S-Cube, the Software Services and Systems Network, will establish an integrated, multidisciplinary, vibrant research community which will enable Europe to lead the software-services revolution, thereby helping shape the software-service based Internet which is the backbone of our future interactive society.

**Motivation**

An integration of research expertise and an intense collaboration of researchers in the field of software services and systems are needed to address the following key problems:

- **Research fragmentation:** Current research activities are fragmented and each research community (e.g., grid computing or software engineering) concentrates mostly on its own specific techniques, mechanisms and methodologies. As a result the proposed solutions are not aligned with or influenced by activities in related research fields.

- **Future Challenges:** One challenge, for example, is to build service-based systems in such a way that they can self-adapt while guaranteeing the expected level of service quality. Such an adaptation can be required due to changes in a system’s environment or in response to predicted and unpredicted problems.

**Expected Impact**

S-Cube will pursue the following objectives which will have a long-lasting impact on European research:

- **Re-aligning, re-shaping and integrating research agendas of key European players from diverse research areas.** By synthesizing and integrating diversified knowledge, a long-lasting foundation for steering research and for achieving innovation at the highest level will be achieved.
- **Inaugurating a Europe-wide common program of education and training for researchers and industry.** This will create a common culture that will have a profound impact on the future of the field.

- **Establishing a pro-active mobility plan to enable cross-fertilisation,** which will foster the integration of research communities and the establishment of a common software services research culture.

- **Establishing trust relationships with industry.** Via European Technology Platforms (specifically NESSI) a catalytic effect in shaping European research, strengthening industrial competitiveness and addressing main societal challenges will be accomplished.

- **Defining a broader research vision and perspective.** This will shape the software-service based Internet of the future and will accelerate economic growth and improve the living conditions of European citizens.

**Technical Approach**

To reach the above objectives, S-Cube brings together over 70 researchers and over 50 Ph.D. students from 15 institutions, which jointly carry out the following three types of activities:

- **Integration Activities:** Integration activities tackle fragmentation and isolation of research by different means: First, a knowledge model will be developed that captures terminology and competences of S-Cube partners and their research. This will support eliminating the duplication of research efforts, better adjusting research activities of beneficiary institutions and restructuring already existing research agendas. Further, a Pan-European Distributed Service Laboratory will be established as a high-quality research infrastructure to provide access to state-of-the-art collaboration facilities. Finally, by providing a diverse and vigorous program of education, training and specialist courses for researchers as well as an intensive mobility plan within the network, a cross-fertilisation of knowledge and durable research integration will be achieved.

- **Joint Research Activities:** Work in S-Cube will be guided by the S-Cube research framework (see Figure 1), which clearly distinguishes between principles and methods for engineering and adapting service-based systems and the technology which is used to realize those systems while taking into account cross-cutting issues like Quality of Service (QoS) and SLA compliance.

![Fig. 1: S-Cube's Research Framework](image)

- **Spreading of Excellence Activity:** This activity will ensure a broad dissemination of research results, stimulate industrial and commercial interest, and enhance the public visibility of the research conducted within the network. This includes – besides other means – the S-Cube Web Portal, the organisation of international conferences and specialised workshops and summer schools, as well as a European Ph.D. programme.

**Openness**

S-Cube invites organizations, research groups or researchers to join S-Cube as associate partners on the basis of the identified research gaps. Associate partners will be paid travel and subsistence. They will gain access to S-Cube internal information and may participate in S-Cube meetings. The admission process will be published on the S-Cube Web Portal.

**For further information:**

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