

The Future of SPI Knowledge and Networking in Europe – A Vision

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Abstract. Authors of this paper have been founders of the EuroSPI (1994 – now, www.eurospi.net) network with the first networking of SPI strategies published at CON'93 conference. They were also founders of the idea and establishment of a Europe wide certification network ECQA (www.ecqa.org) in 2005 (strategy development 2005 – 2007, online systems set up 2008 – 2009, Europe wide roll out since 2009). In a think tank and network of leading SPI experts we have developed the idea of a future European knowledge networking strategy and how the existing SPI paradigms will shift into a new SPI world applying new principles for collaboration, networking, and using new media which became available in the last 3-4 years. This vision will then impact about how we collaborate and implement SPI in the future.

Keywords: Process Improvement, Networked Organizations, Knowledge Strategies.

1 EuroSPI and the SPI Hype Cycle Paradigm

In 1993 at the CON'93 conference the idea of a European expert network of SPI was presented the first time. The idea led to the first EuroSPI conference in 1994 in Dublin and further conferences till now. The basic concept of EuroSPI network is that a continuing exchange of SPI knowledge between industry and research is supported to assure SPI implementation, base SPI work on real practice and form a Europe wide agenda and movement with partners world-wide. From each conference ideas were created and a pool of experiences has been set up and made available as online library.

This strategy was based on the SPI Hype Cycle Paradigm which will continue to create a library of SPI practice for European industry, to increase European competitiveness. It is typical in research and industry that any new concept runs through an

innovation hype cycle (ref. the idea of the Hype Cycle was introduced by Gartner in 1995). This hype cycle includes the following stages:

1. Technology Trigger
2. Peak of Inflated Expectations
3. Trough of Disillusionment
4. Slope of Enlightenment
5. Plateau of Productivity

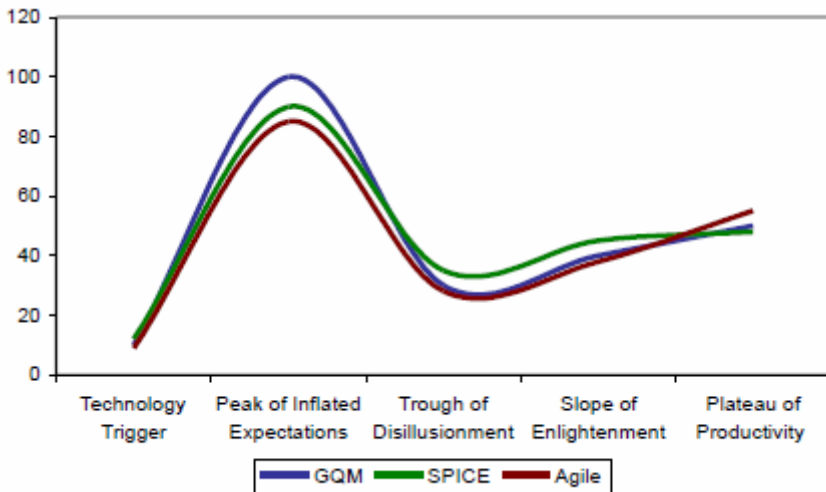


Fig. 1. The SPI Hype Cycle Based EuroSPI Network Strategy

Especially in SPI, we could observe many methods and concepts to come and claim that they represent the silver bullet to solve all problems. When we observe the last 20 years of SPI, it is actually not true that we ever found one single solution that solved all problems. It is rather as that all new concepts and methods ran through a hype cycle and were integrated later on a plateau of combined use of methods and concepts based on industrial feedback and experience.

Here are some examples:

In the early 90s there was a competition between the GQM (Goal Question Metrics) approach and the assessment methods. Nowadays people do not really remember this era any more and consider it natural, that in assessments and improvement methods we use techniques to align business with improvement goals and metrics and track SPI actions.

In the early 2000s there was the new strategy of teamwork based environments to apply processes organisation-wide. Meanwhile people consider it natural that Wikis, teamwork systems and process libraries support assessments, improvements and goal tracking (GQM).

Over the last years a strong agile community has emerged pointing out the higher value it attributes to approaches which were less favoured by earlier ones. However looking at 20 years of experience in the EuroSPI community, it is already visible that practical experience from industry shows its impact to enter the plateau of productivity. Leading engineering firms will hold this year a workshop about 14 practices, that really worked in agile development and outline what does not work.

Over the last years, a safety engineering community came up with safety standards and claimed the superiority of their own approaches. Since 2009 methods to combine SPICE and safety standards have been published.

What EuroSPI really makes interesting is, that we formed a platform for experience exchange, empowering new ideas (supporting researchers) but also collecting realistic practices on the plateau levels for industrial implementation (providing support to industry).

In [1] we published the first ideas in 1993, in [3] we published a work of 30 European experts in the US with a summary chapter about European developments and their future, and in [1] the SPI hype Cycle strategy was summarized.

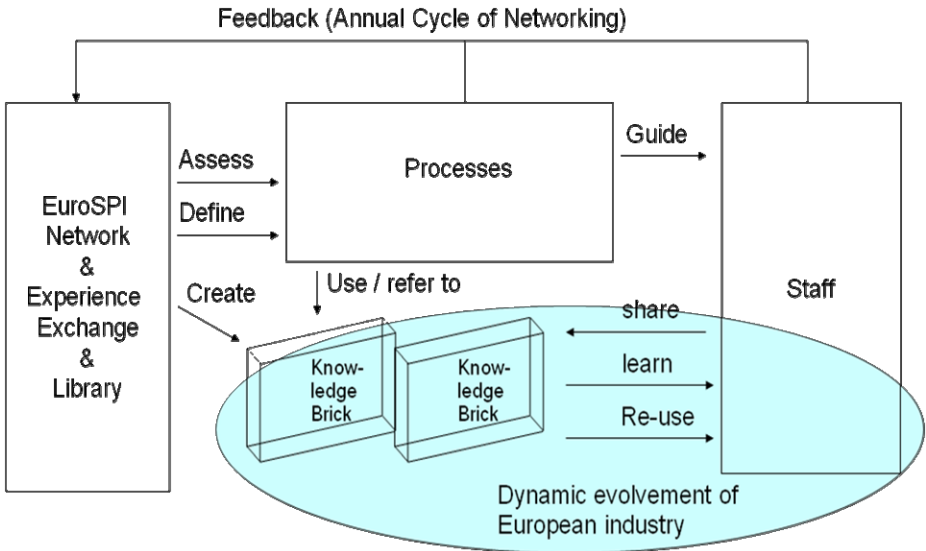


Fig. 2. The SPI Hype Cycle Based EuroSPI Network Strategy

Since 1993 in an annual cycle experiences are exchanged, the SPI library is extended, the partnerships are created and implementation in European industry is enforced.

2 SPI Networking Strategy to Package and Transfer Knowledge in Europe – The European Certification Network

After nearly 10 years EuroSPI the question in 2005 was how to transfer the existing experience library to the market and how to speed up the take up in industry. Thus in 2005 a new European strategy was created to package knowledge (experience papers based on similar topics) into skills sets, training materials and create (like the US strategy by PMI and related institutes) a European certification system around that topics.

In 2005 to 2007 [4], [5], [6] the strategy was developed in the EQN (European Quality Network Project with 13 partners from 8 countries), in 2008 – 2009 the online support system was established to support Europe wide training and certification (EU Cert Campus Project with 23 partners from 14 countries), and 2010 – 2011 local representatives across Europe are established in the DEUCERT project.

We then have achieved more than 10000 certifications since 2005 (the start), more than 40 training organizations supporting, more than 20 European consortia developing the different knowledge packages / professions.

2.1 European Certification and Qualification Association (ECQA) Platform

If there is a need a person can attend a course for a specific job role online through an advanced learning infrastructure [5]. See Figure 3.

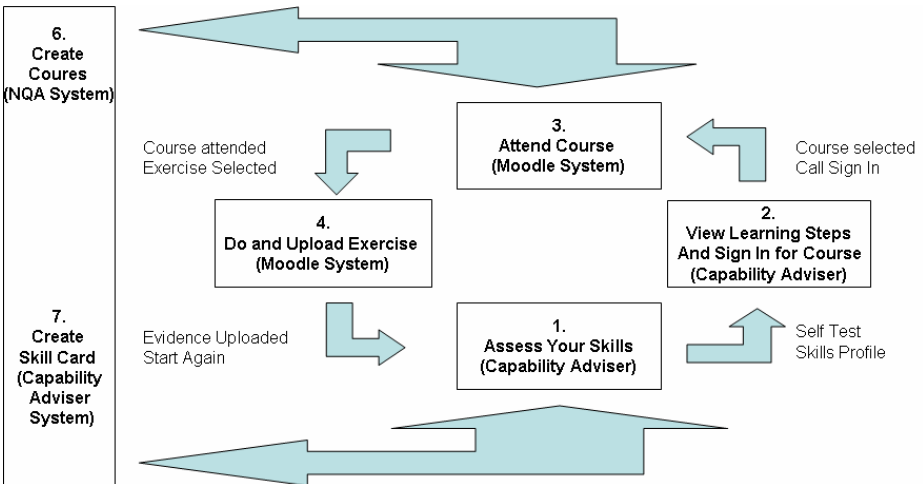


Fig. 3. The Integrated European Skills Acquisition System

You start with a self assessment against the skills [2], [5], [12]. Then you can sign into an online course. Here you are guided by a tutor and do a homework which is being corrected by the tutor. Finally the homework and real work done in your project is sufficient to demonstrate the skills.

Moodle – This is a web based learning management system which is public domain available. (www.moodle.com)

Capability Adviser – This is a web based assessment portal system with a defined interface database to connect the systems. (<http://www.capability-adviser.com>) [12]

NQA – Network Quality Assurance – This is a web based team working tool which was developed in the EU IST 2000 28162 project. [5]

So far the following profession have been configured –

- ECQA Certified E-Learning Manager
- ECQA Certified EU Internal Financial Control Assessor
- ECQA Certified EU Project Manager
- ECQA Certified Governance SPICE Assessor
- ECQA Certified Incubation Manager
- ECQA Certified Innovation Manager
- ECQA Certified Integrated Design Engineer
- ECQA Certified IT Consultant for SMEs
- ECQA Certified ISECMA© Professional for IT-Security Management
- ECQA Certified Lean Six Sigma - Yellow Belt (in development)
- ECQA Certified Lean Six Sigma - Orange Belt (in development)
- ECQA Certified Lean Six Sigma - Green Belt (in development)
- ECQA Certified Lean Six Sigma - Black Belt (in development)
- ECQA Certified Researcher-Entrepreneur (in development)
- ECQA Certified SCOPE Manager
- ECQA Certified Social Responsibility Manager (in development)
- ECQA Certified SPI Manager
- ECQA Certified Terminology Manager – Basic
- Etc.

See www.ecqa.org.

Since 2005 job role consortia were formed from the networked pool of experts and organizations which packaged the knowledge into more than 20 key professions for European industry and formed a European certification system and a pool of training bodies (see Figure 4).

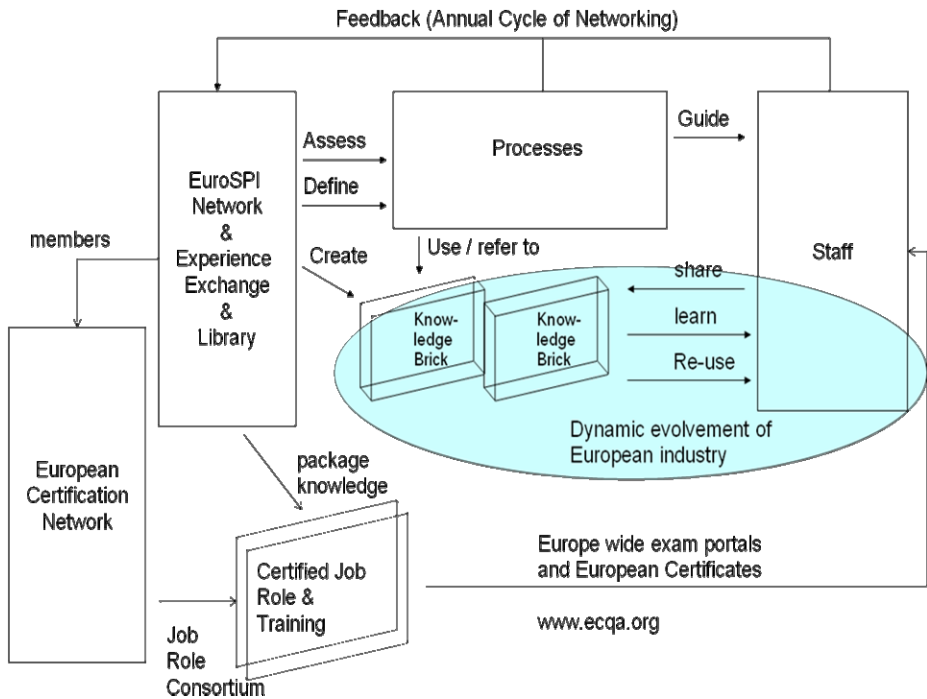


Fig. 4. European Networking Strategy – Evolution Step 2 – Transfer Phase

3 Future SPI Networking Strategies – The Know-Net Strategy

Since 2010 the partners elaborate a evolution for the SPI (innovation and improvement) strategy on a European level which is called Know-Net. The Know-Net strategy is based on the following key principles. The idea is to create a set of rules and infrastructure that allow social media based learning clusters that can dynamically evolve around EuroSPI and ECQA key topics (= topics needed to help European industry to increase their competitiveness).

Clusters of Experts [1], [2], [3], [5]:

The old paradigm of knowledge management assumes that we store all knowledge and implement more and more sophisticated algorithms to search that knowledge and give advice. The new paradigm which we follow in expert and knowledge networks does not believe in that because the tacit knowledge is much larger than the stored one so that any decisions made on just the stored knowledge are questionable in an expert network.

Thus we create social web based expert clusters around key industry topics. Key articles are stored around topics and experts can be connected from there. Instead of a query to a database we use a query to experts clustering around key topics.

It's like the Google principle transported to the European improvement and innovation network of experts idea.

Network Building [1], [2], [7], [9], [10]:

We started with creating one network around EuroSPI. In ECQA we created above 20 sub-networks (Job Role Committees) supporting specific packaged know how. We plan to create a critical mass of further topic driven sub-networks that interface with the main network. You can imagine that like a facebook like number of clusters which have a common middle.

International Multicultural Teams/Networks [7], [9], [10]:

Europe is different from e.g. the US because in Europe we speak many different languages, have different traditions and history, and inside the EU we support the development and independence of regions. This means that even if we will have the same population in total we still will have to deal with many different cultures.

We will need to integrate this by creating a library for cross cultural collaboration experiences and illustrating success stories of cross country collaborations across all European countries and to partners from Japan, India, Middle East, Russia and the US (with European interest).

Continuing Willingness to Learn:

Creating a network and topic based Knowledge network means that we base on people and personal skills of people and experts. People with the ability to understand the forces of change, accepting innovation and knowing that continuous learning is a major success factor will become the main players in the network.

This will be joined by many hundred managers from ECQA (e.g. innovation manager) job roles who implement principles to create system design, innovation, and learning strategies on organizational level.

Continuous Contact to Customers [5]:

It is important to have a mix of industry and research. EuroSPI has meanwhile 4 publishers supporting (Springer for research, Wiley and IG Global and IET Software for experiences from applied research and industry) and also the social web based knowledge clusters around key topics will need to be driven 50/50 by research and industry.

Create Customer Needs in Advance [5]:

European industry is driven by lead engineering companies who themselves have innovation departments. It is important to include their vision in the knowledge topics so that it is possible to create a critical mass of research support in advance for future engineering visions in Europe.

The closer the innovation cycles are to industrial innovation of lead companies, the better the knowledge network can serve strategic interests in the European industry.

Continuous knowledge and idea exchange and management (= knowledge sharing [11]):

A social media based knowledge net around required key topics for industry will support the forming of expert clusters, where industry and research can meet, elaborate joint ideas, implement, and publish the parts which can become public at the European conference.

Foundation of Trust [5]:

Different to the Facebook like architecture European SPI and knowledge networks will need a private (not shared and protected for industry interest) and public space (open for the world). While facebook has this separation, in European expert networks it is planned to make this separation more secure. Only if the industry has trust in the protection of knowledge the industry collaboration is assured in the private space.

For the key experts in the private sphere this will mean increasing contact to industry implementation inside the private space.

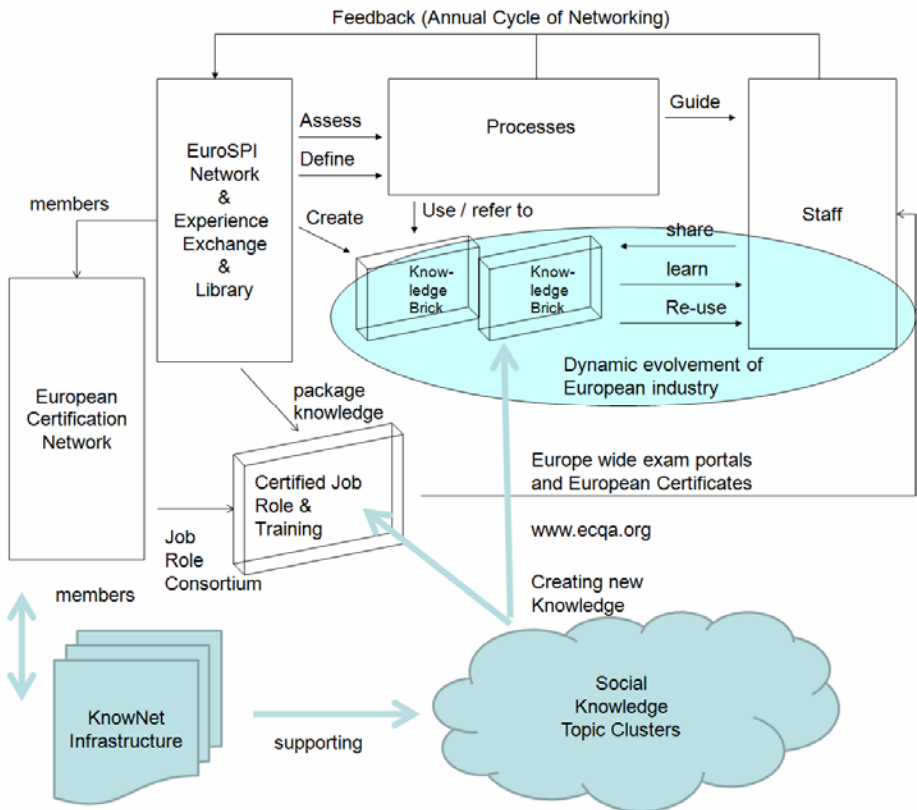


Fig. 5. European Networking Strategy – Evolution Step 2 – KnowNet Phase

Social responsibility & ethics:

Working inside a social web community, dealing with knowledge, requires an extensive understanding of social responsibility and the code of ethics. We have currently a number of research thesis running to support creating this basic rules for participating in the future European Knowledge Net for SPI.

Idea pool and later exploitation:

It is now enough to just share knowledge, or create a social media based knowledge net around required key topics for industry. The critical mass of experts around topics shall also function as a think tank for new ideas. New ideas shall be transported to / disseminated by the annual event, the job role committees of ECQA, and shall lead to new initiatives and new key topics in periodical innovation cycles.

4 Future Outlook and Implementations

4.1 Future Systems

In 1993 EuroSPI was the first conference to start SPI networking. After 1994 the EU ESSI program financed many conferences across Europe to do similar things. In 2005 the idea to create a Europe wide certification network which is recognized seemed nearly impossible competing with existing powerful networks from US. Now 7 years later it is reality.

The idea to create such a modern European knowledge net strategy seems big and maybe some will say (as it happened in the past) that this is too big and not working for Europe. However, considering our success record of EuroSPI and ECQA in the past 18 years, for us it is only 3 to 4 years that you will see this strategy alive.

This means that the infrastructure underlying ECQA and EuroSPI will need to evolve by including more social media web based and knowledge net based functionality. It also means that we need to elaborate social responsibility and ethics rules for the network.

4.2 Impact on SPI

SPI implementations will become like Java programming nowadays. Twenty years ago a programmer first structured the program, then coded each function, then integrated and built the code, and tested the executable. Nowadays we have a MS Developer framework, Java libraries, public domain applications and the same programmer can create in less time many times more code by re-using existing libraries and structures.

Lets assume that SPI is like Google and we get like in cloud computing a proper selected set of methods and experiences by accessing an expert cluster.

This shall speed up the innovation capacity of European research and industry.

4.3 Continuously Provoking Radical Innovation

The previously described SPI innovation cycles in Europe must continuously get fuel to turn the wheels. Innovation does not happen if we do not contradict to the

traditional ways of work. So it makes sense to create focused workshops to motivate the next innovation cycle by e.g. organizing workshops for brainstorming like “We have done agile – what comes next?”, which is done currently by the Scandinavian partners of the EuroSPI network.

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