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SIMOVET



OUTPUT 1

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# 1. FORESIGHT

# **1.1. ADEQUACY OF THE OFFER AND DEMAND OF PROFESSIONALS AND TRAINING NEEDS IN THE ENERGY SECTOR**

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**Author**

**Eugenia Atin**

**Raquel Serrano**

**Date**

**February 2015**

## Summary of the practice

The energy sector is one of the main driving forces of the economy of the Basque Country through its strategic character and growing capital intensity. The energy sector in the Basque Country is both dynamic and competitive, made up of more than 350 companies creating a total turnover of EUR 44,000 million and providing direct employment for 68,000 people. About 35% of this turnover and employment involves operations by these companies in the Basque Country itself, with the rest corresponding to international activity.

The Basque energy sector covers a wide range of specialities, emphasised by the strong position and international leadership obtained in established fields such as electric grids and onshore wind energy, and the strategic investment in emerging sectors such as offshore wind energy, solar thermoelectric power and wave energy.

In 2009, the association of Basque companies in the energy sector which were part of the Basque Energy Cluster were experiencing difficulties in hiring some of the key professionals and a growing concern about the availability of enough workforce in the sector for certain industries. Moreover, the critical situation of the declining working age population and the increasing employment in the sectors of high education were indicating, according to all analyses, a growing need for a very qualified workforce to support the economy of the sector.

In this situation, the Energy Cluster undertakes a research to identify the situation on training needs in the sector and future scenarios to match the supply and the demand of skilled workers in the energy sector.

The study has seemed of interest for combining a methodology to identify current and future training needs with a development of future scenarios, in an attempt to project the work force needed for the future (in terms of quantity but also quality) in order to adapt the training offer to the demand of the energy companies in the medium to long term.

**Available Language:** Spanish

**Website:** <http://www.clusterenergia.com/>

## Intended Impacts

The ultimate aim of the "Study on the adequacy of the offer and demand of professionals and training needs in the energy sector" was to draw conclusions that would enable the Energy Cluster to identify current and future training needs in the industry as well as the needs of professionals in order for the Cluster to address strategies to avoid possible gaps. Under this purpose, the study pursued the following main impacts:

1. Identify and project the current and future potential demand from the Basque companies in the energy sector of qualified professionals and training needs (shortages, gaps and training demands).
2. Assessing the adequacy of the training offer through the analysis of the evolution of students in university and vocational training centres, determining at the same time the key trends that allow us to estimate the evolution of the enrolments for the adequacy to the existing jobs and future business demands.

Under the first objective, the study focused on the detection of training needs and demand for professionals, through the analysis of key positions in the energy sector, the qualification required for these positions (technical and transferable skills), the evaluation for both now and the future and the needs identified. With this knowledge the Energy Cluster aimed to produce a diagnosis of training needs of the sector in order to guide the training agents - vocational training centres and universities- to adapt their offer training.

The second objective of the study was to analyse the match between the supply of trained professionals that will exist in the next 10 years, considering the situation and development (trends and motivation) of enrolments in different degrees in key positions, and its adequacy to the needs of the business world, taking into account the scenarios where potential demand from companies in the sector is quantified. With the likely future scenarios, the Energy Cluster sought to articulate innovative proposals that would allow to mitigate the potential shortage of professionals in the energy sector going into detail on the fields of motivation (social dimension), awareness and corporate social responsibility (occupational dimension), and other measures to reorient the provision of current and future professionals in terms of stability (agreements with other universities, foreign students, attracting professionals, training needs, plans and programs ...) and learning (necessary skills -degrees, knowledge, abilities, ...).

In this line, the ultimate goal of the diagnosis on the current and future situation and the conclusions on the scenarios was at all times to develop proposals to address the identified

training needs and improve the match between supply and demand for professionals in the 2018 horizon.

## Description of the practice and its content

The *Study on the adequacy of the offer and demand of professionals and training needs in the energy sector* was conducted over nine months of work through the activities described below:

### 1. Framing of the study:

- *Activities:* Given the diversity of activities carried out by the companies associated to Energy Cluster, the study was framed to those activities that had certain homogeneity: electric-manufacturers of electrical components and the distribution network industry.
- *Key Positions:* Given the diversity of professional profiles, the study has focused on the analysis of qualifications awarded by the three Basque Universities (Mondragón, UPV / EHU and Deusto) and by the vocational centres of the three provinces in the Basque Country, which were developing a curriculum in this area.
- *Scope:* the scope of the study covers the current situation and the evolution over the next 10 years, presenting scenarios related to the match between supply and demand in 2018.

### 2. Organization and launch of the project:

- *Team:* a working team comprised of staff with multidisciplinary profiles from the consultant team (economists, sociologists, engineers, ..), as well as staff from the management of the Energy Cluster where the main associated companies were represented and a third group consisting of agents from the training field, with representation from teachers of the three Basque universities and training centres with training related to the energy sector.
- *Methodology:* Foresight tools, focusing on the development of scenarios and a participatory process with companies and training centers were used for both in the provision of information and in the analysis of the results. Thus, for the preparation of this study the research team contrasted a number of sources (both qualitatively and quantitatively) and an interesting overview of contributions made from different institutions and European and international organizations (OECD, CEDEFOP, ILO). The collaboration of a large and representative sample of companies, in addition to the collaboration of several members in the education field was also taken into account on the research. This, together with the scenario method and the elaboration of

future hypothesis, allowed the analysis and diagnosis of the current and future training needs and the consequent potential demand, as well as the evaluation of the matching between supply and demand for professionals in the energy sector based on a number of contrasted sources and the collaboration of stakeholders themselves.

3. **Analysis of the sector and field work:** After the above steps related to the planning and launch of the project, the first phase of the study consisted of a statistical and documentary analysis of the sector through various official sources, studies and reports as well as the planning of the field work by developing tools for the gathering of information, mainly surveys and structured interview guides.
  - *Document analysis:* It was focused on the study of the growth forecasts and the occupational and educational structure, gathering information from different sources, mainly: CEDEFOP - Future skill needs in Europe - Focus on 2020 and internal studies at the Basque Country related to the ageing population, labour insertion of the analysed diplomas and degrees, science and technology plans, plans of competitiveness and industry, strategies of the Basque energy sector from different government sources, and business and other entities related to education and training in the sector.
  - *Statistical analysis:* it was focused on the collection, analysis and use of official data on employment in the sector (current situation and development of employment) and students (enrolments, prescriptions) in the university system and in the Vocational Training system. The sources used in this case concerned statistics and regional studies: Eustat, Lanbide, Egailan, INEM, UPV, UD, MU ...
  - *Design of the questionnaires:* After several drafts, and in order to obtain information from companies about the need to hire workers in the short and medium term and training requirements and evaluation, two surveys and an interview script were defined to cover both quantitative and qualitative aspects of the business. The key questions for interviews with the training staff were also prepared in order to better understand the offer and to contrast them with the needs that were detected. The objectives of the group dynamics were also defined to be performed among students from university and vocational training.
4. **Implementation of fieldwork and preliminary analysis of results**
  - *Interviews and surveys of businesses:* The consultant team proceeds to conduct interviews and to send email surveys to companies. A total of 18 in-depth interviews with the managers of associated companies of the Energy Cluster were conducted to collect more detailed information about the staff and the most demanded profiles from a quantitative and qualitative approach. Furthermore, and in order to gather

information from other associated companies which were not interviewed, 90 companies were surveyed online and 50 responses were obtained.

- *Interviews with training agents:* qualitative interviews were conducted to members of the university and the vocational training centres in order to acknowledge the offer and analyze potential gaps in it depending on the needs that were detected as a result of the interviews which were conducted in the process of consultation of companies.
- *Group dynamics with students:* two group dynamics were also organised, the first with freshmen students of Electronic Engineering and Mechanical Engineering of Mondragon University and the second with freshmen from the Electrical Regulators and Control Systems of the Vocational Training Centre of Goi Eskola Politeknikoa. The objective was to understand their main motivations for studying these areas and their job prospects related to the sector.
- *Scenario Approach:* In this phase a diagnosis of the current situation regarding the lack of professionals in the sector was considered, as well as the identification of key trends and the elaboration of scenarios of the demands of professionals in the energy sector in 2018: No job growth; Moderate employment growth; Strong employment growth.

##### 5. **Elaboration of the study:**

- *Scenarios 2018:* With regard to the results of future scenarios, it was first proceeded to estimate what would be the potential demand from companies in the business in the coming years. For this sector, prospects were analyzed globally, at European level and at regional level, concerning the trend in recent years in terms of growth and job creation (forecast GDP growth, the sector) and what is the current situation of companies (average age of workers required, skill levels) and prospects for future quantitative and qualitative growth.

With this analysis, some future hypothesis were suggested regarding the potential future demand for professionals in the horizon 2018, in which a shortage was detected that could reach (in a high growth economy) up to 1,000 professionals. Together with the results, a series of actions and strategies were also raised to avoid the negative scenario, aimed at increasing the actions of approach and visibility among the youngsters towards the technical careers, creating prestige of the professions, facilitating the approval of degrees and hiring foreign staff, retraining unemployed people into these professions, a greater business involvement in the training stage: scholarships, research grants, etc.

- *Training Needs Assessment:* Common demands were identified in training of professionals. The most popular training content were detected in the areas of electricity and electronics - electromagnetism and electrical engineering, control

systems, electrical machines and systems for electrical energy storage, power electronic converters and transportation, substations, distribution-and in relation to the renewable energies.

## How the practice is used

Conducting these interviews, document analysis and scenario approach provided the following:

- ✓ A definition of the current and future training of the occupational structure of the industry situation, along with the key positions to consider.
- ✓ Objectives of the current key job positions and those that would be necessary to incorporate in the future.
- ✓ Assessment of technical and transferable skills required in key positions.

In this way, we proceeded to disseminate and contrast the preliminary results that pointed to a quantitative important gap related to a lack of future professionals based on the projections of students and the growth prospects of the companies, as well as a qualitative training gap among professional profiles and skills demanded by businesses and the training offered at the time.

In this sense, different sessions with agents from the educational world (universities, vocational training centres and the Basque Government as ultimately responsible for making decisions on vocational training for employment-service training and vocational training) were undertaken. In these meetings and presentations the goal was to guide the different agents for better planning of the training offer adapted to the needs of the skills and even to the professional profiles identified.

This first approach to the needs of the industry, through the Cluster of Energy has had its continuity from that time to the present. Thus, from those training needs identified in 2009, in 2010 further analysis was undertaken to understand and analyse in more detail the contents to be included in such actions, mainly in the fields of electricity, electronics and renewable energies, together with the description and analysis of existing training today. In this way, more detailed training activities were defined to be included in the university and vocational training offer, increasing the adequacy of the technical skills of professionals with the requirements and reducing the gap and the detected shortage.

It is worth noting that as a result of this second study a new master was created by the Mondragon University in collaboration with associated companies within the Energy Cluster

for the specialization of engineers working in these companies. A new higher vocational training degree in Renewable Energies was also generated in one of the training centres participating in the study.

Another result of this project was the development of a 2.0 web tool which offered the possibility of visualizing the training offer and the training content and keeping it updated with the information that was provided regularly by the training agents of the Basque Country.

In 2011, in order to continue the process with new initiatives in the field of training, a web tool was created to encourage interaction between companies and the Energy Cluster on issues regarding training as well as a 2-month newsletter to companies with news on training. At the same time, periodically the number of centres and training agents involved was increased and the website was kept updated. Some meetings were also held with the human resources managers of companies to obtain their proposals for training.

In 2012, a new Training Needs Assessment and Training Plan 2012-2014 was elaborated with the support of Hobetuz (Basque Foundation for Continuing Vocational Training) who was granting financial aids at that moment.

Regarding the scenarios and the potential gap of professionals for the future in the sector, an action plan was proposed with concrete proposals to address the challenges and consequences of the growing shortage of professionals and the expansion into new market segments in the sector.

These proposals required a long term scope which in many cases were aimed to influence the motivation of young people to reorient them into technical specialties in the energy sector. It is worth noting that the economic crisis and the rising unemployment led these proposals to be left on the background as a priority sector, although at present many ideas may be recovered due to the growing importance of the renewable energy sector in the Basque Country and taking into account other demographic trends such as the ageing of the workforce and generational needs that arise in the short term.

## **Why this Practice was felt to be significant and therefore included here**

The study had two key aspects: 1) the use of foresight to identify future scenarios regarding future adequacy between demand and supply of skilled professionals in the sector and 2) participation of companies and training centres in the provision of information and in the analysis results.

The setting up of encounter spaces between sector companies and vocational training centres enabled greater orientation and guidance for training agents when planning their offer, adapting it to the real needs of the labour market, both in the present and in future.



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## **1.2. EQUIB (“ERMITTLUNG DES QUALIFIKATIONSBEDARFS IN DER REGION BREMEN”) – IDENTIFYING AND DETERMINING QUALIFICATION NEEDS IN THE BREMEN REGION**

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**Author**

**Daniel Kahnert**

**Date**

**February 2015**

## Summary of the practice

Project EQUIB – “Entwicklungsplanung Qualifikation im Land Bremen” has been established in 1990 to analyze demand for certain skill<sup>1</sup> in the regional labor market of the federal state of Bremen in Germany. It is part of the Institute for Work and Economy at the University of Bremen<sup>2</sup>

Originally funded by the senator for work, women, health, youth and social affairs, the senator for education and research, the senator for economy and ports in Bremen, as well as the European Social Fund, EQUIB developed and established a regional monitoring system for qualification developments ("Regionales Monitoring-System Qualifikationsentwicklung (RMQ)") in the year 2000. Aim of the monitoring system was the early identification of qualification-trends in the Bremen region.

The city-state of Bremen is a rather small region in northern Germany with the two bigger cities Bremen and Bremerhaven and a population of about 650.000.

By cooperating with about 185 companies in the Bremen region and analyzing trends, developments and changes in these companies' qualification demands, the focus of this EQUIB project was clearly on the demand side.

This monitoring-system – while finished in 2008<sup>3</sup> – still provides valuable information for the SIMOVET context as it used several innovative methods and ways to generate highly informative data.

Information about the projects as well as reports and the project webpages are available in German language only.

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<sup>1</sup> Whereas in Germany formal occupational qualifications obtained in an initial vocational educational training are very important, the project focuses on skills in general. This also includes skills developed in professional trainings after an initial VET

<sup>2</sup> Despite the project not running anymore, present tense is used in the description.

<sup>3</sup> Since 2009, EQUIB cooperates with providers of vocational education and trainings. Aim of this cooperation is to analyze existing programs and providing an overview of the supply-side, as well as matching it to current trends on the demand side of the labor market in the Bremen region. This program is funded by the Federal Ministry of Education and Research and the European Social Fund. It is not further described or analyzed in this GP report.

## Intended Impacts

The original aim of EQUIB was to actively shape the development of qualifications for the labor market of the Bremen area. The basic idea was that qualification could be a location factor the area and that such a location factor should be developed proactively. Formally qualified, skilled employees<sup>4</sup> are identified as substantial, especially for SMEs and their ability to innovate and sustain a strong market position. This makes the project interesting for not only companies in the Bremen region, but also for political actors and other experts in the field.

With the RMQ EQUIB aims to inform regional actors by systematically identifying early trends in labor-markets and developments in qualification demands. Such regional actors are:

- The Federal Employment Agency and other federal state resorts. With the RMQ EQUIB provides information by supplying data and trends about future qualification demands. This helps to identify challenges for future labor market-, qualification- and economic policies.
- Single companies in the region. The information the RMQ supplies helps companies to develop systematic and sustainable long-term human resources and vocational training policies to meet future needs.
- Providers of (professional) trainings and education. Such providers gain valuable information they can make use of to develop new innovative concepts for courses and trainings in required qualification fields.
- Employees and their representatives in regional companies. They benefit from the information the RMQ provides, because based on this information they are able to identify trends and important qualifications. Based on such information they can plan activities of lifelong learning and develop a valuable skill portfolio.

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<sup>4</sup> The German term „Fachkraft“, which is originally used in this context, implies a strong formal, occupational education and therefore a quasi-guaranteed high level of professional skills.

## Description of the practice and its content

The Regional-Monitoring-System-Qualification-Development (RMQ)-Project uses three major sources of for the generation of knowledge.

- First source is a company panel. For the panel a qualitative approach is used. Data is generated via problem-centric expert-interviews with relevant representatives of companies in the Bremen region. Companies are selected according to their representation in the regional market. The goal is to have a representative sample of companies that resembles the economic structure of the region in terms of sector and company type. Interviews are constantly repeated and therefore allow identifying very current trends and developments in the demands for different qualifications within the companies. Representatives of more than 200 companies are interviewed.
- Second source makes use of external experts. EQUIB has a very dense network of experts. These experts give support by providing the project with professional advice about the topics for the interviews (incl. sector-specific topics of interest), the selection of the companies as well as the selection of the representatives within the companies. The pool of external experts consists of over 150 members of public organizations, unions, research institutes and others.
- Third source is cooperation with other scientific actors. To enrich own results, input from other studies and knowledge generated by other researchers in similar fields and other regions are used.

### Three sources of knowledge in Project EQUIB



Source: own illustration based on <http://www.iaw.uni-bremen.de/equib/projektdarstellung.html?neu>

More than 40 monitoring reports, special reports, presentations and other documents are published between 2000 and 2008, all of which can be downloaded on the project webpage. Monitoring reports as the primary output of the project are published either twice or three

times a year. Each of the reports has a specific topic and concentrates on either a specific sector with specific questions, themes of interests and addressing different problems now and in the future within these sectors, or addresses general topics such as demographic change or sustainable economy. Those reports are directed towards an audience of policy makers, researchers and practitioners in each specific field. General focus lies on skills and future skill requirements and development rather than jobs in the Bremen region.

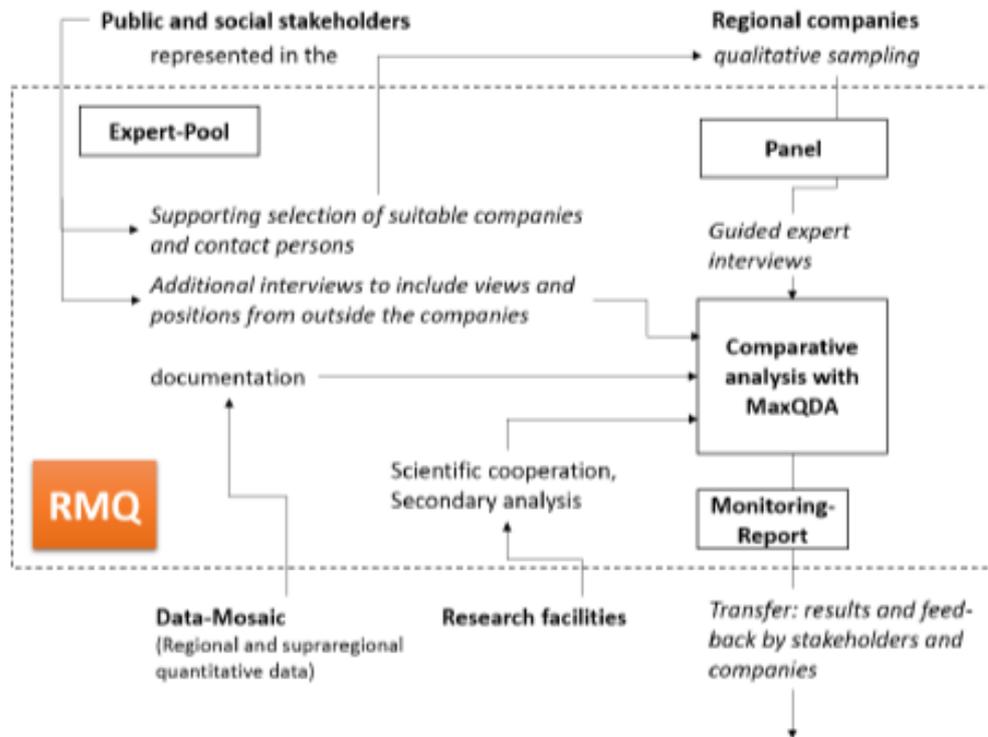
### **How the practice is used**

EQUIB informs labor-market actors in the Bremen region about current development and upcoming trends in terms of qualifications and skill needs. This is primarily done via the project reports. There is no direct involvement in strategy-making processes and EQUIB members are not directly consulting companies or policy-makers in such matters.

On the other hand, EQUIB and its members have a strong foot in the labor-market and VET research and policy landscape in the Bremen region. This is largely due to the fact that the University in Bremen and the Institute for Work and Economy have a long history in the field and a very dense network of relevant professionals in the field from many different industries and in several different positions of influence. Therefore, the reports, the results and the implications derived from the work of EQUIB are easily spread and largely recognized as very relevant in the region.

The project reports to an advisory board on an annual basis. This procedure is the main quality control mechanism applied. In those reports, results, methods, topics, possible future direction are discussed and – if needed – adjustments in the practice are being settled upon.

### Map of the EQUIB approach



Source: own illustration based on <http://www.iaw.uni-bremen.de/equib/projektdarstellung.html?neu>

A specialty of the project is the small size of the Bremen region. From this small size, some of the distinct features of the project can be derived: The pool of experts supporting the research and the dense network of contact persons, experts and partners is much harder to establish in a larger region than in Bremen. Due to the relatively small size of the region, keeping good contact with the experts is less costly and less complex than it might be in larger regions. For the transferability of this concept of a monitoring project, this means that one clearly has to consider whether it seems possible to set-up and keep a large expert-network in a respective project area or not.

## **Why this Practice was felt to be significant and therefore included here**

Project EQUIB is an example of a long-time successful and very well integrated project, which makes great use of a valuable network of regional actors such as company members, political actors, members of industry organizations and other influential and well-informed agents. Thus, EQUIB is provided with very valuable “insider”-information.

With an innovative approach of qualitative methods, EQUIB makes perfect use of such a network and pool of experts by regularly interviewing them in expert-interviews. Thus, the data used in the project is much richer than regular quantitative data often collected in other monitoring approaches.

Although the core of the project has not been continued since 2008, it is still a good example of a unique and successful practice in labor-market and VET monitoring on a regional level.

Some of the information about the project EQUIB was gathered in a telephone interview with a long-term project member in February 2015.

## **1.3. NATIONAL AND REGIONAL OCCUPATIONAL PROFILES**

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### **Author**

**Marta Salavová**

### **Date**

**February 2015**

## Summary of the practice

### National and regional occupational profiles

The Occupational Profiles provide detailed information about labour market prospects for major occupational groups on national and regional level. Both of the information tools were developed in years 2010-2012 but within different projects. The principle investigator in both cases was the National Training Fund.

*The national version* of occupational profiles is an output of the *Koncept* project (Concept of Continuing Education and Training) which aim was to support development of adult education in the Czech Republic on a system and national level. One of eight key activities was focused on matching training provision with labour market needs by developing information tools for various user groups. The national occupational profiles were designed specifically for developers of the National Qualifications Framework (NQF) and Sector skills councils (SSCs). First Czech SSCs were set up already in 2007 to focus on sector skill needs. Many of SSCs were based on existing institutions, like industry associations.

*The regional version* has been developed by National Training Fund (NTF) on demand of Moravian-Silesian Region in 2012.

Project language: Czech

Website:

*National occupational profiles*, download of profiles in Czech:

<http://www.sektoroverady.cz/download/498>;<http://www.sektoroverady.cz/download/500>;

<http://www.sektoroverady.cz/download/501>;<http://www.sektoroverady.cz/download/502>.

*Regional occupational profiles*, download of profiles in Czech:

<http://www.msobservator.cz/profesni-skupiny/>

About the owner in English: <http://www.msobservator.cz/about/>

### Intended Impacts

The impact is different according to the level of the practice. The national occupational profiles were designed for the needs of Sector Skills Councils and developers of the National Qualifications Framework. There is a direct impact on any measures focused on the labour market and education which are under the auspices of the Sector skills councils.

The regional occupational profiles are under auspices of the Moravian-Silesian region and distributed mainly through activities of the Moravian-Silesian Employment Pact. The regional

occupational profiles were tailored for career guidance counsellors, partners and other interested parties in outputs and publications provided by the Observatory of the competitiveness and the labour market in the Moravian-Silesian Region. The occupational profiles are available on its webpage. The main aim was to ease the work of career guidance counsellors, to put together all the information for most demanded occupational groups and evaluate their prospects on the regional labour market.

## Description of the practice and its content

The occupational profiles are based on analyses of user needs (validated through round tables), and deep understanding of data sources and data analysis. Both levels use ISCO/NACE classification and provide sector, skills and age related analysis for each occupational group. The regional profile was developed later thus it has already profited from the previous experience with the national occupational profiles. In spite of the national profiles there are more infographics used in the regional case.

The LMI works with data from various sources, the Labour Force Survey, administrative data on graduates, statistics of earnings, statistics and databases of vacancies, and other sources. More namely:

- *Czech Statistical Offices - Labour Force Survey;*
- *Average Earnings Information System under the auspices of the Ministry of Labour and Social Affairs (<http://www.ispv.cz/en/homepage.aspx>);* An essential part of ISPV is the Regional Earnings Statistics (RSCP) which provides a detailed information on the wage levels in individual regions of the Czech Republic
- *Register of Labour Offices on Job vacancies and Job seekers;*
- *Employment projection in sectors of the Czech economy;*
- *School graduates statistics of the Ministry of education, Youth and Sports;*
- *Prediction of number of graduates.*

### The national occupational card

The SSCs needed a much targeted type of information presented in a brief way which can provide quick information for decision. The information on occupations are comprehensive but at the same time enough clear without burden of having to learn a methodology or the need to look up, study and compare data from different information sources. The occupational profiles that were developed in close cooperation with SSCs provide answers to their needs. This LMI is based on ISCO-08 on 4-digit level. Following SSCs demand, occupational profiles cover all 4-digit occupations in major ISCO groups nr. 3-8 with limited

number of profiles developed for professionals (ISCO 2 group) and auxiliary workers (ISCO 9 group). Altogether 180 profiles were developed.

The LMI was used by SSCs to identify key skills mismatches and set priorities for targeted actions on the labour market. It was very well received - not only because its content and structure matched user group needs, but also because it was designed in close cooperation with key stakeholders. It proved that use of LMI depends not only on its quality, but also on the process during which it is developed. Users take it as something they helped to create and therefore are much more opened to take the information it brings and shape it into action.

Occupational profiles became the most successful LMI tool developed in the Konzept project. The tool will be developed further for the career guidance and counselling at public employment services; moreover it served as a basis for the regional version.

Each profile covers only two pages - conciseness was one of major request from users. It consists of 9 parts:

- **Group description** (ISCO code, name and synonyms used in vacancies advertising)
- **Employment development analysis** (total employment, trends in employment since 2000 and employment forecast for 3 years)
- **Labour market opportunities analysis** (number of vacancies and job seekers, unemployment rate, share of hard-to-fill vacancies and share of job seekers per 1 vacancy)
- **Sector employment analysis** (key employment sectors for the particular group and analysis and forecast of employment for these sectors)
- **Qualification analysis** (suitable field of education, share of persons with other-than-recommended qualification, level of education)
- **Earnings analysis** (used also as a proxy for occupation attractiveness on the labour market both for graduates and for adults, providing information on wage median, wage growth and comparison with similar occupations)
- **Graduates** (number of graduates of the most suitable field(s) of study, forecast of graduates for next 3 years, unemployment rate of graduates and its development)
- **Age structure** (% of young and old workers) and
- **Summary of key findings.**

### The regional occupational card

The regional occupational card has been developed on demand of the Moravian-Silesian region in order to improve labour market balance in the Moravian-Silesia region. The region strongly suffers from structural changes in the economy - the shift from heavy industry to "lighter" sectors like automotive, electronics or knowledge-based services was long and

difficult here. There is the second-highest unemployment rate in the whole Czech Republic. The labour market policies needed evidence to better focus on key problems of employability. The LMI was designed and developed under the umbrella of Moravian-Silesian Territorial Employment Pact within so called Moravian-Silesian Competitiveness and Labour Market Observatory. The Moravian-Silesian Observatory provides data and analyses, and also sets of indicators describing major trends and developments in 4 thematic areas: Innovation, Business, Human resources and Region (consisting mainly of indicators related to infrastructure and environment). Data and analyses published on the Observatory website help identify priorities for Pact actions. The Human resources part brings in addition to major time series also database containing profiles of major occupational groups in regional labour market – the occupational cards.

The regional occupational card is based on ISCO-08 - but occupational clusters are designed by mixed approach, combining 2, 3 or even 4-digit ISCO groups. There are profiles of 50 most important occupational groups on the regional labour market. They consist of sets of indicators describing employability (trends, sectoral structure, unemployment rate, job seekers, vacancies), earnings, qualification (skills needed, graduates forecast, graduates unemployment) and age structure. Indicators are based on the LFS, Public Employment Services statistics (job seekers, vacancies), Ministry of Education statistics on students and graduates by field and level of study, forecasts of graduates, forecast of sectoral employment (national level only) and Information System on Average Earnings). The regional occupational card is targeted on different target group of users than the national version. In comparison with the national version which was developed for the Sector Councils, the regional cards provide information in particular for the career guidance counsellors and other regional stakeholder, and it is available on the website of the Observatory for the general audience (in Czech <http://www.msobservator.cz/profesni-skupiny/>).

When compared to national version of the product, the Observatory profiles add graphic indication of trends and comparison of indicators with regional average. Feedback gathered by stakeholders and users representatives is used for improvement and update of the Observatory. The Pact and the Observatory are supported by the Association for the Development of Moravian-Silesian Region which consists of almost 200 key players on regional labour market (regional authorities, PES, employers, education and training providers and other relevant stakeholders).

## How the practice is used

The main added value of the tool is that it follows the whole "LMI lifecycle" - it starts with detailed identification of user needs in the region of the impact, combines both qualitative and quantitative approaches to data and information gathering and analysis, it provides simple and understandable outputs and it is used by stakeholders to concrete and practical measures.

The national occupational profiles were developed in 2011 and once more enhanced and reviewed in 2012. They cover 180 occupational groups and they represent main background information tool for developers of National Qualifications Framework (NQF) and Sector skills councils (SSCs) in the Czech Republic.

The regional occupational profiles are disseminated through activities of the Moravian-Silesian Observatory (Moravian-Silesian Competitiveness and Labour Market Observatory) and the Moravian-Silesian Employment Pact (MSEP).

The MSEP is a strategic partnership of dozens of businesses, schools and other institutions in the MSR. It is a contractual partnership to connect the policies and strategies in regions. The Pact focuses primarily on systemic interventions to address problems that are directly related to employment, education and economic development in the region. It is a strategic communication platform where the priorities and interventions are discussed with key partners and the consensus achieved is then gradually implemented through an integrated program.

The regional occupational profiles were developed in 2012 and are being updated in 2015 on demand of the Moravian-Silesian Region.

## Why this Practice was felt to be significant and therefore included here

The occupational profiles were chosen due to their efficiency measured by a ratio between costs and usability. The occupational profiles are based on the information needs of the end users; therefore the impact is tailored for them. On the other side this informational tool needs sustainability which is missing on the national level but it works in the Moravia-Silesian Region.

The occupational profiles provide comprehensive information on each occupation. It could be describes as a "puzzle effect": The reader can put all the pieces quickly together. For example the age structure complements the information about number and future

prospects of graduates. Labour market opportunities are compound by information on supply and demand side on the labour market. The overview has to be proper in length but enough detailed, so that it does not require to study or learn long background materials and methodology. Transferability of this practice is easy but depends on the national and regional data availability. The approach of this practice has been transferred to the Malopolska Region in Poland.

## Attachments

Figure 1 and 2 – Print screen of occupational profiles.

**Figure 1: The national occupational card**

Name of the occupational group		ENGINEERING TECHNICIANS	
ISCO code		3115	
Employment development			Occupational group size (cross-group comparison)
Number of people employed (2011)	50 800		
Longterm employment development (2000-2010)	SLIGHT INCREASE		
Medium term employment development (2005-2010)	STABLE		
Development in recession (2008-2010)	SLIGHT DECREASE		VERY LARGE
Future employment prospects (2014)			ABOVE AVERAGE
Labour market opportunities			How are these opportunities in comparison with similar occupations?
Job vacancies (October 2010)	287		
Unemployment rate (October 2010)	4,8%		
Share of hard-to-fill vacancies (October 2010)	0,06		
Job seekers per one vacancy (October 2010)	8,9		
SIMILAR			
WORSE			
WORSE			
Key employment sectors			
Metal processing industry			See details on <a href="http://www.budoucnostrprofesi.cz">www.budoucnostrprofesi.cz</a>
What part of this group jobs is created by this industry (2009)?	24%		
What is the industry medium-term employment trend (2010-2015)?	SLIGHT DECREASE		
What is the industry long-term employment trend (2015-2020)?	SLIGHT DECREASE		
Automotive industry			
What part of this group jobs is created by this industry (2009)?	21%		
What is the industry medium-term employment trend (2010-2015)?	STABLE		
What is the industry long-term employment trend (2015-2020)?	STABLE		
Mechanical engineering industry			
What part of this group jobs is created by this industry (2009)?	21%		
What is the industry medium-term employment trend (2010-2015)?	SLIGHT DECREASE		
What is the industry long-term employment trend (2015-2020)?	SLIGHT DECREASE		



Field of education recommended		
Prevailing field of education	Engineering	See details on <a href="http://katalog.nsp.cz">http://katalog.nsp.cz</a>
% of workers with different field of education (2010)	30%	
Level of education (2010)		
Elementary education	0%	See details on <a href="http://katalog.nsp.cz">http://katalog.nsp.cz</a>
Upper secondary vocational education (ISCED 3C)	17%	
Upper secondary education (ISCED 3A-4)	69%	
Tertiary education (ISCED 5-6)	14%	
Earnings		
Wage median (2q 2010)	29 107	See details on <a href="http://www.ispv.cz">www.ispv.cz</a>
Wage growth in comparison with similar occupations (2005-2010)	SIMILAR GROWTH	
Wage comparison with employees on same qualification level (median wage for all employees on this level = 100)	124	
Graduates (recommended field of education)		
Number of graduates (2005-2010)	SLIGHT DECREASE	
Forecast of graduates (2011-2015)	SLIGHT DECREASE	
Unemployment rate of graduates (2010)	12,2%	
Unemployment rate of graduates development (2009-2010)	SIGNIFICANT INCREASE	
Age structure		Average for similar occupations
% of young workers (less than 35 let)	31%	33%
% of older workers (55+)	15%	14%



Figure 2: The regional occupational card

REGIONAL LABOUR MARKET OBSERVATORY OF MORAVIA-SILESIA			PART ZAMESTNANOSTI MORAVSKOSLEZSKY
<b>Name of the occupational group</b>			<b>Founders and welders</b>
Number of people employed (2011)			9600 person
Employment trend (since 2005)			NO CHANGE →
<b>Employment by industry in region</b>			
Industry	What part of this group jobs is created by this industry (2011)?	What is the industry employment trend within the region (2008-2011)?	What is the industry forecast (for whole country) till 2020
Metallurgy and metalworking industry	48%	SMALL DECLINE ↘	SMALL DECLINE ↘
Automotive and mechanical engineering	38%	SMALL DECLINE ↘	NO CHANGE →
-	-	-	-
Other industries	14%		
<b>Labour market opportunities for the occupational group</b>			
Indicator	This group	Region average	
Job seekers (2011 average and trend during this period)	517 ↘	-	
Job vacancies (2011 average and trend during this period)	243 ↑	-	
Job seekers per one vacancy (2011 average)	2,1	12,8	
Unemployment rate (2011)	5,1%	11,9%	
Median wage (2011)	27 500 Kč	19 500 Kč	
<b>Qualification</b>			
Level of education for workers within this group	Best suitable field of study		
Share of employees with tertiary degree	-	Engineering and metal processing	
Share of employees with secondary degree	98%	Secondary (ISCED 3c)	
Number of graduates of best suitable field of study in the region			738 persons
Forecast of graduates for this field of study (2011-2016)			SIGNIFICANT DECLINE ↓
<b>Age structure</b>			
Share of persons in the group aged 50+ in the region	Share of persons in the group aged 50+ in the country	Ageing index (region vs. national average)	
18%	24%	0,73	
<b>Summary of key findings</b>			

## 1.4.SECTORAL PROSPECTIVE STUDIES IN SPAIN

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### **Author**

**Eugenia Atin**

**Raquel Serrano**

### **Date**

**February 2015**

## Summary of the practice

The following practice is being developed at national level by the Occupational Observatory of the National Public Employment Service (SEPE).

The National Public Employment Service (SEPE), is an autonomous body of the General State Administration, currently attached to the Ministry of Employment and Social Security. The SEPE is entrusted with the management, development and monitoring of programmes and measures of the Employment Policy. The SEPE's aim is to contribute to the development of employment policy, manage the unemployment protection system and guarantee the information on the labour market. The final goal is to achieve the inclusion of the citizens in the labour market and improve human capital in companies, with the collaboration of the Public Employment Services of the different Autonomous Communities and other labour market agents.

The Occupational Observatory of the National Public Employment Service (SEPE) is intended to identify the employment trends of the different economic activities, to draw up statistics and surveys that reflect the job market information for each occupation and to report on the job market for specific groups, mobility and hard-to-fill jobs.

In 2010, the Occupational Observatory of the National Public Employment Service (SEPE) identified the need to carry out prospective studies (study that allows us to anticipate the future) to offer up to date information on the differences between and the characteristics of the different areas of the country and, starting from an analysis of the conditions in the particular sector.

The sectoral prospective studies seek to identify the occupations and jobs for which there will be a greater need, to analyze the skills involved in them, the amount of specialization required and the training needs, which must be related to company requirements. It also focuses on the areas of knowledge that will be needed in order to put the new professional skills into practice.

The ultimate purpose of these prospective studies is to provide guidance for the decision making process on planning Vocational Training for employment ( occupational and on-going training), and for which the Ministry of Labour and Social Affairs is responsible.

**Available Language:** Spanish and English

**Website:** <http://www.sepe.es/indiceObservatorio/>

## Intended Impacts

Prospective studies carried out by the Occupational Observatory of the National Employment Service are aimed, on the one hand, to improve the knowledge about the trends in the different economic sectors and occupations to detect and analyse the economic activities with better perspectives for the future, and on the other hand, to anticipate the growth in employment that will come out of the jobs that will be created in the next few years, the job descriptions and the new professional skills that require training.

The Public Employment Service has promoted these prospective studies in Spain, made by the Occupational Observatory, taking into account the importance of each selected sector in the country's economy and employment as well as its potential growth.

These prospective studies aim to provide information as wide as possible on different socio-economic and labour aspects related to the current situation, the trends of the labour market and the employment prospects at national, regional and provincial levels. It also updates the data which indicates the degree of development in our country compared with the rest and the prospects of modernization of the sector that can affect, in the short and medium term, occupations and training of professionals.

The sectoral prospective studies have been validated by various social agents and industry experts who shared their knowledge and opinions about the impact of the different trends in the economic sectors and have given their vision and their forecast through interviews, surveys and meetings held by the technicians of the Occupational Observatory.

Through these prospective studies, the following results are achieved:

- UNDERSTAND the situation and development of: - Employment - Productivity - Factors of Change - Production system - New technologies
- ANALYZE trends in the labour market.
- STATE the employment prospects in the various activities of the sector.
- IDENTIFY the occupations that will create jobs.
- LEARN about the job seeker profile and the profile of those persons engaged in various occupations.
- IDENTIFY the competencies required by companies and identify occupational training needs

Indeed, the prospective studies identify the knowledge and skills which are considered a priority and on which occupations of the selected economic sectors the country needs to

improve its performance. Moreover, the main training needs of workers are analyzed in relation to the different areas by occupational categories and profiles.

## Description of the practice and its content

This research has been done annually for the past 6 years, each year selecting a different sector: Automotive, Renewable Energies, Horticulture, Logistics and Internationalization, and the latest, Commerce. This research has a prospective nature. The study is of great interest, from both a technical and an informational point of view, as it includes a broad range of data on various aspects of this sector, such as the current job market, the socio-economic and employment situations, and the national and regional trends in and prospects for employment. It also presents the current stage of development of the particular sector in Spain, and has an impact on the occupations and training available to professionals in this sector.

The information presented in the prospective studies is up to date and is backed up by a number of agents and experts from the specific sector of study, who, through interviews, surveys and meetings, offer their opinions on the current situation of the sector and their view of its future. The study aims to provide knowledge that will be useful to all the organizations, bodies, government departments, employers' organizations, trade unions and agents who are involved in developing policies for employment, education, and human resources, growth and improving competitiveness.

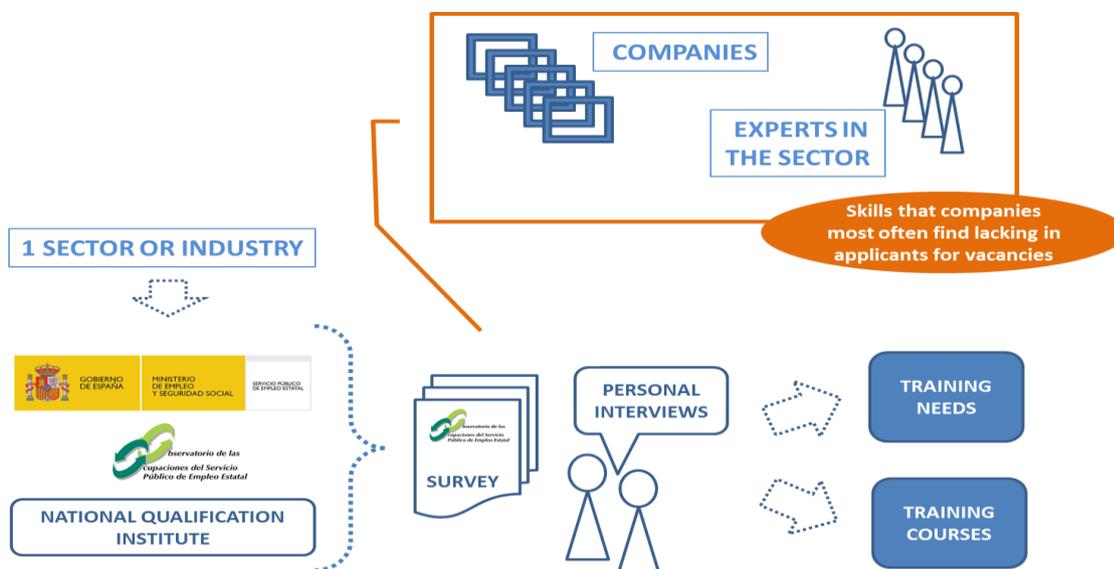
The research determines, therefore, the skills and competences that will be needed in the sector, using an external contrast of the models designed, joint work by external experts and expert trainers to draft the features of the training; and the issuing of appropriate regulations.

### Methodology

These annual prospective studies, which should be understood as being a method of making predictions and anticipating the future, are carried out in the following stages:

1. Planification of the research
  - Selection of the sector (annually the National Public Employment Service (SEPE) selects a sector of interest on which the research will be conducted at national level
  - Initial planning and selection of the working group in charge of the study (Occupational Observatory).
  - Creating the methodology and setting up the activities and the times at which they would be carried out.

- Formulating the communication strategies with experts, companies and training reference centres.
  - Setting the scope of the study: the activities to be included with the National Qualification Institute (INCUAL).
2. Gathering the information
- Documentation: obtaining the data bases needed, compiling the existing regulations and selecting the indicators needed.
  - Field research: Designing the questionnaires and interview scripts, planning and organizing meetings with experts, social and economic agents, national training centres, organizations and institutions related to renewable energy.
3. Information analysis and conclusions
- Analyzing the quantitative data.
  - Analyzing the qualitative data.
  - Determining the employment and training needs, creating the professional profiles (job descriptions) and listing the skills needed and the training actions required.
  - Validating the document.
  - Designing and publishing the document.



The research is carried out at national level but the working group is composed by technical staff of the Occupational Observatory which is spread in the regional observatories of the SEPE in the different provinces of Spain.

The selection of the year's sector is done following criteria such as whether we can consider this sector to be a source of employment, bearing in mind the role that it has come to play

with regard to other sectors, and whether current vocational training will be sufficient to satisfy the training needs of the jobs that will be created as a result of the new guidelines. Once the sector is selected, the provinces which have the most activities in this sector will be identified to become part of the working group.

The technical staff of the observatories of the different provinces, who are part of the working group, are responsible to search for the experts of the sector in their province (usually companies and business associations). The national's staff role is to design the questionnaire for the sector. Once the province identifies the regional experts, it is the national technical staff the one who contacts these experts. Usually the information is gathered from the experts through an online questionnaire but in some cases of interests, the national staff will conduct personal interviews. The quantitative and qualitative information and the press clippings that appear in the study are all collected during three months.

One of the focuses of the study is the worker job descriptions or profiles, as the unit of analysis is the occupation. The job descriptions and the related skills and employment and training needs are drawn up from the information obtained from in-depth interviews, meetings with experts and the questionnaires administered to companies.

The National Qualification Institute provides data on the existing training on offer, as well as the information needed to create the occupational record cards and define the skills and areas of training for each occupation.

## **How the practice is used**

The purpose of the prospective studies is to provide not only information, but also some useful knowledge to agencies, organizations, institutions, business and labour organizations, and agents related to human resources, growth and improving competitiveness policies. In this line, the predicted impacts on employment, taking into account for example, a sector suffering economic crisis, could justify public subsidies and institutional support in order to help to mitigate this impact. For example, the prospective study of 2012 of the automotive sector, has influenced in the decision of further analyzing this strategic sector and the sector has in the end been directly benefited with strategic plans to rescue the sector.

In addition, the prospective studies attempt, apart from understanding the situation of the labour market, to analyze the occupations of the sector and to identify those occupations that are emerging as a result of the actions that have being carried out, job profiles and new

competences requiring training as well as to anticipate the employment forecast to be generated in coming years.

The prospective studies are also considered a strategic guide for decision making and planning of vocational training for employment. In this sense, the National Institute of Qualifications is a key player and takes an active role on the research providing the list of regulated occupations in the National Catalogue of Professional Qualifications. The professional training for employment aims to:

- Favor training for unemployed and employed workers throughout their lives, improving their professional training and their personal development.
- Provide the workers with the knowledge and practices adapted to the professional competences required by the work market according to the needs of the companies.
- Contribute to improve the companies' productivity and competitiveness.
- Improve the employability of workers, especially of those finding it more difficult to keep their jobs or to be incorporated in the work force.
- Promote that the professional competences acquired by workers, both through training processes (official and non-official) and through the work experience, are subject to accreditation.

INCUAL validates the conclusions of the prospective studies and plans the necessary adjustments to the vocational training offer taking into account the results of the studies. Training agents and vocational training centers also find these prospective studies very strategic for their planning tasks.

### **Why this Practice was felt to be significant and therefore included here**

The prospective studies analyze the challenges that the different economic sectors are facing and the results of this research allows us to:

- to identify the trends in this sector of activity in:
  - employment
  - productivity
  - change factors
  - the productive system
  - new technologies
- to analyze the job market trends.
- to present the prospects for employment in the different activities in this sector.
- to list the occupations that will create employment.

- to discover the skills required by companies and list the training needs by occupation.

Regarding skills, the specific section of the research dedicated to the training needs specifies the skills that companies most often find lacking in applicants for vacancies. This section is therefore crucial to adapt the training curricula of the different qualifications to the new trends. The National Qualification Institute uses this information to update the future training by matching it to the new needs.

In summary, we believe it is a good national example of a smart information practice regarding labour market needs, in this case focused on a certain economic sector, for a better planning of vocational training with the direct contribution from the different associations and major companies and the key education decision makers on the particular



Erasmus+

# **1.5. REGIO PRO (“REGIONALE BESCHAFTIGUNGS- UND BERUFSPROGNOSEN”) – FORECASTING SYSTEM FOR THE DEVELOPMENT OF EMPLOYMENT AND QUALIFICATIONS**

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**Author**

**Daniel Kahnert**

**Date**

**February 2015**

## Summary of the practice

The project “regio pro” originates from a pilot project from 2007 and 2008 carried out by IWAK – Institute for Economics, Labour and Culture – Centre of Goethe University Frankfurt am Main. Goal of that pilot was to develop an early-information system that analyzes regional developments in labor- and skill-demands and -supplies. The result was a forecasting system about likely mismatches in demand and supply of certain occupations and skills in different economic sectors. This system can now be used to inform regional labor-marked actors, such as policy makers, companies and intermediary actors such as unions and other organizations in the field.

Since 2010, regio pro produces medium-term labor market forecasts. Current forecast projects developments until the year 2020. Those forecasts are updated every two years.

The project is coordinated and carried out by IWAK Institute for Economics, Labour and Culture Centre of Goethe University Frankfurt am Main. It is funded by the European Social Fund and the Hesse Ministry for Economics, Energy, Transport, and Regional Development. Project partners include GWS - Institute of Economic Structures Research, HA Hessen Agentur GmbH, Statistical Office Hesse and Regional Directorate of Hesse of the Federal Labour Agency.

To conduct forecasts regio pro combines the supply and the demand side and thus provides valuable information for labor marked actors on both of these sides. regio pro provides information on a regional and local level, analyzing regional administrative districts in the Federal State of Hesse, Germany.

The project generally operates in German language only, while occasionally publishing information around the project in English.

## Intended Impacts

A forecasting system for regional labor markets is important for several reasons:

- By helping policy makers, companies and other labor market actors getting information about developments in skills, qualifications and occupation needs and supplies now and in the near future it contributes to a well-functioning and suitably qualified labor market in an economic region.
- Such a well-functioning labor market makes a very relevant precondition for a region to be economically healthy and an attractive location for business. In this sense, a

forecasting system like regio pro contributes to the creation of a regional labor market that is a competitive advantage in national and international competition.

- With the information gained from forecasting systems such as regio pro, measures in regional labor markets can be taken based on well-informed decision-making grounded on empirical evidence.

In regio pro, political actors and enterprises are provided with reliable figures, updated every two years and are supported during the complete strategic process, from identification to implementation and evaluation. Thus, it represents a comprehensive approach to a informing and supporting policy processes on a research basis.

Based on the above considerations, the objectives of the regio pro project are:

- Making medium-term forecasts to identify medium-term mismatches in occupation and qualification needs and supplies in regional labor markets
- Including almost all occupational groups in the forecast-system to achieve a most complete analysis of possible mismatches in regional labor markets
- Informing and thereby helping regional actors to handle changes and developments in the labor market they operate in
- Providing support in the strategic process of identifying fields of action, implementing measures and evaluating them
- Making a contribution to improving regional competitiveness of economic regions in the State of Hesse

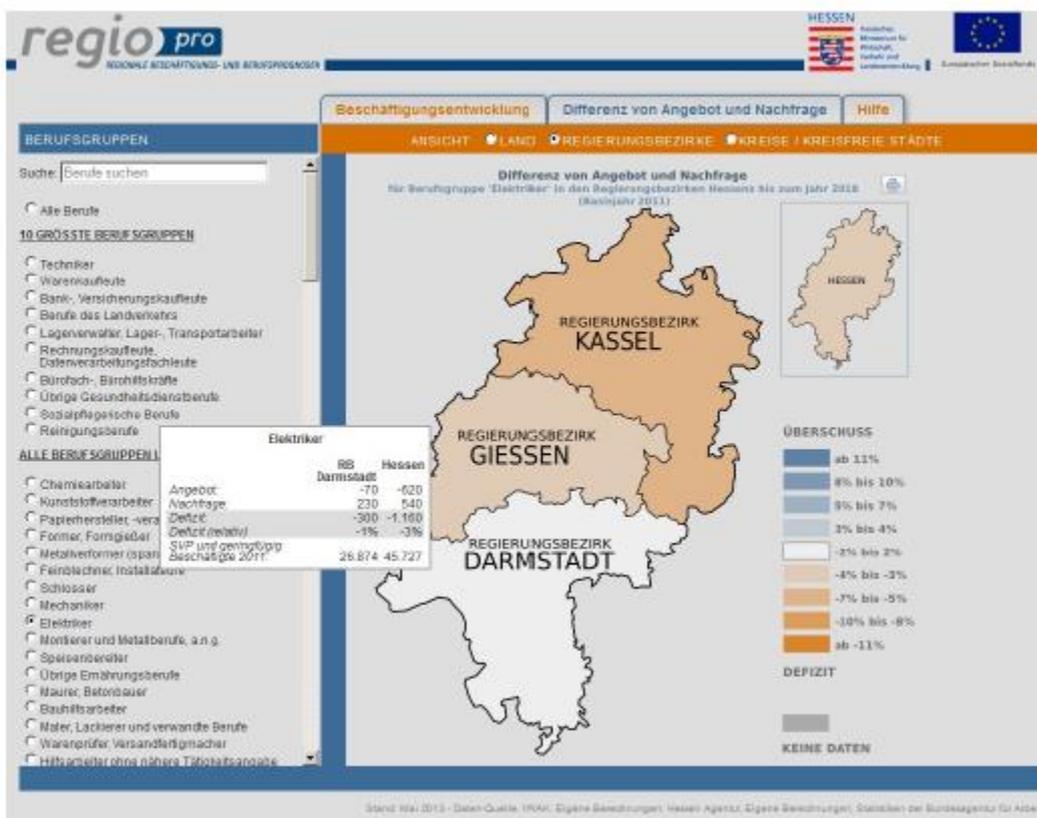
All the above-mentioned objectives include both occupations and skills. regio pro aims to provide data relevant for decision-making and strategic planning processes in regional contexts of occupations and skills. Only when taking into consideration both and forecasting occupation and skill matches as well as mismatches, the forecasting system can provide profound information valuable for the regional labor market and its stakeholders.

The project also takes regional specifics such as differences in infrastructure, role of certain local companies and particular structure in regional population into account. Such factors are of high relevance for a precise and reliable forecast of regional developments.

## Description of the practice and its content

The primary activity of the regio pro project is to conduct forecasts of medium term mismatches in occupation and education within regional labor markets in the State of Hesse in Germany. These forecasts are updated every two years. With every update, the current set of methods and the focus of the forecasts is reevaluated, adjusted and – if reasonable – expanded.

### regio pro forecast website



Source: <http://www.regio-pro.eu/regio-pro-berufsprognosen-2013/angeb.html>

Two major outputs are generated from the forecasting process.

- For one, there is a detailed report for every analyzed region in Hesse published every two years. It includes a detailed data re-report as well as an update on all activities and cooperation undertaken within the regio pro project.
- The second output is the information tool on the webpage regio-pro.eu. On this website, all forecasts for all regions and all occupations are available. The data is

presented in graphical manner and very easily accessible. The site is updated with every forecast every two years.

The forecast uses quantitative data as primary source that is enriched with qualitative data. Qualitative data is used to overcome limitations of quantitative data in terms of regional specifics and developments in sectors and labor markets. In the qualitative data-collection process, semi-standardized online expert-interviews with regional experts are conducted. In these interviews, the focus lies on estimations of these experts about upcoming labor market developments.

### Sources of Knowledge in regio pro



Source: Own illustration

Quantitative data comes from the working-group national-accounts of the Federal and State Statistical Offices and the statistics on employment by the Federal Labor Agency. This data is complemented by official employment statistics of the state governments as well as the coordinated population projection of the Federal Statistical Office and the annual industry and mining data-report. This data is used in the projection models “LÄNDER”, which is an extension of the “IN-FORGE”-model, and REGIO. Detailed information on these models can be found the regio pro reports<sup>1</sup>.

<sup>1</sup> <http://www.regio-pro.eu/seiten/veroeffentlichungen.htm>

In the past, another important activity was the organization of local conferences (“Kommunalkonferenzen”). Aim of the conferences was to cooperate with certain regions in Hesse in order to create strategies on dealing with future mismatches of occupations in these regions. These conferences were comprised of three workshops:

- During the first workshop data is analyzed and interpreted to identify possible problems and fields of action. The specification of measures to be taken followed in a next step between the first and the second workshop. For these workshops a cooperation with the Statistical Office Hesse and Regional Hesse Directorate of the Federal Labor Agency was established.
- The second workshop was held to work on a plan for the implementation of identified measures by regional actors into regional policies. Between the second and third workshop the measures were taken into action.
- Within a third workshop the measures and the implementation process so far was evaluated and possibilities of future means and adjustments discussed.
- While the workshops were organized and held by IWAK the steps in between the workshops were executed by the regional actors and supported by IWAK with guiding information. The complete strategic process including the three workshops took a timespan of one and a half year per region.

In the future, such local conferences in the above-described specific form will no longer be held. However, IWAK will continue to strategically support regions in Hesse during the process of finding fields of action, defining and implementing measures and evaluating them.

### **How the practice is used**

By organizing the local conferences and supporting the decision making process and the implementation of labor market measures taken by regional actors, the regio pro project has very direct impact on regional VET systems. The following example provides insight into how regio pro impacts labor markets and VETs:

Odenwald is an administrative district in South-Hesse, Germany near Darmstadt and the Rhein-Main area with Frankfurt at its center. The AD itself is rural, continuously aging with a

declining population. Average age of the population is 44.9 years<sup>2</sup>, with a 44.2 per cent share of people over 50<sup>3</sup>. Single industries or industrial clusters do not dominate the regional economy. The general level of economic performance is low and the regional labor market is not very dynamic, especially compared to other nearby districts such as Rhein-Main, Rhein-Neckar, Darmstadt and Frankfurt.

The Odenwald AD participated in a regional conference in 2014, with the first of three workshops held in January. During this first workshop, IWAK presented a forecast for the 17 most relevant occupations in the Odenwald AD (77% of all employees represented). Out of those 17, the workshop participants selected seven occupations based on the forecast and the knowledge of present regional experts. These seven occupations were then analyzed in more detail with respect to future developments in demands and supplies. A final selection of three occupations/occupational groups as relevant fields of action followed, each occupation represented by a then formed work-group. The three groups were:

- Technicians, metalworkers, electricians
- Health/Elderly care professions
- Cooks and other catering trades

For all of the three occupational groups an analysis of existing measures as well as first ideas for possible future measures were created. Until the second workshop, more concrete future measures and responsibilities were specified by the work-groups.

During the second workshop in March 2014 the specified measures were presented by each work-group. The participants then identified general topics derived from these single measures. The general topics were

- Infrastructure
- Trainees
- Skilled workers (“Fachkräfte”)

For each topic, existing measures were analyzed by the participants. Afterwards the work-groups set future measures and programs including goals, a time schedule for the implementation, responsibilities and needed resources. Such measures included closer cooperation of regional employers (“Arbeitgebermarke”), an online platform for regional trainees (“<http://www.odenwaldkreis-ausbildung.de>”) and a program to increase regional

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<sup>2</sup> Project website of the Bertelsmann Foundation, <http://www.wegweiser-kommune.de/>

<sup>3</sup> Labour Market Monitor of the Federal Employment Agency 2013.

mobility („garantiert mobil“). Until the third workshop, the work-groups met again and the next steps towards the implementation of long-term measures for the identified occupations and fields of action were taken.

At the final workshop, each group presented final programs and measures they designed to address the identified problems in the region. In addition, they formulated demands towards the present District Administrator of the Odenwald AD for the realization of these measures. The District Administrator answered all these demands and chances for realization of the measures were presented – generally very positive in this case.

### **Why this Practice was felt to be significant and therefore included here**

regio pro is excellent example of a project, which supports regional policy making with two fundamental achievements:

- Supplying regional stakeholders with research data and thus providing a knowledge base for the analysis of current and future measures in the field
- Bringing together and supporting regional stakeholders in a process of designing and implementing new, suitable measures to address current and future issues in the labor market of a region.

Therefore, regio pro serves a good example of applied research for labor markets and VET-systems.

## 1.6.SECTORAL EXPERT PANEL IN THE LABOUR MARKET IN THE BASQUE COUNTRY

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**Author**

**Lanbide**

**Date**

**February 2015**

## Summary of the practice

In Lanbide, one of the tasks before us is to optimize the human capital we have and advise the one we haven't got registered, in order for them to have a better fit in the production system considering their educational level. To this end, Lanbide experiences a range of needs:

- Incorporate a greater value to the offer of Employment and Training programmes, getting closer to the needs of the driving productive sectors of our economy.
- Innovation and competitiveness are presented as critical levers to future economic growth
- Align public and private efforts to create and maintain employment.
- Lanbide should play the role of labour activation tool contributing to the social structure of the labour market in the Basque Country.
- Perform approaches under the sectoral perspective, conducting studies and analysis based on innovative and adapted methodologies.
- Designing an agile and practical tool, result oriented to adequately Lanbide's training offer to the needs of the labour market.

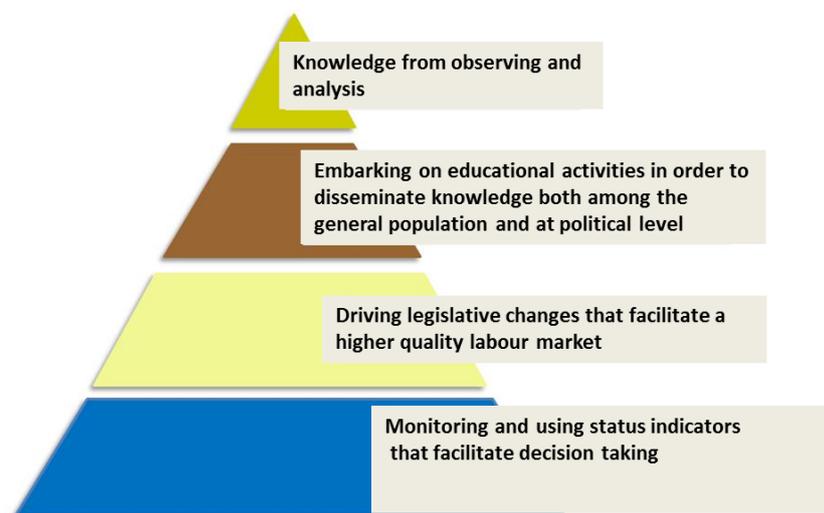
As a result of these needs, we proceed to a reflection process of a new Prospecting model of the labour market, introducing a new key tool to adjust the offer of employment and training to the perceived needs and transfer this information for planning, evaluation and monitoring of the training offer. Thus, the first panel of experts arises, which in summary translates into the following diagramme:



## Intended Impacts

In this sense the role of the observatories within the labour market analysis is the fundamental cornerstone. We all agree that this role must evolve from mere descriptors to active prescribers based on the knowledge they already have, acquiring a commitment to society and in particular to those who either want to improve their skills to achieve better employment quality or access labour market. In this regard, the role of the observatory and

therefore Lanbide as an instrument of labour activation, is the best contribution to the social structure of the labour market in the Basque Country.



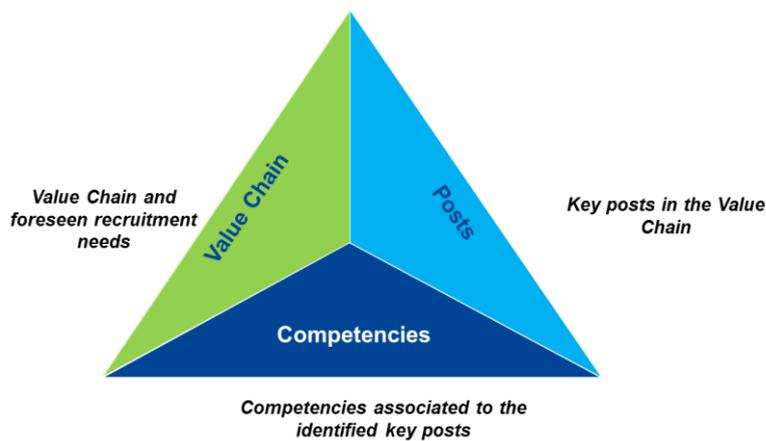
It is taken as a reference for the implementation of the pilot, the field of Renewable Energy and Smart Grids for its special presence in the Basque industry because it generates more than 9,000 jobs in the field of renewable energy and the sector is leader in international markets. Also, it is worth noting that the business is complemented by a solvent support of resources for research in new technologies and applications developed by the agents of the Basque network of science and technology (CIC Energigune, technology centers (Tecnalia IK4) and TIM UPV) in the field of renewable energy.

Structural Status	Economic Weight	Exposure to International Competition	Technology Component	Mainstreaming	Growth opportunity associated to Macro-trends
<b>New sector</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>
Three sub-sectors: <ul style="list-style-type: none"> <li>• Energy generation</li> <li>• Capital goods manufacturing</li> <li>• Energy engineering services.</li> </ul> Iberdrola, Petronor and Naturgas also help to the creation of a engineering and manufacturing goods sector with strong international positioning. Renewable energy would mean a change in the structure of the sector.	Key sector in the Basque economy. 34,000 jobs and a turnover of 15,000 million euros.	Need to compete against the key international players, both in energy generation and in the manufacturing of capital goods and energy engineering services	Both the engineering and capital goods sub-sector and the power generating companies in the Basque Country are world leaders in renewable energy. Their development will have a great impact on the ICT and electronic equipment sector and the bioscience industry.	Key role in the competitive development of Basque traditional sectors, with great energy dependency, such as the metal, paper, chemical sectors. Development of renewable may drive the Car Industry or the Eco-industry and traditional industries (ship-building, chemical, metal)	It is the driving sector in sustainability and clean technologies (together with the environmental goods and services sector) and will also be greatly affected increasing use of bio-nano technologies.

## Description of the practice and its content

The characteristics of the model of the Sectoral Expert Panel are described below:

- The starting point is the identification and prioritization of the sectors of interest.
- The linked priority sectors or subsectors are identified.
- The profiles of experts that will be part of the Panel are analyzed.
- Recruitment of experts.
- Number of sessions (to take into account the profile of the attendants; real chances of them taking the time).
- Duration (sessions of no more than two hours are recommended).
- It is complemented by a series of surveys to be performed on employment demand forecasts conducted between the first and second working sessions with experts



## How the practice is used

This practice serves to monitor a specific sector, defining by phases first its value chain and activities and then explore into the key job positions and the skills required for each activity sector. The scheme for the initial analysis is shown below.



WIND POWER	0. BUSINESS DEVELOPMENT/STRATEGY	1. DEVELOPMENT	2. MANUFACTURING & ASSEMBLY	3. OPERATING	4. REPOWERING
ACTIVITIES	<ul style="list-style-type: none"> <li>Development of the global business strategy</li> </ul>	<ul style="list-style-type: none"> <li>R&amp;D</li> <li>Project development</li> <li>Design</li> </ul>	<ul style="list-style-type: none"> <li>Manufacturing</li> <li>Assembly</li> <li>Facilities</li> </ul>	<ul style="list-style-type: none"> <li>Operating management</li> <li>Facility Operations</li> <li>Maintenance</li> <li>Repairs</li> </ul>	<ul style="list-style-type: none"> <li>Dismantling</li> <li>Repowering</li> <li>Convalidation</li> </ul>
2014 Job Forecast	<ul style="list-style-type: none"> <li>Maintenance of employment/Moderate growth in recruitment needs</li> </ul>	<ul style="list-style-type: none"> <li>Growth of the recruitment needs</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance of employment/Moderate growth in recruitment needs associated to new wind farms in new markets .</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance of employment/Moderate growth in recruitment needs associated to new wind farms in new markets .</li> </ul>	<ul style="list-style-type: none"> <li>Not currently considered a critical phase</li> <li>Maintenance of employment arising from the current average period to tackle Repowering: 10 years.</li> </ul>
Origin of the employment	<ul style="list-style-type: none"> <li>BAC</li> </ul>	<ul style="list-style-type: none"> <li>BAC</li> </ul>	<ul style="list-style-type: none"> <li>Manufacturing: BAC</li> <li>Assembly: residents in destination location of the wind farm.</li> <li>Temporary secondment of local teams</li> <li>Secondment from other sectors:                             <ul style="list-style-type: none"> <li>Naval (for off-shore wind farms)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>BAC</li> <li>Temporary secondment of BAC workforce for training/supervision (Maintenance Heads)</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> </ul>
Comments/ Barriers/ Opportunities	<ul style="list-style-type: none"> <li>Even though it is a critical phase, high-volume recruitment is not envisaged due to the small number of posts associated to this phase in each company.</li> </ul>	<ul style="list-style-type: none"> <li>Possibility of creating jobs for research profiles who can be employed at Technology Centres and other research stakeholders related to Energy.</li> </ul>	<ul style="list-style-type: none"> <li>Experienced local workforce:                             <ul style="list-style-type: none"> <li>Low level of English.</li> <li>Few willing to travel.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Hard working conditions associated to maintenance. Need to rotate/relocate in other sectors/positions.</li> <li>Experienced local workforce:                             <ul style="list-style-type: none"> <li>Low level of English.</li> <li>Not willing to travel.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Technological advances in the new machines may improve the yield associated to repowering, resulting in a shortening of the period to tackle this phase.</li> </ul>

## SMART GRIDS

ACTIVITIES	<ul style="list-style-type: none"> <li>Measuring, recording, integration of technologies &amp; telecommunications</li> <li>Energy distribution – advanced approach</li> </ul>
2014 Employment Forecast	<ul style="list-style-type: none"> <li>Moderate growth, subject to the telecommunications and network evolution and development.</li> <li>On a longer time horizon (4-6 years): higher growth in recruitment needs</li> </ul>
Source of the jobs	<ul style="list-style-type: none"> <li>Local</li> <li>Possibility of adapting other posts</li> </ul>
Comments	<ul style="list-style-type: none"> <li>Traditional training in electronic systems/Automation + additional training in distributed smart systems</li> </ul>

Finally each key job position is identified and collected, in order to have a detailed view of each job and its associated skills, developing a working form where the following fields are recorded:

*Example of Job Position Form*

KEY POST DATASHEET				
<b>Name of workplace</b>	<b>Post</b> PRODUCTION TECHNICIAN (blades)			
	<b>Associated phase</b> 2. MANUFACTURING AND ASSEMBLY			
	<b>Description</b> - In charge of manufacturing blades for wind farms. - Very similar skills profile to the repair technician (in Phase 3. OPERATING).			
<b>Stage of the value chain in which the position is developed.</b>	<b>Recruitment needs forecast/trend (1-3 years) (*)</b> - Employment sustainability/Moderate growth of recruitment needs associated to new wind farms on new ma			
<b>Forecasted trend of labor demand based on the input from participating companies.</b>	<b>General Knowledge areas</b> - Machine manufacture - Installation and Maintenance - Computers and Communications - Safety and Environment - Energy and Water - Other Areas			
	<b>Professional Group</b>	<b>Qualification</b>	<b>Unit of Competency</b>	<b>Competency</b>
	<b>MACHINE MANUFACTURE</b>	FME646_3	Various	Machining operations
		FME187_3		
		FME036_2 – Surface treatments	UC0104_2 UC0102_2	Surface Treatments
		FME357_3 PRODUCTION IN METAL CONSTRUCTIONS	UC1153_3 Programming automated systems in metal constructions	Automated systems
		FME187_3 PRODUCTION IN MACHINING, SHAPING AND MECHANICAL ASSEMBLY	UC0591_3 Programming automated systems in machine manufacture	
				Automated systems
			Others – Qualification/Unit of Competency of the National Catalogue of Professional Qualifications has not been identified for the following competency(ise)	Materials (fibre glass, new materials, corrosion reactions)
				Methods and times
				Infusion techniques
				Operating forklift trucks, gantry cranes, others.
			Documentary interpretation of drawings	

- Detail of technical or specific skills:**
- Identification of the skills associated with the job analyzed according to:
    - Associated Professional Family
      - ✓ Specific sector (energy and water).
      - ✓ Other Professional Families whose competency units qualify to persons employed in the job position: Electronics and Electricity, Safety and Environment, Information and Communications, Mechanical Manufacturing, Installation and Maintenance, Marine Fisheries, Physical Activities and Sports, Administration and Management.
      - ✓ Other type of skills for which a specific professional family has not been identified.
    - Competency units and specific qualifications that apply in each Professional Family, identifying where appropriate skills for which no competence unit or relevant qualification has not been identified.

## Why this Practice was felt to be significant and therefore included here

This practice is considered a success because one of the traditional demands of employers is the gap between formal education and actual skill needs. With this practice we get to translate these needs into specific aspects to consider (catalog of qualifications) when deployed to the catalog of training actions.

In fact, a particular module aimed at green jobs was developed which tried to introduce each and every one of the skills required and had very positive results:

- Immediate job placement **37%** . The areas with the highest demand:
  - Managing Industrial Energy Efficiency **56%**
  - Plastic Industry Efficiency **47%**
  - Environmental Certificates for the Market **41%**
  - Designing Renewables for Buildings **41%**
  - Ecodesign **40%**
- **17** individuals have become entrepreneurs
- **553** unemployed people trained (270 hours on average)
- **524** young people produced an eco-innovator project during 5 months at a company
- **40%** women **and 60%** men
- **37** training-work placement projects of **26** intermediaries
- **100%** of companies consider the qualification level appropriate
- **70%** of companies believe that the young worker with his/her project has made the company more competitive
- **513** organisation have embarked on green projects, **76%** industrial and private companies
- **50%** of the participating companies have substantially improved their environmental performance.

## 1.7. SCOTLAND'S SKILLS INVESTMENT PLANS (SIP)

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**Author**

**Dr Andrew Dean**

**Date**

**February 2015**

## Summary of the practice (half page max)

The Scottish Skills Planning Model was fairly recently established, with sector reports first being created in 2011, and ongoing. The model identifies the need for a strong evidence base to inform planning and delivery of skills to meet economic demand. The evidence base and planning generated through the Skills Investment Plans (SIPs) and the Regional Skills Assessments (RSAs) is central to the Model. RSAs provide an evidence base to help inform skills investment planning. SIPs go further by outlining a strategic plan, based on the evidence, with key strategic priorities and an agreed action plan. The SIPs are developed (in partnership with business, unions and government) by Skills Development Scotland (SDS) who are the national skills body supporting the people and businesses of Scotland to develop and apply their skills.

The SIP and RSA programme is an increasingly central driver of SDS' service delivery and investment and that of partners, in particular the Scottish Funding Council and regional colleges. It is at the centre of SDS' corporate strategy and both SIPs and RSAs have been heavily referenced in the recommendations of the Commission for Developing Scotland's Young Workforce and the recently published Youth Employment Strategy. Although SIPs and RSAs are not specifically referenced, Priority 1 of the newly published Scotland Economic Strategy includes reference to the importance of investing in people and the need to ensure that provision is delivered to meet employer and learner need.

They are a core component of SDS work and an essential part of providing evidence and planning with its partners.

This Case Study will look specifically at the SIP Model and how it generates the accompanying reports, and how these are used. The reports are entirely sectoral – apart from one for a peripheral region - The Highlands and Islands. This report focuses on Sector SIPs.

## Intended Impacts (1 page max)

SDS was formed in 2008 as a non-departmental public body, bringing together careers, skills, training and funding services. SDS plays a key role in driving the success of Scotland's economic future, working with partners to:

- Support individuals to reach their potential
- Help make skills work for employers
- Improve the skills and learning system.

SDS is preparing Scotland's workforce to maximise opportunities in today's dynamic world. SDS prepared a Planning Model to help explain their approach to impact (See Figure 1). The role of SIPs is to help understand the demand for skills within the existing and emerging

labour market. They are focused primarily within sectors, apart from one which looks at a particular region, with unusual characteristics (peripheral).

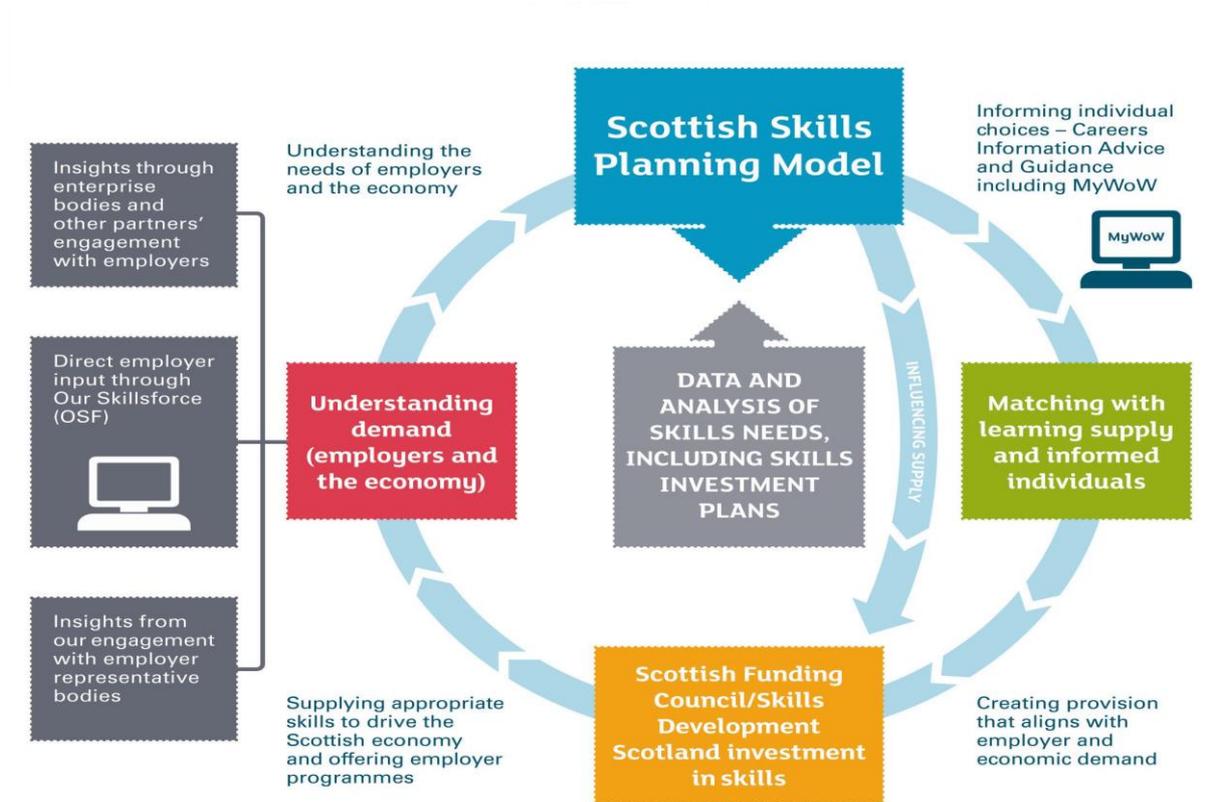


Figure 1. Scottish Skills Planning Model

## Description of the practice and its content (2 pages max)

The Scottish Skills Planning Model was fairly recently established, with sector reports first being created in 2011, and ongoing. The model identifies the need for a strong evidence base to inform planning and delivery of skills to meet economic demand.

The evidence base and planning generated through the Skills Investment Plans (SIPs) and the Regional Skills Assessments (RSAs) is central to the Model. The SIPs are developed (in partnership with business, unions and government) by Skills Development Scotland (SDS) who are the national skills body supporting the people and businesses of Scotland to develop and apply their skills.

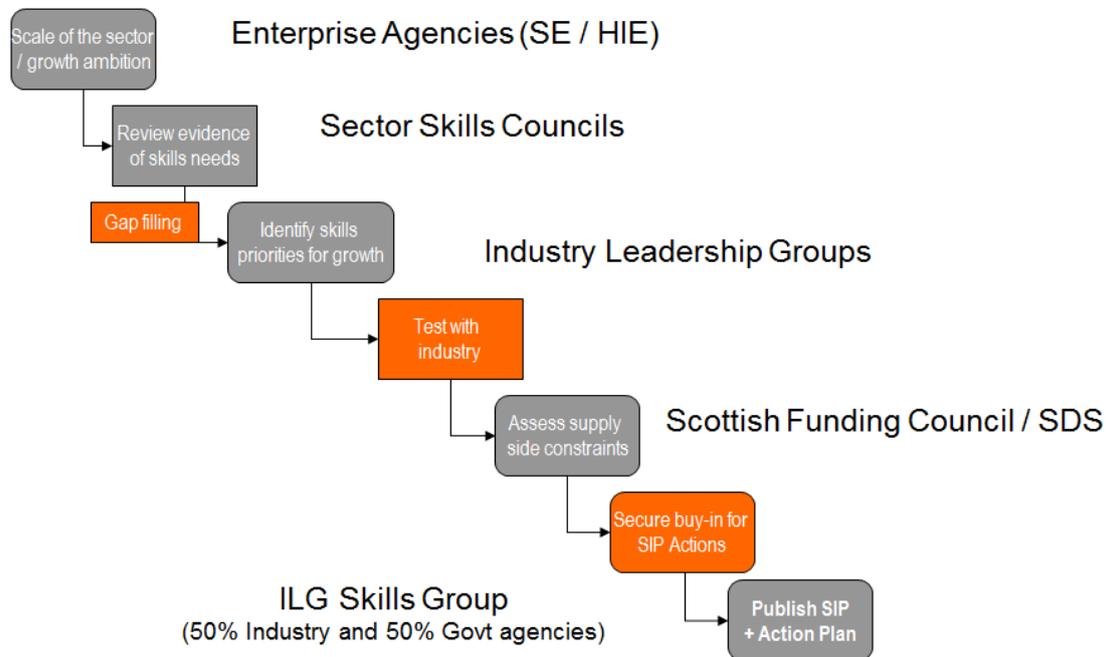
The table below summarises the state of play regarding SIP publication. By the end of 2014/15 financial year it is our aim that the full suite of SIPs will be in place.

<b>Sector</b>	<b>SIP Publication</b>
Energy	March 2011, 'refresh' underway and launched in March 2015
Food and Drink	June 2012
Tourism	March 2013
Finance	November 2013
ICT	March 2014
Life Sciences	April 2014
Engineering	August 2014
Chemical Sciences	October 2014
Creative Industries	In development – anticipated in first half of 2015
Construction	In development – launched in March 2015

Whilst there has been considerable effort required to develop SIPs, implementation of action plans of those SIPs already been published has been ongoing with the Sector Development Team working with ILGs and their skills groups to make progress on SIP action plans.

The processes involved in developing a SIP stress the importance of partnership working when understanding the demand for skills. Figure 2 illustrates the steps (below).

## Developing a SIP



**Figure 2. Steps involved in developing a new sectoral SIP**

The production of all of the sector SIPs has involved a review of industry publications and official data sources, leading on to consultations with stakeholders such as employers, industry bodies, universities, colleges and local authorities to understand the key issues facing the sector and its future skills needs. The SIP sets out a clear statement of the sector’s skills needs and highlights the skills priorities to be addressed to support the sector’s future growth ambitions.

As well as descriptive sections exploring skills gaps, demand and the labour market, SIPs includes a critical section on Action Planning. The action plan details the key actions that will be undertaken to support the growth ambition of the sector. It sets out specific short-term and longer-term actions, partners and inception timescales. An example of elements of an Action Plan is given below with regard to (for the Chemical Sector) two of the identified ‘Themes’.

### Theme 3: Upskilling of the existing workforce

Action	Description	Expected outcomes	Partners	Start date
Colleges to further develop provision to meet employer needs	Increase scale and relevance of activity. Involve industry in course design, share resources/staff	CSS to review the involvement of its members with education institutions and request greater involvement where required	Employers/ Colleges/ Universities	Q3 2015
Supporting use of Flexible Training Opportunities to support upskilling in the sector	Promotion of public sector support of FTOs	50 episodes of training supported through Flexible Training Opportunities Fund.	SDS	Q3 2015
Skills academy	Investigate options for an industry focussed skills facility to address company and geographic challenges	Feasibility study completed	CSS/SDS/SE	Q4 2014

### Theme 4: Better meeting employer demand

Action	Description	Expected outcomes	Partners	Start date
Soft skills training	Support the introduction of soft skills training	Graduates/post graduates better able to communicate their skills and attributes to potential employers	SFC/SDS	Q2 2015
Communication	Develop a chemical sciences zone on Our Skillsforce and on My World of Work	Information of Our Skillsforce and My World of Work viewed as up to date and relevant for both industry and students	SDS	Q2 2015
Sponsorship	Promotion to employers of the benefits of sponsoring university projects	Increase the need for people who understand the job e.g. continuous chemistry versus batch processes	CSS	Q2 2015

Figure 3. Elements of the Action Plan for the Chemicals Sector.

## How the practice is used (2 pages max)

Having worked through the programme of 10 SIPs, it becomes clear that there are several cross cutting themes that present consistently across the SIP action plans. Work is underway in SDS to develop a strategic approach to addressing these. The themes take the following broad form:

- To inspire and prepare the future workforce to engage in the career opportunities provided in the sector (i.e. sector attractiveness)
- Developing and investing in pathways to enable people to enter and build their skills in the workforce (i.e. entry routes, MAs, and transition training for existing workers)

- Providing specific support to address immediate workforce development needs (i.e. tactical one-off projects to fill a gap)
- Stimulating systemic change to ensure provision meets the needs of employers (i.e. right content, right place, right time)

Aside from the common themes in the action plans, there are other dimensions that are being considered in relation to implementing the SIPs so that opportunities to maximise impact are identified, for example:

- Related skill sets (e.g. customer service, STEM, management and leadership etc)
- Elements of an individual and business journey through skills system (i.e. school interventions, FE/ HE provision, workforce development)
- SDS service area
- Partner agencies' sphere of influence and responsibility

The SIP is used as part of a planning model to understand and rationalise the demand for skills. They particularly aim to understand the demand side of the skills 'market', consequently they seek to understand employers so that the system can be better at meeting employer need, including where there may be a need for a rapid response to new circumstances – new sub-sectors/skill sets or perhaps in response to the arrival or loss of a major employer.

It is also critical that the SIP is able to understand, through survey work, how attractive a sector is to new entrants, to enable it to change the way it is marketed/perceived and to indicate where certain sectors may struggle. As well as the future workforce, the SIP will also focus on the need to upskill the existing workforce.

In Scotland, as in the rest of the UK, there is a continuing policy move to try and ensure the skills system is responding swiftly and effectively to employer demand and to future skills needs. This is typically articulated in policies concerning the need for a more demand-led skills system. In parallel to this the SIP will also play a role in simplifying the skills system – and making it more transparent.

In Scotland, SIPs concentrate on tackling the following key questions:

- What is driving growth and change in the sector?
- How attractive is the sector (especially to young people)?
- Where are the skills gaps and skills shortages – and where do employers find it hard to recruit?
- What numbers and types of skills are coming out of the education system (Universities, Colleges, Modern Apprenticeships, Schools)?

- What are the prevalent employer views of skills system (Quantity, Quality, Appropriate skills?)
- What is the importance of international talent attraction for the sector?
- What are the major themes in current employer recruitment practices?

### **Why this Practice was felt to be significant and therefore included here (half a page maximum)**

*“The SIP sets out a clear statement of the sector’s skills needs and highlights the skills priorities to be addressed”*

The Skills Investment Plans (SIP) are an industry-led document developed by Skills Development Scotland (SDS) on behalf of the Scottish Government. They are the result of policies seeking:

- Explicit emphasis on skills policy as a driver of economic growth, and tool to address youth unemployment
- Alignment of skills provision with economic and employer demand
- Reflected in development of College Outcome Agreements
- (As with RSAs) From the Need for good quality LMI

These drivers are similar to those found within most European regions and could easily transfer to the drivers for most European Observatories. Furthermore there is recognition in Scotland that following reductions and losses to the LMI infrastructure at both national and regional/local levels – and also within the private sector ‘Sector Skills Councils’ – which have lost significant support from Government, there is a need to ensure policy decisions are informed from quality LMI.

The SIPs form a nice model of how to pull together a sector strategy, through partnerships, which lead to agreed goals and targets and are accompanied by detailed plans and monitoring.

#### **Overview:**

<http://www.skillsdevelopmentscotland.co.uk/resources/skills-investment-plans/>

#### **Example SIPs:**

[http://www.skillsdevelopmentscotland.co.uk/media/1266192/chemical\\_sciences\\_digital\\_skills\\_investment\\_plan.pdf](http://www.skillsdevelopmentscotland.co.uk/media/1266192/chemical_sciences_digital_skills_investment_plan.pdf)

## **1.8. STRATEGIC SECTORAL OBSERVATORIES: COMPETITIVE INTELLIGENCE SYSTEMS OF THE CLUSTERS IN THE BASQUE COUNTRY**

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**Author**

**Basque Government - Commerce and Tourism  
SPRI, Innobasque**

**Date**

**March 2015**

## Summary of the practice

This network of observatories are an instrument of the INNOVA-COOPERATION initiative from the Department of Industry of the Basque Government which aims to make available to the companies, especially SMEs the following tools in order for them to improve their results:

- A system to support the identification of needs as well as strategic intelligence mechanisms
- A framework for the promotion and revitalization of competitive intelligence activities within SMEs

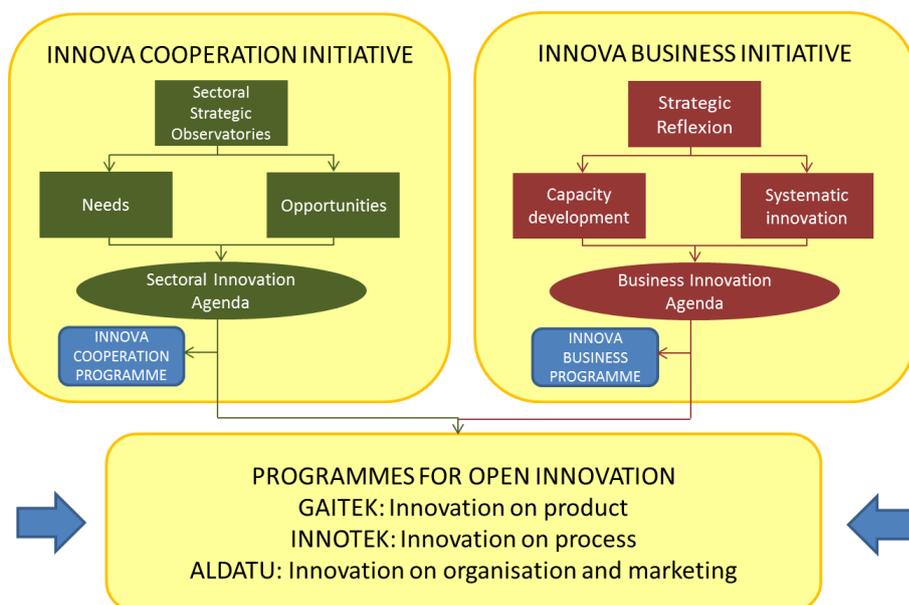
As mentioned, they are a network project conducted by the Technological Centres of the IK4 and Tecnalia corporations, serving the clusters of the Basque Country, with the aim of promoting cooperation to innovate and improve the competitiveness of the business base.

This project is launched within the framework of two government plans:

- Business Competitiveness and Social Innovation Plan 2006-2009
- Plan for Science, Technology and Innovation 2010.

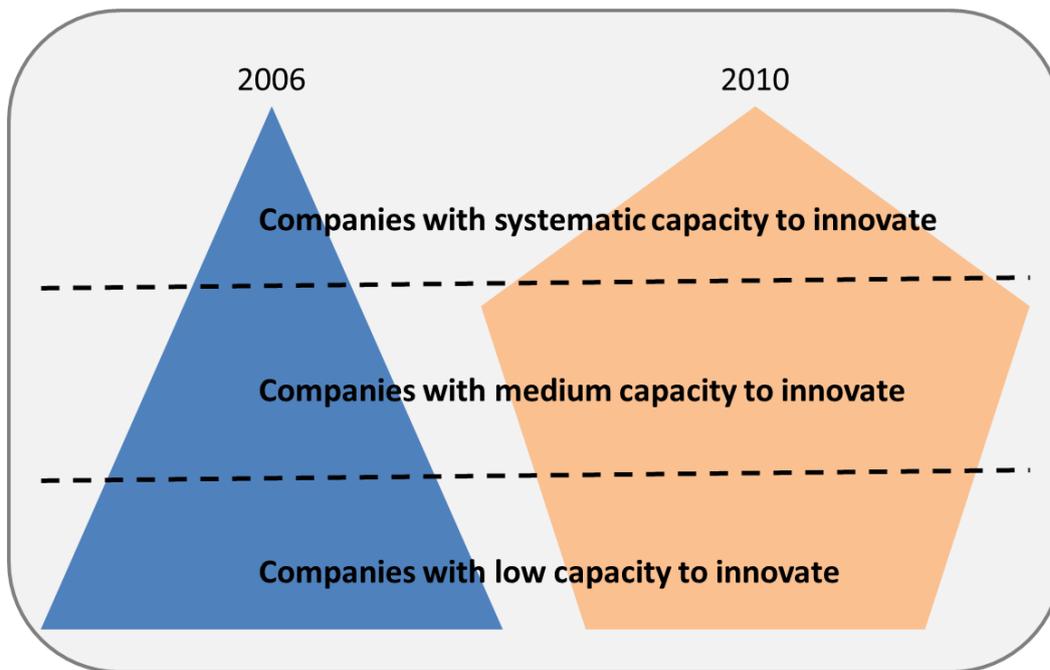
## Description of the practice and its content

The objective of the practice is the identification of needs and opportunities and the development of sectoral technological maps made through contracts or programmes with industry associations or clusters.



## Intended Impacts

The main objective is to raise the innovative level of the companies and to improve the competitiveness of the current economic base, focusing its activity mainly in companies with nothing or little innovation capacity, proposing the following scenario:



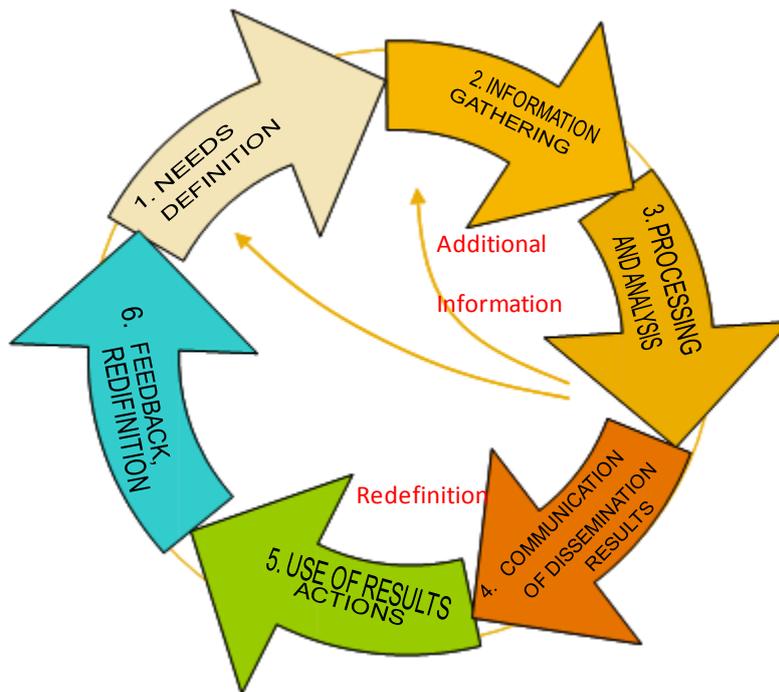
The specific objectives are:

1. Development and implementation of a search, collection, analysis and dissemination system of relevant information for the target companies.
2. Promotion and revitalization of competitive intelligence in SMEs, promoting collective activities
3. Implementation of a support system for identifying technology needs and innovation (innovation agendas, strategic lines, technological maps ...)

## How the practice is used

The practice is basically used by running two processes:

PROJECT 1: Monitoring / Intelligence. Scheme of the practice.



PROJECT 2: Revitalization. Milestones:

- Dialogue with the companies: identification of needs
- Collective Intelligence Activities: thematic analysis, conferences, etc.

All this is done by:

- 1- NETWORKING where it is appropriate to coordinate and collaborate between the different strategic sectoral observatories of the different clusters
  - a. Synergies of information
  - b. Intelligence system: problems and shared solutions
- 2- Mobilization by:
  - a) Promotion of Collective Activities
  - b) Education of Competitive Intelligence

### **Why this Practice was felt to be significant and therefore included here**

It is considered that this practice should be included since innovation is key to the survival of the Basque business industry that mainly consists of SMEs.

This initiative aims to provide these SMEs which usually have a medium-low modernization level with the necessary tools which are appropriate to their needs and help in their implementation.

## **1.9. TRAINING NEEDS ANALYSIS AND DETECTION STUDIES BY HOBETUZ**

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**Author**

**Eugenia Atin**

**Raquel Serrano**

**Date**

**February 2015**

## Summary of the practice

The following best practice is being developed at regional level by HOBETUZ – Basque Foundation for Continuing Vocational Training.

HOBETUZ was created for managing the Continual Training subsystem (aimed at workers with a job) in the Basque Country Autonomous Community. It was established in 1996 as a private foundation with public participation with a tripartite management by trade unions, employers (Basque Business Confederation Confebask) and the Basque Government.



As a consequence of regulatory variations since 2012, HOBETUZ is now part of Lanbide -the Basque Employment Service. As part of Lanbide, Hobetuz is the managing and directing body for Continuing Training and it is in charge of channeling all the financial resources intended for continual training plans for companies, workers and specialised centres that have signed the Agreement on

Continuing Vocational Training in the Basque Country. This requirement involves defining "an employed person" in the widest possible way and special attention is paid to small companies. HOBETUZ is mainly financed from the regular budget of the Basque Autonomous Community and from the funds derived from the European Social Fund budget.

Lanbide therefore, manages through Hobetuz the continuing vocational training and the general responsibility for promoting, amongst companies, workers and schools, an interest in continuing vocational training and the conditions for this activity to be as widespread and effective as possible. To this end, an important task is carried out with regard to detecting needs, promoting interest and defining the demand for continuing training and making use of vocational training centres for the implementation of continuing training offered to companies.

But apart from these pre-planned vocational training courses offer for employees, there is another possibility with a greater adaptation to the needs of companies. In order to become more competitive by improving skills and qualifications, companies can carry out their own specific study of their situation financed directly by Hobetuz. Financial aid is available to do this, as well as the possibility of obtaining assistance regarding methodologies to carry out the Training Needs Analysis and Detection Studies. Companies can also benefit from funding to develop strategic training actions (continuing training actions) understanding these to be

Training Plans directly linked to the business project that are supported by a prior needs diagnosis carried out by the company determining the priority of the actions and the workers they are aimed at.

These training needs analysis and detection studies financed by Hobetuz which can also be developed at a sectoral level are a good example of a smart information model for planning a training offer tailored to the business's needs.

## Intended Impacts

HOBETUZ defines its own mission as undertaking the management and direction of continuing training as well as promoting the interest in continuing vocational training amongst companies, workers and educational centers.

Among the objectives which the Foundation sets itself are the following:

- ✓ Fostering the preparation and development of training projects amongst companies and workers and supporting their training plans so as to improve their individual and collective competitiveness.
- ✓ Promoting training programmes which respond to the requirements of the various parties and agents.
- ✓ Encouraging the change of attitude which must take place in view of the need to adapt and innovate, to anticipate new professional demands, and to permanently update and develop knowledge in tasks and responsibilities.
- ✓ Generating amongst the organisations the conviction that the participation of the people and their identifying with the business project are key elements for the success of the said project.
- ✓ Prioritize those training projects which can prove the quality of their content and promote the competitiveness of the business structure of the Basque Autonomous Community.

Regarding the Training Needs Analysis and Detection Studies the intended impacts are focused on identifying:

- The situation of the knowledge within the company and its workers, and how this is managed.
- Existing imbalances between workers' knowledge and attitude and what is required to guarantee their future project.

- The description of actions and initiatives intended to overcome the detected imbalances, including time planning for the actions, the targets to meet, the methodologies to use and the forecast for their economic cost.

Therefore the ultimate impact pursued is that the company can develop an offer of vocational training tailored to its needs through which companies can ensure their future competitiveness and which will also be funded by Hobetuz.

## Description of the practice and its content

Continuing vocational training is essential to ensure the lifelong learning, the adaptation of the working people and businesses to the new knowledge-based society and the maintenance of the professional capacity of persons in case of changes in the production processes. Lanbide is in the process of changing from a supply model to a demand model - that is, to be guided by the training needs of the employed people in the Basque Country. From the “demand” side, Lanbide offers through Hobetuz financial assistance for the Identification of Training Needs within companies of the Basque Country.

Training Needs Analysis and Detection Studies are understood as a comprehensive analysis of existing imbalances between knowledge, skills and / or attitudes among those which are already on the organization and those which are required to ensure a future project of the company.

A training needs assessment should also contribute to:

- ✓ Design a training offer tailored specific needs of the company (not a catalog of courses).
- ✓ Systematize the needs analysis, planning and evaluation of training actions at technical, educational and economic level.
- ✓ Evaluate the profitability of the efforts at training.
- ✓ Improve the quality levels of products / services and processes.
- ✓ Facilitate the implementation of new methods and systems of organization and management.
- ✓ Increase the integration, motivation and commitment among workers to the goals of the company.

Training Needs Analysis and Detection Studies are part of a Hobetuz’s programme which is launched every 2 years and serves as a basis for improving the skills and qualifications of the workers of the



companies, in order to achieve greater competitiveness.

The financial resources available in the last call were of 1.200.000 euros to be assigned to companies with more than 10 workers, groups of companies and also business associations interested in identifying the needs of training within the workers of the associated companies. Financial aid is provided to undergo the assessment through external assistance and following a specific and certified methodology. The amount of the aid depends on the number of workers on the companies.

As an example the Training Needs Analysis and Detection Studies have to integrate the following information:

1. Information about the sector and medium-term challenges (trends and prospects for economic development of the sector at local and international level)
2. Skills required according to the previous information (professional skills).
3. The situation of knowledge within the company and its workers and the existing imbalances to guarantee the future project of the companies
4. Training plan, a set of training actions -based analysis / previous diagnosis of needs to which integrates the following elements:
  - ✓ teaching-learning objectives (impact on increasing the skills regarding the diagnosis and identification of training needs)
  - ✓ contents assigned to the Training Plan
  - ✓ Description of the methodology to be developed in each training action, grouping training actions by specialty and prioritizing, indicating duration and number of participants in each of them
  - ✓ Estimated cost of the training, differentiating internal and external costs
  - ✓ Entities training responsible for developing and providing training activities
  - ✓ Scheduled, location, facilities and means provided to impart training activities.
  - ✓ Criteria and methodologies that will serve for further evaluation of training programs.

## How the practice is used

### By the companies:

Once the Training Needs Analysis and Detection Studies are made, the companies are in charge of launching the training plan for the workers in order to improve the skills they have previously detected that they lack.

In this line, companies can also benefit from funding to develop strategic training actions (continuing training actions) understanding these to be Training Plans directly linked to the business project that are supported by a prior needs diagnosis carried out by the company determining the priority of the actions and the workers they are aimed at. The Training Plans which can be subsidised are:

- ✓ Company Training Plan, aimed at those companies with more than 35 workers (only in some justified cases having fewer employees, considering their conditions, the singularity of their training needs and/or the special characteristics of the productive sector to which they belong).
- ✓ Training Plan for Corporate Groups which have 50 or more workers altogether, a Group being understood as that in which any of the following circumstances can be proved:
  - They consolidate their balance sheets.
  - They are made up of subsidiaries of the same parent company.
  - They have common effective management.

Hobetuz subsidises training plans in the terms established each time they are called for, the following being the receivers:

- The company, in the case of company plans
- The heading company, in the case of corporate groups

Hobetuz carries out the inspection, verification and auditing of the subsidised plans.

#### **By Hobetuz:**

The information coming from all these needs analysis is then used as one of the major assets for the updating of the VT curricula. Specifically the information on the Training Needs Analysis and Detection Studies that has been developed at sectoral level by the business associations, or even those developed by large companies, contain relevant information for planning the continuing vocational training from the “supply” side offered to workers on these sectors and to be developed by Hobetuz through the Basque vocational training centers:

- ✓ Inter-sector training plans, aimed at training people in transverse and horizontal skills across various sectors of the economic activity.
- ✓ Sector-based training plans, aimed at training people in a specific production sector, in order to develop general training actions for this sector and satisfy specific training needs for them.

- ✓ Training plans that include people and partners from two or more cooperatives, labour societies and other companies and entities from the social economy that, without belonging to the same production sector, tackle training demands derived from their legal nature or from transverse needs.
- ✓ Training plans that incorporate freelance professionals in order to improve their skills related to their work, either in their sector or transverse or horizontal.
- ✓ Training plans associated with the Basque Modular Vocational Training Catalogue.

### **Why this Practice was felt to be significant and therefore included here**

Conducting a proper diagnosis of the training needs of the workers in a company is a guarantee as to the effectiveness of training plans developed as a result of the diagnosis. This practice is a good example on how a vocational training offer can be developed in a way which is directly tailored to the business's needs.

This can be addressed because the companies, through a systematic methodology and external technical support provided by Hobetuz through financial aid, identify their training needs, reflected these in an action plan to be developed by vocational training centers who provide this training offer to their employees through, once again, the financial aid provided by Hobetuz. Therefore it is a good example on how public institutions can intermediate for a better knowledge of companies needs for planning vocational training.

Continuing training courses are an important source of relation between VT centres and companies. Company workers who attend these courses have a chance to become acquainted with the centres, teachers and equipment they have at their disposal. Similarly, via the workers, the teachers come to know the problems companies are facing in their daily activity and update their knowledge of business reality.

## **1.10.NATIONAL LABOUR MARKET INTELLIGENCE FOR VET: *WORKING FUTURES AND LMI FOR ALL.***

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**Author**

**Dr Andrew Dean**

**Date**

**January 2015**

## Summary of the practice

The United Kingdom Commission for Employment and Skills (UKCES) are a publicly funded, industry-led organisation that offers guidance on skills and employment issues in the UK. UKCES is an executive non-departmental public body, sponsored by the Department for Business, Innovation & Skills.

Created on 1 April 2008, as a key recommendation of the 2006 Leitch Review of Skills<sup>1</sup> (that played a major role in shaping UK Skills Policy) UKCES makes effective use of labour market intelligence in various formats – particularly business surveys and has a number of very interesting outputs and approaches.

'*Working Futures*' and '*LMI for All*' are critical initiatives directed by the UK government to bridge the gap between the demand for labour and the supply of qualified labour. They are different but form part of the same offer.

*Working Futures* is a good example of a national level forecasting approach seeking to establish what skills will be needed in the future and where there may be issues of supply.

The provision of *LMI for All* in its current format represents another example of the marketization strategy of the UK government where data is made available for private sector (and others) to package and sell.

**Available language:** English

**Websites:** <http://www.ukces.org.uk/>  
<http://www.ukces.org.uk/ourwork/working-futures>

## Intended Impacts

The UK Commission for Employment and Skills (UKCES) is a publicly funded, industry led organisation providing strategic leadership on skills and employment issues in the UK. Its strategic objectives are to:

- Provide outstanding labour market intelligence which helps businesses and people make the best choices for them;
- Work with businesses to develop the best market solutions which leverage greater investment in skills;
- Maximise the impact of employment and skills policies and employer behaviour to support jobs and growth and secure an internationally competitive skills base.

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<sup>1</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/354161/Prosperity\\_for\\_all\\_in\\_the\\_global\\_economy\\_-\\_summary.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/354161/Prosperity_for_all_in_the_global_economy_-_summary.pdf)

These strategic objectives are supported by a research programme that provides a robust evidence base for their insights and actions and which draws on good practice and the most innovative thinking. The research programme is underpinned by a number of core principles including the importance of: ensuring ‘relevance’ to their most pressing strategic priorities; ‘salience’ and effectively translating and sharing the key insights they find; international benchmarking and drawing insights from good practice abroad; high quality analysis which is leading edge, robust and action orientated; being responsive to immediate needs as well as taking a longer term perspective. The Commission also works closely with key partners to ensure a co-ordinated approach to research. This Case Study highlights two elements of the Commission’s research and dissemination programme:

- *Working Futures* - the most detailed and comprehensive set of UK labour market projections available; and
- *LMI for All* – a new initiative designed to widen access and utilisation of government funded labour market statistics.

## Description of the practice and its content

### Working Futures 2010-2020<sup>2</sup>

The latest in a series of labour market projections commissioned by UKCES, the results present a medium to long term view (5-10 years ahead) of employment prospects by industry, occupation, qualification level, gender and employment status for the UK and for nations and English regions. The projections are designed to answer two main questions:

- Where will future jobs emerge from?
- What are the implications for both skills supply and demand?

The projections indicate what is likely to happen to employment – disaggregated by sector, region, gender, occupation, etc. - highlighting the full impact of the recession, and indicating the likely path to recovery. They also provide new evidence on the impact of the recession on a range of other indicators, such as productivity and unemployment. They utilise the latest official employment data, as well as factoring in the consequences of the Comprehensive Spending Review (CSR), and other economic policies introduced by the Government. The projections are based on the Cambridge Econometric (CE) macroeconomic forecasts, produced in the spring of 2011 and incorporate occupational projections

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<sup>2</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/298510/working-futures-2012-2022-main-report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298510/working-futures-2012-2022-main-report.pdf)

developed by the Institute of Employment Research (IER) based at the University of Warwick.

Estimates of replacement – as well as expansion - demand are a key feature of the occupational projections and are particularly useful in assessing education and training provisions, since they quantify the number of workers needed to enter different occupations in order to offset outflows to retirements and occupational mobility etc. It is essential, for employers, education and training providers, and public agencies to recognise the different characteristics and requirements of these two different components of future skill needs. The estimates of replacement demand are informed by data on the age and gender structure of occupational employment, and rates of outflows due to retirement (and other reasons for leaving the workforce), inter-occupational mobility and mortality.

A technical report describes the structure and composition of the model in some detail. It is based on a Keynesian structure incorporating an input-output matrix and comprising over 5,000 behavioural and technical relationships. The main components are equations explaining consumption, investment, employment, exports, imports, and prices. The projections focus on employment by occupation, cross-classified by sector and a spatial dimension down to individual countries within the UK, and regions within England. Results for employment are reported by:

- gender;
- employment status (full-time/part-time/self-employed);
- occupation (one and two digit occupational groups);
- expansion and replacement demand, as well as net requirements; and
- qualifications (6 broad QCF levels).

The analysis also considers the labour and skills supply. Consistent projections of labour supply have been generated by:

- gender; and
- age (7 broad age groups: 0-15, 16-24, 25-34, 34-44, 45-54,60-64, 65+).

Headline projections of the highest qualifications held by the working age population, those economically active, the unemployed and the employed, have been developed.

The results from the model are presented in a series of reports. These include a main report and an executive summary, reports focussing on sectors and Scotland, and a technical report. In addition a body of more detailed sectoral and spatial analysis can be accessed via a dedicated *Working Futures* data portal. For reasons of data confidentiality access is only available to analysts who hold a Chancellor of the Exchequer's Notice.

### LMI for All<sup>3</sup>

*LMI for All* is a data portal which brings together existing sources of LMI in one place. At heart this is an open data project, which supports the wider government agenda to encourage use and re-use of government data sets. The portal makes data available and encourages open use by applications and websites that can bring the data to life for a range of audiences. This is an open data project, which is supporting the wider government agenda to encourage use and re-use of government data sets.

*LMI for All* includes information from two key products from the Office for National Statistics: the Labour Force Survey and the Annual Survey of Hours and Earnings; plus data from two products from the UK Commission for Employment and Skills: the Employer Skills Survey and *Working Futures*. It also includes vacancy data from Universal JobMatch (data from jobCentres), and data on skills, interests and abilities from the US O\*NET database.

The data is organised around Standard Occupational Classification (SOC) codes, and is freely available via an API. The data within LMI for All is all available under an open government license. This means that individuals and organisations are welcome to use the data for any purpose, including commercial use.

LMI for All data can be used to power apps and websites. We find that the data is most effective and useful when presented alongside qualitative information. Organisations such as iCould, RCU and Active Informatics currently use LMI for All data in their websites, and you can find a range of examples of how LMI for All can be used here.

## How the practice is used

### Working Futures

While no formal evaluation of *Working Futures* outputs exists the projections are fairly widely cited within national and local research documents. For example, the Marchmont Observatory at the University of Exeter drew extensively on the projections when forecasting skills needs within its assessment of the evidence base for the Solent LEP Skills Strategy. As such they are a widely known and frequently cited source among the employment and skills research and policy community. *Working Futures* and *LMI for All* data are also used extensively by the careers guidance community. *Working Futures 2012-2022* (Wilson *et al.*, 2014) is the fifth in a series of decade-long projections of the UK's labour market. It arrives in a time of changing economic prospects.

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<sup>3</sup> <http://www.lmiforall.org.uk/>

Employers considering the workforce needed to deliver on plans to invest and grow, employees seeking to develop a career or finance retirement, or policymakers looking to promote quality jobs and see rising living standards: all of us have an interest in understanding the variables at work in shaping employment and skills over the decade to come. *Working Futures* doesn't give easy answers on those questions; but instead gives a baseline founded on rigorous assumptions about some of the key economic, technological and social trends, against which we can test our own opinions and expectations.

*Working Futures* is an exercise in quantitative labour market projection: it sets out, on the basis of clear assumptions, how the composition of the workforce will change over time. In the pages to follow, there are breakdowns by industry sector, by occupation, and by qualification level. What *Working Futures* doesn't explore is how those categories may themselves be constantly evolving. Through changing working practices and new technologies, the same job can evolve a very different set of skill levels and task requirements over a decade. For this reason, as a complement to *Working Futures*, the UKCES is also publishing an analysis of the qualitative shifts that may be on the horizon, in a new report called *The Future of UK Jobs and Skills* (Störmer *et al.*, 2014)<sup>4</sup>.

### LMI for All

Organisations are currently beginning to use *LMI for All* data in their websites. Examples include:

1. RCU, an education consultancy, have created a dashboard with the data to help inform curriculum strategy.
2. The data are also being used in iCould, a careers site featuring videos and articles of people relating stories of their career journeys. The UK Commission has commissioned an example application demonstrating what can be done with the data.
3. Career Trax has been developed to demonstrate the potential of *LMI for All*, and to encourage use of the data in new and innovative ways. This application draws on only part of the data and functionality available from *LMI for All* and there is scope to tap into the portal in a whole host of additional ways. Career Trax is best accessed using Google Chrome.

*LMI For All* also provides an easily customisable widgets for use on websites and has run competitions to help develop new Apps and draw attention to the new service.

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<sup>4</sup> <http://www.z-punkt.de/en/studien/studie/future-of-work/54>

*LMI for All* data has now achieved Pilot level certification from the Open Data Institute, which means extra effort has gone in to supporting and encouraging feedback from people who use the open data<sup>5</sup>.

### **Why this Practice was felt to be significant and therefore included here**

The *Working Futures* projections form a core part of the base of labour market intelligence that is available to support policy development and strategy around careers, skills and employment. While the main rationale for producing these kinds of projections is no longer that policy makers will engage in any kind of detailed, top down, planning (or anticipation) of the labour market. It is more about providing information to allow individual actors throughout the system (individuals making career choices, educational and training establishments and employers generally) to make better informed decisions.

There is never any shortage of speculation about the future of the workplace. What UKCES set out to do with *Working Futures* is move beyond isolated, anecdotal guesses and offer a rigorous, evidence-based projection covering the entire UK labour market. They do this by drawing on the best available evidence, in the form of hard data on trends in demographics, education, employment and the wider economy, and by using a set of proven models to work through how they are likely to evolve over a ten year timescale.

*LMI for All* is included as an interesting example of how government can make data available to organisations to use to help them whether they are demand side or supply side orientated. In theory it could be a cost-effective way to encourage better skills matching within the labour market without seeking to impose restrictions on course delivery and design from the centre.

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<sup>5</sup> <http://www.ukces.org.uk/ourwork/research/lmi/lmi-for-all#sthash.P1BpEjH1.dpu>



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## 2. MONITORING



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## **2.1.ACTIVE MATCHING: STRATEGIC SUPPORT FOR COUNSELLING WITHIN LABOUR MARKET.**

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**Author**

**Zdeňka Šimová**

**Date**

**February 2015**

## Summary of the practice

This practice is focused on identifying employers' requirements on workforce in the South-Moravian Region of the Czech Republic and assessing whether or not the requirements are referring mainly to education, level of qualification and work experience or to competencies. The practice is based on the Swedish approach to monitoring employers' requirements on workforce, which uses competency-based qualitative interviewing. The Swedish scenario of a semi-structured interview was adapted to Czech conditions. 200 employers in the South Moravian Region were interviewed. Pronounced requirements on workforce refer mainly to education, professional qualifications and experience and the resulting specific professional competencies. To a large extent the requirements were focused on values, attitudes and character traits. The general specialized competencies and soft skills were also mentioned, but mostly as last in order. The requirements varied according to the size and orientation of the company and the nature of the vacancy.

Project language: Czech

Web page [http://www.cepres-muni.cz/wp-content/uploads/Kvalitativni-monitorovani-a-prognozovani-trhu-prace\\_Svedskou-cestou1.pdf](http://www.cepres-muni.cz/wp-content/uploads/Kvalitativni-monitorovani-a-prognozovani-trhu-prace_Svedskou-cestou1.pdf)

## Intended Impacts

Currently, the need to develop communication between the Labour Office and employers aimed at improving LMI (Labour Market Intelligence) is getting under the spotlight. It becomes more and more evident that due to lack of information on current employers' needs, inadequate (intuitive) matching of job seekers to job vacancies often takes place. The new procedure seeks to improve LMI and counselling within the Czech labour market. In order to achieve this objective, the Swedish methodology of monitoring and projecting skill needs of the employers in regional labour markets was used. This methodology underwent an assessment procedure during which it was compared to methodologies used within the active labour market policies in the CR and it was assessed in terms of transferability to the local environment. Assessment and subsequent evaluation were based on a thorough reflection of the existing state of monitoring and analysis of regional labour markets carried out over a long term by the Czech public employment services (PES).

The currently used methodology for skill needs monitoring in the Czech Republic has its strong points as well as its weaknesses. The strong points include, for example, exhaustiveness with which it covers all the employers in regional labour markets. The method of questionnaire surveys is being applied as a basic instrument for monitoring

practically in all regions. The weak points include the lack of uniformity resulting in low comparability of the results between individual regional labour markets and the lack of emphasis on monitoring broader range of skills (occupational competencies) demanded on regional labour markets. Universally applicable and yet more specific as well as differentiated method of collecting data on employers' skill needs is responding to (1) the current change of situation on the labour market and (2) the current reforms of labour market regulation.

The main issues in terms of the existing labour market regulation in the CR and specifically in terms of the recruitment counselling and focus of active employment policy programmes include insufficient co-ordination of co-operation between different types of stakeholders. Only development of indirect co-ordination mechanisms can improve the quality of (public as well as private) employment services and streamline their regulatory effects.

The fact that since 2012, the employers have no obligation to notify the Labour Office about incurring vacancies represents another risk factor in terms of counselling process within the labour market and it constitutes a drawback particularly for the current forms of monitoring of employers' skill needs. In the meantime, the Labour Office has lost comprehensive database on development and contents of vacancies supply and thus decreased also its ability to influence supply and demand in the labour market.

## **Description of the practice and its content**

The new methodology for analyses and projections of skill needs is based on the following steps: 1. Setting up a representative sample of enterprises; 2. Developing questionnaires enabling to obtain basic data; 3. Interviewing key persons in selected enterprises; 4. Summarising and processing collected data; 5. Data analysis and placement in broader economic context with the aim to project potential skill needs at regional as well as national levels; 6. Setting up local advisory groups consisting of representatives from state authorities, employers' organisations and the Ministry of Education, Youth and Sports (MŠMT). The task of such an advisory group is to support the implementation of interviews in enterprises, provide feedback related to the results analysis, application of the results within the individual activities of the advisory group members and dissemination of the results among other related stakeholders.

The interviews are carried out on regular basis - twice a year.

The asked questions concern:

1. Labour market development (modification in demand for products/services during the last 6 months, for the following 6 months and the following year);

2. Level of capacity used (how much can the enterprise increase production, or sales of services and products without having to invest into facilities/equipment and without having to hire a new employee);
3. Employment and recruitment (the number of employees one year ago, at present, next year and in two years time, the changes in number of employees last year and the outlook for the future – the number of retirements, the number of new employees, the number of seasonal workers, the professions needed to be hired next year, qualification requirements and required work experience);
4. Workforce shortage (difficulties to fill in vacant positions and the consequences for the relevant workplace, increase in average wage in the last year – the question seeks to ascertain whether the workforce shortage will result in growth of wages – the first sign of rising inflation);
5. Expected development for the following 5 years. It turns out that when being asked about the next 5 years, the employers feel to be less limited by specific numbers and they tend to present their ideas and visions for the future development of their enterprise. When the question concerns the time period of one year, the employers feel to be forced to give a very accurate answer.
6. Workforce competences; as the mere name of the occupation does not fully reflect employers' requirements on workforce competences, they need to be specified in further detail. There are included also questions related to professional competences and soft skills, personal characteristics, etc. Organising the database of job seekers at the labour offices according to competences allows to link employers' requirements for skills directly to the skills bearers – job seekers, or in the absence of required skills to the training/education.

Results of the analyses of data from questionnaire surveys carried out among the employers are presented in the *Report on the projections of labour market development (Zpráva o prognózách vývoje trhu práce)*, which deals with the following topics:

1. Demand for products and services (as business cycle indicator);
2. Employment rate (decrease or growth);
3. Workforce supply and demand (recruitment and job seekers);
4. Information on skills employers require in particular occupations.

Employers are not obliged to participate in the surveys. Experience shows that collected data tend to be more reliable if the employers provide the information on voluntary basis.

Close attention is paid to the presentation of monitoring outcomes both within the public employment services and also externally. In relevant departments of the Labour Office, the employees discuss analyses outcomes and their impact on the activities of individual labour office branches. Operational plans for the activities of the Labour Office and its branches as well as other subjects – such as educational institutions - are developed on the basis of the

analyses. Wide public is being informed about the results by means of regular press conferences held at national as well as regional levels or through the Barometer or Occupational Compass (Kompas profesi).

Several local labour markets in South Moravia were selected for the purposes of a pilot survey testing in the CR the new methodology for analyses and projections of the labour market. Emphasis was placed particularly on modification of the existing method of communication with the employers and on collecting a new type of labour market information. Interviews with 200 employers were carried out during the period of October 2013 – January 2014, by specifically trained 10 employees of the local labour offices.

It was not necessary to include all the employers within the relevant area in the survey. The employers were selected based on the Labour Office database created during previously conducted annual Labour Force Survey in the South Moravian Region. The biggest employers from each district were selected. The SMEs were also contacted and the selection within that group was carried out by means of random stratified sampling. Emphasis was placed on mapping specifics in sectoral composition of the economy in South Moravia with the regard to the extensively developed agriculture and viticulture.

The information obtained from the questionnaires was also used to verify the method of active matching of the supply to the demand on the labour market, based on qualitative information on job vacancies with employers. The information was, in a standardized format, passed to the staff of the Department for Employment at the labour offices. Their task was to search the job-seekers database for candidates with the skills required by the employers. This process has been longer and more demanding than during commonly conducted mediation of employment, which usually does not make use of qualitative information on candidates. Therefore application of active matching would require strengthening the capacity of the labour offices. The same conclusion has been reached as for the implementation of the questionnaire survey - it counts on personal visits of the labour offices workers to the enterprises. However, it evidently increases the quality of the information obtained.

### **How the practice is used**

The pilot study verified transferability of the adapted Swedish methodology to the Czech labour market and confirmed the feasibility of collecting quantitative and qualitative data from the employers in the required structure (combination of qualification and skill requirements). It clearly proved that the staff members of the Labour Office of the CR are fully prepared and competent to carry out the collection of data related to the workforce

demand and labour market by means of interviews conducted with the representatives of the employers.

The proposed methodology for monitoring and projecting labour market development is in line with a number of strategic goals, objectives and measures formulated in the Strategy for Employment Policy 2020 developed by the Ministry of Labour and Social Affairs of the CR in 2014. The stipulated priorities include further development of employment services with emphasis on monitoring and projections of the labour market. The introduction and adaptation of proposed methodology will result in obtaining new insights and improved basis for projecting labour market needs.

However, the implementation of targeted square monitoring is limited by the existing organisational capacity of the Labour Office of the Czech Republic. Also the follow-up processing of information and specific linking of supply and demand on the labour market face certain obstacles particularly due to the high number of job seekers per mediator and insufficient support from information systems.

Information obtained from interviewing employers does not constitute the only highlight. Also the process itself, in which the employees of the public employment services enhance their professional skills by means of self-learning while collecting data, contributes to the development of the Labour Office of the Czech Republic as a self-learning organisation. It has proved to be able to modify its ingrained practices through knowledge and skills acquired while interacting with employers. Developing co-operation and partnership between public employment services and employers represents an equally important aspect.

#### **Why this Practice was felt to be significant and therefore included here**

The applied method for determining skill needs through interviews conducted by the employees of the labour offices with selected employers enables, in addition to quantification of the existing and future need for workforce, to detect also the qualitative nature of the tasks carried out within particular occupations. Thus specific activities within individual occupations will be mapped, including also the skills required, which will result in more accurate definition of requirements on workers and the possibility of comparing their skills to the employers' needs. Orientation based on the title of an occupation is not specific enough for the purposes of job placement and career guidance; it does not allow for an exact specification and may lead to unfulfilled expectations of the employers. Comparing the job seekers' skills to the requirements of the employers allows – in case of a mismatch – for targeted acquisition of missing knowledge and skills through retraining and at the same time – over a longer term – for modifications in educational programmes of vocational schools

training potential candidates for given occupations. The contents of occupations also evolve over time and the changes detected by means of direct surveys with employers can be transferred to the training process in order to match available skills on the labour market to the needs of employers.

The system thus contributes to addressing long-term structural deficits in workforce supply and its linking to the demand for labour.



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## **2.2. PROVISIONAL OF LABOUR MARKET INTELLIGENCE FOR VET PROVIDERS IN THE CONSTRUCTION INDUSTRY**

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**Author**

**Dr Andrew Dean**

**Date**

**January 2015**

## Summary of the practice

The Construction Industry Training Board (CITB) is the Industry Training Board for Construction and a partner in the Sector Skills Council for the construction industry<sup>1</sup>. It is a social enterprise devoted to building competitive advantage for the construction industry and the people who work in it. It collects a levy from construction employers and uses this to provide:

- Employer support
- Information, advice and guidance for those seeking Careers in construction
- Research including labour market forecasting to anticipate and plan for skills needs
- Qualifications & standards for the industry

The CITB also sells and delivers training and skills related products and supports or manages services on behalf of other organisations (such as the industry card scheme). It receives funding from the UK Commission for Employment and Skills to fulfil functions of the Sector Skills Council (for example, strategic planning<sup>2</sup>).

The CITB's main vehicle for the provision of market intelligence and insight is the Construction Skills Network (CSN)<sup>3</sup>. The CSN has two principal components: forecasting models, designed and managed by a private research company, Experian; and a membership body of 700+ representatives drawn from government, federations and employers whose primary role is to validate and test the forecasts and assumptions produced by the CSN.

**Available Language:** English

**Website:** <http://www.citb.co.uk/>

## Intended Impacts

The 1964 Industrial Training Act gave the then Minister of Labour statutory powers to create industrial training boards which would be responsible for training in a number of UK industries, setting standards and providing advice to firms. This Act (amended in 1982) gives CITB its mandate to collect a levy from construction employers and to use this to support training and skills in construction. Services provided through the levy system include:

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<sup>1</sup>In partnership with the Construction Industry Council (CIC) and CITB Northern Ireland. The Sector Skills Council is responsible for developing training strategy and influencing supply and funding for the whole construction sector.

<sup>2</sup>Including the production of the joint CITB and Construction Skills "Construction Skills Strategy 2012-2017".

<sup>3</sup><http://www.citb.co.uk/research/construction-skills-network/>

- Financial support to employers
- Advice for employers about training needs
- Information, advice and guidance for those seeking careers in construction
- Research including labour market forecasting to anticipate and plan for skills needs
- Qualifications & standards for the industry
- Specialist training facilities and services

As a social enterprise and charity, CITB sell training and skills related products that its beneficiaries need; so that any profit can go towards its work for industry.

CITB are seeking to influence the demand and supply of training and skills delivery. They influence demand through working closely with individuals and employers to help them appreciate the opportunities available and skills needs of the future construction workforce in a changing sector and simultaneously work with training providers to ensure they appreciate how the training they provide will need to evolve and where potential issues (skills gaps etc...) may be appearing. The CITB has a long history of using labour market intelligence to inform its work. Today, market intelligence (or 'insight') is primarily used:

- to provide career-related information for people considering or developing careers within the industry;
- to help employers become more competitive through skills development (i.e. offering more and/or better training)
- to help the skills infrastructure respond swiftly to changing and emerging areas of skills demand (including, for example, within industry re-training to correct imbalances in supply and demand and identifying the training implications of emerging markets, technologies or practices).

## Description of the practice and its content

The CITB and Construction Skills also draw heavily on labour market intelligence to inform their own (internal) business and strategic planning. For example, the joint CITB and Construction Skills "Construction Skills Strategy 2012-2017" draws on CSN intelligence to identify industry-wide education and training needs and help shape organizational direction to ensure the industry has the right skills at the right time in the right place.

CSN intelligence also underpinned the development of an awareness raising campaign, articulating the impact of the industry to Central Government at a time of intense competition for funding.

More specifically, CSN intelligence and trend insight is designed to

- Pinpoint the associated, specific, skills that will be needed year by year
- Identify the sectors which are likely to be the strongest drivers of output growth in each region and devolved nation.
- Track the macro economy
- Understand how economic events impact on regional and devolved nations' economic performance
- Highlight trends across the industry such as national and regional shifts in demand
- Plan ahead and address the skills needs of a traditionally mobile workforce
- Understand the levels of qualified and competent new entrants required into the workforce.

The CITBs research needs are determined by its role at SSC and ITB and are influenced by economic drivers, immediate and emerging policy issues and industry skills challenges. To meet these needs, the CITB harnesses a research process that includes:

- Continuous labour market intelligence
- Analysis of industry change – economic, demographic and technological
- Forecasting labour and skills requirements
- Bespoke primary research
- Evaluation work

## How the practice is used

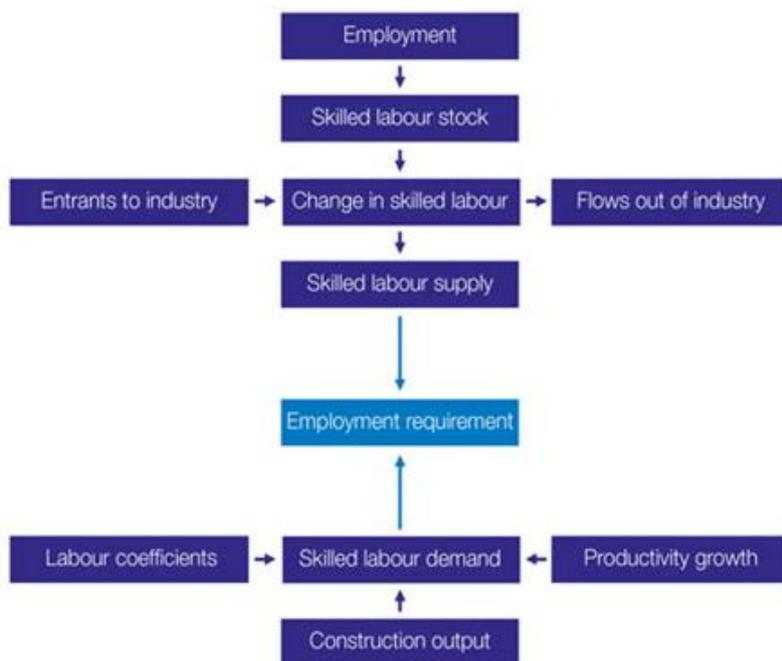
The CITB deploys an evolving but highly effective model for generating and validating its labour market intelligence – the Construction Skills Network (CSN). The CSN has two primary components: a skills forecasting model; and a 700+ strong membership body that supplements and validates the results generated by the model.

The membership network functions at the regional and national level. It comprises of a National Group, Observatory Groups operating across the English regions and devolved administrations; and a Technical Reference Group. The groups are made-up of representatives from industry, Government, education and other SSC, all of whom contribute knowledge and views on training, skills, recruitment, qualifications and policy.

The forecasting models generate forecasts of employment within the industry for a range of occupational groups. The models are designed and managed by Experian under the

independent guidance and validation of the Technical Reference Group, comprised of statisticians and modelling experts. The forecasts for total employment are derived from expectations about construction output and productivity: essentially, estimating ‘How many people will be needed to produce forecast output, given the assumptions made about productivity?’. Demand and supply of workers are forecasted separately, with the difference between the two representing the number of new employees that need to be recruited into the construction each year in order to realize forecast levels of output. A summary of the model is shown in Figure 1.

**Figure 1 The CSN forecasting model.**



Source: Experian

The final CSN outputs are a set of authoritative forecasts, scenarios and findings, published annually, that spells out the challenges facing the industry over the next five years. The main “Blueprint” report covers the UK but supplementary reports are also published for Northern Ireland, Scotland and Wales, and for each of the nine English regions).

The CITB has also commissioned or undertaken a range of supplementary research. This has included:

- an annual Sector Skills Assessment exploring drivers of skill demand, current skill needs; anticipating future skill needs and geography<sup>4</sup>.
- A survey<sup>5</sup> exploring current skills needs/deficiencies and commitment to workforce development in the UK (“Skills and Training in the Construction Industry”).
- Specific studies exploring: the impact of the recession on Construction Professional Services; UK training provision; the number of people entering construction; workforce mobility; employment by occupation; and Nuclear New Build Employment scenarios.

### Examples of how the CSN is used

1. Association for Consultancy & Engineering use primarily macro-economic, construction and employment forecasts. They use the CSN data for essentially enhancing its comprehension of where the market is going, combined with providing key market intelligence to our member firms through its own economic bulletins and other outputs.
2. The Scotland Funding Council use the CSN recruitment requirement forecast to brief the Scottish Funding Council skills committee on construction sector training requirements and skills shortages in the future.
3. Glasgow Caledonian University use the CSN workload and recruitment forecasts to plan intake of students and to identify trends in demand for particular professions. They also use it to develop and support business cases for academic programme developments.
4. Cross River Partnership have used both the CSN construction output and its breakdown into sectors (i.e. commercial) and recruitment requirements. They run a project which works with unemployed and economically inactive people to recruit, train and facilitate access to employment opportunities. The data has been used to understand where gaps will be in the industry and where opportunities will still exist.

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<sup>4</sup> See [http://www.citb.co.uk/Documents/research/evidence-report-65-construction-building-services-ssa\\_tcm17-33271.pdf](http://www.citb.co.uk/Documents/research/evidence-report-65-construction-building-services-ssa_tcm17-33271.pdf) for 2011/12 report

<sup>5</sup> This covered output constraints, recruitment activities and difficulties, skills gaps and upskilling, training and apprenticeships. See [http://www.citb.co.uk/Documents/research/Training-Skills-Survey-Reports\\_tcm17-27270.pdf](http://www.citb.co.uk/Documents/research/Training-Skills-Survey-Reports_tcm17-27270.pdf) for the 2011 report.

5. Preston College use the skills forecast from the UK Blueprint for Construction. They identified from the skills forecast the following two areas as key skills needs in terms of annual recruitment requirement to the industry:
  - Carpentry and Joinery
  - Electrical Installation
6. This helped the College to plan growth in these two areas. They have also increased the number of Electrical Installation apprentices and the number of Site Carpentry apprentices accordingly.
7. Oldham & Rochdale Metropolitan Borough Council have used the CSN forecasts to ensure funded training and funded support into employment meets the demands of the industrial sector. They identify a fundamental difficulty in ensuring long-term training will meet employment needs of companies, when employment opportunities arise at short-notice. The CSN helps them to address the short-term visibility of employment opportunities that are a consequence of short-term subcontract packages being awarded. They state:
  - *“CSN forecasts, for example, evidence the demand for chartered surveyors and site managers. This would not necessarily be evidenced by potential new entrants with little direct experience of construction but possessing significant transferable skills. Similarly, employers might have no employment opportunities on average, and then suddenly have vacancies for roles requiring long-term training.*
  - *“The CSN forecasts have meant that J21 can work with the University College Oldham Construction School and the Chartered Institute Of Building to provide information, advice, and guidance and partnership working on an informed basis.”*
8. Lincoln College use is mainly the recruitment requirement, to plan new and existing curricula. The data is used in the School's business planning cycle. This helps us plan both new and existing curricula. The data is also circulated amongst partners including both training providers and employers and is used at employer network meetings. As a result of the data we have significantly increased technical and professional training as these are two areas that were identified as potential growth areas.

## **Why this Practice was felt to be significant and therefore included here**

The CITB have a long history of LMI use and have developed a sophisticated and integrated model for generating and validating the intelligence drawn from their flagship research project. The contribution of industry experts and employers is integral to the model and there is strong representation from the devolved administrations and English regions, reflecting differences in the construction industry across the UK.

This is the only sectoral practice included from the UK – and the construction sector is the best example of the coordinated and pro-active use of LMI for helping supply side organisations to establish their provision. The continuation of the Training Levy in this sector (not found in other sectors) has been pivotal in enabling this service (along with other CITB services) to continue.

## 2.3. Dutch Youth Monitor

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**Author**

**Daniel Kahnert**

**Date**

**February 2015 2 | Page**

## Summary of the practice

The Dutch Youth Monitor is a monitoring project launched by the communities in the Netherlands to improve existing data on several different topics related to young people in the Netherlands. These are:

- Young people and families
- Health and welfare
- Education
- Labor
- Safety and Justice

The monitor runs since 2007 and is funded by the communities and the European Social Fund. The Youth Monitor was developed by IO Research in Twente, Netherlands.

Complementary to the Dutch Youth Unemployment Action Plan (YUAP) but not formally a part of it, the Youth Monitor supports a nationwide strategy to deal with youth unemployment in the Netherlands. However, while YUAP is part of a national policy, the Youth Monitor is launched and administered by the communities.

Due to its modular approach, the Youth Monitor provides information on both, the demand as well as the supply side, by investigating the labor and the education domain.

**Project language:** Dutch

**Website:** <http://www.ioresearch.nl/home/expertise/jeugd-zorg-en-welzijn>  
<http://jeugdmonitor.cbs.nl/en-gb/>

## Intended Impacts

In the Netherlands, several programs, initiatives and policies exist to deal with youth unemployment. Some are part of the Dutch Youth Unemployment Action Plan (YUAP) and follow a nationwide strategy; others are regionally or locally organized. As such initiatives rely on an empirical data base to inform stakeholders, the project "Youth Monitor" was launched to build a common data source, which brings together all important information about a topic at one place.

*Its goal is to inform all actors in their respective fields and all interested about how the Dutch population aged 0-24 years is doing and it "is intended as an indispensable source of information for policymakers to substantiate and develop youth policy at both national and regional level"<sup>1</sup>*

### Structure of content, data and sources of the Youth Monitor



Source: Own illustration derived from de Bruin 2010<sup>2</sup>

<sup>1</sup> <http://jeugdmonitor.cbs.nl/media/180632/2014-Annual-Report-Youth-Monitor-Summary.pdf>

<sup>2</sup> de Bruin, Peter (2010): How to deal with youth unemployment in the Netherlands? A general Overview of the Dutch policy approach. In: Larsen, C., Kipper, J., Schmid, A., Regional monitoring approaches for the reduction and the prevention of youth unemployment in Europe. München, Hampp.

The National Youth Monitor has therefore been developed at the request of the Ministry of Health, Welfare and Sport, the Ministry of Education, Culture and Science, the Ministry of Social Affairs and Employment, and the Ministry of Safety and Justice and consists of five different themes, which are felt to cover the most important aspects of young people's lives in the Netherlands. One aspect is labor another is education. Together these two themes analyze young people's situation in the Dutch labor market and the VET-system and form an empirical data basis to assess existing measures in this field and ground future decisions upon.

## Description of the practice and its content

In most Dutch municipalities, a labor market platform for exchange, information, and policymaking in labor market and VET-system questions exists. This platform usually consists of stakeholders from various different organizations, groups and parties, such as employees, employers, politicians, regional labor agencies and other social actors in the field. They serve as experts in labor market questions in regional policymaking processes. This labor market platform of actors is the first primary audience of the Youth Monitor and its labor market domain. While in general young people under the age of 25 are represented in the Youth Monitor, the labor domain includes people aged between 15 and 26 and younger. The Youth Monitor presents figures on employment of young people, including statistics about employment/unemployment in relation to education, gender; contract types, timespans of employment/unemployment and income benefit rates<sup>3</sup>.

With the information provided by the Youth Monitor the regional labor market platforms gain an empirical data basis, which brings together labor market intelligence otherwise scattered in several different sources, statistics, reports and places. More than 400 municipalities and more than 600 different facilities take part in the Youth Monitor. The data provides insight into the functioning of regional and local social institutions, programs and initiatives and helps to evaluate existing measures, recent developments and spotlight future needs. Data is gathered and provided in a modular approach. This means that specific topics in their domain are addressed in separate modules. These modules either use existing data from official statistics and registration data or new primary data or combine them, based on specific needs and interests.

The Youth Monitor is updated on a 2-year scheme. This is viewed upon as the ideal, as a yearly scheme would be too narrow to produce new insights and a longer span between the updates would lead to outdated data. Primary output medium is a report for each update.

In the Youth Monitor a mix of different data and sources is used. It relies on official statistics such as the Labour force survey, Welfare work and childcare statistics, National sickness absence

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<sup>3</sup> A list of indicators of every domain is available online. <http://jeugdmonitor.cbs.nl/en-gb/indicators/labour/>

statistics, Social statistics database and statistics of the Centre for Work and Income and carries out secondary analyses. For the municipal level of the labor domain, register information is used instead of the Labour Force Survey, which is used for the national level. It also makes use of primary data, which is generated in interviews with the young people, their parents and other actors in the field, such as social institutions. For these interviews a mixed method approach is used, with methods chosen based upon the fields of interests and was is to be investigated.

## How the practice is used

The Dutch Youth Monitor in general and the labor domain specifically is primarily used as an information resource for all regional actors in the labor market and the VET-system as well as all other interested. It is carried out by the Dutch municipalities and informs regional actors in their decision-making processes.

### Structure of how the Youth Monitor is used



Source: own illustration

Results from the Youth Monitor are reported by the municipalities to the respecting ministries responsible for the specific fields of policy. Based on these reports discussions, exchange of views and ideas for change of existing means as well as possibilities for future means can be initiated. In the case of the employment domain, regional platforms, put together of regional labor market stakeholders function as an intermediary and a pool of experts. The Youth Monitor provides them with current figures and supports regional initiatives, programs and projects carried out in the communities by companies, agencies and other social actors in the field.

Therefore, it serves in two directions:

- It informs regional stakeholders in the municipalities that report to national government and the respective ministries and therefore bring regional matters to a national agenda.
- It informs regional stakeholders in the municipalities that can launch local or regional programs to deal with current or future problems in their respective region.

### **Why this Practice was felt to be significant and therefore included here**

The Dutch Youth Monitor represents an approach that is interesting for several reasons:

- It uses several different kinds of data from several different sources. Primary data from qualitative and quantitative interviews with different important actors in the domain, secondary data from official statistics and registration data from the municipalities. Each source and method is used according to specific interests and questions about a domain. Therefore, the Youth Monitor represents a very mature approach.
- It informs regional actors and by doing so influences regional as well as national policy making processes. Therefore, the Youth Monitor affects different levels of policy and has a generally great impact on programs, projects and initiatives in the youth domain in the Netherlands.
- Its modular approach allows insights from various different areas of young people's lives. Therefore, data from the different domains can be used to gain a deeper understanding of problematic developments – also and especially in the labor domain.

## **2.4. EMPLOYERS SURVEY ON EMPLOYABILITY OF UNIVERSITY GRADUATES**

**Author**

**Zdeňka Šimová**

**Date**

**February 2015**

## Summary of the practice

The Employers Survey on Employability of University Graduates (Employers Survey) is a tool to determine the employability of university graduates (or potentially any school graduates) of selected study programmes with a focus at the demand side at the labour market. The survey assesses the strengths and weaknesses of the graduates as perceived by the employers and identifies possible trends of employers' needs and preferences for near future. The results primarily serve as a feedback to the university (or other type of educational institution) who may use them as a basis for the adjustments in their study programmes structure and content to assure better matching to the labour market needs and enhance their graduates employability in near future. The results are especially sound when combined with other tools, such as the job vacancy analysis and questionnaire survey of the graduates.

The methodology was created and is owned by the National Training Fund (public benefit organisation), who carried out the survey in 2014 for the Faculty of Sports Studies of Masaryk University in Brno (FSpS MU). The survey was conducted in the framework of a more extensive research project, commissioned by the Faculty, that was aimed at mapping the situation of FSpS MU graduates and identifying the main problems causing their unsatisfactory employment rates. The research project included four components: (1) questionnaire survey among FSpS MU graduates, (2) the employers survey (subject of this example), (3) analysis of job vacancies and (4) analysis of the Labour Force Survey data. All components complemented to the overall picture of labour market situation of the Faculty graduates. It provided in-depth information to the Faculty about possible changes and improvements in the study programmes that should enhance the graduates' chances at the labour market. The employers questionnaire survey was of a key importance as it allowed to analyze employers' opinions, demands and experiences with the graduates of relevant fields and also their plans for future regarding relevant job positions.

Project language: Czech

## Intended Impacts

The primary goal of the project was to enhance the quality of study programmes of FSpS MU and to improve the employability of their graduates. The Faculty's concern was the lower employment rates of their graduates in comparison to those of similar faculties (i.e. faculties with sports related study programmes). This was a long-term observed drawback that had its impact also on the official evaluation of the Faculty influencing the amount of financial resources allocated to the Faculty from the state budget. Faculty decided to carry out the abovementioned research to tackle the issue within a framework of a wider several-year

long project Innovation and modernization of study programmes of FSpS MU (IMPACT), which was co-funded from the ESF and the state budget of the Czech Republic and had many other activities. The research was commissioned to the National Training Fund and was aimed to provide relevant data about the background, context and causes of the graduates' lower employment rates and outline the basis and evidence for suitable changes and improvements in FSpS MU study programmes that should result in enhanced flexibility and employability of graduates.

The project was an individual initiative of the Faculty and it had no direct relation to the national education policies. Nevertheless, as it was funded in the framework Operational programme Education for Competitiveness (under the "Tertiary education, research and development" priority axis), it responded to the national policy priorities reflected by the Programme, that included modernization and development of higher education mainly with regards to the improvements of study programmes to prepare highly employable graduates fundamentally contributing to the development of the knowledge economy.

The goal of the Employers survey, which was one of the four components of the research project (see above), was to determine opinions of employers on the employability of graduates of the relevant study fields, the employers' past experience with these graduates and future plans regarding employment of people with these and similar qualifications.

The primary user of the results is the FSpS MU who envisages to adjust their study programmes according to the results. The final beneficiaries are the current and future students of the Faculty that should receive higher quality education and training better matching labour market needs. The Faculty should in the long term also benefit from the improving prestige and attractiveness for high quality applicants. As indirect beneficiaries also the future employers of the graduates can be regarded, who should receive better prepared candidates for their vacancies.

## **Description of the practice and its content**

The core of the Employers survey was an extensive online questionnaire survey that covered relevant employers of the whole country. It targeted groups of employers that potentially could (are likely to) employ graduates of sports studies regardless of the school or faculty<sup>1</sup>.

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<sup>1</sup> The FSpS MU as well as other sports faculties provide education not only in fields explicitly related to sports, but have wider scope including many programmes related to health, nutrition, defence and security, sport education, leisure time etc. (thus, the sectors selected for the survey were: education, trade of sporting goods, tourism, public administration, military and security forces, healthcare and social care, sports and recreation).

The Survey can be repeated in the future, based on the Faculties needs, or it can be carried out for other schools or faculties based on their interest.

The Survey consisted of the following activities:

Preliminary analysis. In the initial phases, available data was analyzed and key terms and categories were identified. A list of most frequent jobs performed by the sports studies graduates was created. The Labour Force Survey primary data (provided by the Czech Statistical Office) were analyzed to find out which occupations the people with the relevant educational background (i.e. higher education sports studies) perform the most. The list of occupations in the form of the ISCO codes was obtained. This list was then compared with the vacancies analysis that drew its primary data from the job advertisements to determine the most common job titles used in the real company environment. Also less frequent jobs were included to the list, that were assessed as likely to develop in the future or likely to employ more sports studies graduates due to the changing nature of the job. The resulting list was finally consulted with the Faculty to get a feedback on its plausibility and relevance. The list was a key reference material for all other parts of the Survey. Based on the similar method (using the Labour Force Survey data) also a list of relevant NACEs categories was created, i.e. list of economic activities of employers that most often employ sports studies graduates.

Target group determination. To identify the target group (suitable respondents) for the field survey (online questionnaire), the national-wide database of economic subjects (Magnusweb) was used. The database is managed by a private company and an access to it is provided for a payment. It contains various types of data on all economic subjects and organisations active in the Czech Republic, including the information on the category of economic activity and main contact information etc. A list of e-mail contacts of all relevant subjects was derived from the database, based on the selection of relevant economic activities identified in the preliminary analysis. No other selection criteria were applied, so the survey covered all types, sizes and locations of subjects (over 6000 contacts).

Creation of the questionnaire. A questionnaire was drafted containing the following sections:

- Identification of relevant jobs (which professions, their number, part/full time) that exist in the organisation, difficulties with finding suitable candidates for these jobs, plans for these jobs for the next 12 months (hiring/firing/no change...), preference of graduates/experienced workers for these jobs.
- Recent experience with graduates as job candidates for these jobs (hired a graduate/graduates applied, but haven't been hired/no graduates applied...), opinions on graduates knowledge and skills for these jobs (list of several categories, e.g.

theoretical knowledge, practical skills, foreign language skills etc.), experience with a graduate of the FSpS MU (yes/no).

- The identification data of the respondents were also collected for the purposes of the statistical analysis – i.e. location, NACE, size of the organisation.

An important feature of the questionnaire were the open fields for comments that enabled respondents to elaborate their views in more detail or explain the answer if needed. These often proved to be very valuable source of information.

Field survey. The questionnaire in an online form was distributed to the list of e-mail contacts. The LimeSurvey software for online surveys was used. The response rate was regularly checked and reminders were sent to those contacts that haven't had responded. An important goal was to receive satisfactory number of responses for each of the relevant professions. For this purpose, the numbers of cases for individual professions were also regularly checked and in case of low numbers, employers of this profession were contacted by the telephone and the purpose and context of the survey was explained to them. This proved as an effective means to prevent the situation when one or more professions would be underrepresented in the sample not allowing proper analysis. The overall response rate was around 28 % which is, compared to other employer surveys, very successful result.

Analysis of the data. The data were then transferred to the IBM SPSS software for statistical analysis. The analysis concentrated mainly on the following questions: Which professions are/will be of a high demand? Are there problems with the quality of applicants? Are there any regional differences in this regard? Etc. Each of the professions were analyzed separately, with the professions for that the sports study graduates are directly prepared in the main focus, but taking into account also professions for that the sports study graduates are not directly prepared, but in practice they often perform them as well. An overall comparison and rating of the professions in various aspects was also included. The results were also compared to the other data sources and related analyses (mainly the job vacancy analysis that was carried out by the National Training Fund within the same project).

Presentation of the results. The final report and data were then presented to the FSpS MU management at their meeting with study programme leaders and the interpretations and implications for the future faculty development were discussed.

### **How the practice is used**

The results of the Survey were used in close connection with results of the other three components of the research project (questionnaire survey among FSpS MU graduates, analysis of job vacancies and analysis of the Labour Force Survey data). Thus, the impact of

the Employers Study in this concrete example cannot be presented stand alone, but only in the context of the other studies. Nevertheless, as a tool it can be used separately and independently.

The management of the FSpS MU and study programme leaders used the results as a basis for discussions on future development of study programmes, changes in their structure and contents, even to the level of individual subjects, teaching methods and themes. As the final research reports were presented to the Faculty in late 2014, it is so far not possible to assess the impact and changes implemented to the study programmes in reality. During the discussions, three levels of measures and changes were envisaged:

- a) “high” (formal) level – changes in the official content, structure and profile of individual study programmes and even the whole Faculty; these measures require formal process and longer time;
- b) “middle” level – changes e.g. in the Faculty’s approach and recommendation related to the admission proceedings for individual study programmes
- c) “low” (informal) level – adjustments in the content of subjects that proved to generate some problems, changes in the attitudes and methods of individual teachers to better shape the education process and improve knowledge and skills of students, emphasizing of selected themes demanded by the employers, etc.

For the time being, the following concrete usage of the results was planned:

- To use it as a background material for discussions of study programmes improvements, mainly with the individual leaders of those study programmes that produce graduates showing higher risk of problems at the labour market.
- To use it as a background material for discussions about future profiling of the Faculty and individual study programmes to better match envisaged changes in the world of work (e.g. some new professions gaining importance, while some qualifications perceived by the employers as not very useful).
- To use it as a background material for the discussions with the University management to clarify and better shape the profile of the Faculty and its position among other faculties and their study programmes within the University.
- To use it as a basis for the internal evaluation of the Faculty.

The quality of the Employers survey was ensured by several mechanisms. Mainly it was continuous feedback from the Faculty. The research process and main input information was consulted with the Faculty representatives (e.g. the list of the professions, the wording of the questionnaire). The final presentation was followed by the in depth discussions of the research results, confronting them with practical experience of the present Faculty’s teachers. This critical review provided by the Faculty representatives, especially the leaders of individual study programmes was a valuable source of feedback and ex-post quality control. An important mechanism of internal quality control was also the comparison to the

results of the other analyses carried out within the project. That enabled the validation and corrections and suggestions of plausible interpretations.

The Employers survey is relatively easily transferable to other conditions and localities. Its methodology can be used with slight changes for various universities, schools, other education providers or only selected study programmes. The main task when transferring the methodology is to determine new list of professions and consequently newly define the scope of possible employers of these professions. Depending on the number of study fields and their nature, this can be quite an extensive exercise. This is the case especially for general study programmes that produce graduates who find employment in a wide variety of different jobs, or on the other hand in also if more very specific distinct study programmes are surveyed. The Survey consisted simple set of knowledge and skills that were relatively easily and quickly assessed by the employers and that can be used universally also for most other study programmes and education providers. Nevertheless, this set can be adjusted according to the character of the given study programme/s to pick more specific knowledge and skills. The scope of the Survey can be easily limited to a selected locality, type of employer or economic sector, if more specific outcome from the Survey is needed.

### **Why this Practice was felt to be significant and therefore included here**

The described Employers Survey is one of few examples of survey of this kind and extent based on the initiative of the HE institution. Its outcomes can be applied in practice relatively quickly, depending on the internal processes of the school/university. In the concrete example of the Survey's application in case of the FSpS Mu, the real interest and motivation to find out causes of the unsatisfactory employment rates of graduates together with financial resources available through ESF co-funded project led to unique outcomes that created a platform for in depth discussions on further profiling of the Faculty and improving the education programmes provided, the final goal of all involved parties being to increase matching between labour market needs and the knowledge and skills of the Faculty's graduates.

The Survey benefits from the continuous flexible contact between the realisation team and the partner (client). Direct and ad hoc feedback means that the individual features of the Survey can be easily shaped according to the needs of the partner and contributes to highly relevant outcomes in the end. Unlike other more robust system researches of similar focus, this arrangement of direct relationship of two partners is very flexible and enables for quick implementation in practice, at least of the informal changes of methods and approaches at the lower level in the organisation. The modular approach consisting in a set of several



interlinked surveys proved also very beneficial. It makes it possible for various flexible arrangements that are easily adjustable for various clients according to their specific needs, conditions and budget available.

## **2.5. HEART OF THE SOUTH WEST LOCAL ENTERPRISE PARTNERSHIP (HOTSW LEP) – USE OF PROJECTIONS TO INFORM THE LOCAL RESPONSE TO NUCLEAR POWER PLANT CONSTRUCTION**

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**Author**

**Dr Andrew Dean**

**Date**

**February 2015**

## Summary of the practice

In October 2014, the European Commission gave final approval for the construction of a new €20bn nuclear energy plant in the Heart of the South West. It will be the first new nuclear build in the UK for almost 20 years and the first of a new generation of European Pressurised Reactors (EPR) in the UK, producing electricity for around 5 million homes. At the peak of construction, around 5,500 people will be employed at the site, across a wide range of construction and civil engineering occupations. The site at Hinkley Point is in a remote rural location. As no similar plants have been built for many years, the skills needed to build the reactor will not be available locally. There is a large-scale VET requirement, focused on enabling local people to take up employment at the site and to compete with people attracted to work at Hinkley from outside the region.

The Heart of the South West Local Enterprise Partnership (HotSW LEP) is responsible for the economic development of the area. It has responsibility for the targeting of EU Structural & Investment Funds (ESIF) and the development and delivery of a local skills strategy. In this capacity, it has been working with local strategic partners to assess the nature and scale of the opportunities arising from new nuclear build at Hinkley; to identify the employment and skills needs that will be generated by the development; and to support VET providers in making a co-ordinated and adequate response.

This case study examines the tools that HotSW LEP has used to analyse the employment & skills needs arising from this major construction project.

The focus of the case study is on demand-side analysis at the sub-regional level. HotSW LEP has a population of c1 million people. With the exception of the Oxford Economics Scenario Model, which is available for cities and regions across Europe, the tools described are focused on England and are only available in the English language.

## Intended Impacts

Effective VET and skills planning depends on partners sharing a clear understanding of the economic changes taking place in an area and the impact that these may have on local labour markets, both in the immediate and longer-term future.

VET providers in the UK exist in a highly competitive market and have been encouraged to be flexible and responsive, i.e. to be able to deliver training required by employers almost immediately on demand. This approach works well, where existing facilities are available and / or the training is to be delivered at the workplace, making use of employer facilities.

However, this approach has its limits. Where capital investment and start-up costs are involved (e.g. due to the need to recruit new specialist staff) in anticipation of future expressed demand from employers, VET providers require a measure of assurance about the type and volume of training that will be needed in order to make a timely response.

In this case study, we examine the employment forecasts that were available to HotSW LEP and VET providers and the extent to which these allowed them to consider and respond to the skills needs generated by the Hinkley Point nuclear development.

## Description of the practice and its content

### Economic and Labour Market Models

To support Local Enterprise Partnerships (LEPs) in developing their thinking about the employment & skills needs of their areas, the UK Government<sup>1</sup> has, for many years, sponsored 'Working Futures', a set of freely available labour market projections at the regional and sub-regional level<sup>2</sup>. Many LEPs supplement this information by buying into additional projections and models, such as the Local Economy Forecasting Model<sup>3</sup>.

While these models contain a high degree of sophistication, by necessity they are largely constructed on the basis of historic data, casting historic these into the future, with adjustments for known factors, such as demographic changes. For obvious reasons, fixed models do not and cannot anticipate economic 'shocks' or examine the potential impact of these on an area. Nor do they allow partners to explore the impact of large-scale developments, such as the building of a €20bn nuclear reactor on employment in other sectors, on female / male employment, migration, consumer spending, GVA, the occupational balance and so on.

### Scenario Modelling

There are, however, more flexible modelling tools that allow users to generate projections for a variety of different growth scenarios, including the Heart of the South West Scenario Model, which HotSW LEP commissioned from Oxford Economics. This was commissioned to allow the LEP to consider the impact of a wide range of scenarios, such as the impact on that different economic growth rates in the area would have on employment levels and the implications of this for setting local employment targets. The HotSW LEP Scenario Model, provided in Excel format, allows users to generate scenarios for the following.

- **Faster or lower jobs growth** - Users can adjust a baseline average employment growth rate of 0.37% p.a. distributing the additional employment growth across 29

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<sup>1</sup> via the UK Commission on Employment & Skills

<sup>2</sup> These are discussed in greater detail later in this case study.

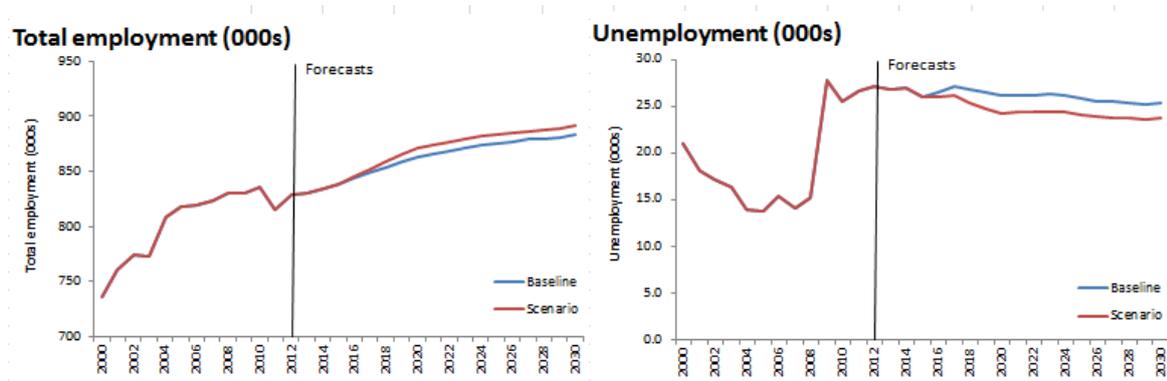
<sup>3</sup> <http://www.camecon.com/SubNational/SubNationalUK/ModellingCapability/LEFM/LEFMOverview.aspx>

sectors. They can allocated this to specific sub-sectors and adjust the productivity of the additional growth. The productivity uplift can be adjusted for different sub-regional geographies.

- **Job targets at LEP level.** Users can examine the impact that the creation of a specific volume of additional jobs will have on the area (above the baseline scenario). They can distribute the additional jobs across the 29 sectors and adjust the productivity of the additional jobs.
- **Jobs targets for sub-regions within the LEP area** - As with the jobs targets at LEP Level, however allowing flexibility users to allocate the additional jobs to specific sub-regions, examining the impact across the LEP area.

Once scenarios are run, the model displays longitudinal data for the scenario, the baseline and difference between the two. Graphs for key variables, such as employment, unemployment, migration, GVA growth, workplace wages and consumer spending are automatically generated, as shown in Figure 3 below.

**Figure 3: Examples of outputs of the HotSW Scenario Model**



However, for labour market purposes, the ability to extract annual data on the longitudinal impact of the scenario on employment across 29 sectors and nine occupations is of particular interest. These are produced both for the LEP / Region and 15 sub-regional geographies. The tool also allows users to examine the multiplier effects of growth in particular sectors and locations (e.g. relating to a nuclear new build); the geographical distribution of these multiplier effects outside the immediate area; and the impact that growth in one sector (such as construction) has in others (such as accommodation & hospitality).

The HotSW LEP Scenario Model has been useful preparation of economic assessments for the Somerset and HotSW LEP economies, which take account of the Hinkley nuclear

development and also provide a backdrop for the development of skills strategy for the area. However, by itself, the model does not produce outputs that are sufficiently precise to allow for VET planning. Its outputs do and have, therefore, been considered alongside other more specifically labour market oriented projections.

### Working Futures Projections

The Working Futures projections are commissioned by the UK Commission for Employment and Skills<sup>45</sup> and are freely available to LEPs. Like the HotSW LEP Scenario Model, Working Futures provides projections of annual employment change both by occupation and sector. However, importantly, the model also provides projections of employment change by occupation within sectors, allowing users to assess how future employment growth in a sector such as construction will be spread across different occupations (Skilled Trades; Plant process & machine operatives etc.).

Usefully, alongside projections of employment growth, the model also produces projections for replacement demand; the labour recruitment requirement generated by the need to replace people leaving the sector for reasons such as retirement. Combining these two dynamics allows users to identify a 'Total Requirement' for new labour in a sector. This is a much better indicator of any training requirement than data employment growth data alone. Figure 4 provides projections of change in Construction in the Heart of the South West.

**Figure 4: Working Futures projections for Construction in the South West, 2010 – 2020.**

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<sup>4</sup> <https://www.gov.uk/government/publications/working-futures-2012-to-2022>

<sup>5</sup> Produced by the University of Warwick & Cambridge Econometrics

Heart of the South West : Construction Employment Levels (000s)	2010	2015	2020	2010-2020		Total
				Net Change	Replacement Demands	
1. Managers, directors and senior officials	4	5	6	2	2	4
2. Professional occupations	5	6	7	2	2	4
3. Associate professional and technical	3	4	4	1	1	2
4. Administrative and secretarial	3	4	4	1	2	2
5. Skilled trades occupations	32	36	40	8	12	20
6. Caring, leisure and other service	0	0	0	0	0	0
7. Sales and customer service	1	1	1	0	0	1
8. Process, plant and machine operatives	4	5	5	0	2	2
9. Elementary occupations	3	3	3	0	1	1
<b>Total</b>	<b>55</b>	<b>63</b>	<b>69</b>	<b>14</b>	<b>21</b>	<b>36</b>

	2010	2015	2020	Percentage Changes		
1. Managers, directors and senior officials	7.5	8.0	8.6	43.7	42.2	85.9
2. Professional occupations	8.9	9.4	9.9	39.4	37.0	76.4
3. Associate professional and technical	5.4	5.7	6.0	39.7	36.7	76.4
4. Administrative and secretarial	6.1	6.2	5.8	18.4	47.9	66.2
5. Skilled trades occupations	58.1	57.6	57.8	25.2	38.1	63.3
6. Caring, leisure and other service	0.1	0.1	0.1	36.0	44.2	80.3
7. Sales and customer service	1.4	1.5	1.5	32.2	33.0	65.2
8. Process, plant and machine operatives	7.8	7.2	6.6	6.0	40.3	46.2
9. Elementary occupations	4.6	4.1	3.8	3.9	34.0	37.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>25.8</b>	<b>38.8</b>	<b>64.6</b>

These projections are useful. They show that the Construction sector in the Heart of the South West is projected to grow rapidly over the next five years with the majority of this growth will be focused within Skilled Trades, which might lead a VET provider to conclude that it is worth expanding this broad area of their provision. However, they still lack the degree of specificity that college managers might want when deciding which curriculum areas within construction they might sensibly expand over the next five years.

### Construction Skills Network Forecasts

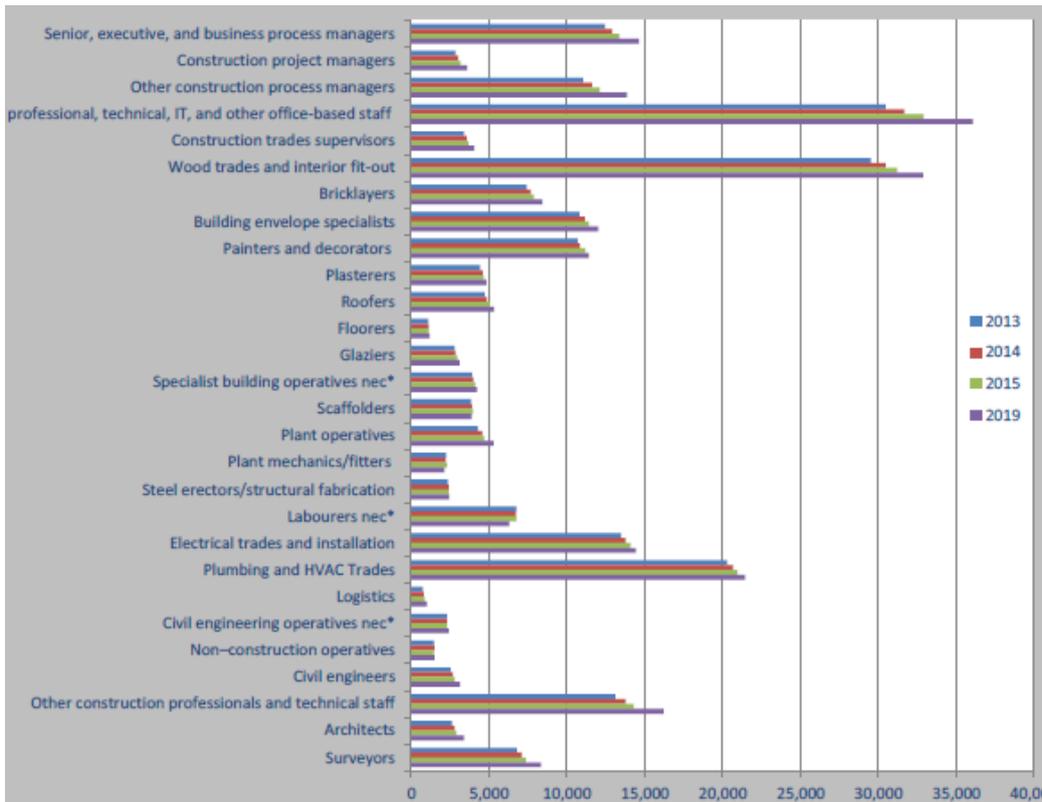
These are a series of specific projections produced by Experien<sup>6</sup> for Construction Skills, and employer-led body responsible that supports ensuring that the training needs of the sector are met. The projections, which are updated every six months, cover a projected change in output and employment broken down by construction sub-sectors (e.g. infrastructure, housing, commercial etc).

In relation to VET planning and VET providers' responses to the nuclear development at Hinkley, the most useful outputs are:

- a) The projections produced for total employment growth across 28 different construction occupations, shown in Figure 5.

Figure 5: Experien / Constructionskills projections for employment in construction occupations, South West England

<sup>6</sup> [https://www.citb.co.uk/documents/research/csn%20reports%202014-2018/csn\\_south\\_west\\_interactive%20\(new\).pdf](https://www.citb.co.uk/documents/research/csn%20reports%202014-2018/csn_south_west_interactive%20(new).pdf)



- b) A RAG<sup>7</sup> Traffic Light coding system identifying occupations in which the recruitment requirement (equivalent to replacement plus expansion demand) is projected to be highest, as a proportion of overall employment, shown in
- c) Figure 6.

Figure 6: Experien / Constructionskills projected recruitment requirement, South West England, 2015 - 2019

<sup>7</sup> Red / Amber / Green



Annual Average Recruitment Requirement	Traffic lights	
	UK	SW
Senior, executive, and business process managers	●	●
Construction project managers	●	●
Other construction process managers	●	●
Non-construction professional, technical, IT, and other office-based staff	●	●
Construction trades supervisors	●	●
Wood trades and interior fit-out	●	●
Bricklayers	●	●
Building envelope specialists	●	●
Painters and decorators	●	●
Plasterers	●	●
Roofers	●	●
Floorers	●	●
Glaziers	●	●
Specialist building operatives nec*	●	●
Scaffolders	●	●
Plant operatives	●	●
Plant mechanics/fitters	●	●
Steel erectors/structural fabrication	●	●
Labourers nec*	●	●
Electrical trades and installation	●	●
Plumbing and HVAC Trades	●	●
Logistics	●	●
Civil engineering operatives nec*	●	●
Civil engineers	●	●
Other construction professionals and technical staff	●	●
Architects	●	●
Surveyors	●	●
<b>Total (SIC 41-43, 71.1 &amp; 74.9)</b>	●	●

This data shows considerable growth and a high annual average recruitment requirement is expected across a fairly broad range of construction occupations in the South West. However, the data produced by this model is only available for the South West region, an area with a population of c3 million people. The Heart of the South West, which has a population of 1 million, forms only a part of this wider area.

The data is interesting in that it shows that total construction employment in the South West is expected to rise by 22,000 over a five year period, at a much faster than the national rate. The Hinkley development, at its peak, is expected to employ around 5,500 people. The Hinkley development therefore sits within a much wider picture of construction expansion across a number of industry sub-sectors, particularly private housing. This is wider picture is generating growth and a high recruitment requirement in sectors not normally associated with a nuclear build, such as floorers, glaziers and plasterers.

VET planners are therefore presented with a conundrum of whether to focus provision on a specific, potentially short-term development at Hinkley, or on broader and, in all likelihood, longer-term expansion within the construction sector.

### EDF Workforce Profiles

Based on their experience of building nuclear power stations elsewhere, EDF energy have a pretty clear understanding of the employment and skills requirement build Hinkley point. Relative to the data reviewed earlier, these projections are clearly extremely precise. Timelines showing the profile of the Hinkley workforce during construction is shown in Figure 7 below.

Figure 7: Hinkley Workforce Profile during construction, EDF Energy

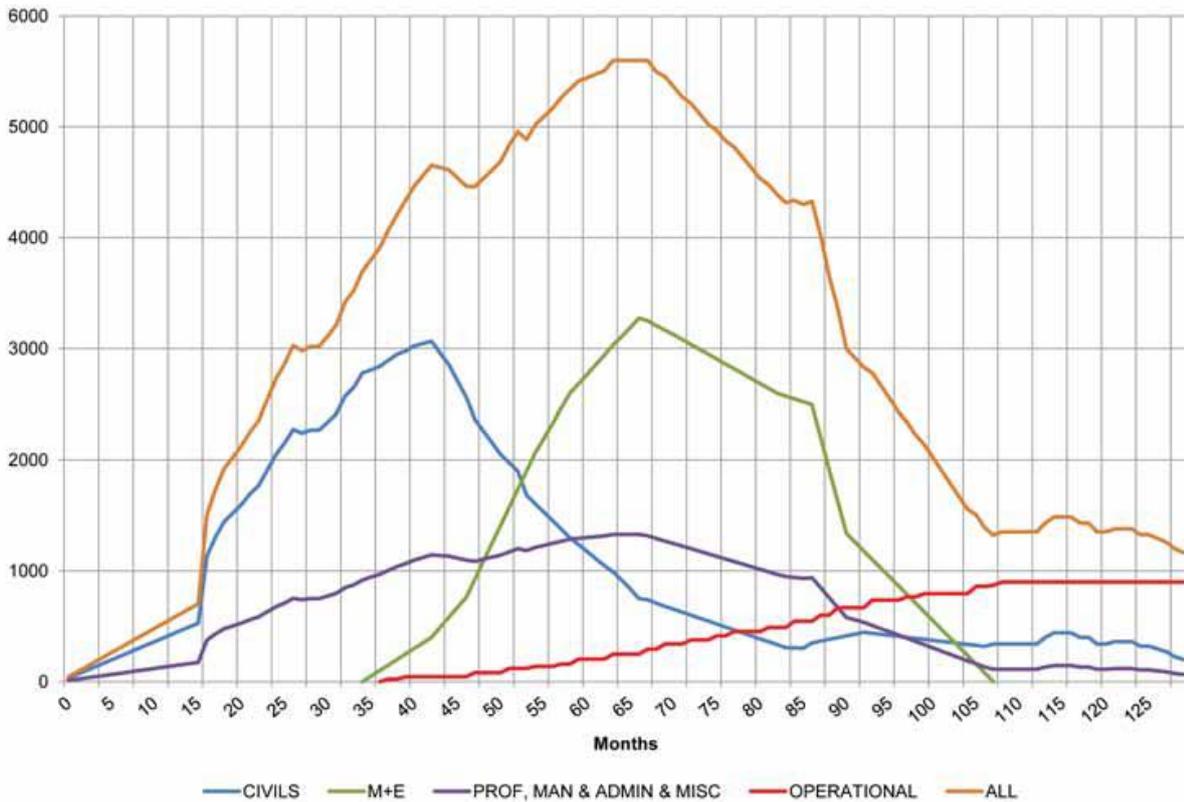
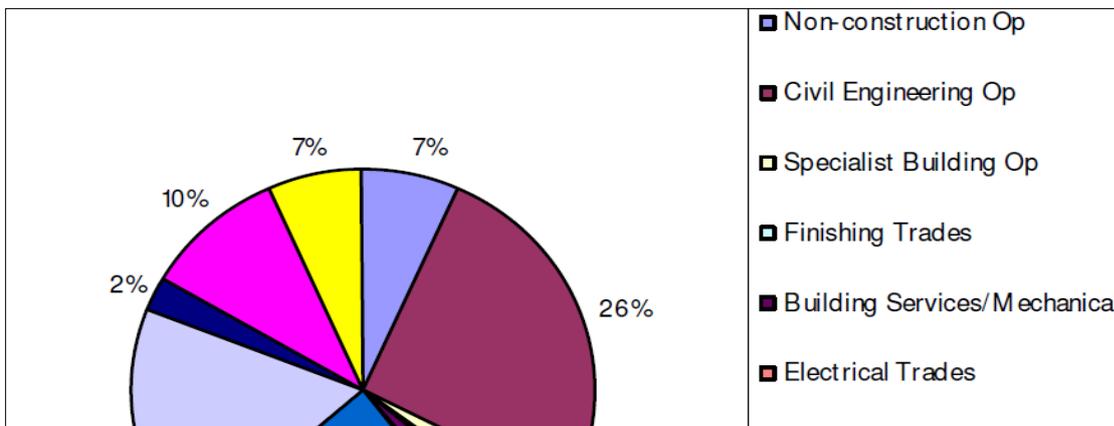


Figure 8.

Figure 8: Occupational Profile – Months 17 to 22



*Source: EDF Energy Construction Workforce Development Model / Workforce profile*

Clearly this information is the most useful to VET managers and planners considering how expand or adjust provision in response to the anticipated relatively short-term peak in demand that will be generated. However, the task for planners remains complex, with decision informed by issues such as their proximity to the development; the impact this has on the balance between demand generated by Hinkley and training demand generated by wider growth in the South West construction sector (which requires a fairly different set of skills); the duration over which demand is expected to rise; and the incentives that have been made available.

## How the practice is used

### UK Context

The UK VET system is highly market-oriented. Training providers compete with one another, seeking to build relationships with employers focused on meeting their training needs. The amount they charge employers is generally for the college or training provider to negotiate with employers, being dictated by:

- a) By the employers requirements – e.g. whether the VET provider is being asked deliver training or just accredit training that is largely delivered by the employer; the amount of ‘off-the-job’ training that is required; the number of people the employer wishes to train and the consequent economies of scale; the cost of capital equipment and materials; whether training takes place at anti-social hours and so on; and
- b) the size of the public subsidy – which is dictated by the age of those being trained; trainees’ employment status prior to training; the level of the qualification being gained; and, key to our interest, whether a type or sector of training is considered a local strategic priority and has been identified as a priority for the targeting of funds (such as the European Social Fund) over which LEPs and local partners have discretion.

UK VET providers are not, therefore, just involved in responding to data on anticipated labour market needs. They are players in a competitive market, weighing up a wide variety of financial factors and making complex commercial decisions about how they best position their organisation in the market and in relation to other players in the market.

### HotSW LEP – strategic responsibilities & priorities

A highly influential review of economic development in England<sup>8</sup> conducted in 2012 argued that *‘Unfortunately, as a whole, the (UK VET) system is not delivering what the economy needs. The current system does not incentivise FE providers to run the courses that deliver the greatest economic benefit... In most instances, skills funding flows to the courses that students demand and which colleges can fill. It is hardly surprising then, that there is often a mismatch between the skills being taught and the skills that employers are demanding or the jobs likely to be on offer. This either results in employers needing to retrain students, or not being able to fill vacancies.’*

Key recommendations were to:

- Put an increasing amount of VET funding in the hands of employers, including through the tax system; and to

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<sup>8</sup> Hesaltine, M. No stone unturned in pursuit of growth, BIS, 2012

- Devolve VET budgets to local areas, with Local Enterprise Partnerships (employer led-forums) having a key role in identifying priorities for expenditure.

Although these changes are still in progress and the amount of funding devolved to local areas was significantly lower than that originally recommended, HotSW LEP has some considerable control over the targeting of European Structural & Investment Funds and Further Education Capital Funding in the area; as well as the scope to sponsor and prioritise local applications to a competitive pot of ‘Growth Deal’ funding, which can be used for skills development.

### HotSW LEP & Hinkley Point

In its Strategic Economic Plan, HotSW LEP has identified the Hinkley nuclear development as being a one of four ‘immediate Golden Opportunities that are unique to our area and have the potential to transform its economic prospects’. While only 5,500 workers are expected to be employed on Hinkley’s construction at any one time, taking account of multiplier and the fact that some of these jobs will be relatively short-term, Hinkley is expected to generate 27,000 job opportunities over the entire period of its development, spread across construction, hospitality, accommodation, logistics, engineering and other sectors.

Through its Board, its ‘People’ sub-group<sup>9</sup> and supported by the Somerset Employment and Skills Board<sup>10</sup>, the LEP has taken the decision to support the market for delivery of skills required at Hinkley through the following steps.

1. Immediately establishing a £1.7m **Skills Fund for Hinkley**, funded the 2007 - 2013 ESF programme, to help employees of local SMEs to acquire the range of skills they need to gain work as part of the overall Hinkley supply chain. The fund is managed by a single VET provider (Bridgewater College) on behalf of consortium of training providers. The level of subsidy provided for each incidence of training is flexible. Funding is routed through the VET providers to reduce the cost that employers would normally pay for this provision.
2. Setting up a **Hinkley Point Training Agency** to drive demand and support the supply of skills to the Hinkley development over the longer-term. Through this initiative the LEP aspires to secure a budget of between £5m to £15m per year for Hinkley-related training, by allocating part of the 2014 – 2020 ESF resources it effectively controls and by using this to leverage in additional ‘Growth Deal’ funds from central government.

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<sup>9</sup> The LEP has three sub-groups, focused on People, Business and Place

<sup>10</sup> The Somerset Employment & Skills Board represents the Sub-LEP geography in which Hinkley Point is located. It feeds local priorities up to the wider LEP.

The Hinkley Point Training Agency is also born of a concern to stop multiple providers from simultaneously knocking on the door of employers coming to the area to work on Hinkley, delivering competitive messages and potentially under-cutting each other on price; and a desire to instead to provide a co-ordinated suite of high quality training opportunities.

Given the importance in the UK VET market of achieving ‘critical mass’, i.e. sufficient volume of work to adapt provision or make expansion into new areas worthwhile, working through HTPA to co-ordinate and differentiate the offer of different institutions is clearly in VET providers’ interests.

## Conclusions

At this stage, it is too early to tell how well co-ordinated or how well differentiated the overall balance of Hinkley-related VET provision is likely to become. However, in response to the intelligence of all kinds described above, it is that some local providers have invested heavily in responding to the opportunity.

Bridgewater College, the nearest college to the site, has invested heavily in building new training facilities and designing new courses in response to the opportunity, including:

- An Energy Skills Centre with a Realistic Working Environment (RWE) that offers training in subjects including robotics, welding, electronics, process control, engineering, renewables and material science;
- A fully-operational Construction Skills and Innovation Centre at Cannington (close to Hinkley C) where all forms of groundwork, formwork, concrete pouring, construction plant and lifting operations will be taught.
- A new 13-day selection and pre-employment programme for people wishing to compete for steel fixing Apprenticeships that will be offered by contractors working with concrete at Hinkley Point.

Training providers that are further away from the development, for whom this is a more peripheral opportunity, are still considering how to respond and how to position themselves in the market.

In doing so, they will be considering a wide range of market signals and projections of future demand, including the quantitative tools described in this report. They will be assessing not just the demands driven by Hinkley, but how the demand generated by Hinkley sits within the overall dynamics (e.g. employment growth, occupational change, changing skills requirements) of the sectors, such as construction, that they serve. They will also be considering the market opportunity in terms of the plans of competitor institutions and, to an extent, the availability of public subsidies.

While projections of future market demand arising from the Hinkley development have been important (and will continue to be important) in driving VET responses to this particularly opportunity, they form only one part of the picture. Partners agree that bringing a measure of co-ordination to the Hinkley-related VET offer is important. However, given UK arrangements, there can be no central 'planning' and new VET providers will be always be able to enter the market (albeit without access to additional Hinkely-related subsidies).

## 2.6. INFORMATION SYSTEM ABOUT TRANSITION FROM THE EDUCATIONAL SYSTEM INTO WORKING LIFE

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**Author**

**Lanbide**

**Date**

**February 2015**

## Summary of the practice

Every year, around 20,000 people in the Basque Country end their studies both in vocational training and in university. These two are therefore the natural gates that link the education system and the labour market.

In the case of university, the Basque Country counts with three universities (University of the Basque Country, University of Deusto, Mondragon University). In the case of initial Vocational Training, 144 training centers (71 integrated in the public network and 73 in the private network).

The Vocational Training in the Basque Country has the particularity of having a strong relation with the productive industry which among other things requires internships in companies. The financing of expenditure in Vocational Training is currently 9.5% of the total spending on education. Given the significant number of students who complete these studies (10,000) and the economic resources used, the Basque Government promoted a collaboration between the Department of Vocational Training and LANBIDE (Basque Employment Service) to develop an information system whose main objective was to characterize the employment of persons who finished studies guaranteeing that the variables of the model reported back to the level of the professional families (26), middle grades (42), higher grades (62) and to individual basis for each of the 144 training centers.

University education in the Basque Country offers today more than 100 undergraduate degrees that give content to 5 fields of knowledge: humanities, technological, economic, legal, experimental, and health, along with a large number of masters and PhD's, all distributed in 6 campus. In this case, the Basque Government promoted collaboration between the 3 universities and LANBIDE in order to develop an information system with a set of associated performance indicators of the university activity in relation with the labour market. The result characterizes the employment of persons who complete university studies ensuring that the variables of the system could report about the degrees, fields of knowledge, and the universities.

In both cases, the information system allows both LANBIDE and university and vocational training managers, to count with a set of indicators that each year relate the training offered to the integration into working life of all graduates, detailing indicators of wages, stability, working time, relation with the employment, industries, occupations, etc. The available time series dates from 2000.

## Description of the practice and its content

This practice is ran annually and it is developed in a census way, addressing by telephone all persons who obtain a university degree (three years after finishing the degree), and all persons who obtain a VET certification of FP (after one year in the labor market).

From a descriptive point of view these two operations follow this methodology:

- *Request of database to universities and Education Department of the Basque Government of people who end up studies.* The database includes the identification and contact of the people integrating the class of the corresponding year. Furthermore the database contains data regarding: kind of studies, average grade, language of the studies, related studies, etc.
- *Mailing to the target persons informing about the survey and asking for collaboration.*
- *Subcontraction of a firm specialised in phone management and marketing platform.*
- *Actions prior to fieldwork (telephone surveying).* Reviewing of the database, sending of the mailing list to the management company, sending of the database to IT of LANBIDE, control of the application's availability, personnel training of the platform.
- *Fieldwork (surveying).* Development of telephone contacts, collecting answers and troubleshooting.
- *Coding and debugging the resulting survey file.*
- *Treatment of th database results.*
- *Conducting operations, analysis, and reports*
- *Offering the results to the project partners:* Universities and Vocational Training Department and centres.

The main information contents obtained in the project are:

- Evaluation of the university and/or the VET centre: Classrooms, access, technological equipment, libraries, computer rooms, cafeteria ... etc.
- Evaluation of the training received: aequate training regarding the labour market requirements, training skills of teachers, teacher knowledge, teacher availability, theoretical and practical training received, training in workplaces, etc.
- Employment status:
  - Work activity during the studies, at the end and at the time of the survey (3 years after ending University and one year later for VET graduates).
  - Characterization of current employment: Job Type in National Classification of Occupations to 6 digits, type of contracting company, number of employees of the company, branch of activity to which the company belongs to according to the National Classification of Economic Activities 2 digits, type of

contract, number of weekly hours, monthly salary, number of annual payments, need for geographical mobility to work, channel of access to the employment, etc.

- Characterization of unemployment: type and duration.
- Professional skills acquired during the training undertaken and professional skills required in employment, match-mismatch: Writing, speaking, teamwork, leadership, decision making, creativity, management skills, computer knowledge. Foreign languages: level of use in the workplace.
- Characterization of the people who continue to study: type of training, location, reasons for continuing to study.

## Intended Impacts

Although both operations are similar in methodology, they are targeted to two distinct groups: people who obtain a Vocational Training degree and people who obtain a University degree.

The general objectives pursued are:

- To describe the economic and labour market context in which the student began his/her education.
- To describe the employment situation of the alumni, three years after completion (University) or one year after completion (in the case of Vocational Training)
- To describe the characteristics of employment of the working population at the time of the survey
- To understand the satisfaction level of the student with his/ her current job.
- To compare and evaluate the results of the latest classes.
- To establish information systems regarding the transition of the educational system into the labour market in order to serve the educational planning, the definition of employment policies, and career counseling.

## How the practice is used

For each of the practices the following reports are prepared:

- Presentation report.
- Tables with the results.
- General Report for dissemination.
- Specific Reports by degree.
- Context indicators of the labour market.

Reports are delivered in the format of: PowerPoint, Spreadsheets, and docx-pdf. The information is available on the websites of the project partners.

<http://www.lanbide.euskadi.eus/estadistica/insercion-laboral-universitaria-durante-2013/y94-estadist/es/>

<http://www.lanbide.euskadi.eus/estadistica/insercion-laboral-de-los-titulados-en-formacion-profesional-en-2013/y94-estadist/es/>

The final recipients of this good practice are the following:

- Public Managers
  - Responsibles for Vocational Training
  - Heads of Universities
- Responsibles of schools
- Teaching and pedagogical professionals
- Career guidance professionals
- Families
- Young people who have to make educational and/ or labour choices

The following are collaborating institutions and participants in the project:

- Department of Employment and Social Affairs of the Basque Government
- LANBIDE, Basque Employment Service
- Deputy Ministry of Vocational Training of the Basque Government
- Social Council of the University of the Basque Council (UPV / EHU)
- University of the Basque Country (UPV / EHU)
- University of Deusto
- Mondragon University

## **Why this Practice was felt to be significant and therefore included here**

The practice was felt to be significant for the following reasons:

- Because it reflects the nature of the Erasmus + programmes in relation to education and training.
- Because it is a practice based on the use and coordination of massive amounts of data. Of a universe of approximately 20,000 people a year, information is gathered

from about 15,000 (75% rate of response), with a significant relationship between the education system and the labour market.

- The information sources which enable the implementation of this project are based on surveying operations which are easily transferable to other territorial contexts.
- It is a scalable practice. While the information and guidance value increases when having a greater number of sources, you can start from possibilist positions and gradually implement information sources. Especially you can explore the coexistence of the telephone surveying and the administrative records, such as contract registrations, in order to simplify the current operation.
- There is much room for improvement in the presentation interface. This circumstance allows us to explore experiences of other partners regarding applications for information dissemination.
- It includes, along with a wealth of information which allows you to take individual decisions, the value of objectifying the decisions of allocation of public resources by public institutions, legitimizing these decisions and driving away from arbitrariness.
- The practice is directly applicable to all the specialised job training and formal training resource forms and indirectly to guidance on productive activities and occupations.

## **2.7. INFORMATION SYSTEM FOR DECISION MAKING IN THE PLANNING AND FINANCING OF TRAINING FOR EMPLOYMENT.**

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**Author**

**Lanbide**

**Date**

**February 2015**

## Summary of the practice

LANBIDE, Basque Employment Service, is the public body responsible for the management of employment policy in the Basque Country. It is competent in the management of the services and programmes of active employment policies and social benefits. Annually Lanbide manages a budget of 824 million euros in these areas.

Within the active employment policies, those specialised in training for employment are quantitatively and qualitatively very relevant. More than 66 million euros are intended for programmes of this nature through the formula of grants, subsidies and contraction of services.

The execution of the different training programmes promoted by LANBIDE is materialized through public calls to which a large number of specialized agents are presented. The management of this programme is determined by the Basque Vocational Training System and the corresponding Basque Vocational Training Plans, which coordinate and integrate activities in regulated vocational training, training for employment aimed at workers and training for employment aimed at unemployed people in the strategic areas of: a) integrated training, b) applied innovation, c) active entrepreneurship, d) internationalization, e) training centers.

In this context, LANBIDE wants to provide a greater objectivity to the resolutions of grants and subsidies in the field of training for employment, and at the same time offers specialized information to the specialised agents to enable them to adapt their training to the behaviors the labor market.

With the launch of the "Information system for decision making in the planning and financing of training for employment", we want to disaggregate into the 26 existing professional families, which are representative of the whole training for employment, all of the information available from statistical sources and administrative records, which we associate to the concept of Big Data.

## Intended Impacts

With the launch of the "Information system for decision making in the planning and financing of training for employment", the following objectives are achieved:

- To objectify and legitimize the institutional decisions concerning the economic budgetary allocation between the 26 professional families.

- Apply to the economic resources of training by professional families, the trends of labour demand and supply, the ones coming from the characterization of the insertion (quantitative and qualitative) of formal education and training for employment, and the ones coming from the the prospective to 10 years.
- Inform the network of training centers about the labour market behaviour through indicators related to the training offer and the professional families.
- Add to Lanbide's information system an instrumental tool for career guidance, both for the technical staff in orientation (counsellors) and also in the form of self- use for the final users themselves.

## Description of the practice and its content

The information system has five fields of information for each of the 26 professional families related branches / divisions of productive activity (4-digit NACE) to which it is linked by employment potential in the labour market, taking different parameters: volume, recent developments in the number of workers, skilled workers, geographical location, ...

It has four areas of information:

### a. Demand for work force.

In this area the following statistics and administrative records are integrated:

- Registrations in Social Security.
- Employment economic accounts.
- Register of Contracts.
- HOBETUZ. Training requests by Basque companies.
- Labour Market Census.

The distribution of employment trends across the different sources are summarized in quartiles so that we can identify trends in 4 equal parts. With the arithmetic mean of the quartiles a simple index ranging from 1-4 is developed.

### b. Supply of work force.

This section refers to the number of jobseekers in LANBIDE seeking a related occupation within the professional family. As a single person can ask for up to 6 different occupations, we have taken into consideration all the demands of employment, so that one person may be repeated several times. This information is broken down by type of demanded occupation by level of qualification attending to the first digit of the National Classification of Occupations.

### c. Characteristics of the insertion of full promotions of regulated vocational training.

Based on annual, individualized and census surveys (approximately 10,000 people who obtain a VT certification) in all professional families and all the vocational centers which provide formal training.

- Employment rate.
- % change in the rate of employment 2008-2013
- Unemployment rate.
- % change in the unemployment rate 2008-2013.
- % of stable, permanent contracts.
- % of freelancers. Self-employment.
- % high qualification: % of employees working on high professional levels.
- % intermediate qualification: % of employees working on intermediate professional levels.
- % low qualification: % of employed professionals working on low professional levels.
- % related studies.

An index ranging from 1-10 is constructed and takes into consideration the position of the employment rate among all professional families and the evolution of the employment rate corresponding to the professional family in the period 2008-2013.

### d. Results of the insertion of training for employment 2013

- Employment rate: Percentage of people who have completed a course of occupational training programmed by the Basque Government in 2013 and which are listed on the registration of contracts during the 6 months after completion.

Index with scores of 1-10, with 10 being the best score, which relates the results of insertion of both programmes and the ranking within all of the professional families.

### e. Prospective of Employment 2024

During the early months of 2015, Lanbide has developed a projection of employment by professional families for the Basque Country.

- *Initial Employment:* for the start of the projection the 4th quarter of 2014 has been taken into account, using as reference the data from the Basque Statistical Institute (EUSTAT) of Population in Relation to Activity. To determine the values of employment by professional families in 2014 in the Basque Country, the associate to the Directory of Economic Activities (4 digit NACE) corresponding to 2013 is used
- *New Employment:* As components for the projections, the following estimations have been used: employments estimations for the Basque Country (Department of

Economics) developed in Prospektiker's report, employment estimates for the EU developed by CEDEFOP, and employment estimates prepared by the Technical Office of LANBIDE itself.

- *Replacement Employment*: It is the employment which CEDEFOP considers must be replaced as a result of people leaving the labour market due to demographic factors. When it has not been possible to find an estimate of CEDEFOP for certain professional families Lanbide has used its own estimates.
- *Index of job creation*: job creation has been distributed in percent by deciles so that families for the first decile are 10% of families with lower relative job creation and those which are above the ninth decile correspond to families with the greatest potential for job creation.

## How the practice is used

Currently the information system is implemented in an Excel format which offers the following query:

- a. Table of proposed allocation for each professional family of resources / efforts from the call of 2014, both in terms of percentages and ADEQUACY (population weight of supply and demand).*
- b. Table of resulting indicators (employment-training) for each professional family.*
- c. Tables of detailed indicators. Tables linking each professional family with branches of production across the main sources of the labour market.*
- d. Qualitative assessment taking as a reference the mentioned set of indicators and the employment prospective developed by CEDEFOP.*

FME Fabricación Mecánica		Afiliados S. Social		Cuentas econom	Contra-tos	HOBETUZ	AGENTES SOCIALES	Censo Mercado Trabajo					Resum cuartil	Índice	
		Empleo	% total	Evol 08-14	Ev 08-12	Ev 08-14		Ev 11-14	Ev 08-12	Ev 08-12 DirTec	Ev 08-12 Inter	Ev 08-12 Cualif			Ev 08-12 NO Cualif
10 Metalurgia y productos metálicos	59.021	6,7%	-23,9%	-23,1%	140,2%	45,2%		-25,6%	-43,0%	-21,9%	-19,1%	-20,7%	1141	1,8	
11 Prod. informáticos y electrónicos	3.323	0,4%	-9,8%	-2,7%	158,1%			23,9%	162,8%	-42,4%	24,7%	14,4%	3234	3,0	
12 Material y equipo eléctrico	9.345	1,1%	3,6%	-17,2%	66,9%	-10,5%		-42,8%	-66,7%	-48,8%	-40,6%	5,3%	2441	2,8	
13 Maquinaria y equipo	19.117	2,2%	-21,6%	-14,3%	57,0%	25,0%		-8,8%	-11,6%	-6,7%	-16,7%	-6,8%	2133	2,3	
14 Material de transporte	18.426	2,1%	-9,9%	-12,2%	291,2%	12,5%		-6,9%	-48,2%	8,9%	-12,1%	-9,5%	2343	3,0	
15 Muebles y otras manufactureras	8.895	1,0%	-40,1%	-19,0%	66,3%	-27,8%		-33,4%	-51,8%	-31,7%	-32,0%	-16,7%	1131	1,5	
27 Consultorías y actividades técnicas	32.400	3,7%	-1,6%	2,5%	5,3%	36,8%							432	3,0	
<b>Índice total</b>													8,1	2,5	
<b>A-2 / DEMANDA DE EMPLEO</b>		Demandantes	% total	Evol 08-14	Univer	FP	Bachiller	Hasta obligatorios	media durac	% extranj	% mujer	% < 24 años	% 25 - 44 años	% >44 años	Cuartil
1 Directivos	1.113	0,07	373,6%	742	166	110	95	533,0	1,7%	28,3%	1,5%	42,2%	55,8%		
2 Tecnicos	9.966	0,63	707,0%	9.400	174	225	167	343,2	1,2%	30,4%	9,1%	77,4%	13,4%		
3 Tecnicos auxiliares	20.169	1,27	575,0%	2.461	11.701	1.191	4.816	378,1	5,6%	19,0%	10,8%	61,9%	27,2%		
4 Administrativos															
5 Cualificados servicios															
6 Cualificados agrario															
7 Cualificados industria	43.945	2,77	407,0%	770	15.494	2.145	25.536	498,3	14,5%	6,2%	10,9%	56,7%	32,3%		
8 Operarios	9.126	0,58	39,1%	204	2.909	543	5.470	559,6	12,5%	13,6%	5,2%	54,4%	40,3%		
9 No cualificados	19790	1,25	114,6%	407	3596	1133	14654	903,5	16,1%	33,0%	4,6%	53,4%	41,8%		
<b>Total</b>	<b>104.109</b>	<b>6,6%</b>	<b>260,1%</b>	<b>13.984</b>	<b>34.040</b>	<b>5.347</b>	<b>50.738</b>	<b>535,9</b>	<b>11,5%</b>	<b>17,0%</b>	<b>8,9%</b>	<b>58,7%</b>	<b>32,3%</b>		<b>3</b>
<b>B / RESULTADOS DE LA ENCUESTA DE INSERCIÓN DE LA FORMACIÓN PROFESIONAL</b>													<b>C/ F OCUPACIONAL</b>		
Empl inicial	Tasa Empleo	Evoluc TE 08-13	Tasa Paro	Evoluc TP 08-13	% Indefinidos	% Autónomos	% Alta cualificación	% Baja cualificación	Relacionado estudios	Índice FP	T Empleo 327 / 2013	T Empleo 395 / 2013	Índice FO		
	41,6%	-9,8%	32,8%	-3,2%	14,4%	3,4%	1,7%	44,8%	53,2%	69,4%	6,1	35,0%	47,0%	8,7	
106.547	<b>D / PROSPECTIVA EMPLEO 2024</b>		Sustitución	42.619	Nueva creación	7.458	TOTAL empleo	50.077	Empleo FP (%)	33,2%	ÍNDICE	10	Índice sintético	7,2	

Figure: Screenshot of the tool for a certain professional family

This practice was begun to be developed by LANBIDE in 2014 and from the point of view of use of massive data (BIG DATA), it can be considered a practice of interest. However, improvement and further development could be implemented:

- Measurement of the insertion of training for employment which incorporates qualitative characteristics thereof.
- Trend opinions provided by qualified social agents: business representation and trade union representation.
- User-friendly interface presentation of results for dissemination and use by jobseekers and the career counseling network.

## Why this Practice was felt to be significant and therefore included here

LANBIDE has considered that this practice was appropriate to share with the SIMOVET partners for the following reasons:

- The practice reflects the nature of the Erasmus + programme in relation to education and training.
- The practice is based on the use and coordination of massive amounts of data (BIG DATA)
- The information sources that allow the existence of the practice are mostly administrative records and existing statistical sources in the countries of the European Union.
- It is a scalable practice. While its information and guidance value increases the greater the number of sources used, you can start from possibilists positions and implement information sources gradually.
- The practice allows the incorporation of both quantitative and qualitative contributions that encourage the participation of specialized agents.
- There is much room for improvement in the presentation interface. This circumstance allows us to explore experiences of other partners regarding applications for information dissemination.
- It includes, along with a wealth of information which allows you to take individual decisions, the value of objectifying the decisions of allocation of public resources by public institutions, legitimizing these decisions and driving away from arbitrariness.
- The practice is applicable directly to all the specialized job training and formal training resource forms and indirectly to guidance on productive activities and occupations.

## 2.8. SECTORAL AGREEMENT

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### **Author**

Zdeňka Matoušková

### **Date**

February 2015

## Summary of the practice

*The Sectoral Agreement* for the field of mechanical engineering in the region of South Bohemia was concluded in 2012. It seeks to foster young people's interest in studying technical fields and to match the contents of teaching and training with employers' needs. *The Sectoral Agreement* has been developed on the basis of background analyses concerning the situation on regional labour market and analyses of the number of graduates and students in technical schools. Contractual parties to the *Sectoral Agreements* include particularly employers within the sector of mechanical engineering, both primary and secondary schools and their founders. *The Sectoral Agreement* consists of series of specific activities aimed at achieving the set goals. It is available only in Czech and it can be easily adapted and applied in other sectors and regions not only in the Czech Republic but also abroad.

**Project language:** Czech

**Website:** [http://www.sektoroverady.cz/Media/Default/Sektorove%20Dohody/DokumentyKeStazeni/SD\\_Strojirenství-1.pdf](http://www.sektoroverady.cz/Media/Default/Sektorove%20Dohody/DokumentyKeStazeni/SD_Strojirenství-1.pdf)

## Intended Impacts

Sectoral agreements arise as a reaction to structural mismatch on the labour market. They seek to bring balance to the given labour market segment. The employers are not satisfied particularly with the offer of technical professions, persons with secondary but also tertiary level of education in technical fields. It is not only the quantitative mismatch – numerical superiority of demand over supply – very often it concerns also the structure and quality of knowledge and skills of the graduates. Employers pinpoint particularly the fact that the graduates are not sufficiently prepared for the practice, they are not able to apply their theoretical knowledge in practice and in the case of the graduates from the vocational schools – the employers complain about the lack of craftsmanship. In graduates from technical fields of secondary schools and in particular of the higher education institutions, the employers point out the low level of foreign languages knowledge, which, due to the globalisation, has become a must. It is believed that most of these issues are due to the inadequate linking of the secondary and tertiary education with to the world of work (business practice).

The aim of sectoral agreements is to shape human resources development by means of co-operation between employers and schools. The activities leading to the conclusion of such

agreements and fostering implementation of specific measures are co-financed by the European Structural Funds; they are implemented by the Confederation of Industry of the Czech Republic.

Sectoral agreements are not legally bound; they represent a kind of “gentlemen’s agreement” and their performance is therefore only a matter of personal responsibility of the signatories. Key contractual parties to the sectoral agreements include employers, educators, Regional Councils for Human Resources Development, regional labour offices. Sectoral agreements define the roles and commitments of the key contractual parties and serve as a basis for the co-ordination of activities implemented by the actors within the labour market. Tangible result is the reduction in disparities and mismatch between skills’ supply and demand contributing thus also to the economic development of enterprises within the given sector and economic as well as social development of the region and consequently of the whole country.

## Description of the practice and its content

*The Sectoral Agreement* for the field of mechanical engineering was concluded in 2012 between two types of signatories. The first group consisted of the so-called strategic partners - patrons of the *Agreement* and representatives of the executive bodies responsible for national industrial policy (Ministry of Industry and Trade), national education policy (Ministry of Education, Youth and Sports), national employment policy (Ministry of Labour and Social Affairs), overall development of the region (Regional Authority) and the representatives of employers (Confederation of Industry of the Czech Republic, Chamber of Commerce of the CR). The second group of signatories consists of the partners involved in implementation of the *Sectoral Agreement* through specific activities. Those are usually the representatives of relevant departments of the Regional Authority (Department for Employment and Human Resources, Department for Education), representatives of the Labour Office, schools and employers.

*The Sectoral Agreement* consists of three principal sections. The first one, strategic section of the *Sectoral Agreement* specifies its main objectives:

- Support for education – both initial and continuing education
- Fostering co-operation between schools and employers

The strategic section is followed by the implementation one, which specifies principal objectives by means of particular measures while defining relevant subjects responsible for implementation of individual measures. Operational section constitutes the final part of the *Sectoral Agreement*. It contains a list of specific activities within individual measures. Entities

involved in the implementation, indicators to be achieved and the implementation deadline are specified for each activity.

*The Sectoral Agreement* is implemented primarily by means of:

- Fostering young people's interest in studying technical fields through organising competitions with valuable prizes, scholarships funded by the Regional Authority for the students of selected technical fields of study achieving excellent learning outcomes.
- Collaboration between schools and employers while shaping professional profile of students and adapting contents and form of teaching to the current and future performance requirements of technical occupations.
- Increasing the involvement of employers in organisation of students' visits to companies enabling them to get an idea about potential applicability of technical education and encouraging them to pick a technical field of study in the future.
- Increasing co-operation between secondary vocational schools and employers in securing practical training and internships for the students and allowing the teachers of these schools to become familiar with specific facilities, their equipment and operation and obtain sufficiently detailed information on the latest technologies applied in practice.
- Promoting mechanical engineering in all types of mass media, stressing its role within the South Bohemian Region and the Czech economy as a whole, promoting business success of individual companies within the sector, publishing information on promising career prospects within this industry.

## How the practice is used

Implementation of sectoral agreements is carried out by means of the already mentioned *Action Plan*. Co-operation between schools and employers is specified in bilateral agreements concluded between the relevant school and its founding body (Regional or Municipal Authority) on one side and the company from the mechanical engineering sector on the other.

In terms of co-operation, the employers do not focus solely on the primary and secondary schools, there are also co-operative approaches being applied for kindergartens. Positive attitude towards technology, technical thinking and dexterity needs to be cultivated since early age. Therefore the companies have provided several kindergartens in South Bohemia with technical toys (plastic construction toys, building blocks, plastic tools, colouring books with technical themes) aimed at encouraging the children's interest in technology.

Visits to companies and open-door days organised for the pupils of primary schools and their parents represent another example of co-operation between the employers and the schools. The aim is to show that the work in these companies is safe, clean, up-to-date and with good

prospects and that the choice of studying a technical field is a good choice with prospects of getting a stable and interesting job.

Specific actions focused on exploring possibilities and conditions for increasing the share of students' practical training at employers' premises, the involvement of experts from practice in final examinations of fields of study with apprenticeship certificate and securing the internships and training for the teachers of practical training in companies.

Activities aimed at raising primary school pupils' awareness of study opportunities at technical schools and their potential employers represent a very important component of the actions taken. The map of South Bohemia featuring all the companies and secondary schools involved in the *Sectoral Agreement* has been produced. One copy of the map has been sent to each primary school in South Bohemia in order to be hanged up on a place easily accessible to pupils. These maps provide the pupils with a very clear and comprehensive overview of study opportunities upon the conclusion of primary school studies and about their potential employers.

A great deal of attention is paid to additional forms of media coverage and promotion of technical education and career opportunities related to mechanical engineering. They involve articles published in press, interviews broadcasted via radio stations, workshops, etc. In collaboration with Výstaviště České Budějovice, an exhibition focused on technology is being prepared for 2015 under the title "*Education and Craft*" (*Vzdělávání a řemeslo*). Another supporting factor is represented by the initiative of the Confederation of Industry of the Czech Republic that has declared 2015 the Year of Industry and Technical Education with the aim to raise awareness of the wide public about the importance of engineering within the modern economy of the 21<sup>st</sup> century and to foster the interest of young people in technical fields.

The suggestions arising from the *Sectoral Agreement* have been used by the Regional Authority while developing the long-term Strategic Plan for Education and Education System in the South Bohemian Region for 2012-2016.

These activities and measures resulted not only in close co-operation between companies and schools, but also between the Labour Office of the CR and the Regional Authority not to forget also the growing number of students in technical schools and the increase of demand for employment in industrial companies in the South Bohemian Region.

## Why this Practice was felt to be significant and therefore included here

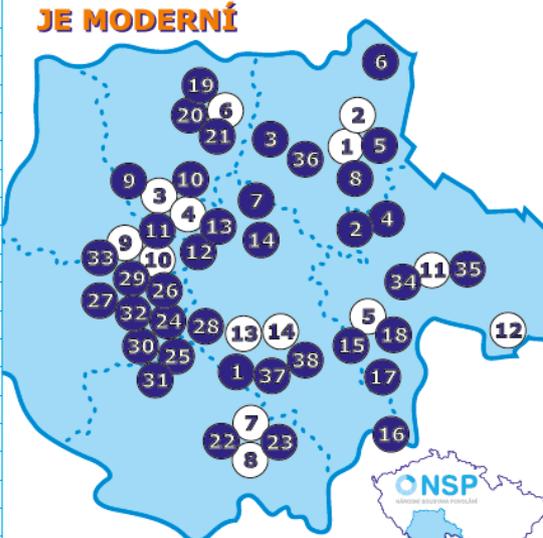
Sectoral agreements are transferable to other regions as well as other sectors. The main advantage is that they create a platform for employers and educators for mutual exchange of information about their needs. Any issue can be addressed only upon a faultless communication of all involved parties. The communication needs to be followed by formulation of specific measures and their subsequent implementation, which is bound, in certain time frame, to reduce the structural mismatch in the relevant segment of the labour market.

Seven sectoral agreements have been concluded so far in the Czech Republic, the agreements cover the sectors of transportation, ceramics, food industry, fitness, security services, technical disciplines and mechanical engineering and further agreements are being prepared. Sectoral councils embody the driving force behind these agreements; they bring together experts from particular sectors (employers, educators, labour market specialist). Sectoral councils evaluate trends within relevant sectors and contribute to the creation of the National System of Occupations and the National Register of Qualifications.

## Attachments

Map distributed to all basic schools in South Bohemia

1	<b>AKTOR JAKOV</b> MOTOR GROUP s.r.o. Česká Budějovice - <a href="http://www.aktorjakov.com">www.aktorjakov.com</a>
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4	<b>BANES</b> BANES spol. s r.o. Česká Budějovice - <a href="http://www.banes.cz">www.banes.cz</a>
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6	<b>KOH+KOH</b> KOH+KOH Město Valtice s.r.o. Město Valtice - <a href="http://www.kohkoh.com">www.kohkoh.com</a>
7	<b>NECROTECH</b> ON Czech Republic spol. s r.o. Břežany - <a href="http://www.necrotech.cz">www.necrotech.cz</a>
8	<b>KOVOSVET</b> MAJ s.r.o. Sedlčany - <a href="http://www.kovosvet.cz">www.kovosvet.cz</a>
9	<b>FRANCKA COMPONENTS</b> Plzeň s.r.o. Plzeň - <a href="http://www.francka.com">www.francka.com</a>
10	<b>FAURECIA</b> FAURECIA AUTOMOTIVE Czech Republic s.r.o. Plzeň - <a href="http://www.faurecia.com">www.faurecia.com</a>
11	<b>ALFA</b> výzbroj jednotek vojenských strojů s.r.o. Plzeň - <a href="http://www.alfabiz.cz">www.alfabiz.cz</a>
12	<b>AVISIN</b> Avis Europe Manufacturing Czech s.r.o. Plzeň - <a href="http://www.avisin.cz">www.avisin.cz</a>
13	<b>TOOLS</b> + TOOLS s.r.o. Plzeň - <a href="http://www.toolsbiz.cz">www.toolsbiz.cz</a>
14	<b>RIVETEC</b> RIVETEC s.r.o. Město Valtice - <a href="http://www.rivetec.cz">www.rivetec.cz</a>
15	<b>PIR</b> PIR s.r.o. Tábor - <a href="http://www.pir.cz">www.pir.cz</a>
16	<b>MAGNA</b> MAGNA CARTECH spol. s r.o. Česká Budějovice - <a href="http://www.magnacartech.com">www.magnacartech.com</a>
17	<b>FATON</b> FATON (Březňovská) s.r.o. Česká Budějovice - <a href="http://www.fatonbrestnaska.cz">www.fatonbrestnaska.cz</a>
18	<b>U + M</b> servis s.r.o. Tábor - <a href="http://www.umtaor.cz">www.umtaor.cz</a>
19	<b>ZVZ GROUP</b> ZVZ GROUP Město - <a href="http://www.zvz.cz">www.zvz.cz</a>
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22	<b>FRONTEK</b> Frontek Česká republika s.r.o. Česká Budějovice - <a href="http://www.frontek.com">www.frontek.com</a>
23	<b>ILHATRI</b> ILHATRI s.r.o. Praha - <a href="http://www.ilhatri.cz">www.ilhatri.cz</a>
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39	<b>COP</b> Vysoká škola Ing. Jiřího Ing. Čestmír odvozdil spol. s r.o. Česká Budějovice - <a href="http://www.cop.cz">www.cop.cz</a>
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## 2.9. TKNIKA INNOVATION MODEL

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### **Author**

**Raquel Serrano  
Eugenia Atin**

### **Date**

**February 2015**

## Summary of the practice

Tknika is the Centre for Innovation in Basque Vocational Training promoted by the Basque Department of Education, Universities & Research, under the direct auspices of the Sub-Department of Vocational Training & Lifelong Learning.

Innovation is at the core of Tknika in its ongoing efforts to place Basque Vocational Training at the European forefront. Tknika is modelled after some of the world's most advanced vocational training centres. Through networking and direct involvement by the Basque Vocational Training teaching staff, the Centre develops innovative projects in the areas of technology, education and management.

Tknika has developed an innovation model for the Basque Vocational Training System. Under the Tknika Innovation Model, the Centre's innovation management model, Tknika incorporates into its activities companies, technology centres, research centres, universities and other institutions that can add value to the system – all based on the dynamic of open innovation.

‘Strategic Environments’ and ‘Specialization Areas’ are critical initiatives directed by the Tknika Innovation Model. In both cases the point of departure is the Research and Innovation Strategies for Smart Specialisation (RIS3) of the Basque Country which identifies the strategic economic sectors in the region.

‘Strategic Environments’ is a good example of a regional level collaboration between Tknika and research centres, universities, agents from the Basque Network of Science and Technology magnet companies, and SMEs to address the different fields that the RIS3 considers critical, currently in advanced manufacturing, car industry, energy, railway industry, robotics and artificial vision, 3D manufacturing and lean manufacturing.

‘Areas of Specialization’ comes from the areas that the Basque Government itself has identified and that are to be developed under the VET System. The areas of specialization in which the Basque Country is currently working on are: Bioscience and new materials, Energy efficiency, Virtual Environments, Nanotechnology, Biotechnology, Electromedical, Biomedicine, Drones and Smart Cities.

**Available language:** Spanish

**Websites:** <http://www.tknika.eus/liferay/en/tknika>

## Intended Impacts

The social changes that are taking place, the problems in finding a job, the much needed restructuring of the labour market, the development of technological innovation, the increasing automation of production processes with new types of organization and management models, the emergence of new professional areas and the rapid transformation of techniques and equipment, have made that the industrial sectors are now demanding profound changes in vocational training. The last report submitted by the European Commission indicates that it is estimated that by 2020 only 15 per cent of the active European workforce may not be qualified. If we transfer this data to analyse the case of the Basque Country, our current production network and its future development, we can estimate that in our case, the number of unskilled working population, must never exceed ten per cent. This means that 90 per cent of jobs in the Basque Country will be requiring skilled or highly skilled professionals.

At this point, in 2014, the Basque Government focused on reinvigorate vocational training through a new plan with a special attention to identify key trends in the future which would impact on the changing profiles and needed skills. Since Tknika was founded with the aim of becoming a reference for innovation in European vocational training, it is the organization responsible for identifying new opportunities, seizing new ideas and providing new answers for the teaching and learning process through the developing of a technological prospective of the economic strategic sectors identified on RIS3.

The intended impacts of Tknika Innovation Model were the following:

- Establishing collaborative networks and alliances with companies, university research departments, technology centres and advanced management services for developing a new model technological foresight on vocational training
- Analysing the technological changes and other trends on the economic strategic sectors and their impact on the professional profiles and skills for generating a better understanding of which might be the more adequately future training offer from vocational training centres
- Identifying the jobs of the future and adjust on adequately adapt of the vocational training to the real needs of the labor market
- Learning and creating new training material adapted to futures demands and transfer the innovations on vocational training offer to the training agents.
- Contributing to the integration of the anticipation culture and proactive strategy of vocational training centres in the Basque Country

- Providing training and knowledge on these new profiles and skills not only for young people at initial vocational training but also for current workers specially on SMEs as a way of transferring innovation to companies to guarantee social advancement, improvement of competitiveness employability and economic development.

## Description of the practice and its content

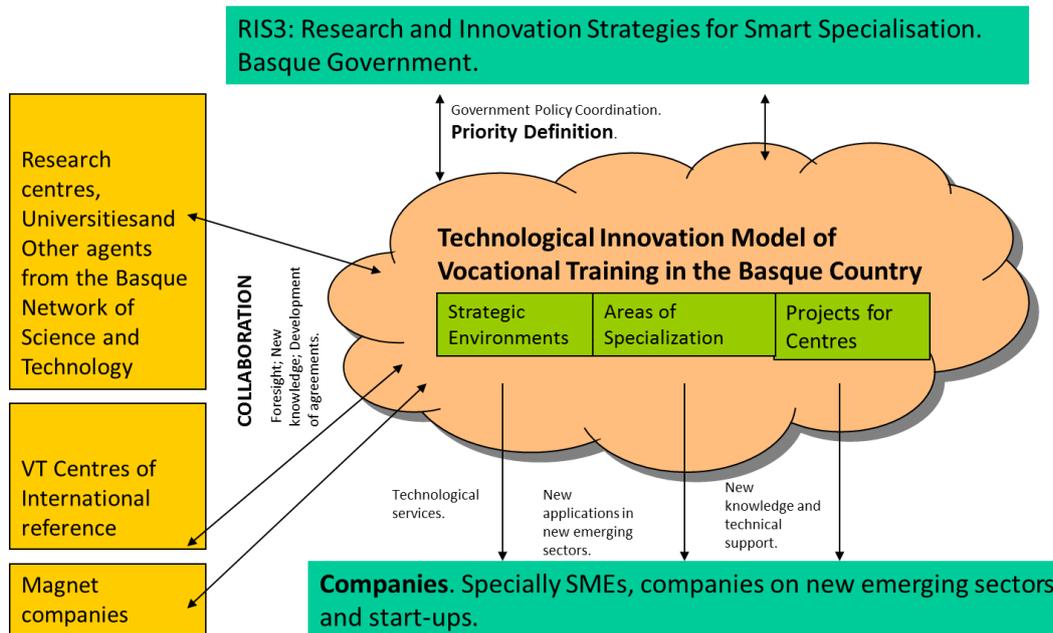
Tknika is a tool for the innovation on vocational training centres and aims to transfer this innovation from the trainers to the students on initial vocational training and to the companies through the training of their workers and through technical assistance to their innovation process.

Through its own training centres, Tknika supports a range of innovative projects which may involve companies, universities, research centres or technology centres. Tknika offers the following services:

- Teacher training
- Skills development for directors and administrators of VT centres
- Partnerships and agreements with companies, universities, technology centres and institutions
- Monitoring service in different areas of vocational training (sources and reports).
- Promote an entrepreneurial culture and back initiatives launched from vocational training centres aimed at creating new businesses.
- Perform studies on different subjects of interest to vocational training centres.
- Organise lectures and conferences related to vocational training.
- Create networks and communities of practice for teachers.
- Library and multimedia library service.
- Intermediation and mentoring service.
- Catalogue of corporate technological services.

When focusing on the Tknika Innovation Model, we could say that the model is structured into three stages:

1. Strategic Environments
2. Areas of Specialization
3. Projects in vocational training centres



The process begins with the collaboration and coordination of all the strategies of the Basque Country to select the sectors that will be targeted by the Innovation Model of Tknika. The first stage of the Tknika Innovation Model corresponds with Strategic environments. Once the sectors have been identified according to the RIS3 priorities, Tknika proceeds to the technological monitoring of strategic environments to identify which will be the changes in the sectors from the technological point of view that will affect the skills and profiles of those sectors.

For this technological monitoring of the strategic environments, Tknika counts with the participation of Universities, Research centres and other key agents. Mixed working teams are created with internal and external staff in order to analyse the impact on jobs, job profiles and skills and to analyse the existing gaps in the current vocational training offer. Tknika counts with their own human resources (32 researches, 6 coordinators and 3 directors) and also with the direct collaboration of the trainers of the vocational training centres which participate in the different innovation teams (more than 200 people). For this reason, Tknika is structured in working teams composed by internal and external personnel coming from the centres to guarantee the adequate transfer of the generated knowledge to these vocational training centres. In addition Tknika integrates in its Innovation Model other agents coming from the Research centres, Universities, agents from the Basque Network of Science and Technology, companies and other international vocational centres in its the technological monitoring systems.



The second stage of the Tknika Innovation Model corresponds to a more advanced phase of the Innovation Model. In this phase, the specialization areas coming from RIS3 are selected and the innovation teams are responsible for researching in these areas in order to prepare the trainers on those aspects they have considered of interest. To this end, they will generate suitable training material for the trainers and for the students, creating new courses and/or adapting the existing ones.

The third stage consists of a specific transfer to companies based on the acquired knowledge of the innovation teams. In this way, the teachers of the training centres work with SMEs on specific projects. This step includes the development of specific projects to advice companies and support them in their innovation process, especially SMEs where the training centres offer technical support to innovate in certain technologies.

Within the Tknika Innovation Model we will here describe the first two stages.

## Strategic Environments

Strategic Environments is a partnership between Tknika and the research centres, universities, agents from the Basque Network of Science and Technology, magnet companies, and SMEs to address the different fields that the RIS3 considers critical, currently in advanced manufacturing, car industry, energy, railway industry, robotics and artificial vision, 3D manufacturing and lean manufacturing.

The aim of Strategic Environments is to adapt the training process to the real needs of companies; ultimately, to identify "the jobs of the future" in order for the training system to focus on them. For example, factories and manufacturing processes are changing and

evolving rapidly, so it is necessary and urgent that the profiles of new employees in these factories adapt to these new needs.

The technological progress marks the beat of important changes at both social and economic level. Therefore technology is an essential part of innovation and Vocational Training.

In this regard, Tknika aims to reduce the time between the moment a technology appears until the Basque society enjoys its benefits and to research technologies that make it possible to develop new market niches in the Basque Country.

Recently Tknika has signed a collaboration agreement with the Tecnalia Research Centre which allows them to develop specific plans aiming to improve training, applied research and pedagogic and technological innovation of Vocational Training.

Thanks to a prospective study in collaboration with this and other research centres, Tknika can identify new technology trends. Tknika is divided into lines of work to develop different projects and these lines network with one another. Once the monitoring system detects new impacts on jobs and occupations resulting from technological trends or changes, the working teams learn from these trends and develop specific projects, exploring all their possibilities, analysing their application to training, production or to the creation of new kinds of business. Lastly, these teams efficiently convey this knowledge to society by means of the VT centres.

Here, the Vocational Training centre network not only plays a major part in the projects but is the leading vehicle in transferring the generated knowledge to companies and to the Basque society in general.

Moreover by connecting the different lines of work in which the Strategic Environments develop projects, Tknika offer different services for the innovation to occur in the VT centres:

- Centre of advice and assessment.
- Loan of Tknika resources (all of the Tknika classrooms are fitted with the latest equipment, expanding the potential for exchange and participation).
- Transfer and distribution of project results.
- Organisation of technical workshops for teachers.
- Communities development .

## Areas of Specialization

This good practice comes from the areas that the Basque Government itself has identified and that are to be developed under the VET System. The areas of specialization the Basque Country is currently working on are: Bioscience and new materials, Energy efficiency, Virtual Environments, Nanotechnology, Biotechnology, Electromedical, Biomedicine, Drones and Smart Cities.

The obstacles which companies are facing have changed. Today it is not only a question of hiring qualified staff, the limitation now lies in the lack of work related to the company's traditional activities. We must open ourselves to new markets in search of new activities, a challenge in itself with the added factor of finding qualified people to carry out this new activity. The objective therefore lies in generating new activity and associated knowledge to allow its development.

The job of Tknika must therefore not be limited to bringing new technologies to SMEs but must also develop new markets for exploitation by our companies: progressing from innovation to research and development.

This objective brings a conversion in the Tknika's projects portfolio, which involves projects of greater technical complexity requiring a wider range of combined knowledge. These projects must be managed in an interactive/collaborative environment between Tknika, the companies and innovation agents (technology centres, universities, etc.). Therefore, in these areas mixed teams are created to identify and learn about new technologies and they then develop educational materials for its inclusion in the provision of vocational training, either through curriculum development of new professional profiles or through the addition of new units of competency in traditional training allowing new skills to be provided to students in initial vocational training and addressing specific training modules for workers in these sectors.

The objective is to create a portfolio of projects with technologies that make it possible to address new markets and therefore to generate activity. To achieve this, it is necessary to manage projects with numerous external collaborators (experts), seeking ways to exploit the results of these projects beyond the transfer of knowledge to centres, such as, for example, new products exploited by already existing companies, new technology-based companies, etc.

Specifically and in relation with the areas of specialization, we can provide the following examples on how the Tknika Innovation Model is developing new technologies for the VT in the Basque Country.

- Building energy refurbishment
- Trainera fishing boat (fibre, sensor systems and data)
- Sustainable mobility, automation
- WOOD-NIKA
- Additive manufacturing by means of the PTA transferred arc
- BIOTKNIFISH

To better understand this good practice, we include a brief description of these projects in the Appendix.

## How the practice is used

Tknika is part of the Basque Department of Education, Universities & Research and the Sub-Department of Vocational Training & Lifelong Learning and therefore it is the main tool for transferring the needed knowledge to adapt the vocational training offer to the current and future needs of the labour market.

Tknika transfers the innovation on technologies through meetings with experts in the field, developing new pedagogic materials adapted to the new technologies, training the trainers and also lending their venues and the technical improvements that need to be taken into account for the future training. (The vocational training centres can loan machines or equipment needed for the classroom).

Technology allows us to push ahead and go to places that would be inaccessible otherwise. It lets us eliminate physical barriers and breathe new life into knowledge in a faster, more efficient way. The Tknika Innovation Model keeps a keen eye on new developments in technology, exploring new solutions, production techniques and computing tools that will enhance the learning process and increase productivity.

Learning how to use new technologies is key to guaranteeing a modern high-quality education system, and addresses the needs of today's the most demanding businesses and environments.

The results of the good practices described here are therefore vital for the modernization of the vocational training system to occur and they are used by:

- 324 vocational training centres
- 30,000 students per year

- Research centres

Tknika through its Innovation Model offers the Basque Vocational Training Centres a wide array of courses and services, including publications, consulting and implementation of new technology, creating new business projects and innovation models, and providing strategies to improve management.

### **Why this Practice was felt to be significant and therefore included here**

Current times show that things are moving quickly and unexpectedly, with the development of a new economy and changes in different industries that make our companies have to struggle and survive in an open field of fierce competition. This forces the Basque Country to have to perform better or differently from others. Employability is also evolving towards much more complex levels of professionalism that require increasingly higher professional qualifications. Intense transformations will take place and will make the economy have to rethink many of the existing models and extensively change the current production model. A scenario in which the sustained creation of value will be a prerequisite for the companies to be competitive so they can open new opportunities for growth, job creation and maintenance and social welfare.

Our society is changing and no static system can operate in a changing environment. We need to define a new coherent model and reasonable in terms of prospective, observation, monitoring, training, skills and employment, which responds to the changes that are taking place in our industrial sectors. For this we need to anticipate what the work to be carried out in the future is and to gear it towards sectors which are still unknown, emerging sectors, towards the most competitive sectors of our economy as well as towards traditional sectors such as family businesses, which employ many people, and that have to compete with companies located in different parts of the world. All these sectors are going to move in the fields of uncertainty and complexity.

Therefore for the Basque Country it is vital to enhance human capital and employability by upgrading skills and knowledge and adjusting professional and training profiles to the current demands of the production sectors.

Our industrial sectors must innovate and change in order to obtain different, better and more competitive products, services and processes and for that they need the support and dynamism of vocational training. Centres that, in collaboration with other organizations, will



establish their leadership together with a well-defined purpose and will work, among others, in three key areas: the area of the creation of value, the area of innovation and improvement, and the field of strategy and values.

## APPENDIX 1 - Examples on how the practice is used

### BUILDING ENERGY REFURBISHMENT, ENERVET PROJECT (ENERGY REFURBISHMENT IN VOCATIONAL EDUCATION AND TRAINING)

#### Objective

Building energy refurbishment is one of the cornerstones of the change in energy model promoted from Europe. Specifically in the Basque Country, the building stock is one of the oldest in Europe, making the challenge an important one. Today's situation also offers the opportunity to redirect the construction industry from its traditional promotion of new homes towards the refurbishment of buildings based on energy-efficient criteria.

Added to this, the latest directive on energy efficiency (2012/27/UE) stipulates that the public sector must show an example and reduce its expenditure in this area. Among other criteria it establishes the obligation to renew, every year from 2014, 3% of the total surface of buildings with heating and/or cooling systems owned and occupied by State Administrations with a useful surface of more than 500 m<sup>2</sup>.

Vocational training plays an important part in achieving the objectives set, given that the new demands made for buildings require workers who are far more qualified and aware. We must foster a new energy culture in society and involve all industries in achieving buildings with very low energy requirements (Nearly zero-energy buildings).

In this project, the idea is to carry out and apply at Tknika an energy refurbishment plan to permit important demonstrable savings and to generate solutions and tools that can be used at other centres. We have therefore identified the following areas of work:

- Monitoring: Smart metering, energy management software, data analysis, improvement analysis, optimised consumption, etc.
- Building design and characterisation tools:
  - Design and analysis tools: Dynamic simulation software (Energy plus+Openstudio+Sketchup).
  - Field measurements: Transmittance measurements, infiltration and hermeticity test, thermographies, comfort, air quality, etc.
  - Energy certification tools.
- Reduced demand:
  - Refurbishment of the building envelope (SATE, etc.).
  - Passive reduced demand systems.
  - Drastic reduced demand systems (passive buildings, Enerphit Standard).
  - Insulating materials: New materials. Methods of installation or application.

- Reduced consumption:
  - Automated installations: Development of low cost electronic systems easily applied for installation automation and control. Smartphone control.
  - Application of more efficient technologies and systems: LED lighting, more efficient heating systems (installation departmentalisation, low temperature design, variable flow, etc.)
  - User awareness: Development of information and awareness-raising screens to prompt a change in habits. Development of a blog.
- Integration of renewable energies:
  - Self-consumption and distributed generation systems.
  - Clean energy use. Analysis of CO2 emissions.
  - Energy-plus buildings.
  - Financial analysis of projects.
  - Materials and processes sustainability: Carbon footprint analysis.
- Participating companies: IDDEI, Daia Solutions, Giroa, LCCE (ENEDI group), Kursaal rehabilitaciones.

**Participating centres:** Several centres in the construction industry collaborate in this project: Vitoria Construction Centre, San Sebastián Construction Centre.

**Duration:** 2013-2016

## TRAINERA FISHING BOAT (FIBRE, SENSOR SYSTEMS AND DATA)

### Objective

Recent years have seen a considerable rise in carbon fibre use, and the forecasts tell us that the trend points towards its continued growth in coming years. In its early days, carbon fibre (CF) was developed for the space and aeronautics industry; today, however, its use has spread to other fields: the transport industry, wind generators, elite sport, and lately it is even used in purses and watches. One of the reasons for its use is its excellent mechanical qualities and the fact that it is so lightweight, which makes for reduced energy consumption. For all of the above, we understand that composite materials must have their place in the different vocational training cycles from the point of view of design, manufacturing, finish or validation.

The complexity of these materials is enormous. There are several types of carbon fibres and resins that make up a composite, just as there are numerous configurations and methods of manufacture that influence the end properties of the product. In addition, on the one hand we have programmes for the structural calculation of components, and on the other programmes for simulating the different manufacturing methods (infusion, RTM, etc.) which back the product design; all to achieve best possible properties of the end product.

The project aims, by means of manufacturing a trainera fishing boat, to work on the different stages involved in designing, manufacturing and validating a product based on composite materials. The project will have different stages:

- to design a trainera and validate said design using hydrodynamic tests and structural calculations
- manufacture of the hull by infusion, therefore carrying out the different material and manufacturing process studies
- manufacture of the internal structure of the trainera
- equipping the trainera with sensors to permit the measurement of stresses and to use said data for subsequent analysis

The final objective is to gain in-depth knowledge of composite materials, specifically carbon fibres, and thereby to gain command of the design and manufacturing processes for these materials. Also, to learn how to integrate elements such as sensors for recording and gathering data and to transfer said knowledge within vocational training for its application to other cases with similar characteristics.

**Participating companies:** Leica Geosystems, Gazechim, Mondragon Unibertsitatea



**Participating centres:** IEFPS Bidasoa, Goierri Eskola, Miguel Altuna, Mondragon Goi Eskola Politeknikoa

**Duration:** 2013-14

## SUSTAINABLE MOBILITY, AUTOMATION

The main objective is to detect, gain command of and develop new technologies in the automotive industry, and to facilitate their introduction to SMEs through the VT centres. To do this the main lines of work will be:

1. Development and research in the field of new applied technologies in vehicles and alternative fuels (biofuels, GLP and natural gas, electric hybrids, hydrogen plug-ins).
2. To generate a network of alternative, more sustainable vehicles to facilitate mobility between VT centres ahead of the trend forecast for 2020.
3. Transfer and training of our teachers and students in new applied technologies in more sustainable alternative vehicles.
4. Observation and collaboration agreements at national and international level.

### **Development explanation**

The rhythm of technological change in the automotive industry has gained spectacular speed. New and innovative technologies (particularly electrification) are constantly developing and improving to meet consumer needs and government demands, with increasingly stricter regulations as regards contaminating gas emissions. This rapid change demands that both the industry and VT teachers update smartly, and that they acquire new skills to stay ahead in the new market.

**Participating companies:** AIC Automotive Cluster, Bosch + FORTECO Group, ALECOP.

**Participating centres:** Universidad de Mondragon, Desguaces Vidaurreta

**Duration:** 1 year.

## WOOD-NIKA

The Basque wood sector must achieve top standards of quality, optimisation and transformation of its products to meet the standards required by regulations and the competitiveness demanded by the wood market. To achieve this objective, the driving force must be innovation in all aspects of the sector: the product, technology, organisation and training.

The value placed on wood as a renewable material and CO<sub>2</sub> sink points towards the advisability of its use in sustainable building. This represents important driving power for the wood industry and generates important opportunities as regards construction and refurbishment, thereby promoting an economy that will also help to combat climate change. On the other hand, efforts must be made to highlight the qualities of wood and to foster its culture at social level, where training and information are the most important tools in achieving greater presence of wood in society.

This project promotes improvement, innovation and optimisation as regards production, wood use and training in the different points in its value chain, with the aim of contributing to improving the wood industry in the medium and long term.

### **Participating companies:**

In this project and in order to achieve the objectives addressed, Tknika has the collaboration of different institutions, associations, technology centres, companies, universities and vocational training centres related to the wood industry. Some of the most important are:

The Basque Government Department of Innovation and the Agri-food Industries, the Woodlands and Habitats Management Service of the Directorate General of Woodlands, SECOMA (group of Gipuzkoa timber sector companies), Arotzgi (Carpenters Association of Gipuzkoa), Basoa (Association of Forestry Owners), technology centres such as TECNALIA, CESEFOR, INIA, HAZI, University of the Basque Country, Bern University of Applied Sciences Architecture, Wood and Civil Engineering of Switzerland, the Habic Cluster and companies in the sector (Larrañaga, Errekondo, Egoín, Bioetxe, etc.).

### **Participating centres:**

This project enjoys the participation of different Vocational Training centres in the agrarian, edification and civil work specialities, in addition to wood and furniture.

**Duration:** 1 year.

## ADDITIVE MANUFACTURING BY MEANS OF THE PTA TRANSFERRED ARC

Additive manufacturing consists of generating solids by means of the continuous adding of material, normally layer by layer. From early rapid prototyping as a system for the fast generation of pieces, we have moved on today to talk about rapid manufacturing, direct manufacturing or, in a broader sense, AM (Additive Manufacturing), where we are starting to produce real production pieces, including small batches and even units of pieces which have enormous added value for different reasons (material, geometry, weight, etc.).

The variety of materials that can be applied is very wide and solutions range from polymeric to metallic and ceramic materials. Focussing on metallic materials and ceramic composites, the most widely used processes are those listed by ASTM as Power Bed Fusion (PBF), i.e. processes where a shaft of high energy density fuses or sinters a specific area of a previously deposited layer of dust. The following belong to this kind of processes: SLM (Selective Laser Melting), DMLS (Direct Metal Laser Sintering) and EBM (Electron beam Melting). Another family of processes are those which, while they do not require said previous layer, add and melt the material simultaneously. These processes are similar to traditional welding processes; however, here the objective is not to join, but to add material until generating a volume with a specific geometry. LMD (Laser Metal Deposition) falls within this last category. The project underway at Tknika is related to this last kind of process, LMD; however, in this case we do not use a laser source, but a plasma welding source. Our principal aim in the project is, on the one hand, to gain command of the different aspects related to the plasma additive process (variables of the process, materials, solution design, fields of application, etc.), by experimenting and carrying out a series of previously designed practical cases and, on the other, to discover the state of the art related to this process in particular, but looking at Additive Manufacturing in general.

**Participating companies:**

**Participating centres:**

**Duration:**

## BIOTKNIFISH

Obtaining fish from the sea by fishing is faced with at least three increasingly more important limitations:

- **Increased demand.** The increasing population and the culture of eating fish has led to a rise in demand which, together with scarcer fishing grounds, is leading to their over-exploitation. This makes it possible to maintain today's quota only by fishing in the sea.
- **Poor food safety.** Higher accumulations of heavy metals (Lead, Mercury and Cadmium), parasites (anisakis) and hydrocarbons are being detected in fish taken from the sea. It is also practically impossible to trace the product, meaning that it is also impossible to guarantee food safety in keeping with consumer needs.
- **Economic sustainability.** This scarcity is causing fish prices to rise.

This project develops new sustainable technologies for aquaculture and vegetable crops in the endeavour to obtain sustainable, controlled production to overcome the limitations described above.

The intention is to design and launch a pre-industrial installation of sustainable aquaculture, taking the following factors into account: water, energy and food. In other words, to design and launch an installation capable of producing quality fish and vegetables, with sustainable management of the water used, energies consumed and fish feed. All according to financial return parameters.

We will work with a new species in the Basque Country (TILAPIA, *Oreochromis Niloticus*), which requires a series of specific conditions to grow (fresh, warm water). We will therefore develop installations that technically provide these conditions. In addition, as an innovative factor, we will reuse the water by means of re-circulation, using as a natural filter an aquaponics system thanks to which we will be able to produce high quality vegetables using the organic material generated by the aquaculture. To ensure total control of the production, we will have a hatchery to control reproduction of the aquaculture system thanks to quality males and females.

The development of this project will give us a system that produces fish of very high quality, with absolute control of its source, sustainable, ecological, biological and economically viable.



A system of this kind may imply great innovation in ways of supplying consumer markets and could create a new market. This is the objective of the project.

**Participating companies:** Breen S.L.U

**Duration:** July 2016

## 3. DISSEMINATION

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## **3.1. HORIZON 2020 ANALYSIS OF TALENT NEEDS IN THE BASQUE COUNTRY (2014)**

**Author**

**Bizkaia:talent**

**Lanbide**

**Date**

**February 2015**

## Summary of the practice

As an introduction to understanding this good practice, we must place it in its local environment. Bizkaia is one of the three provinces that make up the Autonomous Community of the Basque Country, which in turn is integrated in all autonomous communities of the Spanish State.

The following good practice has been developed by bizkaia: talent, an entity driven by the Department for Economic Development of the Provincial Council of Bizkaia (Maximum Agency Government of Bizkaia). bizkaia: talent was established in 2004 as a non-profit organisation with a clear mission: to foster and facilitate the implementation of the necessary conditions for attracting, connecting and retaining in the Basque Historic Territory of Bizkaia highly qualified people in the areas of knowledge and innovation. Since then, its activity has been highlighted in all of the international forums they attend.

bizkaia:talent seeks to promote and improve the most important factor in the development of any region: human capital. In so doing, it takes action to attract talent with the help of the leading companies and universities in the Basque Country. One of the activities performed is precisely analyzing the needs of talent in the Basque Country, in order to serve the Provincial Council as a qualified advisor of policies and to participate in the design of policies related to the mission of Bizkaia: talent.

With all these actions bizkaia: talent also strives to become the leader in the Basque Country and a model in Europe for the management of highly qualified people in the fields of science, technology and business areas and this implies that in an historic moment, when we are conditioned by the economic situation, it is usually difficult to step away from short-term approaches, it is necessary to answer questions that allow building the nation's model with a focus on the mid and long term, ensuring the sustainability of the existing social system and a production model to support it.

This practice aims to identify the talent needed to "feed" a production model in transformation and with a focus set on 2020, it is essential to think about the number of professionals needed in the various knowledge areas so as to support the evolution of the existing system, since it is clear that due to demographic effects, a portion of the current population will have to be replaced or substituted, based on the analysis of historical data from various renowned sources, by consulting social references in the field, and by surveying

individuals responsible for hiring at companies including end users as well as intermediaries such as Lanbide.

**Available Language:** Spanish, Basque, English

**Website:** <http://www.bizkaia.talent.org/wp-content/uploads/2014/05/Horizon-2020-Analysis-of-Talent-Needs-in-the-Basque-Country.pdf>

## Intended Impacts

Bizkaia: talent defines its mission as promoting and supporting the establishment in the Basque province of Bizkaia of the conditions necessary to attract, bind and retain highly skilled people in the process of innovation and knowledge through various activities:

- Promoting a talent-friendly environment.
- Promoting Bizkaia, the capital city, Bilbao, and the Basque Country as a whole as a destination/brand among professionals, creative people and researchers in areas of strategic interest to the Historic Territory of Bizkaia.
- Offering services and programmes aimed at identifying, contacting and recruiting highly qualified people to work in organisations and carry out projects in Bizkaia.
- Creating and developing social networks and communities in line with our organisation's strategy
- Coordinating and facilitating contact with public or private organisations in actions that share our mission's principles.
- Making public policy recommendations and participating in the design of policies in the bizkaia:talent field of action.

Specifically in this analysis, the focus is on the impact in terms of:

- Determination of demographic changes and their effects on the production model territory
- Match between supply and demand
- Areas of need for talent: Present and Future
- Employment situation in the Basque Country considering sectoral level.
- Skills and attitudes required for Graduates
- Set the image of the Basque Country as a pole of attraction and retention of talent

In any case, the last pursued impact is that of the Basque Country's availability of a workforce of elite, to help and encourage Basque companies to ensure a competitive future.

## Description of the practice and its content

In order to achieve the objectives, the study's execution has passed through a number of phases that were carried out in parallel:

### PHASE 1-ANALYSIS OF DOCUMENTARY SOURCES:

- Statistical analysis of documentary sources; Eurostat, Eustat, Lanbide, INE, Statistics on the employment situation of graduates Lanbide, Census Labour Market of the Department of employment and social policies of the Basque Government, Statistics Department of Education, language policy and culture of government non-university education Basque students and Statistics, Ministry of Education, Culture and Sports.
- Analysis of the microdata file from the Labour Market Census--Censo del Mercado de Trabajo, or CMT in Spanish--(supply) of the Basque Government's Department of Labour and Social Policies. (Source: Lanbide).
- In-depth interviews with human resources departments of companies, technology centres, universities and the public administration.
- Surveys carried out with head-hunter firms and human resources departments of companies with more than ten employees in the Basque Country.

Existing reports from Eustat, Basque Government, CES, Lanbide, Bizkaia Talent, University of Deusto, etc. were also analyzed

### PHASE 2- IN DEPTH INTERVIEWS TO:

- Leading companies of the Basque business sector
- Basque research centers and technological centers
- Both public and private universities in the Basque Country
- Administration; Lanbide, Directorate of Universities of the Basque Government, and others related to the Basque business sector.

### PHASE 3- COMPANY SURVEYS:

- Head-hunter firms.
- HR Departments of companies with more than 10 employees.

#### PHASE 4- ANALYSIS OF THE MICRODATA FILE FROM THE LABOUR MARKET CENSUS OF THE BASQUE GOVERNMENT'S DEPARTMENT OF LABOUR AND SOCIAL POLICIES.

- Evolutionary Data 2001 - 2011 by sector; Technical, social and legal, Humanities, Health and Experimental.

### How the practice is used

As mentioned earlier in the description of good practice, the main use of this study is to provide information to the relevant entities in order to promote and favor the establishment in the Basque province of Bizkaia of the necessary conditions, to attract, bind and retain highly skilled people in the innovation process and knowledge with information of special relevance in planning for Public Policy.

It is therefore intended to provide both a reliable and a concrete picture of the training needs and the business needs so that from the relevant policy area, policies can be developed which promote the model country to be achieved.

Furthermore, it also allows to more effectively feed the map of the talent that is also done from this entity under the name of *“The Role of Other Regional Agents in the Analysis of the Labour Market: New Methodology, Research-Action, to Detect the Professional Profiles Demanded by Biscayan Clusters in a Short/Medium Period”* (<http://www.bizkaiatalent.org/te-ofrecemos/estudios-y-publicaciones/informes>).

### Why this Practice was felt to be significant and therefore included here

Lanbide has included this practice because it leads to diagnosis, status and prospects of an important source of wealth in the Basque Country, the talent of its most qualified professionals capable of promoting not only the competitiveness of their companies, but also the whole of the Basque economy because to the extent that these professionals develop their work in optimal conditions, they contribute to maintaining a good international image of the Basque Country and specifically its productive sector and its contributions to R&D.

It is worth mentioning that R&D is where we stand out from an increasingly competitive environment and where manual labour is gaining less relevance.



Bizkaia: talent focuses exclusively on university graduates and high skilled workers in different areas in order to achieve the desired goals.



Erasmus+

## 3.2. JOBLINGE

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### **Author**

Daniel Kahnert

### **Date**

February 2015

## Summary of the practice

Joblinge is a German project, which aims to put young adults with problems finding a job or a training position in contact with regional organizations and integrate them into the regional labor market. The project was initiated in 2007 by the “Eberhard von Kuenheim Stiftung der BMW AG” and “The Boston Consulting Group GmbH (BCG)”.

The structure of the project is a social franchise:

Joblinge consists of an umbrella organization, which is a registered association. There also is the Joblinge foundation which acts as one of the shareholders as well as the financial basis of the project. The Joblinge gAG's are licensee and regional branch offices of the project. They are public limited companies.

A large number of partners and supporters from both private and public sector including companies, non-profit organizations and initiatives are listed on the project webpage: <https://joblinge.de/partnernetzwerk/>

Joblinge is funded by a great variety of organizations and programs. A list of public organizations supporting the project can be found on the project webpage: <https://joblinge.de/organisation/>

Joblinge also has a large number of regional partners, which are also listed on the webpage (in the case of Joblinge Frankfurt Rhein Main):

<https://joblinge.de/standorte/frankfurt-am-main/profil/>

The project makes great use of networks and contacts to partner-organizations. The aim is to match demand in regional collaborating organizations with supply from the Joblinge program. In this program, which is the core of the project, participants are prepared for a regular job or a vocational education training at a partner organization.

Project language is German.

## Intended Impacts

Due to a highly formalized job market and VET-system in Germany, many school graduates face difficulties in matching the required formal qualifications and skills to get an employment or a training position. Thus, transition from school to a training position as a first important but very difficult step not always goes smooth and is often hindered for formal rather than actual skill reasons. While in Germany, a certain transition system exists, which should support the transition from school to a VET or job, this system often cannot do enough to ensure a smooth transition. Many young adults are stuck in internships and traineeships, which do not really increase their job market chances. Another major problem of the transition system is its lack in transparency and means providing relevant information about existing programs, their use and target groups.

Joblinge was founded to create a supporting program for young adults who have difficulties in finding a job or a position for their vocational education training.

The Joblinge participants are typically:

- Older than 20
- 30% not in the VET-system for at least 5 years
- More than 70% migration background
- 60% live in a “Hartz IV” household (supported by social welfare)
- More than 60% have only the lowest secondary school education (“Hauptschulabschluss”)
- Depending on region, between 10 and 60% have a criminal record

Joblinge has created an innovative program, in which participants are supported, prepared and brought in contact with possible job chances. The goal is to have participants take part a practice that directly mounts into a regular job or a VET-position in one of the partner organizations.

The participants are supposed to learn key qualifications, train soft skills and try to obtain a training position or permanent employment “on the job”.

In summary, the goals of Joblinge are:

- Train participants in key qualifications and soft skills
- Attract participant’s interest in a certain job or sector
- Get participants in contact with partner organizations
- Help participants getting a job or VET
- Provide partner organizations with suitable applicants

To achieve these goals, the Joblinge program is established as an innovative transitional step between school and job and serves as intermediary between the applicants and organizations.

## **Description of the practice and its content**

One of the major parts of the Joblinge project is the qualification and training program. This program lasts about 6 months and provides training and support for the participants, ideally leading into a VET position within one of the partner organizations.

This program consists of 5 phases:

### **1. Reception phase**

In this phase, the participants take part in a project of voluntary community work. The aim is to learn about the Joblinge program and its requirements as well as to prove themselves in a first phase of serious and responsible work.

### **2. Orientation phase**

In the second phase, the participants are supposed to find out which job and which tasks might suit them as well as which sectors they are interested in. They work in small groups to solve problems and work on real-world tasks, which endure 6 to 8 weeks total. They train general skills that are not yet job-specific, such as communication skills, managing conflicts and self-organization.

### 3. Practical phase

The third phase also is 6 to 8 weeks long. The participants do an internship or apprenticeship with one of the partner organizations. Here, they gather first work experience and insight in day-to-day conditions in an organization. During this stage, they are supposed to strengthen their social competences and expand their professional qualifications. This is supported by training and workshops, organized by Joblinge. Moreover, additional cultural and sports activities are arranged to strengthen the group.

### 4. Trial phase

In the fourth phase, the participants apply for a position after the Joblinge program. This is done via another internship in one of the partner organizations. Mentors support them and they receive help from the Joblinge team to increase their chances of getting a permanent position after the internship in said partner organization.

### 5. Finishing phase

After the transition from the internship to a VET position Joblinge stays in touch with the participants to prevent premature abandonment of the training and to help the partner organization with the supervision of the progress. This task is fulfilled by a special company-coordinator of the Joblinge project.

One of the major innovations of this program is its function as an intermediary step between school and VET/job that until now did not exist in the highly formalized German education system. By establishing such an intermediate program, transition into the regular labor market can become much easier.

## **How the practice is used**

The Joblinge gAG functions as a social franchise. This means that there is an umbrella organization, which gives licenses to partners. These partners then function as regional as

regional branch offices. Today 12 regional branches exist, spread over whole Germany. Thus, Joblinge operates on a regional basis but the whole project has a nationwide impact. The goal of Joblinge is to expand the regional branches and build several subsidiaries in every region. This is supposed strengthen the integration into regional networks and further increase the success rate of the project.

To date 2.400 young adults have been supported in the Joblinge program. With a success rate of 70% in placements and a rate of 80% of participants that are still in their position after 6 months, the Joblinge program is more successful than most other transition programs. A major contributing factor to this success is the 1:1 ratio of participants and mentors. This leads to great support and lowers the dropout rate significantly. Such a ratio of supervision is possible because of a high number of voluntary workers supporting the program.

Thus Joblinge not only makes use of a network of company partners which take in trainees, but also of a network of social actors, which support the training of the Joblinge participants. Each regional branch acts an intermediary between different actors directly or indirectly involved in the regional labor market, bringing these actors together.

Joblinge provides two major benefits for the participants:

- The existing network of regional partner companies, mentors, support and trainings ensures close contact to the demand side of the labor market. This way Joblinge can make sure, their participants are trained for actually existing demand and build their skills accordingly instead of doing self-organized trainings or internship of uncertain use.
- Joblinge provides useful trainings and helps to build general skills and universal qualifications that are especially helpful in an early stage of getting in touch with partner organizations.

Participants therefore profit from the program in two very important ways: training, which leads into a skill-match with the demand-side and networking that helps to find an actual

position. At the same time, regional partner companies are provided with young adults that have proven themselves in the Joblinge program and are therefore likely to fulfil the specific requirements of a job or training position at that company.

Overall Joblinge fills a gap in the German VET-System with an innovative intermediary approach. This makes a rather unproblematic transition for the participants from school education to vocational education and finally to a regular job much more likely and helps companies to overcome regional mismatches in skill supply and demand. This happens via networking as major source of knowledge as opposed to often-used “hard” data in other VET projects. Thus, the network Joblinge builds upon is the major asset of Joblinge. To replicate such a practice, the main task would have to be building such a network and making good use of it.

However, the transferability of such an approach is very limited. The requirements to set-up such a project are very high, in terms of workforce and finances. It would take a very dedicated main actor to organize the structure, activities, financing, legal issues and public relations of such a project. Nevertheless, it could serve as an example for public actors to rethink and maybe realign already existing structures.

## **Why this Practice was felt to be significant and therefore included here**

Joblinge is interesting in this context for two major reasons:

1. It functions as an intermediary within the existing VET-system in Germany filling a gap in this system with a combined approach of social work, networking and training.
2. By working together with regional companies it helps them to match their skill demands with suitable supply.

## **3.3. NEEDS OF THE LABOUR MARKET AND PREPAREDNESS OF THE GRADUATES TO ENTER THE LABOUR MARKET**

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### **Author**

**Zdeňka Matoušková**

### **Date**

**February 2015**

## Summary of the practice

Unemployment of graduates and young people in general is caused by many reasons. One of them is a lack of information on needs of the labour market and the preparedness of the graduates to enter the labour market. The LMI aims at decreasing this gap. LMI is provided by the National Institute of Education that is a public funded organization directly managed by the Ministry of Education, Youth and Sports. The LMI is produced in the frame of the long-term national project (2004-2016) co-financed by European Structural Fund. The outputs are available only in the Czech language either by web side or in the case of analyses also in a paper form. The focus is both on demand as well as supply side. LMI is based on data provided by the ministries, statistical office, labour office and on ad hoc surveys among employees, labour offices and intermediary agencies. Most of the information is for the whole country, some of them also for individual 14 regions.

**Project language:** Czech

**Website:**

<http://www.nuv.cz/cinnosti/analyzy-trhu-prace-rozvoj-kvalifikaci-dalsiho-vzdelavani/vzdelavani-a-trh-prace-v-cr>

[http://www.nuv.cz/uploads/Vzdelavani\\_a\\_TP/Potreby\\_zamestnavatelu\\_komparace\\_2014\\_p\\_ro\\_www.pdf](http://www.nuv.cz/uploads/Vzdelavani_a_TP/Potreby_zamestnavatelu_komparace_2014_p_ro_www.pdf)

## Intended Impacts

The general goal of LMI is to help graduates to increase their position in the labour market. This help is indirect by providing information about the situation in the labour market, what professions and what skills are demanded, who graduates face the most severe problem to find a job. This information can help young people and their parents with making decision about their future professional career, i.e. about school where they will continue their study after completing compulsory education. Monitoring of labour market needs and employability of school graduates provides important information for schools and the Ministry of Education, Youth and Sports in their effort of harmonizing the educational programs with labour market requirements. The process of harmonization educational programs with employers' requirements on graduates' hard and soft skills is the other factor influencing the improving employability of young people.

Unemployment of young people aged to 24 is in general much higher than unemployment rates for all ages regardless the phase of economic cycle. The crises which cause economic slowdown and tightening of the labour market make their situation worse. During a

recession businesses stop hiring new staff which limits the new positions available for young people entering the labour market. Moreover young workers are more exposed to discharge from their employment, because a lot of them are employed only on a temporary basis. Having less job-related experience than adult workers decreases their chances to be employed for newly opened positions. As a result, young people are most likely to be the last to be employed and in the same time the first to be laid off. This makes the transition from school to the labour market almost impossible.

Furthermore, there is a growing mismatch between the skills that young people have and the positions that are offered on the job market. Thus young people have a problem to find positions that suit their qualifications and skills and accept job for which they are not qualified. The skill mismatch distresses the productivity of firms and in the same time prevents countries from realizing the full potential of their labour force. The skill mismatch affects also the job satisfactions of young people.

Increasing position of young people in the labour market is impossible without close collaboration between educational institution, employers and career counselling services. This collaboration has to be based on the complex information and deep analyses.

## **Description of the practice and its content**

From the standpoint of ensuring a continuing development of economy and the whole society, it is necessary that the educational sphere sufficiently respond to the changing economic and social conditions. It is important that the labour force which enters the labour market should receive such training at schools to be well-employable, be able to flexibly adapt to new conditions, be able to respond to new tendencies and trends, and be prepared to develop their potential and take further training. However, this requires well-working connections between the sphere of education and the world of work allowing the school system to respond to the changing requirement and needs of the labour market. At the same time, it is important that these connections should be mutual and the communication between the sphere of work and the sphere of education work well and effectively.

Comprehensive information of the needs and requirements of the labour market and readiness of graduates to those needs and requirement provides among others the National Institute of Education (Institution). Institution

- monitors and evaluates the situation of technical school graduates in the labour market,
- analyses school graduates employment and unemployment,
- analyses school graduates transition to tertiary education,

- analyses of how the graduates' education compliances with their job
- employers' opinion on graduates' skills – how they are prepared for professional life.

These activities are performed within the project co-financed from European Structural Fund.

The project is a long-lasting one that has been underway since 2004. The analyses are regularly repeated that it makes possible comparison over several years and identification the basic trends in the labour market and in the preparedness of graduates to enter the labour market. Analysis are based on different source of information either provides by national bodies: statistics of students and graduates of/from individual educational fields (Ministry of Education, Youth and Sport), statistics of graduates unemployment (Ministry of Labour and Social Affairs), statistics of vacancies (Labour office), data from Labour Force Survey (Czech Statistical Office) or obtaining by ad hoc surveys. Using multiple sources of information enables receiving the complex view on the position of young people in the labour market. Each of these sources has its specifics and their mutual comparison and assessment allows identifying common features and major trends of labour market demand. Needs and requirements of the labour market on the one hand are examined directly by the surveys among employers and the labour offices or implicitly by analysing the information on job vacancies provided by the labour offices and the intermediary agencies and by analysing the advertisement in selected newspaper.

Surveys among the employers were conducted in 2004-2007 and repeated in 2012-2013. The main goal was receiving credible information on

- what knowledge and skills employers expect from workers and employers
- what knowledge are the most important
- what skills employers expect from newly recruited employees in different economic sectors
- what practices employers use for hiring new employees and what criteria plays decisive role
- how important is professional experience in hiring new employees
- what are the main barriers in hiring graduates
- what profession are not in the labour market
- main forms of cooperation between businesses and schools
- ideas and expectations of employers concerning the further development of vocational education and the school system

In individual years the surveys focused on different sectors. In 2004 it was industrial sector, in 2006 service sector, in 2007 quaternary sector (science and development, education and in 2009 agriculture sector. The surveys repeated in 2012-2013. The first wave of survey had a paper form, the second on line form.

Monitoring of vacancies advertising and opinions of recruitment agencies and labour offices regarding skills demand constitutes one of the essential ways to capture the current needs of employers. Analyses dedicated to this segment of the labour market provide information on the structure of vacancies advertised in print media and on the Internet. Staff of recruitment agencies provides valuable information especially on employers approach to graduates particularly in hiring people to the middle and senior management and expert positions and about the ability of graduates to assess their own ability to perform these demanded positions well. Staff of labour offices is in a close contact with unemployed graduates and provide valuable information especially on the main reasons cause the graduate unemployment.

### **How the practice is used**

Needs of the labour market and the preparedness of the graduates to enter the labour market observes changes in the labour market and provides great number of important data about the current state of the labour market and its expected developments. For young people, present and future graduates is an important and unique source of information about the needs and requirements of the labour market, which can help them better understand the labour market and make decisions that will bring them a greater chance of finding a job.

The outputs of the research studies and conducted surveys are part of an integrated information system for school graduates (ISA +) and are publicly available at [www.infoabsolvent.cz](http://www.infoabsolvent.cz). Valuable information herein may foster faultless decision-making while choosing field and study programme after compulsory education completion.

The information benefits not only students and graduates, but also schools and vocational training institutions. They can use them as a base for changing the form and content of education and thus better prepare their students to enter the labour market. Employers, labour offices, careers advisors as well as administrative bodies either at the central or regional level, represent the other users.

Administrative bodies use analyses within the process of preparing strategy for vocational education development and for development of labour market policy especially for design measures of labour market policy aiming at graduates. The retraining scheme has to concentrate on skills that graduates did not acquire during initial education. The other very important measure is to promoting employability of graduates by motivation of employers to employ graduates – state finance part of their salary for one year.

Since the provider of the analyses and information is a organisation created and directly managed by the Ministry of Education Youth and Sports the outputs of these analyses serve as an important basis for conceptual and strategic documents of the Ministry of Education, Youth and Sports.

The information is accessible for all who is interested and able to use internet. Analyses are published also in a paper form and distributed to selected users free of charge. The research studies and information are widely cited and used as a source of information by other research institution.

### **Why this Practice was felt to be significant and therefore included here**

Graduates and young people in general belong to the group of the population that is most at risk of unemployment. Unemployment among young people is an European problem, therefore, also within Initiative Europe 2020 were taken a number of actions to help young people entering the labour market and their working application.

Information about needs of the labour market and the preparedness of the graduates to enter the labour market contribute to increase the chances of graduates in the labour market in the Czech Republic. Its importance and significance lies in a comprehensive and long lasting approach to the topic which allows comparison of observed data over several years and thus to deduce further conclusions, hence the prediction for the future functioning of the labour market and educational needs. Valuable information is provided publicly in an easy way for all interested stakeholders.

The practice is transferable to other countries and is applicable also on a regional level.

## **3.4. OLOV"OPTIMIERUNG DER LOKALEN VERMITTLUNGSARBEIT IM Ü BERGANG SCHULE – BERUF" OPTIMIZING LOCAL JOB PLACING IN TRANSITION FROM SCHOOL TO JOB**

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**Author**  
**Daniel Kahnert**

**Date**  
**February 2015**

## Summary of the practice

The project OloV was originally founded in 2005 as part of the pact for job trainings in the Federal State of Hesse, Germany (“Pakt für Ausbildung”). OloV is an abbreviation and originally stands for “Optimierung der lokalen Vermittlungsarbeit im Übergang Schule – Beruf“, which can be translated with “optimizing local job placing in the transition phase from school to job”.

The Hesse Ministry for Economics, Energy, Transport, and Regional Development, the Hesse Ministry of Education and Cultural Affairs and the European Social Fund are funding OloV.

Since 2013, a Hesse committee for professional education is in charge of the now permanent strategic initiative. This committee equally consists of employer representatives, employee representatives and representatives of the highest authorities in the federal state.

Overall involved in the project are representatives of the Federal State of Hesse, Working Group of Hesse Chambers of Trade and Commerce, Working Group of Hesse Chambers of Handcrafts, Association of Hesse Entrepreneurs, Association of Independent Professions, Hesse Association of Rural Districts, Hesse Association of Cities, Association of Towns and Municipalities, Confederation of German Trade Unions District Hesse-Thuringi and the Regional Hesse Directorate of the Federal Labour Agency.

OloV operates statewide and builds on 28 regional offices in 26 administration districts in Hesse, the so-called “steering groups”. These steering groups support the local education authorities with the implementation of the OloV strategy at the local schools.

The Institute for Vocational Training, Labor Market and Social Policy GmbH – INBAS is coordinating the OloV strategy. This includes consulting the regional offices and evaluating regional reports and process monitoring.

**Project language:** German only.

## Intended Impacts

The transition from school into the VET-system and finally into a regular job is not always as easy and smooth as it should be. For many young people it is hard to find a training position and integrate into the job market. While for those stuck this is frustrating and discouraging, it is problematic for companies and public authorities as well. Companies often struggle to find suitable candidates for professional trainings and future jobs, whereas young people with no VET-position and no job cost public money and are more likely sources for possible future social problems<sup>1.1</sup>

To ensure a better transition from school to job OloV was founded. The aims of the OloV initiative are:

- Create, stabilize and retail regional structures that support young people in the transition from school to a job
- To place young people in trainings and VET-positions via cooperation with and coordination of VET-stakeholders
- Increase transparency in the VET-system, make existing structures and offers transparent and avoid parallel- and double-structures in the field

To achieve these goals, OloV is based on the following key principles:

- OloV builds upon existing structures, approaches and initiatives
- OloV always takes regional demands into account

Thus, a major benefit the initiative aims to achieve is to have existing competences, responsibilities and structures work more effectively, target their efforts towards shared goals, cooperate with each other and become more transparent for the target groups – the young people in need of support to find a training position, instead of building yet another parallel structure with unclear aims and competences.

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<sup>1</sup>[http://www.olov-hessen.de/fileadmin/user\\_upload/Fachtagungen/transfer2007/doku\\_ueberreg\\_transferkon\\_ruesselsheim\\_10052007.pdf](http://www.olov-hessen.de/fileadmin/user_upload/Fachtagungen/transfer2007/doku_ueberreg_transferkon_ruesselsheim_10052007.pdf)

## Description of the practice and its content

OloV makes use of existing structures in the German and Hessian VET-system, while adding new tasks and coordinating the responsibilities. The overall implementation of the strategy includes OloV officials in several different positions and at different levels of the VET-system:

### **Regional OloV coordinators**

In 2008 in 28 administration districts in Hesse, regional OloV coordinators were appointed. They administer the steering groups and report about the current state of the regional implementation on set dates. They do these tasks on top of their regular job and were named were appointed by regional labor-market actors. Typically, they are employees of the local administration. Sometimes they are members of other institutions such as the Association of Hesse Entrepreneurs or the Regional Hesse Directorate of the Federal Labor Agency.

### **Contact Persons for job orientation**

At the 15 state education authorities contact persons work as professional advisers supporting the realization of the OloV strategy at schools in their regions. They are members of the regional steering groups work together closely with the regional coordinators.

### **Regional steering groups**

In the State of Hesse, 28 steering groups exist. These steering groups are constituted of regional labor market stakeholders who are responsible for how the transition from school to a job in their region is shaped and organized. They set goals, quality standards and milestones for the implementation process.

### **School-coordinators for job orientation**

Together with the schoolteachers and with the support of school administrations, the OloV school-coordinators are directing the realization and implementation of an interdisciplinary vocational training- and higher education-orientation. All types of secondary schools take part in the OloV strategy process.

## Statewide coordination

The Institute for Vocational Training, Labor Market and Social Policy GmbH – INBAS is coordinating the statewide OloV strategy. INBAS has also in cooperation with other labor-market actors developed the OloV quality standards and supports the different regions of Hesse in realizing those. To develop the quality standards numerous workshops and meetings in the different regions of Hesse were held. The development process started in 2005 and led to the publication of the quality standards brochure in 2008<sup>2</sup>. INBAS also does the analysis of the regional reports in a process monitoring approach and develops new recommendations for a statewide strategy.

### State-level committee for vocational training – Subcommittee OloV

Members of this committee are consulting the state government. The link the OloV results with goals of the statewide concept of “Securing Skilled Personnel in Hesse” and make recommendations for the long-term development of a transition system from school to job.

OloV structure and actors



Source: own illustration derived from

<http://www.olv-hessen.de/olv-strategie/strukturen-schluesselpersonen.html>

### OloV structure and actors

Source: own illustration derived from

<http://www.olv-hessen.de/olv-strategie/strukturen-schluesselpersonen.html>

<sup>2</sup> Available at <http://www.olv-hessen.de/qualitaetsstandards/broschuere-und-flyer.html>

## The Integrated VET-Report

OloV also includes a close cooperation with the Statistical Office of Hesse. The Integrated VET-Report (“Integrierte Ausbildungsberichterstattung”) is an initiative that brings together data from different statistical sources and integrates them into a complete quantitative landscape of the VET-system in Hesse. While the main source is the official school statistics, this also includes statistics from the Federal Employment Agency, official higher education statistics, statistics on public service personnel and other sources. The Statistical Office of Hesse has created data packages for the regional OloV actors to inform them and support the decision-making and formulating recommendations on an empirical data basis.

## How the practice is used

The core of the OloV initiative are the quality standards. These quality standards are the basis on which the OloV actors cooperate with each other and other regional actors. They were created by regional actors in Hesse in cooperation with the controlling group of the pact for job trainings in Hesse, the ministry of education and cultural affairs and the state school offices. INBAS also contributed with an extensive literature research.

Quality Standards in OloV



Source: Own illustration derived from:

<http://www.olv-hessen.de/qualitaetsstandards/qualitaetsstandards-im-ueberblick.htm>

The goal of the quality standards is to structure the implementation process of the OloV strategy in the different regions. Each quality standard represents a level of implementation in each a different area of the practice. Thus, a total of 22 content-related quality standards exist in the areas of

- Job orientation
- Acquisition of training positions
- Consulting, matching and placing
- As well as 3 general quality standards.

Each step of implementing the strategy is highly formalized and a detailed how-to guide exists for each standard<sup>3</sup>. The general standards include the appointment of officials in different position in the regional VET-system including a detailed task description. Others include description of an ideal steering group, implementation of job-orientation in school curricula, individual support for students, organizing different events, training school personnel and many more. A project database of actual practices also exists<sup>4</sup>. There you can find information on projects and how they meet the required OloV quality standards. Included in the 116 practices for example are single events, long-term initiatives or a series of workshops and many other.

#### **Example of a quality standard and a matching practice I**

Based on the quality standard AQ3, which stands for frequent steering group meetings to reflect and inform their practices, in the region of Fulda in northern Hesse, a yearly meeting has been established and taken place since 2009. These meetings have about 100 participants, which are different social and labor market actors in the region. While in the first years primarily their work of the past years had been discussed, in the later years, discussions and information about certain predefined topics were introduced such as undersupply of skill workers or social media in social work with young people.

#### **Example of a quality standard and a matching practice II**

Based on the standard MV3, transparency in existing offers in the transition system, a film was produced. In this film two young adults inform about different information centers and ways to get help and advice about information in the transition phase from school to a VET-position. The film was produced in a school project and supported by the “Fachstelle Jugendberufswegebegleitung” as well as the Institute for Mediapedagogics and Communication<sup>5</sup>. It can be used in various different scenarios, such as the job-orientation classes in schools. I can also be accessed via youtube<sup>6</sup>

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<sup>3</sup> [http://www.olv-hessen.de/fileadmin/user\\_upload/02-Qualitaetsstandards/olv\\_qs\\_2012\\_brosch\\_web.pdf](http://www.olv-hessen.de/fileadmin/user_upload/02-Qualitaetsstandards/olv_qs_2012_brosch_web.pdf)

<sup>4</sup> <http://www.olv-hessen.de/nc/praxisbeispiel-datenbank.html>

<sup>5</sup> <http://www.muk-hessen.de/>

<sup>6</sup> <http://www.youtube.com/watch?v=m3zZvg20z8k>

## **Why this Practice was felt to be significant and therefore included here**

OloV represents an initiative that uses a highly formalized pattern of quality standards, which guide a systematic approach to implement a statewide strategy of improving the VET- and job-orientation in the Hesse education system as well as building on and improving existing structures to help the transition of young people from school to a professional training and a job.

To achieve a successful implementation, many sub steps are defined and project officials and an official how to guide support each step.

The project makes good use of three types of knowledge: statistical data as well as experience from regional practitioners and expert knowledge. It therefore represents an comprehensive approach to a VET-strategy in Hesse, Germany.

## **3.5. SKILL NEEDS IN THE GREEN ECONOMY AND THE ROLE OF THE OBSERVATOIRE RÉGIONAL DES MÉTIERS PACA (PROVENCE-ALPES-COTE D'AZUR)**

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**Author**

Dr Andrew Dean

**Date**

February 2015

## Summary of the practice

SIMOVET is grateful to the support of l'Observatoire régional des métiers PACA (ORM PACA) for this good practice example which focuses on the training and skills needs in the green economy. This example focuses on the activities of the ORM PACA in the field of jobs, skill requirements and training needs in the green economy.

The ORM is the Regional Employment and Training Observatory (OREF) of the Provence - Alps - Cote d'Azur. Created in the late 1980s, is an autonomous structure.. The ORM is co-financed by the state and the region as part of the project contract. It is an aid to decision for managers of public action in employment and training of the Provence - Alps - Cote d'Azur. As a regional employment and training observatory, ORM PACA is focused on the analysis of the link between training and jobs. They seek to highlight and understand the complexity of the relationship between training and business knowledge which is essential to helping inform regional actors.

## Intended Impacts

The green economy, according to the French National Sustainable Development Strategy, is an economy "sustainable use of natural resources and resulting in low emissions of greenhouse gases." It aims to reconcile ecology and economy. This growing awareness of environmental issues is part of the broader context of economic change. Since 2006, the date of the publication of a collection of number Memo on the business environment, the ORM has developed and consolidated its commitment to this theme of study that has changed significantly, with the growing awareness of environmental and ecological constraints and improved methodologies for observation.

Several partnerships have been forged with experts involved in this field to provide them with the expertise of our observatory on qualification issues and enhance its complementary approaches. The work of the ORM, alone or with partners, addresses this "green transition" in terms of:

- Employment
- Labour
- Training market/providers.

The work and reports carried out illustrate the effect on industries, trades, training devices and various public through the publication of key figures, studies or the contribution to shares of professionalization of guidance, training and employment.

## Description of the practice and its content

Since the establishment of the IRFEDD, ORM has participated in several interagency projects examining the supply and demand for skills in green jobs, particularly with a view to anticipating future skills needs (e.g. participation in a project funded by the European Social Fund exploring women's jobs in the green economy in the PACA region).

They have produced several statistical and / or qualitative publications on employment and / or training in the green economy in the region, including *Green Economy in the PACA region: essential employment and training information* (Economie verte en région PACA : l'essentiel sur l'emploi et la formation).

This particular good practice example focuses on the work of Regional Training Institute of the Environment and Sustainable Development (IRFEDD), created in 2009, has the following general objectives:

- Better identification of "green" jobs in the region;
- Better understanding of the needs of a changing regional economy;
- Better anticipation of sectoral mobility and transition into ecological jobs;
- To contribute to green innovation through developing skills in all sectors.

To achieve this, the IRFEDD derived an original concept, focusing on the following:

- The regulation of the supply of existing training in the field of green economy, in conjunction with relevant institutions including the Regional Council, National Education and the social partners;
- Identifying new training needs and accompanying training projects (the incubation of new businesses in fields such as the development of technological, pedagogical and sociological innovation);
- The undertaking of skills training as well as social and occupational integration including activities:
  - targeted at young people, job seekers and employees:
  - as part of the apprenticeship, alternation or continuing education,
  - with training provided either directly or through agreement with other training providers
- The provision of information on careers and training green economy actions aimed at the general public (as part of the educational and vocational guidance), but also professionals and other institutional or socio-economic stakeholders (including through the organisation of conferences).

The IRFEDD operates in 4 groups (families) of occupations related to the green economy:

1. Management and protection of resources (management of public services, energy efficiency, renewable energies etc);
2. Risk prevention and treatment of pollution (natural hazards, industrial hazards, waste management, sanitation and water management);
3. Eco-construction and eco-recovery/repair;
4. Environmental services (eco-design, environmental management, specialized legal activities, research and development, education and counselling, training, environmental education, etc)

## Governance model for the IRFEDD

IRFEDD was created in October 2009 with regional economic actors distributed within five colleges:

- Regional public Actors = Regional Council, Regional Development Agency and Regional Environmental Agency
- Consular Chambers = Regional Chamber of social and solidarity economy, Regional Chamber of Trades and Crafts, Regional Chamber of Commerce and Industry
- Clusters supported by the Regional Council in Wood Construction, Marine etc...
- Businesses = Including, Veolia, Dalkia, EDF, CNR, GDF SUEZ, Marseille Water Company, etc;
- Resource Centers = Regional Association of Local Missions (which deals with youth employment), Cité des métiers de Marseille et PACA (which deals with the information about trades) , Observatoire régional des métiers (ORM) etc

The ORM is the administrator of the Policy Board of the IRFEDD.

## How the practice is used

The ORM has been involved in the IRFEDD since its formation. Currently, as well as the reports and intelligence it produces, the ORM is preparing support directly for the IRFEDD strategy meetings:

- The ORM prepares annual information and data on different themes.
- The Observatory contributes to the publication "Cahiers du Conseil d' orientation IRFEDD". This periodic publication informs the Board of Directors enable IRFEDD to focus on the most appropriate sub-sectors and activities and to direct training provision and the development of new training content.

In addition, ORM is involved in information campaigns on careers and training in the green economy. These activities, organized under the leadership of IRFEDD, are now available across the entire region, in partnership with other institutions, such as the job centres.

The ORM has developed expertise on issues of nomenclatures, including participation in several professional bodies and / or communities of practice on the observation of jobs in the green economy:

- Working Groups set up by the National Observatory of employment and jobs in the green economy (Onemev);
- The Workshop Network CARIF OREF (association of all regional employment training observatories France).

A recent publication of the ORM in the field of green economy *Green Economy in the PACA region : essential employment and training intelligence (November 2013)* (Economie verte en région PACA : l'essentiel sur l'emploi et la formation) is an example of the processing and analysis of statistical data produced by the Regional Observatory trades to help the decision policy of employment and training related to the green economy. This publication includes:

- Definitions (green jobs / green sectors );
- Methodological notes (particularly on the operating limits of classifications and mapping between them);
- Some general characteristics and essential statistics/data on jobs and training in the green economy in the PACA region (including a detailed analytical section in each chapter).

## **Why this Practice was felt to be significant and therefore included here**

This good practice concerns the direct support for a new and important sector within the regional economy and how an Observatory has responded to this through publications and reports and through direct support for the policy makers and those involved in supporting growth within the sector. The role of ORM PACA has been proactive rather than re-active and has maintained a focus on looking outwards at partners and those whom it can support. This combination of impacting upon both practices and policy is essential in helping to bring together the demand and supply of labour in an emerging sector.

Since 2008, ORM has made a dozen works on the broad subject area of job training in the green economy and most of this work has resulted in publications. Their observations in this field enable partners and users of their data to understand the difficulties inherent this emerging field.



The practice is included specifically as it is an interested sectoral approach, at a regional level into a growing industrial sector, that impacts on many other sectors in terms of skills and employment.

## **3.6. DEVELOPMENT OF INNOVATIVE INFORMATION MODELS AT LOCAL LEVEL BY EGAZ-TXORIERRI**

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**Author**

**Eugenia Atin**

**Raquel Serrano**

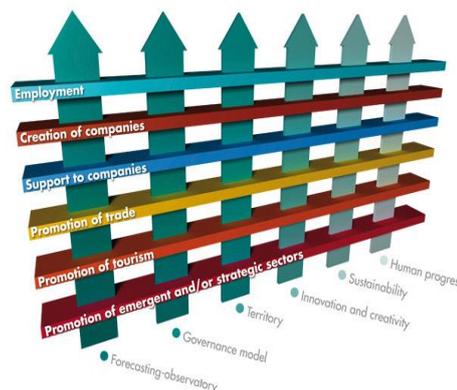
**Date**

**February 2015**

## Summary of the practice



The following best practices are being developed at local level by EGAZ Txorierri, the Local Development Agency in the municipalities of Loiu, Derio, Sondika, Zamudio, Lezama and Larrabetzu with the mission of promoting the socio-economic development of the municipalities they belong to. EGAZ Txorierri is part of GARAPEN, a professional association that intends to bring together development agencies constituted by local institutions in the Basque Country with the goal of sharing experiences, reflecting, and establishing discussions about local development in the following areas: Governance, innovation, sustainability, human and territorial progress.



Territorial planning and coordination of all the key actors involved in local development, require smart territorial information systems which enable to face a constantly changing context. The increasing need to collect, analyze and provide knowledge from a wide variety of information sources in a comprehensible way, is one of the biggest challenges for local development agencies which focus on employment and business competitiveness in their municipalities as well as for others agents in local economic development planning. In this sense, new technologies and the rapid assimilation of them are becoming a determining factor when it comes to efficiently manage the information that is available.

The difficulty in accessing local information which it is often dispersed, unstructured and difficult to find, makes the decision making process to be developed under bad conditions, reducing opportunities for the territories for employment and economic development. At this point, the tool outlined here- *Tganet*- has been developed by EGAZ Txorierri and has been selected by Garapen as a good practice on collecting, classifying and facilitating functional and spatial information for the territorial diagnosis, for the systematic monitoring of policies on employment and economic development previously implemented and for detecting potential synergies between municipalities and industries.

**Available Language:** Spanish; Basque

**Website:** [http://www.tganet.net/BEO/pag\\_inicial/pag\\_inicial.php](http://www.tganet.net/BEO/pag_inicial/pag_inicial.php) (login access);  
<http://somostxorierri.com/>; <http://www.garapen.net/>

## Intended Impacts

The mission of Development Agencies is to promote the socio-economic development of the districts/ municipalities they belong to. The intended impact of the activity of EGAZ Txorierri, the Local Development Agency, is addressed to improve employability of people, encouraging the creation of businesses, improving competitiveness, as well as the promotion of strategic projects for the local area, all in collaboration with the rest of public and private agents working in these areas.

The search for the best professional training to promote local economic development has been a significant task for EGAZ Txorierri and also for all of the development agencies in the Basque Country for several decades now. Development Agencies can play that role themselves or help others to develop that role through brokering collaboration between employers and skills/training providers. Basque Development Agencies play an important role on providing professional skills (innovation, internationalization, management,...) to business and job seekers by organizing ongoing vocational training courses directly or through external providers (vocational training centers) in their territories.

The management system *Tganet*, was born to be an employment service tool, trying to optimize and meet both the demands of the companies regarding professional profiles and skills needed as well as the human capital within the territory (8 municipalities) who is in active job search. Although this was the initial intended impact, it is becoming into a comprehensive data management tool to collect, classify and facilitate access to huge amount spatial information from a wide range. This information includes issues related to employment in the region, but also it includes information about the industrial parks, characteristics of the business, the state of public infrastructure, information of interest, etc.

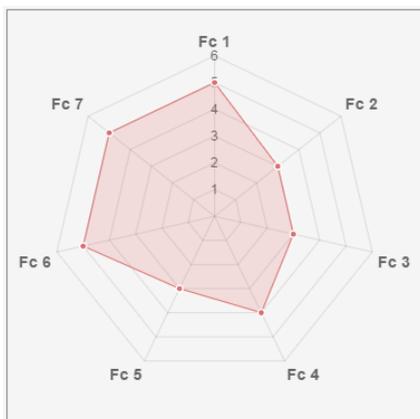
## Description of the practice and its content

The data management tool developed by Egaz-Txorierri, is based on one of the most powerful computer database systems on market data. It allows working with large amounts of data and a high number of users accessing the system simultaneously. It is also important to highlight the easy administration of the site, including the implementation of standards for data classification.

It optimizes the exchange between quantitative and qualitative labour demands from companies and the availability of human capital in the Territory.

Another feature of the tool, is the usability of it. The menu is structured in a simple way and it allows user-friendly comfort, focusing on intuitive usability without complexity or complications. This feature seems particularly important especially considering that includes a wide variety of information, a large number of sources and it offers a very remarkable number of functions: maps showing virtually spatial data about existing infrastructure at a defined accuracy and precision, tables and graphs for observing the evolution of data on the items collected by Egaz, etc.

The data files on individuals and business describe the characteristics and projections to allow users an in depth territorial diagnosis. On the one hand, *Tganet* provides information



about the status of all the business in terms of certification, environment and energy consumption, activity by economic sector (NACE), position in the value chain and the degree of development regarding internationalization, innovation and cooperation. Moreover, these data allow us to build a comprehensive business profile which greatly facilitates the detection of needs on business, as well as potential synergies and opportunities for business collaboration. Thus, the diagnostic work on business is performed easily and also

the planning on policies and initiatives addressed to the identified gaps: human capital needs, vocational training, infrastructure, waste reduction, energy consumption, etc. Furthermore, it is also a good tool to detect potential strategic partnerships between businesses, whose objectives are complementary.

At this point, *Tganet* provides the municipalities with a specific service which monitors public infrastructure (lampposts, benches, litter bins, containers) and reports any increasing incidence, as well as energy consumption in the case of lighting infrastructures. The application allows the municipalities to monitor urban furniture, identify needs that may arise in relation to business parks and generally facilitates the work of municipal technicians.

### Mapa de Incidencias

Para reportar una incidencia puede navegar por el mapa para buscar el punto exacto y a continuación **debe hacer doble click** sobre el punto para especificar los detalles de la incidencia. La incidencia será reportada cuando se cumplimente toda la información obligatoria.



On the other hand, all the actions carried out by of the EGAZ Txorierri, the Local Development Agency, are recorded in the database of Tganet so it is easy to view all the

Servicios 26/01/2015

Servicio	Estado
ACCION COMERCIAL EN EL EXTERIOR	Abierto
ACCIONES FORMATIVAS	Abierto
DIAGNOSTICOS EXPRESS	Abierto
empleo	Abierto
INTERNACIONALIZACION	Abierto
MISIONES INVERVAS	Abierto
OPORTUNIDADES INTERNACIONALIZACION	Abierto

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actions taken by the agency in any sphere of activity. It is also possible to see the technicians in charge of the activity, in which areas they have performed the

actions, the number of hours invested and whether the action is still open or already executed and closed.

Another key point of this management system database is that the tool was developed by the agency itself, so it responds to the soecific needs of the Development Agency, eliminating problems arising from the relationship with others. The tool developers have the direct vision of the customer needs and they can quickly take into account appropriate solutions for emerging needs. The Egaz Agency has spent 12 years working with the database and they have resolved most of the needs that have arisen in the field of management information about companies and individuals.

The Egaz Tool has been developed entirely for the Agency itself, adapting and adjusting it to their specific needs

Moreover, the use of Tganet is very satisfactory and users can filter data based depending on their needs. The tool has defined several default queries, which speeds the most common queries. If these default queries do not adapt to the needs of the user, the application has a variety of filters for more specific seeks. The system can also create reports tailored to customer needs for both businesses and individuals. As mentioned above, the system is optimized to collect established indicators about Internationalization, Competitiveness and Employment, allowing the extrapolation of the tool to other Development Agencies in the Basque Country in order to exchange information with other institutions and agents.

All these advantages as well as the innovative and comprehensive nature of the tool represent a very significant progress in the work of the Development Agency. The *Tganet* tool allows a complete monitoring of the economic structure of the region. The immediacy, with which data are available, can reduce the time for decision making process and taking action, as for example on providing adapted professional training to identified needs on the companies in the region. This ultimately allows the proper development of the activity of the Agency for improving competitiveness in the territory.

### How the practice is used

The purpose of the *Tganet* tool is to provide not only information, but also some useful knowledge to the Development Agency. In this line, it is a strategic guide for decision making and planning vocational training for employment taking into account the current qualitative and quantitative demands of the companies. These professional training courses can then be addressed to workers of these companies in which the needs have been detected but also to job seekers of the region in order to improve their employability.

It is also remarkable the potential of the diagnostic work for planning common policies and training initiatives addressed to strategic economic sectors in the region as well as for the development of smart specialization strategies on local planning.

This smart information tool about labour market needs is also becoming a reference for all those agents involved in local development; training organizations, social and public institutions, business and labour organizations, agents related to human resources and citizens in general. *Tganet* is a tool with an enormous potential, which allows a common diagnosis and indicates possible measures addressed to growth and improving competitiveness for all socioeconomic agents in a territory. *Tganet* promotes the exchange of information and knowledge for building common criteria and positioning and for

developing collaboration and cooperation projects for endogenous economic development on the local level; work on its strategic development and operational application.

### **Why this Practice was felt to be significant and therefore included here**

The work of Development Agencies encompasses many aspects of the socio-economic development on one or several locations with a specific focus on improving employability of people and encouraging the creation of competitiveness businesses. It is precisely this integrated approach and its focus, which requires a huge amount of information in a very different nature and from different sources. That information must be recorded and classified as efficiently and accessibly as possible for generating a common understanding and knowledge about the need of human capital among all the key actors in a particular territory.

Several of the agencies belonging to the Garapen network have developed tools to manage databases of such complexity. The tool developed by Egaz-Txorierra, *Tganet*, is a smart information system about labor market needs which is a reference in Garapen and various agencies have adopted this technology as a system of reference and consultation for all players in the area; companies, individuals, municipalities and the agencies itself.

*Tganet* allows prospecting and an efficient diagnosis of the territory and training needs by collecting, analyzing and providing statistical information as well as other qualitative information for the decision makers.

## 3.7. WOLLYBI

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**Author**

**Silvia Dusi**

**Date**

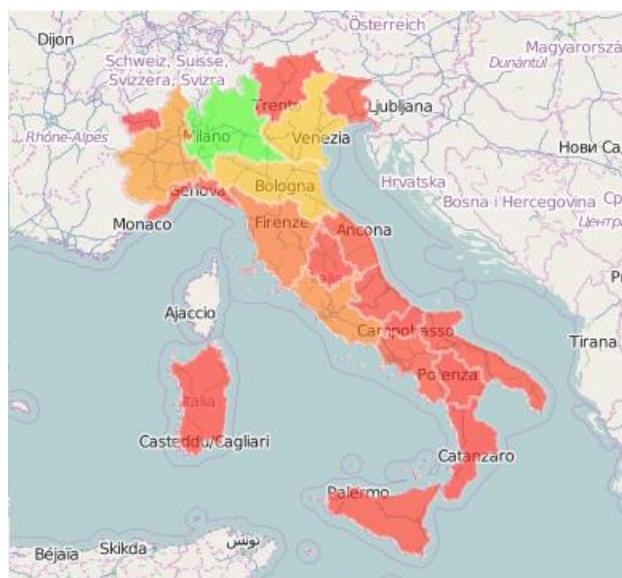
**February 2015**

## Summary of the practice

WollyBi is a digital monitor which uses web job vacancies, properly treated and put in quality, covering all the Italian territory to identify the education, qualifications and specific skills that employers want to fill their job postings; it also identifies the most in demand qualifications and the associated work experience and skills required to fill certain positions, measure demand by specialised and functional skills and identify the market needs to address the skills gap.

The territorial level to which it addresses is manifold: it can be used at national level, but it gives the possibility to explore information to the municipality level.

*Distribution of the Job Vacancies on the Italian territory*



As the Figure aside suggests (red = low quantity of job vacancies posted on the web, yellow = medium quantity of job vacancies posted on the web, green = high quantity of job vacancies posted on the web), by now the WollyBi is a tool of particular interest for the North part of Italy: this is given to two reasons. The first fact to consider is that there is really a dramatic difference in terms of employment, job offers and economic situation between the North and the South part of Italy, and consequently the amount of job offers is lower, as the colours suggest. The second important factor is that the WollyBi analyse just the job vacancies posted on the Web, and the Italian situation is less internet-centre for what concerns the labour market compared to other countries. In addition to this fact there is a lack of job offers posting for some specific sectors, like Agriculture and the Public sector.

The VET institutions, both public and private, are giving a positive response to the use of this tool to support decisions about politics programming and courses providing. The related Economic Development regards different aspects:

- The main contribution is the decision support to the programming and evaluation of the Labour Market and VET policies: the results of the ARLI project<sup>7</sup> pointed out that the use of LMI (Labour Market Intelligence) for the Labour Market stakeholders was a critical issues for the Italian territory, and that the most used information were of qualitative type, coming from the consultation. This because there was identified a lack of integration of disaggregated data at regional and local levels (connection with

<sup>7</sup> ARLI (Achieving Regional and Local Impact) Project, Founded with the support from the European Union's PROGRESS Programme

LMI regional and local); a lack of provision of information on the interpretation of the dynamics of labour demand; a lack of attention to the level of data update published and there was no focus on skills rather than professions. The WollyBi gives the opportunity to have a quantitative knowledge describing the Labour Market needs, expressed not through fragmented and localized sources but through just one channel.

- Another interesting issue is the possibility to monitor different aspects of the Economic and Social System:
  - the increase of job opportunities posted on the Web, that points out both how the recruiting is shifting toward a more “social” dimension, both gives insight on the job opportunities trends (also compared to the data coming from Administrative and Statistical Sources) and the economic upturn;
  - the changing directions, and the speed change, of specific sectors, through the observation of the most required skills, and how the territory affects the sectors’ distinctive characteristics due to social phenomena: e.g. it was interesting to notice that for the Plumber occupation in a centred Region of Italy between the most required skill there were the availability to travel and the knowledge of the Russian Language, due to a stable network of Russian material suppliers.
  - The emerging of new occupations not linkable to standard classifying systems.
- Of course, being the VET actors between the main recipients of the tool, the provision of training course tailored on the real needs expressed in detail directly by the firms and, in this way, the contribution to decrease the skills mismatch.

## Description

WollyBi is a Digital Observatory on the Labour Market, realized by TabulaeX, spin-off of University of Milan Bicocca in collaboration with CRISP, Interuniversity Research Centre on Public Services. Thanks to a highly innovative approach based on the analysis of Big Data, it elaborates and presents information on the needs expressed by the firms through the job vacancies posted on the Web.

WollyBi is an Observatory focused on the Italian Labour Market, established with more than 750,000 job vacancies analysed by the web - constantly updated - and offers a complete view of the Italian Labour trends.

The three main dimensions that is possible to choose as starting point to navigate the information are: the Geographical area, the Occupation and the Skills. It is therefore possible to analyse occupations and skills required by the companies on the web per type of contract

proposed, economic sectors, educational qualifications and Job characteristics (full time, part time). In the following pages some navigation paths will be shown.

WollyBi provides its know-how to companies and organizations, both public and private. In particular, targets at actors operating in education and training field, Public Administrations, Labour Consultants and Human Resources professionals.

The mission of the Observatory is to provide a decisional support about labour policies, territorial planning, monitoring and evaluation of interventions, policies regarding the educational and training system. The idea is that the labour demand expressed on the Web could allow to build a correspondence between occupations and skills, i.e. knowledge or competences required by firms, and eventually define a dictionary of skills.

It also allows to propose and organize adequate counselling services for human resources management, to formulate strategies of business organization, to arrange educational supply tailored to different professional needs, to propose innovative services and to create targeted training courses on the base of market demands.

The information provided by the monitor is twofold:

1. *Analysis of the dynamics of labour market through the data of the web job vacancies.* The information on the web vacancies are analysed by territories (regional and local), economic sector, type of contract and educational level and are used to provide an innovative monitoring of labour demand within the National territory which is possible to explore until the local level.
2. *Monitoring of the skills needs associated with the vacancies published by the companies through the web.* The project provides information about the professional needs, in terms of knowledge, skills and abilities, derived from the web vacancies. The skills derived from natural language are classified in three main groups: basic skills (they are standard and often transversal abilities which are acquired through formal education channel), professional skills (they are specific skills which are mainly acquired through the working experience and professional training) and personal skills (they are mainly related to transversal skills and personal attributes).

The data sources are identified through a selection of the most important websites for job offers. In particular it was chosen to investigate three main groups of sources:

- Specialized websites of job vacancies;
- Websites of the largest employment agencies;
- Websites of the major national newspapers.

The web crawling was carried out by software (crawlers) that automatically scans a network and reads its content. From the beginning more than 750,000 web based vacancies were extracted and processed. The most (54%) comes from the web sites of the private

employment agencies, the 36% from the specialized job sites and 10% from the newspaper web sites. The variables considered for each web based vacancy are type of contract, sector of employment, occupation, region/area, and skills; they were viewed as a valuable source of information on the characteristics of the job offer. Due to the typical problems that occur in dealing with web data, some specific techniques were used. Normalization activities were conducted in order to reduce the heterogeneity of data sources, including as much classification of employment contracts, skills, professions, etc. Specific statistical techniques were applied to reduce the problem that the same offer can be posted on multiple sites or repeated several times on the same site. Then taxonomies have been created to classify the information - about educational level, occupational groups, contracts, sectors, and skills - which comes from the natural languages.

The WollyBi product was born after a research study called “Skills Demand through the Web Job Vacancies” which has been realized for the first time in 2013 and was founded by Obiettivo Lavoro, which is one of the largest Italian private employment agencies. The project was realized in collaboration with three Regional Labour Market Observatories – Lombardy, Piedmont and Emilia Romagna and aimed at analysing the occupations and skill demand through a representative sample of web job vacancies.

## Intended Impacts

The idea to use web data to analyse the labour demand and skills needs was born as consequence of two different considerations:

1. The first is that the web is increasingly being used by companies and job seekers to spread the demand and supply taking advantage of the high heterogeneity and the enormous potential of its communication channels.
2. The second is that the traditional methods used to monitor labour, profession and skills, and then the skills surveys, have some problems. Surveys are costly, considering direct (implementation) and indirect (opportunity) costs; their implementation is not easy, thus they cannot have a high frequency; and they have a top-down approach, i.e. soft skills and occupation-specific skills are generally pre-defined. Accordingly, analysis of web based vacancies are less costly after their set up, they substantially reduce the time-to-market and information provided are related to really open job vacancies, and they allow a bottom up approach, as the skills come directly from the employers insertions outlining many specificities to industries and territorial levels.

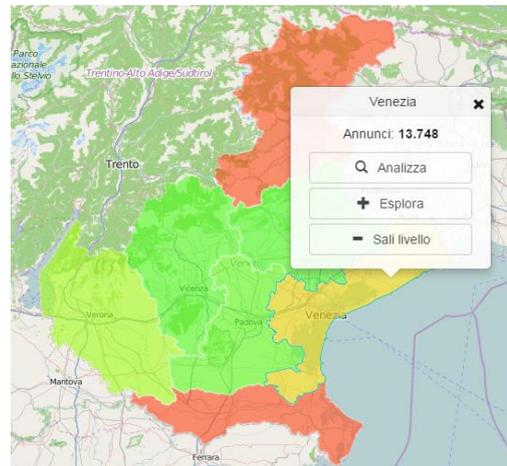


## How the practice is used

To explain how the WollyBi can be used in a real situation, these three navigation paths were reported, one for each dimension as starting point for the investigation:

- **I would like to activate some training course: what are the most required skills in my province or in my region?**

Entering the WollyBi through the Geographical Dimension it is possible to click on the territory of interest and choose the "Explore" option until you reach the desired granularity (Region, Province, Municipality). Then choosing the "Analyze" option it is possible to choose "Skill" between the variables on the left and observe the skill divided by usual category (soft, basic, professional).



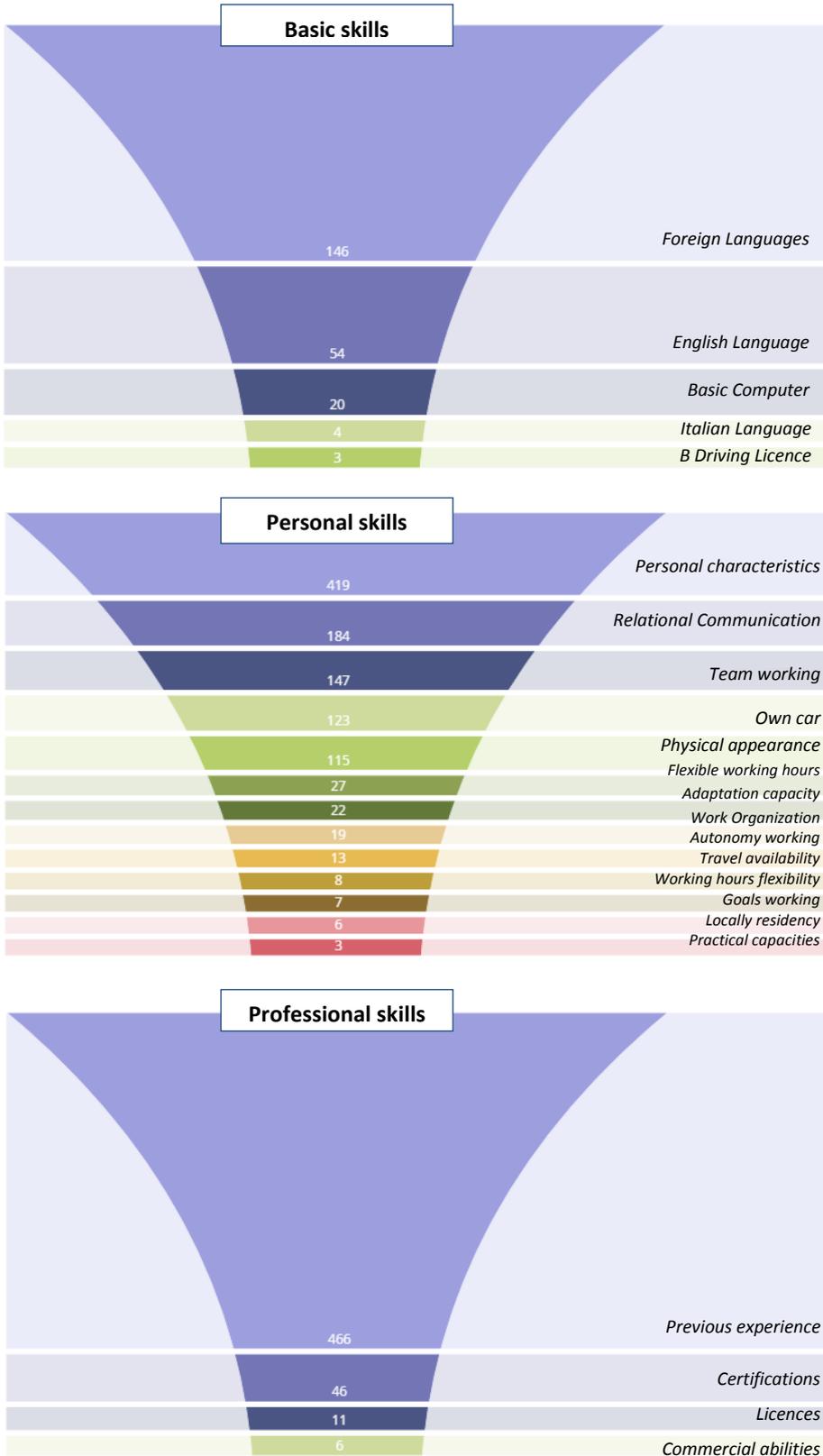
Example: VENICE (Province)

- Number of job vacancies: 13,748
  - Basic skills: English Language and Basic Computer Skills (i.e. Office)
  - Professional skills: Experience, Software Applications (e.g. Autocad, Solidwork, Sap), Programming languages, Licences, Register Enrolment, Certifications.
- **What are most requested skills linked to the profession I am training people for?**

Entering the WollyBi through the Occupation Dimension it is possible to click on the group of occupations of interest, and choosing the "Expand" option you reach the desired ISCO level to analyse it per the usual variables, like the "Skill" one.

Example: Tourism activities employees

Number of job vacancies: 1,456



The requested skills are visualized like the Figure aside shows, divided in the usual categories (Basic, personal and professional).

The white numbers in the middle of the funnel chart, are the number of web job vacancies containing the mentioned skill.

Using the filter it is also possible to localize the occupation and the required skill related to it in a specific territory, replying to the further question **“What are the most required skill for a specific profession in my region? This profession requires different skills compared to other territories?”**.



## Methodology

Even if the methodology part could seem something for experts it is important to explain at general level how the tool works in order to replicate it and, moreover, to understand the classifying systems behind.

The web is becoming an increasingly important channel for posting vacancies and in general for matching labour demand and supply. The portal is a Digital Observatory for the Labour Market: thanks to a highly innovative approach based on the analysis of Big Data, it aims to develop tools to represent and analyse markets and services related phenomena.

Thinking about the replication of the portal for other foreign contexts, maybe focused on specific sectors, it would be necessary to define research engines that post job vacancies and eventually other sources, e.g. forums or social network (depending on the different customs in this field), also defining number and significance.

The use of programs that automatically search through various websites in order to find, gather and download vast amount of data brings some issues. These are mainly related to the legal and ethical uses of the crawling instruments. At present there are no general legal barriers to use web-crawling tools to obtain online content. In fact information on the web, if not explicitly restricted to selected users, is by definition public. On the other side web-crawlers access websites owned by other companies possibly without their permission; for companies that do business in the field job vacancies represent their most valuable data. As a consequence website owners may use so called "Robots exclusion standard" which is a standard request to robots (i.e. web crawlers) to ignore certain files or directories when crawling a site. This protocol is only advisory, however it signals a certain intent of the owner.

It is necessary to point out that legal environment on these issues is changing very rapidly, as well as the Internet itself. The development of technology is often ahead of that of legislation. Various countries may also have different regulations regarding use of some technologies and those regulations may change over time as well. As of today, there are only few legal disputes on the subject of web crawling for analytical purposes in the US, even less in the EU. In our case we asked some players of the Market and studied the legal clauses: it is forbidden the use of data for competition purpose, but our use aims at statistical analysis and this is allowed.

### **Structured Information Extraction and Text Classification Methodology**

The process of extracting knowledge from the text of websites or other electronic sources requires either classifying the whole text into predefined categories or identifying

relevant ‘pieces of information’ within the text, or both. Both text classification and Information extraction are part of the process used to turn textual data (i.e. unstructured information) into structured (table like) information as described below.

An example of transforming unstructured text into structured data.

**Actual Text (i.e. Job Vacancies from the Web)**

‘Company X is looking for an engineer speaking German fluently’

→

‘Looking for a Lawyer dealing with Customers in Madrid’

→

‘2 job positions for plumbers’

→

Esco code	Qualification	Skill x: Language
2.1.4	Engineer	German
2.6.1	Lawyer	Spanish
7.1.2.6	Plumber	-

The next sub-section will present the information extraction and text classification methodologies and techniques that will be used in the project. The techniques were used to relate vacancy descriptions to ESCO Occupations, Skills, Competences, and Qualification codes.

**Information Extraction**

Information extraction allows text units to be filtered and extracted from documents that are successively ‘enriched’ with metadata specifying morpho-syntactic features. A typical Natural Language Processing (NLP) sequence is composed by the following steps: (i) Text Tokenisation and Normalisation, (ii) Part Of Speech (POS) Tagging, (iii) Word Sense Disambiguation, (iv) Lemmatisation and (v) Relevant Terms Selection. More specifically, the main goal of these procedures is the extraction of relevant terms that can be used to recognise the most significant concepts in the text.

*Text Tokenisation and Normalisation* (Hatcher, 2002) performs a first grouping of the extracted terms by introducing a partitioning scheme that establishes an equivalence class on terms. In particular, Text Tokenisation removes any punctuation splitting the document by spaces (to get the so called tokens), makes everything lowercase and eliminates stop words. Stop words usually provide little or no knowledge (e.g. articles, pronouns) and therefore are not considered for the subsequent steps. Normalisation attempts to reduce the ‘entropy’ of the input data by applying techniques in order to eliminate numbers or non-letter characters, unifying special characters, disambiguating sentence boundaries and identifying abbreviations or acronyms.

- *Example:* with tokenisation a string is transformed into a set of words, so ‘Company X is looking for Engineers.’ is transformed into <‘Company’, ‘X’, ‘is’, ‘looking’, ‘for’, ‘Engineers’>; Abbreviations are expanded (e.g. *Doc.* is changed into *Doctor*).

The *POS Tagging* enriches the text with meta-information about the syntactical aspects associated to the extracted tokens, aiming at performing a second type of grouping of the words on the basis of their form and independently from the conjugations or declinations in which they appear (in this stage Named Entity Recognition procedures can possibly be exploited to group and label named entities (multi words) such as names of persons, dates, organization, places, etc.). In other words, some concepts represented by several tokens (i.e. words) are considered as a single token (e.g. *JFK Airport*) and the words that have little informative power are removed, e.g., articles, prepositions.

The *Word Sense Disambiguation Step* tries to find the ‘correct’ meaning of ambiguous words through a probabilistic analysis of the word context (Stevenson, 2003; Kilgarriff, 2000).

*Lemmatisation* is performed on the list of disambiguated terms in order to reduce all the inflected forms to the respective lemma or citation form, thus introducing a second partitioning scheme on the set of extracted terms and establishing a new equivalence classes on them (e.g. is, are, was, etc. are recognized as conjugations of the verb ‘to be’). In lemmatisation plural words are replaced by their singular counterparts, and verb conjugations are reduced to their infinitive form. Stemming is similar to lemmatisation, but a word is reduced to its stem.

- *Example:* ‘studied’, ‘study’, and ‘studies’ are reduced to ‘stud’);

Moreover, the *Relevant Terms Selection* is carried out using a statistical analysis on the entire document corpora.

Finally, once relevant terms are detected, an *Information Categorisation* procedure is used to cluster lemmas into synsets (i.e., set of synonyms) in order to group the related concepts. In this way, it is possible to refer a concept independently from the particular term used for denoting it. Clustering can be performed using external linguistic resources e.g., ontologies, electronic dictionaries or thesauri (Amato). Synonyms are reconciled to a single representation.

- *Example:* ‘job’, ‘work’ are considered as if they were the same word.

## Text classification

A classification process is framed into the Bag of Words approach, where each sentence is analysed as a bag of words, not considering the information provided by the word position or by the sentence structure.

The problem of text classification has been widely studied in the database, data mining, and information retrieval communities (Aggarwal and Zhai, 2012). Text categorisation (i.e. text classification, or topic spotting), is the activity of labelling natural language texts with thematic categories from a predefined set (Sebastiani, 2002). In the research community two major approaches have been developed:

- Knowledge engineering, or explicit rules, where a set of rules and codes are manually defined.
- Machine learning techniques, based on a general inductive process that automatically builds a classifier by learning from a set of pre-classified documents.

While the knowledge engineering approach guarantees full visibility and transparency as to how the classification process is constructed, it does so at the price of considerable human effort. On the other side, the machine learning approach provides very effective results, considerable savings in terms of expert labour power, and straightforward portability to different domains, since no intervention from either knowledge engineers or domain experts is needed for the construction of the classifier or for its porting to a different set of categories (Sebastiani, 2002). Both approaches are briefly described:

- *Explicit rules*: A first possible approach to classify (and to extract information) from job vacancies is characterised by the use of explicit rules. The rules look for the presence of specific words or combination thereof in the text. The rule design process starts from the identification of appropriate official classification or taxonomies, or from the development of taxonomies obtained empirically through observation of the texts; then the taxonomic entries are organized in hierarchies. The rules are then designed using the taxonomic hierarchy and entries as reference, in order to obtain a comprehensive set of rules. The main advantage is that analysts are deeply involved in the rule formulation, assessment, and tuning. The disadvantages of the method lie mainly on the huge effort required from experts in developing and hand-writing all the rules. Furthermore, the set of rules is very language specific, and this limits the possibility of reusing a rule set for other countries.

Furthermore, the taxonomies and the set of rules require extensive updating and maintenance activities since the natural language evolves continuously.



- *Machine Learning*: Machine learning can be broken into the following categories: supervised learning, unsupervised learning and lightly supervised learning.
  - In *Supervised Learning*, a dataset consisting of (a) several text to classify and (b) the corresponding classification labels are provided. Both (a) and (b) are called a training set. The task is to construct an estimator from the training set which is able to predict the label of an unforeseen object.

Some examples where machine learning has been successfully used are: given a multicolour image of an object obtained from a telescope, determine whether that object is a star, a quasar, or a galaxy; given a photograph of a person, identify the person in the photo; given a list of movies a person has watched and their personal rating of the movie, recommend a list of movies they would like e.g., the Netflix Prize (Netflix Prize Official website, 2014) (Netflix Prize Wikipedia, 2014). Supervised classification algorithms are: Generalized Linear Models (Perceptron, Bayesian Ridge Regression), Support Vector Machines, Stochastic Gradient Descent, Naive Bayes and Decision Trees.
  - *Unsupervised Learning* addresses a different sort of problem. Here the data has no labels, the aim is to try to find hidden structure in unlabelled data, or in a broader sense unsupervised learning can be viewed as a means of discovering labels from the data itself. Unsupervised learning comprises tasks such as dimensionality reduction, clustering, and density estimation. Several methods used in supervised learning have been borrowed from the data mining field.
  - Supervised learning approaches require the availability of training datasets, i.e. objects already classified. The most effective approach is to manually label the objects. Unfortunately this process can require a considerable amount of human resources. Some methods have been developed to support people in performing classification tasks in order to create training sets, e.g. starting from a seed of objects manually classified, then a classifier is trained and further objects are classified. The results are manually (quickly) evaluated, and then they are used for training another classifier. The performance of the second classifier is better than the first, as the former was trained on a larger set of objects. This latter approach is called *lightly supervised learning*.

The whole Methodology Section was useful both to understand the believability of the information coming from the WollyBi both to have the idea of the complexity of the system behind the graphic interface. This last point, i.e. the necessity to define and solve a lot of technical and methodological issues, is one of the main constraints: especially at the beginning it is necessary a big investment, in terms of time and work.

### **Why this Practice was felt to be significant and therefore included here**

There is a chance that the analysis of labour demand through the web job vacancies will probably become part of the regular activities of the Regional Labour Market Observatories in the future, as it is considered a valuable informative source for unemployed people, companies and the training systems.

Since the Web is becoming more and more important for companies in the recruitment process, and also in the matching one, every country has the necessary data source, i.e. the websites where companies post job vacancies: the Observatories could replicate it

The investigation on the most required occupation and skills on the market (that could be seen associated to each occupation or in general) it's the real point of innovation for the contribution to the economic development: the whole set of characteristics (the bottom-up approach, the possibility to detail each skill, the time to market, etc.) give a wide range of opportunities in terms of:

- Redefinition of the VET offer, both for the individual courses providing and for the public governments, at any level, in charge for the VET policies definition: these subjects can use the occupation trends to decide how distribute the offer (e.g. which occupation training providing or the number of courses for occupation) and the skills details to decide how organize them (e.g. which subjects to teach). It is important to notice that analysing occupations and skills at territorial level the actors can see the differences between the Italian Regions or Macro-Areas.
- Contribution to the integration of the Skills Vocabulary where the Skills are linked to the Occupation: it could be, for instance, the one from ESCO European project, that is still evolving.
- Contribution to the integration/Redefinition of the Occupation Taxonomy: the Occupation analysis points out that there are new occupations emerging in the Market which is not possible to classify with Classic Taxonomy (e.g. ISCO).
- Job seekers' or employers' self-consciousness about the Labour opportunities and the lifelong learning: the monitor would be very useful for persons looking for a job, who would better understand which are the skills required by the specific profession, for companies, which would render more effective the recruiting process on the web,

and for training agencies, that could apply the results of the project in order to design or redesign their learning services. This is important especially to set new work awareness. The Italian Labour Market is changed, also pushed by the economic crisis: the job opportunities are becoming more and more transparent - the evolution of the web and social networks are a clear example of transparency of information on job opportunities - and this allows to increase the workers' choices; the lack of clarity in the professional development puts into action the people towards the search for alternatives; the access to specialized courses (e.g. master or intensive courses) represents a potential to improve their professional skills and to re-train themselves. If before the professional certainty could be placed into the stability of the organization, now the critical factor consists of the capabilities of the individual, in his human and social capital, which allows him to adapt to change and to build a path of continuing professional education.

Another important characteristic of this Good Practice lies also in the technical realization of the tool: the emphasis on the graphic representation of results and the visualization of information is makes WollyBi not just user-friendly but it really make easier to catch the meaning coming from the data. This is frequently a high barrier in the use of tools, for the public administration rather than for the other users: the way of information are presented can really change the degree of use and consequently of usefulness.