ICONS based Knowledge Management in the Process of Structural Funds Projects Preparation[1]

Eliza Staniszkis, Eliza.Staniszkis@rodan.pl
Bartosz Nowicki, Bartosz.Nowicki @rodan.pl

Rodan Systems S.A.

The Structural Fund projects represent a vital opportunity for the new Member States to join the European Community in May 2004 to close the social and economic discrepancies between these countries and the European Community (more than 13 billion Euro available for Poland). Practically each economic entity and local authority can apply for co-financing its investment projects.. The structural funds implementation may fail to bring the expected results, however, due to stringent standards for project proposal eligibility. The threat is real, as previously experienced by such acceding countries as Spain, Portugal, and Greece that particularly during the initial period of the program acquired only a small fraction of available funds. The below presented Structural Fund Project Knowledge Portal is supposed to the fill in the gap within the existing IT infrastructure pertaining to early support in project proposals preparation process. The domain that requires browsing of vast amounts of documents (formal guidelines and success stories), intensive collaboration of applicants, external expert support under time pressure, is a nice demonstration of the ICONS knowledge management platform capabilities. The presented portal has been developed as a working prototype within the RTD IST-2001-32429 and is currently under industrialization and deployment.

1. Introduction

The challenge recognized by all new Member State Governments is to create conditions for best possible use of the funds made available to them by the European Commission. This implies creating adequate management structures to monitor and audit the SF project as well as setting up stringent standards for project proposal evaluation. The primary objective is assurance of the proposals compliance with the EU regulations and selection of these proposals that will positively impact most strategic economical, societal and environmental statistics. Achievement of the highest possible number of high quality eligible project proposals meeting the stringent EC criteria is the major problem of majority of associated states and an important political issue. The situation in which many project proposals will be

[1] This work has been supported by the Intelligent Content Management System project, ICONS, IST-2001-32429, www.icons.rodan.pl

rejected on the grounds of non-compliance with the SF regulations or due to their generally poor quality, if frequent, may lead to low utilisation of available financial means, thus hampering the social and economic equalisation processes.

Currently most of the new Member States develops and / or deploy national systems (e.g. [SIMIK] in Poland) responsible for registration and assessment of submitted proposals as well as monitoring the realisation progress of the selected projects. Tracking and reporting on the structural fund utilization level as well as the projects impact on national statistics is another realm of the systems functionality. This infrastructure is, however, to the same extent indispensable as inadequate, as it does not solve the intrinsic problem of structural funds acquisition – providing effective access to previous experiences, lessons learned, templates, success stories, identified risk patterns, current regional statistics values, rules and expertise that all together allow to achieve the sufficient level of formal and essential knowledge to obtain funding.

The major objective of the Structural Fund Project Knowledge Portal (SFP) is supporting organizations and individuals involved in the process of proposals preparation in order to increase the number of proposals meeting the formal requirements and contributing to the overall equalisation objectives. The only way to achieve this objective is to accumulate an appropriate amount of knowledge: both explicit (encoded in documents) and implicit (provide by externally hired experts), and equip applicants with the effective methods of access to this knowledge.

In view of the past experience of such accessing countries as Spain, Portugal, and Greece, meeting an acceptable threshold of the structural fund usage, in particular during the initial period, is a difficult, if not impossible, task. Even small improvements in project proposal development processes resulting from application of the advanced knowledge management techniques and methodologies will have a substantial economic impact on the regional development of the NAS countries. **Indeed a 1% improvement in the structural fund project proposal acceptance level would mean additional 138 million Euro to be invested in the Polish regional economy alone in years 2004-2006. The figure for all new Member countries for the period 2004-2006 amounts to 30 billion Euro. Hence, the potential value of a 1% improvement of the SF project acceptance rate increases to 300 million Euro.** Considering the varied and rather low level of the regional and local government agencies and organizations involved in the structural fund planning and project development processes, one can reasonably expect a higher improvement rate. Clearly the above figures exemplify a strong economic motivation of the NAS countries to invest in ICT solutions pertaining not only to monitoring of the SF projects but also to improvements of quality and acceptance rate of the SF project proposals.

2. The SF Project Knowledge Portal Architecture

The architecture of the SF Project Knowledge Portal (SFP KP) presents the principal system features. A schematic view of the system architecture is presented in Figure 1.

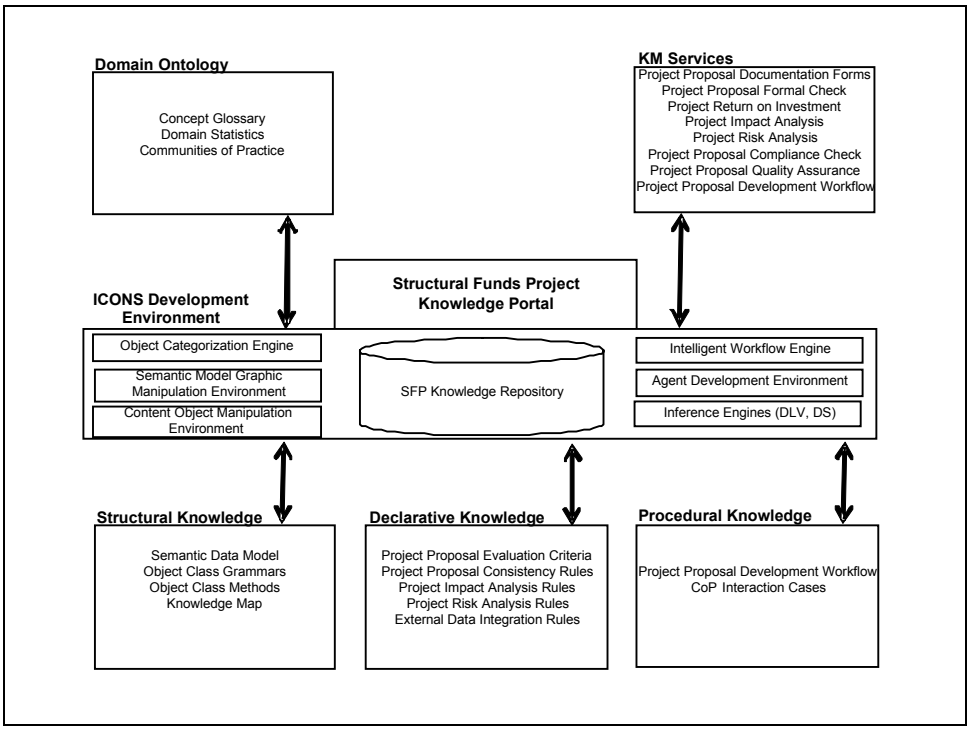

Figure 1. The SF Project Knowledge Portal architecture.

The **Domain Ontology** provides the conceptual foundation for all other areas of the SKP KP system architecture. The principal part, typical for all knowledge management applications, is the **Concept Glossary** defining the SFP domain ontology and providing support for both expert and non-expert use of the underlying knowledge representations and knowledge management services, as well as supporting automatic inference helping users find and merge information. Creation of a coherent domain model for the Structural Fund projects domain is the very first step in the SFP KP system conceptual design. It entails identifying and extracting terms from information sources within the system terms of reference and gradually, with the use of a stepwise refinement procedure, organising those terms into partial ontologies to be finally integrated into the SFP KP ontology represented by the system Concept Glossary. The paramount role of the Concept Glossary in design of the ICONS knowledge management applications is apparent in description of the multiparadigm Knowledge Schema semantics [ICONS D10].

The **SFP KP Domain Statistics** are required to provide the basis for evaluation of macroeconomic information to be used in SFP proposal analysis rules, in particular in automatic analysis of the project impact rules, and the risk modelling rules. Domain statistics are to be organised following the territorial structure used for the structural fund strategic planning and allocation.

The **Communities of Practice** cluster human experts playing key roles in the knowledge management lifecycle of the SFP KP system. The CoP ontology provides information regarding the classification of knowledge and skills required within the system knowledge processes and links into rosters of human experts providing knowledge services and contributing tacit knowledge into the system knowledge repository. The role of human experts in the SFP proposals, both within the initiation and creation processes, as well as within the project proposal quality assurance and evaluation processes, is of paramount importance and the corresponding ontology underlies the automatic management of the CoP interaction models.

The **KM Services** represent the functionality of the SFP KP system embedding all knowledge processes support provided within the realm of the SFP proposal and evaluation processes. The knowledge processes supported within respective KM Services utilize knowledge artefacts available within the system knowledge repository represented by the ICONS content objects, and extended with the external information resources integrated with the system as defined in the Knowledge Schema. Results of KM Services performed on the SF project proposals constitute an important body of the SF project related knowledge to be stored and rendered available in the system knowledge repository. An ample specification of the knowledge repository structure, as defined in the ICONS Knowledge Schema, may be found in [ICONS D10, ICONS D16].

Contents of the system knowledge repository are organized according to the multiparadigm Knowledge Schema syntactic and semantic rules [ICONS D01, ICONS D10, ICONS D16] and rendered to the system users via the knowledge portal HCI (human-computer interaction) interface based on the advanced graphic models for accessing and manipulation of knowledge. The conceptual view of the system knowledge schema is formally defined with the use of an unattributed UML CAD model, the UML process models, as well as selected examples of declarative knowledge specifications.

3. Structure of the full paper

The full version of the paper presents the structural funds domain challenges and associated risks. Then, the SF Portal environment and its interfaces with other elements of the structural funds system infrastructure are introduced. System functions that support applicants in the proposal preparation process are described in details. Both static (data) and dynamic (proposal development process) aspects are addressed. Special focus is put on the underlying ICONS platform knowledge management generalized services that turned out to be indispensable in development of the SF portal. Finally, a thorough discussion on knowledge management aspects (in contrast to workflow and content management) of the application is incorporated. Summary and bibliography is provided.