

SPATIA
Reports
5/2001

RITTS 4445 EAST FINLAND
"EFFORTS"
FINAL REPORT

Timo Lautanen



Centre for Regional Research
University of Joensuu

ABSTRACT

Timo Lautanen

**RITTS 4445 EAST FINLAND
"EFFORTS"
FINAL REPORT**

The RITTS 4445 East Finland project is funded by the European Union (DG Enterprise), National Technology Agency of Finland and the Regional Councils of Pohjois-Savo, Kainuu and Pohjois-Karjala.

**SPATIA – Centre for Regional Research
Karelian Institute, University of Joensuu
June 2001
ISBN: 952-458-201-5**

Keywords: East Finland, innovation, industrial clusters, development strategies

The central benefits from the process in the case of RITTS East Finland ("EFFORTS") are 1) profound research on the needs of firms, the East Finnish economy and the system of regional innovation, which already by now has been utilised in various development actions in the three counties of RITTS East Finland 2) definition of areas of rapid development (innovation frontiers) and visions of important industries in East Finland NUTS-2 region, and 3) identification of a number of potential vertical (cluster-specific) and horizontal development actions by regional actors, or areas of co-operation in innovation and technology policy between the three counties of RITTS East Finland.

This summary is mainly based on the reports of stages one and two of the project. In stage one of the project the three basic analyses (SME Needs Analysis, Supply Analysis, Regional Economic Survey) were carried out using a holistic approach in the counties of Kainuu, Pohjois-Savo and Pohjois-Karjala. In stage two the aim was to map out the co-operative potential in innovation and technology policy within East-Finland NUTS-2 region by beginning with the identification of the regional and (industrial) cluster-specific strengths of the counties. It was also seen important to link the implementation stage of the RITTS process into some other significant development programmes and actions in the area to increase the validity of actions to be implemented and to prevent overlapping of development actions.

CONTENTS

1. INTRODUCTION.....1
2. EAST FINLAND NUTS-2 REGION..... 3
3. STAGE ONE SUMMARY 5
4. STAGE 2 SUMMARY..... 8
5. FRAMEWORK FOR IMPLEMENTATION10

TABLES AND FIGURES

ANNEX: ORGANISATION IN BRIEF

1. INTRODUCTION

This summary report briefly describes the methodology, results and framework for implementation of the RITTS process in East Finland called EFFORTS. This summary is mainly based on the reports of stages one and two of the project.¹ The central benefits from the process in the case of RITTS East Finland² are:

- Profound research on the needs of firms, the East Finnish economy and the system of regional innovation, which already by now has been utilised in various development actions in the three counties of RITTS East Finland;
- Definition of areas of rapid development (innovation frontiers) and visions of important industries in East Finland NUTS-2 region, and;
- Identification of a number of potential vertical (cluster-specific) and horizontal development actions by regional actors, or areas of co-operation in innovation and technology policy between the three counties of RITTS East Finland.

Perhaps the most important result, however, is the less explicit but strong contribution to the ongoing adoption of a knowledge-based development policy in the three East Finnish counties that the process has in the final analysis. This local motivation forms the basis for regional innovation and technology policy and is a significant, although immeasurable, factor in regional competitiveness.

The project started in the end of 1988. Some important changes in the substance and organisation of the project took place in April 2001 before this final summary (for main contractors and co-operative partners, see annex 1). In stage one of the project the three basic analyses (SME Needs Analysis, Supply Analysis, Regional Economic Survey) were carried out using a holistic approach in the counties of Kainuu, Pohjois-Savo and Pohjois-Karjala. Despite well-implemented and beneficial analyses, the draft proposals for the strategic framework and

¹ RITTS 4445 East Finland, Stage 1. Report for DG Enterprise of the European Commission, by Roy Tubb, Upper-Savo Development Company, Iisalmi. RITTS 4445 East Finland, Stage 2. Report for DG Enterprise of the European Commission, by Timo Lautanen, the University of Joensuu, Karelian Institute.

² The NUTS-2 or Objective-1 structural fund programme region of East Finland consists of four counties (NUTS-3, "maakunta"). The "RITTS East Finland" or "RITTS region" covers three of these counties (Pohjois-Savo, Kainuu and Pohjois-Karjala). The term "regional" in this report refers to the county-level.

action plan (task 112), resulted in a controversial discussion on the key themes and actions of the strategy. Instead of the implementation of priority actions the consortium decided to carry out some further analyses on the innovation potential in East Finland in stage two (1.1.2001-). At this point negotiations were resumed with the fourth East Finnish county, Etelä-Savo, over their entry into the project. This was naturally motivated by the fact that the four counties of East Finland administer a common East Finland Objective-1 structural fund programme, which constitutes an important source of funding for development actions until 2006. The decision by the Regional Council of Etelä-Savo to join the project was however negative. Thus, this report and all the ideas presented in it are a product of the co-operation of the first three above-mentioned counties only. The region of Etelä-Savo is nevertheless included in the analyses performed at stage two.

The aim of the additional analyses was to map out the co-operative potential in innovation and technology policy within East Finland NUTS-2 region by beginning with the identification of the regional and (industrial) cluster-specific strengths of the counties. It was also seen important to link the implementation stage of the RITTS process into some other significant development programmes and actions in the area to increase the validity of actions to be implemented and to prevent overlapping of development actions. The main elements of the framework for implementation are: 1) cluster-based development of the industries of emphasis; 2) the Centres of Expertise programme, universities and polytechnics; and 3) the regional technology-based development strategies by the Employment and Economic Development Centres.

The outcome of the project is significantly influenced by factors in the economic geography of East Finland: The RITTS East Finland region consists of three of four counties of the NUTS-2 (or Objective-1 Structural Fund Programme) region of East Finland, which are to a significant degree different in their strengths and strategies and are reasonably large, though are on average sparsely-populated areas in the north-eastern part of the European Union. By its geographical size, the RITTS East Finland region is one of the largest among the over 100 RITTS or RIS regions in Europe. While a holistic approach to the RITTS region brings out important general features and points to be improved in the system of regional innovation, it does not appreciate the region-specific strengths or the differences in the technological orientation between the counties. In addition, with reasonably long distances between the capital towns of the counties, the co-ordination costs of co-operation may readily exceed the value added through this co-operation. Also, the existence of a common East Finnish system of regional innovation is arbitrary: rather there are three (four if the region of Etelä-Savo was included) regional systems of innovation that are in interaction with other regional and industry-specific, and the national

system of innovation. Overall, the RITTS process has had a great positive meaning for the region, but it has to be asked whether, in theory, three (four) different RITTS projects would have better-suited the economic geographical logic of the region?

2. EAST FINLAND NUTS-2 REGION

The East Finland (NUTS-2) region consists of four counties (NUTS-3, “*maakunta*”): Kainuu, Pohjois-Savo, Pohjois-Karjala and Etelä-Savo. The region includes almost 600 km of the EU’s border with Russia and is characterised by a rather low average population density (9,8 inhabitants per sq.km. in 2000). In all, the population of the region represents about 13 % of the total population of Finland.

Like most of the regions in Finland, the East Finnish counties have struggled to recover jobs following the recession at the beginning of the 90s. Unemployment in the East Finnish counties still is 12,9 – 15,9 % of the workforce compared with a national average of 10,2 % (in 1999). During the period 1995-1999, the total value added grew by 13,9 % (11,3 – 14,6 %) whereas the total, unprecedented Nokia-led growth for the country as a whole was 26,5 %.

Primary production, particularly forestry, and the public sector have more significance in the East Finland than for Finland on average. The regional economies are characterised by having relatively few large industrial concerns and many very small ones: almost 85 % of all businesses in East Finland employ less than 5 persons and only 115 (0,5 %) businesses employ more than 100 persons. However, a wide diversity of manufacturing skills and technologies and a wide-ranging presence in export markets can be found within the larger and mid-size companies which do exist.

In the entire East Finland NUTS-2 region in terms of the value added, the most important industrial sectors are the forest industries (including timber and wood products, pulp and paper, paper products and graphics industries), metals and metal products, machinery and equipment, electronics and electrical products (including medical, precision and optical instruments), food and beverages, non-metal mineral products (e.g., stone, glass, cement products), textiles and clothing, and chemicals and plastics. The impact of the different sectors, however, varies to some extent between the counties. The high-quality natural environment, including an extensive system of lakes and waterways, is a particular focus for tourism promotion across the region.

Partly following the reformulation of the national industrial policy, the concept of industrial clusters has been utilised in the counties' development strategies since the mid-1990s. The seven clusters of industries/ branches that are the areas of emphasis in the common development policy of the counties are the following: health and well-being, wood processing/ forestry, metals (and plastics), telecommunications/ IT, food, culture, and tourism. Naturally, the cluster structures also deviate between the four counties – in some of the branches/regions, these structures are well developed, whereas in others, these structures are future aspirations and the approach – methodological.

On the basis of sectoral statistical data compiled by industrial clusters, the cluster of forestry and wood industries is, in terms of the value added in 1999, by far the largest and most significant of the cluster branches. The value added by this cluster is widespread in East Finland, but especially the cluster forms a notable strength for the region of Etelä-Savo. Local agglomerations of value added are most visible in the case of rubber and plastics industries (NUTS 4 region of Joensuu), and, due to their significant economies of scale, the paper and pulp industries (Kajaani, Joensuu and Varkaus NUTS-4 regions). Also, the production of metal products, machinery and equipment is largely centralised in a few locations (Joensuu, Varkaus and Ylä-Savo NUTS-4 regions). The food cluster, including agriculture and production of food products and beverages, has the largest impact in the Pohjois-Savo region (especially Ylä-Savo NUTS-4 region), but appears as a strength in all the counties. The growth of tourism has in recent years been strongest in Kainuu region, where the cluster has also the largest regional impact. In total, the “cluster industries” cover more than 30 % of the total value added in East Finland (in 1999), and indicate a level of value added that is about a quarter larger than that of the industrial sectors alone. These figures, however, are still striking underestimations of the significance of these areas of emphasis in the common development policy, because they lack the sectors of health and well-being, and culture, which cannot be assessed through statistics. The recent reasonably positive development of the cluster industries, together with their large impact on the regional economies, support policy that is based on identifying and enhancing the strengths and technological spearheads of the clusters.

As to the other key elements of the regional systems of innovation, the universities and polytechnics as well as the national Centres of Expertise –programme are of foremost importance. The region includes two universities (Kuopio and Joensuu), with a combined total of approximately 11,000 enrolled students. Four polytechnics (Pohjois-Savo, Pohjois-Karjala, Mikkeli and Kajaani), together with a range of other higher-educational institutes and commercial colleges, provide vocationally-orientated training across the region. In addition, the University of

Oulu is represented in Kainuu (the Research and Development Centre of Kajaani), and the Helsinki School Economics and Business Administration, as well as the University of Helsinki in Etelä-Savo (the Small Business Centre and the Centre for Rural Development, both in Mikkeli). Three Centres of Expertise operate in East Finland under the national programme for 2000-2006; they are: 1) the Centre of Expertise focussed on health-care technology, pharmaceutical development and agro-biotechnology in Kuopio; 2) the Centres of Expertise for wood and forestry, and plastic and metal located in Joensuu; and 3) the Virtuosi Centre of Expertise in Kuhmo, which has a cultural focus, particularly with regard to chamber music, but includes instrument construction, industrial art and design and audio-visual content production. Another feature of East Finland worth mentioning here is the existence of citizen-based information society projects, which have significantly contributed, e.g., to the adoption of internet technology by those people, who would otherwise have no incentive to do this.

As far as regional support for firms is concerned, public services are very important. The most salient providers of this are the Employment and Economic Development Centres of the Ministry of Trade and Industry, which have regional offices in all four county capitals. The centres also include the regional technology support centres of the National Technology Agency TEKES. Another important provider of services is the capital investor Finnvera Ltd.

For ease of reference, some statistics and other key information for East Finland are presented in Table 1 and Figures 1 and 2. Further socio-economic data and analysis of the region can be found in the Regional Economic Survey of the stage 1 and stage 2 reports.

3. STAGE ONE SUMMARY

Stage 1 was carried out according to the RITTS approach of combining the results from separate, but linked, studies on both the demand (SME Needs Analysis), and the supply (Supply Analysis) sides, and setting the conclusions within the context of the economic structure of the region of Pohjois-Savo, Kainuu and Pohjois-Karjala, and the prevailing economic and technological trends (Regional Economic Survey). More than 200 companies participated in the SME Needs Analysis. The Supply Analysis, taking the viewpoint of an SME, has appraised the relevance and significance of the support offerings, both actual and potential, of 35 different organisations. (The full reports of the three analytical studies can be acquired from <http://www.efforts.org>).

The Regional Economic Survey underlines the basic weaknesses in the economic structure of the three counties and emphasises the need to undertake restructuring of the economic base, as well as to maintain and improve the competitiveness and productivity of traditional industrial sectors. Despite a surprisingly wide range of manufacturing and service activities, the region as a whole was shown to have relatively few strong sectors and little tradition in high technology fields (cf. Stage 2). Particular note was made of the comparatively low R&D expenditures by SMEs in the three counties.

The analysis in stage 1 takes a broad cross-sectoral view of the economic base of the three counties. Such an approach recognises that all companies are different, and that a strong focus on specific industry sectors or technologies from the outset may well obscure other basic requirements or economic opportunities. By taking a holistic view of the innovation process, attention is clearly drawn to non-technological skills in companies, such as business development and marketing competencies, which are clearly identified as the growth-limiting factors in many instances. In addition, note is made of the general low propensity to entrepreneurialism, and the low demand that exists for the promotion of inter-company co-operation, including that from within supply chains and/or subcontracting networks. On the innovation support side, attention is drawn to the general fragmentation and poor visibility of support structures and services across the three counties, including the lack of focus on or specialisation toward particular target groups. A deficiency in services and skills that promote the rate of technology and knowledge transfer to enterprises is considered to be a critical issue for the region which has a large geographical area, a relatively low population and a rather peripheral location.

Four themes are raised for debate from the analyses:

- First, there is the need to define some kind of co-operation structure across county boundaries, which will support a common learning experience among innovation actors, as well as promote the co-ordination and integration of actions across the region. It is proposed that consideration be given to establishing an Innovation Agency or Technology Alliance with broad spectrum ownership, or other form of partnership, forum or consultative body for innovation.
- The second theme is that of developing a greater focus on business networks or clusters for promoting knowledge transfer, developing skills and facilitating the delivery of support services. It is proposed that careful consideration be given to the questions of what to cluster and why, and how best to use clusters to link the development of emerging sectors (e.g., information technologies, electronics) to the improvement of competitiveness in mature sectors.

- The third theme for debate focuses on the overall low enthusiasm for risk-taking and entrepreneurialism, coupled with a lack of growth orientation in many businesses. Approaches which harness the power and pull of successful companies and promote good examples are needed in order to improve attitudes and to develop a more positive entrepreneurial culture and regional image.
- The final theme for debate concerns the role of universities in the region and the need to define more precisely the ways in which universities can reach out to existing companies in the region and complement the roles of other support organisations, including polytechnics. The opportunity exists for universities to focus in future on differential strategies that will give the region a competitive edge by international comparisons.

From the studies carried out, it is concluded that the three counties of East Finland face the challenge of implementing solutions which will build a broadly-based capability and flexibility into innovation support services and structures, while at the same time generating a more proactive targeted approach among service providers and giving impetus to the development of technology- or knowledge-based enterprises.

A number of operational themes are proposed to which the attention of enterprises can be drawn. These are to:

- Focus on key regional capabilities and strengths;
- Develop enterprise networks and clusters;
- Set up support structures or schemes which promote technology and knowledge transfer to firms;
- Enhance co-operation between support organisations;
- Improve international vision and visibility;
- Encourage entrepreneurialism, and promote awareness of the role of science and technology and the need to innovate.

Practical actions proposed include a:

- Pro-active mentoring scheme for high-growth potential companies (locomotives);
- Referral resource to improve the visibility of services and skills on offer and to promote interactions and co-operation between service providers;
- Mobility scheme to encourage the uptake of graduates by local businesses;

- Road shows to encourage a more positive attitude to entrepreneurialism and to enhance awareness of innovation (the promotion of good examples).

4. STAGE 2 SUMMARY

The holistic approach taken in stage 1 brings up important development themes, but, on the other hand, does not allow for differences in the counties strengths and strategic orientation. Neither does a statistical approach, such as that used in the regional economic survey, bring up the “technology potential” of East Finland, knowledge of which is central to the development of any regional system of innovation.

Along the lines of the themes raised for discussion in stage one, stage two of the RITTS process in East Finland draws attention to the issues mentioned above mainly through two complementary approaches: First, by carrying out a focussed statistical analysis on the recent development and local meaning of clusters of industries that have been chosen as key industries to be commonly emphasised in the Objective-1 Structural Fund Programme of East Finland, and secondly, by defining the current areas of rapid development (“the frontiers of innovation”), future visions and potential for value adding co-operation in these “cluster branches” in East Finland, with special attention to technological development and innovation.³ Concentration on industrial clusters in stage two is strongly supported by the findings on the importance of these clusters for the economy of East Finland made in stage one of the process.

The analysis in stage two suggests, among other things, that there are notable agglomerations of knowledge and firms around the Centres of Expertise: in the health and well-being industries, the pole of which is the Centre of Expertise in Kuopio (Pohjois-Savo), as well as in the areas of the forestry and wood-processing and the metal and plastic industries, the Centres of Expertise of which are located in Joensuu (Pohjois-Karjala). The role of the Centre of Expertise is also evident in the culture industry of Kainuu (music especially), which has importance not only for the development of culturally-based firms, but also for tourism industry in East Finland.

³ The work programme for the project was revised for stage 2: the additional analyses, consulting of the “cluster work groups”, and refining of the framework for action, accordingly replaced the organising of regional workshops (task 21) and the tasks meant for refining the strategy (tasks 22-29). A large regional conference will be organised in August 2001 to communicate the results to the wider audience (task 210).

Furthermore, significant co-operative networks, both nation-wide and regional, exist in the food industry, which has special meaning for the region of Etelä-Savo.

The methodology used in the definition of frontiers of innovation, visions and co-operative potential between the counties is unusual: the conclusions are based on the work by the so-called “cluster work groups” which have been established in common areas of emphasis or industrial clusters in all four counties. Joint meetings of the cluster work groups are meant to gather together managers of firms, experts and development authorities from all the four counties of East Finland once or twice per year. Formal co-operation was started in autumn 2000.

Areas of rapid development or the strength of the industries of emphasis in East Finland are presented in Table 2 (see also the stage 2 report). Proposed fields of co-operation/ areas of potential technology synergy are shown in Figure 3, with future visions of the areas of emphasis. It is proposed that, to develop these common important industries in East Finland, emphasis will be put on these topics.

Overall, the meetings of the cluster work groups have proved to be positive discussion forums characterised by an immediate value added by becoming acquainted with other people, firms and the regional strengths across East Finland. Actions, however, should be taken to establish the arena for co-operation by designating resources for it, and to encourage enterprises to participate in the work even more than at present. From a methodological point of view, the exercise carried out shows that much of the innovative potential of a region, which is out of the reach of the holistic approach and sampling methodology, can be identified by using a case-study methodology.

In regard to the topic of promoting entrepreneurialism in general, an important pilot project in this field is the regional “Entrepreneurship Programme of Pohjois-Karjala” launched in January 2001.⁴ This programme includes 12 groups of actions to promote entrepreneurialism in the region and is based on a large group of regional actors (including, e.g., the university and the polytechnic, the regional council, the Employment and Economic Development Centre and regional organisations of entrepreneurs). The programme also includes monitoring of the successfulness of the actions. Also, the proactive mentoring scheme for regional locomotives has been started in Pohjois-Savo and potential for extending this project to the whole of East Finland

⁴ Entrepreneurship Programme of Pohjois-Karjala – Actions proposed to enhance entrepreneurship. Yrittäjyys Hanketyöryhmä, Joensuu, January 2001 (in Finnish).

is being studied. As well, there have been earlier projects using a similar concept of common learning of enterprises in other regions of East Finland and these experiences are mainly very positive.

5. FRAMEWORK FOR IMPLEMENTATION

Points of departure for a strategy supporting innovation and technology transfer in the East Finland Objective 1 region, which were raised for discussion during stage two of the RITTS process are:

- The determinant for co-operation in innovation and technology policy should be the value added through this co-operation – not the administrative borders of a region such as those determined by NUTS-2. This is due to the fact that the production, knowledge and support service structures as well as the natural directions of co-operation of the East Finnish counties differ strongly from each other;
- By its nature any strategy is a process. It is important to create co-operative forums and actions which help to take into account the needs of firms and which help to make good choices and lay emphasis on the right areas in development policy, not only now but also in the future;
- The strategy should be based on the regional and cumulative strengths of knowledge of industrial clusters, but also be open to the development of new key technologies. The role and regional impact of the key parts in the regional systems of innovation, such as the universities and, especially, the Centres of Expertise should be developed further. However, it should also be taken into account that the technological competitiveness of firms lie in their basic business skills, such as marketing, management, internationalisation, and the availability of venture capital;
- The strategy should enhance the development and creation of actions which improve firms' ability to adopt and apply information that exists outside of firms and which create "tacit information" which is central to sustainable competitiveness. For generating tacit information, more important than reading is using and embedding personalised skills;
- Finally, the strategy should take into account the meaning of image in luring inward investments and a skilled work force.

In the technology vision for 2006, East Finland is known in Europe as a region where innovative actions and cultures, a modernised and diversified economic base, technological competitiveness of firms and intensified regional system of innovation produce strong value added through the means of interaction, innovative processes and agglomeration. There are incomparable capabilities, and agglomerations and networks in East Finland in the areas of forestry and wood-processing, health and well-being technology, the metal and plastics industry, information technology and production of natural and functional food products. These are outwardly orientated, internationally competitive and support the formation, location and growth of new firms. In the areas of culture and tourism East Finland is readily accessible, original and attractive through the means of modern information technology.

The framework of implementation is shown in Figure 4. The framework consists of three main elements: the cluster-based development of the common areas of emphasis in the Objective-1 framework programme, development of the operation of the Centres of Expertise, and actions taken in the regional technology-based development strategies by the Employment and Economic Development Centres. In addition, some of the development themes discussed are in the operational area of the regional universities and polytechnics, which are encouraged to take these into account in their development strategies. Due to the fact that the East Finnish universities have rather different orientations, it is advised that they take full advantage of their international networks to develop their local relations⁵. In all, the two-level implementation framework, where some actions concern the RITTS region (and potentially the whole of Objective-1 region) and some are regional, reflects geographical economic logic for East Finland and the partially different strategic orientation of the counties.

The general targets of the Objective-1 programme are to reduce unemployment to around 7 % by the end of the period, slow the population outflow and turn the region into an internationally competitive, fast-growing area. The programme has four operational priorities each financed by a single EU fund plus a multi-fund technical assistance priority: Priority 1 – Business development and improvement of the business environment (ERDF); Priority 2 – Strengthening expertise and improving the skills of the workforce (ESF); Priority 3 – Rural development (EAGGF); and

⁵ For example, the University of Joensuu is a member of the European Consortium of Innovative Universities (ECIU) and together with the University of Twente organised a seminar on the topic of “Universities and their local partners – Future options for European regions” in March 2001. The seminar resulted in two practical co-operative themes within the network which are in the areas of the medico-cluster and teaching technology. For more on the ECIU regional development group, see, e.g., Schutte and van der Sijde (eds.) (2000): *The University and its region*. Twente University Press.

Priority 4 – Infrastructure and sound environmental development (ERDF). The seven industries (clusters) presented above have been chosen as common areas of emphasis in the programme. A benefit of the cluster-specific (vertical) problem solving and development of technology and its transfer support is that it is based on the same approach that is being used in the formulation of the national industrial policy. This line of action also involves development of the operation of the recently established cluster work groups, which represent industry-specific, but East Finland-wide innovation and discussion forums.

The network of Centres of Expertise represent a very important consultative body for innovation and an element of the regional systems of innovation. The objective of the national Centre of Expertise Programme is to improve the competitiveness of different regions and to increase products, enterprises and jobs based on top technology or high expertise. In order to obtain the set objective, the programme contributes to the following:

- realisation of projects according to business life requirements;
- encouragement of co-operation between industry, research and education;
- quick transfer of the newest information and know-how to enterprises;
- exploitation of local creativity and innovations;
- improvement of business opportunities for activities demanding know-how;
- encouragement to independent regional development and to the creation of a common strategy.

During the current period of operation (2000-2006) there are sixteen Centres of Expertise in Finland. Two of these, the Centres of Expertise of wood products and the Centre of Expertise of food products, are nation-wide networks. Three of the Centres of Expertise are located in East Finland (Centres of Expertise of forestry and wood-technology and plastic-metal, health and well-being and culture-music; in addition the region of Etelä-Savo co-ordinates the development of natural food products in the nation-wide network of centres of food products). Already during their short time of operation the Centres of Expertise have proved to be successful in the creation of employment and new local firms.

The regional technology-based development strategies by the counties' Employment and Economic Development Centres (including the regional units of the National Technology Agency) will be drafted in the summer-autumn of 2001. These four county-specific strategies will have an important role in putting the recent results of studies on the needs of local firms and regional strengths into practice. The work out of the strategies lies not only in the results of the

RITTS process, but are partly based on information gathered by outside consultants. The advantage of Employment and Economic Development Centres is their solid, direct contact with firms in their region, and their knowledge of the firms in the general development of business, as well as in technology development. Thus, they have the readiness to be pro-active in the development of technology and its transfer in firms, among other things, by combining technology mentoring as a regular part of all development of business operations.

The fourth element in the framework for implementation – evaluation and monitoring – will consist of evaluations of the impact of the other three elements of the framework for implementation, and no double system for evaluation will be constructed.⁶ The first evaluation of the operation and impact of the Centres of Expertise, e.g., will take place in 2002. The Objective-1 programme has its own evaluation and monitoring system which concerns the whole of East Finland. This mainly consists of intermediate and final evaluations, and project-specific evaluations. Also, the regional strategy processes of the Employment and Economic Development Centres will be monitored at the county level. However, further consideration should be given to the improvement of monitoring the development of innovation in the Objective-1 region of East Finland.

⁶ The setting-up of a potential additional evaluation and monitoring task was discussed during the RITTS process, but due to the nature of implementation of the proposed actions and the overlap with other monitoring and evaluation work, a separate system was seen to be inefficient. For the proposal of a general framework for evaluation and monitoring, see the stage 1 report, and for the proposal of general indicators for evaluation and monitoring of the regional economic and innovative development, see the stage 2 report.

TABLE 1. Selected statistics on the East Finland Objective-1 region

Indicator	Etelä-Savo	Pohjois-Savo	Pohjois-Karjala	Kainuu	East Finland
Number of inhabitants on 31.12.2000	167 369	252 115	171 609	89 777	680 870 (13,1 % of the total population in Finland)
Area and population density	14 435 km ² 12 /km ²	16 509 km ² 15 /km ²	17 782 km ² 10 /km ²	21 566 km ² 4 /km ²	70 292 km ² 10 inhabitants/km ²
Proportion of 15–64 year olds in the total population in 1999, in %	64,8	65,7	65,4	65,8	65,4
Rate of unemployment, 1999 (labour survey)	13,6	12,6	15,1	15,9	13,8
Sources of livelihood in 1999, in %					
Primary production	13,4	11,1	11,4	11,0	~11,9
Industry	23,3	23,1	24,0	23,2	~23,4
Services	60,9	63,3	61,9	63,3	~63,4
Number of enterprises in 6/2000	7249	9833	6785	3220	27 087 (11,2 % of the total in Finland)
Number of establishments with < 5 employees in 1999, and proportion of all establishments, in %	6385 85,2	8658 83,8	5997 84,8	2817 82,8	23 857 84,3 %
Number of establishments with > 99 employees in 1999, and proportion of all establishments, in %	23 0,3	57 0,6	23 0,3	12 0,4	115 0,4
Number of new firms in 1999 and new firm formation ratio	578 0,08	789 0,08	506 0,08	284 0,09	2 157 (9,8 % of the total number of new firms in Finland in 1999)
GDP per capita in 1999* (in FIM), and index EU-15 = 100	85 543 71,1	93 133 77,4	88 106 73,2	82 458 68,5	88 912 73,9
Proportion of exports in the gross value of production, 1998	38,5	38,8	43,9	51,0	39,3 (6,9 % of the total exports of Finland)
Total R&D outlays, in millions FIM and % of the regional GDP in 1999*	128 0,9	500 2,1	320 2,1	87 1,2	1035 1,7 (4,49 % of the total R&D outlays in Finland)
Proportion of TEKES's total funding for product development in Finland in 1999, in %	2,1	3,2	2,1	0,4	7,7
Number of R&D employees in 1999 and proportion of the total number of employed persons in 1998	534 0,6	2162 2,2	1293 2,0	323 0,8	4312 1,6

* preliminary information

TABLE 2. Areas of rapid development or strength of the industries of emphasis in the East Finland Objective-1 programme.

Cluster	Areas of rapid development/ strength
Health and well-being	<ul style="list-style-type: none"> • Diagnostics • Development and production of medical equipment • Development of medicines, bio-technical and clinical research • ICT applications in health-care • Social care technology • Information systems utilised in healthcare and social care • Development of services and technology to support independent accomplishment
Information technology	<ul style="list-style-type: none"> • Applications of IT in healthcare and well-being industry, systems supporting home care • Automation and process management, measurement technology • Citizen-based information society, local community networks • New media: internet technology, contents production • Signal handling and colour analysis, GIS applications • Teaching technology, virtual teaching environments
Forestry and wood-processing (information from Etelä-Savo missing)	<ul style="list-style-type: none"> • Wood composites, thermoplastic wood • Design and development of products from new wood materials • Forest ecology and management of boreal forests • Measurement technology, biotechnology
Food industry	<ul style="list-style-type: none"> • Natural food products, development and processing, special products • New technology in the food industry, analysis techniques • Packing technology, marketing and logistics • Clinical research of food, food safety, biotechnology
Metal industry, plastic-metal cluster (information incomplete)	<ul style="list-style-type: none"> • Transportation equipment, railway equipment • Material technology, polymers • 3D design of products and moulding tools • Injection moulding technology, pultrusion technology
Tourism	<ul style="list-style-type: none"> • IT applications based on databases • Internet technology in logistics and booking systems • Russian tourists, tourism related to top sports and unspoiled nature
Culture	<ul style="list-style-type: none"> • Internet as a medium of culture • Multimedia, contents production • Festival knowledge, digital and network services in music • Pedagogical materials in music, virtual teaching in music

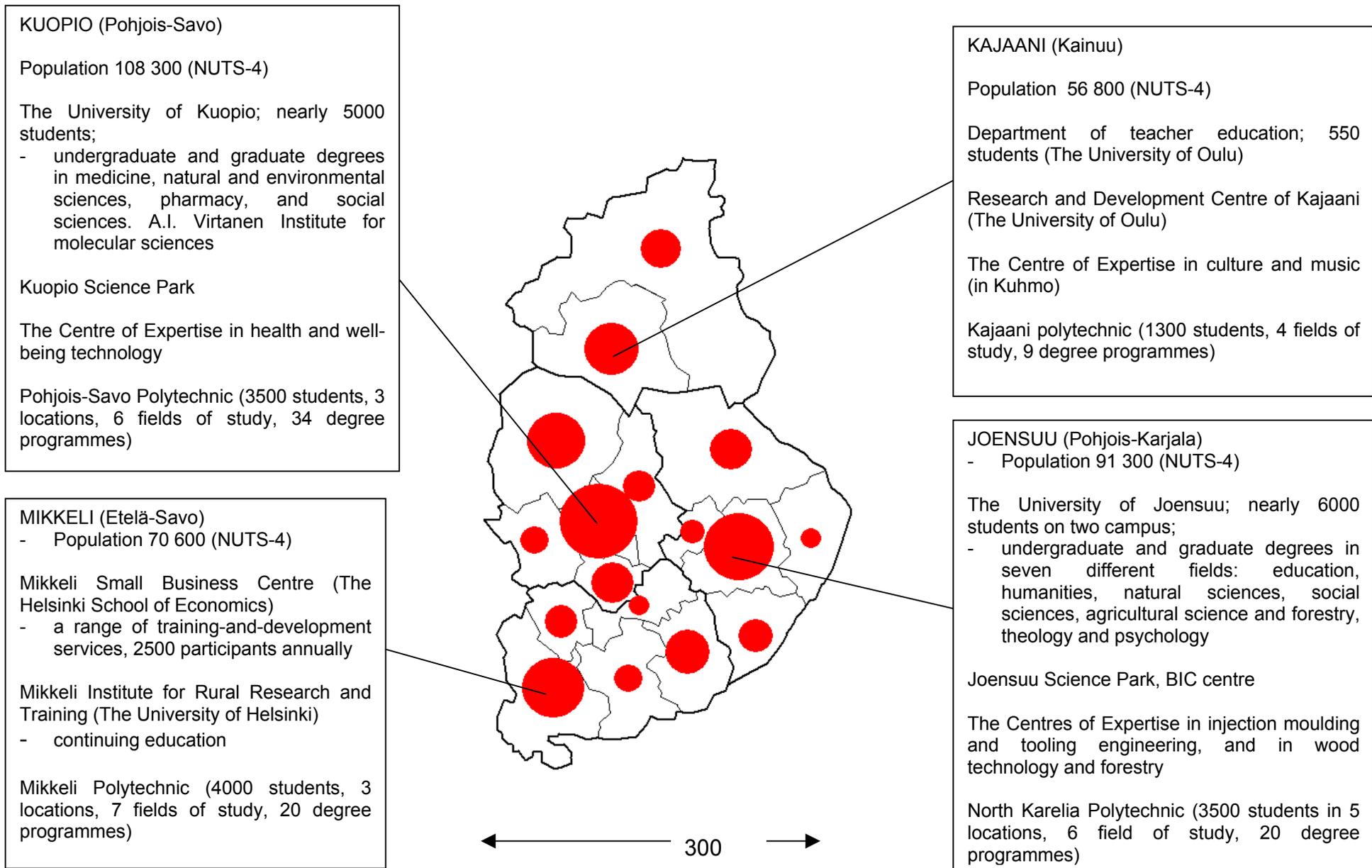


FIGURE 1. Number of inhabitants by NUTS-4 region, capital towns of the counties, most important higher educational institutes and the Centres of Expertise in East Finland Objective-1 region, 2000

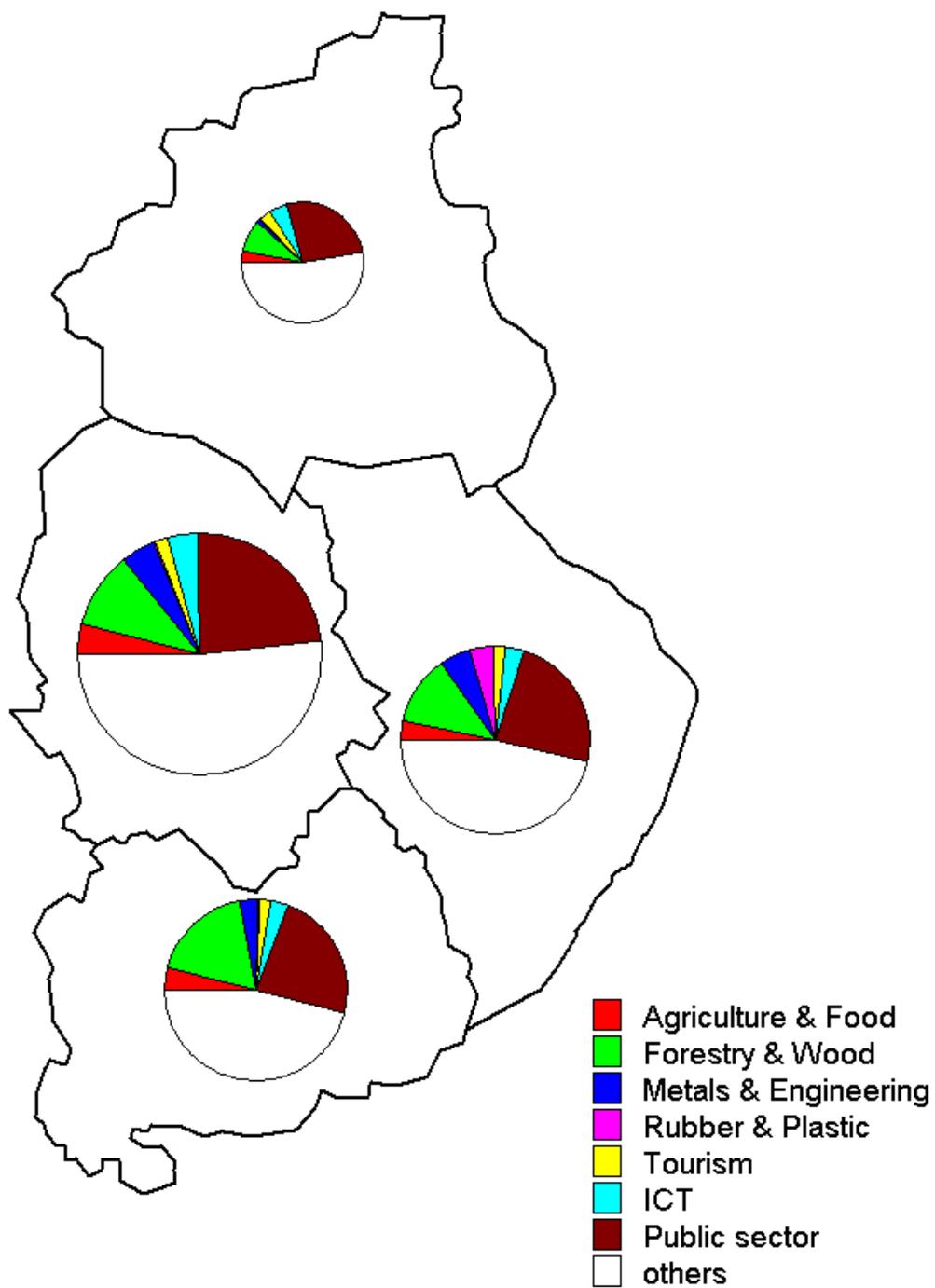


FIGURE 2. Proportion of the clusters of industries of common emphasis and public sector in the total value added (indicated by the size of the circle) in the East Finland Objective-1 region, by county (NUTS-3) in 1999

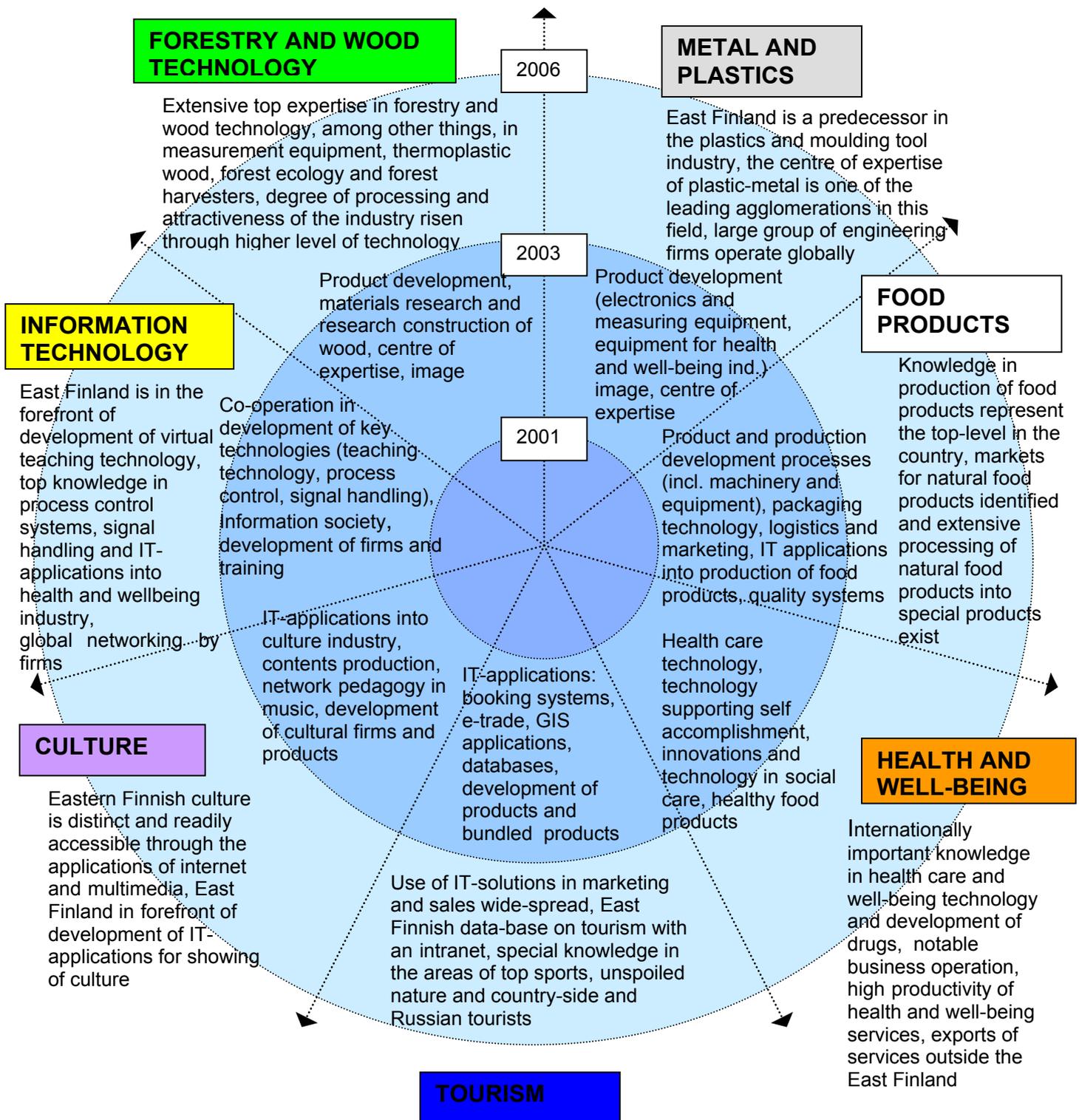


FIGURE 3. Potential fields of technology co-operation between the counties (inner circle) and future visions (outer circle) by area of emphasis in the East Finland Objective 1 region

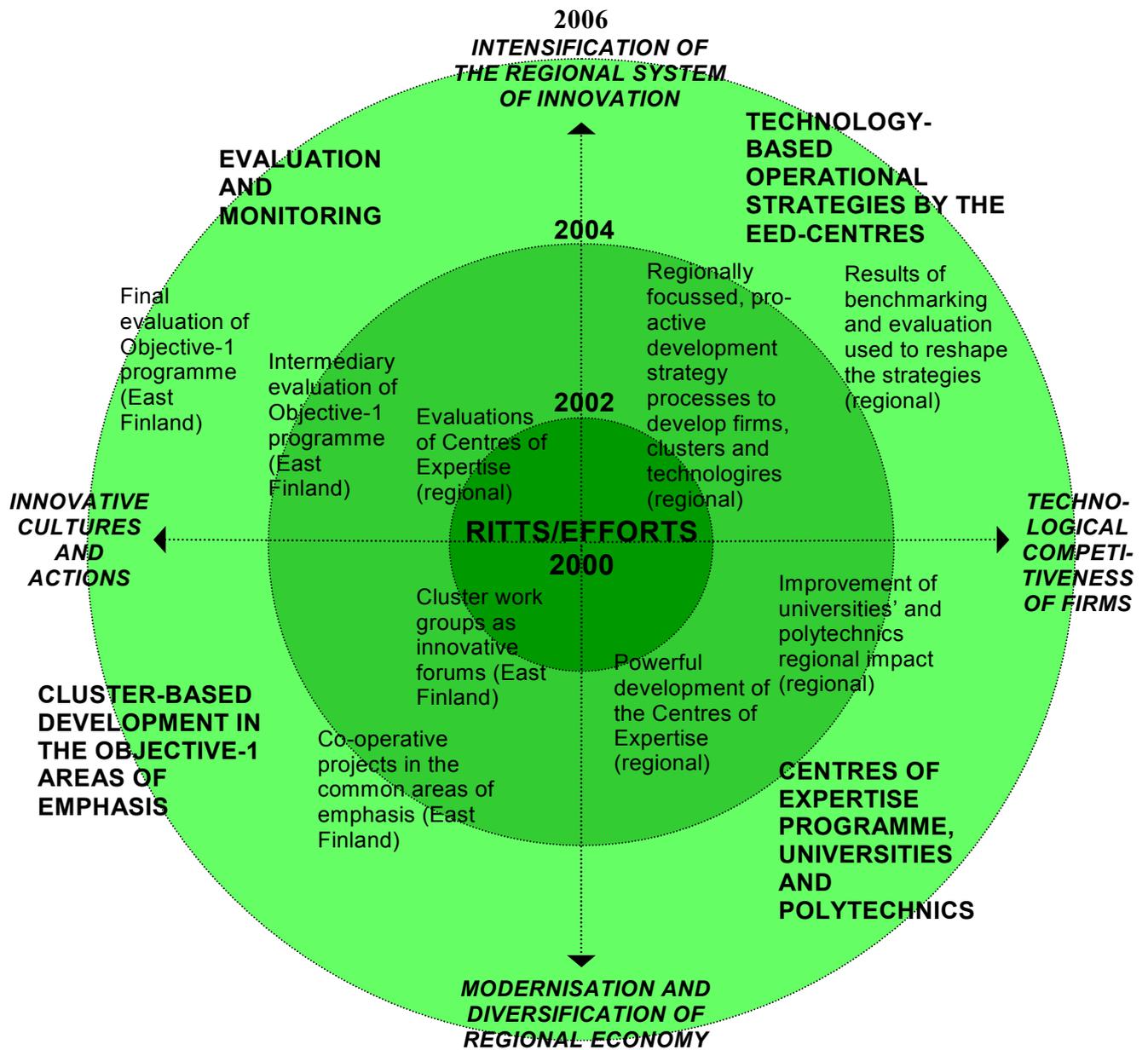


FIGURE 4. Framework for implementation

ANNEX 1. RITTS/EFFORTS EAST FINLAND ORGANISATION IN BRIEF

STAGES 0 – 1 (30.9.1998-31.12.2000)

- Prime contractor: Upper-Savo Development Company, Iisalmi
- Analyses and consultancy: Oy Contact Forum Ab, Helsinki; Technopolis Ltd., Brighton; Finnish Regional Research FAR, Sonkajärvi
- Budget FIM 2,3 million (ECU 380 000): The European Union; The Technology Development Centre of Finland (TEKES); The Regional Councils of Kainuu, Pohjois-Savo and Pohjois-Karjala

Stage 2 (1.1.-30.6.2001)

- Prime Contractor: The Regional Council of Pohjois-Savo
- Analyses: The University of Joensuu, Karelian Institute (1.1.-30.4.)
- Budget FIM 0,2 million (ECU 33 000): The National Technology Agency (TEKES); The Regional Councils of Kainuu, Pohjois-Savo and Pohjois-Karjala.