

INTERMIN (International Network of Raw Materials Training Centres)

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INTERMIN has created a long-term lasting international network of training centres for professionals. This project involves educational and research institutions in the EU and leading counterparts in third countries, based on specific country expertise in the primary and secondary raw materials sectors.

INTERMIN a créé un réseau international pérenne de centres de formation pour les professionnels. Ce projet implique des établissements d'enseignement et de recherche de l'UE et des homologues de premier plan dans des pays tiers, sur la base d'une expertise nationale spécifique dans les secteurs des matières premières primaires et secondaires.

INTERMIN ha creado una red internacional a largo plazo de centros de formación para profesionales. El proyecto incorpora a instituciones de educación y de investigación en la UE y de las principales contrapartes de terceros países basado en la experiencia específica de cada país en los sectores de las materias primas primarias y secundarias.

Introduction

The raw materials sector is undergoing significant structural changes. On the one hand side the skills required by emerging technologies and ever more challenging mineral deposits are changing more quickly than today's workforce capacity to update. On the other hand, the educational sector is mainly focusing on "classical" education in raw material related topics (ranging from geology to mining and mineral processing) and delivery methods (lectures during a whole semester). It is critical that industry and education players understand the needs and constraints of each other. This paper aims at generating a knowledge base for future analysis of raw materials education, identifying currently taught skills and the structure of higher education in the sector. For that a definition of skills, knowledge, and teaching areas is presented, leading to a comprehensive "skills catalogue". This catalogue builds the basis for an inventory of raw materials education worldwide. From the catalogue, it can be seen that this educational sector is focused in Europe and that English, and Spanish are the most common teaching

languages, even in countries where these languages are not the mother tongue. Raw materials education turns out to be very one-sided. Almost all institutions teach topics related to basic geology or mining, whereas the share of new technologies and of soft skills such as communication and management is quite limited.

Objectives

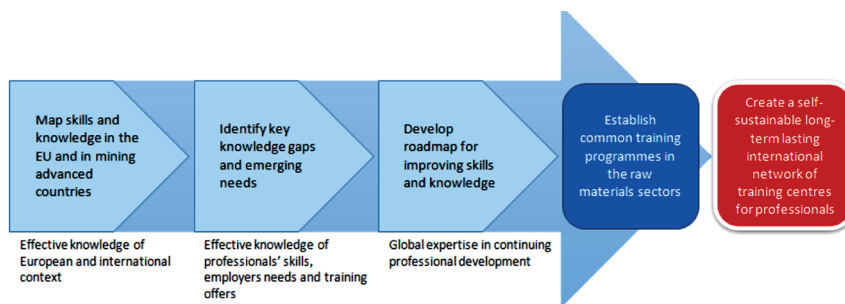
INTERMIN has created a self-sustainable, long-lasting international network of technical and vocational training centres for mineral raw material professionals.

The main specific objectives of the network are:

- to develop common metrics and reference points for quality assurance

and recognition of training;

- to develop a comprehensive competency model for employment across the primary and secondary raw materials sector;
- to introduce an international qualification framework for technical and vocational training programmes;
- to create a conceptual framework for the development of joint educational training programmes based on present and future requirements by employers;
- to create and launch a joint international training programme by a merger of competences and scopes of existing training programmes;
- to optimize future interaction and



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Figure 1: Distribution of the work to be done and the consortium member who carried it out.

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Figure 2: Example of the model sectorial qualification framework employed in INTERMIN for some training programmes.

collaboration in Europe and internationally with the help of the INTERMIN online educational platform.

To build up this network INTERMIN is signposting critical disconnects between available education and employers' needs and it will advance short and medium-term actions to close current skill gaps and enhance existing education and training at the international level. In the long-term, INTERMIN will enable mutual recognition of curricula, and will foster cooperation between employers, educational institutions and professional organisations to create technical and vocational training programmes that offer continuing professional development and address future qualifications and skills' needs.

The INTERMIN international network of technical and vocational training centres for professionals will ensure that shared resources are leveraged to their best potential to create training programmes that match the needs of employers and professionals in the raw materials field, a sustainable objective. The collaboration will take full advantage of specialisation/capabilities of the network members, communication technologies and globalisation, hence using the educational platform to deliver interactive online services that provide trainers and learners with information, tools and

resources to support and enhance training delivery and management.

The project has been formed by a consortium of recognized institutions that divided the work of the different work packages into which the project has been separated (Figure 1).

The INTERMIN Network Portal capitalises on the work carried out in the other INTERMIN work packages (especially WP1, WP2 and WP3) to improve the framework conditions and competitiveness of raw materials training and education in the EU and globally. In particular the portal is based in a model of the sectorial qualification framework included in the portal (from WP3 results) (Figure 2).

The aim is to tackle longer-term chal-

lenges through continued international cooperation and materialising a feasible, long-lasting international network of technical and vocational training centres for raw material professionals. This requires the definition of a clear mission, statutes, supporting infrastructure and procedures.

Creating and implementing the Network Infrastructure

Figure 3 shows the scheme of the IT infrastructure of the INTERMIN portal. An information catalogue has been established that allows searching, consulting and downloading of the deliverables and the individual components of project deliverables, as well as of information produced by

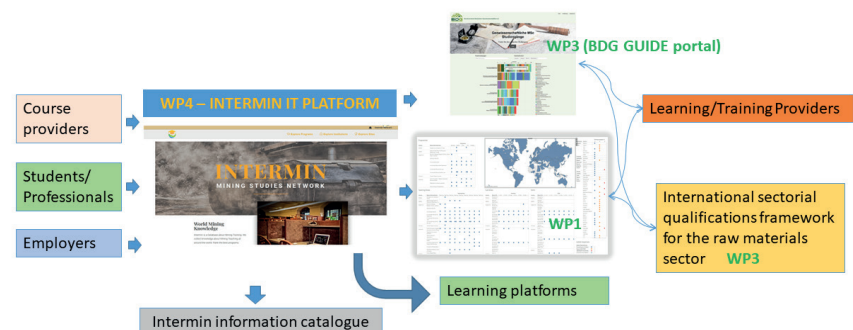


Figure 3: IT infrastructure of the INTERMIN portal.

external training providers. The catalogue contains international training providers' metadata, and is a "distributed catalogue" where all data providers (training centres) can create and modify their own metadata.

Other aspects to be included in the portal are:

- Mobility, language of the studies, internships, etc.
- Where to study abroad
- Decision-making tools for prospective students:

- Best fit (academic, geographical and cost aspects)
- Student reviews (alumni)
- Tips for applying for a particular master's degree.

The system will also address:

- Comparison of academic skills for different degrees and learning programmes
- The international sectorial qualifications framework
- Skill gap detection

- Training centres by country
- Potential university rankings.

The technical solution for the portal has been:

1. Technological platform based on WordPress, a CMS (Content Management System) of proven capacity and reliability. Wordpress is currently the basis of 25% of the world's websites, and even more so if it is a place where there are edition and publication of content in the form of articles or documents.

2. The repository of courses will be integrated into a WordPress database using the MySQL database manager. Wordpress and MySQL are open-use tools, easily accessible and integratable with apps and web applications.

3. The database has been designed and created. A first version is currently available with all the metadata used in the INTERMIN Survey (WP1). It has countries, cities, institutions, programmes, degrees, and the nine INTERMIN training areas with the hierarchy of skills. (Figure 4)

Main aspects of the online portal are:

- A private network of users on WordPress for users of the provider centres and administrators (created).
- The internal structure of the web application to connect and search the database (created).
- Search engine for academic programmes, accessible to the public,

Intermin Database Creation

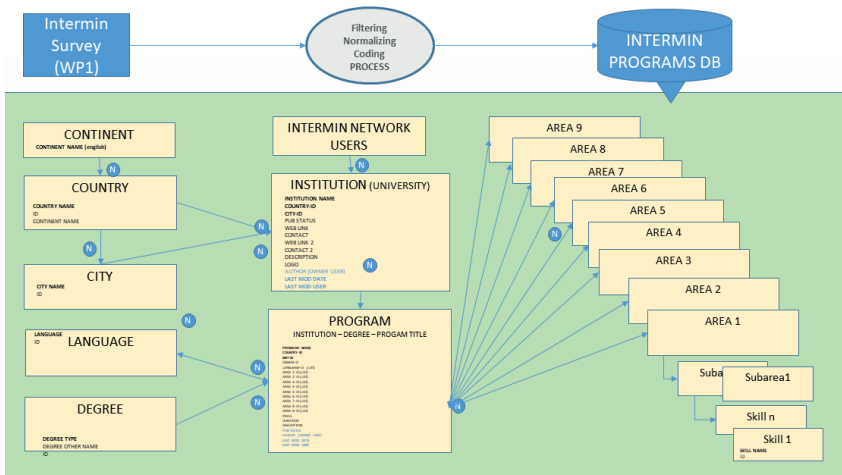


Figure 4: INTERMIN database creation procedure.

INTERMIN Web Platform

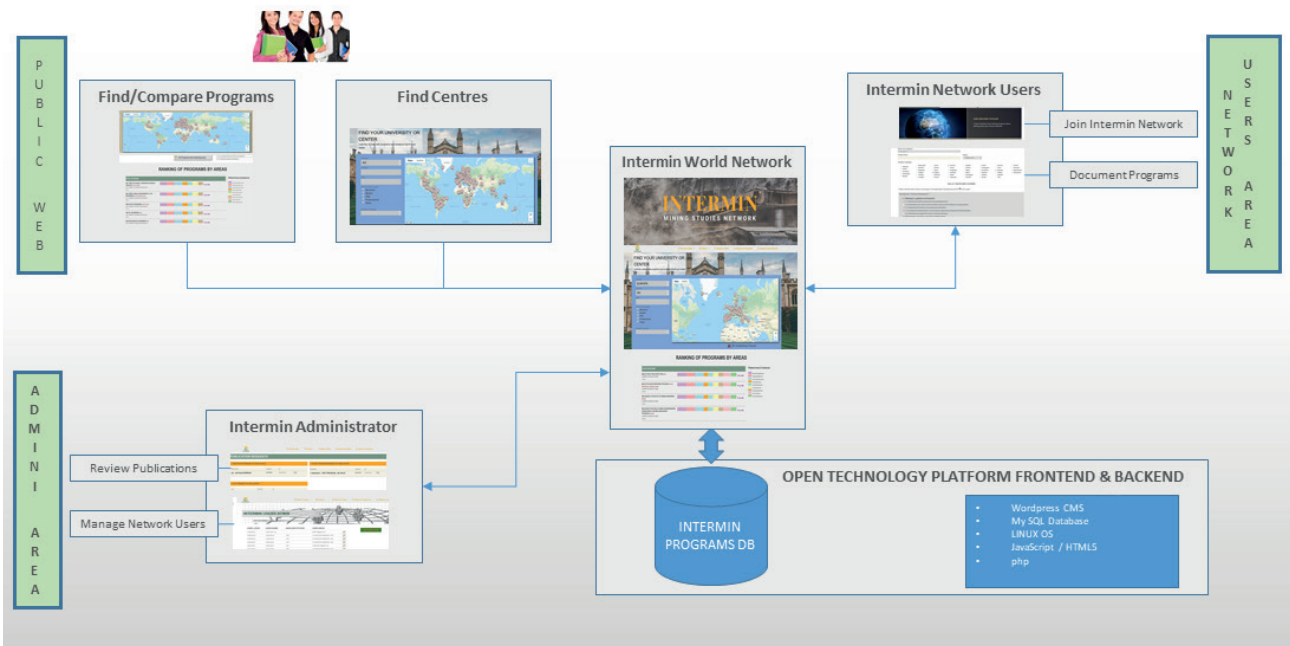


Figure 5: Operational scheme of the INTERMIN portal.



Figure 6: The INTERMIN portal (<https://portal.interminproject.org/>).

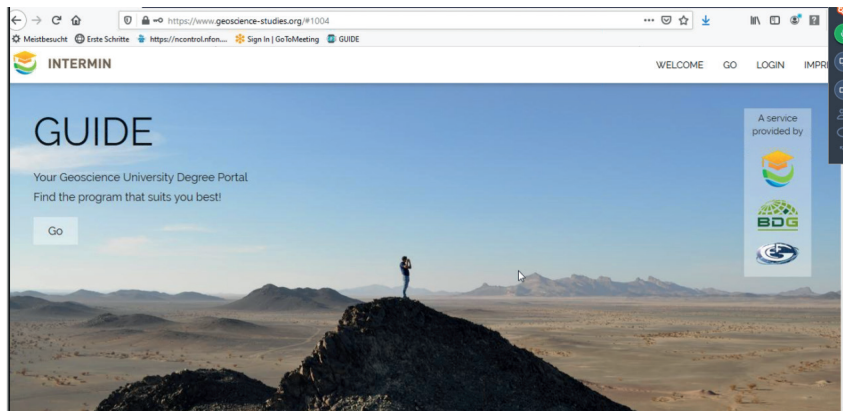


Figure 7: GUIDE web page.

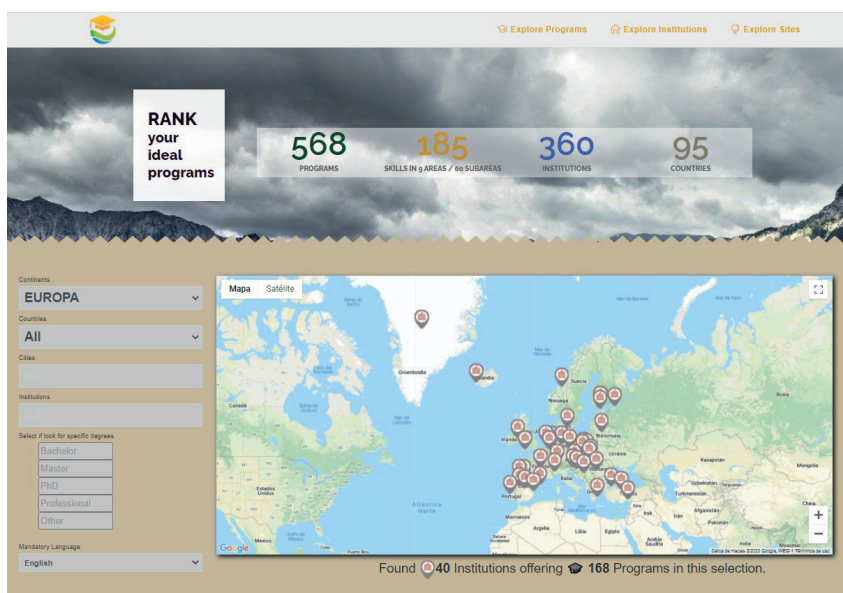


Figure 8: Search in the INTERMIN portal by study programmes.

based on filters.

- Queries and creation of records in the database, accessible only to identified Internet users.
- A web portal (Figures 5 & 6) of public content, with the offer of learning programmes from the catalogue, and tools for searching content and training centres visually.
- A private area in the web portal for the private network of users, who can access it to manage their own offer of training programmes contained in the catalogue, including downloadable material.
- A backend tool on WordPress for the administration of the user network, Course catalogue and additional content of the website and a tool for backup and bulk loading of the catalogue to and from backup files in CSV (Excel) format.
- The web portal will also be fully functional on small screen devices, such as mobile phones and tablets.
- Configuration of an analytic module: integration with the Google Analytics analysis tool to obtain analytical reports about users, consultation visits, downloads of content made, visitors sent to schools' websites and other rankings and usage parameters, useful for the exploitation and evolution of the web portal.

The portal will also be linked to a dedicated webpage (hyperlink) detailing university programmes (Bachelor and Master) offered by European Universities (GUIDE – beta version available at <https://www.geoscience-studies.org/>). The information provided by GUIDE (Figure 7) includes detailed data on curricula of geoscientific BSc and MSc programmes relevant to the primary and secondary raw materials sector in Europe.

The INTERMIN project will also define a Plan of Sustainability for the training network that will include:

- Scope and structure of membership;
- Scope of cooperation strategies/agreements between associated training centres;
- The legal and financial basis of cooperation;
- Design of the network structure and roadmap for its implementation.

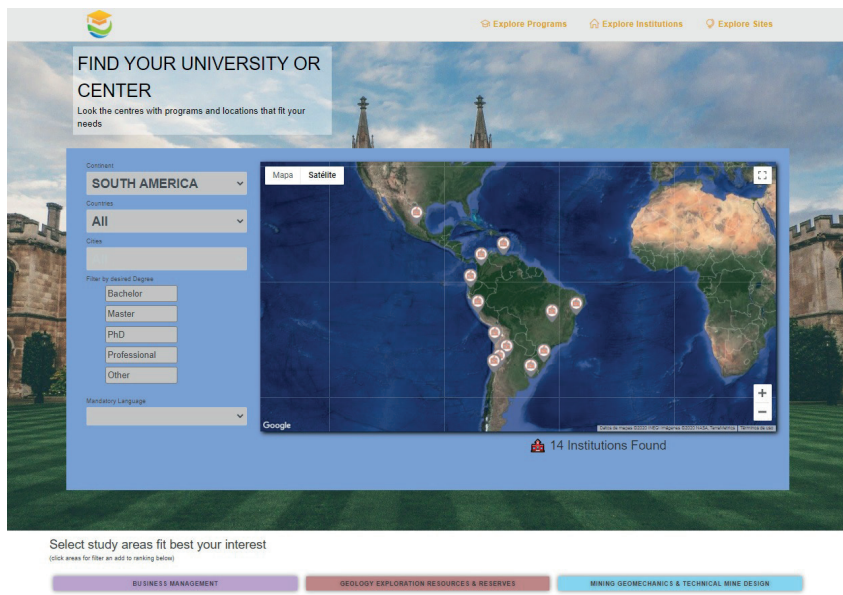


Figure 9: Search in the INTERMIN portal by institutions.

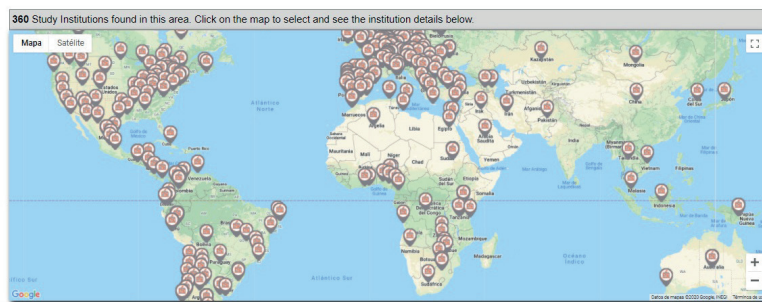
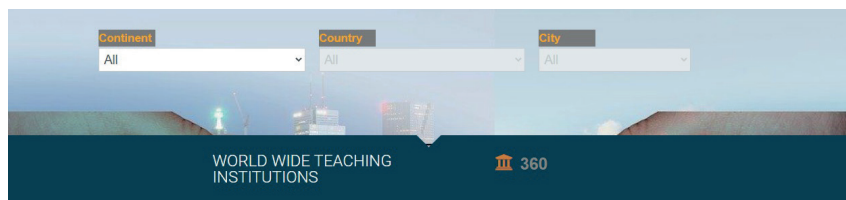


Figure 10: Search in the INTERMIN portal by geographical location.

Search system in the INTERMIN portal

The INTERMIN portal allows simple searches by study programme (Figure 8), by institution (Figure 9) or by geographical location (Figure 10).

Conclusions

The International Network of Raw Materials Training Centres (INTERMIN) has created a feasible, long-lasting international network of technical and vocational training centres for mineral raw material professionals.

The new INTERMIN portal will assist graduate professionals of different industrial sectors of raw materials from all around the world to find the appropriate specialised training in centres registered in the portal and find the face-to-face or online training they desire.

The selection system designed by INTERMIN is unique, as it is centred in the skills acquired instead of the study subjects, is a result of an extensive analysis of the educational offer, the industrial skills needed and on the geographical offers

The advantages for the graduates in a globalized – and now one under the pressure of a global pandemic world – are obvious. Training centres also benefit from a centralised repository of existing raw materials courses and the skills provided.

References

INTERMIN web: <https://interminproject.org/>

INTERMIN portal: <https://portal.interminproject.org/>

INTERMIN OFFICIAL VIDEO: <https://youtu.be/Bjf8rtJ7N-A>

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