ARISE

Turning Innovation into Real-World Impact



13 Experiments



22 SMEs

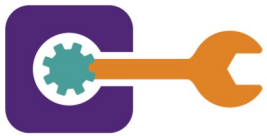
6 Challenges

8 Countries

ARISE · Open Call 1

arise-middleware.eu

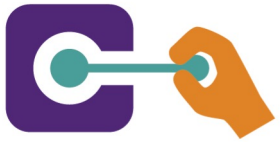
ARISE



Dismantling & Assembly



Product Picking



Collaborative Robotics



Robot Programming



Multimodal HRI



Healthcare Robotics



Precision Tasks



Ergonomic Improvement

ARISE

Turning Innovation into Real-World Impact

13 experiments demonstrating human–robot interaction in industrial and healthcare settings.

Explore the challenges addressed, the results achieved and the reusable technologies developed through **ARISE Open Call 1.**



Precision Tasks

RAPSEB

Robotic Arm for Precision Spraying of Epoxy Binder

Workers step out of the epoxy cloud

Robotic epoxy spraying at PHEE's biocomposite factory in Patras, Greece.

−22%	−13%	96.4%	92%
Cycle time per m²	Epoxy used per m²	Coverage uniformity	Reported employee approval

The robot does the spraying while workers supervise from outside the spray zone, using less resin and less time for each square metre.

RAPSEB · Parity Platform / PHEE
Impact Story · Reusable Module: GitHub - FIWARE

Precision Tasks

AUTOMATHA

Cobot Automatic Teaching for Surface Machining

Scan the boot.
Generate the path.
The operator approves.

Automated robot teaching for ski-boot plasma treatment, tested at Tecnica Group's production site in Hungary.

6 min
Full program for both boots
Previously 50 min

2:48 min
Scan + path generation
Previously 20–30 min

81.17/100
User-rated usability
UMUX · 21 operators + 1 manager

Solvent-free
Surface preparation
Plasma replaces solvent-based treatment

Less manual robot teaching and no solvents in surface preparation, while operators review the proposed path before treatment starts.

AUTOMATHA · Eureka System / Tecnica Group
Impact Story · Reusable Module: Mesh / Scanner

Collaborative Robotics

RISES

Robotics Integration for Smart Efficiency and Safety

The forklift detects. The system halts. No worker tag.

Onboard laser sensing for shared warehouse space, demonstrated on a forklift in a controlled test setting.

96.6%	37.6 ms	30 s	No tags
Obstacle detection Simulation: 85 of 88 intruders	Mean detection latency Simulation at 30 Hz	Obstacle-location projection Statistical forecast horizon	No tracking device for workers

The vehicle detects an intrusion and triggers a stop without relying on workers to carry a tracker; supervisors can see why it stopped.

RISES - SLAPStack
Impact Story · Reusable Module: GitHub

Dismantling & Assembly

HERMES

Human-Enhanced Robotics and Modular Efficiency System

Parts and instructions. Together at the workstation.

Coordinated material supply and assembly guidance at Ampero's electrical-panel workshop in Italy.

Parts delivered

Materials brought to the assembly station

Instructions in view

Visual guidance for the assembly task

Materials tracked

Stock and reservations linked to the job

Parts arrive for the job and assembly instructions stay in view, bringing material handling and guidance together around the operator.

HERMES · Ampero S.r.l.
Impact Story · Reusable Module: Odoo Adapter

Dismantling & Assembly

HEROX

HRI Enhanced Robotics for Agile Assembly in Extended Reality

Guidance in view. Commands by voice. People stay in control.

Visual guidance, spoken commands and human-aware robot motion for collaborative assembly.

320 → 280 s
Reported prototype cycle time
Initial → MVP values

≈90%
Voice commands identified
Reported command-recognition tests

Hands-free
Guidance in view, commands by voice
Support during assembly

Operators can follow visual guidance and give spoken commands while the robot adapts its movement to the people around it.

HEROX · NEUROFAI / SORTECH 2030
Impact Story · Reusable Module: Main, Vision, Voice

Product Picking

iGENIUS

Visual Learning from Demonstration for Robot Programming

Show the task. Generate a reusable robot path.

Visual demonstrations become robot trajectories that can be inspected, saved and reused.

<2 min
Trajectory generation
Recorded-data example on a laptop

Less manual programming
Motion extracted from a demonstration

Reusable paths
Save and reload learned movements

> *A demonstrated movement becomes a path the team can inspect, save and reuse, reducing manual robot-programming work.*

iGENIUS impact story · MYWAI
Impact Story · Reusable Module: GitHub

Robot Programming

SUNRISE

Multimodal HRI Middleware for SME Manufacturing

New product variant. Half the robot setup time.

Operator-led robot teaching at Plastifer, Italy, using gestures and voice.

60'→30' min	> 85%	≈ 90%	No robot code
Setup per product variant 50% less setup time	Task recall accuracy Controlled tests	Gesture recognition accuracy Reported pilot tests	Operators teach and repeat tasks. No specific programming for the task

Shop-floor operators can adapt the robot to a new product variant themselves, instead of relying on robot-specific programming.

SUNRISE · Next Industries / Plastifer
Impact Story · Reusable Module: GitHub

Multimodal HRI

CORA

Collaborative Robotics Application for Elderly Care

A robot that follows who is taking part.

Robot-supported activities and conversation at Prytanis nursing home, Spain.

86%
Caregiver satisfaction Normalised score

75.31%
Resident satisfaction Normalised score

3 Activities
Exercise, cognitive activities, conversation

Group Interaction
Follow who is speaking
Visual and speech perception

The robot supports shared activities and follows who is taking part, while care staff remain central to the experience.

CORA · 4i Intelligent Insights / Eurecat
Impact Story · Reusable Module: Faces / Speech

Multimodal HRI

EMBRACE

Gesture & Posture Recognition for Assisted Living

Gestures and posture. Another way to take part.

Camera-based and voice interaction for guided physical and cognitive activities, tested with residents at a senior residence in Lapugnoy, France.

85%	80%	+1.8	5/5
Gesture recognition accuracy.	Posture detection reliability.	Very positive user experience −3 to +3 scale	Residents completed the full session

Residents took part in guided exercises and games, with activity coordinators present. "I enjoyed it! It's good to keep the mind alert to perform the movement correctly." — Resident R3

EMBRACE · iBreve / MADoPA
Impact Story · Reusable Module: Gesture / Posture

Precision Tasks

HARMONY

Human-Robot Automation for Modular Operations

The cobot handles the repetition.
The worker directs the job.

Voice, gesture and button control for bottle packaging at CMYK Ingredients, Bulgaria.

≈30% less	≈20% fewer	3 controls	Visible progress
Packaging cycle time Indicative result reported for the pilot	Product defects Indicative result reported for the pilot	Voice, gesture and button. Choose how to direct the robot	Follow the current step and cell status Operator supervision

Repetitive packaging moves to the cobot; workers retain control, with shorter cycles and fewer defects reported in the pilot.

HARMONY · High Performance Creators / CMYK Ingredients
Impact Story · Reusable Module: GitHub

Precision Tasks

KIRO

Key Intelligent & Interactive Robotic Operator

The tool comes to you. The assembly task stays on track.

On-demand tool delivery with an adapted handover at IKNOWHOW's ARISTOS assembly area, Greece.

11.15 s	75/100	4.3/5	Within reach
Voice request to action start Measured in the pilot	User-rated usability System Usability Scale	Perceived reduction in task overhead Participant rating	Handover adapted to the worker. Tool delivered to the workstation

The robot brings tools to the workstation; participants valued the reduction in effort and coordination around fetching and handling them.

KIRO · IKNOWHOW / ATHENA RC
Impact Story · Reusable Module: Picking / Navigation / People detection / Handover Calculation / Handover execution / Handover interfaces

Precision Tasks

VITAWELD

Conversational AI for Robotic Welding

Five tools.
One interface.
The welder stays in control.

Text-based conversational support for preparing and supervising robotic welding at IDONIAL, Spain.

56–86% less	7→1.5 days	69%	5→1
Robot programming time Against 3 reference methods	Operator training Full process setup	Reported worker satisfaction.	Tools coordinated in one interface. Prepare, approve and monitor the weld

Welders prepare, check and approve the job through one interface, with less training and programming time than the reference workflows.

VITAWELD · ROVIMATICA / IDONIAL
Impact Story · Reusable Module: GitHub

Precision Tasks

ROBIN

Robotics-AI-Human Interface for Welding and AM

The weld drifts.
The system flags it.
The operator decides.

Live process monitoring and recommendations at Mechatronics Innovation Lab, Grimstad, Norway.

5 live signals
Welding process visible on one dashboard

Deviation alerts
Process departures flagged during the run

Recommendations
Parameter adjustments for operator review

Traceable records
Exportable process and action history

Operators can see when the weld moves off target, review a suggested adjustment and decide what to change, with a record for later quality review.

ROBIN · 3D-Components / MIL
Impact Story · Reusable Module: GitHub

Explore the full Impact Stories and project resources at arise-middleware.eu

https://arise-middleware.eu/arise-experiments/

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