

# TANGO H2020 proposal

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**TANGO Collaboration Meeting,  
Grenoble,  
19th of May 2014**

# Agenda

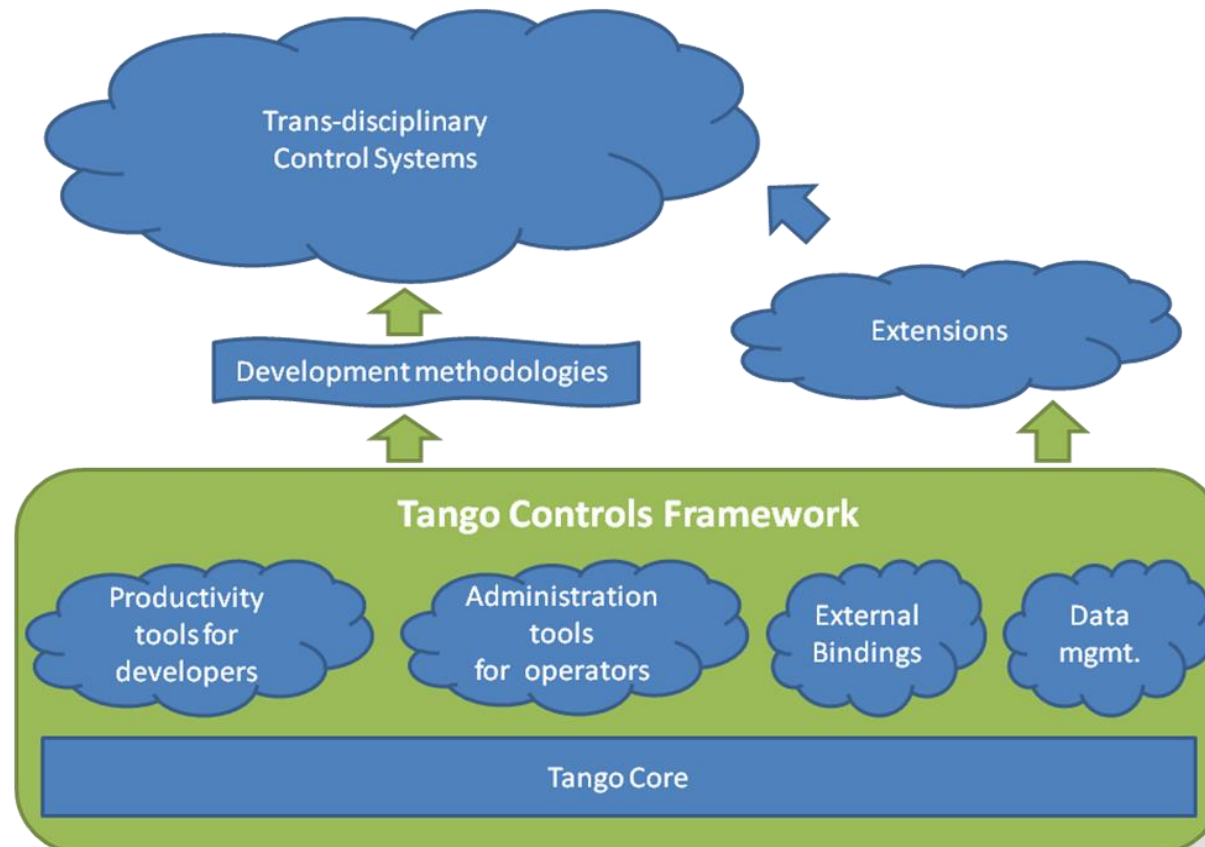
Implementation of ELI-ALPS, Phase 1  
GOP-1.1.1-12/B-2012-0001

- Excellence
  - Motivation
  - Objectives
  - Concepts
  - Ambitions
- Impact
- Implementation
  - Work packages

# Excellence / Motivation

Implementation of ELI-ALPS, Phase 1  
GOP-1.1.1-12/B-2012-0001

- Improving TANGO Core
- Improving the tools
- Researching development methodologies of TANGO based CS



# Excellence / Objectives

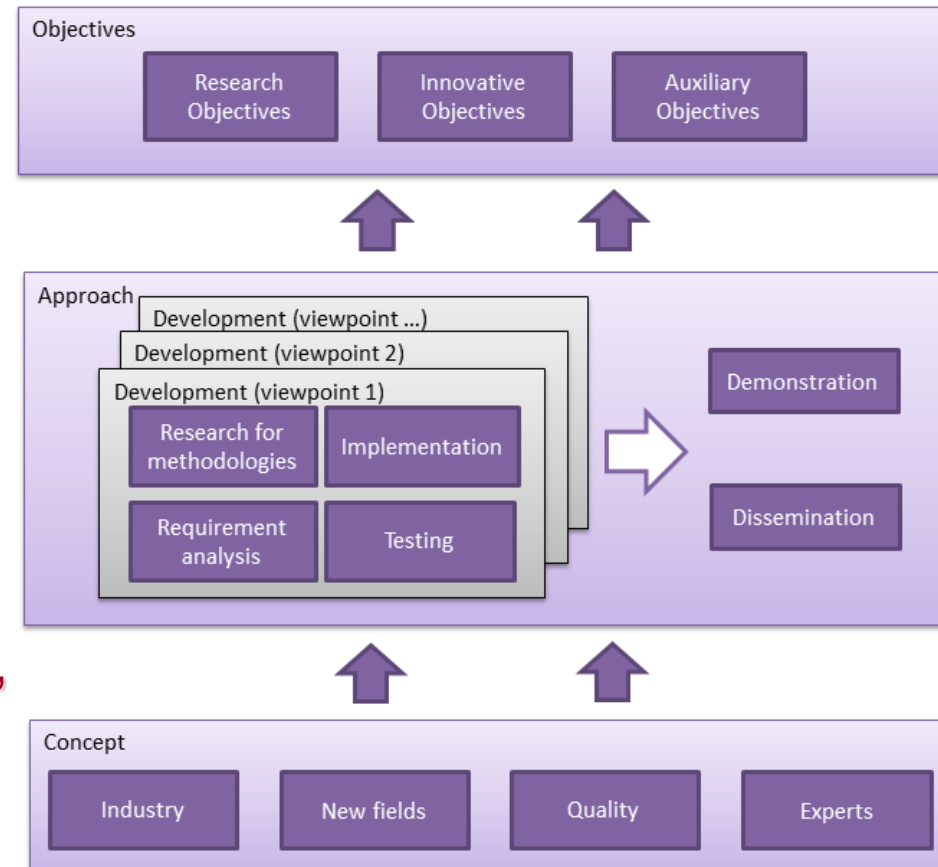
Implementation of ELI-ALPS, Phase 1  
GOP-1.1.1-12/B-2012-0001

- Research Objectives
  - Methodologies and patterns for developing TANGO based CS
  - Development and quality assurance methods for TANGO and for CS
- Innovation Objectives
  - Test systems, benchmarks
  - New functionalities
  - Increase performance, quality and security
- Auxiliary objectives (also very important)
  - Assisting the establishment of the TANGO Controls Consortium
  - Popularizing TANGO
  - Introduce TANGO into a commercial product

# Excellence / Concepts

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- Industry: financial sustainability, market potential, products
  - CODRA, Nexeya, iMatix
- New field(s): new needs, new circumstances, step to wide acceptability
  - ELI-ALPS
- Quality: long term sustainability, maintainability, popularity
  - University of Szeged
- Experts: big and complex system, experts are very needed
  - ESRF, SOLEIL, ELETTRA



# Excellence / Ambitions

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- Advance beyond state of the art
  - Combine benefits of open source and industrial worlds
  - Reliability, flexibility, stability
  - Widely applicable and adaptable
  - Well organized community
  - Security
- Long term ambitions (several good examples for open source projects)
  - as reliable and high performing as Unix/Linux (supercomputers, ...)
  - as commercially successful as Red Hat
  - as popular as open source browsers (Chrome, Firefox,...)

## TANGO based control system

### Open source control system

- ✓ Transparency
- ✓ Free accessibility
- ✓ Community improvement force
- ✓ No dependency from suppliers

### Industrial control system

- ✓ Full control over developments
- ✓ Organizational backgrounds
- ✓ Targeted marketing activities
- ✓ Product support

# Impact

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- Productivity increase
- Market take-up
- Dissemination
  - TANGO Controls Consortium
  - Tutorials, demos
  - Open source channels (sourceforge, etc.)
  - **Education: university courses next to the sites**
  - Conferences, publications
  - Web page, newsletters, etc.

# Implementation – Work Pack.

Implementation of ELI-ALPS, Phase 1  
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- WP1 – Coordination and management
  - Leader: ESRF, Every member participates
  - Administration, finance, technical coordination, communication, etc.
- WP2 – Performance Improvements
  - Leader: ESRF
  - Participants: USZ, SOLEIL, ELETTRA, iMatix
  - Performance bottlenecks, performance improvements
  - Test system and benchmarks
  - Replace CORBA with ZMQ
  - Java implementation for multicast (avoid JNI)



# Implementation – Work Pack.

Implementation of ELI-ALPS, Phase 1  
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- WP3 – Improvements of TANGO
  - Leader: ELI-ALPS
  - Participants: ESRF, Nexeya, CODRA
  - New needs from a new field (ELI-ALPS) and from industry (CODRA)
  - Making TANGO more attractive to new parties
  - Focusing on the core parts but leaving space for tool prototypes
  - Design patterns, CS development methodologies
- WP4 – Secure access of TANGO
  - Leader: ELETTRA
  - Participants: ESRF, USZ, SOLEIL, iMatix
  - Introducing encryption mechanism through ZMQ
  - Distributed CS over WAN, e.g. Internet

# Implementation – Work Pack.

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- WP5 – Enhancing the operational tools provided with Tango and Management of data produced by TANGO devices
  - Leader: SOLEIL
  - Participants: ESRF, ELI-ALPS, SOLEIL, ELETTRA, Nexeya, iMatix
  - Supervisory tools
    - Fully interoperable eco-system of end-user applications
    - Integrated web interface
    - Better integration of archiving tools
  - Data management tools
    - Automatic diagnosing of abnormal conditions (rule-based)
    - Data mining tools: automatic adaptation of the CS behaviour
    - NoSQL study for historical archiving

# Implementation – Work Pack.

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- WP6 – TANGO Quality Assurance and Sustainability
  - Leader: USZ
  - Participants: ESRF, SOLEIL
  - Quality evaluation
  - TANGO specific coding rules (e.g. handling errors, etc.)
  - TANGO specific methods and tools (e.g. rule checker, quality model)
  - Test systems, integration testing
  - Deploying a continuous quality monitoring service
  - Integration, refactoring, bug fixing

# Implementation – Work Pack.

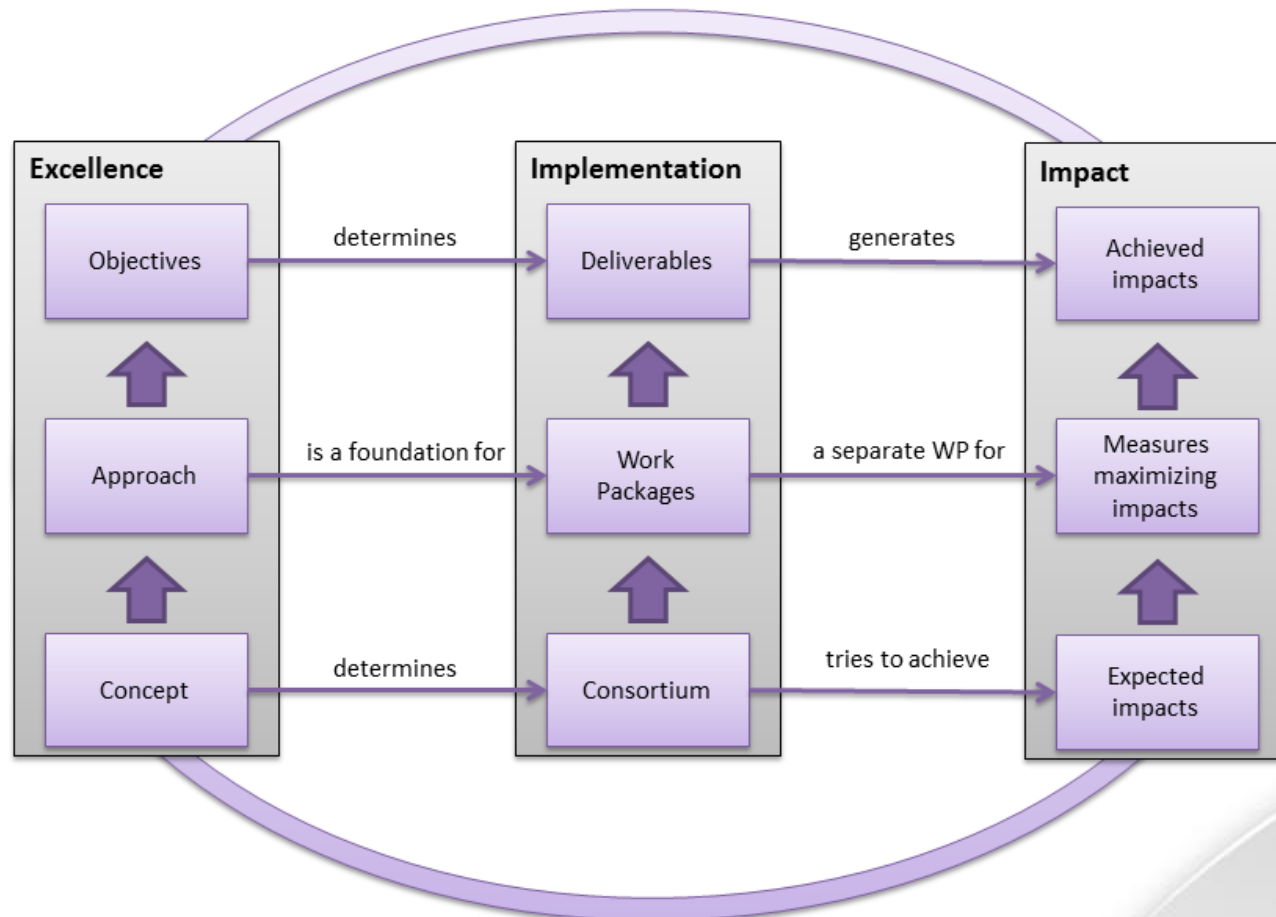
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- WP7 – Integrating TANGO into a commercial product
  - Leader: CODRA
  - Participants: ESRF, SOLEIL, Nexeya
  - Complete integration of TANGO in Panorama E2
  - Device server certification procedure (guidelines)
  - Certify common scientific device servers for industry
- WP8 - Industrial Impact and Dissemination
  - Leader: Nexeya
  - Participants: Every member
  - Exploitation and communication of business models
  - General communication activities
    - university courses, online courses
    - Social media, open competitions, web page, newsletters
    - Publications, conferences
  - Tango certification programs
  - Demonstration materials: TangoBox, etc.

# Conclusions

Implementation of ELI-ALPS, Phase 1  
GOP-1.1.1-12/B-2012-0001

- Excellence: Concepts, Approach, Objectives
- Implementation: 8 work packages (consortium, deliverables)
- Impact





**Thank you for your attention!**