RIGHT

RIGHT SKILLS FOR THE RIGHT FUTURE

Regional Report

on the Blue Sector

Author: [Name Nameson]

Interreg North Sea Region RIGHT European Regional Development Fund

EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Content

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Introduction

This document has 4 Parts and Appendices provide additional instructions and information as needed. Contact information of the lead researchers are also found in the Appendices.

Part 1 is the Regional Innovation Ecosystems (RIE) mapping that will provide a qualitative understanding of the region's innovation ecosystem with regards to its Smart Specialization Strategies (S3) or an equivalent regional strategy. This part is divided into a socio-economic and R&D profile mapping and a SWOT analysis. The RIE is an adaptation of a methodology and tool used by The eDigiregion Project. In the RIGHT Project, the benchmarking tools are used for mapping the own regional ecosystems and later through this common tool to compare the findings of the different partners in the project. Part 1 is to be filled in by experts from policy from the region. Staff from the economic departments and, or innovation policy are possible candidates for the initial mapping. The conclusions of Part 1 will then be written up in the Conclusions Part of the Regional Report (see last paragraph on Part 4 of this document).

Part 2 is intended to map the innovation capacity and needs of SMEs from the chosen sector. The questions are adapted from a systemic study on cluster developments, Future of Cluster Developments, in which an analysis model was developed (Manickam, 2018). Part 2 involves face-to-face interviews with 6-8 SMEs from the sector. The outputs of these interviews are to be summarized into one template. Common themes and issues can be extracted from the interviews and included in the Conclusions Part of the report. Partners are requested to send the complied overview of all answers from the SMEs (translated to English) and sent to the research team (mail addresses in the Appendices).

Part 3 is the Job Forecasting and Skills Gaps mapping using the JOES templates provided in the Appendices. Each region is asked to choose 2 iconic SMEs, one from the 'old' and one from the 'new' type of business in the chosen sector. Specific instructions have been included in the Appendices of this document. The findings of the JOES are to be sent to the research team as indicated in the Appendices.

Part 4 is the Conclusions section. Highlights of each of the 3 analyses are to be described in this part of the report as described. The Conclusions of the analyses should be discussed in the light of regional strategies (S3) and policies in order to identify possible future directions for the sector and possibly the region as a whole. General questions have been posed to identify issues that could be included. To support and strengthen work in this part of the analysis, a panel of experts from policy, industry and academia is strongly recommended.

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Part 1

Regional Innovation Ecosystems (RIE)

Part A: Socio-economic and R&D Profile

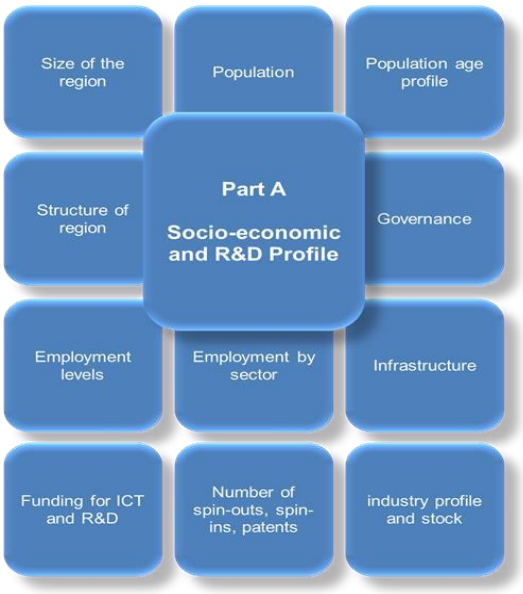

Illustration: eDigiregion Project Team (2017)

The Regional Innovation Ecosystems is an adaptation of the eDigiregion Project Team's 'Regional Innovation Benchmarking Audit' developed to support realization of the Digital Agenda in an FP7 project. The lead researcher (Bill o' Gorman) and the Spanish team provided materials and permission to build on their work. The RIGHT Project research team thanks them for their generosity and support. Details on the project to be found at www.edigiregion.eu

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Region's Socio-economic and R&D Profile

General information of region

Geographic location of region:_____

Population:_____ Area of region: _____

Governance of region:_____

Structure of region

(For example, number of sub-regions/counties, number of large urban areas, whether the region is predominantly urban/rural, industrial/agricultural/public sector oriented)

_____

_____

_____

_____

_____

_____

_____

_____

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Infrastructure profile

	Size/type/quantity	**Comment**
Broadband		
Other ICT infrastructure		
Seaports		
Airports		
Roads Motorways		
Roads Secondary		
Public transport - railways		
Public transport – bus		

Household and age distribution profile

Household expenditure as % of national average: _____

Household income as % of national average: _____

Age distribution	**< 15**	**16-25**	**26-45**	**46-65**	**>65**
Male					
Female					

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Employment profile

Total population in employment:_____

Participation rates in employment:

Male: _____Female _____

Employment by sector

Sector	**% Regional GDP**	**% of total employment**	**Comment, e.g. targeted growth sector (S3)**
Public			
Energy – traditional			
Energy – new			
Maritime			
Manufacturing			
Agriculture			
Agri. food			
Healthcare			
Tourism			
Services - Financial			
Services – Creative industry			
Other (specify)			
Other (specify)			

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

Numbers employed by qualification level:

Degree	Masters	PhD	Professional Qualifications

Retention rates of graduates in region: _____

Education profile

Total population in education: _____

Percentage Full-time_____Part-Time_____

Participation rates in education: _____

Male: _____Female _____

Number of students by level:

Primary	**Secondary**	**Tertiary**	**Vocational**	**Further education**

Dropout rates by level:

Primary	**Secondary**	**Tertiary**	**Vocational**	**Further education**

Number of Higher Education Institutions:

University		Institute of Technology		Technological University		Other
Public	Private	Public	Private	Public	Private	

Research and innovation profile

Number of Research Centres:

Public	Private

Number of Incubation Centres:

Public	Private

Industry stock:

MNEs	SMEs	Micro

Industry stock by sector:

Sector	MNE	SME	Micro	Comment
Energy (traditional & new?)				

Maritime				
Manufacturing – heavy engineering				
Manufacturing – light engineering				
Agriculture				
Agri. food				
ICT				
Healthcare/Pharmed				
Tourism				
Services – Financial				
Services - Creative industry				
Other (specify)				
Other (specify)				

R&D Investment:

Source of R&D funding	**2017**	**2016**	**2015**	**2014**	**2013**
Total Government spend on R&D in region					
% of national R&D spend					
Private sector spend on R&D in region					
% of national R&D spend					
Total EU R&D funding coming into the region					
EU R&D funding as % of EU funding nationally					

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Regional Innovation Ecosystems (RIE)

Part B: SWOT Analysis

Illustration: eDigiregion Project Team (2017)

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Theme: Technology Orientation

How would you describe the technological orientation of the region?

Overview:	
Strengths - Capacities & capabilities	
Weaknesses - Issues that need to be addressed	
Opportunities - Potential for innovation/S3 focus	
Threats - Constraints to be addressed	

General comments/Observations *(Technology Orientation)*

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Theme: Regional Attractiveness

How attractive is the region to/for:

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Investors				
Researchers				
Innovators				
Inventors				
Entrepreneurs				
Multinationals				
Indigenous enterprises				
ICT Professionals				

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

General comments/Observations *(Regional Attractiveness)*

Theme: Policy

What is the basis of policy in the region?

	Regional	**National**	**European**
RTD			
Innovation			
Enterprise			
Entrepreneurship			

What are your views on the effectiveness of these policies?

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
RTD				
Innovation				
Enterprise				
Entrepreneurship				

General comments/Observations *(Policy)*

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Theme: Triple Helix

How would you define the level of engagement between the Triple (Quadruple) helix partners in the region?

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Government → Industry				
University (HEI) → Industry				
Government →University (HEI)				
Government →University (HEI) →Industry				
Government→University (HEI) → Industry → Civil Society				

General comments/Observations *(Triple (Quadruple) Helix)*

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Theme: Entrepreneurial environment (1of 3)

Describes the region's entrepreneurial environment

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Overview				
Ease of starting a business in the region				
Enterprise supports available for start-ups				
Enterprise supports available for growth				

Theme: Entrepreneurial environment (2 of 3)

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Enterprise support available for internationalisation				

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

Availability of finance for start-ups				
Availability of finance for growth				
Availability of finance for internationalisation				

Theme: Entrepreneurial environment (3 of 3)

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Entrepreneurship education at primary level				
Entrepreneurship education at second level				
Entrepreneurship education at higher level				
Entrepreneurship education for entrepreneurs				

General comments/Observations (*Entrepreneurial environment)*

Theme: Innovation ecosystem

How would you describe the region's innovation ecosystem?

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Overview				
What is/are the mechanisms for doing research in the region?				
What is the commercialisation process for research in the region?				
How easy is it for industry to engage with research centres?				

How easy is it for HEIs to engage with research in industry?				

General comments/Observations (*Innovation ecosystem)*

Theme: Clusters and Networks

This theme has two aspects:

- Clusters refers to groups of **sectors/industries** (e.g. ICT cluster, biomedical cluster, pharmaceutical cluster, etc.)
- Networks refer to **connected groups** such as Chamber of Commerce, specific sectoral networks (active engagement and sharing of knowledge between members evident), or **business associations** (e.g. Women in Business Network, Small Firms Association, etc.).

NB: choose the specific cluster your region is analysing energy/blue sector/maritime*

Theme: Clusters and Networks (1 of 3)

Describes clusters and specifically blue sector clusters in the region

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Overview				
Support from government				
Nature of cluster participants				

Theme: Clusters and Networks (2 of 3)

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Level of cooperation between cluster participants				
Level of Internationalisation of cluster participants				

Level of integration of the cluster within the regional innovation system				
Influence of the cluster on R&D activities				

Theme: Clusters and Networks (3 of 3)

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Overview				
Support from government				

Network participants				
Internationalisation of the networks in the region				

General comments/Observations (*Clusters and Networks)*

Theme: Regional Technological Development (RTD)/Innovation Funding

Describes the funding measures that support RTD in the region

	Strengths - Capacities & capabilities	**Weaknesses** - Issues that need to be addressed	**Opportunities** - Potential for innovation/S3 focus	**Threats** - Constraints to be addressed
Overview				

Funding Instruments available for entrepreneurs				
Funding Instruments available to support ICT businesses				
Funding Instruments available to support incubators/accelerator programmes				
Current tax incentives to support R&D, ICT R&D, other R&D…				
Describe the availability and accessibility to regional, national and European funding for RTD				

General comments/Observations (*RTD/Innovation Funding)*

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Theme: Smart Specializations

1. What are the region's Smart Specializations?

2. How are these Smart Specializations developed?

3. What is the sustainability of these Smart Specializations?

4. What Smart Specializations should the region focus on in the future?

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

5. Why these Smart Specializations?

6. What are the Strengths, Weaknesses, Opportunities and Threats for these Smart Specializations?

Part 2: Innovation capacity and needs of SMEs in Transition in the Blue Sector

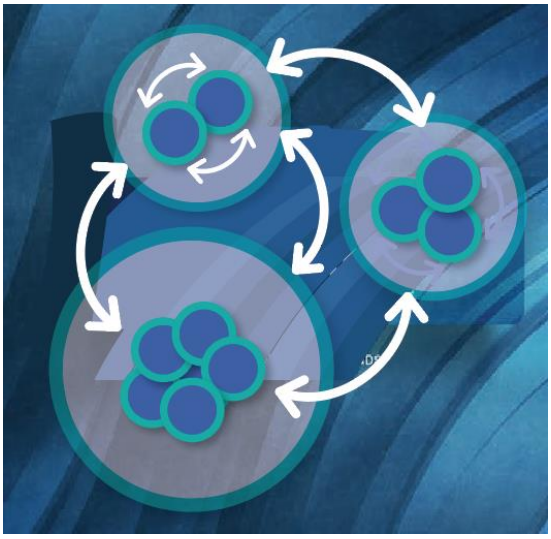

Illustration: Manickam (2018)

The interview schedule has been adapted from a doctoral thesis on cluster developments by A. Manickam in which qualitative systemic developments were captured. The focus of the thesis and the current research is to gain insights into stakeholder perceptions of dominant urgent challenges, initial conditions, potential opportunities for innovation and underlying processes constraining and supporting developments.

RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

Interview Questions: SMEs in the Blue Sector

Topic	Question	Sub-question/detail	Answers
Defining who you are	What is your core activity in energy innovation?	• Details of business	Type of Business: … Size of staff: … Other: …
		• Geographic Scope	Local: Yes/No Regional: Yes/No International: Yes/No
		• Type of energy innovation	Product innovation: Yes/No Process innovation: Yes/No Service innovation: Yes/No Other: ….
		Details of energy innovation	1. … 2. …?
	Who is involved in energy innovation?	• Inside company	1. … 2. …
		• Outside company	1. … 2. …
Defining urgent challenges	What are 3 urgent challenges your company is facing?		1. … 2. … 3. …

Interreg North Sea Region RIGHT European Regional Development Fund EUROPEAN UNION

	What possible solutions for the challenges?		1. … 2. … 3. …
Defining path dependency	Which 3 factors, e.g. historical, geographical, cultural aspects, are important for your business?		1. … 2. … 3. …
	Which 3 factors are limiting your success?		1. … 2. … 3. …
Defining future strategies	How are you preparing for the future?		1. … 2. …?
	What is needed to be competitive for the future?	• New competences (training)	1. … 2. … 3. …
		• Research & innovation	1. … 2. … 3. …
		• Additional finance	1. … 2. … 3. …
		• New networks & collaborations	1. … 2. …

			3. …
Defining direction	Which developments in energy transition seem promising for your company?		1. … 2. 3. …?
	Which developments are inevitable for your company?		1. … 2. … 3. …?
Leveraging innovation potential	Are you considering exploiting new ventures?	• New markets	Yes/No
		• New technologies	Yes/No
		• New products	Yes/No
		• New partners	Yes/No
		• Other…?	1. … 2. …?
Defining innovation steering	Who is driving or pushing innovation?	• Customers	• Yes/No
		• R&D	• Yes/No
		• Policy	• Yes/No
		• …?	• Yes/No
Defining emergent patterns	What is significantly different in the last three years?	• New partnerships & collaborations	1. … 2. …
		• Scope (local, regional, EU,	1. … 2. …

		international, etc.)	
		• New (digital) communications	1. … 2. …
		• Knowledge sources and sharing	1. … 2. …
		• Innovation processes and solutions	1. … 2. …

Part 3: JOE: Expected Firm Level Employment Shifts

The JOES was developed to study labour market developments through expected job vacancies and skills needed for the future of SMEs. The research group Human Capital at Hanze University of Applied Sciences Groningen developed this tool, led by Professor H. van Lieshout

Part 3: Analysing expected firm-level employment shifts with JOE

Introduction: analysing firm level changes in employment

The energy transition will entail significant employment shifts in (sub)sectors, regions, occupations and individual firms – some of whom will rise to shine, while others might become extinct. The exact work organisation in firms will continue to incrementally changes over the next years and decades. The extent and direction of such changes may vary. Job might move from gas/oil to wind first, with water taking over employment growth a decade later, and electricity continuing to grow. The energy transition, and in particular its consequences for human capital development, should not be exclusively studied at the macro (inter)national or meso (sector or regional) level: it should also be analysed at the firm level, where labour demand and supply are supposed to match. The quality of that match will influence not just firms' individual performance, but also a region's aggregate socio-economic performance in terms of employment and productivity.

While we lack the resources in our RIGHT project to analyse substantial numbers of individual of firms in our current project, we will analyse 14 of them (2 per country) to add detailed firm-level information of expected quantitative and qualitative firm-level employment shifts to our meso and macro level information. Each country in the RIGHT project will analyse expected employment shifts from two firms from either the energy of the blue sector, or one of each. We discussed at the Bergen kick-off conference and the Groningen work conference what a smart sampling across sectors and countries would be: primarily, that it would be interesting to sample firms from many different subsectors – and both firms that are expected grow, as well as those expected to face declining employment.

Description of the data collection method

The Professorship Human Capital from the Marian van Os Centre for Entrepreneurship has developed a data collection method (Job Openings Excel or JOE) to help SME's analyse expected quantitative and qualitative changes in job-level work organization (Van Lieshout et al, 2013).

At company level, the precise workforce demand is detailed: which jobs are there, what number of full-time employees is employed, what level of education (i.e. upper secondary) and occupational/professional specialism (i.e. mechanical engineering) would ideally be required from a new graduate. At the same time, the current workforce that occupies jobs (as well as existing job openings) is detailed. This is done both for the present, and for the expected situation five years down the line. These are the basic steps the firms has to think through to formulate a human capital strategy. For each company, the researcher passes through the stages of the method and the relevant data are mapped out by means of a fixed format (Excel document).

Companies will – obviously - participate on a voluntary basis. They may do so just to help are project. But more importantly, they may do so because the help we offer them in detailing their current job demand

and strategically thinking through what it could/ should be in years, will help them in developing & detailing their own strategic changes.

The stages of the data collection method

In the data collection method, we make a distinction between the concept job structure and the concept workforce. With the concept job structure, we mean the different jobs/positions within the company. With the concept workforce, we mean the individuals who occupy these jobs/positions. It is important to map out both: after all, labour market problems are the result of discrepancies between both, such as an unoccupied or long-term unoccupied vacancies. From the job structure, both the current situation (*current job structure*, otherwise known as HAS) and the future situation are mapped out (*future job structure* (TAS)). This also applies to the workforce, namely the *current workforce* (HPB) and the *future workforce* (TPB)[1] , on the basis of which an estimate of the number of job openings can finally be made. What data and calculations are necessary for this are explained in further detail in this paragraph. A diagram of the data collection method can be found in figure 4.1.

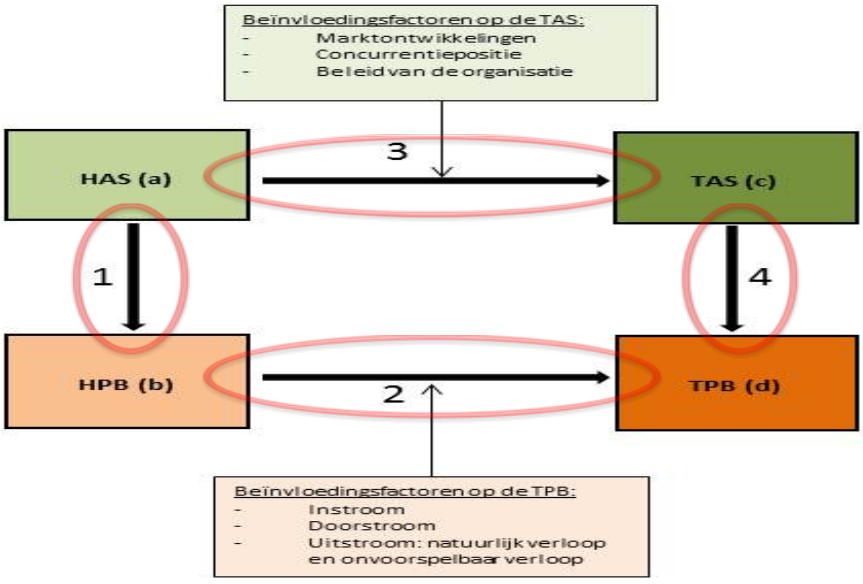

Figure 4.1 Graphical representation of the data collection method (van Lieshout et al, 2016)

[1] Abbreviations used in the data collection method model:
HAS: Current job structure (Huidige arbeidsplaatsenstructuur)
TAS: Future job structure (Toekomstige arbeidsplaatsenstructuur)
HPB: Current workforce (Huidig personeelsbestand)
TPB: Future workforce (Toekomstig personeelsbestand)

The method as applied in the Netherlands in a pilot (ten firms) and a regional labour market project (100+ firms) boils down to four stages at company level. During the *first stage*, the current situation in relation to staffing is mapped out. During this stage, data is collected in relation to the current job structure (HAS) and current workforce (HPB), and any discrepancies between them will be examined.

To *map out the HAS*, a list is made of the positions present, the level of education required for each position, the educational specialism required and the number of FTE for each position. The positions, also including position(s) that are structurally filled by flexible workers, are mapped out based on the International Standard Classification of Occupations (ISCO). By adopting this coding, the data can be compared with other national, regional and international data. Similarly, we will rely on an International Standard Educational Classification. Finally, it is recorded for each position how many full-time units (FTE) of formation space exist.

To *map out the HPB*, the number of FTE and people per position. The current number of FTE and people is necessary in order to be able to make an estimate of the future number of employees.

Once the HAS and the HPB have been determined, these can be confronted with one another and existing discrepancies become visible.

Extrapolation of the TPB takes place on the basis of the HPB. Firm are also asked for their typical yearly labour turnover whereby a number of influential factors (intake, transfer and outflow as a result of retirement and regular progression) is included, resulting in an idea of the expected demand for replacement over the next few years. A five-year period forms the basis for the future situation.

Once these have been completed, a discussion will take place with(in) the company about the results and identified discrepancies between the HAS and the HPB. In many ways, this is the most relevant part of the entire process, as it is here that expected strategic choices (i.e. decreasing one energy source, increasing another) will translate in a different job structure and human capital demand. It is obviously up to the firm how it want to this. One small entrepreneur might just perform this task him/herself. More often, a few management and HR members might schedule a joint meeting for this purpose. Sometimes, the firm might even plan a multi-step strategic HR (min)process involving even more employees. We as researchers can help them facilitate this process and advise; we can NOT make the new job structure ourselves. Upon this basis, the expected job structure for over five years will be mapped out, based upon a number of influential factors, such as market developments, competitive position and the organisation's intended strategic policy choices.

The difference between the current and expected job structure is the expected quantitative and qualitative employment shift. In the last stage, data from the preceding stages will be confronted: the expected discrepancy between the TAS and the TPB will be determined, or the number of expected job openings and the extent to which that discrepancy may result in staffing problems. The difference between the TAS and the TPB is the sum of the demand for

expansion and demand for replacement and the result is the number of expected job openings.

However: the number of job openings alone is not yet sufficient to determine whether staffing problems may occur. This will only be the case if the job openings relate to positions for which it is difficult to recruit staff. In the Netherlands, we therefore compare expected job openings to national data from the ROA about expected future labour market discrepancies. For each labour market segment, ROA estimates whether these segments will deliver an ample or narrow labour supply in five years. This last part obviously requires the availability of such date for each country (or region). This step is not essential for our purposes in the current RIGHT project, but firms appreciate it for their own planning, and it would of interest to our research purposes too.

Part 4: Conclusions

This part of the report captures the key findings of the regional innovation analysis and the implication for the future policy strategies. The following aspects to be presented in this part of the report:

- Introduction

- Highlights of the analyses:
  - *Part 1 - Regional Innovation Ecosystems*
  - *Part 2 – SME innovation capacity and needs*
  - *Part 3 – Job Forecasting and Skills Gaps*

- Key Conclusions of Parts 1-3

- Discussions of the Findings

- Inputs for new strategy and policy for Skills Education and SME innovation

General questions to consider for this section:

- Do the Regional Innovation Ecosystems SWOT analyses, and that from the SMEs resonate with that of current Smart Specialization Strategies (S3) or its equivalent for the region as a whole? The blue sector?
- Are there differences in the views between policy/experts and SMEs?
- What do the Job Forecasting indications mean for the sector and the region's S3?
- Do the Skills Gaps identified by the iconic SMEs resonate with future plans for the region?
- What new skills trainings and innovation facilities need to be considered?
- What are strengths and good practices in the region that could be useful to support regional strategies?
- Are there threats (constraints) that could be better solved as an interregional North Sea challenge?
- Lessons learnt from the research experience
- Limitations and future research recommendations/plans

Appendix 1 – Contact Information

The RIGHT Research Project Team of Hanze UAS (WP3):

Anu Manickam

Harm van Lieshout

Diederich Bakker

Correspondence on the research through:

Name: Anja Bos

Mail: a.e.bos@pl.hanze.nl

Telephone: +31505952304

The Blue Sector Research coordination – Hordaland County Council (WP3):

Correspondence on the research through:

Name: Juan Manuel Santacruz

Mail: juan.manuel.santacruz@hfk.no

Telephone: +47 4669 2126

Skype-for-business: juasant@hfk.no

Appendix 2 – Regional Innovation Mapping

The Regional Innovation Ecosystems has 2 parts. Part A are general information on the socio-economic and governance aspects of the region. Part B is an analysis of the various aspects of the innovation ecosystems through identifying their Strengths, Weaknesses, Opportunities and Threats as shown in the format. Experts from the economic and innovation policy departments can be invited to do this exercise. An analysis of the initial findings would then be presented to a panel of experts who represent a broader range of expertise, including t experts from policy, industry and academia involved in the regional development and the energy (or maritime sector). The aim of the panel discussions is to explore the initial findings and to expand and validate the findings and to reflect what implications these have for Smart Specialization Strategies (or its equivalent) and the future skills needs of the region.

Appendix 3 – SME analysis format

Please add the information from the individual interviews into this one format given below. Indicate [1], [2], [3], etc. next to the answers so that the answers are identifiable from each interviewee.

For e.g.:

• Type of energy innovation	Product innovation: [1], [4]
	Process innovation: [2], [4], [6]

• New competences (training)	1. data analysis skills - 3 companies [2], [6], [1] 2. network analysis – 2 companies [1], [3] 3. working in teams – 1 company [2]

FORMAT SME INNOVATION CAPACITY AND NEEDS:

Format: Compilation of SME interviews			
Topic	**Question**	**Sub-question/detail**	**Answers**
Defining who you are	What is your core activity in energy innovation?	• Details of business	Types of Business:
			Size of staff: …
			Other: …
		• Geographic Scope	Local: …. (how many)
			Regional: … (how many)
			International: … (how many)

		• Type of energy innovation	Product innovation: … (how many)
			Process innovation: … (how many)
			Service innovation: … (how many)
			Other: …. (what?)
		Details of energy innovation	(cut and paste answers) 1. … 2. …
	Who is involved in energy innovation?	• Inside company	(cut and paste answers) 1. … 2. …
		• Outside company	(cut and paste answers) 1. … 2. …
Defining urgent challenges	What are 3 urgent challenges your company is facing?		(cut and paste answers) 1. … 2. …
	What possible solutions for the challenges?		(cut and paste answers) 1. … 2. …
Defining path dependency	Which 3 factors, e.g. historical, geographical, cultural		(cut and paste answers) 1. … 2. …

	aspects, are important for your business?		
	Which 3 factors are limiting your success?		(cut and paste answers) 1. … 2. …
Defining future strategies	How are you preparing for the future?		(cut and paste answers) 1. 2. …?
	What is needed to be competitive for the future?	• New competences (training)	(cut and paste answers) 4. … 5. …
		• Research & innovation	(cut and paste answers) 1. … 2. …
		• Additional finance	(cut and paste answers) 1. … 2. …
		• New networks & collaborations	(cut and paste answers) 1. … 2. …
Defining direction	Which developments in energy		(cut and paste answers) 1.

	transition seem promising for your company ?		2. …?
	Which developments are inevitable for your company ?		(cut and paste answers) 1. … 2. …?
Leveraging innovation potential	Are you considering exploiting new ventures?	• New markets	… (how many)
		• New technologies	… (how many)
		• New products	… (how many)
		• New partners	… (how many)
		• Other…?	1. … (how many) 2. … (how many)
Defining innovation steering	Who is driving or pushing innovation?	• Customers	• … (how many)
		• R&D	• … (how many)
		• Policy	• … (how many)
		• …?	• … (what, how many)
Defining emergent patterns	What is significantly different in the last three years?	• New partnerships & collaborations	(cut and paste answers) 1. … 2. …
		• Scope (local, regional, EU,	(cut and paste answers) 1. …

		international, etc.)	2. …
		• New (digital) communications	(cut and paste answers) 1. … 2. …
		• Knowledge sources and sharing	(cut and paste answers) 1. … 2. …
		• Innovation processes and solutions	(cut and paste answers) 1. … 2. …

Appendix 4 – The Regional Report

Format for Regional Report

(title page/layout for report sent later – liaise with WP2 Communication)

Region's Report

Colophon

Contents

List of tables & figures

Forward (by…?)

Introduction

Analysis of Regional Innovation Ecosystems [Part 1]

Analysis of Innovation Capacities and Needs of SMEs [Part 2]

Analysis of Job Forecasting and Skills Gaps of iconic SMEs [Part 3]

Conclusions [Part 4]

Appendices