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WP5: Acting

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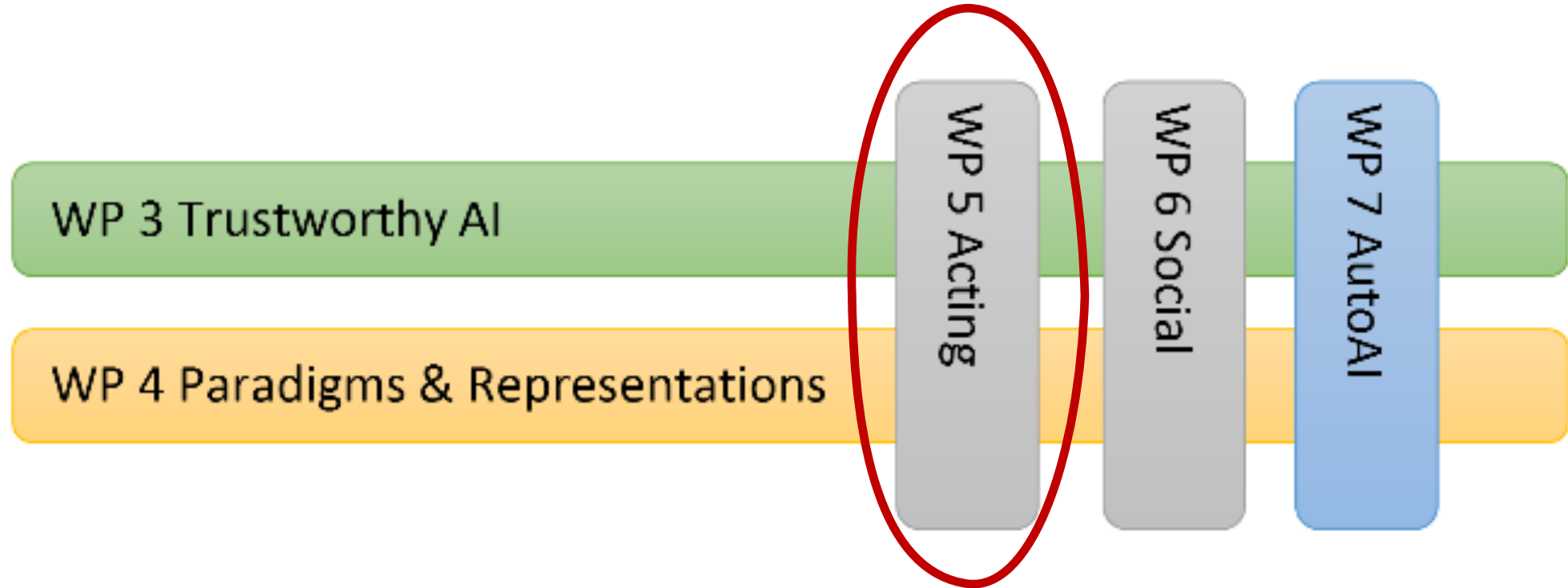ICT-48
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WP5

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- Focusses on the fundamental question:

    How does an AI agent decide and learn on how to act?

- Aims at empowering the agent with the ability of **deliberating autonomously how to act in the world**.

- Requires:
    - **Reasoning** on the effects of its **actions**,
    - **Learning** from **past experiences,** or **simulation** of experience
    - **Monitoring** the actual outcome of its actions
    - **Recognizing** possibly **unexpected outcomes**
    - **Reasoning** and **learning** how to **deal with unexpected outcomes**
    - ...

WP5 and Trustworthy AI

Crucially, empowering an AI agent with the ability to **self-deliberate** its own behavior carries **significant risks,** and this ability must by balanced with **safety**

The autonomous behavior must be:

- Guarded by **human guided specifications** and **oversight**
- Verifiable and comprehensible in human terms
- Ultimately **trustworthy** (WP1)

- Assessing **safety** becomes essential in this context

- **Formal verification**, **model checking** and automated **synthesis** fulfilling safety specifications is central to this WP.

WP5 Tasks

- **Task 5.1:** Extended and multi-facet models of the world dynamics and tasks (Task Lead: UOR)

- **Task 5.2:** Integrating data-based methods with model-based methods in deciding and learning how to act *(Task Lead: UPF)*

- **Task 5.3:** Learning for reasoners and planners, and reasoners and planners for learning *(Task Lead: UNIBAS)*

- **Task 5.4:** Monitoring and controlling to make actions AI trustworthy in the real world *(Task Lead: FBK)*

- **Task 5.5:** Synergies Industry, Challenges, Roadmap concerning on autonomous actions in AI systems *(Task Lead: CNRS-IRIT)*

- **Task 5.6:** Fostering the AI scientific community on the theme of deciding and learning how to act *(Task Lead: RWTH)*