



**Monitoring and analysis of policies
and public financing instruments
conducive to higher levels of R&D investments:
The “Policy Mix” project**

Case study

Noord-Brabant

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December 2007



A study funded by the European Commission – DG Research

The Policy Mix project

This case study is one of the results of the “policy mix” project funded by the European Commission (DG Research).

The overall purpose of the “policy mix” project is to develop a framework to help policy-makers build more efficient policy mixes with the view of raising R&D investments in their country. The underlying idea of the project is that impacts on R&D should be viewed as the results of a combination of interacting policies, rather than the product of policies acting in isolation from each other.

While the focus of this work is on impacts on R&D, the scope of policies considered as part of the policy mix is however much broader than what is traditionally considered as R&D policy instruments: this scope includes all types of instruments from any policy areas, which directly or indirectly affect the R&D domain. A policy mix (targeted at R&D investments) is defined as: *“the combination of policy instruments, which interact to influence the quantity and quality of R&D investments in public and private sectors.”*

The project is coordinated by UNU-MERIT, a research institute of the University of Maastricht (the Netherlands) and the United Nations University (<http://www.merit.unu.edu>). The following organizations were part of the consortium:

- Technopolis (The Netherlands) <http://www.technopolis-group.com>
- PREST – University of Manchester (United Kingdom) <http://www.mbs.ac.uk/research/engineeringpolicy/index.aspx>
- ZEW (Germany) <http://www.zew.de/>
- Joanneum Research (Austria) <http://www.joanneum.at/>
- Wiseguys Ltd. (United Kingdom) <http://www.wiseguys.ltd.uk/>
- INTRASOFT International (Luxembourg). <http://www.intrasoft-intl.com/index.cfm>

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Executive Summary

This report is one of the regional case studies produced for the research project “Monitoring and analysis of policies and public financing instruments conducive to higher levels of R&D investments”. Each of the sector, country and regional case studies has a focus on one or two themes. The theme for this regional case on North-Brabant is governance. Governance refers broadly to the management of individual policies and the policy mix, which may extend beyond the narrow area of R&D policies. In particular, we are interested in two areas of governance, that which addresses the issue of ensuring coherence between different parts of the R&D policy mix (and with other policy areas) and that which addresses the effectiveness of the policy mix.

The Dutch policy mix context

Generating more business R&D expenditures has been acknowledged as an important challenge, but it is not seen as the most important task of the government. E.g. it is not seen as a task for the Ministry of Education, Culture and Science. The WBSO as the tool to directly promote R&D expenditures is the most important policy tool of the Ministry of economic affairs, but, overall most attention of the Dutch government is on public research and a large part of the budgets goes to existing government research institutes, and increasingly the FES funds are used for building new institutes of national importance.

Over the last few years the Ministry of Economics affairs has developed a new policy mix approach. Former streamlining operations were focused on reducing the number of firm-oriented policy instruments. In the new approach the mix consists of an ‘Omnibus’ of programmes that have a specific focus, e.g: the Peaks of the Delta programmes that targets a specific region; the programmes that supports a specific target group (such as the Technopartner programme, see the themes mini-mixes and routes to increase R&D in the country case study of the Netherlands), and the Innovation Programmes that support specific technological domains (see also the sector case study of ICT in the Netherlands). There is also a generic set of mostly financial tools which are focused on providing support to SME’s in particular.

A major issue in the Dutch system remains the still rather limited coordination, cooperation or integration between the Ministry responsible for industry and the one responsible for science. The latter has a more ‘hands-off’ mode of governance towards its policy portfolio, with more responsibilities of organizations such as N.W.O, KNAW, Universities and TNO. As a consequence there is less attention to policy mix concepts such as coherence and interaction from the ‘science side’. The Innovation Platform serves, among others, to integrate both fields of science policy and innovation policy, and in some respect this has led to modest improvements. Another remaining gap is between the increased ambitions and the hardly changed budget for R&D (related policies).

The regional policy mix context for North-Brabant

At the sub-national level in the Netherlands there is no formal science or public R&D policy, nor budget, and no generic policy instruments to increase private R&D. To a large extent the national government provides the R&D policy tools and at the regional level these tools are implemented and complemented with regional innovation strategies. The policy mix that is effective in North-Brabant is different

from other regions in the Netherlands because of its strength in business R&D and high-tech industries, and its relative under-represented public R&D expenditures. Besides the national tools such as the WBSO, Three sub-national Programmes constitute the main regional input to the policy mix which is effective in North-Brabant. Innovation Actions programme (IAB) is addressing the level of the Province of North-Brabant, 'Peaks in the Delta Southeast Netherlands' is at the level of South-East Netherlands, and 'Brainport navigator' (which builds on the former programme Horizon) is mainly on the Eindhoven Region, but in relation to the South-east Netherlands (including the neighboring province of Limburg). This implies that even below the national level there is a multi-level practice of governance regarding research and innovation.

National and Regional Interactions

The formal interactions between policymakers of the Provincial and National government are minimal. The Province of North-Brabant has no formal competencies in governing or funding public R&D in for instance universities or government labs. Also the generic measurements to promote private R&D are fully centralised at the national level of government. Moreover, the national policy is also lacking a formalised regional specific approach in its national RTD policy, and even with the Peaks in the Delta the national government actually belittled the role of the provincial government somehow, e.g. by not using the Provincial (nuts2) borders in its analysis. However, the interactions between the national and regional levels of policy have increased due to the Peaks in the Delta process, and this has improved the coherence between the national and regional policy and policy instruments.

Governance of the policy mix in North Brabant

The most important explanation for the fact that the Province of North-Brabant has already reached the 3% objective (R&D expenditures are 3,2% of regional GDP) is the presence of the core R&D activities of Philips in Eindhoven. The second largest R&D performer in the region is the chip-machines producer ASML, which is in fact a spin-off company from Philips. The region also has strong network capabilities among innovative SMEs. Besides this strength in networked private R&D, other contextual characteristics of the research and innovation system in North-Brabant that effect the governance (its coherence and effectiveness) of the research and innovation policy mix are:

- The limited mandate and budget of the Provincial governments;
- The rich portfolio of intermediate and policy support organisations;
- The relatively large share of innovative manufacturing industries compared to other Provinces in the Netherlands;
- The under-represented public research activities (0,38% of GDP);
- The diffused or decentralised, 'multiple-core' urban structure, and a difference in economic structure and innovation potential between the west and the east of the Province.

The characteristics of the innovation system of North-Brabant and especially the west part of it, has important implications for the R&D and innovation policy mix and its governance. Because of the strength in private R&D and innovative networking there is a large absorptive capacity for policies that support this very strength. Public R&D investments and related policies, are under-represented in the policy mix of effective in North-Brabant, and the provincial government of the region does not have a budget

or constitutional powers/competencies which could correct this in-balance of the R&D policy mix. Recently, with the new national policy approach the public-private R&D balance started to improve, as well as the coherence between the national and regional strategies and programmes.

The recognition and labelling of the region in the national spatial planning policy as “the Brainport of the Netherlands” has had a major impact. The statement of the national government that the regions R&D potential is of national importance has led to increased attention from the national government in The Hague to what is happening in the Province and especially the Eindhoven region. In the Peaks in the Delta Programme the regional level of R&D and innovation policy has been linked more closely to the new national strategy to support strong and promising RTDI developments with an inter-related set of programmes targeting specific technological themes, regions, and specific targetgroups (e.g. start-ups).

With the Peaks in the Delta Programmes the coordination between the national and ‘sub-national’ level has changed. In a way it has become a less ‘bottom-up’ mode of governance compared to what it was in the former period, because over the last two decades the national policy makers were hardly involved in the development and implementation of EU funded initiatives at the regional level. With ‘Peaks in the Delta’ the National government has (in the light of the formulation of the National Reform Programmes, and the National Strategic Framework document), interacted more with the regions. As a result several (National) Innovation Programmes (see the national case-study) have been developed that have a core based in the Eindhoven region, and this has resulted in an increase of support for public R&D and Science – Industry linkages. Examples are the recent location of institutes such as the Holst Centre and the Institute for Molecular Medicine on the High Tech Campus Eindhoven, and the move from Delft to Eindhoven of parts of TNO which has strengthened the public involvement in the R&D infrastructure of North-Brabant. Given the existing strengths of North-Brabant it is more likely to generate private spin-off and spillovers from public funded R&D than in other Dutch regions. Therefore, improvement of the public-private R&D balance of the policy mix of North-Brabant will not only increase the R&D capacity in the region, but also contribute more effectively and efficiently to the national ambitions regarding the increase of R&D investments.

The national government still provides the R&D policy tools and programme frameworks. At the regional level these tools are implemented and complemented with regional innovation strategies formulated at multiple territorial levels by strong Triple-Helix governance structures. At the national policy level the territorial and thematic points of focus have been formulated more top-down than before, which has improved the structural coherence of the policy mix design. But, at the multi-layered regional level it is the dynamics of the Triple Helix mode of governance that result in effective and efficient management and implementation of this design, based on systemic linkages between stakeholders in the rather tight regional networks of North-Brabant.

1 Introduction

This report is one of the regional case studies produced for the research project “Monitoring and analysis of policies and public financing instruments conducive to higher levels of R&D investments”. The case studies is a next phase to the country reviews produced earlier in 2007. These country reviews were based on the methodological framework produced by the consortium to frame the “policy mix” concept. They have been implemented on the basis of expert assessments derived from the analysis of National Innovation Systems characteristics and policy mix settings.

The “policy mix for R&D” is defined by the consortium as: *“the combination of policy instruments, which interact to influence the quantity and quality of R&D investments in public and private sectors.”* In this definition, policy instruments are: *“all programmes, organisations, rules and regulations with an active involvement of the public sector, which intentionally or unintentionally affect R&D investments”*. This usually involves some public funding, but not always, as e.g. regulatory changes affect R&D investments without the intervention of public funds. Interactions refer to the fact that the influence of one policy instrument is modified by the co-existence of other policy instruments in the policy mix”. Influences on R&D investments are: *“influences on R&D investments are either direct (in this case we consider instruments from the field of R&D policy) or indirect (in that case we consider all policy instruments from any policy field which indirectly impact on R&D investments)”*.

In the next phase three types of case-studies are conducted: country cases, sector cases and regional cases. Each of these case studies has a focus on one or two themes. The theme for this regional case on North-Brabant is governance.

Governance refers broadly to the management of individual policies and the policy mix (which may extend beyond the narrow area of R&D policies). In particular, we are interested in two areas of governance, that which addresses the issue of ensuring coherence between different parts of the R&D policy mix (and with other policy areas, such as innovation policy) and that which addresses the effectiveness of the policy mix.

Coherence implies a broader goal than coordination of responsibilities and encompasses issues concerning the efficiency, effectiveness and impact of policy measures, both individually and collectively. Examples of mechanisms to ensure coherence can include science councils, inter-ministerial bodies, etc., and also strategic policy statements which extend beyond policy rhetoric and involve clear avenues for implementation and monitoring of progress towards objectives. The role of stakeholders (either as targets of the policies or as representatives of other policy domains) in such mechanisms is clearly an important consideration.

Governance in relation to **effectiveness** of the policy mix concerns process issues related to evaluation, monitoring and ex ante review, but especially at the level of the policy mix, or significant sectoral elements of it.

The themes are actually specific interpretations of the policy mix concept. By addressing the theme of governance this case study will also report on a more conceptual discussion about the policy-mix reasoning and activities in the Dutch research and innovation policy arena and (the governance of) the mix between national and regional policies. The conceptual shift in the overall research and innovation policy approach revolves around concepts such as: ‘backing winners’, ‘focus and critical mass’, ‘programmatic policies’, ‘streamlining’ and ‘policy packages’. Essential in the development of this approach has also been the selection of ‘sleutelgebieden’ (key national technological domains) by the Innovation Platform, which has led to the development of Innovation Programmes which are the core of the new policy approach. The so-called spatial-oriented-approach (gebieds-gerichte benadering) of the more general approach to focus policy support on the existing strengths is called the ‘Peaks in the Delta’. It is presented by the government as more than a document or programme, but as a new governance process.

We will first provide a summary of the national policy mix, drawn from the country report and the country case-study (paragraph 2). Then we provide in paragraph 3 a synopsis of the whole policy mix effecting R&D investments at a regional level in North-Brabant. The interactions between the national and regional level of policy and the coherency and efficiency of these interactions will be discussed in paragraph 4. Several inter-related sub-national governance structures and processes, the programmes and the triple-helix dynamics that impact on the situation in North-Brabant will be addressed in Paragraph 5. We draw conclusions and discuss the wider policy-mix implications in paragraph 6.

2 The Dutch policy mix context

Generating more business R&D expenditures has been acknowledged as an important challenge, but it is not seen as the most important task of the government. It is not seen as a task for the Ministry of Education, Culture and Science, which is responsible for all public funded R&D. The WBSO, the R&D-tax instrument to directly promote private R&D expenditures is the most important policy tool of the Ministry of economic affairs, but, overall most attention of the Dutch government is on public research and a large part of the budgets goes to existing government research institutes. Increasingly the FES funds are also used for building new research institutes of national importance. This Fund for Economic Structure (FES) does not fall under one of the Ministries budgets, but is directly fueled by oil and gas exploitation revenues. It is an important source for funding of innovation and R&D related projects, but as such it consists of a large diversity of individual projects and lacks a coherent strategy. The science part of the national set of R&D policy instruments has a long and rather stable history related to the public research institutes, e.g. the Universities, NOW-institutes, and KNAW-institutes.

The Ministry of Economic Affairs (EZ) changes its mix of innovation policy instruments more often. Over the last few years the Ministry of Economics affairs has developed a new policy mix approach. Former streamlining operations were focused on reducing the number of firm-oriented policy instruments (IBO 2001). IBO stands for Inter-departmental Policy Research, it is a tool for evaluating the portfolio of policies on one topic. In the IBO in 2001 on Technology Policy the “policy mix of instruments” regarding innovation was studied and the result was a streamlining operation mainly motivated by cost-reduction. Inspired by the ‘key area’s approach’ of the Innovation Platform the new mix consists of an ‘Omnibus’ of specific programmes and a ‘base-package’ of generic, mostly financial tools. The Omnibus programme approach is laid down in a legal framework for programmes. This legal framework makes it more easy to start and implement a new programme by applying the omnibus framework. The programmes have a specific focus, a specific target. There are programmes for three types of focus or targets: programmes targeting specific regions, programmes targeting specific groups of firms, and programmes targeting specific (technological) themes. The Peaks of the Delta programmes are the ones that targets a specific region (see paragraph 3). The Technopartner programme is an example of a programme that supports a specific target group, namely technology start-ups (see the themes mini-mixes and routes to increase R&D in the country case study of the Netherlands). The Innovation Programmes are the programmes that support specific technological domains (see also the sectoral case study of ICT in the Netherlands).

The base-package is a generic national set of tools which are focused on providing financial support to SME’s in particular. We have seen that some of these generic instruments are also used in some specific programmes, such as the Technopartner mini mixes programme. The balance and mix between generic and specific instruments is a dynamic one, and evaluations will have to show for example which elements can best be addressed with generic tools from the base-package, and which elements are more appropriate to be taken up in specific programmes among the omnibus of programmes.

A major issue in the Dutch system remains the still rather limited coordination, cooperation or integration between the Ministry responsible for science and the one responsible for industry. Moreover, the Ministry of Education, Culture and Science has a more ‘hands-off’ mode of governance towards its policy portfolio, with more responsibilities for organizations such as N.W.O, KNAW, Universities and TNO. As a consequence there is less attention to policy mix concepts such as coherence and interaction, from the ‘science side’ of the R&D policy arena.

The Innovation Platform serves, among others, to integrate both fields of science policy and innovation policy, and this has led to improvements in terms of communication between the Ministries and in terms of coherence, but there are still (coordination) gaps and lack of interaction between science policy and innovation policy. A last remaining gap we identified is between the increased ambitions and the hardly changed budget for R&D (related policies).

Although the R&D policy mix is to a large extent a deliberate and continuous “construct”, it is very difficult to govern this policy mix, because there is always a new (“ex post”) reality, and it is very difficult to assess how the different elements of the mix interact and evolve.

Regarding the specific innovation and research policy instruments (the programmes in the Omnibus) there is a danger that ‘backing winners’ could lead to vested interests of the beneficiaries of the specific policies. These privileged beneficiaries could monopolize future policy support, at the cost of new promising themes, technologies and regions. This could lead to an in-efficient situation of a ‘locked-in’ policy mix.

An interesting observation that emerged from an analysis of the Structural Fund interventions in the Netherlands (Wintjes 2006) was that mainly the existing regional strengths were supported. (Flevoland is strong in and invests in public R&D, the South (especially North-Brabant) is strong in and invests in business R&D clusters, the Randstad is strong in and invests in life-long learning and human resources). This is in line with the national policy to invest in existing (regional and technological) strengths. It is also in line with the Structural Fund framework regarding absorption capacity, but the reasoning is somehow contradictory to the systemic nature of well functioning regional innovation systems: How weak may one of the necessary parts of the regional system be, before it will become a structural bottle-neck for the whole system?. Relative, and regional specific RTDI weaknesses of the regions are often not explicitly addressed in the Dutch regional Structural Fund priorities, e.g. business R&D is weak in the Randstad, and public R&D is relatively weak in the South.

The Ministry that perhaps has (at least had) the largest influence on regional policy in the Netherlands is the Ministry of housing, spatial planning and environment (VROM). Not anymore in terms of funding for regional development (the title of a spatial planning policy document in the late 80’s explains a lot: “Regions on their own strength”); but in this ministry there is still the need to make coherent spatial planning proposals and there is a long and strong tradition in identifying, preserving and strengthening of certain regional specific functions of national importance. For instance, spatial planning policy has cornered the concept of ‘Main-Ports’ (a concept that has dominated spatial economic policy for decades) referring to the two ports that

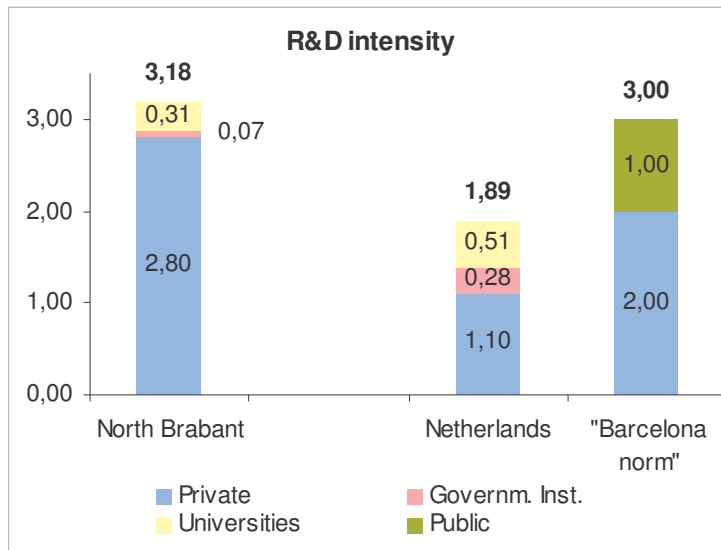
have large national economic importance: the harbour of Rotterdam and the airport of Schiphol. The latest spatial or territorial policy document has identified a third mainport of national economic importance: **Brain-port**, referring to the strengths in R&D and innovation of South-east of the Netherlands, and especially the Eindhoven region in the Province of North-Brabant. This policy statement has lead to the 'Peaks in the Delta' approach implemented by the Ministry of Economic affairs. The branding or labeling was also copied, e.g. the very successful programme Horizon in North-Brabant was renamed Brainport.

3 The regional policy mix context for North-Brabant

At the sub-national level in the Netherlands there is no science or public R&D policy, nor budget, and no generic policy instruments to increase private R&D. To a large extent the national government provides the R&D policy tools and at the regional level these tools are implemented and complemented with regional innovation strategies formulated by triple-helix structures.

The policy mix that is effective in North-Brabant is different from other regions in the Netherlands because of its strength in business R&D and high-tech industries, and its relative under-represented public R&D expenditures (see figure 1). The imbalance is striking, with the relatively small contribution of public funded R&D to the total of 3,2 as a percentage of GDP for the region. Historically, most universities and public research labs are located in the West of the Netherlands and these regional distributions are hard to change. More public R&D investments in North-Brabant would improve the coherency and effectiveness of the innovation system and its policy mix. Recent location of institutes such as the Holst Centre, the Institute for Molecular Medicine on the High Tech Campus Eindhoven, and the move from Delft to Eindhoven of parts of TNO has strengthened the public involvement in the R&D infrastructure of North-Brabant.

Figure 1 R&D expenditure as % of GDP in North-Brabant and The Netherlands and the 3% objective



Besides the national tools such as the WBSO, Three sub-national Programmes constitute the main regional input to the policy mix which is effective in North-Brabant. One programme is at the level of the Province of North-Brabant, one at the level of South-East Netherlands, and one which is mainly on the Eindhoven Region, but in relation to the South-east Netherlands (including the neighboring province of Limburg). This implies that even below the national level there is a multi-level practice of governance regarding research and innovation.

Peaks in the Delta Southeast Netherlands

The Ministry of Economic Affairs has given the Southeast Netherlands a financial commitment of €27 million for a period of four years. The intention is for regional public parties – like the province of North Brabant, province of Limburg and the Eindhoven Regional Cooperation Association – to act as co-financiers who together contribute at least the same amount as the Ministry of Economic Affairs puts in. The programme committee Peaks in the Delta Southeast Netherlands also expects additional funds from the FES which will raise the total public budget available for the Peaks in the Delta-Southeast Netherlands programme to approximately €100 million for the 2006-2010 period. The programme consists of four tracks:

- Knowledge programme track: Stimulate systematic development of knowledge on the axes of high-tech systems & materials, food & nutrition and life sciences & medical technology in Southeast Netherlands.
- Skills programme track: Intensify cooperation within and between value chains or between value chains and enabling technologies for joint R&D development, business development and market development in Southeast Netherlands.
- Open innovation programme track: Stimulate physical and virtual nodes for knowledge-intensive companies in Southeast Netherlands.
- Knowledge workers programme track: Stimulate flexibilisation and get a sufficient influx of knowledge workers into Southeast Netherlands.

The three spearheads of the **Innovation Actions programme (IAB)** in North-Brabant are:

- Forging stronger ties between knowledge and industry (connecting winners in clusters) The aim is to launch 15 to 30 knowledge-intensive clusters starting in 2005. The participants will be innovative small & medium-sized enterprises and knowledge providers – both businesses and public knowledge institutions. These clusters should also involve 45 to 90 parties annually: businesses, knowledge institutions and civil-society organizations, ranging from hospitals to housing associations. Three multi-year programmes should serve as an additional boost to tangible cooperation: 1) ‘Make-it’ (BOM and LIOF), which is to be re-launched and extended to cover the entire province. The aim is 5 to 10 new clusters annually, focusing on automotive and embedded systems. 2) ‘Human Health’ (BOM and Syntens). The aim is 5 to 10 new clusters in the medical technology and pharmaceuticals sectors. 3) ‘Process-It’ (BOM and REWIN). The aim is at least 5 new clusters annually, with the emphasis on the food and chemicals sectors and with due attention to sustainability issues.
- Expanding the number of technostarters (creating winners); The objective is to achieve, by 2010, a 50% increase on the number of ‘high potentials’ among technostarters that proved successful in 2004.
- Improving the innovative climate (enabling winners): Improvement of the innovative climate will be done by investments in human resources and broadband developments.

The Provincial Government has opted for a programme-based approach, within which it intends to stimulate, facilitate and create favourable conditions and developments. The private sector and the knowledge institutions in the Province bear the greater responsibility for innovation. The instruments that the province develops for this purpose should complement the numerous innovative activities taking place in Brabant, and is formulated in consultation with other parties, including the Brabant

Innovation Council. After the example of the (National) Innovation Platform, this council comprises leading figures from the private sector, knowledge institutions and government bodies. The Brabant Innovation Council is headed by the Governor of the Province and plays a role as a sounding board for the provincial government, reflects on developments and advises the provincial executive.

Brainport navigator builds on the former programme Horizon. Brainport is a Triple Helix collaboration, since large companies and SMEs, knowledge institutes and governments at various levels collaborate on projects. The bottom-up initiatives of the Horizon projects will continue to be the model for development of projects. Horizon projects that have been demonstrably successful include: the technostarter programme Incubator3+, Metalhouse business network, the Technific youth & engineering programme, the Eindhoven location of Leuven's DSP Valley technology community and the Eindhoven region Design Connection.

4 National and Regional Interactions

The interactions between policymakers, e.g. between the Provincial and National government are minimal. The Province of North-Brabant has no formal competencies in governing or funding public R&D in for instance universities or government labs. Also the generic measurements to promote private R&D are fully centralised at the national level of government. Moreover, the national policy is also lacking a formalised regional specific approach in its national RTD policy, and even with the Peaks in the Delta the national government actually belittled the role of the provincial government somehow, e.g. by not using the Provincial (nuts2) borders in its analysis. However, the interactions between the national and regional levels of policy have increased, and this has improved the coherence between the national and regional policy and policy instruments. Sometimes the National programme is the umbrella to several locally originated initiatives, e.g. in the case of the Technopartner Programme, which includes the Incubator 3+ project in Brabant. The increased interactions is mainly caused by the Peaks in the Delta and the changes in the Lisbon process in relation to the Structural Funds programming, that promoted national – regional dialogue. In practice it also implied more interference from the national government with the strategies of the regional programmes, since they had to link to the National Reform Programmes and to the key-area's approach of the (national) Innovation Platform.

According to both the Ministry of education, culture and science and the Ministry of economic affairs, there is no argument to develop regional specific policy concerning an internationalising issue like scientific research. Although the formal competence for RTD policy will remain at the national level, there is on the other hand a role and an increasing role for 'the region', especially concerning innovation. A large part of the role of national and regional (provincial, Nuts 2 level of) government with respect to RTD is related to co-funding of European programmes and funding of intermediary organisations like the BOM and Syntens. But "the region" is more than the Provincial government, especially in Brabant where the Triple Helix dynamics are real, and especially the networking among innovative companies sets the scene in North-Brabant. Moreover, the borders of 'the region' do not always coincide with the borders of the Province of North-Brabant.

According to the Provincial government innovation is primarily a task for companies, in close cooperation with knowledge institutions. The Province mainly wants to serve as "inspirator, stimulator, and coordinator". And the Province also takes a role in creating a beneficiary climate for innovation. The main involvement of the Provincial government are the Innovative Actions programmes, which is a programme that serves as the follow-up of the RITTS. This shows the important influence and impact of these EU initiatives which supported the development of governance, strategic, and institutionalising activities regarding the regional innovation policy, e.g. with regard to the triple helix composition of the governance structure and the strategy defining processes during the RITTS North-Brabant. By that time the national government was hardly involved in this development of the regional governance structures in the Provinces, it was the EU and the region.

This changed with the Peaks in the Delta which is a Dutch concept and process. What also has stimulated the involvement of the national policy level is the redefined Lisbon strategy where National Reform Programmes had to be formulated, including a dialogue with the regions. It involves establishing connections with existing regional programmes and with national and international programmes. Regional programmes are extremely important in creating a basis for building ‘the peaks’ of national importance. Peaks in the Delta cannot succeed without strong regional programmes, moreover there are many national policy programmes, e.g. the mini mixes of Innovation Programmes and Technopartner, where the synergy of interacting policy tools is a localized, regional synergy. Especially relevant for North-Brabant is for instance the key-area (“Sleutel-gebied”) of high-tech systems, identified by the Dutch Innovation Platform. The two Innovation Programmes (recently developed national thematic programmes) on this technological area are firmly embedded in the Eindhoven region. Major recent changes has been the support in strengthening the research infrastructure, e.g. with the Holst Centre. Also the move of TNO automotive from Delft to the Eindhoven region is an example of this recent trend.

5 Governance of the policy mix in North Brabant (NL)

5.1 Introduction

Governance refers to the management of individual policies as well as the policy mix. In particular, we are interested in two areas of governance, that which addresses the issue of ensuring **coherence** between different parts of the R&D policy mix (and with other policy areas, such as innovation policy) and that which addresses the **effectiveness** of the policy mix.

Coherence implies a broader goal than coordination of responsibilities and encompasses issues concerning the efficiency, effectiveness and impact of policy measures, both individually and collectively. Examples of mechanisms to ensure coherence can include science councils, inter-ministerial bodies, etc. and also strategic policy statements which extend beyond policy rhetoric and involve clear avenues for implementation and monitoring of progress towards objectives. The role of stakeholders (either as targets of the policies or as representatives of other policy domains) in such mechanisms is clearly an important consideration.

The most important explanation for the fact that the Province of North-Brabant has already reached the 3% objective (R&D expenditures are 3,2% of regional GDP) is the presence of the core R&D activities of Philips in Eindhoven. The second largest R&D performer in the region is the chip-machines producer ASML, which is in fact a spin-off company from Philips. The region also has strong network capabilities among innovative SMEs. Besides this strength in networked private R&D, other contextual characteristics of the research and innovation system in North-Brabant that effect the governance (its coherence and effectiveness) of the research and innovation policy mix are:

- The limited mandate and budget of the Provincial governments;
- The rich portfolio of intermediate and policy support organisations;
- The relatively large share of innovative manufacturing industries compared to other Provinces in the Netherlands;
- The under-represented public research activities (0,38% of GDP);
- The diffused or decentralised, ‘multiple-core’ urban structure, and a difference in economic structure and innovation potential between the west and the east of the Province.

Concerning this last aspect, it is important to note that the western part and the eastern of the Province are taking part in two different “Peaks in the Delta Programmes” (out of the total of six programmes), one for the South-west of the Netherlands and one for the South-east. In a way this implied that the national government, by emphasizing the difference between the West and the East of the province, endangered the coherency of the policy at the level of the (whole) Province, since it made it more difficult for the Provincial government to manage and present the provincial policy in one coherent governance structure, one strategic document and one provincial programme. In this report we focus on the East part of the province because of its particular strength in innovation and innovation policy governance. North-Brabant is

to a large extent one urbanised area with several core cities. This multiple-core urban area is referred to in the recent National policy on spatial planning as 'Brabantstad', but that doesn't diminish the fact that, although Eindhoven is the largest city in North Brabant, it is not 'the natural centre of everything' in the Province, nor the country. Eindhoven therefore lacks some aspects and images of a European core metropolitan area, e.g., concerning knowledge intensive business services and international headquarters the region is not a top location in Europe, and this may hamper the ambition to attract R&D investments and top talent from abroad. This is one of the reasons why spatial planning policy (Ministry of VROM) is an important non-R&D policy that has a large impact on the development of North-Brabant as a knowledge-economy.

The theme of governance primarily covers premeditated attempts to formulate, design and implement comprehensive policy mixes at different levels (national, regional and sectoral). It focuses on major recent changes at these levels and covers the mechanisms and processes in place to enhance the formulation of policies; attempts to restructure and reallocate responsibilities; and coordination mechanisms across policy actors, such as the regional Brabant Innovation Council, headed by the governor of the Province, and involving members on a personal base of companies and knowledge institutions.

In the next paragraphs we will focus on two characteristics of the governance of the policy mix in the regions that explain its success in terms of coherency and effectiveness: the dynamics of a Triple Helix mode of governance (paragraph 5.2) and the multi-level governance structures and strategies in North-Brabant (paragraph 5.3).

5.2 The dynamics of a Triple Helix mode of governance

The Triple Helix governance mechanisms in North-Brabant, and especially in the east part with the Eindhoven region, are very successful. It is difficult to define successful governance, but it certainly serves to generate and maintain coherence, effectiveness and efficiency of R&D and related policy activities. Of the three involved parties: government, companies and knowledge institutes, the regional authority (the provincial government) is perhaps the least dominant, least powerful, and most limited in terms of resources. Strong policy programmes such as Horizon or Brainport are not initiated by provincial government, but by cooperative companies and knowledge institutions. Also in the IAB the local governments merely follow and facilitate this dynamism.

The enormous absorption capacity for subsidies for the R&D cluster projects from Stimulus (Structural Fund) shows how strong the private R&D and innovation networks are compared to other regions in the Netherlands. This successful cluster programme of Stimulus (Oerlemans and Rutten, 2006) shows that the region has a strong capacity to absorb and co-fund EU Structural Funds policies to stimulate R&D investments. Other provinces (and Peaks in the Delta Programmes) have copied the programme design, but the number of project applications is limited compared to North-Brabant. In this cluster programme a consortium (micro-cluster) of a few companies (and or knowledge institute) can apply for a subsidy for a cooperative projects to develop a new product. An enormous amount of such proposals and

successful projects shows the potential in North-Brabant to induce additional private R&D investments. On the other hand, the capacity for generating spin-off companies from Public research institutes is or at least was relatively small in the Province of North-Brabant (Ministry of Economic Affairs). These characteristics of the innovation system in North-Brabant have strong implications for the innovation policy portfolio and its governance.

The Peaks in the Delta document of the national government (Ministry of Economic Affairs 2004) has recognized the strength of the regions' Triple Helix mode of governance in innovation policy, and the Horizon Programme was mentioned as a case of best practice. The special project development and management of Horizon projects is a good example of the strong potential for bottom up policy making, since everybody can start a project by defining a problem and addressing it with others. The private person remains the 'project-owner' and seeks funding to support his policy. It is not only a very efficient way to solve problems, and mobilize stakeholder involvement, but it is also a sort of policy-contest or competition, which serves as a selection mechanism to pick the best policy proposals.

Triple helix programme committees are the backbone of the real dynamism, e.g. with the Brainport navigatore programme or the Peaks in the Delta Programme for the South-east. There is no single lead or principal coordinator of the policy making dynamics in the region. Besides the University, the Provincial government, several municipalities, and intermediates such as NVREDE or the Brabant Development Agency (BOM), there are several new actors such as the North Brabant Innovation Council, and a very important trend of the last few years is the increased involvement of Philips NV and its involvement in practicing open innovation on the High Tech Campus Eindhoven.

There are also ad-hoc triple helix structures such as the 'regiegroep TTR-ZON'. This group of stakeholders formulated the strategic reaction of South-East Netherlands to the national call for Peaks in the Delta programme proposals.

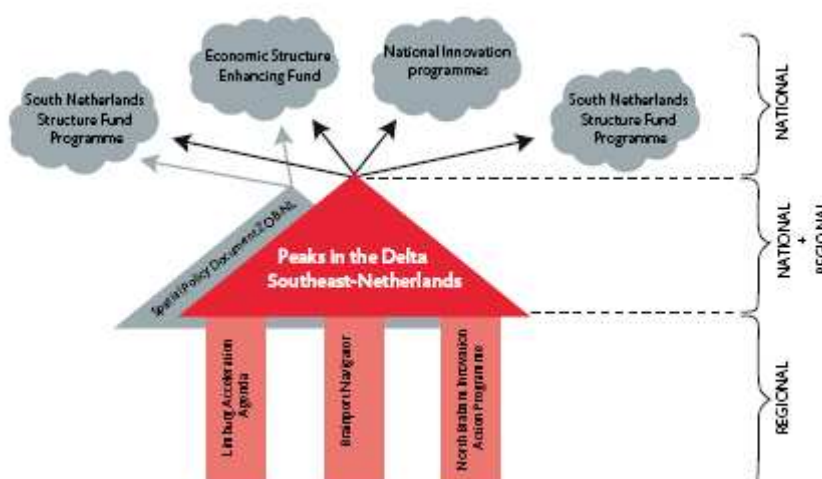
There is also an increased involvement of the national government through the Peaks in the Delta process. With the former Structural Fund programmes of South Netherlands the national government hardly interfered, but served as co-funding authority. With the Peaks in the Delta approach the national government and the (national) Innovation Platform had defined what the key-area's are and where the 'territorial' peaks are in the Dutch Delta that deserve a policy focus. The provincial governments did not play a major role in this. In the implementation, however, there is still a coordinating role, e.g. in safeguarding the coherence with some other, non-R&D, and non-innovation policy fields. The third IAB (Innovation Actions Brabant, which are coordinated by the Provincial government) is for instance focused on innovative solutions to problems of an ageing society.

5.3 Multi-level governance structures and strategies in North-Brabant

Figure 2 shows how the regional programmes of the different territorial levels are linked to the national policy level. The programme "Peaks in the Delta Southeast-Netherlands serves as the link between the regional and national policy programmes.

Besides the RTDI policy, at the background, there is also a big influence from the National Spatial Planning policy. The Ministry of housing, spatial planning and environment (VROM) used to be active in supporting regional development in lagging regions of the Netherlands. But, not anymore, as the title of a spatial planning policy document in the late 80's explains: "Regions on their own strength". However, in this Ministry there is still the need to make coherent spatial planning proposals and there is a long tradition in identifying, preserving and strengthening of certain regional specific functions of national importance. For instance, spatial planning policy has cornered the concept of 'Main-Ports' (a concept that has dominated spatial economic policy for decades) referring to the two ports that have large National economic importance: the harbour of Rotterdam and the airport of Schiphol. The latest special policy document has identified a third main-port of national economic importance: Brain-port referring to the strengths of South-east of the Netherlands (including the west of the province North-Brabant, and the province of Limburg), and especially the Eindhoven region.

Figure 2 Multi-level regional programmes linked to national programmes



Compared to many other EU countries the regional government administrations in the Netherlands (the Provinces) have very limited powers and funding regarding knowledge economy fields of policy. The Province has limited competencies and budget capacity compared to the national government and the Municipalities. The provincial government has no competencies regarding R&D policy, and only a small role regarding innovation policy. For most policy fields the national government is the single policy-making level and the Provincial level (NUS2) is not always the administrative regional level for implementation. In general there is a devolution trend in decentralisation of policy responsibilities though, but it is mostly the level of municipalities (and co-operating municipalities) that has grown in importance concerning policy implementation. The responsibilities of the Province can perhaps best be indicated by looking at the budget of North-Brabant. Two third of the provincial budget comes from the National Government and there is about 150 million Euro own income from motor vehicle-tax. Main issues on the budget are Transport & Infrastructure (34%), Environment & Nature (15%), and Health for

elderly/youngsters (16%). The budget for Socio-economic affairs & public utility is often only a few percent of the small budget, and part of this is for economic policy development, including innovation policy. Regarding funding most of the public funding for the regional policies in North-Brabant are based on European Structural Funds. Increasingly also the national FES Fund is important for Brabant as fund for specific projects, including R&D projects, and innovation and ICT related projects.

Because the Provincial level of governance is not the most important or powerful, there are several forms of co-operation, which are relevant for regional policy in general. This ‘multi-level-governance’ has become increasingly important, especially with the Peaks in the Delta approach. This development has promoted the formation of functional regions for which the borders do not always coincide with the borders of the Province. The first two of the below mentioned relevant examples of alliances are based on co-operation between municipalities, the others to a sub-national region consisting of cooperating Provinces and an international cross-border alliance:

- “BrabantStad’
- The Eindhoven Regional Government (a co-operation of municipalities)
- cross-regional alliances, e.g. with the Dutch Province of Limburg; and the cooperation with Limburg and Zeeland.
- cross-border alliance with Flanders in Belgium, and with the cities of Leuven and Aachen.

At regional level there are a large and increasing number of initiatives and structures, ranging from local agencies, regional innovation platforms, knowledge networks and alliances, co-operating municipalities or provinces, steering groups, regional sector organisations, regional knowledge networks, branches of employers organisations or lobby-groups, regional knowledge foundations and Innovation funds. The strength of the provincial government is that they are linked to most of these institutions (e.g. by representation in boards and steering groups). It is impossible to be exhaustive and it is hard to define which organisations are ‘main’, but below we give an overview of the type of organisations and some concrete examples of the many individual organisations:

- Province (regional government)
- Brabant Innovation Council
- North Brabant Development Agency (BOM)
- NV REDE
- Chambers of Commerce
- Syntens
- Stimulus (agency that runs programmes funded by the EU Structural Funds)
- North-Brabant employers organisation (BZW)
- Department for North-Brabant of the Dutch organisation of SMEs (MKB Nederland)
- North-Brabant social-economic Platform (SEOB) (with Chambers of Commerce and Trade Unions)
- Technical University Eindhoven (TUE)
- University for the social and economic sciences Tilburg
- Fontys Hogescholen (colleges)
- Hogeschool Brabant (colleges)
- Brainport

Private companies like Philips are also important actors regarding governance of RTD-policy in North-Brabant. The involvement of Philips has increased over the last few years. This increased involvement is mostly based on a change in approach or culture towards innovation, which can be witnessed by the adoption and promotion by Philips of the concept of “Open Innovation” and most of all by the Philips High-Tech Campus which has been build around Philips’ R&D home-base in Eindhoven. It is to a large extent a private-policy, but with large potential impact to R&D activity in the region and therefore Innovation Policy Intermediates like NV REDE are now involved in further development of the Campus. Because of this involvement the name of the campus is now ‘High-Tech Campus Eindhoven. Philips has also increased its involvement in many other innovation governance structures and innovation programmes at the regional level. This influence can also be witnessed in the fact that the support to Open Innovation and campus development has been taken up in the three recent policy programmes, see for example the ‘Open Innovation track’ in the Peaks in the Delta Southeast Netherlands. The campus model of Open Innovation is recently also adopted and implemented elsewhere in the Eindhoven region, namely on ‘human health’ in Oss.

Another non-governmental or public administrative organisation is the employers association. One of there most recent activities to influence the National policymakers is a letter written to the Ministry of Economy (based on studies and regional discussions among companies) which is a private-policy statement with certain claims on what the national government should do regarding RTD and innovation. Amongst others this was a lobby for more public funded research.

North-Brabant, with the city of Eindhoven, seat of Philips, and a specialisation in Mechatronics and micro-electronics is particularly active in developing cooperative research and is (bearing the limited public R&D expenditures in mind) relatively successful in generating spin-offs from research. A recent initiative that has increased the public/private investments is The Holst Centre, an “Open Innovation R&D centre”, established by TNO and the Belgian IMEC with the support of the Dutch Ministry of Economic Affairs and the Flemish government. Industry contributes substantially. Since 2005 over 60 highly educated specialists and researchers were attracted internationally.

The Southeast Netherlands Top Technology Region - “TTR-ZON” – is one of six regions where a programme committee has been established consisting of Triple Helix representatives. The predecessor of the programme committee, the TTR-ZON Direction Group, translated the first ideas in Peaks in the Delta into an innovation agenda for the Southeast Netherlands in mid-2005. The present programme committee has validated, specified and made concrete actions to produce an economic agenda for 2006-2010, with defined action tracks that allow central government and the region jointly to invest in creating a high-profile top technology region in Europe. It is a demand-driven agenda that the regional research and business community identifies with and endorses. It also provides a framework for submitting annual applications for subsidies.

5.4 Conclusion

The characteristics of the innovation system of North-Brabant and especially the west part of it, has important implications for the R&D and innovation policy mix and its governance. Because of the strength in private R&D and innovative networking there is a large absorptive capacity for policies that support this very strength. Public R&D investments and related policies, are under-represented in the policy mix of effective in North-Brabant, and the provincial government of the region does not have a budget or constitutional powers/competencies which could correct this in-balance of the R&D policy mix. Recently, with the new National policy approach the public-private R&D balance started to improve as well as the coherence between the national and regional strategies and programmes.

The recognition and labelling of the region in the national spatial planning policy as “the Brainport of the Netherlands” has had a major impact. The statement of the national government that the regions R&D potential is of national importance has led to increased attention from the national government in The Hague to what is happening in the Province and especially the Eindhoven region. In the Peaks in the Delta Programme the regional level of R&D and innovation policy has been linked more closely to the new national strategy to support strong and promising RTDI developments with an inter-related set of programmes targeting specific technological themes, regions, and specific targetgroups (e.g. start-ups).

With the Peaks in the Delta Programmes the coordination between the national and ‘sub-national’ level has changed. In a way it has become a less ‘bottom-up’ mode of governance compared to the former period, because over the last two decades the national policy makers were hardly involved in the development and implementation of EU funded initiatives at the regional level. With ‘Peaks in the Delta’ the National government has (in the light of the formulation of the National Reform Programmes, and the National Strategic Framework document), interacted more with the regions. As a result several (National) Innovation Programmes (see the national case-study) have been developed that have a core based in the Eindhoven region, and this has resulted in an increase of support for public R&D and Science –Industry linkages. Examples are the recent location of institutes such as the Holst Centre and the Institute for Molecular Medicine on the High Tech Campus Eindhoven, and the move from Delft to Eindhoven of parts of TNO which has strengthened the public involvement in the R&D infrastructure of North-Brabant. Given the existing strengths of North-Brabant it is more likely to generate private spin-off and spillovers from public funded R&D than in other Dutch regions. Therefore, improvement of the public-private R&D balance of the policy mix of North-Brabant will not only increase the R&D capacity in the region, but also contribute more effectively and efficiently to the national ambitions regarding the increase of R&D investments.

The national government still provides the R&D policy tools and programme frameworks. At the regional level these tools are implemented and complemented with regional innovation strategies formulated at multiple territorial levels by strong Triple-Helix governance structures. At the national policy level the territorial and thematic points of focus have been formulated more top-down than before, which has

improved the structural coherence of the policy mix design. But, at the multi-layered regional level it is the dynamics of the Triple Helix mode of governance that result in effective and efficient management and implementation of this design, based on systemic linkages between stakeholders in the rather tight regional networks of North-Brabant.

Besides R&D and innovation policy the policy programmes we have considered in this case study also include aspects of education policy, environmental policy and spatial planning and demographic policies. In these related policy fields there is a stronger role of the provincial and local governments than for R&D and innovation policy, because on these policy fields initiatives are less likely to be taken by companies and knowledge institutes.

6 Conclusions

In this case study we have concluded that the policy mix which is effective in North-Brabant has improved due to the new approach at the national level and the improved coordination between the national and sub-national level of policy activities which have an impact on R&D. It is however, very difficult to define and evidence what a good or improved policy mix is?

One line of reasoning is that a good policy mix provides everything that is needed to reach one stated objective, and an improved policy mix would lead to an increase of a target indicator. This interpretation under-estimates the difficulty in assessing the appropriate policy needs; what are the best objectives, or rather what is a good mix of inter-related objectives. Moreover, there are different levels of policy objectives, e.g. national and sub-national. In this respect the national R&D objective consist of the mix of regional objectives, which may be competing with each other.

Especially the Peaks in the Delta process has increased the coherency of the regional objectives and policy priorities with those at the national level. As a result there is not only more coherence between the policy instruments effective in North-Brabant, but also in relation to the National policy mix.

A good regional policy mix creates synergies between policies. In this case study we have seen that the new National approach consisting of an omnibus of theme- or technology-specific programmes, territory specific programmes, and programmes that target specific groups of firms (such as technology start-ups) has lead to an (intended) increase in coherence between those programmes. As an un-intended (at least not explicitly) result the coherency between the programmes has also lead to an improved coherence in North-Brabant between policies targeting private R&D and public R&D, and also the coherence between R&D policy and innovation policy. In this respect the balance of the policy mix of North Brabant is skewed because policy instruments promoting collaborative private R&D investments in innovation projects were dominant. The recent Peaks in the Delta process has improved this balance by strengthening the public funded R&D infrastructure in North-Brabant, which could lead to more integration at the regional level of R&D and innovation policy activities and more spillovers between Science and Industry.

Coherence between the regional specific programmes effective in North-Brabant (Peaks in the Delta South-east, Brainport Navigator, and the Innovative Actions Brabant II), and especially the internal coherence within these three programmes and projects is based on the strong Triple Helix dynamics in the region, especially in the Eindhoven region. This stakeholder driven dynamics is not only effective in the form of the activities of the Brabant Innovation Council, but it is apparent in many formal and informal, ad-hoc and structural forms. At the level of concrete programmes and projects the involved stakeholders from business, local government, and research institutes are effective and efficient in merging their objectives; More effective and efficient than ministries at national level.

The provincial government does not have an important role in terms of funding, initiating, designing or managing in the programmes, but since it is represented in many of the committees, steering-groups, councils, boards and platforms it serves a

coordinating role. This also includes the role of safeguarding the relations with non-RTDI fields of policy, e.g. urban planning, environment, and education policy.

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