study all papers to help authors to improve paper quality as much as possible. Usually each paper gets a lot of comments and proposals for improvement, as well as general recommendations on the style and other important issue. All FRUCT conferences and majority of trainings are free of charge. Because of that FRUCT educational events are seen by the community of ICT students as the best opportunity to publish first scientific article and present results of their studies.

Programs of FRUCT conferences are formed from the lectures on the hottest, most significant and relevant problems of today's ICT science and industry. The invited lectures include the leading Russian and European academic and industrial experts. The main part of the conference content consists of presentations of the status and results of FRUCT projects and demonstration of the developed solutions. Also FRUCT conferences provide an opportunity for independent developers and groups to represent results of their work and find interested partners and support from the FRUCT member teams. FRUCT conferences are also used for regular status updates and reports delivered by FRUCT working groups and managed professional communities.

The second core element of the developed training ecosystem is the system of regular technological trainings, which are organized every month in different regions of Russia and Finland. On request FRUCT is organizing trainings outside of the main region, e.g., in India. Most often FRUCT trainings are one week long intensive events, when training participants have to spend 8-10 hours in class and also getting home assignments with assumption of 1-2 hours of extra work per day. The trainings are organized around newest and most promising technologies. Majority of trainings are prepared and given by the leaders and core members of the regional FRUCT laboratories. Trainings are positioned as free community initiates, so trainers are not paid, but getting full compensation of direct expenses (either from the receiving side, industrial partner or one of the grants won by FRUCT). Many FRUCT trainings are organized in cooperation with regional professional communities, a number of such examples can be found in the next section. All practical arrangements for the trainings are organized by FRUCT Oy and when possible use support of the local FRUCT laboratories. The training graduates are getting certificates that are highly valued by the local companies. Moreover, at the end of almost each training FRUCT organize developers' contest with good prizes.

The third core element in the FRUCT training ecosystem is summer and winter schools. Duration of the schools vary depending on time of the year, subject and host university, e.g., it could be one-week school with very intensive studies (12 hours of studies and trainings per day) or three-week school with social events and community building activities. All FRUCT schools are open and free for FRUCT members. The organization principles of the schools are similar to the principles of organizing trainings. Thanks to support of industrial partners, sometimes FRUCT is even able to provide grants to cover travelling and living expenses of FRUCT members from other regions.

FRUCT supports development of new advance courses on technologies, which are regularly given in the partner universities by involving experts from industry and invited lecturers from other member universities. Another common practice is when already established course is extended by invited lectures of FRUCT experts. Also FRUCT laboratories play the key role in development of new BSc and MSc program in the member universities.

5.5 Professional Communities

An important mission of FRUCT Association is support and coordination of professional communities. Currently FRUCT supports the following four communities: Russian Mobile Linux (MeeGo/Maemo) community, Russian Qt community, Regional Mobile Healthcare community (m-Health) and Regional Smart Spaces community «Are You Smart» (ruSMART).

The listed communities belong to East-West Research and Education Society on Telecommunications [E-WeREST] that is positioned as an internal business incubator, which activities are coordinated and managed by FRUCT Oy. Such organizational structure allows for each community to preserve own identity, follow internal policies, have community web, e-mail and other resources. FRUCT is developing and maintaining a list of resources of E-WeREST:

- Russian Mobile Linux (MeeGo/Maemo) community – web sites (<http://meego.e-werest.org> and <http://wiki.fruct.org>) and emails distribution (meego@fruct.org);
- Russian Qt community – web site (<http://qt.e-werest.org>), emails distribution (qt-oss@fruct.org), management working group (<http://fruct.org/qt-oss>);
- Regional Mobile Healthcare community (m-Health) – web site (<http://mhealth.e-werest.org>), emails distribution (mhealth@fruct.org), management working group (<http://fruct.org/mhealth>);
- Regional community on Internet of Things and Smart Spaces «Are You Smart» (ruSMART) – web site (<http://rusmart.e-werest.org>), emails distribution (smart@fruct.org), management working group (<http://fruct.org/smart>).

These resources are devoted to discussion on the latest developments in the corresponding fields, creation of a common vision of the key advantages and disadvantages of the most popular solutions, translations of important articles and news from the most interesting external resources, presentation of the new solutions developed by the community and discussions on the closest competing technologies and solutions.

A good example of the complex and long-term work that was done by community in partnership with many industrial parties and with strong support of Nokia was activities on support and development of the Russian Mobile Linux community. The community was first focused on Maemo (Maemo, 2010) and then expanded scope to MeeGo OS (MeeGo, 2011) and currently addressing all main Mobile Linux platforms. This collaboration is useful as for developers as well as for the regular users of devices with mobile Linux platforms, which get a lot of new and high quality content.

Another good example of cooperation was a group of activities organized by FRUCT involving Russian Qt community and Nokia targeted in popularization of Qt platform in Russia. The corresponding activities were organized as systematic work that included regular trainings, development of study materials for Russian universities, development of Qt applications, organization of developers' contests and so on. From February 2011, once in 3-4 weeks FRUCT organized trainings on Qt that took place in different regions of Russia (<http://fruct.org/qt-tour>). These trainings are free of charge for all participants and each of them was followed by developer's contest for all graduates. The contest winners received good prizes, recognition diplomas and were invited to become core FRUCT members.

In partnership with professional communities E-WeREST, FRUCT organized a set of large events, such as Russian MeeGo summit (<http://fruct.org/meego1>), Regional MeeGo summit Russia-Finland in Petrozavodsk (<http://fruct.org/conference9>), winter and summer schools on Qt in St.-Petersburg (<http://fruct.org/QtSummer>), summer school on advanced Qt in India (<http://www.fruct.org/india2012>) and many other events. Participants of these events were international experts on MeeGo and Qt-technology, regional leaders of ICT resources, representatives of academy from different universities and people from top IT companies, such as Nokia, Intel and so on.

Also communities organize regular large open contests for developers. For example, contest for the best Russian Qt application <http://fruct.org/winQt> that was organized in 2011 and had the total prize fund of 200'000 rubles.

5.6 Changes in Progress Evaluation Strategy

FRUCT Association continues to use the action research methods and processes as was described in the previous chapters. These methods allows to involve all team leaders, most active team members and other key stakeholders in progress evaluation that is perform twice a year

(in conjunction with spring and autumn FRUCT conferences). The feedback is collected via multiple channels including face-to-face interview, web surveys (including anonymous surveys) and group work with members of FRUCT advisory team. Altogether it provides detailed inside to the actual progress done by FRUCT, its perception by the members, deep understanding of impacts of environment, e.g., by key trends in the industry and market.

In addition to the already described processes and tools we currently are developing the new web form to implement the Balanced Scorecard principle (Vos & Schoemaker, 2004). The new form will be assessable via FRUCT website (FRUCT, 2012), FRUCT group in Vkontakte social network and FRUCT page in Skolkovo network. It will be used for continues collection of feedback on FRUCT communication strategy development from the community supporters and externals. The objective of orchestrating this process and analyzing collected data is included to the performance goals of the integrated communication manager. If after the next FRUCT life cycle the satisfactions rating of members, advisory board and open external survey will show no significant increase it will trigger internal reassessment of the strategy and updating.

6 Conclusions

The study is a report of the last 5.5 years of work done by the author. It provides good inside in principles and current status of activities in the association. The work describes the process of development and internal transformation of the Open Innovations Association FRUCT. It was established in 2007 as a community-driver cross-border association that unites Finnish and Russian universities and large business, such as Nokia and Nokia Siemens Networks. It is one of the oldest open innovations initiatives in the world and currently is one of the largest open innovations initiatives operating in Russia, Baltic region and Nordic countries. By now 27 organizations joint FRUCT Association as members. FRUCT members are getting significant support in establishing and running collaboration with industrial research groups, top regional universities. FRUCT members get access to a lot of materials on the new technologies. As a sister society of IEEE Communications Society, FRUCT provide a lot of opportunity for member organizations interested in deep cooperation with IEEE.

This study resulted in development and piloting new principles of internal organization of the open innovation conceptual framework. The proposed modification of the framework resulted in cost-efficient solution that addresses limitations of the classical conceptual framework when it is applied to the emerging markets. The study preserves main external principles of the open innovations conceptual framework, but replacing internal classical management organization by the Community of Practice (CoP) management framework. As a result FRUCT framework can be seen as a symbiosis of the external open innovation conceptual framework and CoP conceptual framework for organization of internal processes. Together with the passion for change and adoption internal culture, continues use of action research principles and well established half a year life cycle we received an efficient and sustainable structure that has illustrated great performance over the past years.

The author was the main designer and developer of FRUCT. After development of FRUCT community his activities were supported by contributions of other FRUCT activists. The author was elected to be the General Chair of FRUCT framework and later as a president of FRUCT Association. Under author's supervision, the community developed a system of innovative tools and processes that enable efficient management of large organizations such as FRUCT itself and professional communities of E-WeREST. Organization of FRUCT Association is very unique. The closest match is MIT hosted Society for Organizational Learning (SOL, 2012). But SOL community is primary focused on education renewal and has much weaker activities in research and academy-to-industry relations building.

Nowadays FRUCT is the only example of community-driven democratic open innovations association of such large scale. Novelty of the approach and processes developed by FRUCT were recognized already in 2008 by Dr. Timo Nurminen in PhD thesis on higher education administration and further industry higher education collaboration (Nurminen, 2008). Since then FRUCT experience was discussed in more than 10 scientific publications on innovations organization and management. The information page about FRUCT was published in Russian version of Wikipedia.

The process of continues adoption and improvement of FRUCT is based on use of action research methods. FRUCT develop well organized self management system with half a year renewal cycle. The association management is highly democratic, i.e., the official ultimate decision power in FRUCT is given to the advisory team that consists of a board of permanent members, which are highly respected experts plus invited members that represents all teams and groups of the association. The thesis contains detailed examples of how the management processes are organized. From these examples one can see clear focus of FRUCT on ensuring that every member can raise the voice and it will be heard by the management team. This has crucial value for FRUCT Association as it supports emotional attachment of the members and feeling that they are part of the association and their opinion matters. As a result one can see continues sustainable growth of FRUCT. The developed framework was strong enough to even survive such dramatic change as degradation of Nokia interest and corresponding support of the community.

Nowadays the core FRUCT team consists of over 100 researcher and developers from 8 regional FRUCT labs in Russia and three regional teams in Finland, one in Denmark and one in Ukraine. FRUCT already managed to set good contacts with large corporations, such as Nokia, Nokia Siemens Networks, EMC², Microsoft, Intel and a number of regional SMEs. FRUCT is developing a partner network in Skolkovo innovation zone. Also from autumn 2012 FRUCT will start giving advanced course on Mobile Healthcare for the students of Skolkovo Open University (Skolkovo University, 2012).

FRUCT Association is one of the biggest publishers of mobile applications in Russia. Overall more than 50 mobile applications are published in Nokia Store, Android Market, Maemo repository, etc. Four applications have over 100'000 downloads and are in the top 20 of most popular regional applications for the corresponding platforms.

FRUCT plays active role in building regional R&D consortia and applying for public grants. For example, in 2011-2012 FRUCT Oy won ENPI Karelia CBC grant KA-179, where it takes part as an associate member and ENPI Karelia CBC grant KA-322, where it is a full partner that receives a share of the grant funding (ENPI 2012). FRUCT Oy is a full partner in two more grant applications (KA432 and KA530), which are currently under review by ENPI Karelia CBC board. Also FRUCT is a co-winner of Erasmus Mundus grant EMMC-532450 PERCCOM. These achievements secured funding for next 2.5 years, which is required to ensure further sustainable development of FRUCT Association.

FRUCT teams won 4 Russian Mobile VAS Awards in various categories (VAS Award, 2012) and become the most recognized mobile developers' community in north-west Russia. Regional FRUCT laboratories were visited by the top level officials of Russian Federation, including visit of President Dmitry Medvedev to the FRUCT laboratory at Petrozavodsk State University (PetrSU, 2008). FRUCT managed to achieve strong positive visibility in Russia. Visibility and positions in Finland are still to be improved and it is the next target that will be proposed as FRUCT priority for the next life cycle.

The developed association is open and free for participation for the university teams. It plays important role in education renewal and professional preparation of students. FRUCT conferences are positioned as educational conference and it is the only place where many Russian students can make their first scientific publication in English and get a lot of feedback from the top experts in the field. By now 7 proceedings with more than 200 papers were published based on materials of FRUCT conferences. Over 20 FRUCT graduates joint international companies, over 10 Russian graduates continued studies in the EU and over 40% of all graduates decide to continue education by applying to PhD position or starting second MSc degree in adjacent field.

Formally enrollment of the new members to FRUCT is possible only by the invitation from the organizing committee. But so far all university teams that are residents of the target region and were interested join FRUCT and ready to follow its principles were invited to the association. FRUCT association is glad to see new members and work together to further expand regional open innovations network.

FRUCT development is continues process. Currently FRUCT is in active phase of growth. There is significant interest to FRUCT findings from other regions, especially China and India. The author is planning to continue developing FRUCT and see personal professional future

connected to FRUCT. The new key priority for the coming years will be development of an efficient pipeline for incubation of innovative businesses out of FRUCT projects and teams.

I started FRUCT development having degrees in IT and ICT. The initial assumption was that it will be enough to successfully develop concept of Nokia R&D expansion to Russia. But even during the pre-phase of the study I had do a lot of self-studies and take special trainings on the various aspects of the innovations management process. By end of 2008 it became clear that for efficient leading of FRUCT development I have to take general M.Sc. level studies on international business management. From autumn 2009 I joined IBMA program of HAAGA-HELIA University of Applied Science. IBMA studies helped to better organize my knowledge in the field. Materials and study results of almost all courses were used in FRUCT development. Based on this I can conclude that this study was one of the key factors in the overall success of FRUCT development.

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LIST OF ABBREVIATIONS

- AI – Appreciative Inquiry
 AR – Action Research
 CBC – Cross Border Cooperation
 CIS – Commonwealth of Independent States
 CoP – Community of Practice
 EU – European Union
 ENPI – European Neighborhood and Partnership Instrument
 E-WeREST – East-West Research and Education Society on Telecommunication
 FRUCT – Finnish-Russian University Cooperation in Telecommunications
 IBMA – Degree Programme in International Business Management
 ICT – Information and Communication Technologies
 IP – Intellectual Property
 IPR – Intellectual Property Rights
 LETI – St-Petersburg State Electrotechnical University “LETI”
 M-health – Mobile Healthcare
 MIT – Massachusetts Institute of Technology
 MSU – Moscow State University
 NDA – Non Disclosure Agreement
 NNSU – Nizhny Novgorod State University
 NordSecMob – Master's Programme in Security and Mobile Computing
 NRC – Nokia Research Center
 NSN – Nokia Siemens Networks
 OS – Operational System
 PetrSU – Petrozavodsk State University
 RusCo – Russian Cooperation project of NRC
 R&D – Research and Development
 SPIIRAS – St.Petersburg institute for Infromatics and Automation of Russian Academy of Sciences
 SOL – Society for Organizational Learning
 SUAI – St-Petersburg State University of Aerospace Instrumentation
 TUT – Tampere University of Technology
 UC – University of California
 UoO – University of Oulu

VAS – Value Added Services Award

URL – Uniform Resource Locator

YarSU – Yaroslavl State University

FRUCT HISTORY IN A NUTSHELL

The need for R&D presence in Russia was recognized by Nokia top management in the beginning of 2006. In terms of R&D cooperation Russia was the new region for Nokia so the main goal defined for the universities cooperation program was to build up knowledge on the regional ICT R&D potential, identify relevant partners, “break the ice” in relations and prepare ground for R&D presence in Russia. This target was especially challenging taking into account that interest of middle managers to R&D cooperation with Russia was rather low. So it turned out that the first project goal was to make internal sale of the idea to have R&D presence in Russia and before it was done the project had minimal support, both in terms of allocated man power (for the first two years only 5% of man/year power was allocated to the project) and budget (it was on the level of a few thousands euro). After the first year of project work it became clear that its mission cannot be accomplished without external support. So the idea to assist project work by incubating friendly community of practice has emerged.

In 2007 FRUCT community has been established by a group of enthusiasts as a cross-border framework cooperation program that unites universities, R&D institutions and companies. In the beginning FRUCT did not have regular financial support so the community was forced to search for non-classical theory and cost-efficient solution. The cornerstone theory used at that phase of the study was Communities of Practice (CoP) as a tool for creating management body of the open innovations frameworks. The CoPs concept has roots in learning theories (Wenger, 1998). One can find a number of definitions for CoPs principles, but the closest for the course of this study define CoP as groups of people informally bound together by shared expertise and passion for a joint enterprise (Wenger & Snyder, 2000) and as groups, whose members regularly engage in sharing and learning, based on common interests (Lesser & Storck, 2001). Further development of the FRUCT core team was done applying principles of open innovations (Chesbrough, 2003a; Chesbrough, 2003b). Members of FRUCT core team have actively contributed to the community development, which resulted in transforming FRUCT into a large and influential group of ICT experts.

After two years FRUCT community united teams from 18 universities, Russian Academy of Science, Nokia and Nokia Siemens Networks (NSN). Value of community was recognized by Nokia and FRUCT start receiving regular financial support via Nokia social responsibility program. After one more year a number of Nokia R&D units recognized potential of the community and start offering subcontracting tasks to FRUCT members.

FRUCT community done a lot of studies in various fields and successfully delivered many projects. Most of the projects were done in close cooperation with teams and in line with research priorities of Nokia. FRUCT gained reputation of one of the strongest industry-oriented academic R&D group in the region. FRUCT provided valuable input that helped Nokia define R&D expansion strategy for Russia. As a result, in November 2010 Nokia and Skolkovo signed the memorandum of understanding. According to this agreement Nokia Research Center was created in Moscow Skolkovo innovation zone.

Fulfillment of the original mission created the new huge challenge for FRUCT community. The main question was whether community should be closed or continues to exist, but then a new mission had to be defined. Internal discussion around this choice has discovered that majority of FRUCT members want to keep the community. Moreover, FRUCT has a lot of valuable assets, which together with the high level of personal motivation and emotional attachment of the community members provided good ground for renewing FRUCT. The conclusion was that FRUCT shall continue operations, but its format and mission shall be renewed to be aligned with the new realities.

The main change was that Nokia and NSN were not longer interested in outsourcing relations building and technologies scouting. This became a role of the local office of Nokia Research Center, which also become responsible for development of solid and clear identity of Nokia R&D presence in the region. But Nokia still associated value and role with FRUCT as friendly community that can be used for outsourcing small R&D and products localization tasks. This role was not enough to fuel further growth and development of the community, but anyway it was a large success, as such role provided FRUCT with time and resources to support smooth transformation to the community format and mission.

Also Nokia was not interested to provide FRUCT with management, accounting and other supporting services. It created need for a new legal entity that can drive community through time of transformation, provide organizational, management, accounting and other services. During autumn 2010 FRUCT looked for governmental or private partner to take leading role and drive further development. Despite strong interest to EU-Russia cooperation, all attempts to find new partner have failed, which can be explained by unfavorable business moment and strong focus on Nokia technologies. Other option was to create own non-profit organization. Analysis of this option discovered that the process of creating non-profit organization is quite complex and might lead to restrictions and negative consequences in the future. But FRUCT

could not operate without managing partner for long time. In December 2010 FRUCT Oy was established to provide community with the required services and drive through the time of transformation.

At the same time FRUCT community was transformed to association. The enhanced mission of FRUCT association is to improve regional university education in ICT by setting close links with industrial R&D. The association focus was set on development of efficient cooperation framework between universities and companies in order to incubate new competences and businesses and facilitate expansion of the EU companies to Russia and vice versa.

SCREENSHOTS OF THE DEVELOPED WEB TOOLS

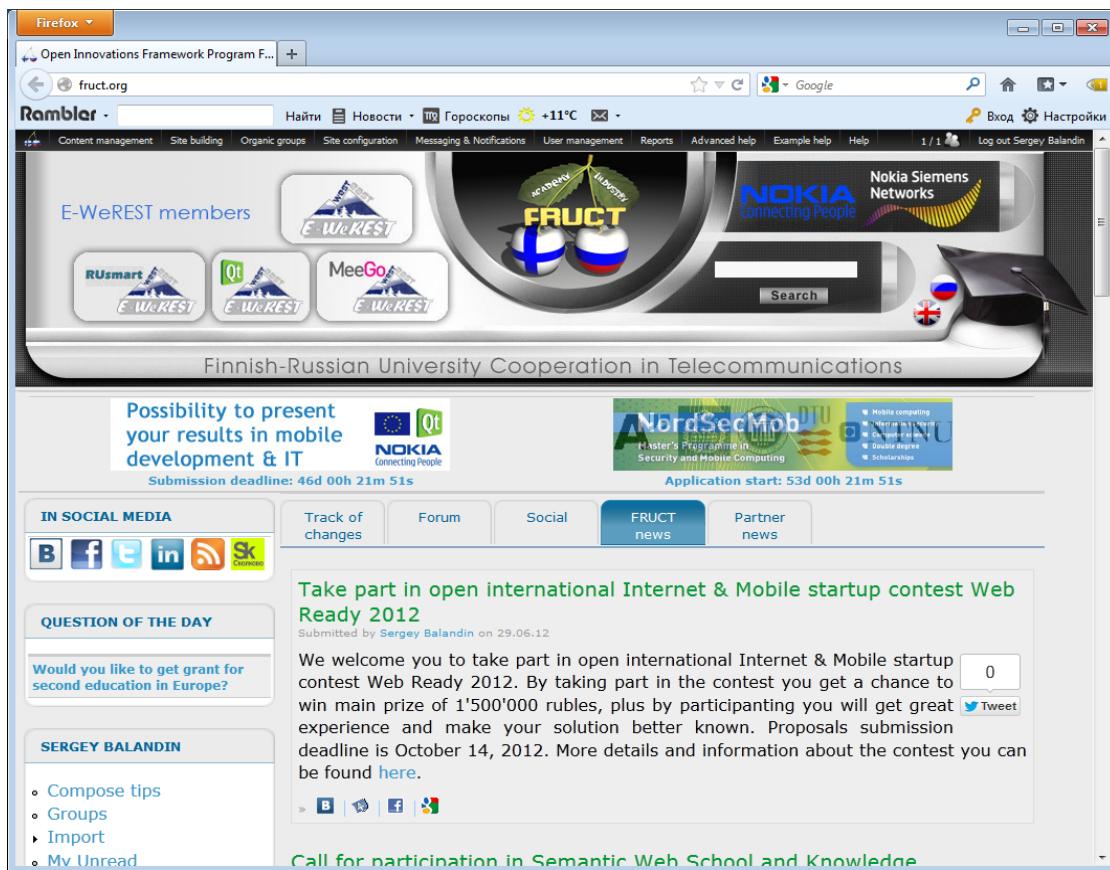


Figure 8: Interface of the main FRUCT web site

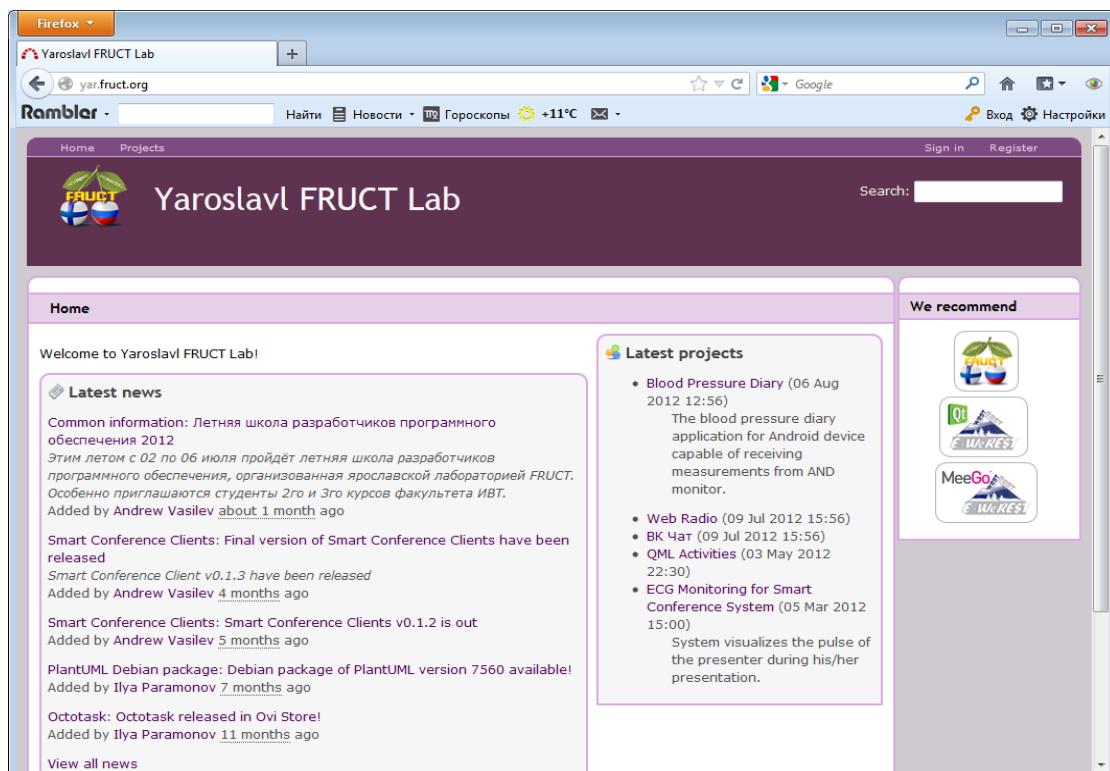


Figure 9: Web site of one of the regional labs (Yaroslavl laboratory)

The screenshot shows the FRUCT Social Network web site. At the top, there's a banner for the "FRUCT Social Network" featuring the FRUCT logo, two cherries, and the text "Finnish-Russian University Cooperation in Telecommunications". Below the banner, there are logos for Aalto University, KTH Royal Institute of Technology, DTU, NTNU, and Nokia Siemens Networks. A banner for the "12th FRUCT conference" is also present. The main menu includes links for Main Website, Social Network, People, Working Groups, Projects, Statistics, and Search. The user profile for Sergey Igorevich Balandin is displayed, showing his photo, name, sex (male), birthday (10.05.1977), hometown (Russia, St.-Petersburg), CV (download), short link (<http://fruct.org/balandin>), and language proficiency (Russian [native], English [fluent], Finnish [intermediate]). The contacts section lists his current location (Finland, Helsinki) and email (sergey.balandin@fruct.org). The bottom of the page has a footer with links for Track of changes, Forum, Social, FRUCT news, and Partner news.

Figure 10: Interface of the FRUCT social network web site

The screenshot shows the main FRUCT web site. The header includes a "Track of changes" button, a "Forum", "Social", "FRUCT news", and "Partner news" tab, and a search bar. The main content area features a "IN SOCIAL MEDIA" section with icons for various platforms. A "QUESTION OF THE DAY" section asks if you'd like to get a grant for second education in Europe? The "SERGEY BALANDIN" sidebar lists options like Compose tips, Groups, Import, My Unread, My account, My inbox, Recent posts, Site user list, Web File Manager, Create content, Administer, and Log out. The "MAIN MENU" sidebar includes News, About, R&D projects, and Advisory board. The central part of the page displays a "Latest changes and updates on the site" section with a dropdown filter for "Without next type" set to "<Any>". A table lists recent updates with columns for date, title, and status (new or updated). Examples include Fulbright Specialist Timothy Lloyd visits Jyväskylä (new), SmartScribo: A Blogging Application for Smart Spaces (updated), and various events and meetings like Varhaisen vuorovaikutukseen, Ammattikorkeakoulutointiin, and various international conferences.

Figure 11: Screenshot illustrating level of activity at the main FRUCT web site

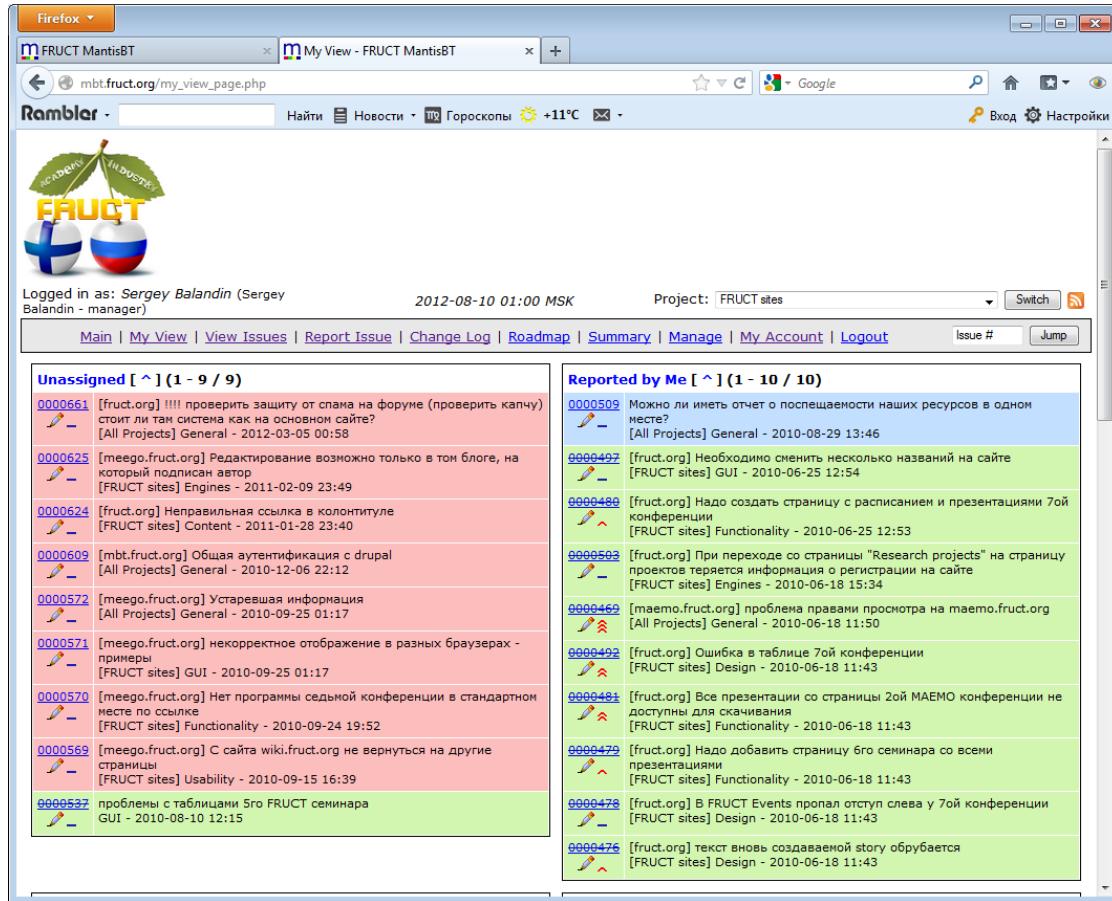


Figure 12: Example interface for one of the activities monitored by Mantis web tool

The screenshot shows a Firefox browser window with the FRUCT Web Forum open. The title bar says "Forums | forum.fruct.org". The page header includes "Найти" (Search), "Новости" (News), "Гороскопы" (Horoscopes), "USD 31.96", "EUR 39.54", and a dropdown "Настройки" (Settings). Below the header is a navigation menu with links like Content management, Site building, Site configuration, Messaging & Notifications, User management, Reports, and Help.

The main content area features a banner for "Finnish-Russian University Cooperation in Telecommunications" with logos for E-WeREST members, RUsmart, Qt, Nokia, and NordSecMob.

Below the banner is a section for "Possibility to present your results in mobile development & IT" with a submission deadline of "34d 10h 23m 58s".

The main navigation bar includes "SERGEY BALANDIN" (Messages, My account, My bookmarks, Workflow summary, Create content, Administer, Log out), "Track of changes", "Forum", "Social", "FRUCT news", and "Partner news".

The "Forums" section displays a list of topics:

Forum	Topics	Posts	Last post
10th conference www.fruct.org/conference10	8	9	conference ... by lagutinans 10/31/2011 - 21:12
Advanced Qt Summer School 2011 in India / Belgaum	35	40	Project ... by Eassy writer 02/27/2012 - 11:32

On the left side, there are "FORUM SUBSCRIPTIONS" sections for Subscriptions Overview, Manage Subscriptions, and Current Subscriptions.

Figure 13: FRUCT Web Forum

The conference program is available for [download in PDF](#).

The program of 11th FRUCT conference in St-Petersburg

DATE	TIME	EVENT
23.04.12	09.00-18.00	QML for Mobile Development Training (in Russian): Getting started with QML, SPbETU "LETI", Prof. Popova 5, Building 3, room 3402
24.04.12	09.00-18.00	QML for Mobile Development Training (in Russian): Graphics and Components, SPbETU "LETI", Prof. Popova 5, Building 3, room 3402
25.04.12	09.00-12.00	QML for Mobile Development Training (in Russian): Extra components and capabilities, SUAI, Bolshaya Morskaya 67, room 53-03
	12.00-14.00	ENPI project meeting (only by invitation), SUAI, Bolshaya Morskaya 67
	14.00-14.30	Opening of 11th FRUCT conference, SUAI, Bolshaya Morskaya 67, Main conference-hall Welcome words and the main plenary session of the conference Keynote talk: Cross platform hybrid Internet applications, Knut Yrvin, Nokia
	14.30-16.10	Coffee break (Main conference-hall)
	16.10-16.40	Coffee break (Main conference-hall)
	16.40-18.30	FRUCT info session - Status, News and Web WG meeting, SUAI, Main conference-hall
	18.30-21.00	Meeting of the FRUCT Advisory Board (only by invitation)

Figure 14: Web page of 11th FRUCT conference program

Август – последний шанс получить скидку за раннюю регистрацию на конференцию «Разработка ПО / SECR»

В августе заканчивается период льготной регистрации на конференцию Разработка ПО / СЕЕ-SECR 2012. Зарегистрировавшись сейчас, можно сэкономить от 20% до 80% – скидки на SECR суммируются!

– Ранняя регистрация (при оплате в августе)

Читать дальше

конференция

+1 07 августа 2012, 14:37 Ekaterina Оставить комментарий

Многие годы прошло с момента появления архитектурного паттерна под названием MVVM, но как то слабо он освещен в мире Qt Quick. В данной статье я попытаюсь показать и описать применения

Figure 15: Web site of professional community managed by FRUCT (Russian Qt)

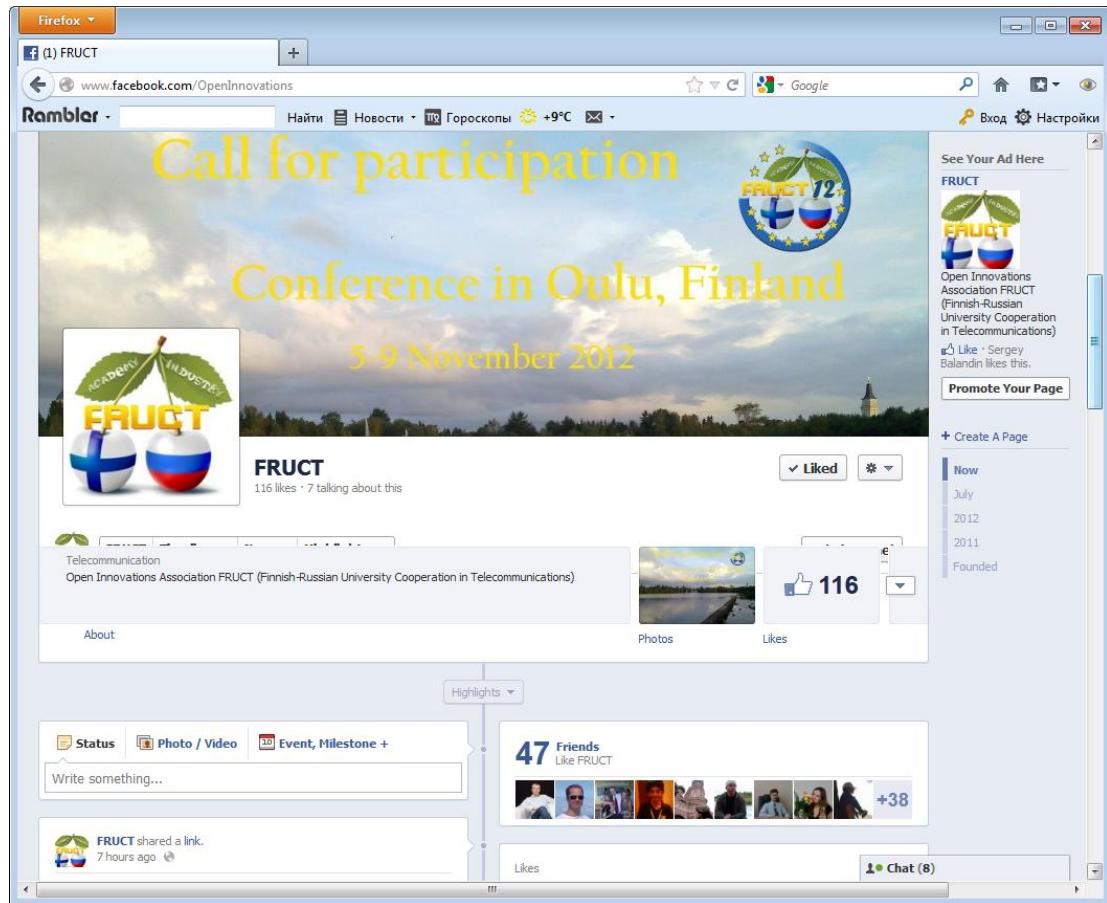


Figure 16: FRUCT web page in Facebook social network

Figure 17: FRUCT web page in Vkontakte social network