

RIS3

Strategy for Smart Specialisation

Western Netherlands

Final Version

17 January 2014



Kansen
voor **West**
G4P4 

Table of Contents

1. Introduction	2
2. Innovation and competitiveness in the Western Netherlands	3
3. National top sector policy	4
4. Implementation of the top sector policy in the Randstad Wings	9
5. Objectives of the smart specialisation strategy for the Western Netherlands	11
6. Implementation of the smart specialisation strategy	11
7. Partner input	14
8. Cross-overs, sustainability and knowledge valorisation in top sectors	16
9. The role played by the authorities	18
10. Scope of the smart specialisation strategy	19
11. Monitoring the smart specialisation strategy	19
Annexe I: Top sector fact sheets	23
Annexe II: Top sector policy instruments and financial frameworks	61
Annexe III: Report of the smart specialisation strategy (RIS3) consultation with business sector representatives	63
Annexe IV: Written contributions by the business sector	67
Annexe V: Report of the 13 March 2012 consultation with knowledge institutions	83
Annexe VI: Additional contributions by universities	89
Annexe VII: Report of the consultation with governmental authorities	103
Annexe VIII: Internet-based consultation on the final draft version of the Western Netherlands RIS3	107
Annexe IX: European and national frameworks	111
Annexe X: Overview of the parties involved: RIS3 Taskforce	117

1. Introduction

The Western Netherlands' smart specialisation strategy (RIS3) is an innovation strategy based on three previously established regional economic vision documents (South Wing Agenda, Amsterdam Economic Board (KIA), Economic vision province of Utrecht 2020) and the economic agendas of the provinces of Noord-Holland and Flevoland. These economic visions and agendas were drawn up in close cooperation with regional businesses and knowledge institutions (triple helix) and as such constitute a sound basis for the Western Netherlands' RIS3.

In early 2011, the provinces of Noord-Holland, Zuid-Holland, Utrecht and Flevoland, and the four cities of Amsterdam, Rotterdam, The Hague and Utrecht, within the context of the 'Kansen voor West' [Opportunities for West] ERDF operational programme for the region opted to draft a regional innovation strategy for smart specialisation in the region. To boost the initiative, draft regulations on the use of structural funds were drawn up that made the RIS3 a conditionality for the expenditure of European funds provided for the purposes of "strengthening research, technological development and innovation" (thematic objective 1). At the same time, however, it had become clear that insufficient use was made of the potential to innovate. This was due in part to a lack of focus on those clusters that hold the greatest potential. In addition, the amount of funding provided by both national and European authorities was expected to decrease, rendering it necessary that the various flows of funds to increase innovation be more efficiently aligned and made use of.

The RIS3 for the Western Netherlands provides an overview of the basic principles and criteria employed by the four provinces and the four cities, acting in conjunction with their social, economic and knowledge partners, all with the aim of increasing the potential for innovation in the region. In addition, the RIS3 contains a general analysis of the innovation rate of the Western Netherlands, also comparing the region to other European regions and commenting on the level of cooperation between businesses and knowledge institutions. Following on from this analysis, the RIS3 lists the objectives for the years to come and the actions to be taken to meet them. In defining objectives and actions to be taken, the partners built upon the recently determined regional economic agendas and linked up with the national top sector policy. To complement this process, extensive consultations were held with economic partners and knowledge institutions. The RIS3 contains a broad outline of the results; the more specific results are detailed for each top sector in the Annexes, as assessed by the Ministry of Economic Affairs' top teams. Finally, the final RIS3 draft document was submitted to a group of various interested parties for review and assessment by means of an Internet-based consultation. All contributions made by these parties are included in this RIS3 and its Annexes.

Within the RIS3 for the Western Netherlands, the concept of 'innovation' is broadly defined and connected to the available funds and instruments, both European funding and national resources. The four provinces and four cities all commit to the funding for thematic objective 1 - "strengthening research, technological development and innovation" - as provided within the framework of the 'Kansen voor West II' ERDF operational programme being used in conformity with the criteria laid down in the RIS3. In addition, the RIS3 for the Western Netherlands provides a possible direction for the development of the region, allowing for better alignment with other programmes and instruments. Incidentally, the use of such tools

and measures will in no way be limited to the actions to be financed from the limited structural funds.

2. Innovation and competitiveness in the Western Netherlands

The recently published Regional Innovation Scoreboard 2012¹ ranks three out of the four provinces as 'innovation leader' and one as 'follower' in the 'innovation performance' category. All four provinces are rated as 'leading absorber' with respect to their absorption of funding allocated in connection with European framework programmes for Research and Technological Development. The Regional Competitiveness Index 2012 in its assessment of innovation ranks the Western Netherlands in the top two categories.

These high ratings are partly explained by the unusual density of knowledge institutions in the region, including seven universities, eighteen institutions for higher professional education and an even larger number of specific knowledge institutions, partly listed in the below figure.

Figure 1: Research institutions in the Netherlands

¹ Regional Innovation Scoreboard 2012, Regional Competitiveness Index, European Cluster Observatory

Onderzoeksinstituten in Nederland



In addition, various further reports² indicate that the Western Netherlands has emerged from the financial crisis relatively unscathed, as compared to other European urban regions: of the 20 regions compared, the Western Netherlands is ranked 5th in terms of economic size and growth. However, in the past three years, the growth of the gross regional product of the Western Netherlands has dropped from well above the EU average to 1.7%, whereas other competitive urban regions still witness growth of 2.4%.

R&D expenses as expressed as a percentage of the gross regional product, too, have dropped to 1.7%, whereas European urban regions, such as Copenhagen, Munich, Stockholm, Berlin, Vienna and Paris, average almost 50% higher.³ One important reason for this low figure is to be found in the under-representation of innovative (manufacturing) industries in the Western Netherlands and the small number of company research labs associated with universities. What's more, the Western Netherlands produces relatively few

² Including TNO Netherlands Organisation for Applied Scientific Research, Top 20 European urban regions 1995-2011; Randstad Holland in an international perspective (Randstad Monitor 2010-2012), December 2012

³ Ibid. 2

patent applications per million inhabitants (211) in comparison to the European average (275). The share of high-quality industry as a percentage of total employment (4%) is significantly lower than it is in the benchmark regions (10%). And finally, the share of knowledge-intensive services of 5.2% trails behind the European average of 6%.

However, the above does not mean that the Western Netherlands should only focus on improving on these points, in particular as the funds to boost innovation are in limited supply. What the results do highlight is that a smart specialisation strategy should be focused on those economic sectors that may aid in eliminating this relative backwardness. And in so doing, the Western Netherlands may leave the European second tier and ascend to the European top.

The challenge the Western Netherlands faces is that of boosting growth in those fields of expertise and those industry sectors the region can become an international leader in. It certainly has the potential. For instance, the Western Netherlands has a younger population than other European regions. The Western Netherlands should be able to have its gross participation rate of 79.9% increase to Stockholm's 84% or Munich's 81.8%. What's more, with four of its seven universities being listed in the top 150 of universities worldwide, the Western Netherlands is an impressive knowledge leader. And to add to that, the Western Netherlands features a highly diversified economy in which all top sectors as identified by the national government play a significant part.⁴

3. National top sector policy

So as to maintain and, where possible, improve on the already strong Dutch position in terms of its economy and level of innovation, we need to give a clear field to entrepreneurship and the urge to innovate. To facilitate this, the national government in February 2011 laid down its new policy on trade and industry, the so-called top sector policy. The basic premise of this new policy is that the national government will no longer guide entrepreneurship through regulations and subsidisation, but will provide Dutch businesses with the room to do business, to invest, to innovate and to export. This top sector policy acts as a supplement to the general policy of boosting entrepreneurship, innovation, investment, growth and export, by every business in the Netherlands: large and small, just starting or well established, and irrespective of their trade sector. This general policy on entrepreneurs therefore still forms the foundation of the enterprise policy. The supplementary top sector policy is a response to the need for trade sector-level custom solutions to the challenges and hindrances faced with respect to knowledge and innovation, education and the regulatory burden. The top sector policy is based on nine trade sectors⁵ in which the Netherlands is an international leader. The nine sectors were selected on the basis of their international economic activity and prominence, and on the basis of the strategic importance of knowledge in these sectors, such in combination with the international pre-eminence of Dutch research institutions in exactly those fields of knowledge. The policy thus highlights that economic opportunities, and therefore economic growth, employment opportunities and prosperity, are not created by governments, but by entrepreneurs. The core of the new policy is the following:

⁴ Top sector monitoring study report, Statistics Netherlands, October 2012

⁵ Water, Life sciences and health, Creative industry, Logistics, Chemicals, Energy, High Tech, Agri-food, and Horticulture and propagation materials.

- Less subsidy, but also lower taxes;
- Fewer and less complex regulations;
- Increased access to business financing sources;
- Improved use made by the business sector of the knowledge infrastructure present;
- Better alignment of taxation, education and diplomacy with business sector needs.

The national government sought to improve its collaboration with entrepreneurs and researchers from each top sector by establishing so-called top teams. Each top team is made up of an innovative small and medium enterprise (SME) entrepreneur, a scientist, a leading figure within the sector and a representative of the government. The teams are responsible for mapping the opportunities open to and problem areas of their sector and incorporating the results in a so-called action agenda, all with the aim of realising the following ambitions:

- To have the Netherlands ranked in the top 5 knowledge economies worldwide (in 2020);
- To have R&D expenditure in the Netherlands rise to 2.5% of its GDP (in 2020);
- To establish Knowledge & Innovation Top Consortia made up of both public and private parties.

Next, the top teams drafted an innovation contract and a human capital agenda for each of the nine top sectors. Each innovation contract contains a number of measures covering the following areas:

- fundamental research (knowledge);
- applied research (skill);
- valorisation (profit).

In addition to these innovation contracts, the top teams also drew up human capital agendas, which serve to improve the alignment between education and the labour market. Specific action agendas were drawn up for the fields of IT, nanotechnology and bio-based economy, fields of importance to multiple top sectors. Finally, a specific action agenda was drawn up for the topic of headquarters.

Solutions for societal challenges

Many innovation contracts are concluded with an aim to provide solutions for 'societal challenges'. For instance, the Agri-food sector, aiming to meet the increasing demand for food, plans to develop sustainable food production, i.e., produce food in an energy-efficient, environmentally friendly manner that does no harm to man or animal. Among many other projects, the High Tech sector is investigating new healthcare systems.

Some of the innovation contracts are also partially drafted with an eye to increasing development cooperation. For instance, the Life sciences and health top sector put forward propositions on the early detection and treatment of poverty-related diseases.

Table 1 clearly shows the focus introduced into the Dutch regional and innovation policies through the implementation of the top sector policy. Taken together, the top sectors comprise almost a quarter of all companies in the Netherlands and over 20% of all jobs. These companies generate about 35% of the total Dutch production value, well over 25% of the national value added and almost 40% of all exports. What's more, the companies belonging

to the top sectors are responsible for 95% of the total private R&D expenditure in the Netherlands.

Table 1: The Netherlands core figures, total top sectors, individual top sectors, 2010

	Aantal bedrijven	Productie	Toegevoegde	Uitvoerwaarde	R&D-uitgaven ¹⁾	Werkzame
	absoluut	min euro	waarde	(goederen)	(eigen onderzoek)	personen fte
						x 1 000
Totaal Nederland	1 124 405	1 140 223	526 176	371 541	5 218	6718
Totaal topsectoren ²⁾	264 220	428 704	140 907	149 303	5 044	1 435
<i>Sectorale afbakening</i>						
Agro&food	59 050	72 578	16 217	23 853	402	213
Chemie	2 150	90 389	14 819	28 431	737	80
Creatieve industrie	97 020	22 627	9 715	661	21	148
Energie	1 270	54 997	26 740	15 109	645	47
High tech systemen en materialen	64 120	94 887	31 665	41 469	2 578	444
Life sciences & health	2 290	12 616	2 640	7 156	671	39
Transport en opslag	23 820	59 090	28 473	18 141	113	335
Tuinbouw sectoraal	18 460	19 116	9 209	14 466	169	130
Water	2 820	25 444	8 491	4 348	468	87
<i>Aanvullend onderzoek</i>						
Logistiek functioneel ³⁾	.	125 836	55 028	.	.	813
Tuinbouw agrocomplex ⁴⁾	.	21 100	8 773	14 149	.	118

Source: Statistics Netherlands, Monitor Topsectoren. Uitkomsten eerste meting, Heerlen 2012.

1) R&D expenditure figures are available only for companies categorised as having SBI codes 01 to 82 and having no less than 10 employees.

2) The total top sector figures are calculated on the basis of the specific delimitations of the individual top sectors.

3) Additional research source: 'CBS Monitor Logistiek en Supply Chain Management' (Buck Consultants International/Netherlands Organisation for Applied Scientific Research, September 2012).

4) Research source: 'Kengetallen Tuinbouw en Uitgangsmaterialen voor 2009 en 2010' (Agricultural Economics Institution, 2012).

By concluding innovation contracts for each top sector, the business world, knowledge institutions and the government together provide a framework for the amount of focus on fundamental and applied research and valorisation within the sector. The decentralisation of the regional economic policies has led to the responsibility for the implementation of these policies for the upcoming period coming to be vested in the regions. Acting in the performance of this responsibility, the regions concerned have sought to link up with the top sector policy. The efforts to be made by the regional and local authorities in this connection, and the finances to be used, have been laid down in five regional action agendas. The regional economic agendas and the top sector innovation agendas meet in the smart specialisation strategy for the Western Netherlands. Annex II contains an overview of the available tools and instruments and the underlying financial resources.

The Western Netherlands can be divided into three subregions, each constituting a strong competitor on the global scale, in terms of both their shared sectors and the sectors they specialise in. The three subregions, each with its own economic vision and agenda,⁶ together constitute a complex mixture of niches, sectors and (mutually) competitive core locations. The existence of these subregional strategies can be viewed as the implementation of 'sub-

⁶ Amsterdam Metropolitan Area, South Wing and province of Utrecht economic visions and the economic agendas of the provinces of Noord-Holland and Flevoland.

RIS3s' in the Western Netherlands. This means that the smart specialisation strategy for the Western Netherlands as a whole will not make a further selection within these regional visions, but will build on the analysed sector-specific choices and place them alongside each other. The RIS3 identifies the points of potential for the region to become an international top region and notes how the sectors can become more competitive by means of mutual cooperation. This requires sector-specific implementation and customisation.

Scale level

By selecting nine top sectors a deliberate choice was made, but in so doing, only a sample of the economic sectors in the Western Netherlands boosting innovation was taken. As an example of the implementation of a smart specialisation strategy on the regional scale, the Western Netherlands is, then, primarily to be considered a well-functioning, functional region that serves as a breeding ground for multiple promising ecosystems and witnesses the realisation of synergy between the regional strategies. Some filters will be provided to effect the desired focus and value added in the implementation of the 2014-2020 ERDF Operational Programme for the Western Netherlands.

However, the strict demarcation of the Western Netherlands, or of its subregions, does not do justice to the internal relations and dynamics that characterise the region and that connect it to areas outside its borders. Examples include the economic ties between Amsterdam Airport Schiphol and the Port of Rotterdam and their hinterlands; the cooperation of parties from the Creative industry sector with their partners in the Eindhoven region; the cluster of Agri-food companies in the Zuid-Holland - Gelderland - north-eastern Noord-Brabant triangle, etc. This cooperation at the European level receives a strong stimulus from the European research programmes, but it also requires further attention in the creation of and capitalisation on strategic alliances within and between the top sectors.

The demarcation of the Western Netherlands in place should therefore be considered much more on the basis of logical economic patterns than on the geographic borders of the region. This means that, although attention has been devoted to spatial concentrations (refer to Annexe I), the smart specialisation strategy does not denote specific local areas within which the developments are to take place. The Western Netherlands as a whole will serve as the investment area and the existing clusters will come to serve as the foundation for the connections to be made between companies, knowledge institutions and other partners holding an important position of knowledge.

Innovation bottlenecks

International competitiveness is a decisive factor in determining local economic development opportunities. Although the situation strongly varies from sector to sector, companies established in the Western Netherlands compete with, for instance, companies established in Paris, Flanders, the Ruhr and Milan - all regions that are leaders in terms of operating as a knowledge economy (as determined by the R&D intensity of businesses and by their innovative capacity), physical accessibility and having a high-potential working population (as determined by their size, unemployment rate and level of education). Surveys by the OECD⁷, the CPB Netherlands Bureau for Economic Policy Analysis⁸, the PBL Netherlands

⁷ OECD, Territorial Review Randstad Holland, 2007.

⁸ CPB Netherlands Bureau for Economic Policy Analysis, Stad en Land, 2010.

Environmental Assessment Agency⁹ and the Randstad Monitor¹⁰ show the most important bottlenecks hampering innovation in the Western Netherlands. These bottlenecks include:

1. Limited share of private R&D expenditure in the total amount of R&D investment.
2. Lagging sustainability of the economy of the Western Netherlands.
3. Limited knowledge valorisation.
4. Accessibility of the urban regions, predominantly negatively impacted by congested interurban links.
5. Social cohesion resulting from demographic developments.
6. Competitiveness of SMEs.

The first three of these bottlenecks, in particular, are relevant to a smart specialisation strategy.

In its country-specific recommendation, the European Commission (EC) highlighted the Netherlands' relative under-performance in terms of private R&D investments¹¹. While the Commission's R&D target for the whole of Europe was set as 3% of GDP, it was set at only 2.5% of GDP for the Netherlands. At present, private parties in the Netherlands invest only 1.83%. Worse, the Western Netherlands invests only 1.7% - a low figure in comparison to other European knowledge regions. While most private R&D investments are made in industry sectors which have limited presence in the Western Netherlands, meeting the national target figure of 2.5% is still a serious challenge.

A second issue of worry identified by the EC is the limited uptake of innovations by companies. Dutch SMEs, in particular, lag far behind the rest of the European Union (EU) in this respect: only 70% realises in-house innovation, well below the European average of 87%. The greatest challenge in terms of policy is therefore that of having the Western Netherlands be able to leverage the science base of excellent quality present in its universities and knowledge institutions to make companies operating in specific industry clusters more competitive. In addition, the EC emphasises the importance of improving the competitiveness of SMEs, labour market participation, the environmentally-friendly economy and the efficient use of resources.¹²

4. Implementation of the top sector policy in the Randstad Wings

As all nine top sectors are primarily concentrated in the Western Netherlands, the regional and local authorities of the region have expressly included the top sector approach in their policy visions and instruments. The Administrative Platform for the South Wing, the Amsterdam Economic Board and the Economic Board Utrecht have all embedded the administrative commitment of the southern and northern sections of the Randstad agglomeration - the so-called South and North Wings - in the regional action agendas of the

⁹ PBL Netherlands Environmental Assessment Agency, De concurrentiepositie van de Noordvleugel van de Randstad in Europa, Policy Studies, May 2011.

¹⁰ TNO Netherlands Organisation for Applied Scientific Research, Top 20 European urban regions 1995-2011; Randstad Holland in an international perspective (Randstad Monitor 2010-2012), December 2012

¹¹ European Commission, Staff Working Document - Assessment of the 2012 national reform programme and stability programme for The Netherlands, SWD(2012) 322 final/2, Brussels, 6 June 2012.

¹² European Commission, Position of the Commission services on the development of the partnership agreement and the programmes in The Netherlands for the period 2014-2020, Brussels, 31 October 2012.

top sector policy. In so doing, they expressly opted to implement policies to improve accessibility, the (research) infrastructure, human capital and incentives to operate SMEs; all necessary preconditions for making top-sector gains. As part of this approach, they have also discussed the establishment of Regional Development Companies, as the Western Netherlands is the only Dutch region lacking them.¹³

Figure 2: Regional economic visions and the top sectors



Regional economic visions and the national top sectors

The three regional visions overlap to some extent in their focus, but also feature local specialisations, as shown in the below figure. The additional filters can be used to offer a sharper analysis. Such analysis shows that the IT, business and financial services, and tourism and conferences sectors have almost all been flagged as focus areas by all three regional strategies but have not been considered independent top sectors in their own right. The IT sector (explicitly referred to as an 'enabler' of the top sectors) has been added as a separate category in the Western Netherlands' smart specialisation strategy. As the potential for innovation in the tourism and conferences sector is limited, the sector was not included in the smart specialisation strategy. We will discuss the importance of business and financial services in more detail below.

Headquarters/business and financial services

The topic of 'headquarters' was listed as an addition to the top sector policy. It is of particular importance to the Western Netherlands, as by far the majority of all national and even international business headquarters are established in the region. Headquarters are primarily focused on determining strategy, financing, legal and fiscal affairs, procurement and sales, R&D and shared services. These are all highly specific and expert activities, and have led to a concentration of companies providing services in these areas in the Western Netherlands. Although not listed as a key sector in the smart specialisation strategy, the importance of this sector in facilitating the top sectors is expressly referred to. The primary added value of this sector to the RIS3 therefore is its importance in facilitating innovation in the top sectors, for instance by providing access to funding for new niches, attracting R&D activities, and by offering legal consultation, management and marketing services.

Figure 3: Regional economic visions and the top sectors

¹³ The Regional Development Companies in the Netherlands, established by the Ministry of Economic Affairs starting in the 1970s, are tasked with reinforcing regional economic structures, also by promoting development of and innovation by companies.

Amsterdam metropoolregio	Zuidvleugel	Provincie Utrecht	Topsectoren
Food en Flowers	Greenports, voedingsmiddelen		Agro&Food
			Tuinbouw & Uitgangsmaterialen
			High Tech
	Maritiem & Deltatechnologie	Duurzaamheids economie	Water
	Chemie en Energie		Energie
			Chemie
Handel en logistiek	Transport en logistiek		Logistiek
Creatieve industrie	Creatieve industrie	Creatieve industrie	Creatieve industrie
Life Sciences & Health	Life Sciences & Health	Life Sciences & Health	Life Sciences & Health
ICT	ICT & Telecom	ICT	
Financiële en zakelijke diensten	Financiële diensten, pensioenen, verzekeringen	Financiële en zakelijke diensten	
Toerisme & congressen	Toerisme		
	Vrede, recht en veiligheid		
		Nuts, overheid, onderwijs, zorg	

Human Capital Agendas

Within the top sector approach, a Human Capital Agenda (HCA) was drawn up for each sector. The goal of such HCAs is to boost quality, improve the link-up with actual business practices and strengthen the international competitiveness of research and education. The availability of highly educated professionals and experts is one of the most important factors for new companies when deciding on their location. In addition, the issue was identified in many SWOT analyses of the various top sectors as a threat to the further development of these sectors. To have the Western Netherlands become an international top region at a time when the labour market is shrinking, innovation in the human capital approach is absolutely essential. As a result, knowledge institutions and education centres play an important part in the implementation of the HCAs.

The HCAs need to be sufficiently safeguarded for each sector in the Western Netherlands' smart specialisation strategy. European programmes such as Horizon 2020, the European Social Fund (ESF) and the Europe 2020 Flagship Initiative 'New Skills for New Jobs' can provide necessary support. While Horizon 2020 is primarily directed towards mobility and quality of highly educated personnel (including R&D experts), the ESF primarily helps improve the availability of jobs for low-level and mid-level employees. The New Skills for New

Jobs agenda in turn is able to develop the required instruments and best practices. By combining the themes of the smart specialisation strategy with the HCAs by means of the ERDF, a more integrated approach to specialisation can be realised.

5. Objectives of the smart specialisation strategy for the Western Netherlands

Because of the high concentration of all nine top sectors in the Western Netherlands, realisation of the primary objectives of the national top sector policy will predominantly need to be effected in this region. These goals are clearly summarised in the EC's country-specific recommendation to the Netherlands of 2011: "Promote innovation, private R&D investment and closer science-business links by providing suitable incentives in the context of the new enterprise policy ('Naar de top')".¹⁴.

The main objective of the smart specialisation strategy, building on the three regional strategies and taking account of the bottlenecks identified, is:

To improve the economic competitiveness of the Western Netherlands by increasing R&D investments and promoting innovation.

The main objective is divided into the following sub-objectives:

- *To improve and make more efficient use of the joint knowledge infrastructure;*
- *To increase the share of private R&D investments;*
- *To speed up the commercialisation of (scientific) knowledge by establishing spin-off companies and public-private partnerships.*

These objectives are based on the various stages of the innovation cycle. The smart specialisation strategy aims to make a contribution to all stages, focusing on eliminating the specific problem areas for each sector.

6. Implementation of the smart specialisation strategy

In order to select those developments from the regional innovation strategies with the highest potential for success and highest value added to the top sectors and provide them with ERDF funding, the following filters are applied:

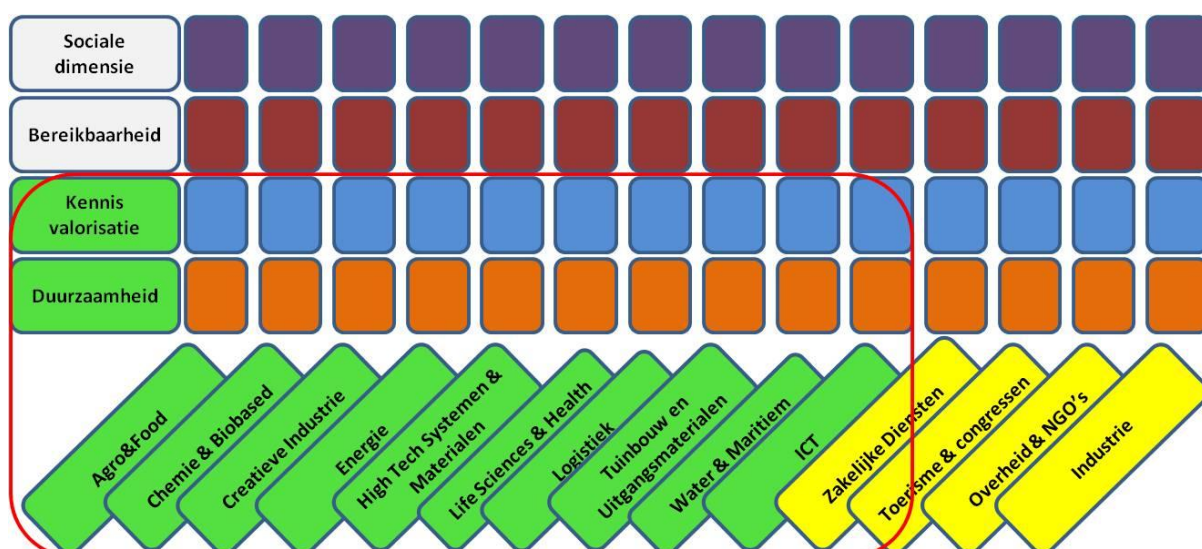
- The major societal challenges identified in the Europe 2020 strategy;¹⁵;
- The two horizontal themes of knowledge valorisation and sustainability;
- The EC's 2012 country-specific recommendations;
- Input provided by the business sector and knowledge institutions established in the Western Netherlands.

Figure 4: Delimitation of the smart specialisation strategy

¹⁴ Council Recommendation of 12 July 2011 on the National Reform Programme 2011 of the Netherlands and delivering a Council opinion on the updated Stability Programme of the Netherlands, 2011-2015, Official Journal of the European Union, 19 July 2011, C212, page 15.

¹⁵ The major societal challenges identified in the Europe 2020 strategy are:

- Health, demographic change and well-being;
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bio-economy;
- Secure, clean and efficient energy;
- Smart, green and integrated transport;
- Climate action, environment, resource efficiency and raw materials;
- Inclusive, innovative and reflective societies.



Central to the smart specialisation strategy is the offering of innovative solutions to societal challenges and needs. Needs that are of an increasingly composite nature, as is apparent in, for instance, the topic pairs of energy and residence, food and health, work and health, and transport and energy. This increasingly requires companies to look and work beyond the boundaries of their own sector. Solutions to these composite needs will ever more have to be developed by means of cross-sector cooperation. Instead of opting to provide general support to one or more economic sectors or sub-sectors, the Western Netherlands' smart specialisation strategy focuses on the most innovative projects developed across the various top sectors. **In addition to strengthening the joint knowledge infrastructure and facilitating cross-overs, the strategy primarily aims to remove the largest bottlenecks.** Increasing the share of private R&D investment was identified as the primary objective in this connection. The horizontal themes of knowledge valorisation and sustainability are considered the primary cross-sector themes.

Knowledge valorisation

Knowledge valorisation is the process of extracting value from knowledge by making knowledge suitable and/or available for economic and/or societal leveraging and by translating it into competitive products, services, processes and new business opportunities.¹⁶ The OECD report¹⁷ and the European Commission's Position Paper¹⁸ show that valorisation of knowledge is lagging behind in the Western Netherlands: knowledge is insufficiently turned into profit, meaning that economic opportunities are not capitalised on. The emphasis of knowledge valorisation is on the creation of meeting spots and markets, for instance by providing living labs that connect research, education, the business sector and societal partners, and to thereby better capitalise on and commercialise knowledge and creativity. Valorisation is to be encouraged by having entrepreneurs respond to societal needs that relate to the major societal challenges (refer to page 10). Intensive interaction between the providers and users of knowledge, by means of a common application

¹⁶ Innovatieplatform, 'Van voornemens naar voorsprong: kennis moet circuleren. Voorstel voor een Nederlandse valorisatieagenda', The Hague, May 2009

¹⁷ OECD, Territorial Review Randstad Holland, 2007.

¹⁸ European Commission, Position of the Commission services on the development of the partnership agreement and the programmes in The Netherlands for the period 2014-2020, Brussels, 31 October 2012.

infrastructure, boosts the transition to an open and cyclical innovation system. In addition, small-scale local networks and initiatives started by ambitious entrepreneurs may provide an important contribution to boosting business activity and innovation. The Western Netherlands' smart specialisation strategy aims to link these initiatives up with one another, in particular by increasing the number of collaborative ventures by innovative enterprises of all sizes on the one hand and knowledge and educational institutions (including centres for secondary and tertiary professional education) on the other, the number of knowledge institution spin-offs and the percentage of 'fast growers'.

Sustainability

The other horizontal theme the region possesses a wealth of knowledge about but has failed to attract top-sector investment in, is that of making the economy more sustainable. Turning the available knowledge into concrete investment is therefore of the essence. Knowledge platforms and special action programmes can be set up to encourage companies, in particular SMEs, to become more sustainable.

Major opportunities for a more sustainable economy are to be found in making use of more efficient and cleaner production processes, sustainable energy supply offerings and new sources of energy, open source innovation, food, mobility and logistics, switching to a low-carbon/bio-based economy and the smart use of water and raw materials. By means of the Climate-KIC the Western Netherlands actively provides substance to the two RIS3 horizontal themes of sustainability and knowledge valorisation. A number of knowledge institutions, private and public-sector companies, and the Province of Utrecht, already participate in this European Institution of Innovation and Technology (EIT) Knowledge and Innovation Community (KIC)¹⁹, which sees these partners from the Western Netherlands cooperate with knowledge institutions, companies and governments from other EU Member States in commercialising knowledge in the field of climate-proofing and climate mitigation. Various parties in the Western Netherlands are investigating the possibilities of participating in newly established KICs focusing on the themes of, for instance, Food and Health. In addition, participation in European Entrepreneurship and Innovation Partnerships (EIP)²⁰ addressing, for instance, the theme of Active and Healthy Ageing, can be of great value, for doing so would further develop cooperation with clusters in other European regions.

The further specification of these key topics has been laid down in fact sheets for each top sector, which provide an overview of regional specialisation in the Western Netherlands (Annexe I). In elaborating, reference was made to the actual implementation of the top sector policy, in particular to the agreements laid down in the innovation contracts and regional action agendas.

Cross-overs

A characteristic of innovation, and thus also of innovative cross-overs, is that it cannot be simply 'thought up': innovation is created through the entrepreneurial interplay between businesses and between businesses, knowledge institutions and authorities. Businesses need to be provided with the time to develop sound and meaningful projects. The authorities in the Western Netherlands support them in this endeavour by acting in a following and

¹⁹ Also refer to: <http://eit.europa.eu/>

²⁰ Also refer to: http://ec.europa.eu/cip/eip/index_en.htm

facilitating capacity: they delimit the borders of the playing field and then sit back and allow businesses and knowledge institutions to submit proposals to provide substance to the smart specialisation strategy. A guarantee for innovation in the Western Netherlands.

However, it should be kept in mind that innovation is not a constant. During the period the strategy is implemented, new insights will arise, which are to be given their own place. Businesses that currently operate outside of the scope of the top sectors may create important new developments that will require an adjusted focus. And the inter-sectoral cross-overs may result in real 'diamonds of growth' for the future. What this means is that implementation of the strategy requires a constant dialogue, based on annual triple-helix monitoring procedures within the three economic boards (South Wing, Amsterdam Metropolitan Area, Utrecht Region). Such constant dialogue ensures that the smart specialisation strategy stays on track and that the pool of resources and instruments is flexible enough to facilitate new developments.

7. Partner input

The drafting of the top sector agendas, the regional economic policy visions and the action agendas for the North Wing and South Wing were performed in close cooperation with all relevant partners. By taking these visions and agendas as the foundation of the smart specialisation strategy, the Western Netherlands has implicitly taken the interests of these partners into account. Even so, consultations were held with the economic partners so as to determine their efforts in the coming years and the role they foresee themselves playing in implementing the Western Netherlands' smart specialisation strategy. One additional reason for doing so was to prevent the strategy from being a top-down and supply-side managed one: the bottom-up approach featuring demand-side management and partnership was to remain central to this.

Input was provided by the business sector through a variety of channels (intermediary service organisations, VNO-NCW Confederation of Netherlands Industry and Employers, individual companies) during the consultation period. Due to the impressive number of partners, a wide range of responses was received, with considerable variation between each top sector. It is to be expected that the views of the business sector established specifically in the Western Netherlands are not very different from the national business sector views, meaning that the input provided by businesses to the national top teams can be used as a starting point for the Western Netherlands. During the first round of consultation with the business sector a number of key issues were identified:

1. Link up with the top sectors.
2. Access to funding.
3. Valorisation of innovation aimed at the transition to a sustainable region.
4. Boosting the growth potential of SMEs.
5. Promote cooperation between multiple sectoral niches.

These key issues have almost all been incorporated in the smart specialisation strategy of the Western Netherlands. The focus of the RIS3 is that of linking up with the top sectors. Access to funding was included in the part to be played by regional and local authorities. Valorisation aimed at sustainable transition was linked to the two cross-sector themes. Though boosting the general potential of growth for SMEs is an important element in the

regional economic visions of the various Western Netherlands authorities, this objective is not specifically linked to promoting innovation in the region and could therefore not be separately included in this RIS3. Finally, attention to cross-sector collaboration was elaborated in the cross-over approach.

The consultations with knowledge institutions primarily revealed widespread support for the theme of knowledge valorisation. The concrete substantiation of additional niches continues to be based on individual examples. It does become clear, however, that a number of key issues are generally supported by businesses and investors. In almost all cases, connection with the top sectors was sought and made. Following on from these consultations, the chairs of the boards of the universities decided to jointly provide input for the new 'Kansen voor West' operational programme by drafting a joint investment agenda. This agenda has now been fleshed out and primarily emphasises the creation of proper facilities by knowledge institutions (Annexe V). By investing in the required R&D preconditions within the 'Kansen voor West' framework, we should be able to better align with programmes like Horizon 2020 and the top sector policy (R&D). The contributions by the knowledge institutions have been included in the strengths analysis of the Western Netherlands and in the focus on the theme of valorisation. The contributions and recommendations by the universities have been incorporated in the fact sheets provided in Annexe I and have become important points of focus within the scope of the relevant top sectors. As for the importance of having proper facilities in place, this was included as the first of the three sub-objectives of this RIS3.

A last round of consultations included respondents from the various authorities operating in the Western Netherlands, as well as the national government. The public partners reflected on the two lines of focus identified as being specifically and equally concretised in the consultations with both the business sector and the knowledge institutions. This resulted in the followed wishes and recommendations:

1. Link the knowledge infrastructure up with actual applications and involve the business sector.
2. Do not limit this to the universities, but expressly also involve the institutions for tertiary professional education and other knowledge institutions in the Western Netherlands.
3. Consider the extent to which projects can help resolve the major societal challenges in determining their distinctiveness.
4. Take the major societal challenges referred to in the Europe 2020 strategy into account when determining the extent to which the projects help meet its objectives.
5. Encourage intelligent links between the sectors.
6. With respect to cross-overs, the public partners advised that links are to be wrought not within but emphatically across sectors.

Most of these contributions were used to further concretise the RIS3 and provide it with sharper focus. However, most of the recommendations primarily relate to the operationalisation of the objective of "strengthening research, technological development and innovation" as identified in the new ERDF Operational Programme, and will expressly be included therein.

Prior to being laid down by the partners of the 'Kansen voor West' programme and submitted to the national government for final adoption, the final draft smart specialisation strategy was

once again presented to all potentially involved parties by means of an Internet consultation. The results thereof are collected in Annexe VII. Wherever relevant, the additions to and clarifications of this final draft were incorporated in this final version of the RIS3. These final amendments mostly concerned additions to the sections on cross-overs, sustainability and knowledge valorisation in the top sectors, as well as further elaboration of the role to be played by authorities and intermediary organisations. Finally, the fact sheets included in Annexe I were fleshed out further.

8. Cross-overs, sustainability and knowledge valorisation in top sectors

So as to be able to select those developments from the massive amounts of top sector initiatives proposed or started up in the Western Netherlands that have the greatest potential of success and provide the most added value for possible ERDF funding, we looked in the first instance for developments that could give rise to cross-over projects aimed at tackling the major societal challenges. The connection with the themes of sustainability and knowledge valorisation was subsequently identified. The results have been included in separate fact sheets for each top sector. These sheets are included in Annexe I. It must be noted, however, that the problem areas and bottlenecks in the Western Netherlands' innovation climate are very different for each top sector, each requiring custom solutions. A summary is presented in Table 2 (page 15).

The column of this table entitled 'cross-overs' lists the high-potential applications of existing technologies and ideas within other sectors. The possible applications expressly go beyond the scope of just the top sectors. Further distinction is required to identify specific niches and/or areas of technology. For now, the table primarily lists high-potential links.

Within the context of the smart specialisation strategy, the emphasis is on the economic value added the region is able to generate, within each top sector, for the long-term perspectives and societal challenges. The table below shows the possible niches and themes in which the Western Netherlands is able to gain the comparative edge.

So as to properly fill in the knowledge valorisation column, the entire innovation chain (from fundamental research to pre-competitive research and market introduction) was reviewed. In so doing, the key question was: "What knowledge is readily available in the Western Netherlands that has the highest potential of actually being developed into an economically competitive niche or cluster?" At the same time, we considered which instrument to boost innovation would lead to the best results during which innovation chain stage.

The list of cross-overs and themes is not exhaustive and does not imply that all available resources will exclusively be used to further the listed items: the list primarily presents possible areas of European fund investment. In implementing the instruments for the strategy (the various programmes), the entire innovation chain, from knowledge to profit, will be provided with interrelated facilities. The goal is to strengthen the shared research infrastructure on the input side of the knowledge chain and to establish pilot areas and living labs on the output side, with knowledge valorisation remaining key.

The table thus presents an overview of the areas the Western Netherlands could focus on within the framework of the 'Kansen voor West II' ERDF Operational Programme. This focus allows the region to, over time, increase its competitiveness and earning potential and to

optimally contribute to its central objective of improving the economic competitiveness of the Western Netherlands.

Table 2: Overview of high-potential themes per top sector:

Top Sector	Cross-overs	Sustainability and Knowledge Valorisation Themes
Agri-food	Energy High Tech Logistics Life sciences and health Water	Residual waste flows, One Health, Urban agriculture, Efficient use of natural resources and space (including bio-based economy), Food safety, Chain management
Chemicals	Agri-food Energy High Tech Logistics Horticulture and propagation materials	Smart materials, Seed coatings, Green chemicals
Creative industry	Cross-overs will all 8 other top sectors	Open and/or Big Data, IT/Serious Gaming, Digital Learning, Services innovation
Energy	Agri-food High Tech Logistics Horticulture and propagation materials Water	Clean Tech, Resource efficiency and transition, Decentralised energy generation, Energy savings in built-up areas, Biomass as energy supply resource, SMART City Solutions
High Tech	Cross-overs will all 8 other top sectors	Open and/or Big Data, Aeronautical and astronautical technology and data, E-science, Bio-informatics, Robotisation, Material and sensor technology, Security
Life sciences and health	Agri-food Creative industry High Tech Horticulture and propagation materials	Biopharmaceuticals, Healthy ageing / Vitality, Oncology, Imaging, Molecular technology, Regenerative medicine, Infectious diseases, Neuroscience, Intervention technology, Specialised nutrition, One Health, Serious Gaming
Logistics	High Tech Life sciences and health Horticulture and propagation materials Water	Sustainable logistics/mobility, Chain management, Chain optimisation, Synchromodal transport, Seamless connections
Horticulture and propagation materials	Energy High Tech Life sciences and health	Efficient use of natural resources and space (including bio-based economy), Food

	Logistics Water	security, Food safety, Health, Precision agriculture
Water	Energy High Tech Horticulture and propagation materials	Construction with nature, Smart and clean ships, Winning on the waves (off- shore industry), Sustainable Delta Cities, Water technology, Dike monitoring

9. The role played by the authorities

The implementation of the top sector policy was accompanied by the development of new instruments to make use, within the framework of joint agreements, of national resources in the context of sector-specific innovation contracts. The 2012 and 2013 budgets amounted to € 3.6 billion in private and € 1.9 billion in public funding. Additional funding from other sources, including the NWO Netherlands Organisation for Scientific Resources, allows for the realisation of long-term commitments. In addition, a shift took place from the classical means of supporting projects by providing grants to promoting innovation with tax incentives (Dutch Promotion of Research and Development Act, Research and Development Allowance). Both the innovation contracts and the tax incentives have been designated as the instruments to be used to promote private investment in research and innovation.

In the Netherlands, regional and local governments are responsible for the regional economic policy, which includes the subject of innovation. The regional and local authorities of the Western Netherlands have aligned their tools and measures for the promotion of regional development to the national tools and measures detailed in the above. However, the regional and local authorities are not about to replace those reduced national sources of funding in favour of tax incentives with their local and regional resources. In addition, these regional and local authorities, in agreements concluded with the national government, have committed themselves to playing an important role in financing the (research) infrastructure and human capital agenda and providing facilities for SMEs. The three economic boards play a particularly strategic position, as they form the platforms for the triple helix partners in each of the three regions to effect close cooperation. For this reason, the economic boards also play an important role in getting knowledge institutions to market their knowledge via the regional business sector, and in particular by collaborating with SMEs.

Such implementation of the smart specialisation strategy leads the regional and local authorities of the Western Netherlands to play a variety of roles. What all these roles have in common is that they are primarily of the following-facilitating kind:

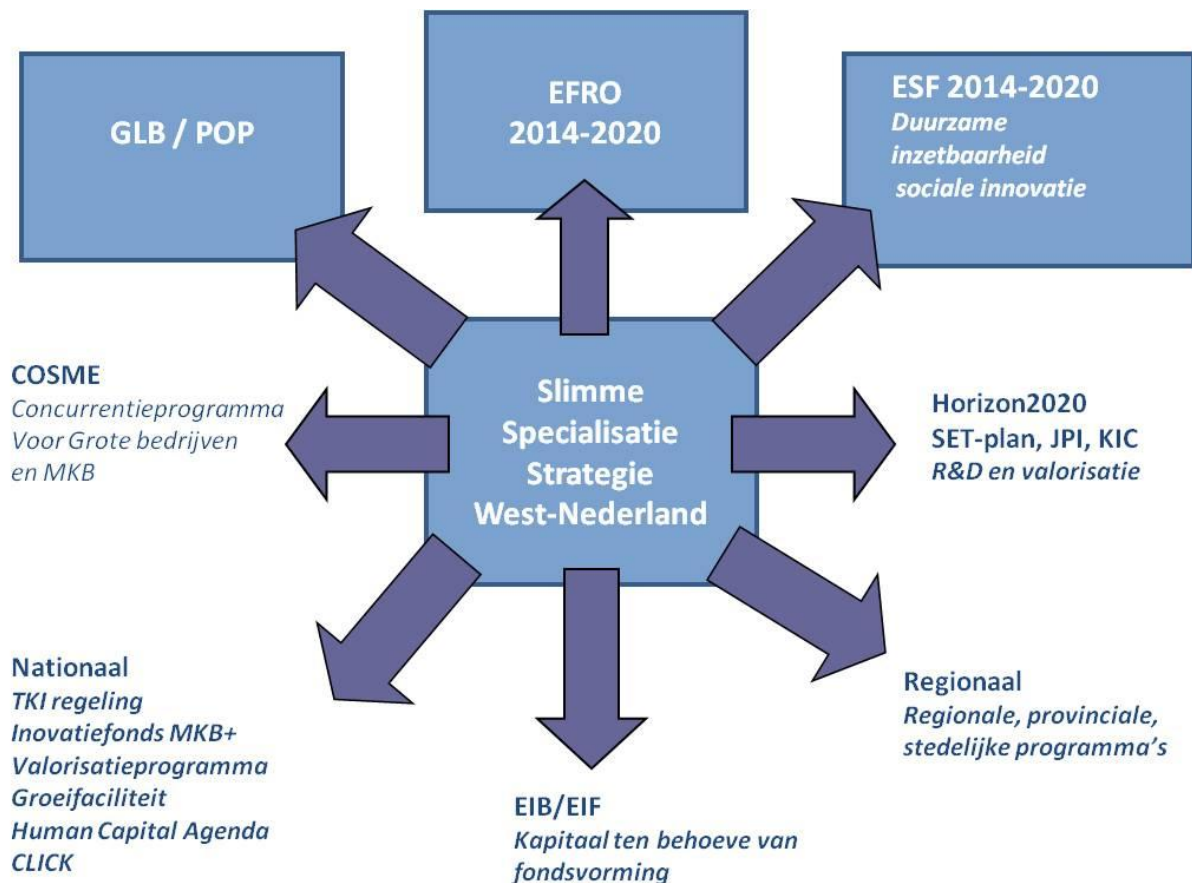
- Innovation-oriented procurement with the aim of tackling societal challenges. This is enacted in keeping with the top sector policy-related Dutch Public Innovation Procurement programme;
- Facilitation by setting preconditions, including regulations;
- Facilitation by providing funding (including grants and revolving funds), for instance for the support Open Access infrastructure (including incubators), Regional Development Companies, incentive funds and knowledge valorisation;
- Providing access to European loan instruments;
- Promoting, boosting and realising the collaboration of the triple helix partners;

- Facilitation of the regular 'check-up' of the smart specialisation strategy on the basis of consultations and data monitoring;
- Safeguarding the cohesion between the various regional economic visions and subsidy schemes contributing to the implementation of the smart specialisation strategy;
- Assessing the degree to which the tools and measures deployed actually capitalise on meeting compound needs and tackling major societal challenges;
- Making use of flexible programme mechanisms to quickly respond to economic changes and emerging specialisations.

10. Scope of the smart specialisation strategy

The Western Netherlands' smart specialisation strategy could possibly make use of a sizeable number of incentive programmes at the local, regional, national and European levels. Naturally, the 'Kansen voor West' ERDF Operational Programme partners have a voice in the execution of their own regional and local programmes, whether they already exist or still have to be set up. However, when participating in national and European programmes, they are largely bound by the choices made by other parties, including those concerning the size of the resource pool and the final assessment of project proposals. This means that making use of such programmes for the 'Kansen voor West' partners is far less programme-based than would be the case if use could be made of ERDF funding by means of the Operational Programme, and it is in this light that the high-potential funds listed in the fact sheets (Annexe I) should be considered. Wherever possible, we strive to effect synergy, but the say the 'Kansen voor West' partners have is limited with the exception of the ERDF Operational Programme. The figure below provides an overview of possible sources of subsidy and loan facilities.

Figure 5: Funding of the smart specialisation strategy



11. Monitoring the smart specialisation strategy

Commissioned by the Dutch Ministry of Economic Affairs, Statistics Netherlands drafts a top sector monitoring study report. The report shows the economic importance of the nine top sectors. It provides a broad national outline of the top sectors. In addition, Statistics Netherlands maintains provincial-level figures, which provide a solid statistical basis for detailing the initial situation in the Western Netherlands: a baseline measurement for the smart specialisation strategy, in effect. The strategy and its effects can be properly monitored by publishing annual reports.

Additional data may be included in the NL Agency report "Bedrijvenbeleid in Cijfers", to be published in the third quarter of 2013. This report will present all top sector key indicators, as provided by, for example, Statistics Netherlands, NL Agency, De Nederlandsche Bank (DNB) and the Agricultural Economics institution (LEI), as an interrelated whole. Together with the first Statistics Netherlands top sector monitor study results, this publication will provide the baseline data for the monitoring of the progress made by the enterprise policy.

In joint consultation with the other three regions, the decision was made to have Statistics Netherlands (Economic and Business statistics unit) monitor the RIS3 strategies. In monitoring the strategy, a number of indicators will be measured for each top sector at the regional level. The indicators concerned are the following:

- Private R&D expenditure.
- SME private R&D expenditure.
- Innovative companies: technological innovation.

- Innovative companies: non-technological innovation.
- Innovation expenditure.
- Innovative companies: collaboration with universities.
- Innovative companies: collaboration with research institutions.

The 2010 national top sector monitor study report will provide the baseline figures for each indicator. This report was published by Statistics Netherlands in 2012. Regional assessment of indicators takes place every two years. The reporting years will be 2014, 2016, 2018, 2020 and 2022.

Explanation of the indicators

The indicators are assessed by means of the Innovation and R&D Survey. This survey contains questions on R&D investment and other innovative activities performed by Dutch companies and institutions. Data on knowledge flows and innovation process results are also available. R&D investment is measured in the odd reporting years, other aspects of innovation in the even years (CIS). The Community Innovation Survey (CIS) is conducted once every two years among a percentage of business units from among the target population. A stratified sample is taken from companies and institutions with 10 or more employees established in the Netherlands. In all, some fifteen thousand business units are included in the sample.

Private R&D expenditure

Total private sector R&D expenditure in millions of euros. Internal (own personnel) and outsourced research expenses.

R&D outsourced within the own group of companies or to other companies, universities, research institutions (such as the Netherlands Organisation for Applied Scientific Research), both inside and outside of the Netherlands.

SME private R&D expenditure

Companies of up to 250 employees.

Innovative companies: technological and non-technological innovation

The number of companies that have implemented innovation, broken down into

- Technological innovations:
 - Product innovation;
 - Process innovation;
 - Cancelled or not yet completed.
- Non-technological innovation:
 - Organisational innovation;
 - Marketing innovation.

Innovation expenditure

Total innovation expenditure, consisting of the total expenses in internally conducted or outsourced research, related equipment, other external knowledge, education and training, market introduction of innovations, design and other preparatory work, incurred in order to produce technologically new or radically improved products (goods or services) or processes.

Innovative companies

The number of companies collaborating with other companies or institutions in the area of innovation. Such collaboration can be broken down into:

- Collaboration with public or private research institutions;
- Collaboration with universities.

Methodology

Both the R&D survey and the CIS measure the above indicators on the basis of a sample taken from the entire Dutch business sector population. To assess the results of the strategy, the measurements must be distinguished by region and by top sector (Region x Top Sector). In 2013 Statistics Netherlands will start investigating the development of a method to produce reliable data.

Figure 6: Schematic overview of the smart specialisation strategy in the Western Netherlands

