



# Skills forecasting and anticipation

**CONFERENCE REPORT** **17 JUNE 2021**

## **S4Stride Workshop #1**

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**#S4Stride**

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## 1. INTRODUCTION

The first [S4Stride project](#) workshop was led by Tuscany Region and IRPET (Istituto Regionale Programmazione Economica Toscana), and took place on 17 June 2021. Skills forecasts tend to focus only on national level, overseeing regional disparities, which are crucial for education offer development. Therefore, this first workshop tackled skills intelligence and forecasting, revolving around regional skills anticipation methods.

The event allowed regional education and employment responsible authorities together with VET teachers and managers to learn from regional challenges and success factors for skills intelligence development. Furthermore, the participating regions provided their experiences in multi-stakeholder involvement, research conduction and skills intelligence strategies, showing sector-specific examples and sharing their challenges and needs.

The workshop was opened by Olivier Gaudin, Director of Employment and Training at Brittany Region, and moderated by Miriana Bucalossi, Head of Apprenticeship Policies and EU Project Management Unit at Tuscany Region. The session consisted of two parts: a) the Italian experience, involving a global overview of Italy's tools for skills forecasting at national level that can be used at regional level; and b) regional experiences from project partner regions.

## 2. THE ITALIAN EXPERIENCE

### 2.1. The National Atlas of Jobs and Qualifications to support regional skills challenges



**Roberto Trainito**

PwC Technical Assistance for INAPP,  
National Institute for Public Policies Analysis  
(Italy)

[Presentation available here](#)

The Atlas of Work and Qualifications has been delivered by the INAPP for the past five years in Italy. This tool is embedded in the Italian normative system, starting from 2012 when Italy defined its lifelong learning system's legislative infrastructure.

The Atlas is a description of all the existing activities in the labour market for each economic and productive sector. Its objective is to map the descriptions of real labour market tasks and activities. It is structured as follows:

- 24 professional economic sectors
- 84 work processes
- 260 process sequences
- 880 activity areas

The classification of Professional Economic Sectors (SEP) has been developed according to the ISTAT's (Istituto Nazionale di Statistica) classification codes related to economic activities (ATECO 2007) and professions (Classification of Professions 2011).

Work contents are represented and made navigable, through a classification scheme formed by 24 Professional Economic Sectors. Then, it is possible to view within all sectors the main Work Processes divided into Process Sequences, each containing specific Areas of Activities (ADA). Each ADA displays a detailed sheet that includes the list of specific activities which compose the ADA and the expected products and services (Expected Results), as well as references to the statistical codes of ISTAT classifications.

At Profession level, a first linkage with ESCO has been developed through the international (ISCO) and national (CPISTAT) classifications.

The Atlas of Work was born from the continuous and shared work of different subjects and entities. INAPP (within the Technical Group) developed the first contents with the support of regions and experts in the various professional and economics sectors. This great amount of data is stored in a database that was developed between 2021 and 2020.



## 2 Atlas of Work and Qualifications: overall description



Starting from the National Repertory as per provisions of Art. 8 of Legislative Decree 13/13, which sets the basis for the creation of the Italian NQF where ALL qualifications converge into, INAPP, Regions, Ministries of Labour and Education, have developed a comprehensive "mapping of the world of labour market and qualifications". Specifically, by developing the "Atlas of work and Qualifications", professional areas contained in the 24 economic sectors were identified and each area was described in terms of main work processes, areas of activity and specific activities.

The Atlas of Work and Qualifications allows correlation and equivalence between regional qualifications (through competences description) and describes the contents of work in terms of activities (tasks, assignments, etc.) and potentially deliverable products/services in carrying out the activities described.



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- 24 Professional Economic Sectors
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Source: INAPP

The Atlas is composed of two elements: one is related to the work activities and the other one is linked to the storage of all the qualifications within the education, VET (Vocational Education and Training) and HE (Higher Education) systems.

The point of connection between these activities is the capacity of each institution – ministry of education, ministry of higher education, regions (part dealing with VET) – to bring together the competencies and qualifications, and the work activities contained in the Atlas. A matrix links which skills, competencies and knowledge are needed to carry out a specific work activity. This permits the comparison and harmonisation of qualifications.

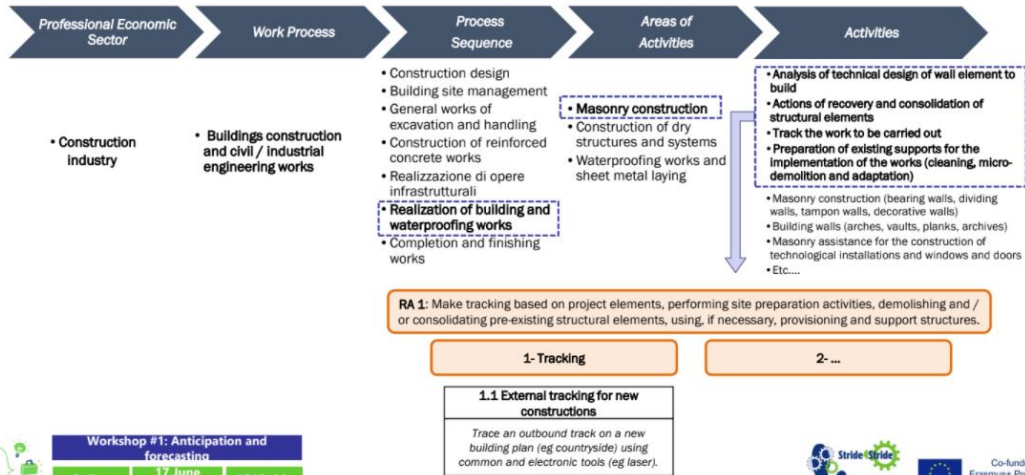
Regional qualifications in Italy are important because of the VET system: there are different qualification repertories and descriptions in each region. However, the Atlas allows the harmonisation of VET systems. Each region connects its qualifications to the work activities, which makes it possible to aggregate similar qualifications between regions.

Therefore, uses of the Atlas and work qualifications can be:

- Counselling
- Skills need-analysis
- Job matching
- Identification and validation of competencies
- Certificate procedures
- Qualification design
- Traineeship planning/design
- Dual system design
- Labour market data analysis

Case schemes developed from ADA expected results (RA) represent product and service exemplifications of the operating mode and the operating contexts through which the expected results are reached.

### 3 Case Schemes: an exemple



Workshop #1: Anticipation and forecasting

Online	17 June 2021	#S4Stride
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## **2.2. WOLLYBI: Digital Observatory of the Regional Labour Market: analysing job postings on the web to create new knowledge**



**Giampaolo Montaletti**

PoliS-Lombardia - Regional Institute for the support of Lombardy's policies

**Presentation available here**

PoliS-Lombardia is the Regional Institute for Training, Research and Statistics, supporting the policy design and implementation of Lombardy's Regional Government. Its mission consists in providing knowledge to support Lombardy in planning and implementing policies and contributing to the achievement of the Regional Development Goals.

The DATA Lab project is a joint effort to exploit data science, machine learning and Artificial Intelligence (AI) tools to support change in the provision of public services and the monitoring and planning of regional policies. DATA Lab prepares demos to support the government in the evaluation of machine learning algorithms, methodologies, etc. Once the prototypes are ready, they are sent for production and experimentation by other departments of the region.

DATA Lab works in three different directions:

- General Data Protection Regulation (GDPR) compliance
- Open source and vendors solutions integration
- Use different sources of data (administrative, mobile sensors, etc.)

Other bilateral activities are related to GDPR, ethical and political issues:

- A full legal team at work to need-check regulation and introduce changes in laws if necessary.
- A full organizational and technical framework is needed to prevent "individual information spill-over" or misuse of personal information. The framework is called DAAS (Data As A Serviced).
- An open dialogue with the different government Departments to discuss the real use limits – e.g., ethical and political limits.
- Are we discriminating minorities?
- How do we explain what we are doing to people? What about my constituency not believing in your results?

Data sources used to produce a labour market analysis:

- Official statistics (LFS micro data and Excelsior survey).
- Administrative data (online compulsory communications from employers, official businesses registry).
- WOLLYBI: job board data collection and analytics.



Then, a key question remains how to understand employer behaviour:

- 56,000 “big” employers in the region.
- From January 2016 to May 2021, they opened 9,222,497 positions (about 160 each)
- What do we know about the contracts?
- Who is the worker? Age, gender, educational attainment, etc.
- Who is the employer? Location, industrial sector, etc.
- What kind of contract? Type, duration, full/part-time, ISCO occupation code, salary range, etc.

The goal is to check the work behaviour as attitudes might differ – workers can declare that they have some skills online, but it can be different in reality.

Complementing these efforts, the CRISP (research centre from the University of Milan dealing with public utility services) started to collect information on online job postings and contributed to Cedefop’s research within the [Skills-OVATE](#) initiative.

Function of the product: how does the process work?



Next steps

- For the same groups of employers, observe what they look for (online and offline).
- Measure the gaps: is it a matter of salaries? Is it a matter of skills?
- How do we help “closing the gap(s)”?
- Should we use the evidence for discussions with stakeholders?



## 3. REGIONAL EXPERIENCES

### 3.1. Vestland: Regional cooperation and good practice from RIGHT



**Kate Clarke**

Senior Advisor, Department for Innovation and Business Development, Section for Research, Skills Policy and Internationalisation at Vestland County Council

[Presentation available here](#)

The RIGHT project's (Interreg North Sea Region) goal is to connect the original skills base and skills gaps to regional smart specialisation strategies (RIS3), that is, to the future needs of the region. Vestland's RIS3 strategy is based on a relative variety, so they have mapped how employees move from one sector to another. The idea was to show that region's businesses and SMEs are strong enough for the green transition. Therefore, skills needs, and education are being linked to the needs of local businesses.

There are two pilot initiatives currently running in Vestland:

- Use of a strategic tool for human resource management which helps participating SMEs to identify their strengths and needs. The tool maps skills and gives an analysis which is drawn at individual and company levels, so that each person gets an individual report.
- A training module for the recycling agriculture systems following the demands of the region's industry.

#### The experience in Hardanger



**Jostein Eitrheim**

General Manager, Hardanger Council

[Presentation available here](#)

Hardanger Council is involved in three projects that are very close to the S4Stride project's priorities and aims:

- Cooperation arenas. In Vestland County, there are five regional cooperation arenas working on finding a better balance between competence and workforce supply and demand in the region. The goal is to have a better cooperation between the industry, the public sector and the schools in the region. The goal of the cooperation arena is that work life shall always have necessary competence to meet future needs for change.

- Development project. The population in Vestland is declining, and only a small number of young people come back to Hardanger after they leave.
- Planned cooperation between primary schools, work life and career guidance. Hardanger council focuses on companies, professions and career opportunities

### 3.2. The Basque VET innovation system



**Inge Gorostiaga Luzarraga**

Directorate for Technology and Advanced Learning, Department of education at the Basque Government



**Juan Carlos Molinero Montes**

Director of the Technological Innovation and Intelligent Systems area at Tknika

[Presentation available here](#)

The Basque Country adapts the research and innovation strategies from the European Commission to its regional needs.

The V Basque VET plan focuses on vocational education and training in the context of the 4<sup>th</sup> Industrial Revolution. It aims at managing change from innovation to intelligence through 9 strategic guidelines, streamed through 43 aims that are operationalized by means of 169 courses of action.

The focus is on the person, betting on sustainable human development, with teachers and trainers at the core of the whole strategy. To achieve this, the region counts on its own Vice-Ministry for VET in which it works with all the VET centres, and institutions, including TKNIKA, the Basque VET Applied Research Centre.

The research and applied innovation system of the Basque County's VET is composed of the following elements:

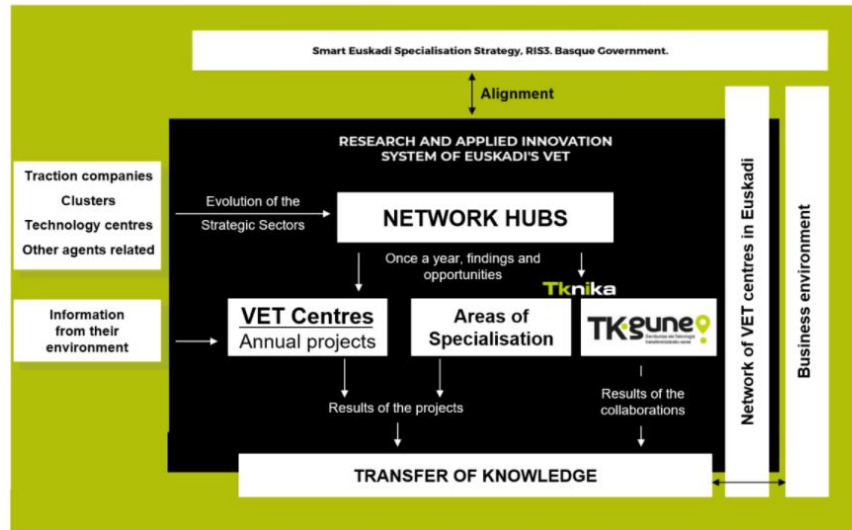
- ➔ The compass – RIS3 – Euskadi: It aligns the workforce with the Basque Country's strategy, identifying the strategic sectors to be promoted.
- ➔ The explorers: With the goal of bringing information about what is happening in the strategic sectors, it is organised with four network hubs: energy, digital connected factory, advanced manufacturing, and biosciences.
- ➔ Transfer of information to the VET centres and TKINKA

The VET centres receive information from the network hubs. Then, they filter it and prepare project proposals for the calls launched by the Deputy Ministry of Vocational Training. The projects have a duration of one year, with the commitment of sharing



the acquired knowledge with the rest of the centres. TKINKA also receives information from the network hub and also has a surveillance system that prioritises the projects that are developed (currently 16 running).

Furthermore, there is special tool in TKINKA called TKgune, which prioritises the relationships with the companies.

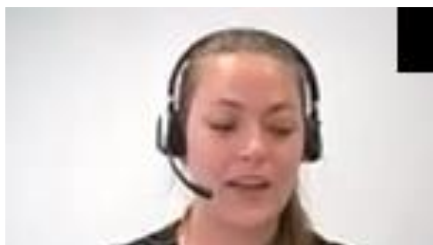


### 3.3. The partnership approach for a prospective analysis of employment skills in Brittany



**Isabelle Cupit**

Project manager in the prospective employment skills service of Brittany



**Rachel Montier**

Responsible person for economic intelligence at the “Cellule économique de Bretagne,” a sectoral observatory in Brittany

**Presentation available here**

The prospective approach is based on three aspects:

- Shared cross-sectoral diagnostic tools for regional or sub-regional analyses.
- Analyses dedicated to the main activity sectors in Brittany.

- A focus on the “skills concept”, regarding the increasing digital and environmental transitions.

This approach is mobilizing three main tools:

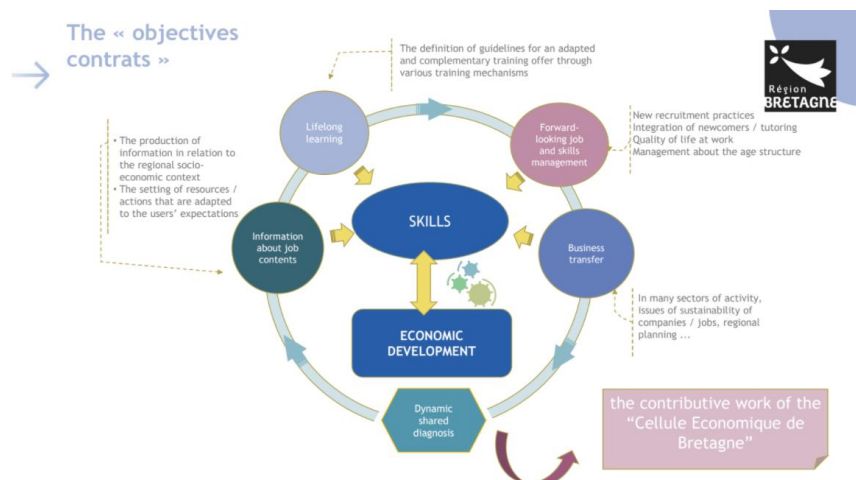
- Support from the regional employment and training observatory.
- The “objectives contracts” for employment, training, skills and vocational guidance.
- The “skills approach.”

In addition, national surveys are produced by sectoral and cross-sectoral observatories, or other institutions.

There is also support from the Regional Employment and Training Observatory (GRIEF Bretagne), financially supported by the state administration and the regional council of Brittany. It is responsible for producing studies, as well as structural and short-term indicators about employment and training. Key three areas of its work are:

- The cross-sectoral diagnostics: prospective studies about the working population growth up to 2040.
- Qualitative analyses of tensions in the labour market: through “focus groups”, bringing together institutional actors involved in employment and training.
- Surveys about integration into the labour market for people trained in Brittany: indicators about the integration of the trainees into the labour market, 12 months after they ended training.

Then, another instrument used are the “objectives contracts” for each main sector in Brittany (food industry, agriculture, construction). The region promotes “objectives contracts” to set a partnership approach and to create synergies between the actions of different actors. The purpose of such contracts is to identify in a collective way the employment skills and training needs with regard to the speeding-up changes that the region has to cope with, mainly related to digital and environmental aspects. The goal is to build a global response based on each partner’s tools that allows the upgrading of the worker’s skills.





The Cellule Économique de Bretagne is an association bringing together institutional actors and private partners from the construction sector. It has two main objectives:

- Observation and information mission, implementing reflection tools represented by dedicated observatories and specific themes – e.g., employment. The goal is to improve the knowledge in the construction sector. It is with this aim that, in 2020, the Cellule Économique de Bretagne presented a study on new skills required in the construction sector.
- Forecasting, in a prospective and evaluation approach in order to inform about the strategy of private companies and help in public decision making. For example, for 2022, the Cellule Économique de Bretagne will carry out a study about the employment training relationships by 2025 in the construction sector.

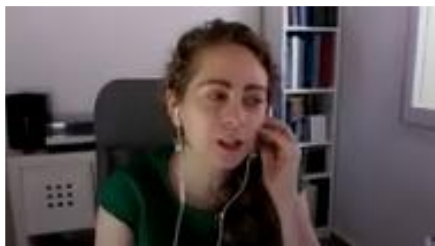
Lastly, the “skills approach” has three main goals:

- Responding to recruitment difficulties expressed by companies.
- Coping with energy, environmental and digital transitions.
- Facilitating the forward-looking management of jobs and skills within companies and territories.

These goals will be achieved through three action levels:

- Vocational guidance
- Training
- Human resources & recruitment

### **3.4. Catalonia: Ready-to-use tools for skills anticipation**



**Irma Núñez Fernández**

Project manager at the General Direction for VET, Regional Ministry of Education of the Government of Catalonia



**Amador González**

VET teacher at Institut Manolo Hugué

**[Presentation available here](#)**

The Catalan approach focuses on tools for skills anticipation directly related to the collaboration among the Regional Ministry of Education, VET schools and companies.

One of the main tools used to forecast skills is a set of networks:

- **fpdual** allows the Ministry to know companies' needs through work-based learning. It also gives the opportunity to have a network of companies, organised in different sectors that can detect skills needs.
- **empresafp** involves companies and the regional ministry of education allowing the development of collaboration agreements through research projects.
- **innovafp** is a network of VET centres which aims at identifying innovative trends to incorporate them to the education system by collaborating with companies.
- **futurafp** is a network of teachers organised by professional sectors that identify gaps between teaching practices and companies' needs.

Further regional tools to identify the gap between skills and labour market needs include a platform offered by the Catalan work observatory, which, for example, gathers data regarding the contracts and their quality for all the professions.

Along with the Catalonian Education Ministry, the Manolo Hugué centre has re-adopted some subjects that focus on the stamping and moulding industry. In 2018, the project was framed within the dual learning system. A database called BID (Banc Integrat De Dades – integrated database) was set up with the help of local mould companies. As a result, companies can help students today in their learning processes. However, the involvement of experienced teachers who had previously worked in the stamping and moulding industry was an essential success factor.

### 3.5. Tuscany: The use of data to plan the training offer for regional VET courses (leFP)



**Silvia Duranti**

IRPET - Istituto Regionale per la Programmazione Economica della Toscana

[Presentation available here](#)

A practical example on how Tuscany uses data to plan the training offer for VET courses was introduced. Regarding the tools for analysing skills need a distinction between two areas must be made:

- **Current needs:** needs which have already been satisfied that can be analysed through data, so there is a database concerning all the hirings, classified by occupation, area, sector, etc. Through this database it is possible to analyse the recent job demand, analysing the job quantity and quality.
- **Emerging needs:** researched by IRPET in cooperation with Tuscany Region in the past, analyses are carried out through surveys and focus groups. In this case, the information is different because it is possible to analyse the skills required within occupations.

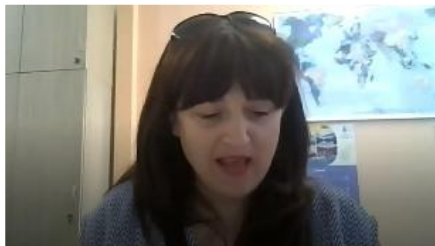


In Tuscany, the courses at secondary education level last between 2 and 3 years. The providers are accredited training agencies or secondary schools, and financing is public, supported by the region through calls for proposals. Schools and agencies propose projects to the region in order to receive funds.

leFP qualifications aim to provide the Tuscany region with information about the extent to which these qualifications are needed in the labour market. To do so, the qualifications are linked to an occupation that is present on the database.

Tuscany Region uses the data provided in the calls for proposals and assigns a reward score for courses in the most requested and stable qualifications. A reward score is also attributed for mismatched qualifications at the local level.

### **3.6. Varaždin County: Harmonization of educational programs with the labour market**



**Nikolina Vlahek Canjuga**  
Secondary Vocational School Varaždin



**Petra Martak**  
Advisor for Regional Development, EU Funds  
and Tourism in Varaždin County, Croatia

**[Presentation available here](#)**

Insights into what kind of efforts are being made when it comes to skills intelligence and forecasting in the Varaždin County in order to harmonize educational programmes with the labour market were provided. There are different methods and tools used in detecting the needs on the labour market which have been developed and carried out by local and state agencies, government and sector councils in cooperation with the Ministry of Education and Schools.

Challenges faced include:

- Skills mismatch.
- The process of skills anticipation is under development with some important documents introduced and projects carried out to make educational programs and lifelong learning more suitable for the labour market needs.



## Local initiatives for employment strengthening in Varaždin County

- "Lepeza" project, funded by the European Social Fund. The project provided unemployed workers with many educational opportunities and systems for self-employment. Many activities were carried out, including technical activities, promotion and visibility, participation and financial support for job fairs, an updated and evaluated human resources development strategy, project website, team buildings, and conversations with various stakeholders.
- In Varaždin there is a local partnership for employment that aims at identifying problems but also solutions related to employment policies and labour market at the local level. The partnership brings together representatives of all public, private and civil society sectors who can contribute to the improvement of opportunities and active cooperation. This local employment partnership was co-financed by the European Union. The Lepeza project is the third one running in the county on the same topic, strengthening this partnership.
- Training sessions were held for employment partnerships members on the topic of public procurement, mind mapping, and protocols. Nevertheless, one of the main activities on the project was the education of the unemployed. The employment services conducted career groups to motivate the target groups and ease their entering in the world of work.

## 4. USEFUL LINKS

- Stride for Stride website: [#S4Stride - Stride for stride for skills anticipation/adaptation in European regions](#)
- Workshop press release (EARLALL): <https://www.earlall.eu/first-s4stride-workshop-was-hosted-by-tuscany-online/>



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