WORKSHOP PROGRAMME

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Date: Feb 21

Venue: Luxemburg

The workshop consists of:

- presentations of the EU projects participating

- 2 sessions of world cafes to discuss 8 topics in total

DRAFT SCHEDULE

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9.00 - 10min presentation per project

10.30 - 4 topics x 5min pitch

11.00 - World Cafés 1: 4 topics in parallel

12.30 - Wrap up by Café chairs

13.00 - LUNCH

14.00 - 4 topics x 5min pitch

14.30 - World Cafés 2: 4 topics in parallel

16.00 - Wrap up by Café chairs

16.00-17.00 DRINKS

TOPICS for World Cafes

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- Cascade funding

- Future of EU robotics

- Robotics Digital platforms

- Standards

- Certification: procedures and methodology to certify compliance to requirements

- Quality Assurance and robot software engineering

- Modelling and Tooling

- Education

- Professional Training

- Ethics

World Café: Cascade funding (Carlos Hernandez)

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GOAL:

How to maximize our cascade funding programmes impact?

E.g. by learning best practices and fostering inter-programme collaboration.

DESCRIPTION:

Cascade funding has the goal to make an impact by to distributing funding among final beneficiaries: tech start-ups, scale-ups, SMEs, research institutions, etc.

Challenges:

- How to maximize your call reach

- How to communicate to your audience

- Keep it simple: streamline the process to spend more time on mission-based activities

- Maintain a lean evaluation process

- Tracking and supporting the execution of the granted 3rd party actions

World Café: Robotics Digital platforms (Mirko Bordignon)

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goal:

How to allow for different stakeholder in the robotics and automation business to minimize duplication of efforts and maximize added-value activities?

By leveraging digital platforms made of shared, open standards and reusable, open-source building blocks.

Description:

End-users, OEMs, and technology providers such as system integrators, startups and applied research institutes can greatly benefit from “robotics digital platforms”.

These platforms can achieve the goal to:

- Provide infrastructure which is “minimally invasive”, yet “maximally useful” in terms of technology standards and thus constraints

- Create a marketplace-like environment for startups and SMEs to reach audiences for their services that they would normally be able to target, thus making them competitive with established and much larger actors in this field

- Combine the merits of a top-down approach, typical of complex industrial-driven engineering efforts (i.e., from carefully-crafted specification to thoroughly-validated implementation); and those of a bottom-up one typical of open-source communities and research laboratories (i.e., rough consensus and running code), which made platforms like the internet possible through organic growth.

World Café: Future or European Robotics (Susanne Bieller)

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GOAL:

How will the European Robotics evolve and develop in the near to medium term future?

What implications will that have on robotics software and systems used?

DESCRIPTION:

The EC together with member states and key stakeholders is currently identifying European strategic value chains and taking forward Important Projects of Common European Interest.

In the course of the “Renewed EU Industrial Policy Strategy”, the EC wants to increase industrial production all over Europe and bring manufacturing into regions that are “underdeveloped” to far. Robotics is seen as a clear driver for this.

Questions:

- What hurdles need to be overcome in order to achieve this goal?

- How can robotics contribute to that?

- What are the sectors and technologies of highest interest?

- What trends do you see that are not to be missed?

- What does it take for SMEs to invest into robotics and benefit from automation?

World Café: Standard models in the Robotics Domain (Herman Bruyninckx)

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GOAL:

This World Cafè aims to shape the importance of standard models for better robotics software, starting from domain-specific models that concern a Robotic application: why standard models are important, which domains to consider, how to compose complementary standards and how to apply those models in practice?

Description:

Standard models are a first step towards the design of a robotic application as an 'information architecture', despite the current trend of describing the application from its 'software architecture'.

This WC focuses on define the role of standard models that describe different aspect of the robotic application, starting from basic geometric primitives and models of kinematic chains.

Moreover, it will be discussed how to apply those models in a composable way, highlighting the limitations and the hidden assumptions taken in the existing solutions.

World Café: Certification (Huascar Espinoza)

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Topic goal:

How to overcome certification-related roadblocks in the European robotics market and what kind of innovation is needed to support faster product certification processes?

Description:

The development of robotics systems must comply with standards and regulations (conformity assessment) impacting both the final product and the development process (certification) and tools used to build them (tool qualification).

Challenges:

- For certain novel products such as "Shared Space Robots", type-specific conformity assessment procedures may be undefined or unclear. How to tackle this issue in industry?

- What is missing in certification frameworks? Specification of testing protocolos for novel rootics systems?

- How can we get benfeit from cross-domain infrastructures for conformity assessment and certification?

World Café: Quality Assurance and Robot Software Engineering (Andrzej Wasowski)

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Topic goal:

What specific quality challenges and engineering practices are needed in robotics software? Is robot software engineering different than software engineering in general?

Description:

The goal is to establish suitable lines of actions for improving quality of robotics platforms and robotics applications from software engineering perspective. We aim to understand which subjects in the software engineering body of knowledge need to be situated better, and communicated better to robotics software, which practices are good match for robot software engineers working in professional setting, and what new practices, methods and tools need to be invented to address robotics specificity. The discussion can touch, but is not limited to, practices like modeling, test, verification, code review, continuous integration, simulation, etc. The prototypical robotics project we have in mind is a commercial project, which aims entering production, sales, perhaps safety certification, and long term maintenance/support. We shall in particular search for opportunities were cross-project collaboration could allow delivering some results efficiently with good impact.

We invite participants from both software engineering and robot engineering background to participate in the discussion.

World Café: Modeling and Tooling (Christian Schlegel)

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Topic goal:

What is the „overall vision“ for modeling and tooling for robotics?

Description:

Model-based development of robotics systems envision an integration approach built on-top-of, or rather “around”, the current code-centric platforms, by means of the systematic development and application of model-driven methods and tools that explicitly focus on system-of-system integration, at all levels of abstraction and interaction, hence not just software code. In particular, RobMoSys proposes a technical solution based on a model-driven approach that can be tailored to stakeholder specific needs, but practitioners could refuse more formal, not code-based approaches. We target a discussion on challenges to overcome this adoption risk.

Challenges:

- What kind of tooling is there to be used? What kind of extra tooling is needed?

- What levels and options exist to extend underlying (meta-)models?

- How conformant (and at which levels) the others can be / want to be to RobMoSys and what can be concrete means and instruments to discuss that conformity?

World Café: Robotics Education (Alexander Ferrein)

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Topic goal: What are the challenges with robotics teaching activities?

Challenges:

- how can complex topics be taught in a concise way

- how can teaching activities be organised to fit in a 3-5 day seminar

- how to teach students with different backgrounds

- how to integrate online teaching material

World Café: Professional Training (Alexander Ferrein)

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Topic goal: What are the implications of model-driven approaches for professional education?

Challenges:

 - how to teach theoretical background to professionals (with limited amount of time)

 - what are the benefits from model-driven over develop from scratch w.r.t. teaching

 - do GUI approaches hide too much of the complexity of a component?

 - how to integrate online teaching material for offline learning

 - how need 2-day seminars be structured to be efficiently teach the contents?

 - is there a need for a full curriculum with several seminars

World Café: Ethics (Martijn Wisse )

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Topic goal:

What are the most relevant challenges to meet ethics requirements in robotics projects?

Description:

On the 16th of February 2017, following the suggestion made by the Legal Affairs Committee (LAC), the European Parliament (EP) made a resolution in favor of a robust European legal framework to ensure that robots are and will remain in the service of humans. This places ethics as an important concern for ROSIN and RobMoSys projects, and this is even more important for the cascade funding part of the project.

Challenges:

- What are the most critical ethics issues in terms of participation of humans in experiments, protection of personal data, environment, health and safety, dual use of items, among others.

- What are the actions needed to ensure the right management of ethics issues?