SUPPORTING MUTUAL NEMESI EXCHANGE INNOVATION

Overcoming skill gaps in the ICT and Green Economy sectors

An eGuide for SMEs

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CHAPTER 0: INTRODUCTION

The challenge of managing skills in the ICT and Green Economy sectors seems to have stuck European enterprises – particularly SMEs – to an endpoint.

The competency framework in these two sectors appears fragmented and destructured, leaving enterprises the full responsibility of analysing skill needs and overcoming gaps.

Moreover, SMEs often do not have the dimension neither a deputed department in charge of managing skills and personnel – the so-called "HR departments". This is particularly true when referring to smaller enterprises.

This eGuide is conceived to provide SMEs a set of indications, in the shape of policy briefs, on how to manage skill gaps and perform an effective skills matching on the basis of good practices emerging from other experiences in Europe and beyond.

0.1 Project NeMESI

The NeMESI project is framed in the flagship initiative "An Agenda for New Skills and Jobs – Equipping people with the right skills for employment" and the Employment Package Communication "Towards a job-rich recovery", promoting mutual learning and transferability of the most effective policies, good practices and innovative approaches to manage skills in the low-carbon, resource-efficient economy ("green economy"), the digital economy (ICT sector) and the health and social care sector ("white jobs").

0.2 Aim of the eGuide

This guide aims at providing European SMEs with information, indications, policies, recommendations descending from a set of good practices developed worldwide – mainly in the European Union – in the field of managing skills and skill gaps in the ICT and Green Economy sector.

Specific objectives of this eGuide are:

- Presenting background information on the main issues related to the economic scenario in which European SMEs play;

- Provide information on the main challenges SMEs have to face in managing skills and skill gaps by mean of good practices and innovative solutions;
- Mark best experiences accompanying them by a number of practical examples, policies and recommendations.

0.3 Main expected benefits for SMEs of using this eGuide

It is expected that the use of this eGuide will help target SMEs, in the ICT and Green Economy sectors, exploit a wide range of information and recommendation to manage skill gaps, with particular concern to:

- Identification of skill gaps through effective collaboration and overcoming of organisational barriers and obstacles for partnership;
- Develop a forward-looking HR and skills development policy through cooperation;
- Succeed in facing structural challenges of competence development, such as the competition for qualified personnel.

CHAPTER 1: SMES IN EUROPE – THE ECONOMIC SCENARIO

Economic headlines are often and frequently dominated by news mostly referred to large or multinational enterprises; it is recurrent to hear about great takeovers as well as risks of mega bankruptcies.

This view actually hides the real core of the whole European business, which is made up by SMEs, that represent the 99% of business and employ two thirds of the private sector workforce, meaning SMEs contribute to more than half of the total value-added of business in the UE and constitute the real backbone of the European economy: SMEs are in fact largely responsible for R&D and innovation contributions to wealth and economic growth.

If we overlook the service sectors, considering ICT and Green Economy as a par of it, we find that its contribution to the value added produced in the EU-27 is the most part and SMEs contributed €2.1 trillion of the service sector total value added.

Still, the trade sector is the main contributor (almost €1.1 trillion), 68% of which is thanks to SMEs (€759 billion). Professional, technical and research services contribute €561 billion of value added in 2012, 77% of this is provided by SMEs.

The overall contribution of SMEs to total EU-27 value added in 2012 was more than 57%, about €3.4 trillion[(1)].

Though, SMEs are facing the global crisis in the same way large enterprises do, but with a smaller set of tools; this has conducted the European Commission to release the "Small Business Act for Europe", a set of recommendations for the EU countries to issue measures aimed at simplifying procedures, widening access to credit and other actions to help SMEs keep their market positions.

Beyond interventions on energy supplies or taxations, adopted by mostly every country in the UE, within the most important measures for SMEs issued the NeMESI project partners countries and featured in the SBA database, the ones mentioned in the following chapter (adopted and/or implemented during 2012 and the first trimester of 2013) may be considered as crucial.

[(1)] *Source: "A recovery on the horizon? Annual report on european smes 2012/2013" – European Commission, 2013 (http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm)*

1.1 Main institutional measures for SMEs development in Italy

- **Agreement for the credit to SMEs**: Signed by the Association of Italian Banks, Business Associations, Ministry of Economic Development, Ministry of Finance and Ministry of Infrastructure and Transport, the Agreement aims at ensuring the availability of adequate financial resources for SMEs which, in spite of being hit by the crisis, still have positive economic prospects.
- **Reinforcement and new provisions of the Central Guarantee Fund for SMEs**: The amount of the Guarantee Fund for SMEs is increased by 400,000,000 Euro per year in 2012, 2013 and 2014. In addition, the Decree Law of 6 November 2011 brings some changes to the eligibility conditions and the general provisions for the administration of the Guarantee Fund, e.g.: the maximum amount guaranteed by the Fund for each individual enterprise is raised to 2,500,000 €. Moreover, a part of the guarantee fund must be reserved for micro-credit and to support micro enterprises.
- **"Simplified" & "Reduced capital" Limited Liability companies (LTDs)**: Creation of simplified Ltd companies for entrepreneurs under 35 years old aimed at facilitating the access of young people into the labour market and at encouraging entrepreneurship by eliminating the bureaucratic barriers.
- **Start-up fund for internationalization**: Implemented by the Minstry of Economic Development, the new Fund will contribute to the share of capital of companies established ad hoc (NewCo) with a registered office in Italy (or in another EU country).The contribution of the Fund cannot exceed 49% of the social capital. Each contribution can reach a maximum of 200,000€. There is no bank guarantee foreseen and the contribution of the Fund to the NewCo has a duration between 2 and 4 years. Internationalization projects must be carried out in non-EU countries.
- **Reduction in the number of controls and acquisition of the single document of contribution regularity by the P.A.**: Facilities for people wishing to start a business, with the reduction in the number of controls and inspections, while those who are already running a business may obtain all relevant information by accessing the new databases available through the single points of contact of the municipal sites. Moreover, the acquisition of two important documents, namely the anti-mafia certification and the document that certifies the compliance with the tax payments to the social security system (Single Document of Contribution Regularity -DURC) will

be done directly by the government, without posing any further complication for businesses.

- **Network Contracts**: Network Contracts are designed to help entrepreneurs to cooperate on the basis of a common network program so as to exchange industrial, technical, and commercial information or services or to jointly implement one or more activities envisaged in their business scope. By extending the use of these contracts to universities, research centres and foreign companies and by envisaging a specific credit "rating", small enterprises may be able to grow, to operate on the international markets and to improve their credit rating.
- **Aid to economic growth**: This measure provides for the reduction of the tax on the return on equity reinvested. This applies for firms subject to the corporate income tax.
- **Certification of firms' credits towards PA**: In order to ensure more liquidity to enterprises, the measure has established the modalities through which credits for supplies, provisions or procurements provided to the PA, may be certified, even in telematic form. Furthermore, it defines simplified procedures to transfer or notify the certified credits.
- **Payment by installments of fiscal debts**: The measure foresees the possibility for companies, that are going through serious economic conditions, to make payments by installments for the reimbursement of fiscal debts towards the PA. Installments may be fixed or variable. Such provision is not foreseen for debts related to social security.
- **New regulation for Italian innovative start-ups**: The measure has specified the category of "innovative start-ups" and has foreseen benefits and incentives for the first 4 years to facilitate the company creation and its development and growth.
- **New incentives for young people employment in the green economy**: New incentives have been introduced in the form of support funding for companies developing new R&D/investment projects and employing young people in the green economy field.

1.2 Main institutional measures for SMEs development in the Slovak Republic

- **Young Innovative Entrepreneur 2012**: National competition for young entrepreneurs who apply innovative approaches in their companies.
- **Possibilities for financing measures to promote solutions to youth unemployment and intensifying support for SMEs within the operational programs of the National Strategic Reference Framework**: Key features of this measure are
    1) Increasing employment and support for young people up to 29 years
    2) Support for small and medium enterprises in order to promote economic growth.
- **Operational Programme Competitiveness and Economic Growth**: Key features of this measure are:
    1) The development and establishment of SMEs through access to investment finance
    2) The development of entrepreneurial skills of SMEs
    3) Improve the access of SMEs to the single EU internal market and use compliance certification products to the European standard
    4) Strengthening the technological capacity of SMEs.
- **Governmental draft act amending and supplementing Law no. 184/2009 Z of vocational education and training**: the act has been conceived to tailor education and training to labour market requirements.
- **Micro lending program**: This measuer concerns small business development, increasing the survival rate of small entrepreneurs and start-ups, creation of conditions for maintaining employment and creation of new jobs in the regions of Slovakia, through solving the problem of access to capital for small businesses.

1.3 Main institutional measures for SMEs development in Spain

- **Programme of quality and administrative simplification**: This programme aims at providing legal security and the reduction of the administrative procedures when dealing with the administration.
- **Programme of support to Centres of Entrepreneurship**: This programmes aims to increase the cooperation among the current business promotion centres.-This programme coves the support of initiatives proposed by three members from three different centres of promotion of entrepreneurship.-The initiatives that can be supported are those related to the analysis of the business plan, training, tutoring and advisory services of the business plans, information about public support programs, fiscal and legal matters related to projects. Overall budget 1.733.687,76 euros which have been awarded to 42 projects.
- **Support to Business Angel Network**: This measure aims at supporting the development of the network of business angels to facilitate the development of new SMEs.
- **Network of contact points for promoting Entrepreneurship**: this measure is compliant to the policy of continuing to work to reduce the time required to set up a business to less than one week, where this has not yet been achieved and to implement the recommendation set out in the SBA Action Plan to reduce the start-up time for new enterprises to 3 working day.
- **Emprendemos Juntos**: This progamme works as a platform to support innovation initiatives at regional and local level. It combines the efforts of universities, clusters and the network of centres of innovation.
- **Plan de Emprendedores**: This programme intends to create support the private initiative by creating the figure of the entrepreneurs with limited liability, supporting the second opportunity improving the procedures to set up a business, developing the educational contents to start an innovative and entrepreneurial activity, facilitate the working permits for self employed people of people with working permits or those residents already in training programmes.
- **ENISA Growth Lines**: It mainly provides a SME growth fund(Fondo Pyme de expansion) targeting SMEs with great growth potential. The measures also covers innovative and viable projects. It mostly covers the form capital loan formula. -This

programme covers the creation, growth and consolidation process. I it can also be complemented with risk capital and business angels options.

- **CERSA financing support**: The measure covers the risk of collateral credit schemes by SMEs in order to reach financing for innovative projects o new enterprises. It is under the CIP programme of the EU.The programme grants guarantees as collateral for the financial needs of SMEs.

1.4 Main institutional measures for SMEs development in Germany

- **Financial support for seminars relating to business successions in the framework of the support scheme "Promotion of Corporate Know-How by Seminars and Workshops"**: The Federal Ministry of Economics and Technology supports the accumulation of know-how in start-ups and small and medium-sized enterprises by seminars that focus on topics relating to business succession:
    - Organisers of such seminars can get up a funding of 50 € per participant
    - The maximum duration for one seminar is 24 hours, the minimum duration is three hours
    - The minimum number of participants is 7, the maximum number is 20
    - Organisers can apply online for funding (within one month after the seminar has ended). Funds are managed by the Federal Office of Economics and Export Control.
- **Start-up allowance (Gründungszuschuss)**: Start-up allowance aims at assuring means of subsistence and is paid to unemployed persons starting their own business. Within the first six months the allowance equals former unemployment benefit plus 300 € lump-sum covering social security. Another nine months of support may follow amounting 300 €.
- **Accommodation and Trade Statistics Modification Act**: The German Accommodation Statistics are modified to meet the requirements of the European Regulation on tourism statistics. At the same time, the threshold for reporting obligations is raised from nine to ten beds, so that more small enterprises will be completely freed from these obligations. In the set up of the Trade Statistics, data collection from companies is partly replaced by using information from

administrative bodies. Hence, companies have to report less information to the statistical offices.

- **Modification of the Foreign Trade Statistics Regulation**: The modification of the Foreign Trade Statistics Regulation reduces the reporting obligations of companies by raising the threshold for the obligation to report trade within in the European Union on a monthly basis from 400,000 to 500,000 €.
- **Financing for Social Enterprises**: The programme is aimed at supporting the growth of young social enterprises with an already proven/ viable business concept and the legal status of a corporation. The precondition for being supported is the existence of a side-investor. The KfW (German Development Bank) acquires a nominal share of up to 50 per cent of the supported enterprise. The size of possible investment ranges from a minimum of 50,000 € to a maximum of 200,000 € per company. Eligible enterprises can hand in applications at the KfW. Every application has to include the financing statement of a side-investor.
- **European Angels Fund (EAF) Germany**: EAF Germany was jointly launched by the German Ministry of Economics and Technology and the European Investment Fund in March 2012. EAF provides equity to Business Angels and other non-institutional investors for the financing of innovative companies in the form of co-investments.
- **Mezzanine Fund of Funds**: The Mezzanine Fund of funds is established as an answer to the wall of maturity in the German Mezzanine market. It invests in investment funds with the purpose to facilitate the access to mezzanine finance for viable SMEs, e.g. needing to refinance existing mezzanine loans. The main geographical focus is Germany.
- **Financial Support for seminars relating to the implementation of in-house safety systems against economic crimes in the framework of the support scheme "Promotion of Corporate Know-How by Seminars and Workshops":** The Federal Ministry of Economics and Technology supports the accumulation of know-how in start-ups and small and medium-sized enterprises by seminars that focus on the implementation of in-house safety systems against economic crimes:
    - Organisers of such seminars can get up a funding of 50 Euros per participant,
    - The maximum duration for one seminar is 24 hours, the minimum duration is three hours,
    - The minimum number of participants is seven, the maximum number is 20.

- Organisers can apply online for funding (within one month after the seminar has ended). Funds are managed by the Federal Office of Economics and Export Control.

- **Central Innovation Programme SME (Zentrales Innovationsprogramm Mittelstand - ZIM)**: In order to enhance the research and innovation efforts of SMEs, to strengthen the collaboration of SMEs and research organizations and to intensify the development of new products, processes and services ZIM provides funding for R&D projects of SMEs.
- **SME Initiative for the energy transition**: The initiative supports German SMEs in the implementation of the energy transition. It provides companies with information about financial support for energy saving measures. The programme offers help by providing information and qualifications and brings companies together with experts.
- **Financial support for investments in cross-sectional technology**: The programme consists of non-reimbursable allowances (of up to 30 % of the costs) for investments in cross sectional technologies (motors, pumps, air conditioning systems, compressed air devices, heat recovery and waste heat utilisation) that contribute to an increasement in energy efficiency within the company. The investment scheme is administered by the Federal Office of Economics and Export Control (BAFA).
- **SME Market Entry Initiative**: The SME Market Entry Programme aims at promoting the export activities of German companies (especially small and medium-enterprises) First steps to implement the programme have already been undertaken in 2011; a steering committee for the Initiative was put in a place. The Initiative supports German companies, and especially small and medium-sized enterprises, i.a. by the following measures:
  - Cost-free informative events on selected foreign markets (with experts from these markets and detailed information on conditions, regulations, and business opportunities; furthermore, the events can enable the exchange with potential customers and German companies already active in the market),
  - Trips to selected countries organised and accompanied by the respective German Foreign Chamber of Commerce (part of these trips are events with

local experts and organisations as well as opportunities to get into contact with potential customers),

- Trips of foreign buyers to German companies (intended to create relevant business contacts),
- Trips of foreign decision-makers to Germany (intended to transfer knowledge about German know-how and technologies).

- **Export Initiative for German Security Technologies and Services**: The Export Initiative "Security Technologies and Services" aims at promoting the export activities of German companies in this sector and is part of the new overall programme "SME Market Entry Initiative". First steps to implement the Export Initiative "Security Technologies and Services" have already been undertaken in 2010. The Initiative supports especially small and medium-sized enterprises, amongst others by the following measures:
  - Information events on selected foreign markets in Germany
  - Trips of German delegations (including companies and high-ranking political representatives) to selected countries
  - Trips of foreign decision-makers to Germany.

1.5 Skill gaps management in SMEs

Employing the widest amount of people among enterprises naturally brings the issue of identifying, hiring and training the right skills for the right jobs.

It is also a challenging topic to define a clear, exhaustive and shared competence framework for the ICT and Green Economy sectors, mainly due to the fast and wide proliferation of new professions, strictrly chained to the innovative features of the two sectors.

Also, information about professions and competences for the two sectors are often hidden or split within other macro-sectors. For instance, using the Eurostat classification, ICT services are often referred to as "Scientific and technical activities", while Green Economy services can be puzzled in the waste management or environmental protecion" sectors but also in the energy supply business as well as in the "Scientific and technical activities" group.

A study performed in 2013 in the UK[2] has revealed that skills gap are hindering SME growth in Great Britain; with the provided view of the economic scenario, it is likely that a similar situation can be found in the other EU countries.

Though, in the latest years – since the SBA Act has been issued – most of EU countries (both EU members and non-EU members) achieved noteworthy progresses in implementing SBA policy measures related to Skills and Innovation.

Nevertheless, implementations of the 8th principle of the SBA Act still cannot be found in deep interventions in local competency management systems; as a consequence, national frameworks for Green Economy – not significantly more than ICT – are still at an early stage.

This is made more visible by the latest EU Commission Communication "Green Employment Initiative: Tapping into the job creation potential of the green economy", in which[3] it is still stated that, "*while a green economy will create new jobs and open new markets, Europe's competitiveness innovative capacity and productivity will strongly depend on the availability of skilled workers. […] While Member States are developing "green" skills classifications, it is now established that the transition to a greener economy will have a significant impact on the skills needs, with increased demand for skilled workforce in growing eco-industries, up-skilling of workers across all sectors, and re-skilling of workers in sectors vulnerable to restructuring.*"

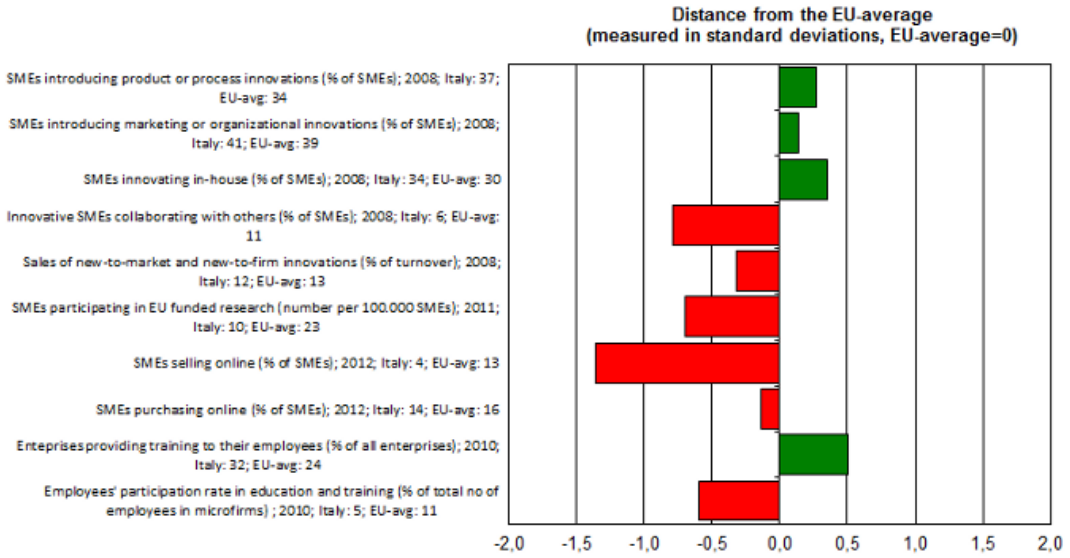
Following the reading, it is clear how, still, the implementation of the 8th principle of the SBA Act is at a "recommendation" level: Member States are required to foster skills development, better forecast skills needs and anticipate change, in order to foresee and overcome skills gap prior to market change.

The SBA Fact Sheets database (realized to evaluate the SME performance review) shows that, according to the 8th principle of the SBA Act, the overall evaluation of the EU countries behaviour, each compared to the average of the other EU countries, is significantly different.

The following pictures show the performances of the NeMESI project partners countries.

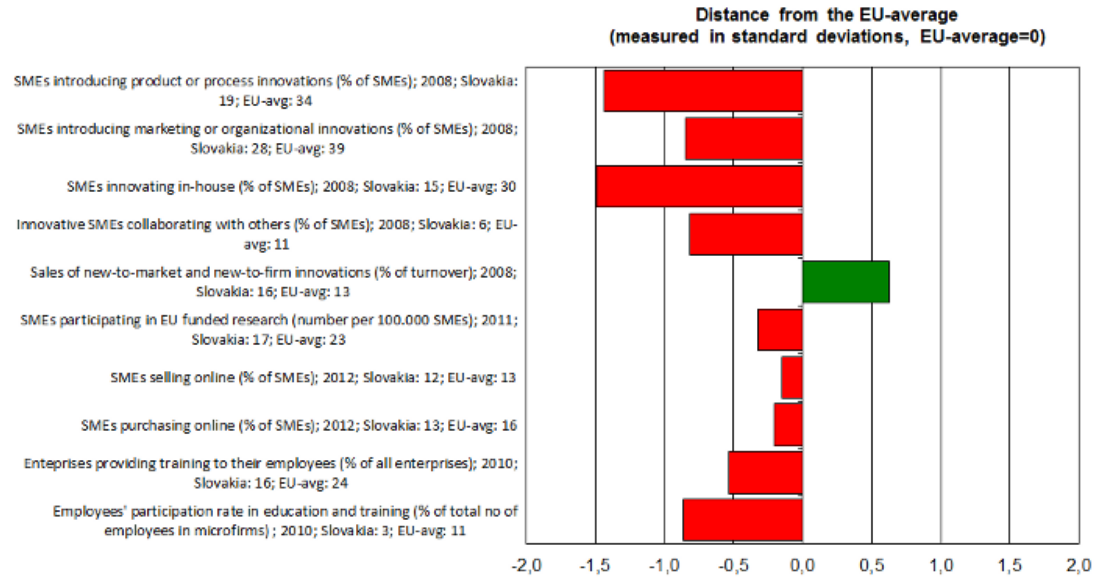
[2] *"Albion Ventures Growth Report 2013" – Albion Ventures LLP, London, 2013*
[3] *"Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Green Employment Initiative: Tapping into the job creation potential of the green economy" – European Commission – Brussels, 02.07.2014*

1.5.1 SBA performance in Italy



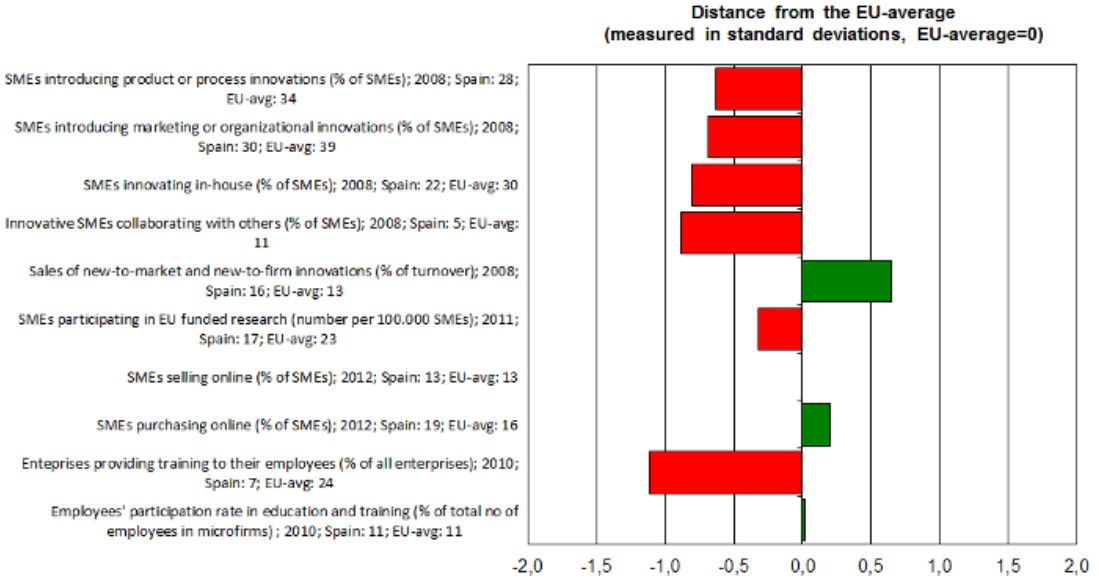
Note: Data bars pointing right show stronger than EU-average performance and data bars pointing left show weaker performance.

1.5.2 SBA performance in the Slovak Republic



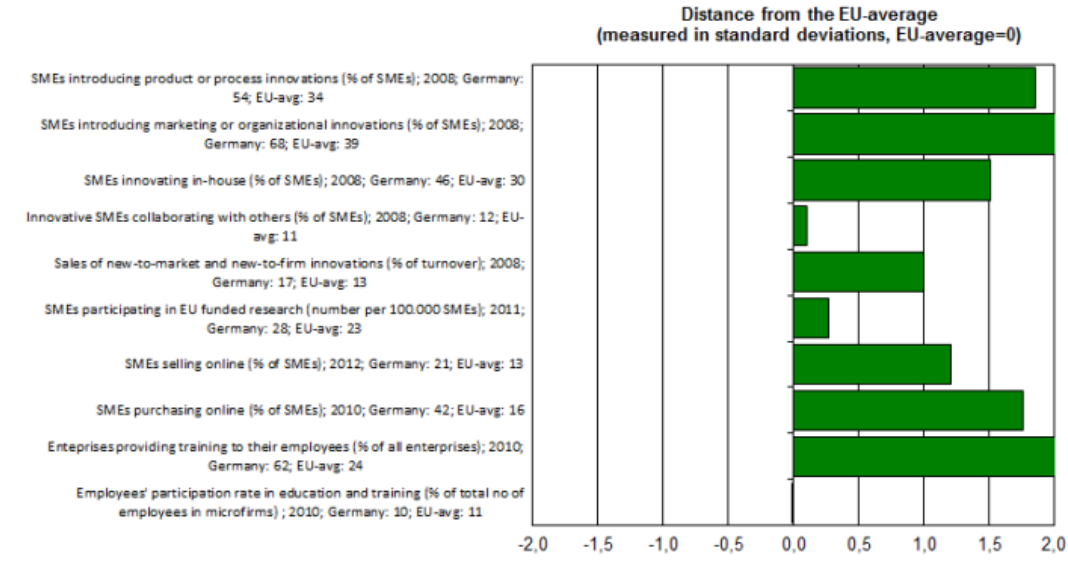
Note: Data bars pointing right show stronger than EU-average performance and data bars pointing left show weaker performance.

1.5.3 SBA performance in Spain



Note: Data bars pointing right show stronger than EU-average performance and data bars pointing left show weaker performance.

1.5.4 SBA performance in Germany



Note: Data bars pointing right show stronger than EU-average performance and data bars pointing left show weaker performance.

1.6 Focus on the ICT sector

According to Eurostat[4], more than 500 thousand ICT jobs will be vacant in Europe by 2015 and this is due to a skill gap in highly-skilled jobs, such as Management, Architecture and Analysis positions, where e-Leadership skills are required as well.

Results of the "European e-Skills 2013 Conference" organized by the European Commission on 10 December 2013 in Brussels show that "Governments are significantly increasing their efforts to address the skill shortage through dedicated policies, initiatives and partnerships".za.z Particularly, in the NeMESI project partners' countries, data show that the Level of policy and stakeholder activity on e-skills in Europe in 2009 and 2013, based on the e-Skills Activity Index[5], has changed as shown:

- Italy: from 1.5 to 2.5 (+1.0)
- Slovak Republik: from 2.0 to 1.5 (-0.5)
- Spain: from 1.0 to 2.0 (+1.0)
- Germany: from 3.5 to 4.0 (+0.5)

[4] *Eurostat LFS, IDC Europe. empirica calculations and forecasts – e-Skills: Monitoring and Benchmarking Policies and Partnerships in Europe (Final Report for the European Commission, December 2013)*

[5] *The "e-Skills Activity Index" is a benchmark indicator to evaluate e-Skills Policies in EU Member States to develop initiatives in the Educational, Training and VET systems aiming at enhancing the level of skills in the ICT sector. The index rating is on a range from 1 to 5, where ratings have the following meanings:*

Rating 1:
- *No relevant policy or stakeholder activities of significant scope*
- *Policy debate is non-existent or sketchy*

Rating 2:
- *Some relevant policy or stakeholder activities*
- *... but limited in size and scope and poorly integrated*
- *Weak links with mainstream policy-making, no proper evaluation*

Rating 3:
- *A larger variety of policy and stakeholder activities*
- *... but limited coordination/integration and sustainability*
- *Policy debate well developed but not yet involving all target groups*

Rating 4:
- *Has master strategy on e-skills/ ICT practitioners ...*
- *... or no master strategy but policies and stakeholder activities are comprehensive and well embedded in the national e-skills landscape*
- *Policy debate well developed and involving all key target groups*
- *Some shortcomings remain (e.g. sustainability, evaluation, coverage)*

Rating 5:
- *Has master strategy on e-skills/ ICT practitioners , strong policy leadership*
- *Many relevant policies and initiatives involving all main stakeholders*
- *Policy action also strong at sectoral and regional level*
- *Policies take a medium to long-term view perspective, proper evaluation*

1.7 Focus on the Green Economy sector

In the "Skills needs in greening economies" report[(6)], more than referring only to skills for the Green Economy sector, the concern is about developing skills for "green jobs" that will help the overall "greening" of the economy, in the most sustainable view of the future.

If this on one side helps defining "green jobs" and related competencies and skills, on the other side does not precisely address jobs "for SMEs operating in the Green Economy".

Nevertheless, the report shows how several assets – many of which als addressed in the NeMESI project – are indispensable to establish a framework within which qualifications can be designed. One of these assets is cooperation by social partners, considered essential at any level, as the following:

- "Central level, where they are consulted and/or share responsibilities with the authorities in accordance with national practices;
- Industry level, where they can have a key role in forecasting skills needs and designing adequate sectoral training initiatives;
- Enterprise level, where they can contribute to greening workplaces, while enhancing competitiveness and productivity of enterprises;
- Individual companies and their union representatives where they exist, regardless of company size, can make a difference as well [(7)]."

[(6)] *Skills needs in greening economies – ETUC, BUSINESSEUROPE, CEEP, UEAPME – Final Report, 31.01.2014, Brussels*
[(7)] *Ibid.*

CHAPTER 2: HOW TO IDENTIFY SKILL GAPS IN SMES

This chapter covers the issue of identifying skill gaps in SMEs through effective collaboration between sectors in the ICT and the green economy.

The chapter also aims at identifying and overcoming organisational barriers and obstacles for partnerships between sectors.

2.1 Overview

The skills gaps affects all actors of the labour, training and education market. While employers have difficulties to find workers with the right skills for their companies, workers and job seekers also find frustrating that their education and training does not easily open the door to work.

Besides, the demanding and changing market forces companies, and specially small and medium enterprises (SMEs), to adapt to the continuing changes to remain competitive. This requires an effective dialogue and collaboration between all the sectors involved in the labour market. Nevertheless, many times all these actors face obstacles to reach to this collaboration, or simply, they do not know how to build a partnership. It also may happen that these actors ignore the profits of building a partnership to join efforts and find common solutions. So, they simply do not participate in existing partnerships.

This usually happens in SMEs, because due to their size or structure, they do not have the tools to launch partnerships or to participate in them.

Finally, it must be clear that skills gap is not only a matter of companies. This matter affects to multiple actors; from public bodies, to training centers, higher education institutions, workers, or jobseekers, for example. An effective collaboration between them will help to reduce the skills gap and to reinforce the labour market.

2.2 Identifying skill gaps: main challenges

Many employers agree on the difficulty to train employees according new market trends and demands to adapt them to these new market challenges. The gap between the supply and demand for skills is other challenge employers face. Skills development is an important

driver of change; it helps to improve the employability of workers, the productivity of enterprises and the inclusiveness of economic growth.

The involvement and collaboration of all stakeholders in the labour and training market is the key to face any barrier on the skills identification, especially in the shifting landscape of ICT and green economy sectors.

A summary of main challenges in the identification of skills gap is outlined below:

- The current economic situation is hampering the growth of many business sectors around Europe. Before the economic crisis, ICT and green economy sectors were powerful and promising sectors, with high levels of turnover generation, job creation and growth rate. These facts have helped them to deal the crisis better than other sectors.

  Nowadays, these two sectors are moving so fast that companies need a continuous update of the knowledge and skills. The lack of these skills makes difficult for companies to adapt to changing and newly emerging occupations, and therefore they are missing opportunities.

  Skill shortages hamper the transition to a more competitive economy.

- Skills and market policies are not coordinated.

  The coordination between sectors will provide stable employment for workers, avoid periods of skill shortages, and make future demand for skills more predictable.

  For that reason, it is necessary to promote a fluent communication among stakeholders that builds a sound and permanent discussion platform.

- Changes in certain sectors.

  We are facing different challenges. New market niches have emerged in traditional business sectors, like agriculture, and this is translated into new skills. Besides, sectors in decline (e.g. building) have experienced restructuring that requires significant skills upgrading. And those workers moving out of declining sectors into growing ones require retraining.

  With this situation, the role of employment services in matching skills and jobs and in retraining workers and jobseekers is really important.

- Occupations change at different rates and in different ways as economies change

There will be far more established occupations requiring skill upgrades than brand new occupations in order to adapt them to new market situations and demands. Over the next decade, labour needs will be concentrated in specific occupations, requiring either intermediate or high-level skills. New policies must be adopted to help meet future demands and to avoid uncertainty among companies, which may not be ready to adapt themselves to all these changes.

Besides, there is a fierce competition not only at European level (e.g. Eastern countries), but also at international level (e.g. India), that makes difficult to companies, especially to SMEs, to adapt themselves quickly to the new skills, and to face the external competition.

- Improving training systems, including lifelong learning.

  Training systems need to respond quickly, as demand changes fast. Unfortunately, training offer is not always able to follow market trends due to the continuous changes of the sectors, together with the weak or lack of communication with business sector.

  Thus, training programmes are valuable assets, especially those that include information from industries, as they offer training more adapted to companies demands.

- Collaboration between sectors

  It is necessary to break the inertia to collaborate between different sectors. Enterprises in most countries and public employment services in a few, and training institutions have proved to be efficient channels for upgrading skills.

  This is the conclusion that the report Measuring the impact of University-business cooperation , that has recognized that both the business sector and higher education institutions make an important contribution to sustainable economic growth, employment and prosperity in the EU. Indeed, European institutions have been advising about the benefits of such collaboration, especially between education sector and business sector in the last few years.

  One of the Flagship Initiatives of the Europe 2020, the European Union's ten-year growth strategy, is the "Agenda for new skills and jobs". It was launched in 2010 and presents a set of actions to help to equip people with the right skills for the jobs of today and tomorrow.

More recently, the cooperation for innovation and the exchange of good practices stated in Union Programme for Education, Training, Youth and Sport Erasmus+)[8] points out that there should be *partnerships between the world of work and education and training institutions in the form of sector skills alliances between education and training providers and the world of work aimed at promoting employability, contributing to the creation of new sector-specific or cross-sectoral curricula, developing innovative methods of vocational teaching and training and putting the Union transparency and recognition tools into practice.*

Working together to find synergies will help stakeholders to identify skills gap, get information about the real situation of all sectors and achieve results to match skills and jobs in an efficient way.

2.3 Experiences and best practices in overcoming barriers among sectors

NeMESI project has compiled different experiences from project partners´ countries with the objective of inspiring similar actions in other regions or sectors. Most of these practices have been designed and performed by the business sector and by education and training institutions, but involve different sectors to ensure their success.

The practices designed and launched by the business sector are aimed at identifying workers and jobseekers training needs, mainly (but not only) in the ICT and green economy sector. These practices are House of IT, FutureRegion West Palatinate and Juwi AG of Germany, Key Informant Network on Training for Employment of Spain, NewAnglia Skills Manifesto – Skills for Energy case study of United Kingdom.

In most of the practices, once the information obtained is analyzed, business sector offers the workforce the specific training that better adapts to companies needs. This kind of initiatives usually requires the collaboration of training centers, and in some cases, they receive public investment, so the collaboration between sectors is being effective.

No matter the country of origin of the practice, but all of them make the region where they are launched more visible and help to attract companies to bring further investment to the

[8] Regulation (EU) No 1288/2013 of the European Parliament and of the Council of 11 December 2013 establishing 'Erasmus+': the Union programme for education, training, youth and sport and repealing Decisions No 1719/2006/EC, No 1720/2006/EC and No 1298/2008/EC Text with EEA relevance (DO L 347 de 20.12.2013, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.347.01.0050.01.ENG)

local area, as in the case of House of IT. They also avoid brain drain, as NewAnglia Skills Manifesto – Skills for Energy case study.

There is another practice from the business sector based on the collaboration of companies and business associations from different sectors that differs from the rest of good practices compiled. At Key Informant Network on Training for Employment, a business association prospect and analyses labour market trends through surveys to companies and other professional associations, round-tables with strategic sectors and personal interviews with HR managers. The main information it gets is the skills demanded by companies and the training the workforce needs to meet the companies' demands. After an analysis of that information, the results are transferred to the regional government to design the vocational training for employment of the region. In that way, the regional government has real data to design training form workers and jobseekers.

Within the practices launched by the training and education sector, they mainly consist of adapting the VET systems and higher education curricula to new technologies and the green sector. This is the case of the practices Centers of Vocational Education and Development of Slovakia, Training future eco-professionals of Spain and the Green jobs training policies (within the "Green Jobs Country Report") of Romania.

Through the creation of new curricula in collaboration of chambers of commerce, business associations, etc., these practices get real information to build sound and effective training programmes that will meet the requirements of the labour market and also the workforce. It is a slow path, but the results help future workers to get a suitable training that will improve their employability, in one hand; and in other hand, it also helps companies to find skilled workers to remain competitive, reducing, therefore, the skills mismatch.

Another practice from the Company Placements Service of Zaragoza University consists on the inclusion of young graduate students in the workplace through training courses adapted to companies´ needs and through traineeships. This is organized by a company placement service of a public university that acts as a link between the education and professional world.

Practices promoted by public bodies are national projects aimed at correcting the mismatch between the education system and the labour market. In one of them, the National Framework of Occupations in Slovakia, the result is an extensive database of occupations with descriptions of requirements for individual occupations, used as a bridge between education providers and employers, and that enables effective forecasting of the future labour needs.

Another practice (ISTP – Labour Market Integrated System), also coming from Slovakia, is a database with counseling tools to find a job that includes information about job characteristics, education needed, required skills, job vacancies, etc. This information could be used either by employees, jobseekers or employers.

This kind of practices require the active collaboration of other sectors, from business associations, trade unions, chambers of commerce, to education and training institutions, etc., to collect the market information.

Finally, among NeMESI practices there is also a European project from the Lifelong Learning Programme that identified new role profiles for sustainable ICT functions at European level and developed training guidelines to support VET institutions in developing training courses that are in accordance with these. The aim of the European project Green IT Node is to foster employability and prevent skilled staff shortages in the field of Sustainable ICT.

Although the project is already finished, its results are available at its project website: http://groupspaces.com/grin-ch/.

2.4 Lesson learned: recommendations for SMEs

This section is divided into two kinds of recommendations, as it has said before, skills gap is not only a matter of companies, but also of more stakeholders.

2.4.1 Recommendations to SMEs

- Self-diagnosis. Companies should make a regular evaluation of their human resources, in terms of skills and training needs, in order to get a overall picture of their weakness and their strengths.
- Developing forecasting tools to identify skills that companies will need in the short, medium and long term, in one hand, and also to get information about markets evolution, in other hand. This will allow them to be ready to adapt themselves to any market trend or change.
- Improving lifelong learning within the company. Adapting the training offer to the skills demanded by workers and to those that are necessary for the company. Adaptation includes flexibility. Lifelong learning is also a motivation tool that helps companies to retain talent and to be more competitive and efficient in a demanding market.

- Adapting job offers to real company needs to avoid overqualification.
- Discovering the external supports, private and public, each company has to establish for future partnership to reduce skills gap. Analysing public bodies, institutions, training centers, other companies, etc. to build sinergies.
- Participating in the detection of training needs for employment. This will help training institutions to adapt their curricula to the company needs, so that students acquire relevant skills that enhance their employability.

2.4.2 Recommendations for other stakeholders

- Improving public guidance services. The role of employment services in matching skills and jobs and in retraining workers and jobseekers is essential.
- Fostering intra-EU labour mobility through a policy action to remove obstacles. Transferring labour and skills from countries where they are less in demand to those where they are needed, intra-EU mobility makes a more efficient use of human resources.
- Definition of skills for each sector or area of expertise. ICT and green economy sectors are extremely wide as they comprise multiple subsectors. Besides, their markets change very fast, so new skills are arising. A clear and a common definition of skills will help to get a clear map of what is needed and consequently to reduce skills gap.
- Improving raise awareness and dissemination among companies, specially SMEs, about all mechanisms available to identify skills.
- Reaching a better communication between teaching staff, students, graduates and labour market actors. A partnership cooperation encourages the transfer and sharing of knowledge and drives innovation. This kind of cooperation helps universities develop curricula that are relevant, equipping graduates with the right skills for the labour market.
- Fostering a stable regulatory framework that gives companies a security in their investments and actions. It will help companies to grow and to increase their human resources.
- Promoting public-private alliances to increase employment and the improvement of some markets.

- Facilitating the information of the training offer of public and private training programmes to both, employers and employees.

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CHAPTER 3: ROLES OF SECTORS IN IDENTIFYNG SKILLS NEEDS AND SKILLS MATCHING

This chapter focuses on defining the role of different sectors and organisations in identification of skills needs and skill matching.

Also, the chapter aims at developing a forward-looking HR and skills development policy through cooperation.

3.1 Overview

One of the main challenges of public policy is to foster institutional arrangements through which government departments, employers, workers and training institutions can respond effectively to changing skill and training needs, and indeed play a strategic and forward-looking role in anticipating future needs.

Countries use a variety of coordination mechanisms: national inter-ministerial bodies; sector-based bodies bringing together training institutions and providers with employers' and workers' representatives; and decentralized local bodies. These mechanisms involve substantial investments of time and money, and they work when, and only when, all stakeholders can see their own objectives supported by others.

The effective utilization of skills in the workplace both depends on and contributes to conditions conducive to innovation and enterprise development; effective labour market orientation and mediation services; and well-informed decisions about education and training policies.

3.2 Skill needs analysis and skills matching: main challenges

Labour market information systems generate, update and disseminate information on current and future skill needs. This supply of critical information on an ongoing and timely basis is half the story. The other half is the transmission mechanisms that make this continuous flow of timely information available to education and training institutions, private market trainers, employers, trade unions, young people and their families, and displaced workers.

Public employment services have a critical role to play in making information available in the form of career guidance, vocational counselling, and material on access to training and job-matching services.

Public employment services help workers and employers make transitions in the labour market through job-matching services, information and access to labour market programmes (on, for example, skills training or retraining, self-employment and starting a business); and they help jobseekers choose the best options to improve their individual employability, through dissemination of reliable labour market information, career guidance and counselling, and a spectrum of tools and techniques to assist in searching for jobs.

Many public employment services also administer unemployment insurance programmes as a means of providing temporary financial support to workers.

3.3 Experiences and best practices in identifying skills needs and skills matching

3.3.1 Italy

Skills matching in green economy still suffer the challenge of referring to a fairly new competencies system, related to fragmented training systems. Moreover, training activities in the green sectors are often carried out autonomously by the organizations who need to ensure qualification of workers. This is especially true for the construction sector, which is now facing the challenge of realizing "nearly zero emissions buildings".

"Build Up skills Italy", also known as "WISE Roadmap" was a project financed within the Intelligent Energy Europe Programme as part of the "BUILD UP Skills" initiative promoted in the UE 27 countries by the European Agency for Competitiveness & Innovation of the European Commission.

The WISE Roadmap aimed at identifying a national system of qualified training to improve competencies of workers in the construction sector to reach the objective of constructing "nearly zero emission buildings". The project focused on continuous training of construction workers as well as on developing new VET training programmes in line with the European Qualification Framework (EQF) and with the ECVET credit system.

The WISE roadmap, within the "Build Up skills" framework, is a crucial example of how public and private stakeholders can cooperate to reach the common goal of creating a

framework whose benefits favorably affect the whole system. The transnational dimension and feedbacks of the project represent a significant example of how a common, widespread objective ("nearly zero emissions" buildings in the Europe 2020 vision) can be translated in a policy for the creation of a common framework for qualifications of workers whose competencies could be the same all across Europe.

3.3.2 Spain

Regional Employment Service of Aragon designed a programme called “Plan Detecta” that consists of performing a real diagnosis of the training and skills needs in the labour market in the region. The results will help to plan and develop the Vocational Training for Employment in Aragon training for employees and job seekers.

The programme has annual objectives and activities to compile that information, and is carried out with the assistance of different stakeholders: social agents, companies, training centres, HR companies, experts in the labour market, etc.

The target groups involve employees and job seekers that will improve their training and skills through a more real training adapted to companies needs, companies, specially, SMEs, that will benefit from a better Vocational Training for Employment (more skilled workers, new trends in the market, etc.) and training centres and universities that will have a road map to adapt their curricula.

The expected outcomes are as follows: identifying training needs in the labour market, identifying skill needs in the labour market, adapting Vocational Training for Employment offer in Aragon according to the diagnosis of the training and the skills needs made.

3.3.3 Germany

In relation tot he demographic change and ageing of the population, increasing energy consumption and rise of the energy prices, and with the aim to ensure cross-border climate protection, promotion of renewable energies and increase in energy efficiency, as well as to support the value creation in the German-French cross-border region in the sense of the development of future-compliant energy supply, three regions (Département Moselle, the Saarland and Western Palatinate) represented by three organisations (Conseil Général de la Moselle, Rheinland-pfälzische Energieagentur EOR (Energy agency of Rhineland-Palatinate) and ARGE SOLAR have prepared a project titled „Cross-border Network for Energy Efficiency/Renewable energies”.

The main topics cover the areas of innovative techniques, social housing, energy efficiency and renewable energies of public buildings. The objectives of the cross-border network are anchored in linking the specialists in the field of Green Economy/Sustainability, mutual exchange concerning topics like energy efficiency and renewable energies, creating further education programmes and qualification measures and building up corporations between institutions and companies.

The project activities consisting of research, creating and developing innovative techniques (photovoltaic, biomass, wind power, natural heat of the earth), German-French experience exchange (due to continuous workshops) and further education and training are resulting in the form of workshops (exchange of innovative technologies), a database matching companies and employees, a database informing about best practices (ECO_Map) and a bilingual online platform.

3.3.4 Slovakia

In 2005, the Slovak University of Technology in Bratislava established a University Technology Incubator- an interface between a university research and a business world. The Incubator is targeted at University students and graduates, post-graduate and post-doctoral students, University teachers, young scientists, scientists and researchers with innovative business ideas.

The Incubator offers favourable environment to starting business activities convenient infrastructure and wide support necessary in the first years of entrepreneurship to people with original ideas.

Up to present, the incubator has provided support to 42 companies, created more than 130 new job positions within the incubated companies and implemented 5 key European projects- Effective Transfer (consulting services), International Conference – Technology Incubator, support in Establishing of Innovative Companies in the University Technology Incubator (workshops, trainings), tools for Transnational Innovation Support in Centrope – centrope_tt, Science City – University Incubator of SC.

The key activities are focusing on the Program InQb providing support for young enterpreneurs for 3 years (bio- and nanotechnology for 5 years) and the Start-up Office offered to individuals who just planning to start a company, where the clients get free complete set of consultancies and can stay there for 3 months.

3.4 Lesson learned: recommendations for SMEs

Existing training infrastructure needs constant innovation to keep up with new technologies and learning methods. Flexibility and agility are vital to ensure that institutions remain able to respond to the evolving challenges posed by dynamic labour markets. Training institutions must have the capacity to periodically adapt curricula and update teachers' and trainers' skills to the changing needs of the world of work. Good-quality training outcomes further depend on maintaining a high quality of training contents, methods, facilities and materials. Apprenticeships, and more generally

the combination of classroom-based and work-based training, produce the best results. Skills standards should be set and tested by involving stakeholders in the process. Lifelong learning critically depends on a strong integration between education, training and work. A skills-based qualification system can accommodate multiple pathways through education, and between education and work.

People working in small enterprises and in self-employment, including those in rural areas and in the informal economy, as well as people in irregular work and precarious employment, should also have access to skills development and lifelong learning programmes. "Second chance" programmes, as well as drop-out prevention at an earlier stage, contribute to social inclusion. Vocational guidance and employment services can often be improved to match people with training opportunities and to get trained people into jobs. Specific and targeted policies are required to assist small enterprises in investing in the skills required.

The building blocks of any skills strategy must be solid foundation skills and stronger links between the worlds of education and work. This in turn requires good-quality education in childhood; good information on changes in demand for skills; education and training systems that are responsive to structural changes in economy and society; and recognition of skills and competencies, and their greater utilization in the workplace. To be effective, policy initiatives in these areas will also need to be closely linked with economic and social policy agendas.

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CHAPTER 4: STRUCTURAL CHALLENGES IN DEVELOPING COMPETENCIES

This chapter focuses on defining the role of different sectors and organisations in identification of skills needs and skill matching.

4.1 Overview

On the basis of demographic development, many businesses in Europe are faced with the challenge of recruiting and retaining suitable professionals. The European Union expects for the year 2015 a demand for professionals in information and communication technology (IKT) and in the digital field of around 700 000 people.

At the same time, unemployment in Europe will reach historic highs. In particular small and medium-sized businesses (SMEs), which are crucial in these branches and the guarantee for the economic stability of Europe will be affected by a shortage of professionals. The situation is similar in the Green Economy, according to the Euro barometer there are approximately 6.6 million people employed in SMEs. Especially due to the lack of Human Resource (HR) departments, the search for appropriate professionals has become very difficult. However the demand for professionals in the Green Economy in Germany is much lower than in other European countries.

Expert interviews in which the participants from the Information and Communication Technology and the Green Economy were asked about their experiences in attracting specialists, revealed that SMEs in the Green Economy face different challenges and difficulties to SMEs in the ICT sector.

The specialist debate has very low priority in this branch of the industry. These and other challenges of SMEs will be discussed in more detail in the next chapters.

4.2 Skill needs analysis and skills matching: main challenges

European companies are facing an increasing challenge when looking for the right skills. Businesses agree that it will become even more challenging in the coming years, as pointed out in different surveys. Globally, competence development is rated top priority for

businesses but smes, especially smaller ones, don`t have HR departments or the experience and expertise to manage the process of recruiting and competence development.

In addition to these already large challenges, there are even more factors which make the recruitment of professionals difficult:

- In some countries the vocational education is not oriented for the professional practice while in parallel a further differentiation of the occupational profiles took place,
- The shortage of skilled workers leads to increasing personnel costs due to high demand and small offer. Thus in both sectors the competition for qualified personnel or competition for talents has started,
- The segregation of the economical branches, which is not corresponding with the school education has also led to challenges for the matching process between employers and employees. For instance there are more than 700 official occupational profiles. At the same time, this segregation causes deficits of competences. The specialization does not allow to switch the different sectors because the required competences are missing,
- Those specific competences require special further training and skill enhancement. Both branches have a high demand for further education which currently is not satisfied
- These challenges concern SMEs to a higher degree, especially in rural areas. While “Global Players” and bigger SMEs can rely on well working HR-Departments, these are missing for small SMEs.

In the expert interviews and during research (desk research) it showed that in both branches in Germany additional specific factors play a large role in the search for professionals:

- A shortage of profesionals in ICT means that companies should change to the candidates of second choice. Also, the strong academisation contributes to an increased shortage of apprentices in skilled trades. However in addition to the need for professionals, their loyalty to the company is becoming increasingly more important.
- Larger SMEs have to constantly modernise their IT infrastructure to secure their competitiveness, therefore there is a permanent need for investment. As a result, the importance of continuous training and development of staff increases. However, at

the moment there is no need for specific training in the Green Economy. Due to the renegotiation of the "Renewable Energy Legistlation" (EEG) the SMEs are experiencing a drastic decline in their contracts and for reasons of cost cannot offer their employees further training.

- This neglect of further education in turn prevents long-term strategic planning of personnel and endangers the securing of future professionals. For a long-term plan, clear political signals with regard to the EEG are necessary. At the same time the present crisis demands restructuring and 'reinvention' of business segments.
- Competition from the far east increaseses the pressure on German SMEs in Green Economy. This results in strong price wars, which makes it more difficult for SMEs to hire new staff or further educate existing staff.
- The location plays a decisive role in the finding and retaining of professionals: Metropolitan areas have a clear location advantage compared to rural areas in the recruitment of professionals (cultural activities, outdoor activities). A challenge which is not only faced by the company, but the whole region.
- The businesses have to therefore distinguish themselves even more, so that self-promotion for the company takes on a new dimension. However the creation of its own branding is not yet recognised by many.

The results showed that solution approaches to meet the demand for professionals requires a holistic approach. Not only businesses, but also political decisionmakers on a national and local level are required to create a good environment for the recruitment and retention of professionals.

4.3 Experiences and best practices in identifying skills needs and skills matching

In this view many activities have been carried out worldwide on the matter of „people retention", as well as number of significant connections between enterprises and the educational and VET systems have been created.

4.3.1 Germany

Juwi AG works in the Green Economy, has undertaken many activites to even out their (rural) locational disadvantage. In this way it has been possible to create a successful

branding. Among the activities are: (i) an "attractive" wage/salary, (ii) a convenient location (in this case, near to a train station), (iii) various leisure and training activities, in addition to technical skills, also soft skills, (iv) the compatibility of family and job and the aquisition of female experts (including an in-house kindergarten), (v) an operational health management system (including a fitness studio) and (vi) the development of the company's own image (Corporate Social Responsibility (CSR)).

A further example of Best Practice in the aquisition of professionals is the German TENAG GmbH. TENAG stands for "Total Energy Efficiency Network Agency". TENAG GmbH today combines a team of specialist from differing disciplines for energy management services and energy management software: Engineers for the topics relating to the energy management system, the energy efficiency system, the energy efficiency analysis, IT specialists for energy data collection and monitoring applications. TENAG GmbH, through an intensive exchange, recorded the needs of SMEs regarding professionals and out of that developed the degree programme „Renewable Energy", which will be offered at the University of Applied Sciences in Bingen and will meet the needs of SMEs in developing skills of professionals.

However politics is already going new ways. The Federal Ministry of Economics supports various projects in the Green Economy to strengthen the readiness to start-up and to secure the stock of Start-ups. For example, the "Energy-Start-up" project which is carried out by the RKW centre of excellence, will be funded. This project offers first-time entrepreneurs an online platform on which to present themselves and their company. Which on the one hand should stengthen the reputation of the company, trigger a network among eachother and where potential further and continuing training courses are recognised.

4.3.2 Slovakia

An example of Best Practice of overcoming structural challenges which stand in the way of obtaining professionals, is Košice IT valley in Slovakia. The Košice region, situated in the west of the country near the Ukranian border is the second largest region in Slovakia and consists of 11 districts and 440 municipalities, of which 17 have city status. A third of the region lives in the town Kosice, which also is the cultural and economical centre of the region. The main industries are: Metallurgy, chemical and electrical industries, technical and engineering sciences, the food industry, trade and services. The Kosice IT vally was among other things from the following institutions and companies co-founded: Technical University of Košiciach, the Slovakian Telecom, Cico, Siemens, Ness and Microsoft. The Kosice IT Valley tries to awaken the interest for technical disciplines of new students. In

Slovakia there is a high demand for soft skills and new students often decide for social and cultural sciences.

Among the numerous activities that the IT Valley initiated, include:

- Support and development of initiatives resulting in the active region for the workforce in the ICT sector, for students and ICT industry
- Improve the quality of ICT training programs offered by universities, high schools and ICT companies
- Motivation children and youth to study and later to work in ICT
- Development of coorperation among members within the cluster and also outside the IT Valley
- Promoting innovation and implentation of joint scientific research projects
- Increasing social inclusion by ICT use and reducing regional disparities
- Lectures for students and competitions
- Educational activities for primary school pupils, secondary schools and university students
- Networking seminars and workshops for the members of Kosice IT Valley
- Engaging the Kosice IT Valley members to scientific research and innovation projects
- Implementation of new events in Eastern Slovakia

Through projects IT Valley seeks optimization of activities and possibilities for it´s members to get in touch with interesting topics in areas such as innovation, education, ICT, business etc.

4.3.3 Italy

A further and the last example of Best Practice to gain and retain specialists is the Italian company “Loccioni”.

The “People” project within the Loggioni Group is based on five main assets that are used to measure values and processed, the organization and the expectation of ist employees: Comradeship, pride, equity, credibility, respect. The Peope project includes several activities that foster attention to people and their families, give oppurtinities to grow inside the Company, provide continous training and foster the connection with the local community

and territory. The People project has result a high grade of retention of qualified personnel. The project has gained the Company tob e awarded as a "Great Place to Work" in the global contest 2014.

Loccioni has also implemented several projects aimed at fostering commitment and sense of belonging and sense of community, therefore gaining a high grade of retention of ist employees. The SME has awarded particual attention to activities for families, chances of professional growth, sustainable buldings, continous training, activities fort he local community and territory, such as:

- Bluzone: a number of initiatives carried out in collaboration with schools, aiming at training young people before entering the company
- Redzone: activities for employed people, in ordert o foster sense of belonging and commitment, inclund „Buddy System" (a mentoring system fort he newcomers aiming at confirming behaviors with the „house rules"), training, family events, group events, job innovation, performance evaluation
- Silverzone: activities aiming at capitalizing the company knowledge, such as experience and knowledge sharing with retired people, spin-offs and networking with other local enterprises
- Leaf Community: a project to gather clients, partners, researchers around the sustainability topic.

The outcomes of this Best Practice example are: the promotion of self-realization of the employees, also fostering new selection and retention processes, such as the research of high level of autonomy and innovation skills, as well as creativity and proactivity, in the newcomers. Also the creation of a new concept of workplace as a place in which people can realize their professional identity, fostering a sense of self-entrepreneurship in the employees.

4.4 Lesson learned: recommendations for SMEs

In innovative areas such as the Green Economy and Information and Communication Technology the cooperation of various stakeholders is important, in particular the collaboration from political decision-makers, businesses, science and NGO's.

The political level should support regional development with help from concerted measures, which cover the economic, educational policy and labour market law activities. A particular

significance is given to „clustering“, because within the active SME the synergy between scientific potency and entrepreneurial effectivness can be exploited.

The construction and development of cluster structures is important from a regional and stucturally political point of view: An attractive region facilitates SMEs development of skills of their employees, staff recruitment as well as the search for professionals. Clusters can encourage the export capacity of local SMEs and are an important support in increasing their own competitivity. Supporting instruments could be knowledge and information platforms, which are freely accessible for all stakeholders and over which a communication can be established.

Participating SMEs enable these structures a fast and easy access to the latest research results and innovations. This exchange with research institutions is important in order to take into account the high technical requirements of these branches. Since only a few SMEs however include (strategically oriented) research institutions, the active use of cluster structures is often for them the most meaningful way to gain access to research results.

In addition, clusters often require the development of the regional infrastructure and transport logistics and give an impulse for cultural diversity, whereby the region becomes more attractive for (young) professionals.

With the integration of educational institutions, needs-based training and education can be developed which are accurately geared to the requirements of SMEs.

However the SME should not neglect its own work. As described above there are various activities and instruments which should allow them to make their company attractive to professionals. In addition to internal services they should also take advantage of government incentives and support for further education and training activities in order to meet the new challenges. The aim here is to find new ways to develop mainly workplace related training, offering new virtual teaching and learning methods for trainees and employees.

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CHAPTER 5: UNLOCKING FINANCIAL AND NON FINANCIAL MEANS TO IMPROVE SKILLS NEEDS IDENTIFICATION AND SKILLS MATCHING

This chapter focuses on describing the main initiatives, both at a financial and non-financial level, that may help SMEs of the ICT and Green Economy sectors face the daily challenge of identifying skill needs and realize an effective skills matching.

5.1 Overview

The main assumption of the NeMESI project lies on the fact that SMEs in the ICT and Green Economy sectors face a complicate task when it comes to identify their skill needs and exploit skills matching services.

These services, both on the financial and non-financial side, are often "hidden" to SMEs who don't have HR managing capabilities and therefore get less informed on this topic in respect to larger sized companies.

While financial means are almost at a glance – the EU itself as well as local governments have allocated resources for this purpose –, non-financial means are less obvious to be discovered and exploited.

Nonetheless, access to funding and application activities are a severe task to be achieved, especially for those enterprises – mostly SMEs – do not enclose HR professionals who can manage this issue.

5.2 Financial and non financial means to improve skills needs identification and skills matching: main challenges

Both the ICT and Green Economy sectors experience a very fast pace of innovation and change, both in technologies and working processes and finding talents who can keep the pace of innovation in those sectors is crucial for business, especially for SMEs..

Skill needs identification is maybe the main challenge to be faced; once identified, in fact, skills may be fastly created or improved by creating networsk involving the education and

training sectors who can take concrete actions together with the entrepreneurial system in order to train the right personnel to be employed by enterprises themselves.

Skill shortages often come out in high personnel costs and in high turnover rates, where competition for talents arises; not too many initiatives, though, can be found with the aim of reducing skill shortages and helping private and public institutions face this issue.

As stated before, while financial means are available though sometimes hardly approachable, non-financial means are not as manifest as financial ones. This making enterprises – mostly SMEs – undergo a severe lack of information on how to solve skill issues.

5.3 Experiences and best practices

Notwithstanding the mentioned issues, several initiatives may be found aiming at creating networks including public and private sectors to spread information about means and activities to be exploited to reduce skill gaps, especially for SMEs.

5.3.1 Spain

In the northern Aragon region, outward the city of Huesca, a network of around 50 ICT companies has implemented the "WALQA technological park" as a model to improve skill matching.

The park has created a total of 800 job positions, around 600 of which are related to the ICT sector; to improve skills matching for the participating enterprises, specialised training combined with traineeship has been implemented and proved to be the best way to improve skills matching.

The park operates under the responsibility – and receives the financial support – from the local Public Employment Service (INAEM).

To gain effectiveness at the highest level, the park has borrowed and applied the CTA (Advanced Technology Center) model to the training programmes and to to attract qualified personnel. The model contemplates high-standards training homologated by main ICT companies worldwide: Microsoft, Oracle, Cisco, Linux, SAP, Sun Microsystems, Google, etc. and training often comes out in direct employment for trainees.

The Walqa park may be considered as a non-financial mean to improve skills matching since, beyond the main interest of the greatere enterprises involved, it promotes re-qualifying of personnel for the whole ICT sector supply chain.

5.3.2 Slovak Republic

In Slovak Republic an important example of a transnational initiative to improve skills development has been implemented, though not directly referred to the ICT or Green Economy sectors.

This initiative is the "Vocational Education and Preparation for Labour Market" project, supported by the Program of Swiss – Slovak Cooperation, coordinated by the Slovak ŠIOV (State Institute for Vocational Training) in cooperation with the Slovak Republic Government Office, and the Embassy of Switzerland with a swiss project partner – the Governmental Center of competence for the provision of tertiary-level basic and continuing training to VET actors, for the development of professions and for VET research.

The project aims at improving VET effectiveness through updating curricula in line with labour market requirements, starting from the description of the requirements that employers define for hiring qualified experts.

VET programmes therefore may be updated as well as state education programs for each group of specializations. The project directly involves employers in the training design phase, by helping training design and implementing practical education as well as participating to examinations of trainees.

5.3.3 Germany

A mixed financial and non-financial initiative can be found in the German system, where the private sector – together with the private one – has managed to find solutions for solving skills gaps in many sectors but especially addressing SMEs in need to enhance skills of their employees.

The RKW centre is an initiative of the German Economy Association (a research body of experts in the economic sector) that includes financial and non-financial support to enterprises, mostly SMEs.

The RKW competence centre cooperates with SMEs, social partners, associations, politics and the world of science to develop concepts and tools which are strongly oriented to practice and may be quickly implemented and exploited by targets.

The RKW is carrying out several initiatives to face skill shortage. The RKW is fully supported by institutions, both at a local and national level, especially by the Federal Departement of Economy and Energy.

5.3.4 Italy

In Italy, a public desk called "Donne@Work" ("Women@Work") has been promoted by the public and private sectors and ONGs, collaborating to promote female occupation (therefore including a gender issue) in the ICT sector.

The desk has been implemented in response to a research of ASSINTEL (the Italian Association of ICT Enterprises) stating that women with ICT professionalism often are less employed than male colleagues and, where employed, less paid (up to a 22% less for managing profiles).

The desk activities can be assimilated to the activities of a job agency: it provides pre-selection of female ICT professionals to companies, mainly SMEs, in the territory of the province of Milan.

The desk experts identify the best expertises to meet the needs of the targeted companies but also give guidance to women seeking a job in the ICT sector (i.e. by recommending further training and redirecting professionals to the right training companies).

The desk experts also provide consulting to companies in order to solve their skilled personnel issues, define the skill needs and match with the right professionals.

Activities of the desk mainly consist in launching recruitment campaigns, matching professional profiles demand and supply, meet and perform selection of candidates in line with the companies requirements.

In the first 6 months of activities, the desk has collected more than 600 curricula of skilled female workers in the ICT sector, performing matching activities for the enterprises of the province of Milan.

The Donne@Work desk can be fully considered – since free of charge and not aiming at providing funds – as a non-financial mean to promote occupation and solve skill gaps in the ICT sector.

The desk is also an example of cooperation among the public and private sectors. Indeed, it is driven by the Municipality of Milan, the "Women Entrepreneurs" workgroup of ASSINTEL, the "Manager Women" workgroup inside Manageritalia (Association of

managers and high level professional of the tertiary sector) an d PrimaDonna, (Italian NGO which promotes the presence of women in the workforce) and the sponsorship of the Chamber of Commerce of Milan.

5.4 Lesson learned: recommendations for SMEs

The described context suggests different solutions focusing on the creation of frameworks of financial and non-financial means to improve skills matching. These solutions could be adopted and implemented by SMEs and local or national institutions; among those:

- Increasing Private – Public partnerships. These alliances have shown to be the better solution to the issue of qualified workers shortages in the considered ICT and Green Economy sectors, to overtake the lack of public financial means or the difficulty to access to them.
- Specialised training combined with internships has proved to be the best way to improve skills matching in the technological park Walqa (Aragon, Spain), making this a new way to recruit skilled resources in a non-financial framework.
- Dialogue and cooperation between universities and employers are crucial for the design of innovative curricula, with a strategic view to respond to labour market needs. The traditional VET paths and high education systems, in fact, appear unable to adapt rapidly to the high-innovation pace of the ICT and Green Economy sectors.
- Gender issue may also be addressed as an added value within the set of non financial means aiming at overcoming skills mismatch. Women, in fact, are often underrepresented in the so called “technological sectors”, at least in the EU southern countries, as well as less paid in respect of their male colleagues.
- SMEs should have to be proactive in searching and exploiting initiatives – at a local, national and European level – to solve their skill shortage issue. On the other hand, institutions have to widely spread communication on those initiatives, in order to reach the widest platea of enterprises, including smaller SMEs.

CHAPTER 6: CONCLUSION

The whole set of activities performed during the NeMESI project has provided an extensive outlook of the skill management activities performed within SMEs of the ICT and Green Economy sectors.

During the national EASW workshop it has been possible to find out the needs that SMEs in both sectors have, at a local level, regarding the issue of finding skilled resources; this has helped partners in finding suitable experience and good practices with the aim of overcoming skill gaps.

Furthermore, in the EU workshops, discussion on the good experiences discovered around the suggested topics has made possible to identify best practices to disseminate and share within the entrepreneurial tissues both at a local – mostly in the partners' countries – and European level.

Findings and discussion have also produced a set of recommendations for SMEs as well as for the institutional bodies that may be involved in implementing methodologies and tools for solving the skill gap management issues in the ICT and Green Economy sectors.

6.1 Recommendation for SMEs: a checklist for practical actions

Recommendations descending from best practices and discussions in the EU workshops have been resumed in the checklist drafted in the following pages. The checklist may be used by project stakeholders and beneficiaries as a tool to better identify skill needs and perform activities to improve skills matching.

Main issue	Actions to be performed	Actual level of implementation				Applicability			
		Not Applicable	Poor	Average	High	Not Applicable	Poor	Average	High
Identify skill gaps in smes through effective collaboration between sectors in the ICT and the green economy. Overcoming organisational barriers and obstacles for partnership	Establishing discussion panels to create connections between SMEs, the learning community and other stakeholders								
	Enhancing lifelong learning system to make sure that both, employers and employees, know the training offer and can benefit from it								
	Improving raise awareness and dissemination among companies, especially SMEs, of all the mechanisms available to identify skills								
	Creating public-private alliances to foster new market niches that demand traditional and new skills								
	Encouraging essential skills like transversal skills, which are highly demanded by the majority of SMEs								
	Designing mechanisms to retain talent in order to avoid brain drain								
Role of different sector and organisations in identification of skills needs and skill matching. Developing a forward-looking HR and skills development policy through cooperation	Use sectoral councils to match sectors' demand for skills with training provision, anticipate future labour market and skill needs, and assess the quality and relevance of training programmes								
	Recognize each stakeholder's roles, rights and responsibilities in promoting a lifelong learning approach to meet sectors' skill needs								
	Embed sectoral approaches to skills development within long-term national growth strategies, thus linking (national) top-down and (sectoral) bottom-up training strategies								

Main issue	Actions to be performed	Actual level of implementation				Applicability			
		Not Applicable	Poor	Average	High	Not Applicable	Poor	Average	High
Addressing current and structural challenges of competence development, such as the competition for qualified personnel	Implementation of ICT and Green Economy Clusters for the regions								
	Raise of the attractivity by good socioeconomical conditions for young people (such as housing space, leisure activities)								
	Building of an information- and knowledge-management for the region.								
	Implementation of platforms of communication between administration, economy and educational institutions.								
	Developing activities to enable access to new virtual learning methods for apprentices and employees								
Unlocking financial and non financial means to improve skills needs identification and skills matching	Increasing Private – Public partnerships to find solutions to the lack of qualified workers								
	Promote and perform specialised training combined with traineeship to improve skills matching								
	Encourage dialogue and cooperation between universities and employers on the design of innovative curricular strategies and tools in university postgraduate programmes that respond to labour market needs								
	Include gender issues as an added value for those non financial means which tend to overcome the skills mismatch where women may be underrepresented								
	Widely spread communication and information about all initiatives addressing SMEs skill gaps management								
	SMEs proactively working in order to find and collect information about existing means to solve their skill shortage issues								

6.2 Final considerations

The NeMESI project has been carried out as a challenge.

Partners have been facing the actuality of a social and economic landscape in which labour market shows all of its contradictions:

- On one side, enterprises striving in finding skilled resources, entangled in the competition for qualified personnel, experiencing high turnover rates and loss of competitivity;
- On the other side, unemployed people struggling in finding a suitable job for their skills and competencies, wandering from a job agency to another, hindered in finding qualification or re-qualification training activities matching labour market needs.

At the end of the project, the challenge cannot be defined won; though, several examples of how the project main issues may be overwhelmed have been found.

The best practice database has been populated with several good examples of profitable manners of addressing the project mentioned issues.

Dissemination and transferability of results is granted by the lively activities of the NeMESI website, whose functionalities will be exploited until 2019.

The NeMESI project, thus, has been – and will continue to be – a concrete opportunity for those SMEs that will really apply in finding a tangible support to their efforts, as well as for institutions or other public and private bodies that will have the rule of promoting, fostering and implementing solutions to skill gaps and may endorse project results.