

# ERF 2017 – WORKSHOP REPORT

Title of the workshop:	Standards and standardisation for robots
Organisers:	Theo Jacobs
Date - time	24 March, 8:30 – 10:00
Number of persons attending	Ca. 25

## Workshop presenters (name, organisation, e-mail)

Theo Jacobs, Fraunhofer IPA, [theo.jacobs@ipa.fraunhofer.de](mailto:theo.jacobs@ipa.fraunhofer.de)  
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## Objectives of the workshop (max 15 lines)

Safety standards reduce the legal risks for manufacturers and enable the development of new, innovative robotic products. Additional standards, e.g. for performance measurement and interoperability foster a sustainable market growth. Despite the great importance of standards and standardisation the awareness of standards and the willingness to participate in standardisation is rather low in the European robotics community.

This workshop, organized by the Topic Group Standardisation and the H2020 coordination action RockEU 2 has the intention to raise the awareness of standards and show up ways to contribute to standardisation on a national and international level. In an open discussion, issues that hinder an active participation are identified and the need for new standards in additional domains is discussed.

## Key points form presentations and discussion (max 1 page)

### Standardisation Projects in ISO TC 299 and other regulation (Theo Jacobs)

Most standardisation efforts related to robots take place in the committee ISO TC 299 “Robotics”. The committee has currently 6 working groups with the following topics:

- WG 1: Vocabulary and characteristics
- WG 2: Safety for personal care robots
- WG 3: Safety for industrial robots
- WG 4: Performance for service robots
- JWG 5: Safety for medical robots (joint group with IEC)
- WG 6: Modularity for service robots

With currently 24 participating countries the committee has published 15 standards so far. 9 work items are under development. Interested persons are invited to join the standardisation committee, e.g. by formal applying for nomination as a technical expert at their national standardisation organisations. Advice and instructions for travel cost support is available from Theo Jacobs.

### euRobotics Topical Group on Standards (Paolo Barattini)

The Topic Group on Standards drives collaboration of experts on standardisation issues in sundry areas of robotics. Led by the chair Gurvinder Virk and the deputy chair Paolo Barattini, the group includes members that participate in all ISO TC 299 working groups but also interested experts who are not active in standardisation committees. The Topic Group has a relationship with CEN/CENELEC and also with SARUMS (unmanned marine systems). The group has recently identified HRI as an area which has not yet been covered by the international standardisation organisations and is thus promoting the topic.

#### **Key points from the discussion (all participants)**

- The Topic Group Standardisation should increase its interaction or liaisons with other Topic Groups. Additional activities are necessary to increase the interest of scientists in the work, e.g. by publishing drafts and asking for comments
- For the safety of software, standards like IEC 62061 or IEC 61508-3 exist. However these standards are considered outdated, as they do not include new programming paradigms. In addition the area of predictability for AIs needs to be included.
- Software security is considered an increasingly important topic. However the problem is seen that traditional safety standardisation working groups exclude the topic from their scope. An expert from Austria named an example of a standardisation group that is dealing with both topics called SOTIF (safety on the intended functionality)
- Interaction with standardisation committees from other domains should be sought. The automotive industry is now fast developing towards autonomous systems and is also experimenting with AI. Other interesting domains are AGVs and IoT.
- The process of acquiring competence to apply standards and perform risk assessments was discussed
  - Several participants are teaching their students how to use standards and how to perform a risk assessment. The opinion was that this is done too little across Europe. However participants also admit, that the theory is often “boring students to death”. For teaching and learning, better guides to standards would be welcome.
  - Also for SMEs, simplified guides to safety standards, possibly containing example applications and videos would be helpful
  - A French participant mentioned that good tools for risk analyses are missing, that would especially help to guide non-safety-engineers.
- Missing funding has generally been identified as a problem. This comprises funding for coordination actions (e.g. Topic Groups), participating in standardisation as well as the acquisition of good speakers for workshops. An approach to get money for standardisation would be to include a budget in every EU project. Participants from Singapore mentioned that the Singaporean standardisation organisation makes great efforts (also financial), e.g. to teach their integrators on risk assessment for collaborative industrial robots.

#### **Conclusions – recommendations (max 5 Bullet points)**

- European participation in standardisation is necessary to represent the interests of the European robotics community. Therefore experts are invited to join a standardisation working group on a national or international level or to contribute to the Topic Group on Standards.
- The use of standards and the work of standardisation committees should be better imparted to non-standardisation experts. Material for students is necessary as well as easy applicable guides that help SMEs to familiarize themselves with requirements for their robotic products
- Funding is seen as a general problem to ensure Europe’s visibility in standardisation