FUTURE INTERNET FOR COLLABORATIVE GOVERNANCE: CLOSING GAPS IN ICT FOR GOVERNANCE AND POLICY MODELLINGHOICES

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CROSSROAD

A Participative Roadmap for ICT Research
in Electronic Governance and Policy Modelling

1

CROSSROAD PROJECT

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ICT for Governance and Policy modelling

- E-Governance aims to
  - improve information and service delivery
  - Encourage citizens participation in the decision-making process
  - Making governments more open, accountable and effective

- Therefore, ICTs are needed to help deliver services through multiple channels that are easy usable, accessible, fast, secure, reliable, seamless, and coherent
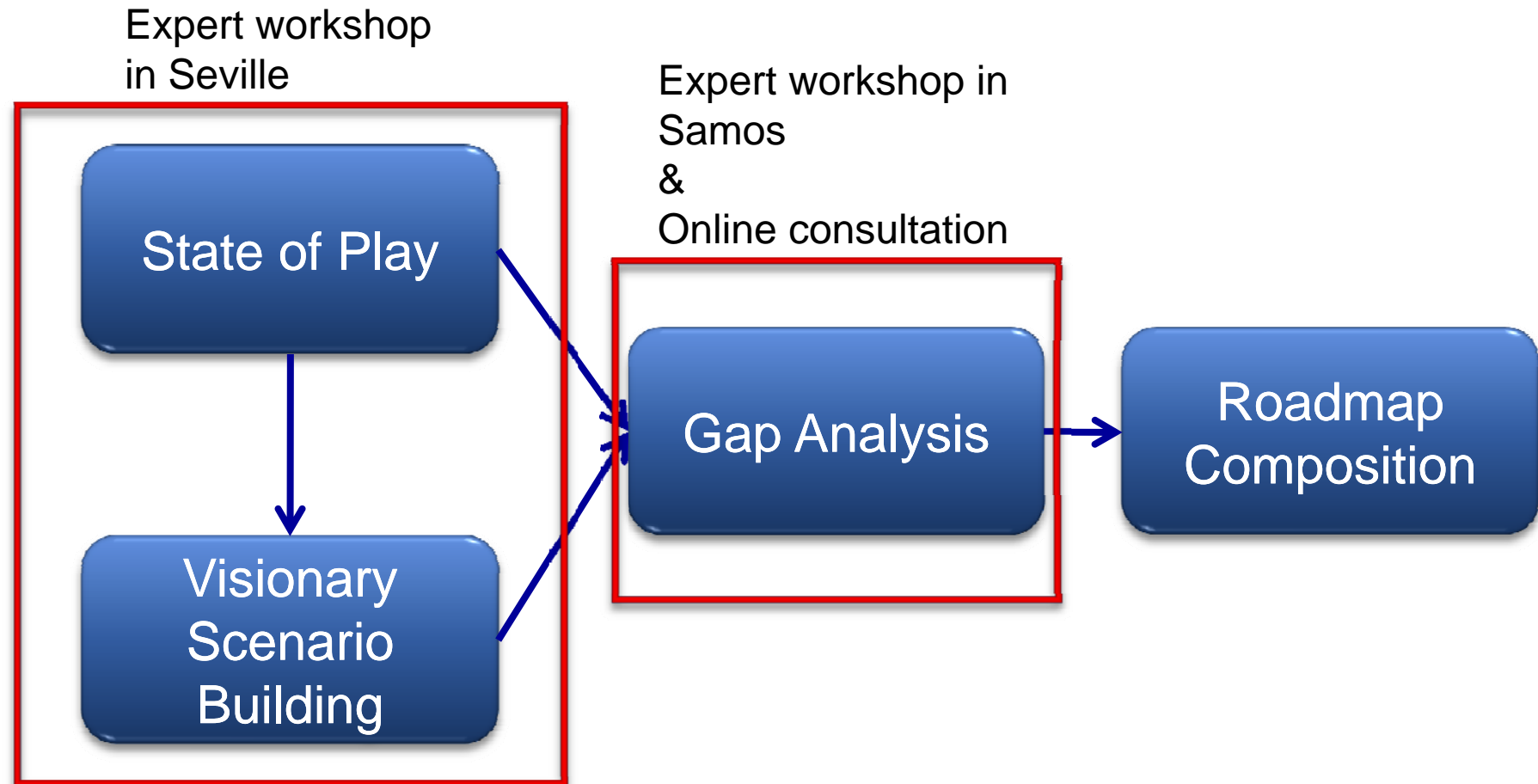
CROSSROAD project

Background

- funded by the EC under the 7th Framework Programme of Information Society Technologies
  - ICT-2009.7.3 ICT for Governance and Policy Modelling
  - FP7-ICT-2009-4 Support Action (SA) Project

Overall Objectives

- Identify and characterize key **research challenges and an**
- implementation model for ICT to support governance and policy modelling in 2030
  - Identify **RTD foci in current research**
  - Develop **visionary scenarios of Governance for 2030**
  - Compare current status with future needs to identify **RTD gaps**
  - Develop a **detailed research roadmap** for the transformation process

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COMPREHENSIVE GAP ANALYSIS

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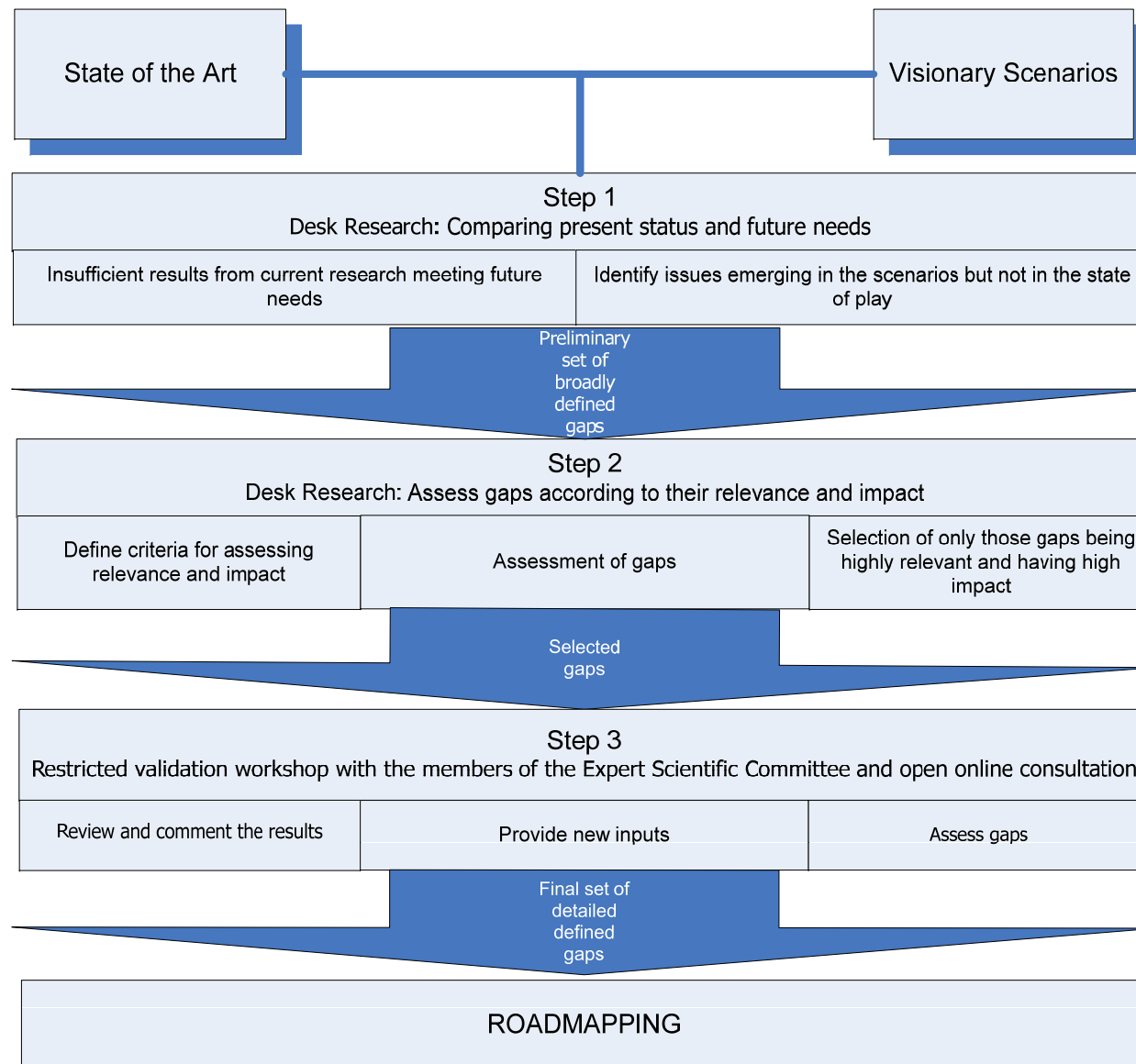**Joint Research Centre
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Comprehensive Gap Analysis Objectives

- Comparing present status and future needs
- Identifying specific gaps and grand challenges in the field of governance and policy modelling
  - the missing elements to realise the most desirable scenarios; and
  - the elements of the current situation that could lead to the realisation of the less desirable scenarios
- Main focus ICT Research Challenges
  - but many gaps will call for non technological research, for technology deployment, and wider holistic issues

Method for Comprehensive Gap Analysis

- Desk research
  - Comparative analysis
    - State-of-play results and visionary scenarios
  - Input for gap analysis validation through public consultation

- Public consultation
  - Gap analysis validation
  - Restricted ESC workshop
  - Public online consultation

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Method for Comprehensive Gap Analysis

State of the Art

Visionary Scenarios

Step 1
Desk Research: Comparing present status and future needs

Insufficient results from current research meeting future needs	Identify issues emerging in the scenarios but not in the state of play

Preliminary set of broadly defined gaps

Step 2
Desk Research: Assess gaps according to their relevance and impact

Define criteria for assessing relevance and impact	Assessment of gaps	Selection of only those gaps being highly relevant and having high impact

Selected gaps

Step 3
Restricted validation workshop with the members of the Expert Scientific Committee and open online consultation

Review and comment the results	Provide new inputs	Assess gaps

Final set of detailed defined gaps

ROADMAPPING

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GAPS IDENTIFIED FOR FUTURE INTERNET FOR COLLABORATIVE GOVERNANCE

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Gaps Resulting from Weaknesses in Current RTD

Massive Government Clouds with all their implications

- Cloud computing is very promising in terms of cost savings and flexibility
- Identify and learn from best practices and policies to facilitate effective incident handling
- Advanced guiding principles and standards are needed
    - to allow "meaningful and unambiguous evaluation and certification of the assurance of cloud-based services" (ENISA)
- Cost benefit analysis is required:
    - to show the consequences of misuse of the systems and
    - to assess the impacts of possible failures of the system (e.g. threshold of security, cheaper alternatives to clouds)

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Gaps Resulting from Weaknesses in Current RTD

Business models for public-private clouds governance

- Cloud computing resources to be accessible by users anytime, anywhere, and from any platform

- Trend of adding connectivity to everything without or only with low consideration of the price

- Need to figure out who pays the price for what

- Before it comes to developing cloud computing services, the potential business models need to be identified

  - Will clouds come as a cheaper platform for services? (cost savings and flexibility)

Gaps Resulting from Weaknesses in Current RTD

Mobility and Participatory Sensing

- Mobility of devices
    - Built-in devices for ubiquitous sensing (e.g. chips or RFID)
    - Open research issue to be addressed in the future, especially for a networked environment of sensors

- Mobility of users from device to device
    - Interoperability of devices and automated data synchronization across different devices
    - Current research focuses on the technical implementation of interoperability
        - a variety of standards covering certain interoperability problems
        - existing technical standards are only isolated applications
    - Need to develop and set up generally admitted standards

- The vision of the Internet of Things is very broad and not yet fully elaborated
    - The EC already identified further research in the field of Internet of Things [11]
    - Internet of Things for Governance and Policy Modelling need sensor data, which comes along with subjective data, such as opinions and quality rating as this is very valuable for policy modelling
    - Leveraging the participation of users as "human probes", instead of employing them just as sensors carrier

Gaps Resulting from Weaknesses in Current RTD

Real-time context-aware services

- Present research covers many topics related to open universal access
  - e.g. inclusion, multiple channel access, accessibility for all, usability, content transformation, broadband access, secured access to transactions by identification and authentication tools and technologies
- In future, time and location independent accessibility should be guaranteed
  - by proper and trusted identification and authentication tools and technologies
- Pervasive or ubiquitous computing and networks for governance and policy modelling call for multi-channel access
  - Need to take into account the requirements of open universal access when studying pervasive computing
  - Small, ubiquitous and wireless technologies are relevant to eGovernance for mobile service provision and multi-channel access for those who are not able to use existing ICT access solutions
  - Need for standardization and interoperability to enable multi-channel access are not yet sufficiently solved
  - Improvements in media-streaming and broadcasting functionalities are necessary to expand the number of users as well as services available
- Lack of services designed and co-created at real time by citizens at their own ends

Gaps Resulting from Weaknesses in Current RTD

Human-computer interaction

- Current Web Content Accessibility Guidelines (WCAG) 2.0 covers a wide range of recommendations for making Web content more accessible
- How can citizens (human-computer interaction) and computers (computer-computer interaction) interact among themselves on the basis of public services
    - exploiting delivered data
    - communicating with various ways (e.g. audio and video) in their real life
- Lack of RTD approaches, which address computer linguistics and other formats of data delivery
    - Need to identify, develop and establish new services in the field of governance and policy modelling
    - e.g. machine translation, automatic summarisation, information extraction and retrieval, natural language interaction with computer, etc.
- Natural language processing for governance and policy modelling is in particular needed in multi-lingual countries or the EU
- Importance of the format of delivered data
    - e.g. text, audio, video, hybrids

Need for RTD in Future Internet for Collaborative Governance and Policy modelling

- There are significant challenges for governance in future

- Substantial contribution of the Internet for collaborative governance and policy modelling
  - to improve economic growth and social welfare
  - Opportunities and threats are not yet fully detected and exploited

- Governance and policy modelling demands
  - urgently appropriate support through appropriate governance and policy models, process flows and analytical tools
  - to properly understand, interpret, visualise and harness all the potential offered by collaborative on-line tools in the governance and policy modelling context
  - effective and efficient social, economic and environmental data collection and processing ensuring reliability and validity

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4   OUTLOOK

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Outlook

- The roadmapping process
  - to develop a set of grand research challenges and research measurements
  - to overcome the identified research gaps
  - to drive certain scenario developments

- Generation of a research Roadmap for ICT solutions for trusted governance and policy impact analysis to help deal with future scenarios involving greater complexity and citizens' involvement

THANKS FOR YOUR ATTENTION!

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