

Borsa Lavoro Lombardia:

e-Gov Interoperability in the labour market

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Abstract :As established by National Law 276/03 in Employment and Labour Market affairs the main objective of the Biagi Reform¹ is the development of a transparent and more efficient labour market. To do this entails the implementation of the so called *Borsa Continua Nazionale del Lavoro (National Labour Stock Exchange)*, which is a national e-gov service delivered through interoperable systems working at different geographical levels both with administrative bodies, across administrative boundaries and with the private sector. **Borsa Lavoro Lombardia** is the first of the above mentioned interoperable systems. Implemented and managed by the **Regional Employment Agency of Lombardy**, it is an integrated-access system providing employment, training and education services in Lombardy.

1 Introduction

1.1 Underlying principles

1.1.1 Definition and objectives

Borsa Lavoro Lombardia (BLL) is an integrated access system which is primarily built on two main principles: the INTEGRATION of all the existing information systems working on the labour market and the exchange and share of INFORMATION inside a ruled model.

The project aims to set a service model that is meant to offer job opportunities to citizens and candidates to companies by empowering and making work together both private and public actors of the labour market.

Thanks to this network the users can have free, transparent and seamless access to information and services concerning education, training and employment.

The main aims of the project are as follows:

- Empowering the role of all the players acting in the labour market, be they public or private, profit or non-profit
- Improving service efficiency mostly addressed to job matching issues

¹ The Biagi Reform aims to achieve a higher flexibility in Italian labour market. Laws actually in force, regarding both public and private employment services, are revised so to reinforce the private ones, by abolishing restrictions, in order to increase efficacy in job matching in labour market. A wider range of labour contracts are introduced by allowing forms up to now prohibited or by defining new ones. The discipline regarding labour contracts different by permanent ones is revised so to enhance their diffusion, while discouraging improper utilization. Through this higher flexibility the labour market in Italy should allow better performances in creating new jobs. <http://www.welfare.gov.it/RiformaBiagi/default.htm?baseChannel=LeggeBiagi&actualChannel=>

- Improving service quality by providing transparent information stored into databases
- Providing analysis and statistics environment to check continuously the phenomena of real life, to give correct information to the decision-makers
- Speeding up and simplification of the administrative public procedures

1.1.2 Context and Governance

In order to reach the above mentioned aims BLL has developed a specific software architecture system to all the players involved such as: institutions at regional and local levels, employment agencies, private recruiters, temporary work agencies, training and learning centres, corporate, chambers of commerce and other national institutions. It, together with new administrative processes, paves the way to the implementation and achievement of higher policy objectives.

As far as labour market is concerned, the ultimate goal of the Reform is to make job matching more flexible and more effective. To favour this process, the new ICT technology is complementary to a more general action, where the players should meet and cooperate by coordinating efforts in developing the services.

By joining up synergies and linking up private and public actors BLL aims to achieve a significant increase in efficiency and lower the cost of operations.

Interoperability makes job matching and the search for information about education, training and employment quicker, at a lower cost and with more flexibility to adapt to new requirements. This will bring public administration closer to citizens and enterprises and will deliver agreed rules on standards and processes.

2 The Web Portal: www.borsalavorolombardia.net

2.1 Description

Through BLL the user can have access to several informative and interactive areas, which can help him find information about three main subjects: employment, education and training. Furthermore, it is not only a key vehicle for the exchange of information and data, but also it allows direct interaction between citizens and companies. In this context, the role of the public administration is to define agreements on the roles, duties and responsibilities of all parties and let them interact.

The main areas are the following:

- *Employment Area*

This is the heart of the Borsalavorolombardia portal.

From this area you can access the employment market where you can check the job vacancies posted by companies on the portal in real time. A list of the most requested profiles is always available on the portal, linked to the most important and useful information for job seekers. This area is interlinked to the training and education area, so that once the user looks at the description of a particular profession he has a direct link to the training course available in Lombardy.

- *Personal Area*

It allows citizens, companies and operators to access BorsaLavoroLombardia services.

For citizens seeking jobs, for example, the personal area allows guided CV insertion and easy access to information about the labour market.

Users can therefore receive job offers suited to their profiles, carry out a search, contact companies and candidate himself to an available position, activate or deactivate the chosen

services. This interaction is direct, job matching occurs directly and the user is alerted via email or a message displayed in his personal internal area.

- *Training and Education area*

It boasts a wide range of information about all training courses organised by public and private organizations and taking place in Lombardy.

- *The Community*

It offers services such as an area for personal opinion, discussion, questions and requests for information. Registered users can also avail of a newsletter and instant messaging, as a direct communication channel with the call centre.

- *The “Formalavoro Magazine”*

Among the informative tools adopted, Borsa Lavoro Lombardia created a fortnightly on line magazine: “Formalavoro” allows all users to receive updates, comments, interviews on current training or employment issues.

2.2 Target Users: available services

BLL addresses and links up the following users, who are therefore the players involved and acting in the labour market at different levels:

- Job seekers
- Public and private job agencies
- Governmental bodies (Ministry of Labour, Regions, Provinces, Trade unions)
- Training and learning centres

2.2.1 Job Seekers

Job seekers can access all services by previous registration to the portal. Therefore, every user is given an ID and password. This allows not only to control users’ access but also to portray their profiles, helping the improvement of the portal usability.

Job Seekers can:

- *Manage CV*: insert, modify, delete one’s own CV
- *See CV Status*: once the user gives permission to the publication of his CV he automatically gives companies the right to browse his/her profile. Furthermore the job seeker can receive notice of how many times the CV has been seen.
- *Similar profiles matching*: besides searching inserted vacancies the user can freely surf the portal. Search criteria can be: Professional profile, Vacancies, Learning opportunities.

2.2.2 Public and private job agencies/Training and learning centres

They are given the same services which are delivered to Job Seekers and Companies. They need to register and have their ID and password. They have one more functionality which is:

- Matching offer /demand
- Matching offer/ CV
- Matching CV/ Learning opportunities

2.2.3 Companies

All companies can register and freely insert their vacancies. In particular companies can:

- *Manage offers*: insert, modify, and delete a job offer.
- *See Offer Status*: once the offer is being accepted by the Job Seeker the company is able to get his personal details directly from the portal. Therefore the company can contact the Job Seeker.

- *Similar Profile Matching*: through algorithms the system is automatically able to carry out direct matching between the inserted vacancies and curricula. This makes feedback of availability possible.
- *Free Search*: beyond searches based on inserted vacancies, a company is able to carry out free searches. The searches can indifferently be made within all data banks stored in the portal. Search criteria can be: Professional profile, Jobs offers, Learning opportunities.

2.3 Access points to the integrated system of BLL

Issues such as digital divide, social-economic disparities between regions and groups of citizens are addressed thanks to a multi-channel approach.²

The access points of the system are three and are going to grow. The main technological tool, described above, is the web portal www.borsalavorolombardia.net and the complementary call centre. Moreover, there is an interactive TV service, launched in September 2004, which allows the users unable to have an internet connection, to have access to specific services. The local kiosks are then another gateway to BLL services and are located all over Lombardy reaching the effort to give everyone the opportunity to benefit from BLL.

This combination of the use of advanced ICTs, especially the internet, together with the enhanced provision of information and interactive services accessible over different channels guarantees a unified access, the merging of local systems and private systems into a shared network, the exchange of information from and to the integrated system present in the labour market and functional links to other regional and international bodies.

The Portal and Call Centre³ represent an integrated access system that enriches the traditional way users have access to the services.

The portal is an innovative access way to offer services that is supported by the Call Centre which guarantees the services' fruition to those users who can't use internet.

2.3.1 Local kiosks

The local and territorial network is made up of several kiosks which are spread all over Lombardy. This ensures that BLL creates equal opportunities for all citizens, whatever their level of education or knowledge of ICTs and no matter what size of firm or organization is concerned. This local network boasting front office services is made up of private and public employment agencies and bodies that are usually financed by local or national institutions for the provision of labour services to the citizens. These categories are to be seen like information points, not like bodies delivering services.

To become member of the network the agency or body needs to sign an agreement with Agenzia Regionale per il Lavoro (Lombardy Region) and guarantees that all its operator will receive a proper training course. Furthermore, the kiosks need to show logos of BLL and guarantee internet connection.

2.3.2 Interactive TV service

Borsalavorolombardia is also available through an interactive TV service (Teletext technology), which displays personalised information, that can be easily read through the remote control TV switch. It offers a job search service too⁴ By contacting the call centre the user can insert his CV in the database and make the matching process start. The day after, at

² This is particularly important because of the peculiar fragmentation of the Italian territory, Not only disparities between North and South, but also within each region.

³ The Call Centre is a free dial service covering not only Lombardy but all Italian regions.

⁴ BLL is available both on public TV channel, whose name is Televideo, and on the main private TV network, called Mediaset.

an agreed time, the user can have access to a personal page of the TV service where all the vacancies matching his profile are displayed. This personal page can be displayed only for 20 minutes. After that the user can directly contact the company which has posted the vacancy of his interest.

3 Interoperability

3.1 Portal architecture

One of the most important Portal's goal is to allow the search of curricula and job offers both in the portal's data bases and in those of the main operating actors of the labour market which are linked to the portal itself.

The interoperability subsystem gives shape to an infrastructure allowing the information exchange between distributed data bases.

This method leaves the competence of the information to the entity that possesses them without therefore resorting to inopportune and complex data replications.

Because of the strong heterogeneity of the platforms used by the actors, the technology used for the realization of back-end functionalities involves Web-Services.

The services' interfaces description follows therefore WSDL and UDDI specifications.

The web portal architecture is based on four subsystems:

- **Storing subsystem** : data bases containing information regarding job matching and the procedures for the managing of the inserted data refer to this system
- **Content management subsystem**: it is the visible web portal interface provided to any registered users. Authorised users can interface to this subsystem in order to update by themselves specific information areas of the portal.
- **Interoperability subsystem**: it allows communication between the web portal and the other systems used by different actors. In this case the flow information regards both administrative issues and job matching functionalities.
- **Security and Profile subsystem**: this module supplies an infrastructure for the authentication and the recording of any user connected to the portal.

Besides the web portal is a source of information for the regional Data warehouse used either for management control or for Informative data bases that contain statistics on the labour market.

The interoperability subsystem has the delicate task to allow the information exchange and the interaction between the portal and many other informative systems about all actors that have been involved on the territory. The interoperability system must be as less invasive as possible such to allow the integration with the existing technologies. This occurs in order to avoid strong impacts on the existing information systems. The proposed solution is consistent with the paradigm of Application Integration established by the Public Administration guidelines, based on the platform-independent Web Services model.

The Italian Government establishes precise guidelines about the way of exchanging information, how they must interact and how to protect data transfer from one domain to the other.

The cooperation among applications is based on:

Organization Domains: domain is the sum of ICT resources and policies of one specific organization.

Domain Port: application components including one or more ports, divided according to the technology or the interaction model.

Interactions' Models: they are divided in two fundamental types:

- Service demand
- Event alert

e-Gov Envelope: the whole technologies, data models and all the principles of security for the exchange of the information between the domains.

A Domain is the sum of all hardware and software resources, which are under the jurisdiction of one specific organization or agency: the national network consists of a collection of Domains.

Every accredited Agency is seen as an independent domain both from a technological and functional point of view. This prevents the central system (BLL) from influencing the technological choices and management rules of the agencies.

BLL obliges agencies to adhere to a communication standard protocol to put and get information over the network using an additional component called Domain Port, which connects physically all the domains.

3.1.1 Interactional model

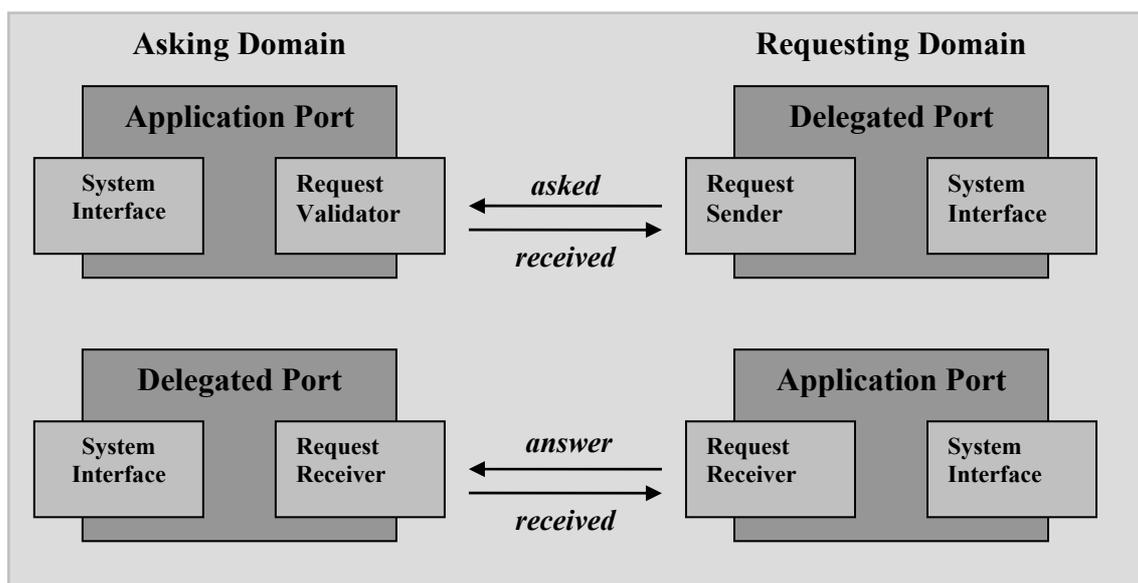
The exchange of information among different domains can occur in two distinguished modalities:

- **Synchronous:** the Delegated Port sends its request and waits for the answer of the Application Port of the receiving domain.
- **Asynchronous:** the Delegated Port sends its request and it does not wait for the answer of the Application Port. The answer will be sent later using a message queuing system.

The main difference between the synchronous and asynchronous interaction modality is that in the first case the system will wait for the answer while in the second case the reply will be received later.

The asynchronous modality can be symmetrical and asymmetric.

- ◇ **Symmetrical:** the answer is sent by the called Domain to the requesting domain, when the answer has been fully composed
- ◇ **Asymmetric:** the asking domain should contact again the requesting domain in order to verify if the answer has been processed.



The mainly used interaction modality in the web portal interoperability system of the Lombardy Region for the exchange of the information among different domains is the asynchronous symmetrical one.

The asynchronous interaction allows to employ Queuing services and to guarantee remarkable performances also when there are a high number of requests.

The planned Domain Port allows however to satisfy both interaction models according to the typology of service.

3.2 Interoperability: linking up Provinces – Sistema Integrato Servizi per l’Impiego [SINTESI] e-Government Plan

The project is the development of a job administrative system at provincial level and the necessary modules to the interconnection with the regional and national informative system. The plan pursues two lines of main action: first of all it stretches to the services efficiency and quality improvement for the employment through the adoption of adequate and standardized instruments and technologies to regional level; on the other hand it stretches to the improvement and the implementation of new services for the citizens and the enterprises.

Sintesi guarantees the integrated access to information and to those services dealing with the labour market and to all the Province’s managerial activities about employment.

In this context Sintesi, thanks to the interoperability, allows the integration of national systems, first of all the Borsa Nazionale. The interoperability gives the possibility to transfer information about Identifying Card (Personal Details) and the workers’ Professional details to the provincial, regional and national systems, the Obligatory Communications of the enterprises and information about occupational chances. The interoperability system is developed through the regional portals. To such purpose Sintesi provides connection of all Employment centres to a regional system.

3.3 Interoperability: Borsa Continua Nazionale del Lavoro (BCNL)

BCNL is an open system of job matching between supply and offer, according to the community guidelines, to favour greater efficiency and transparency of the labour market. Through this instrument, accessible from any point of the net, citizens, workers, job seekers, employers can decide to freely get in touch and to choose the offered services. The informative system is based on a net of regional nodes, and is fed with information freely inserted by private or public operators, by workers and by companies.

3.4 Interoperability: links to the European labour market

In addition to what is being set at regional and national level, BLL aims to address the European dimension in order to let European e-Gov services interact. This is the reason why interoperability with the portal for European Employment Services (EURES)⁵ has been taken into consideration. The increase of mobility across borders both for citizens and enterprises asks for e-Gov services that go beyond borders. Interoperability is key to the share of information and databases at European level.⁶

⁵ <http://europa.eu.int/eures>

⁶ This adopted principle is consistent with the Ministerial Declaration issued at the European e-Government conference in Como, Italy in July 2003, co-organised by the Italian Presidency of the European Council and the European Commission, recognised that interoperability is central to the development of pan-European e-Government Services. *e-Government Conference 2003, 7-8 July 2003, Villa Erba, Como (Italy)*.

Thanks to European nodes potential employers can have access to labour CV's of those people interested in obtaining a position abroad.

The system guarantees to companies, interested in investing in other EU countries, the access to structured and always updated labour market data coming from every management control information system of the European network.

The web portal contributes to the creation of a distributed Databases, implemented and accessible through different European nodes, containing the effective normative and useful information about labour, training and education systems of the countries that join the network. It therefore allows young people and employees to access training opportunities information available in the EU countries.

4 Findings of the testing phase

Borsa Lavoro Lombardia was launched in March 2004 and since its implementation it has had a great success. The activation of the web portal has been supported by an advertising campaign comprising print, outdoor, online and TV advertising elements.

The data below show that BLL has been filling a shared position in the labour market, a position acknowledged by citizens, companies and job agencies.

Users:	42.152
Companies:	1.569
Recruiters:	101
Contact points/local kiosks:	Milan - Como – Brescia- Bergamo
Vacancies:	11.124
Visits:	110.000 per month
Origin :	30% outside Lombardy

Most users age 27 to 35 years, this means that young people are more keen to use ICTs than people aged 40 and above. The spread of the local kiosks and the development of the advertising campaign have modified this trend. There is no big difference in the gender of the users.

An analysis of all companies' profiles stored in the interactive databases shows that most of them are Small and Medium Enterprises and mostly belongs to the industrial sector.

Most of the job seekers who called the Call Centre are women (54%) and over 50 years old. 50% of the people calling is unemployed, this confirms that BLL has been considered as an important gateway to job opportunities.

5. Future Steps

In order to create and share a service model dedicated to the labour market BLL aims to involve as many players as possible, letting them be part of the interoperable network.

The future steps planned for Borsalavorolombardia affects the three different geographical and institutional levels: the national and European developments.

As for the national perspective, BLL thanks to the forthcoming interlink to other Regions, will pave the way to the implementation of the National Labour Exchange (Borsa Continua Nazionale del Lavoro). It will boast a wide range of information, but moreover the stored data

will increase, giving citizens and companies more and more chances to find a job or a proper candidate.

At regional level BLL will be empowered and enriched with other databases. Staff mobility lists will be added to the portal, together with a special list of high profiles such as managers who have lost their job. A special area will be devoted to all traineeship opportunities available in Lombardy. Finally, a precious list of non-EU citizens in search of a job in Lombardy will be created in order to open to cross-border users, but moreover to implement policy in an effective and timely manner (administrative burden and costs will decrease).

By Spring 2005 the implementation and complete activation of the provincial network will occur. This will make BLL interoperable with all the databases stored at local level.

Another goal of 2005 is to make BLL interoperable with another EU State or a candidate country. This can occur following two different paths: simply connecting BLL to a similar informative system working in the selected State or providing technical support for the development and implementation of technologies able to make the system's dialogue.

6. Conclusions

Borsa Lavoro Lombardia has been working to reach high-level policy objectives and making efforts to deliver efficient services to citizens and companies. These objectives can be realised by making use of opportunities provided by ICTs and this is the reason why BLL should be considered as an on-going project always looking for interesting inputs and hints.

A precious resource for the development of the portal is the share of best-practices coming from abroad and the exchange of know-how that could be tailored to the peculiar Italian background. Partner search is therefore not only a future goal, but a key element for the improvement of all services delivered by BLL and by the future Borsa Continua Nazionale del Lavoro.