ITEA 3
Seizing the high ground in a time of change

The case for ITEA 3

EUREKA

ITEA 2

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Document prepared for the joint meeting of the ITEA 2 Directors Committee and ITEA 2 Board
Istanbul, 27 April 2012

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Foreword

The preparations for ITEA 3 took place from October 2010 to April 2012. This document summarises the results of this work. During this period, a wide variety of documents were produced. The purpose of this short paper is to give an overview and to distinguish the application package from the additional material.

The application package for ITEA 3 to EUREKA consists of:
- EUREKA application form
- ITEA White paper: *'12 years of ITEA. Achievements & results of the EUREKA programmes ITEA and ITEA 2'*
- ITEA Roadmap for Software-intensive Systems and Services, Edition 3
- ITEA-ARTEMIS joint task force document: *'ITEA and ARTEMIS: two instruments for industry driven innovation based on ICT'*

The additional material for the ITEA Directors is:
- Road to ITEA 3
- Delivery of phase 1 of the Road to ITEA 3 (Annex to this document)

We would like to express our gratitude to all members of the ITEA bodies, ITAC and DC for their continuous support and encouragement.

The ITEA Presidium,
April 2012

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ITEA rationale
and vision 2030

There is a wide consensus that the period from now to 2030 will be one of permanent change and disruption. The major areas of these changes and disruptions seem to be:

- Management of scarce resources;
- Mobility services;
- Personalised health and nutrition; and
- Increased demand for safety and security of people, physical goods and global information networks.

In addition to these four areas, some on-going global trends in business and the economy deserve special attention: the service economy, the digital society and globalisation.

A common starting point for all these considerations is the observation that the world's population will grow from 7 billion people today to 8.3 billion by 2030; 95% of this growth will take place in developing countries.

Furthermore, there is a general consensus that information and communication technologies (ICTs) will continue to play a decisive role in innovation and the mastering of economic and societal challenges in the period up to 2030. We see ICT in the economy and society in six categories:

1. Commodity services which are not mission-critical;
2. Mission-critical simple services;
3. Smart products;
4. Smart services;
5. Innovative engineering; and
6. Smart infrastructure.

For Europe, an industry which is strong in ICT-based innovations in all these categories is a prerequisite for maintaining a competitive position at the global level. Moreover, it creates high-value jobs in the ICT industry and also in other more traditional industries which are dependent on ICT. For example, nowadays 40% of the added value of a car is in software. In other industries, ICT delivers increased productivity and thereby also contributes to employment and prosperity.

The last five categories are clearly being addressed in ICT research and innovation. But the first category – non-mission critical commodity services – also deserves attention of the research and innovation community. Bringing low-cost high-volume commodity services back to Europe is a positive challenge. The key to this is clearly automation.

ICT is being applied successfully in many economic and societal key areas. ICT can create new markets for established parties and open up existing markets to new players. ICT is an innovation driver touching many key areas. However, this driver cannot run on its own. To maximise the use of ICT, it should not only be applied intelligently but should also be fuelled by research and development (R&D) of innovative applications. Research should push the innovative applications and the application fields should pull to get the right research results. According to '*The JRC 2011 report on R&D in ICT in the European Union*' (http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=4399), the ICT industry and ICT-enabled innovation in non-ICT industries and services make an increasingly important contribution to the economic growth of advanced economies.

To keep Europe ahead in the global market, the establishment of ecosystems involving large companies, SMEs and academia is essential. Funded co-operative R&D projects, by their neutrality, offer the environment to create confidence and build such alliances. Public investment in research is an important instrument to support this. According to the JRC report quoted, EU governments fund a smaller share of ICT R&D in relation to total public funding for R&D compared with the USA. In 2007, 6% of total public funding for R&D in the EU (€5.3 billion) went to the ICT sector, while it was close to 9% in the US (€10.4 billion); so EU ICT R&D investment is half that of the USA. According to the Digital Agenda of the European Commission, Europe needs to double its public spending on ICT R&D at EU and member state level by 2020 and also create the best conditions for the private sector to do the same.

ITEA has a convincing and proven track record in ICT-based innovations. The ITEA 3 programme is now ready to address new challenges, to contribute to the competitiveness of jobs and businesses, and to strengthen its economic impact, particularly by encouraging rapid exploitation of research results, and is committed to:

- Paving the way towards societal computing by addressing key societal issues such as health, wellbeing, energy, transport, knowledge and education;
- Addressing greater sustainability and efficient use of scarce resources such as energy, water and radio frequencies;
- Responding to the generalisation of connectivity by addressing the challenge of massive scalability; and
- Supporting European industry in the transition to the service economy by providing the market with end-to-end solutions including both products and services.

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One goal
– two instruments
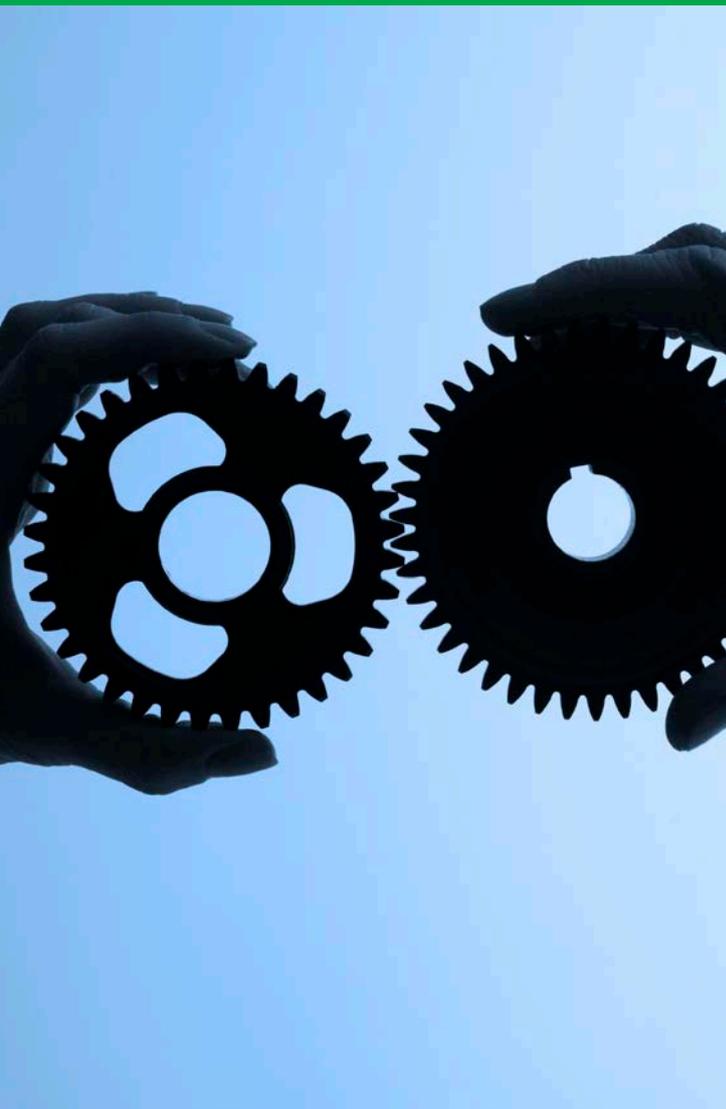
In addition to diverse national and European efforts, the EUREKA ITEA 2 Cluster and the ARTEMIS Joint Undertaking are two programmes which support ICT-based innovation. Both instruments are aimed at strengthening and improving Europe's competitiveness and wellbeing of European society in their respective fields under the leadership of European industry.

ARTEMIS and ITEA will remain important instruments for mastering the challenges ahead. The statement "One goal, different instruments" is more valid than ever:

- ARTEMIS: industry-driven, top-down, based on strategic research agendas (SRAs), targeting trans-European societal needs, focused on networked embedded systems; and
- ITEA: industry-driven, bottom-up, based on a living state-of-the-art roadmap, targeting business opportunities of concrete relevance for countries and companies, focused on software-intensive systems and services.

In September 2011, it was decided to expand co-operation at the strategic level with the creation of a high level umbrella structure supported by Sherpa-style working groups on various topics.

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ITEA scope and characteristics

ITEA stimulates and supports innovative, industry–driven, pre–competitive R&D projects which will contribute research excellence to Europe's competitive software–intensive systems and services sector.

ITEA has a proven track record with major achievements in Europe's most competitive industries, such as automotive, communications, healthcare, aerospace and consumer electronics. In future, with the transition to a service economy, ITEA will continue to play a key role in innovation and the mastering of economic and societal challenges in the period to 2030.

ITEA offers a unique approach to software-intensive systems and services development. This uniqueness comes from a programme led by an industrial community, closely connected to public authorities. ITEA is open to partners from large industrial companies and small and medium-sized enterprises (SMEs), as well as research institutes and universities. ITEA has proven

its success with large companies as well as with SMEs for which it provides excellent opportunities to broaden their scope internationally.

As a EUREKA Cluster programme, the ITEA approach is:
Industry driven;
- Bottom-up to favour innovation;
- Flexible to favour business impact;
- Market oriented;
- Inter-governmental;
- Based on a multi-dimensional concept of excellence for project selectio n; and
- Community-oriented, easily accessible by industry and SMEs.

In a nutshell, ITEA stands for innovation, business impact and fast exploitation. Its projects are of concrete relevance for every participating company and country.
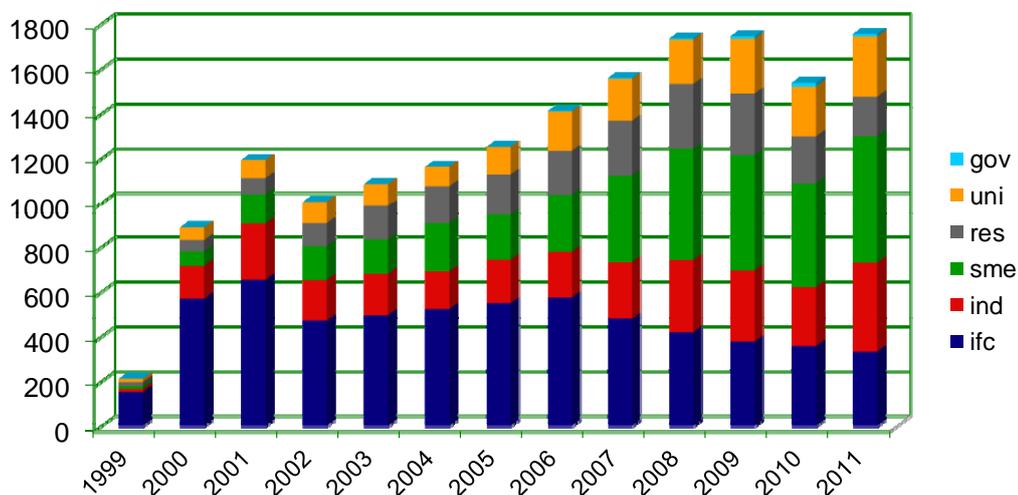
Effort in person–years per year per type of partner (ITEA – ITEA 2)

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ITEA 3 mission, ambition, targets and impact

5.1 Mission

The mission of ITEA 3 is to achieve European leadership in software-intensive systems and services by building on key European strengths and industries through stimulation and coordination of international co-operation in pre-competitive research and innovation.

5.2 Ambition

ITEA 3 has the following ambitions, to:
- Contribute to European competitiveness and wellbeing through ICT-based innovation;
- Address societal needs;
- Anticipate technological trends and paradigm changes;
- Contribute research excellence to Europe's competitive software-intensive systems and services sector;
- Combine research excellence with innovation;
- Deliver tangible results;
- Ensure fast exploitation of results;
- Encourage long term exploitation; and
- Contribute to standardisation.

5.3 Targets and impact

ITEA 3 aims at mobilising a total of 20,000 person-years over the full eight-year duration, translating into an investment of 2,500 person-years per year, representing more than €3 billion in total from 2014 to 2021. This level of ambition follows from the successes and experiences in ITEA 2, the need to close further the gap in R&D investment – 3% of GDP, Lisbon objective – and the ever growing importance of software-intensive systems and services.

ITEA 3 targets	
Start date	1-1-2014
End date	31-12-2021
Number of calls	8
Total effort	20,000 person-years
Total budget	€3 billion
Number of projects	135
Number of partners	1,200
Number of SME partners	600
Dissemination activities (publications/conferences)	6,000
Exploitation results (new products/services/ systems)	1,200
Standardisation actions	350

These targets have been defined on the basis of the figures from ITEA and ITEA 2, shown in the following graphs and table.
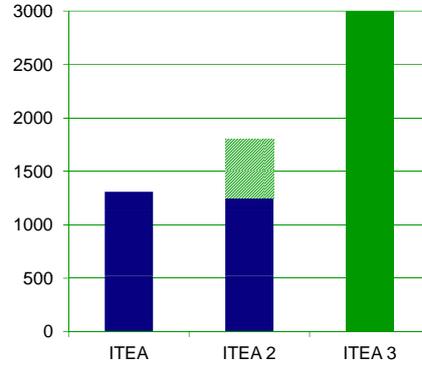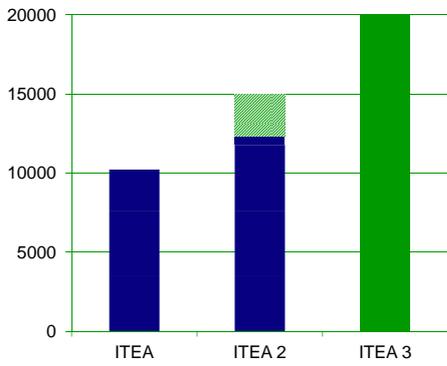
Effort in person–years

Costs in M€

Number of projects

- Target for ITEA 3
- Expectation for ITEA 2 Call 7-8
- Current figures ITEA Call 1-8 ITEA 2 Call 1-6
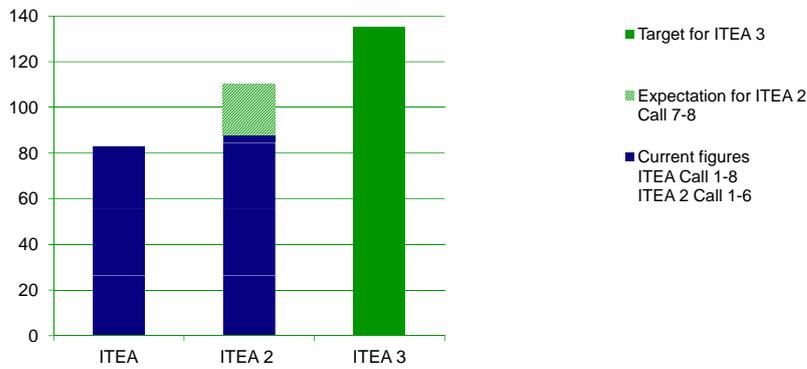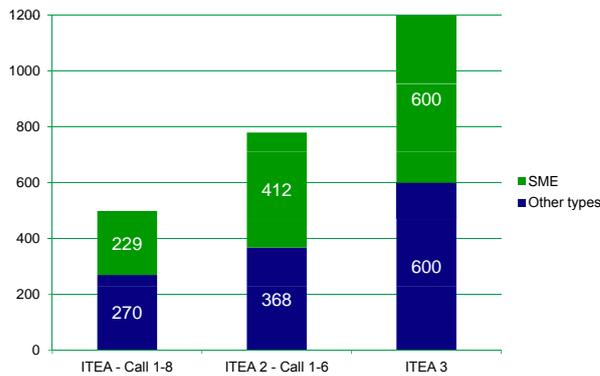
Number of partners

Project results

Call	Dissemination activities (publications/ conferences)	Exploitation results (new products/services/ systems)	Standardisation actions
ITEA 2 Call 1&2 (& finished Call 3 projects)	2161	346	84
ITEA 2 target	4000	1000	250
ITEA 3 target	6000	1200	350

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Changes in ITEA 3
compared with ITEA 2

In order to be prepared for the period ahead, full of change, disruptions and globalisation, four improvement priorities have been defined for ITEA 3:

1. Adaptability: a living organisation with professional change management;
2. A living roadmap instead of a four-yearly static document;
3. An optimised calendar with shorter time from idea to running project; and
4. Strategic links to other clusters – such as ARTEMIS, EUREKA Clusters, EIT ICT Labs and competitiveness clusters – as a stepping stone towards a 'global web of clusters'

6.1 Adaptability

The goal of the adaptability' priority is to ensure that ITEA can adapt itself to changing circumstances at all levels: changes in the economic environment, changes in the competitive landscape and changes in the political or regulatory environment, especially those affecting the funding instruments, all at levels –global, European, national or regional. The way to ensure the adaptability of ITEA as well as transparency in the definition and the management of adaptations is to introduce a lean quality management system (QMS) which defines and periodically updates descriptions of:

- An outward-looking vision of the future;
- Mission and ambitions of the ITEA programme;
- A set of key processes for the ITEA programme;
- Quantified and measurable targets for the results of these key processes; and
- Annually-updated concrete actions to adapt the ITEA programme to changes in the environment.

6.2 The living roadmap

The ITEA community decided to reinvent its roadmap to be even more flexible and to follow the continuous market evolution. ITEA is a bottom-up programme; it is considered that innovation is moving too quickly to predict in advance. It is felt valuable to let people in the field decide when and where to put the innovation effort. Thus a roadmap for such a target is two-fold: a set of

agreed challenges which will be covered by the ITEA programme; and a shared state-of-the-art (SotA) to ensure ITEA projects are actually on the crest of the wave.

This new roadmap will be the heart of ITEA's innovation steering and evaluation processes. It will gather SotAs shared by the ITEA community with all the information coming from the projects themselves. It will be used by the proposers, the steering group evaluators and all the people interested in the SotA of software-intensive systems and services. It will be updated annually before the PO days with the new results of the running projects.

With ARTEMIS-JU and ARTEMIS-IA, the ITEA living roadmap will be linked to ARTEMIS projects in order to include ARTEMIS results into the living state-of-the-art. The living roadmap will be organised in the following chapters:
1. Societal and economic challenges: gathering all the challenges targeted by ITEA projects;
2. Projects: describing the projects which produce the SotA documents;
3. Author database: gathering information on authors of the SotA documents;
4. Company database: gathering information on companies involved in the SotA documents; and
5. SotA documents collected from the projects: creating a panorama from the different areas covered by the ITEA projects.

6.3 An optimised calendar
In a time of permanent changes and disruptions the 'time from idea to project start' is a decisive parameter for every R&D programme. Therefore, for ITEA 3 this is a strategic key performance indicator: average time from idea (PO days) to project start for the first half of the projects.

The initial ambition for ITEA 3 is to have 50% of all labelled projects start within ten months

The reference ITEA 3 call calendar will have a time between idea (PO days) and project start (national funding decisions) of ten months.

6.4 Strategic links to other clusters
Currently ITEA has links to several clusters, such as other EUREKA Clusters, ARTEMIS, EIT ICT Labs and competitiveness clusters.

EUREKA Clusters
ITEA has structural links to other EUREKA Clusters and these links have materialised in the Inter-cluster Committee. This committee, in which each EUREKA Cluster is represented, has regular meetings and a rotating chairmanship. The objective is to have a multidisciplinary approach to address the main societal challenges and share best practices between the EUREKA Clusters.

ARTEMIS
There is a strong link between ITEA and ARTEMIS in which the focus is one goal, different instruments. Since the beginning of ARTEMIS, there has been close co-operation at the operational level between the offices and a joint organisation of an annual Co-summit. In September 2011, it was decided to expand the co-operation at the strategic level with the creation of a high-level umbrella structure including Sherpa-style working groups on various topics.
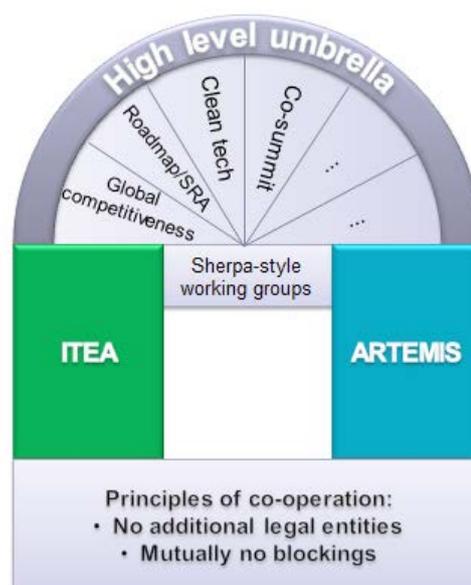
EIT ICT Labs
Already at the creation of EIT ICT Labs at the end of 2010, a co-operation model with ITEA was set up. The first EIT ICT Labs innovation catalysts have been created and are running in connection with new or existing ITEA projects.

PdCs
The links to different European competitiveness clusters – such as Systematic, Point-One and SAFETRANS – focus on combining the international convening power of ITEA with the regional focus and strengths of these clusters. Joint actions are for example to help new local partners – such as SMEs – join the ITEA community and to support international development of strong local initiatives.
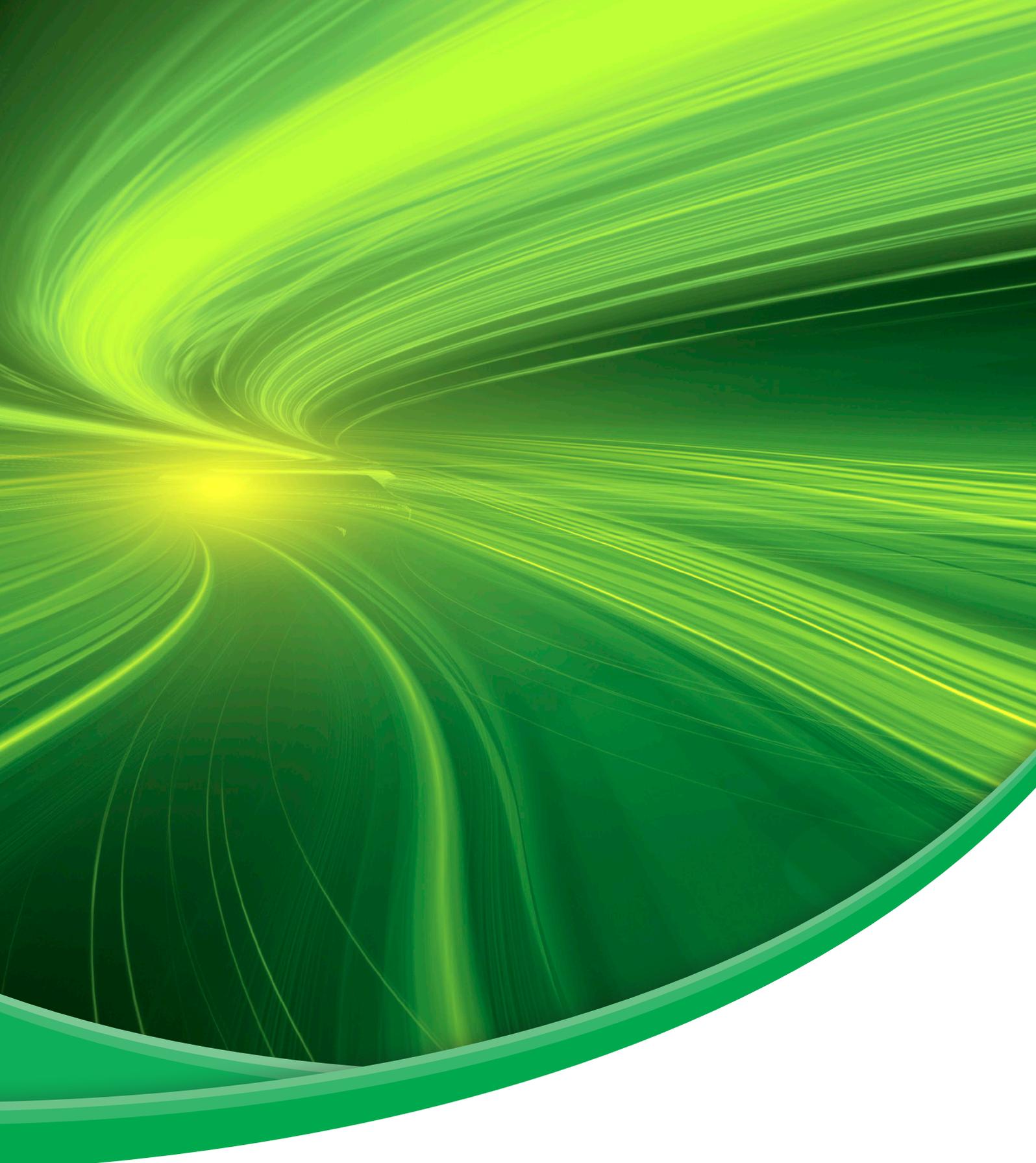
ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

European leadership in Software-intensive Systems
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ITEA 2 is a EUREKA strategic ICT Cluster programme

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