2

Newsletter

Glocal enterprise network focusing on customer-centric collaboration

August 2012

Avoiding another digital divide

Although there is already a good knowledge base on Collaborative Networks, this knowledge is mostly possessed and internalized by research organizations and ICT companies.

Making the most out of collaborative structures and associated ICT support systems requires an effort to involve SMEs from other domains. In fact, other sectors besides ICT may offer challenging application cases for CNs. For instance, GloNet involves end-users active in the solar energy, building automation, and business incubators, which although having a strong technological focus and background, are not typical ICT companies. As a result, an interesting mix of long and short-term networks, goal oriented virtual organizations and breeding environments were identified. Such networks are related to the development and support, along the life cycle, of highly customized service-enhanced products.

In such contexts it is important to smooth the conceptual and language barriers that prevent non-ICT SMEs of being full parties in the development of adequate "enterprise networking" models. In addition to the technological aspects, it is necessary to jointly address:

- organizational aspects, governance, behavior, etc., i.e. to take into account a socio-technical perspective;

- training and tuning the language to the specific domain knowledge so that common understanding happens (a typical issue when interacting with end-users, but more challenging when end-users are not in the ICT sector).

For instance, end-users are typically more prepared to understand the role of a virtual organization, which can be directly related to a specific goal / project, than the need for a base network (virtual organizations breeding environment), which needs to be thoroughly explained.

These concerns are reflected in the approach and content of the first set of deliverables of GloNet, as well as the working methods adopted in the project.

For instance, in order to avoid the risk of a digital divide, the activities in GloNet involve various extensive brainstorming sessions with the end-users, preceded by tutorial presentations of the needed concepts.

A learning experience that we hope to turn successful.

Luis M. Camarinha-Matos
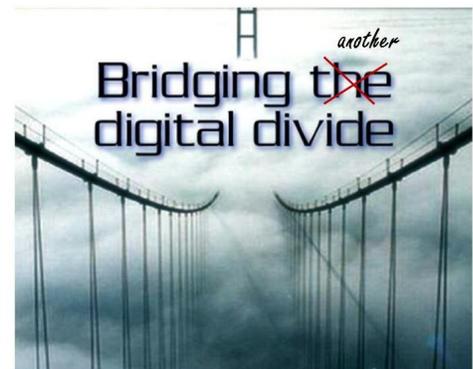
Operation in India

GloNet aims at designing, developing, and deploying an agile virtual enterprise environment for networks of SMEs involved in highly customized and service-enhanced products through end-to-end collaboration with customers and local suppliers (co-creation). Overcoming the economic crisis requires companies to focus on exporting, namely to act in emerging markets such as the BRIC (Brazil, Russia, India, China), which is difficult for SMEs to compete in, if working alone.

iPLON GmbH, a member of the **GloNet** Consortium has been successful in expanding its activities in the Operation & Maintenance of Solar PV plants into one of the largest emerging markets – India. India is seen as the future for Solar PV technology and hence strategically most suited for a European SME like iPLON to do business. Technological superiority, innovation and customizability of products and services have helped IPLON establish a strong presence in the last one year of its operations in India.

The maiden project of iPLON in India has been successfully commissioned at Asia's largest multi-developer solar park in Charanka (Gujarat, India). At the time of completion, this solar park will have a total installed capacity of about 500 MWp, making it one of the largest of its kind in the world. iPLON partnered with India's biggest Engineering Procurement and Construction(EPC) company Larsen & Toubro(L&) for a 20MWp plant at Charanka. This project is developed and owned by one of India's leading project developers Kiran Energy Solar Power Private Limited. For this project, components were procured from countries like Germany, Japan, Netherlands and India, to name a few. In addition to this, other projects of iPLON are on-going in the states of Rajasthan and Tamil Nadu in India.

An overview of the Operations and Maintenance (O&M) system at the solar power plant is given below.

Sharing an undeterred faith in the power of collaborative networks, iPLON has successfully employed the strategy of dynamic, goal-oriented Virtual Enterprising (VE) with technical firms that are located in close proximity to the power plants and provide crisis handling technical support necessary for their operation. The long term strategy of iPLON is to bring all these partners on one platform, and to make sure that these Virtual Enterprises are well networked through cloud computing systems, and contribute towards better efficiency in plant monitoring and cost reduction.

The overall Virtual enterprise Breeding Environment (VBE) that is created for the projects incorporates all stakeholders of the power plants, enabling knowledge sharing, performance tracking as well as understanding of the industry.

As a partner of **GloNet** that has already positioned itself in India, iPLON is today well equipped to support other European companies on **GloNet** who wish to enter this emerging market. Compatibility for European SMEs in terms of the local business culture and socio-economic environment can be gauged on the basis of the success of iPLON 's collaborative network with its partners.

With every successful project, we are growing more and more confident about the potential of collaborative networks in business expansion into emerging markets for European SMEs. It has proven to be of critical value in understanding the target market and its dynamics.

As utilization of our technological progress and innovation for the emerging markets in BRIC nations turns out to be the best way ahead of us in these times of financial crisis, **GloNet** project will most certainly play a key role in smoothening this path. iPLON is happy to have taken the first steps in this process and successfully established its presence in the Indian Solar PV industry.

V. Madhavan and V. Thamburaj (iPLON)

FP7 Calls

Topics related to GloNet:

ICT Programme:

Publication Date: 10 July 2012
Deadline: 15 January 2013 at 17:00:00 (Brussels local time)

Objective ICT-2013.1.3 Digital Enterprise
a) New models for the Digital Enterprise
b) Applications for the Sensing Enterprise

Objective ICT-2013.5.5 Collective Awareness Platforms for Sustainability and Social Innovation

Objective ICT-2013.6.1 Smart Energy Grids (Call 11)

Objective ICT-2013.6.4 Optimising Energy Systems in Smart Cities

Objective ICT-2013.1.4 A reliable, smart and secure Internet of Things for Smart Cities

NMP Programme:

Publication Date: 10 July 2012
Deadline: 4th December 2012 at 17:00:00 (Brussels local time)

FoF.NMP.2013-9 Advanced concepts for technology-based business approaches addressing product services and their manufacturing in globalised markets.

Initial GloNet Publications

General overview paper:

Collaborative Networks in Support of Service-Enhanced Products
L. M. Camarinha-Matos (Uninova), H. Afsarmanesh (UvA), B. Koelmel (CAS)
Proceedings of PRO-VE'11, 17-19 Oct 2011, S. Paulo, Brazil, *Adaptation and Value Creating Collaborative Networks*, IFIP AICT Series 362/2011, Springer, pp. 95-104.
DOI: 10.1007/978-3-642-23330-2_11

Contributions to PRO-VE'12:

Collaborative Business Scenarios in a Service-enhanced Products Ecosystem
Luis M. Camarinha-Matos, Patricia Macedo, Filipa Ferrada and Ana Inês Oliveira (Uninova)
Proceedings of PRO-VE'12, 1-3 Oct 2012, Bournemouth, UK, *Collaborative Networks in the Internet of Services*, IFIP AICT Series 380/2012, Springer, pp. 13-25.

A Framework for Automated Service Composition in Collaborative Networks
Hamideh Afsarmanesh, Mahdi Sargolzaei, Mahdieh Shadi (UvA)
Proceedings of PRO-VE'12, 1-3 Oct 2012, Bournemouth, UK, *Collaborative Networks in the Internet of Services*, IFIP AICT Series 380/2012, Springer, pp. 61-70.

ICT Requirements Analysis for Enterprise Networks Supporting Solar Power Plants
Hamideh Afsarmanesh (UvA) and Victor Thamburaj (iPLON)
Proceedings of PRO-VE'12, 1-3 Oct 2012, Bournemouth, UK, *Collaborative Networks in the Internet of Services*, IFIP AICT Series 380/2012, Springer, pp. 149-157.

Integrated Engineering – A SME-suitable Model for Business and Information Systems Engineering (BISE) Towards the Smart Factory
Günther Würtz (Steinbeis), B. Kölmel (CAS)
Proceedings of PRO-VE'12, 1-3 Oct 2012, Bournemouth, UK, *Collaborative Networks in the Internet of Services*, IFIP AICT Series 380/2012, Springer, pp. 494-502.

Other related publications:

Emotions in Collaborative Networks: A Monitoring System
Filipa Ferrada and Luis M. Camarinha-Matos (Uninova)
Proceedings of DoCEIS'12, 27-29 Feb 2012, C. Caparica, Portugal, *Technological Innovation for Value Creation*, IFIP AICT Series 372/2012, Springer, pp. 9-20.

Electronic Negotiation Support Environment in Collaborative Networks
Ana Inês Oliveira and Luis M. Camarinha-Matos (Uninova)
Proceedings of DoCEIS'12, 27-29 Feb 2012, C. Caparica, Portugal, *Technological Innovation for Value Creation*, IFIP AICT Series 372/2012, Springer, pp. 21-32.

GloNet Public Deliverables

Available through the project website [**www.glonet-fines.eu**/]

The first set of GloNet deliverables was released in Feb 2012 (see Newsletter #1):

D1.1: Detailed requirements for GloNet use case and domain glossary
D8.1: Web-Site and Project Brochure
D8.2: Dissemination Strategy and FInES Cluster Collaboration Plan

The second set of deliverables is available since May 2012:

D1.2: Specification of Business Scenarios

This report is one of the results of the requirements analysis phase of GloNet and it comprises the identification and detailed description of relevant business scenarios, focusing on complex and highly customized service-enhanced products.

The following scenarios are included: (1) Management of Long-term Collaborative Network, (2) Formation of Goal-oriented Collaborative Network, (3) Co-design and Co-innovation, (4) Base operation and management of product servicing, (5) Advanced Supervision Services for the Collaborative Network, (6) Shared Resources Repository Management, (7) Product Portfolio Management, and (8) Semi-automated Learning-based Decision Support.

In terms of representation, the following main elements are considered: (i) Description and purpose, (ii) Goals, outcomes and main features, (iii) Environment and actors, (iv) Details on actors, roles and responsibilities, (v) Business processes, (vi) Required software services. As main modelling formalisms, i* and BPMN are used.

Although GloNet has adopted the solar plants domain as its guiding use case, other domains with similar abstract characteristics, such as building automation and physical incubators of enterprises, are also considered.

D2.1: Required Information/Knowledge Provision Services Specification

Focused on identification and analysis of the information/knowledge related to complex products in GloNet, while aiming at the specification of a set of generic services for their provision to the stakeholders. Towards achieving this goal, a systematic process is defined and followed. In this process, we carefully aim at generalization, and not only focusing on a specific product in GloNet. Therefore, the systematic process starts with targeted analysis of the three planned complex products of GloNet, namely: (i) the PV solar plants, (ii) the intelligent buildings, and (iii) the future incubators.

D3.1: GloNet Platform Design Specification

July 2012

This report documents the architecture of the GloNet platform. The GloNet platform is aimed at providing a framework for the construction of scalable, extensible cloud-based solutions for the collaborative development and operation of highly customized and service-enhanced products.

The GloNet platform uses a framework-based approach: it defines an application architecture that serves as a blueprint to implement GloNet solutions and it provides a number of components that implement the basic building blocks of this architecture. The GloNet platform is extensible; therefore it also provides customization mechanisms as well as extension and integration mechanisms for additional modules and services that may complement the basic features of the platform. These mechanism work on all layers of the platform architecture, i.e. the data layer, the logic layer and the user interface layer are customizable and extensible.

GloNet Public Deliverables (cont.)

The third set of deliverables is available since Aug 2012:

D1.3: Specification of preliminary performance indicators

A preliminary set of required performance indicators to be used in the GloNet context are identified and characterized. The identified indicators are organized in four main groups:

- Performance indicators for the photovoltaic power plant use case;
- Abstracted performance indicators for the eight business scenarios identified in GloNet;
- Technical performance indicators related to the GloNet platform;
- Indicators measuring the project's success based on its created impact in relevant groups of stakeholders.

D2.2: Interfaces for required services

Focused on designing a set of generic concepts and mechanisms for the development of customizable, scalable and multi-platform user interfaces.

D5.11: Specification of support services for management of long-term base network

This report clarifies the notion of long-term base network, a form of virtual organizations breeding environment (VBE), and its use in GloNet. The set of software services for the management of these networks are identified and specified. Two major groups of support services are considered:

i) Base management functionality, including core services for VBE creation, members management, competences management and gap analysis, members profiles management, groups management, incentives management, etc.

ii) Advanced functionalities, including sub-systems for trust management and value systems alignment assessment.

D8.41: Policy Action Plan - Year 1

This deliverable is dedicated to the definition of the baseline for the Policy Action Plan with the analysis of current policy priorities adopted by the European Commission and national and regional governments of some European countries, and the identification of main stakeholders (social, economic and policy makers) that will play an important and relevant role in the implementation of the actions recommended by GloNet. GloNet main stakeholders have been identify and some initial ideas from the initial analysis of the Commission "Innovation Union" and the "Digital Agenda" documents and other initiatives that have been developing by regional and national government were defined.

Furthermore a methodology for the development of the Policy Action plan was proposed mainly based on SWOT analysis, experts interviews and the elaboration of a policy action matrix.

D8.61: Report on Cluster Activities - Year 1

This report describes the activities and contributions to the FInES (Future Internet Enterprise Systems) cluster during the first year of the project.

Besides the participation in the various meetings and workshops organized by the cluster, GloNet had a major role in the launching of the new Task Force on Collaborative Networks.

As part of the initial outcomes of this Task Force, a white paper on Taxonomy of Collaborative Networks Forms was elaborated.

Copies of these reports can be downloaded from the project website

www.glonet-fines.eu/]

GloNet CAN HELP THE EMPLOYMENT OF YOUNG PEOPLE GIVING SOLUTIONS TO THE NEEDS OF NOVEL BUSINESS INCUBATION

In these years of a deep economical crisis, one of the main priorities of the Society, and specifically of the European Commission, according to the Strategy of Lisbon and within the framework of crises in which the global economies are, is to impel the growth and the employment in the UE. In this sense, EC has established a set of measures in order to help funding new creation, innovative and in expansion of small and medium enterprises (SMEs), focused on improving the competitiveness of entrepreneurial initiatives.

For a long time enterprise incubators have provided a very important help to the entrepreneurs in building up their activities and companies, so, we can say that, in this field, physical business incubation facilities are playing a growing role. At the same time, needs are changing and the traditional facilities given by the incubators are not enough to fulfill the more sophisticated needed services. As such, incubators are specializing and promoting the start-up of networks of different specialists who make possible the co-creation of advanced services as basic support of the maintenance of their continued activity.

A new kind of stakeholders are appearing, based over the fact that it is almost impossible for the incubators to provide all needed services by their own. Incubator's owners that can be private entities (banks, universities, business, etc) or public entities (Government, Chamber of Commerce, Business Associations, etc); Tutors/mentors; Entrepreneurs/start-ups who need a physical place (at an affordable price) and professional support to develop their business initiative; Lending organizations who give incentives to set up a Physical Business Incubator Facility; Funding entities, public and private entities which offer different types of funding (loans, business angels, seed capital, risk capital, subsidy, etc) to entrepreneurs to allow them to set up or consolidate their companies; Service provision companies, and entities which provide the necessary services to "future incubators" for their management and operation.

GloNet, which focuses on collaborative networks and new business models related with cloud computing, can offer a good approach for the management and maintenance of a Physical Business Incubator Facility, including the possibility of establishing networks of business incubators facilities.

Antonio del Cura, Patricia del Cura, SKILL

Intersolar Europe 2012

Intersolar Europe 2012, the world's largest exhibition on Solar Industry, held in Munich from 13 - 15 June opened a wide vista of opportunities and business partnerships for iPLON GmbH. This was the fourth consecutive year that iPLON was exhibiting at the event.

Although the general dampness in the global solar scenario was manifested in the form of a drop in the number of exhibitors compared to last year, the opening of new untapped opportunities in various other parts of the world meant that the event was more international than last year. According to the organisers, a total of 1909 exhibitors represented the solar industries of 49 different countries. iPLON was one among the 871 exhibitors who showcased their products to 66000 visitors from 160 countries.

iPLON exhibited its extended product line of Local SCADA Monitoring Systems in addition to inaugurating its services in the Solar PV Power Plant Operation & Maintenance domain. These were well received by a wide range of visitors who also expressed interest in prospects of future partnerships. iPLON also demonstrated its Remote Monitoring System through real-time performance data from solar plants in Germany, Italy and India, which was well received by the visitors and they provided the feedback that their awareness about the various functionalities of the products and their technological superiority of iPLON has increased.

iPLON 's strategy of contacting the visitors before the event paid off well. Around 15% of the visitors had already known about the company and its products in advance. This helped iPLON engage in more efficient and mutually beneficial business discussions with them.

*Idea of GloNet well received by visitors at Intersolar Europe 2012*

The visitors to the iPLON booth consisted of companies from various countries, belonging to different roles in the Solar PV value chain. The distributed nature of audience helped iPLON productively present the tremendous potential of Collaborative Networking. Madhavan Nampoothiri from iPLON India discussed in detail with the 20 - 25 visitors who expressed interest in the idea of GloNet.

Visitor Profile (by role) at iPLON GmbH booth

- Project Developers — 30
- EPCs — 30
- Possible Partners for iPLON (VE member) — 15
- O&M — 10
- Investors — 5
- Others — 10

iPLON was able to network with about 120 different companies who hailed predominantly from Europe and Asia. These included several major Indian firms like Lanco Solar, EMMVEE Solar etc. as well as SMEs from Europe and Asia who unequivocally acknowledged the importance of collaborative networking for growing the Solar PV industry in emerging markets like India. These companies have expressed interest in following the progress of GloNet project and have shared their coordinates for further correspondence in this regard.

Visitor Profile (by region) at iPLON GmbH booth

- Rest of Europe — 30
- Asia — 25
- Africa — 20
- Germany — 15
- America — 10
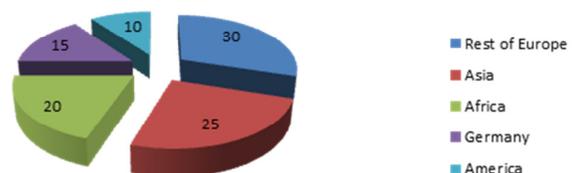
The significant mileage experienced by iPLON through meaningful interactions with the focused audience at Intersolar Europe 2012 and their highly positive reception to GloNet are key contributing factors to the plans of showing a demonstration system of GloNet at Intersolar Europe 2013.

V. Thamburaj (iPLON)

FInES Task Force on Collaborative Networks

A white paper on **Taxonomy of Collaborative Networks Forms**, prepared in collaboration with SOCOLNET and IFIP WG5.5 is available at http://www.fines-cluster.eu/fines/jm/Publications/Download-document/305-Taxonomy-of-Collaborative-Networks-Forms.html
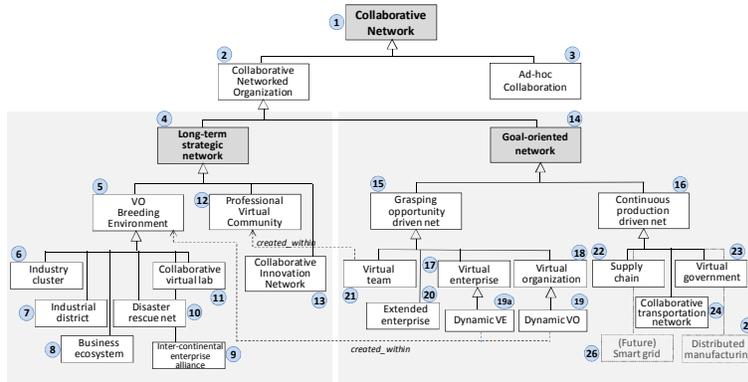
This report intends to contribute to the consolidation of base terminology in collaborative networks and thus facilitate the dialogue and collaboration among the Factories of the Future projects included in the FInES cluster. The main current forms of collaborative networks, both in industry and services, are identified and a taxonomy is proposed. Emerging application domains are also briefly discussed.

Contribution to education

Preliminary results from GloNet were introduced in a Master course for Electrical and Computer Engineering students at the New University of Lisbon, Portugal:

> **Cyber Physical Systems**
> and
> **Solar Networks Supervision**
> (as part of the Distributed Manufacturing Systems course, 18 students)
> http://www-srmi.dee.fct.unl.pt/leec/sdm/2011_2012/classes/default.html
> 23 May 2012

These seminars were also attended by 32 students from the Computer Science course of the University Agostinho Neto, Angola.

PRO-VE'12
13th IFIP Working Conference on Virtual Enterprises

Bournemouth, UK, 1-3 October 2012

Collaborative Networks in the Internet of Services

Recent developments under the umbrella of Future Internet offer new concepts and mechanisms to support a new generation of advanced collaborative networks. Particularly relevant is the consolidation of the Internet of Services and its associated infrastructures and related concepts such as service ecologies and service parks. Complementarily, recent progress on Cyber Physical Systems induce new virtualization possibilities for resources and capabilities, leading to notions of Industrial Internet, Sensing Enterprise, Internet of Events, etc.

Moving from services provided by a single entity to more complex or integrated multi-stakeholder services requires new approaches in dynamic service composition and thus the effective consideration of the "collaboration" perspective. This is a fundamental step in reducing the gap between the notions of software service and business service.

Collaborative Networks naturally benefit from such new possibilities, but they also bring important elements to the future Internet at various levels, including structural and behavioural models, value systems and value creation, and the business perspective. On the other hand, development of the so-called Services Science adds clarification to the semantics of the service concept in which context synergies with collaborative networks need to be further explored.

www.pro-ve.org