# Rockwell Automation

Wearable Technology in Industrial Environments

As the current skilled manufacturing workforce approaches retirement age, Rockwell Automation's customers face the challenge of recruiting and training a new generation of manufacturing employees. The Rockwell Automation SCOPE team explored how the Industrial Internet of Things can work together with other new technologies to help these new operators and maintainers be safer, smarter, and more efficient on the job.

PROBLEM
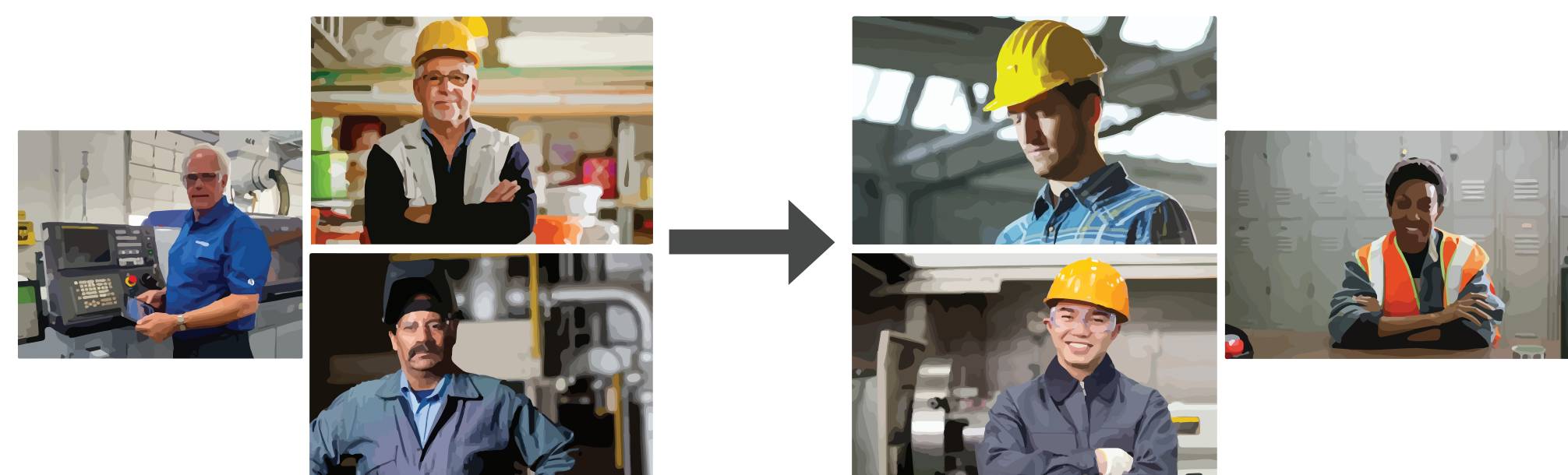
Factories are struggling to hire enough millennials to replace the skills of retiring experts. This trend, coupled with increasing automation, calls for a re-design of the industrial environment to support the swiftly approaching future of human-robot collaboration.

OPPORTUNITY AREAS

After an extensive process of user-oriented collaborative design, we identified several key areas of opportunity, two of which we describe here. These became the basis for designing the core features of our final product.

STATUS

Human-robot teams require a level of mutual awareness to operate safely. Communicating the state and intent of each party to the other is critical to ensuring continuous productivity.
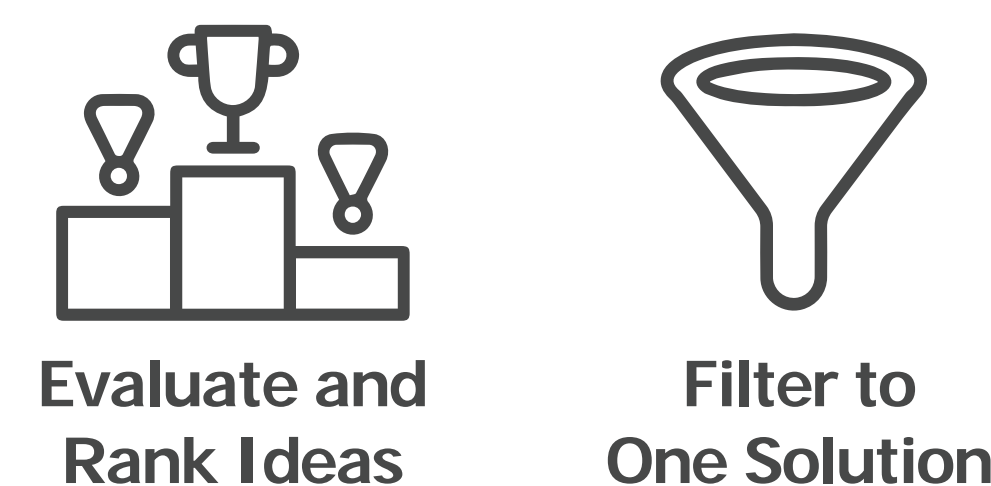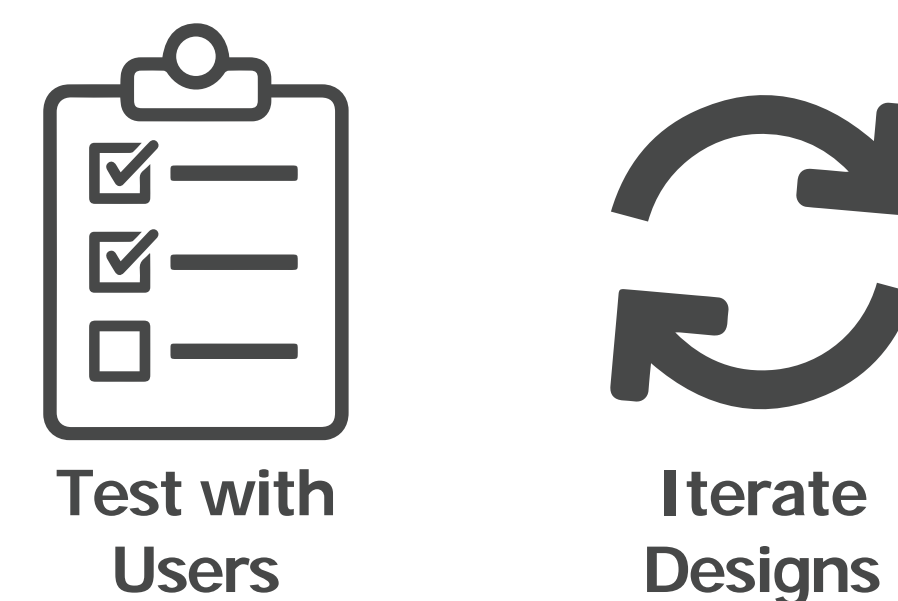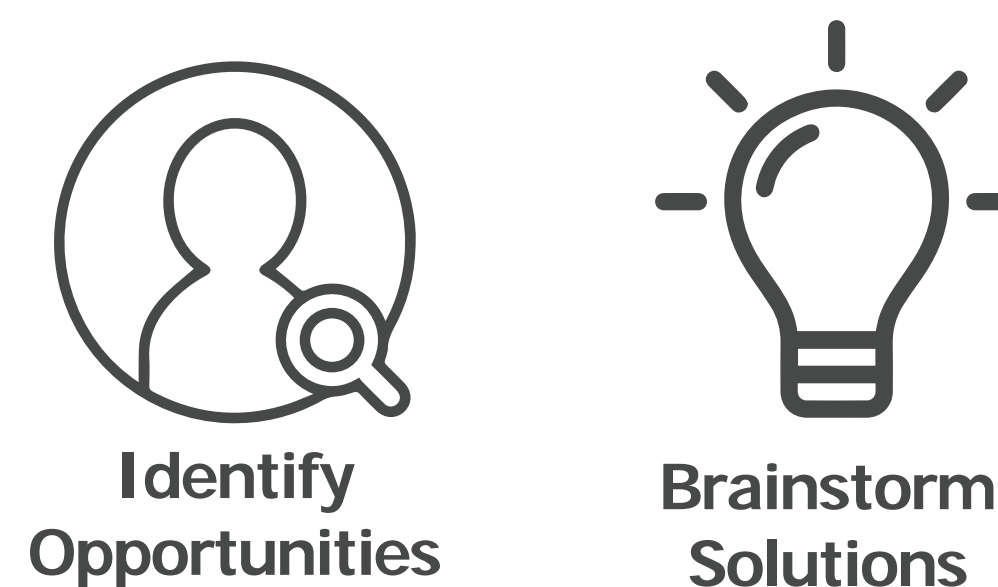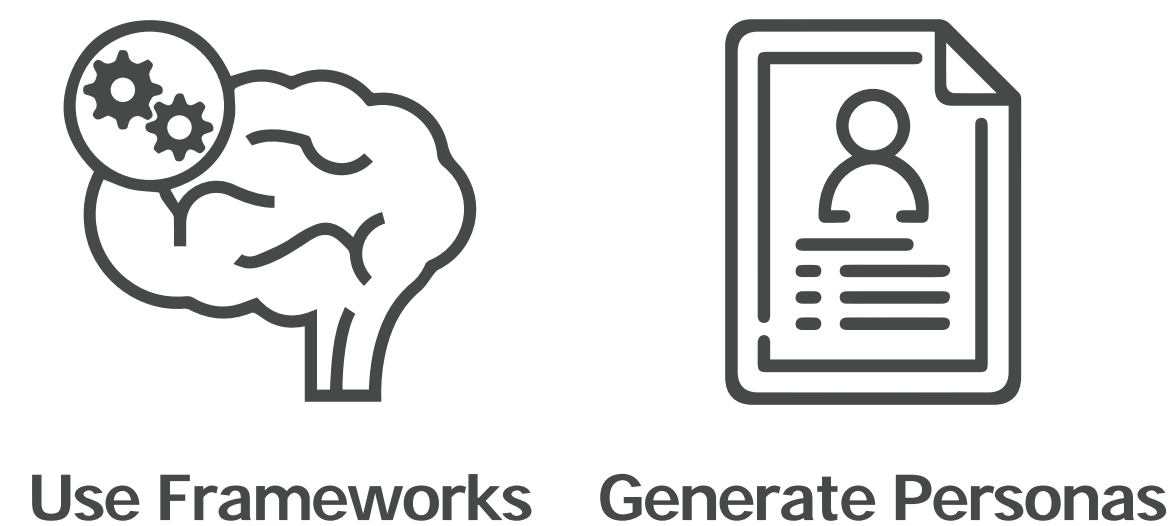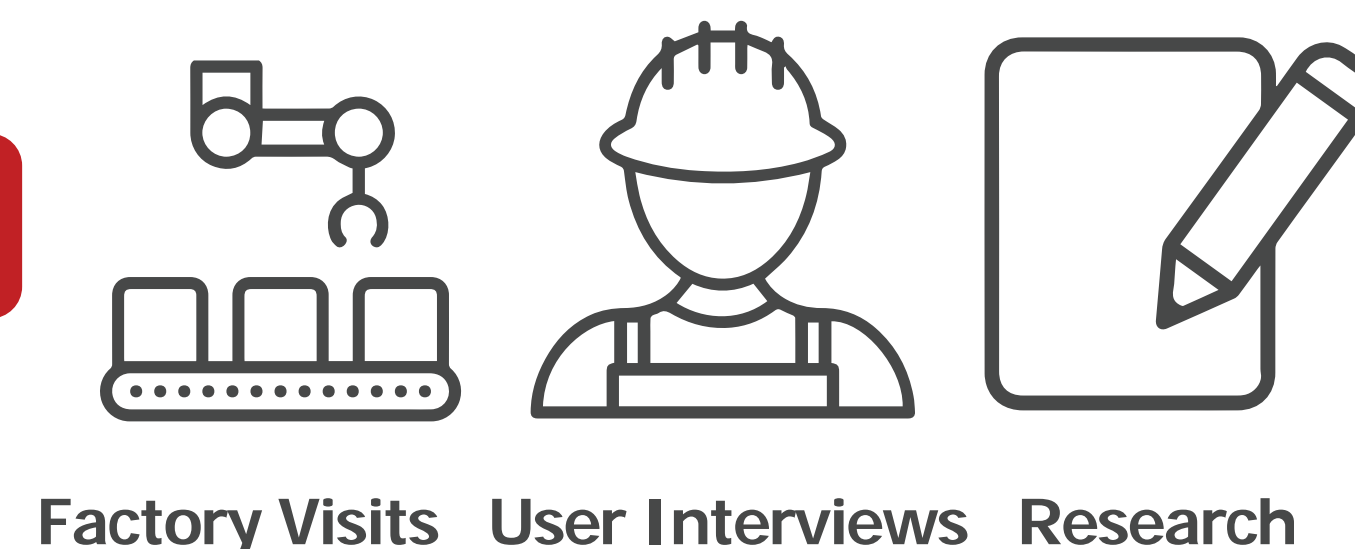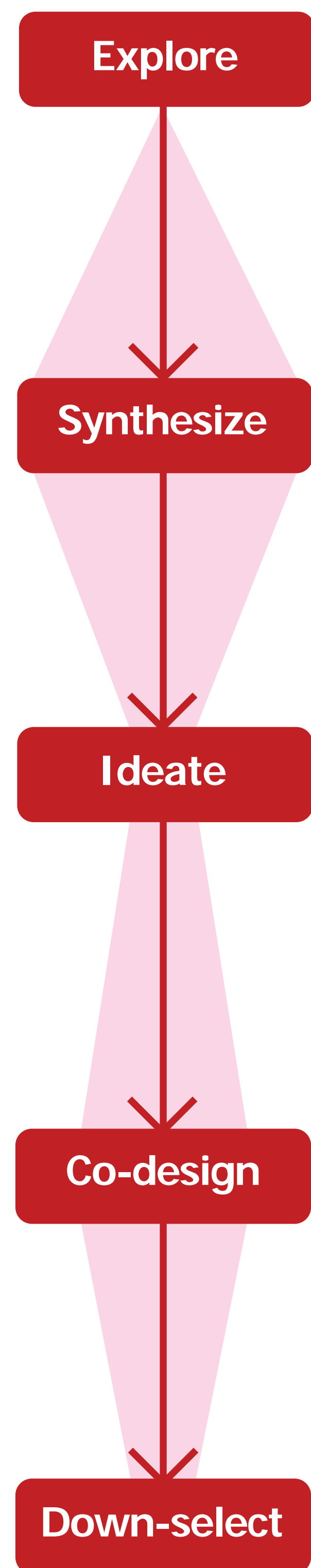
TRUST

Human-robot teams require a level of trust to function efficiently. Today, however, manufacturing employees feel uncomfortable interacting with imposing and unfriendly-seeming robots.
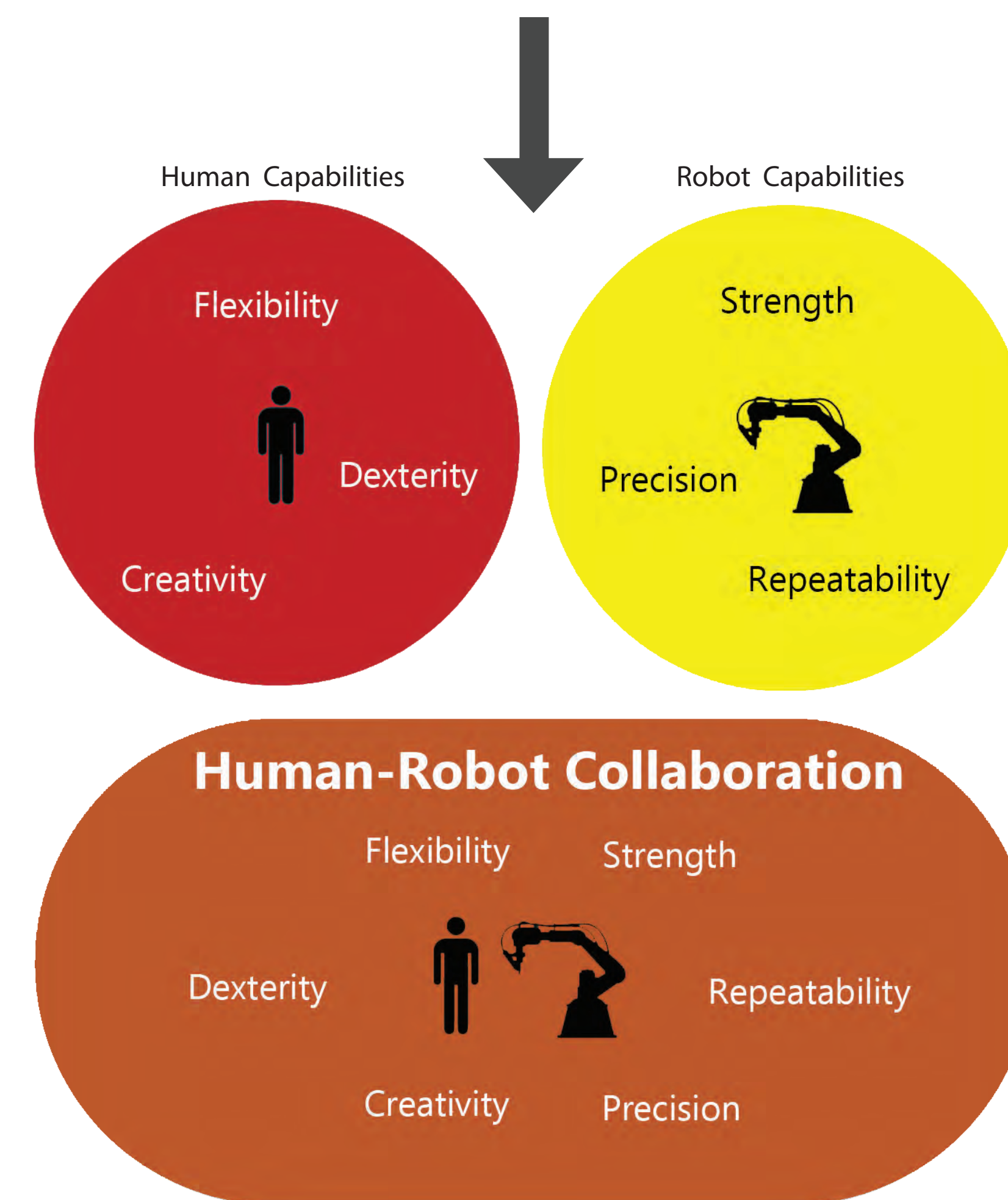
Olin College of Engineering
SCOPE

DESIGN PROCESS

Explore
- Factory Visits
- User Interviews
- Research

Synthesize
- Use Frameworks
- Generate Personas

Ideate
- Identify Opportunities
- Brainstorm Solutions

Co-design
- Test with Users
- Iterate Designs

Down-select
- Evaluate and Rank Ideas
- Filter to One Solution

PROPOSED SOLUTION

We present the:

Rockwell April

A **Mixed Reality** solution for facilitating **Human-Robot Collaboration**

Human Capabilities
- Flexibility
- Dexterity
- Creativity

Robot Capabilities
- Strength
- Precision
- Repeatability

Human-Robot Collaboration
- Flexibility
- Strength
- Dexterity
- Repeatability
- Creativity
- Precision

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