Teched
CONSULTING SERVICES

Labour Market Information Framework

LMIF enables application of standardized, secure and efficient procedures in gathering and processing the labour market data with the goal to extract knowledge from the gathered data and to provide reports suited for any purpose

Benefits of the LMIF

• It provides **added values** related to labour market information with implementation of **standard procedures** related to **data management**

• It enables **automated gathering of structured data** (in any standard format) from **multiple trustworthy sources**

• It provides **customized reporting mechanism and tools** customized for various types of end-users (from layman users to the data professionals)

• It provides **guidelines for employment and skills policies** to develop a workforce that can compete on the national and international labour market,

• It provides **guidelines to employers on skills needed** within the labour market and how to invest in their employees' skills,

• It **provides guidance to training and education institutions** on how to better match the supply of skills that the labour market demands,

• It gives **people advice on the labour market** so that they can make informed decisions around training and career prospects,

• It provides **information to end-users** so they can take advantage of the recognized opportunities available to participate in the country's labour market.

Introduction

An integral part of promoting employability is the ability to match the availability of jobs in the labour market with the supply of qualified people, taking care for the current and future supply and demand of the labour market. Whilst there will never be an absolute balance, a high degree of matching on an ongoing basis means that the country is making the most effective use of its productive human capital and educational resources. In order to achieve a high level of labour market efficiency and sustainable growth of employability, the information and the extracted knowledge originating from the labour market should be available to all labour market stakeholders (i.e. decision makers, labour market professionals, data analysts but also employed people, unemployed people, students, pupils etc.) in a timely manner and in a format which will be most appropriate for their needs (for example: charts, table reports, downloadable Excel files, advanced data analysis tools, etc.).

The Labour Market Information Framework (LMIF) enables application of standardized, secure and efficient procedures in gathering and processing the labour
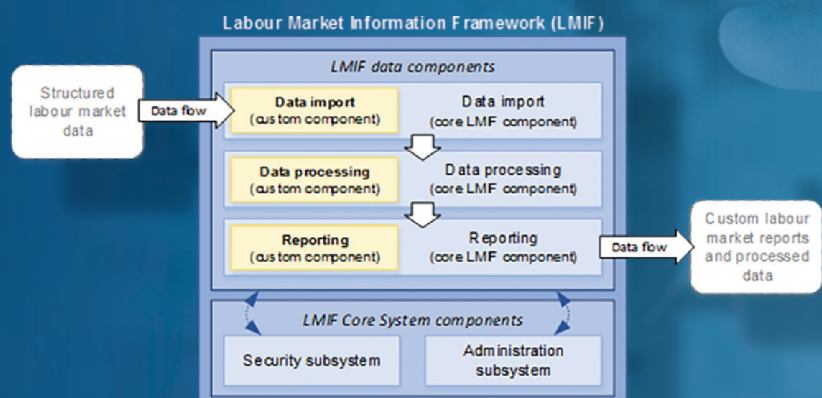

Figure 1: LMIF high level overview

Product Sheet

market data with the goal to extract knowledge from the gathered data and to provide reports suited for any purpose.

By using the LMIF, it is possible to re-use and to adjust the existing standard LMIF software components in order to implement the desired labour market IT system in a significantly reduced amount of time and having the rich set of standard functionalities and the possibility to implement additional functionalities based on the same framework.

Context

The Labour Market Information Framework (LMIF) provides a solid foundation for building information systems which provide accurate and timely information to the interested parties in order to enable them to issue their decisions (either business or career decisions) based on facts, not on estimations. Also, such information systems can provide the information support to government's efforts on improving the employment skills for the population to enable the government to prepare and to respond to the global "shocks" and/or economic crises which may be expected anytime in the future. The resilience of the economy in the face of such challenges is critically conditional on sufficient labour market flexibility and continued efforts to boost the employability of its citizens. The adequate avail-
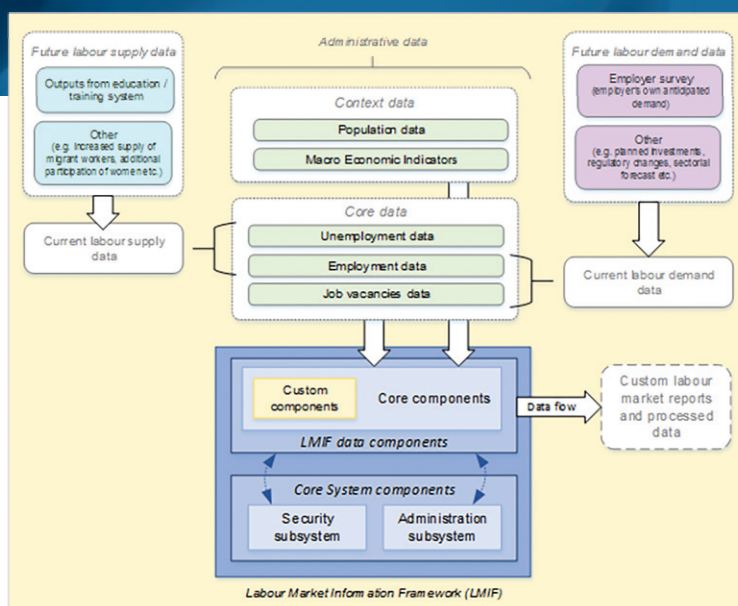

Figure 2: Labour Market Information System build upon the LMIF

ability of key skills which can be recognized by using Labour Market Information systems will make it easier for individuals and the broader economy to adapt to changing circumstances with minimal disruptions.

Features of the systems based on LMIF

The efficient Labour Market Information system should permanently import and monitor (I) Country's administrative data, (II) Country's current and future market supply and (III) Country's current and future labour demand and "match" this data in order to produce the desired outputs (i.e. custom reports, processed data etc.)

The "Data import" modules of the LMI System focuses on the acquisition of the data and information necessary to build the LMI central database. An understand-

ing of the past and present labour market dynamics in any county is important for attempting to understand the success of past and to anticipate trends and future skills requirements. The **types of data** usually imported in the LMI systems include the following:

- **Administrative data**, which contains the "Context data" and "Core data". Usually, that data includes demographic composition; trends in employment, unemployment and skills; labour turnover etc.
- **Labour demand data** – it includes labour force data, industry and occupational trends; economic growth forecasts; sectorial vacancies, wages and issues faced, etc. It may include the **future labour demand data** (i.e. employer's survey data, labour force surveys etc.)
- **Labour Supply data**: it includes data as type of work performed; occupational skills requirements and other occupational charac-
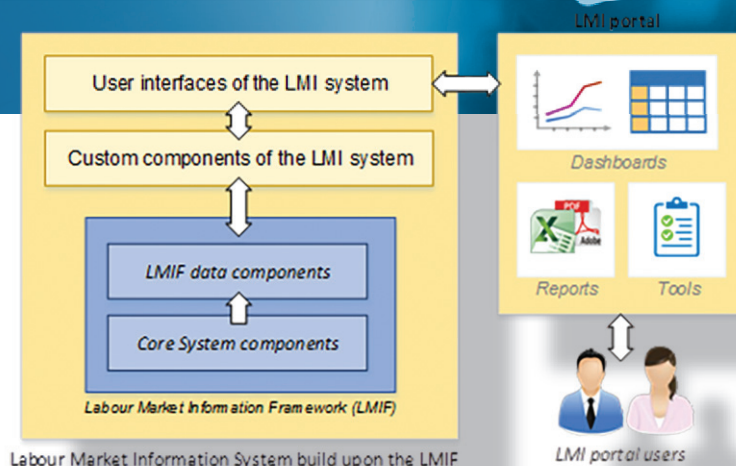
Figure 3: Custom made LMI portals

teristics of job seekers. In addition, it may include the education and training information (i.e. the **future labour supply data**), i.e. data on programmes and courses; access and quality issues; financial assistance available to labour market participants.

The LMI central database brings together information held by a wide range of Government and other stakeholders in order to present a comprehensive picture of the country's labour market. By working with data owners directly, the LMI System will ensure that the data is accurate, relevant and timely.

The Labour Market Information system usually includes **custom made portals** to present the labour market data to the targeted audience. The portals will have integrated panels (so called: **dashboard**) supported by LMIF which can present data through diagrams, line charts, pie charts, stack charts, etc. in different shapes and colours which may include the possibility of reorganising / personalising the labour market data being reported. In

addition, portals may include reports, IT tools (e.g. surveys, questionnaires, search engine etc.). The user interface and the data contained on the portals may be further customized by enabling only agreed portion of the content and/or functionalities to the dedicated end users (which may be either authorised or anonymous users).

The user interface for the portals is developed by following the best industry standards related to user interface ergonomics and efficiency and it is based on the "*responsive design*" concept, enabling the portal to adjust its appearance based on the device used (e.g. smartphone, tablet, laptop, desktop etc.).

Portals are accessible by standard web browsers - there will be no need to install any software on the user's device in order to access them. The main principle which is applied is so called "*3-clicks principle*" – all information on the portals will be available to users in maximum of three mouse clicks.

User interface of portals is multi-lingual, enabling the customization of the portal's context in accordance with the beneficiary's county.

Generic LMIF meta-model

One of the key principles applied to Labour Market Information Framework (LMIF) is its **Generic Meta-Model** which enables end-users to **create and manage interactive dashboards**. It includes a designer module intended for easy composition of data visualizations which may be derived from a wide variety of standard data sources including Microsoft Excel, CSV, SQL Server, etc. The designer module enables users to **compose** (i.e. to "model"), **test** and **publish new data visualizations** without any need for help from external IT experts and also without the need for further investments in the software's development. The data in virtually any structured format can be imported into the LMI systems based on LMIF and be easily transformed into the desired format before visualizing it. In that way, **any structured data may become the new "dataset" in the LMI system**.

The newly added datasets will be included in outputs of the system by using the same rich reporting functionalities as all the other datasets. The Generic Meta-Model also uses the functionalities of LMIF administrative sub-

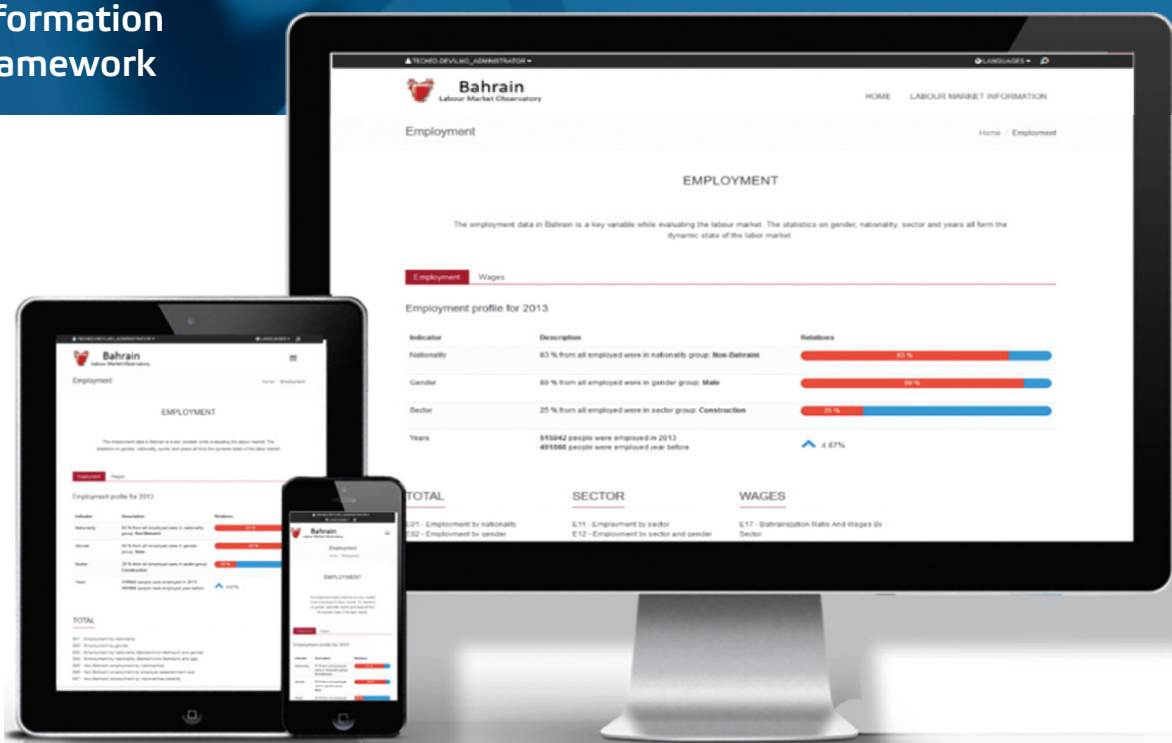# Labour Market Information Framework

Figure 4: Responsive design is supported by the LMIF

system enabling the Beneficiary to implement the desired rights and permissions on the data available in the LMI system. In that way, the Beneficiary can manage which user will be able to access which portion of the labour market data.

Case studies

We have successfully implemented the LMIF framework on numerous projects which are briefly presented below in a form of case studies.

Case study 1: Lifelong Career Guidance (LLCG) ICT system in Croatia

The LLCG ICT system was developed for the **Croatian Employment Service (CES)**. The objective of the project was to improve CES ICT system based on the

model of data integration and exchange with labour market stakeholders in order to facilitate better provision of service to CES clients. The developed ICT Systems were based on the LMIF framework and they include modules for **LMI** (**Labour Market Information**) and **Vocational Guidance**.

Given the current social, economic and political situation in Croatia, a Project such as LLCG ICT was a strong necessity. Following the guidelines of EU Strategy 2020, this Project contributed to capacity development of Croatian institutions as well as NGOs in the field of life-long career guidance of all regions of the Republic of Croatia. It was necessary to develop a system and palette of services that functioned successfully in different environments – regional characteristics, possibilities and needs.

Case study 2: Labour Market Observatory (LMO) IT system in Bahrain

Bahrain's Labour Market Observatory (LMO) IT System was created in linewith Bahrain's vision 2030 with one key goal: to highlight the Labour Market opportunities in Bahrain.

The LMO IT System was designed and implemented based on the proven LMI framework to provide an **objective national perspective** to **define**, **map**, **interpret** and **communicate labour market information**. By simply taking into account both Bahraini employment needs and the supply of migrant workers, it matches the demand for labour with the supply of people who have the appropriate skills and qualifications.

The LMO was a pioneering planning process that is set to define

the next century for the Kingdom of Bahrain. Employability and occupational skills are more than ever a critical asset for Bahrain's citizens and employers in an increasingly competitive global economy. The LMO is a means of identifying and monitoring labour market developments, challenges and opportunities, so as to help ensure that the key policy objectives of the Bahrain Government are effectively pursued.

Case study 3: **Labour Market Information System (LMIS) in Georgia**

Design of a comprehensive **Labour Market Information System (LMIS)** based on LMIF is aligned with Georgia's reform plans that aim at improving the labour market situation in the country. In addressing the issues of potential **skills gaps** it was important not only to focus on the immediate shortcomings in the

supply of labour but also to focus on the efficiency of the labour market in **balancing supply and demand over the longer term**.

Designing a LMIF-based system which **collects and analyses labour market information** is critical in guiding policy making decisions by Georgian Government to improve employment opportunities in the economy. This system provides an objective national perspective to **define**,
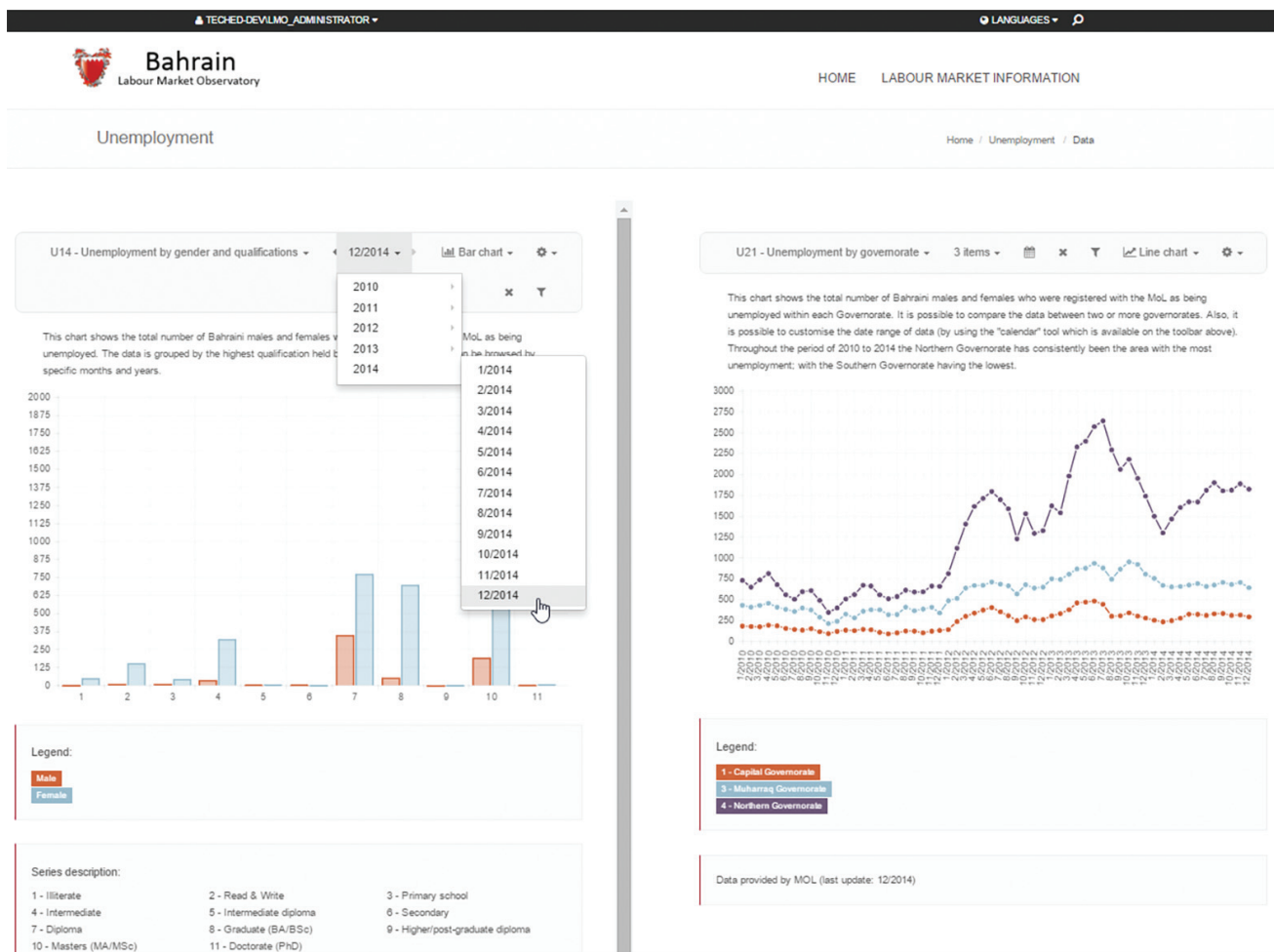

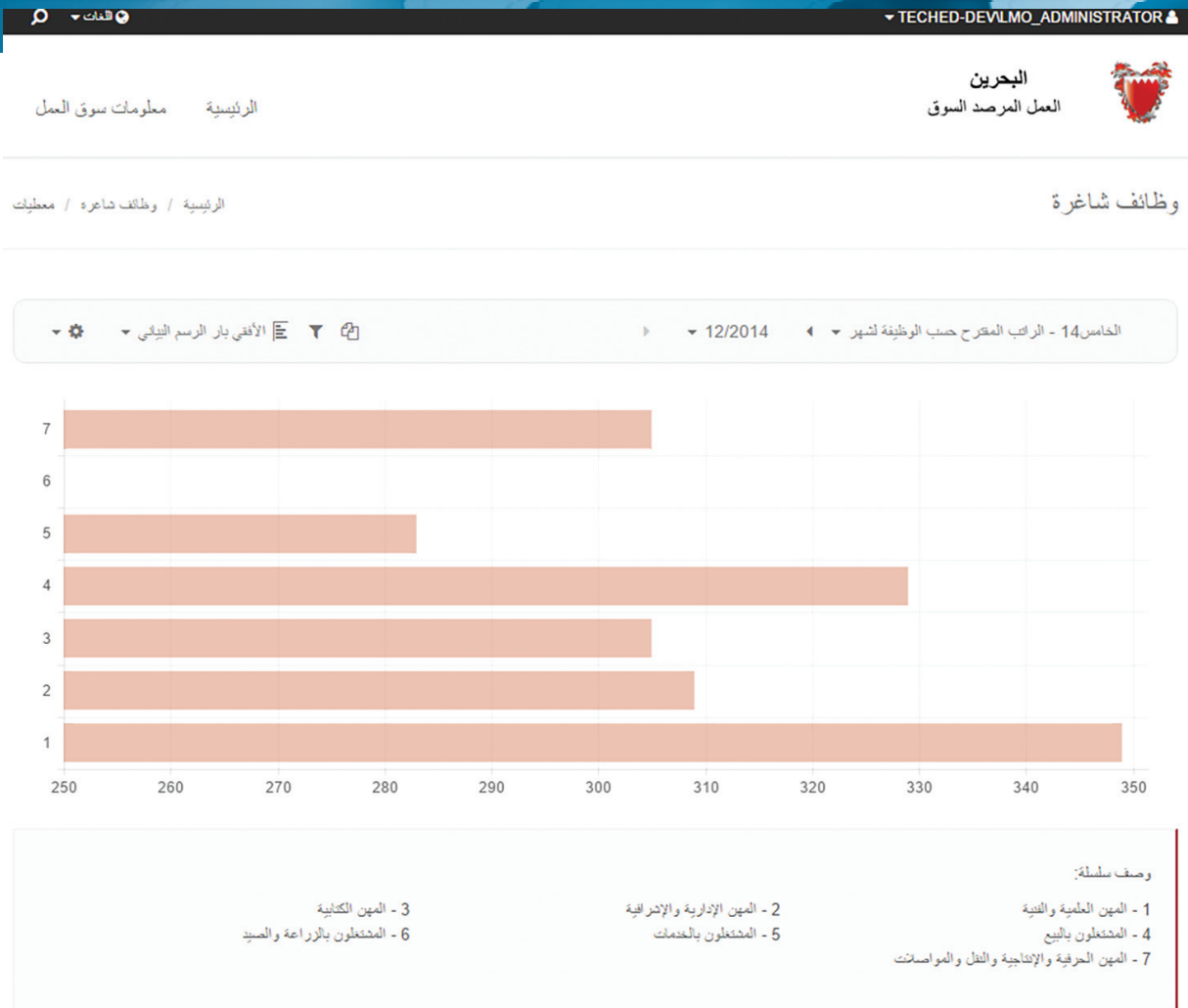Figure 5: User interface of the LMO IT System implemented in Bahrain

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Figure 6: Arabic user interface of the LMO IT System implemented in Bahrain

map, **interpret** and **communicate labour market intelligence** bringing together both qualitative and quantitative data and information to look at trends over time not only to guide policy but also to inform young people, parents, students, educators and employers on the choices they need to consider. The LMIS IT System was designed as "*One Stop Shop*" public web portal based on the LMI Framework that includes up-to-date information about labour market conditions in Georgia, occupational profiles and outlook, and career guidance information.

The main goal of the Georgian LMIS IT System is to enable the interested parties to inform themselves on a current and/or envisaged situation in the Georgian job market which may include: **employability**, **trends in industrial sectors**, **skills required for certain occupation**, **average wages per occupation**, **average wages per educational level** etc. Having access to such information, the end-users will be able to make informed decisions about choosing and/or changing their careers.