

# Communities of Knowledge in the Daily Life of an SME - The PROMIS<sup>®</sup> Example

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**Abstract:** The complexity of business operations requires an organisation to stay on top of a dynamic business environment — a slight mishap can have effects on an organisation's reputation, integrity, operations, and relationships. Miscalculating political and commercial trends in Europe can limit markets or hinder the organisation from seizing new opportunities at the right time.

Community Building in PROMIS<sup>®</sup> deals with “Communities of Knowledge” which means to structure experience, guidance, tools, work processes and activities in a ‘pyramid’ of knowledge, and share it among peers (institutions, associations and experts). In addition it can be provided as a subscription service to SME customers with the goal to support them achieving evidence-based compliance to norms, standards and other legal requirements.

Communities of Knowledge in PROMISLingua are multilingual (9 languages) and are targeted to associations and chambers of commerce aiming at becoming providers of innovative services to the SME members they want to serve.

## 1. Introduction

There are many areas where small and medium sized organization (SMEs) are facing compliance issues: Health and Safety legislation, Environmental regulations, Quality performance (SHEQ), ICT Security and Data Protection and other standards at local, national and international levels. In fact there is no area of business where compliance is not an issue.

A clear structure is needed to establish communities founded on a collaborative model, like the one offered by PROMIS<sup>®</sup> [1], which is the foundation to support and facilitate the creation of collaborative communities of consultants and experts specialised in Health and Safety, environment, quality, ICT security and other standards and regulations. Creation of such communities accelerates and increases the development of innovative solutions to solve the sectoral problems through the collective experience and talent of the consultant and specialist community.

The shared knowledge and innovation collaboratively developed by the community is being continuously improved through the adoption of an evidence-based model of knowledge management. The foundation of the approach is peer-reviewed benchmarking of SHEQ services for their effectiveness in solving real world problems.

## 2. Objectives

SMEs need knowledge, experience and methods to support them in better managing their daily operations and maintenance.

In the past, offering content was perceived as a service consisting of pre-structured, static information. Now society and the market require the systems to allow the users' tacit and explicit knowledge to adapt and 'customise' content for their specific needs. This is why, to support compliance in an SME environment, a clear structure is needed to establish communities founded on a collaborative model. This model is based on the concept of a collaborative working environment and community building, which treats the collective wisdom and exchange of experience between public and private bodies, consultants and their SME customers, associations and their members, as societal asset or "common good". This "common good" is a kind of social capital, which can be leveraged many times to both harmonise and improve the level of competitiveness and quality of life, following the PROMIS<sup>®</sup> human-centred technology and collaborative community based approach.

In this respect it is becoming more and more important for associations and Chambers of Commerce to take a catalyst role in the realisation of communities of knowledge, becoming innovative providers of structured information, as well as pre-tailored services. The role of associations should become even more the one of Innovators, in terms of providing a "tutor, mentor, teacher and assistant" to the SME members they want to serve.

To do this, associations and chambers of commerce need comprehensive ICT solutions, encompassing in a single entry point many of the tools SMEs need:

- to be compliant with legal and other requirements,
- to structure knowledge and dedicated services,
- to work interactively online with the consultants and subject matter experts,
- to build professional communities.
- to disseminate and implement 'best practice'

This paper provides an overview of the current tools and methodologies available within PROMIS<sup>®</sup> and the enhancements being undertaken with the PROMISLingua project.

### **3. Methodology and Tools**

Community Building is, among others, about the definition of how to build up real and sustainable professional collaborations and alliances: (i) "real" because they bring tangible results and (ii) "sustainable" because they are built upon mutual benefits and are continuously maintained and updated.

PROMIS<sup>®</sup> provides a knowledge management and integrated management solution, as a powerful tool for structured process documentation and compliance management. Due to its concept of tailored content, wide reach, low-cost, high-volume service and ease of use, it is offering essential steps toward a company's integrated certification in major certification systems. The service meets therefore not only the major interest of SMEs themselves, but also of their consultants, who are considering PROMIS<sup>®</sup> as an easy framework to structure their knowledge, to provide online consultancy to their SMEs and to work interactively with them every day or when needed.

The main barriers to foster compliance management into new markets are the need for translation and localisation of the broad range of SHEQ services, and also the lack of semi-intelligent ICT tools to support structuring, filtering and optimising data and content in a multilingual environment.

The innovation of this intuitive integrated compliance management framework is, at present, made unique by the multilingualism of the PROMISLingua project [2], which is translating, localising and rolling out the existing PROMIS<sup>®</sup> software-as-a-service (already available in English, German and Italian) in six additional languages (Spanish, French, Portuguese, Greek, Romanian and Hungarian), in order to support structuring, filtering and

optimising data and content in a way that SMEs can communicate in their own language and get answers to their needs ‘at a fingertip’ online in the same language.

PROMISLingua is offering substantial areas of Innovation, at several levels: (i) Multilingualism; (ii) Knowledge repository and Integrated Management; (iii) Business Model.

### 3.1 Multilingualism

One innovative contribution of PROMISLingua consists in enhancing the PROMIS<sup>®</sup> framework with innovative multilingual technologies. The implementation is being accomplished by merging the multilingual workflow with the application management workflow in the following way:

Integration is the key success factor for PROMISLingua; language technology must seamlessly fit into the setup of PROMIS<sup>®</sup>.

Natural language support is being provided in two areas:

- multilingual translation tools in the area of Safety and Health and related issues.
- Machine Translation tools for some of the PROMISLingua languages, including collection of multilingual resources.

The challenge in PROMISLingua is to tailor them for the specific context of PROMIS<sup>®</sup>. This context is characterised by the following facts:

- The system is a framework; it will be adapted to many domains. The multilingual support must be flexible to be *adaptable* to the respective domain and language. In the project, Health and Safety has been selected as the specific domain for the pilot and several languages will be tackled in parallel, to show the required flexibility.
- The adapted system will contain *content* (e.g. administrative guidelines). This content needs to be made available in several languages. It is rather static but requires high-quality translation. The language tools must help to provide this kind of translation, as raw translation is not sufficient.
- The creation of new applications will require *searches* in public networks and databases in foreign languages. Terminological databases and machine translation tools are required to bridge the language gap.

### 3.2 The Knowledge Repository Pyramid

The PROMIS<sup>®</sup> knowledge repository already contains a large population of technical guidance, tools and work processes and can be further customised for any sector, opening the way to an enormous economy of scale and to considerable perspectives in many areas of need. In addition to supporting the structure of information and knowledge, the ‘pyramid’ is more and more accepted as an instrument to register and protect intellectual property. This is due to the fact that each individual, expert, association or institution structuring their knowledge in one or more of the PROMIS<sup>®</sup> pyramids, becomes the owner of a ‘pyramid’ that can be accessed and updated only by them.

The ‘pyramid’ is also an instrument to gather and structure information, multimedia content, eTraining and links to external databases (e.g. via SOAP protocol and contractual agreements) which can be linked directly to the personnel, machines, materials, infrastructure of an SME company, providing an enormous added value based on the fact that the content is made available at ‘a fingertip’.

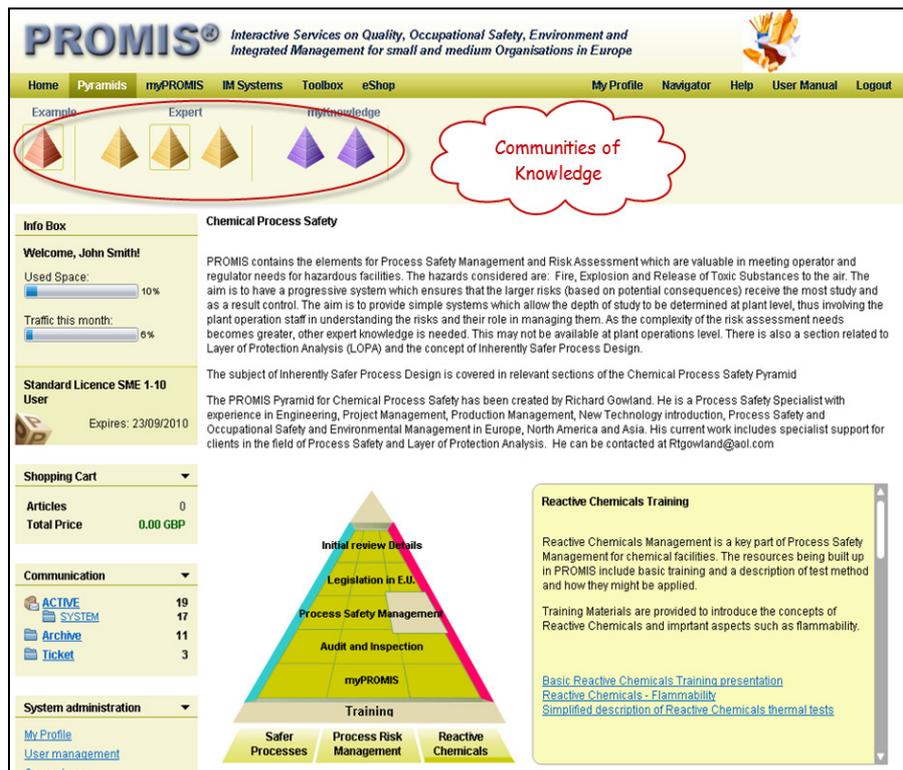


Figure 1: PROMIS GUI with Communities of Knowledge

### 3.3 Business Model

The Business Model of PROMIS<sup>®</sup> is built upon:

**Respect of Tacit Knowledge:** a new paradigm of offering information to the users and customers: no longer offering content in a pre-structured way but building upon the fact that manager, experts and associations, best know the needs of their customers and members, therefore they are well placed to do the job of structuring their existing content and knowledge, to link it to the common processes in an organisation, building up turn-key solutions, which can be offered as interactive service to their customers and members.

**“Win-win” collaboration:** institutions, universities and associations, have the opportunity to structure their existing content and knowledge in the pyramids, as well as in the integrated management system, thus preparing turnkey sector solutions. After quality assurance and signature of contracts ruling the IPRs, as well as rights and duties, they are offered to the SME and consultants’ community via the eShop and in the language-related countries.

This model is the foundation to support and facilitate the creation of communities of knowledge. The creation of such communities accelerates and increases the development of innovative solutions to solve the sectoral SME problems through the collective experience and talent of the consultants’ community.

The shared knowledge and innovation, collaboratively developed by the community, is being continuously improved through the adoption of an evidence-based model of knowledge management. The foundation of the approach is peer-reviewed benchmarking of SHEQ services for their effectiveness in solving real world problems.

In the pyramid, knowledge is conceived and structured at will by consultants, associations, and institutions and is customised for their members and SME customers following their needs.

At present, the PROMIS<sup>®</sup> pyramids are static in structure and dynamic in content. The content providers of the structured pyramids (institutions, associations, consultants and individuals) remain the owners of their knowledge pyramids and of other services (e.g. questionnaires, templates, files, eTrainings). Such services can be shared for free (e.g. among institutions, associations, chambers of commerce for their SMEs) or can be provided as a subscription service by consultants to their SME customers.

#### **4. Technology & Turn Key Sector Solutions**

PROMIS<sup>®</sup> is a robust and mature software-as-a-service that answers an increasing demand for compliance management services, created by the ever-increasing legal and social requirements that SMEs have to face.

The solution has been configured as a Web 2.0 Internet service, with no requirement for local software installation, modest hardware requirements and minimal maintenance costs.

Web 3.0, defined by Priyank Acharya as “the creation of high-quality content and services produced by individuals using Web 2.0 technology as an enabling platform”, is in the implementation phase.

Several sectoral focused turnkey solutions have been already developed and many others are envisaged:

##### From the Integrated Management System...

Case 1: When a consultant is putting together an advice package for a customer, he/she can acquire a virtual workplace in PROMIS<sup>®</sup> that offers generic predefined business/processes and tailor it to the needs of his/her SME customer. The consultant can then enter the customer's data (available means of production, central business processes, and required documentation) and can collaborate with the customer online to establish an integrated management system (quality, health and safety, environmental workplace management). PROMIS<sup>®</sup> thus enables the consultant, specialist and the customer company to collaboratively use a management system more simply, more economically and to work online.

##### .... to Communities of Knowledge

Case 2: The owner of a construction company with 86 employees needs the knowledge pyramid concerning relevant information, norms and standards of the construction sector. Due to the 86 employees, the SME has also a canteen, where the compliance to food and HACCP legislation is compulsory. In the PROMIS<sup>®</sup> eShop, the owner can buy a ‘food pyramid’ which has been prepared by a ‘food expert’ and work online additionally advised and supported by this expert.

##### And imagine...

A Chamber of Commerce in the Northern region of a country has specific knowledge about one or more SME sectors. Other Chambers of Commerce in different regions have different specialized knowledge and sectors. With PROMIS<sup>®</sup> they are empowered to collaborate online and share their experts' knowledge pyramids in a way that each of them can offer the ready-made services to their SME members with a big economy of scale, avoiding redundancies and with high saving of time and money.

An example from Chemical Process Safety:

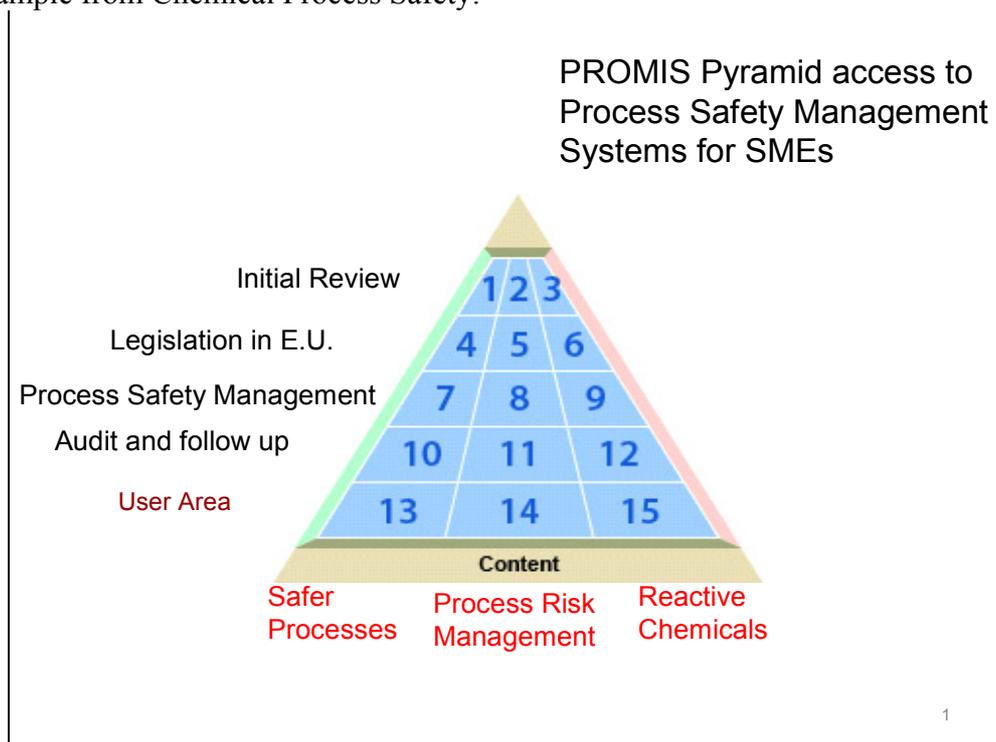


Figure 2: Structure of the PROMIS<sup>®</sup> Chemical Process Safety Pyramid

In order to comply with the requirement to have a Process Safety Management System, a company can access the frameworks and tools in PROMIS<sup>®</sup> which address:

The Process Safety Management System and the tools necessary for Process Hazard Analysis (PHA), Hazard Identification (e.g. Hazard and Operability Study), Consequence Analysis for Fires, Explosions and Toxic releases, Layer of Protection Analysis for checking against typical tolerability criteria. In addition to these tools there is training material for Reactive Chemicals and all the relevant methods. Wherever the user deems it necessary, access is available to the specialists who have provided the methods, which in all case are recognised as current good practice.

The Chemical Process Safety Pyramid provides a structure which meets most of those required under the Seveso Directives and has a life cycle approach which provides the necessary tools, recommended review frequencies and training materials for the engineers and plant operators at the SME's manufacturing facility.

Expanding on this example, a particular opportunity can arise as a result of a new chemical process being introduced to an existing facility. This can bring new hazards into focus and there is a requirement to minimise their impact by:

- managing the change correctly
- applying the principles of Inherently Safer Process Design
- understanding process hazards fully
- minimising the risk posed by the process
- providing control and safety systems to ensure proper operation
- providing training for all involved in the process
- continuous monitoring of the operation via self assessment and audit

The Chemical Process Safety Pyramid in PROMIS<sup>®</sup> provides a framework for the user to customise the required approach for the specifics of the company. Each aspect is already populated with expert, specialist provided systems, tools and training packages which can be used immediately by the company in their unedited form or can be readily adapted for the company's specific needs. The tools and company process information entered within

them such as Process Hazard Analysis (PHA) and Layer of Protection Analysis (LOPA) and Reactive Chemicals Review would then be disseminated within the company and stored within the company's own PROMIS<sup>®</sup> registry. Specialists who have provided the technical content of the PROMIS<sup>®</sup> Pyramids are available to support further needs.

Furthermore, PROMIS<sup>®</sup> offers the user an Integrated Management System which covers many other aspects which are recognising the recommendations of standards such as ISO 29990 and International Electrotechnical Commission (IEC 61511). If a user is motivated to become a subscriber to PROMIS<sup>®</sup> for one of the Pyramids, it becomes obvious that there are other resources which can also be accessed e.g. Quality Management.

The resources in PROMIS<sup>®</sup> are fully developed and ready for use now.

In PROMISLingua, the solutions in an additional 6 languages will be available at the end of 2012; machine translation will be integrated during the first half of 2013.

The project also started the process for standardisation of "Terminology Services to support Applications of Management Systems with focus on small Organisations and in a Multilingual Environment" and benefits from the CEN Workshop Agreement CWA 16275:2011, finished in March 2011, which provides guidelines for the selection of consultants advising SMEs on integrated quality, environment, health and safety management systems [7].

## 5. Conclusions

Communities of Knowledge are new in name, but have a long tradition in their concept and method. Communities of Knowledge in PROMIS<sup>®</sup> are new in the sense that the platform offers tools to structure experience, knowledge, information and to transfer them from expert to SME, from association to members, from seasoned to young.

The experts providing the structure and technical content of PROMIS<sup>®</sup> are all involved with providing services to industry. Exposure to this 'real world' has revealed that regulators and certification bodies are attempting to carry out their duties in ensuring conformance with requirements and guidance and are confronted with third parties who have no direct connection with day-to-day operations at the company concerned. This exposure to industrial realities makes it very clear that companies need to understand their businesses completely. Companies need to do this in an economical way, since economies of scale mean that in particular, SMEs increasingly rely on outside consultants and providers. This frequently results in a situation where the company's staff is not fully aware and involved in important areas.

It is very important that the systems operating are fully understood and wherever possible created by the company itself for continuous use and not simply (for example) to present to authorities to gain permits or certification.

PROMIS<sup>®</sup> offers the opportunity to achieve the needed certification and standards conformance with the full and continuous involvement of the company staff without the frequent need to involve specialist help from outside.

The more institutional and expert's knowledge pyramids are structured and shared, the more Communities of Knowledge will be available to SMEs: online, with a high cost-benefit ratio and with an enormous economy of scale.

Different solutions are already available and more and more are being prepared such as ICT Security and Star Audit Certification [3], the ISO 29990 Education solution [4], the Chemical Process Safety Pyramid (containing the elements for Process Safety, Management and Risk Assessment) [5] and Maintenance solution [6], which are valuable in meeting operator and regulator needs for hazardous facilities.

The aim is to have a progressive system that ensures that the larger risks receive the most study and as a result, cost effective control. And indeed, most important is to build up

a community of institutions, associations and experts structuring and sharing knowledge for the benefit of European SMEs: the economic backbone of Europe.

PROMISLingua expects to contribute to the consolidation of a Pan-European Digital Single Market by stimulating cross-lingual communication, collaboration and participation, while reaching the six targeted national markets in the target domains of health and safety beyond the pilot phase.

## Acknowledgement

PROMISLingua ([www.promislingua.eu](http://www.promislingua.eu)) is a 30 month ICT Policy Support Programme (CIP ICT-PSP) Pilot B Project, under the domain of Language Technologies, which started in April 1st 2011 and is co-funded by the European Commission.

## References

- [1] PROMIS<sup>®</sup> ([www.promis.eu](http://www.promis.eu)) is the result of former R&D, Market Validation and Initial Deployment projects funded by the European Commission ([http://ec.europa.eu/information\\_society/activities/eten/index\\_en.htm](http://ec.europa.eu/information_society/activities/eten/index_en.htm))
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