

A worker in a factory setting is wearing AR glasses. A digital overlay is visible on the car door they are working on, displaying technical information. The background shows a complex industrial environment with yellow overhead cranes and other vehicles on the assembly line.

AR4Telecom

Showcasing Augmented Reality applied to AIT procedures

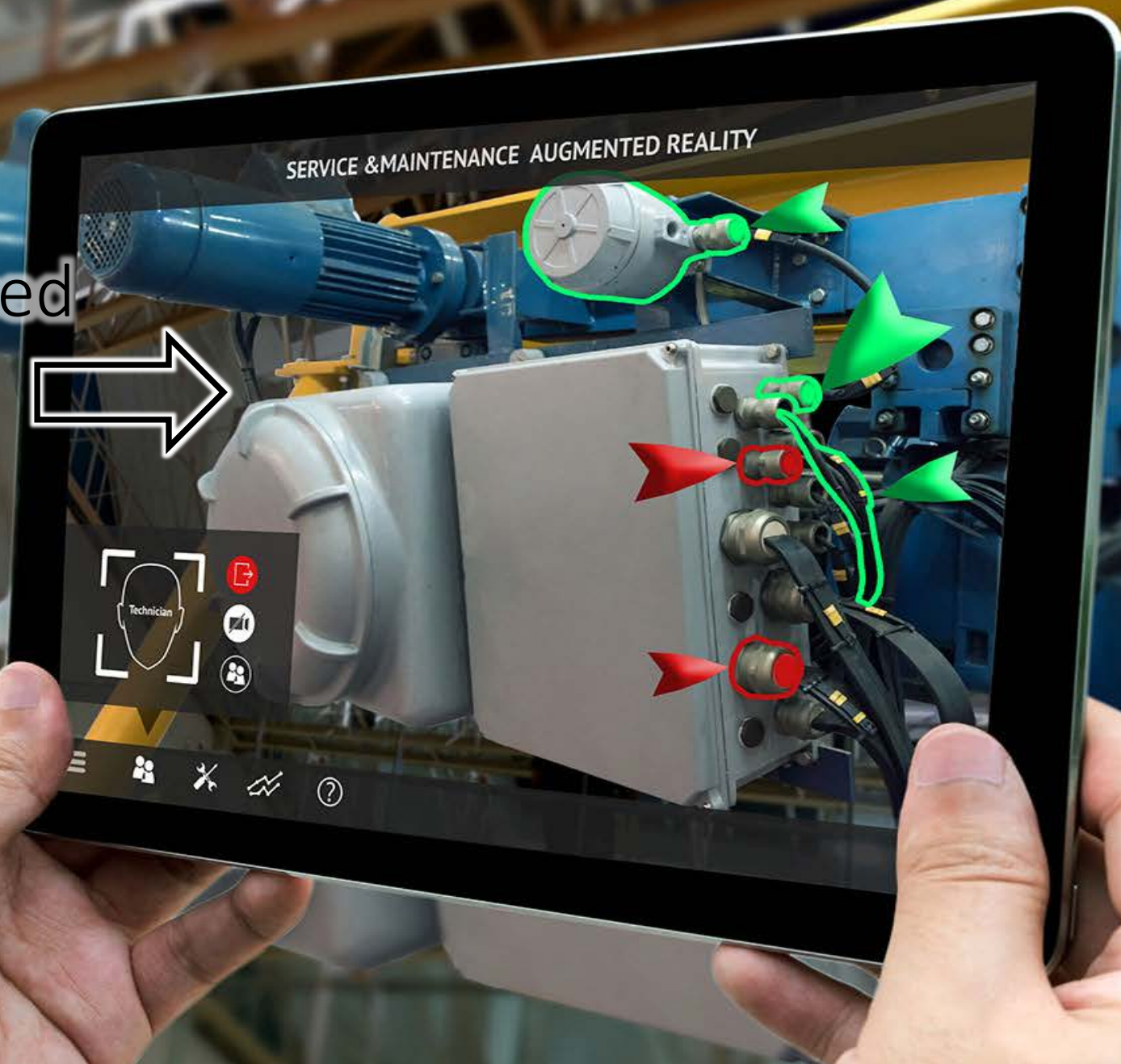
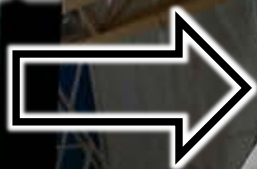


Augmented Reality Demo

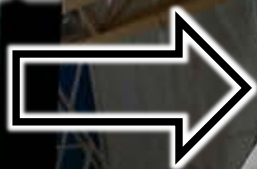




Enhanced
Image



Enhanced
Image

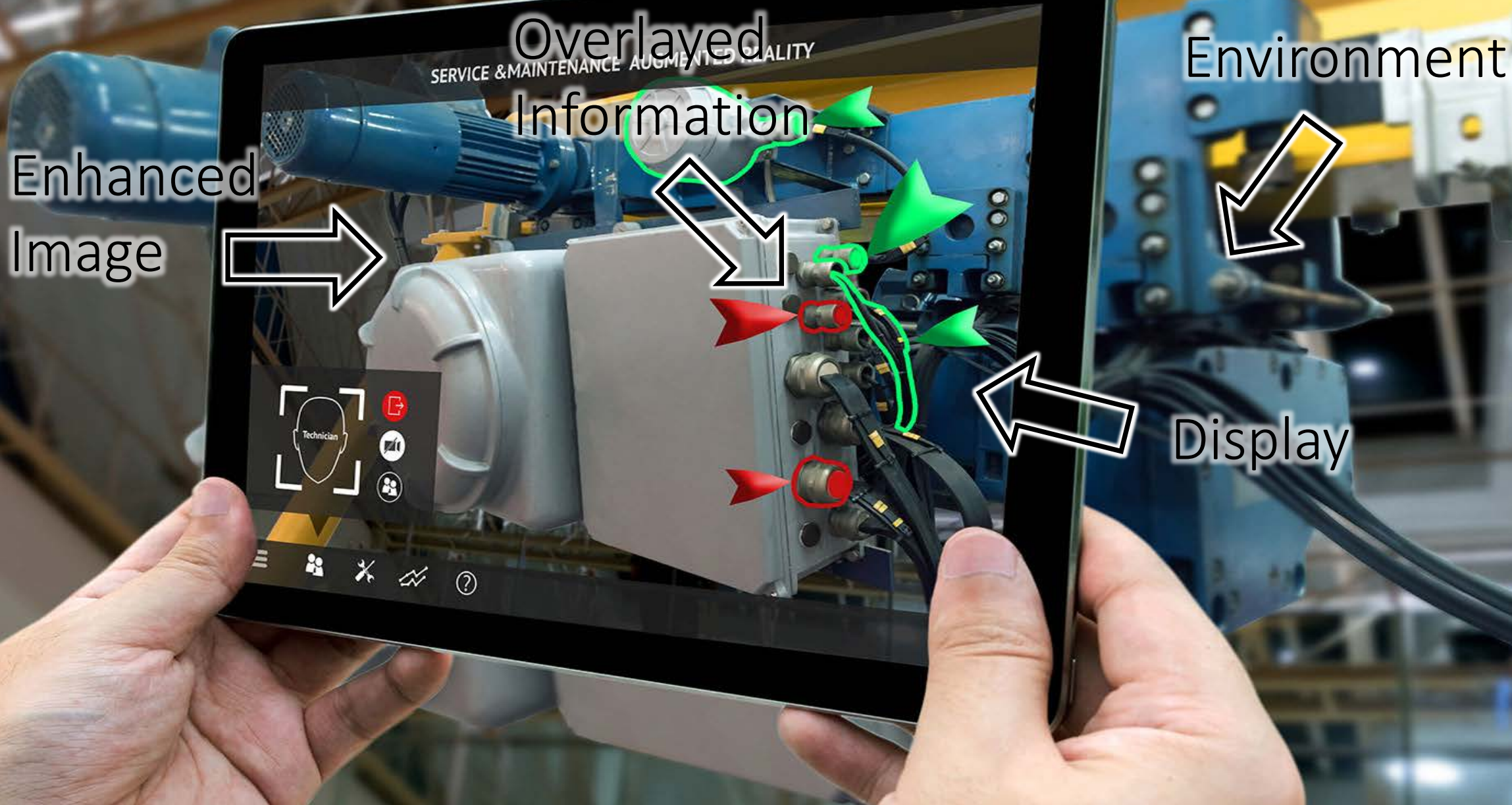


SERVICE & MAINTENANCE AUGMENTED REALITY



Display





Buzzword

A word or phrase which has become fashionable or popular, or sounds technical or important and is used to impress people.



Industry 4.0

Are we living the 4th Industrial Revolution

INDUSTRY 4.0

AUGMENTED REALITY

INTERNET OF THINGS

ADDITIVE MANUFACTURING

SIMULATION

AUTONOMOUS ROBOTS

CLOUD COMPUTING

CYBERSECURITY

SYSTEMS INTEGRATION

BIG DATA



Augmented Reality

WORLD IS YOUR

SCREEN

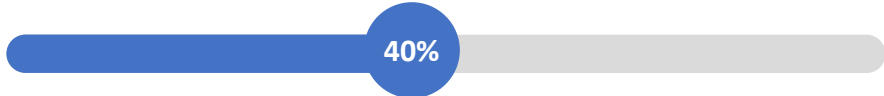
ENHANCED WITH DATA

Exhibit A



Boeing implemented Augmented Reality to help technicians with the airplane wiring. Putting the wiring schematics in their field of view, allowed them to consult them hands-free.

Increased Productivity



Reduce Wiring Times

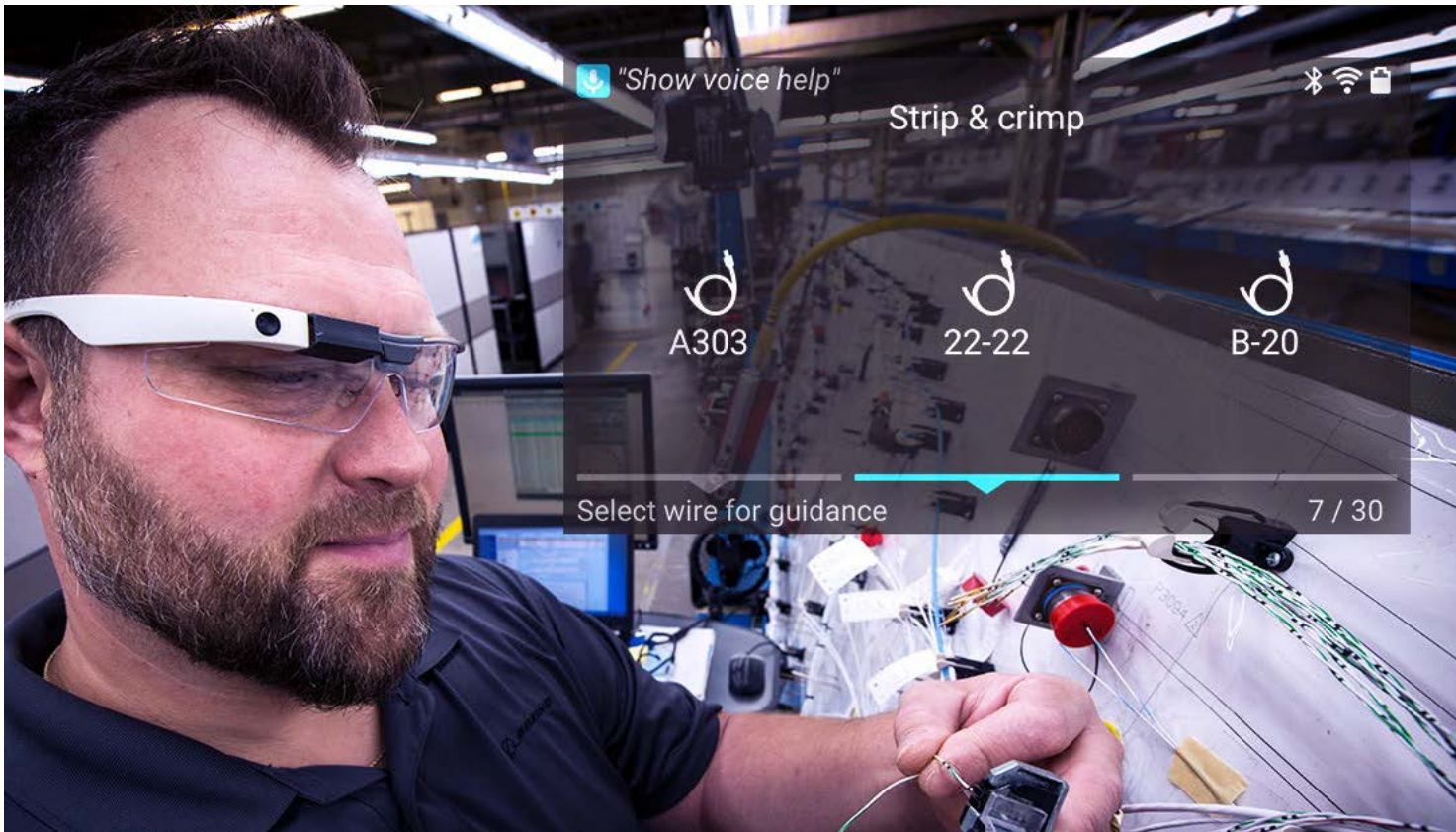


Exhibit B



At Lockheed Martin, engineers use Augmented Reality glasses during the assembling process for the F-35 aircraft. This increases their accuracy to 96%, while working 30% faster.

Increased Accuracy

96%

Working Faster

30%



Exhibit C

AIRBUS

Airbus is using Augmented Reality technology in manufacturing processes for several purposes. Approximately 1,000 employees use Augmented Reality on more than 130 tablet devices which reduces the inspection time by 80% and helps avoid costly corrections later in the manufacturing process, leading to a high return on investment (Airbus Group 2016)

Reduced Inspection Time

A horizontal progress bar with a blue segment on the left and a grey segment on the right. A blue circle is positioned at the end of the blue segment, containing the text '80%'.

80%



Exhibit D



**Newport News
Shipbuilding**

Newport News Shipbuilding has introduced mobile based Augmented Reality technology to more easily identify the structures one needs to work on (Greenfield 2016). One inspection process that usually takes 36 hours could be trimmed to 90 minutes (LaWell 2017).

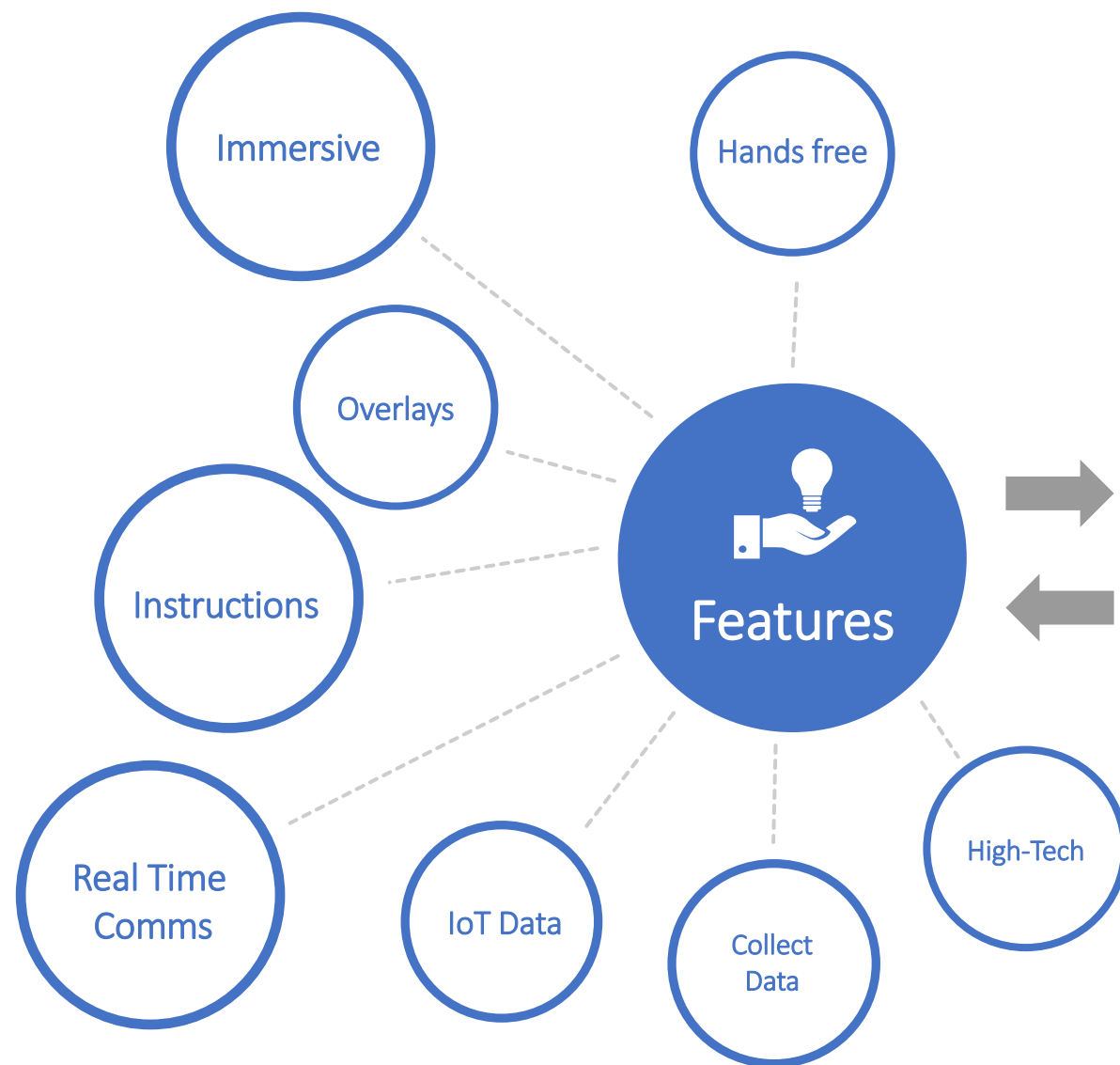
Reduced Inspection Time

95%

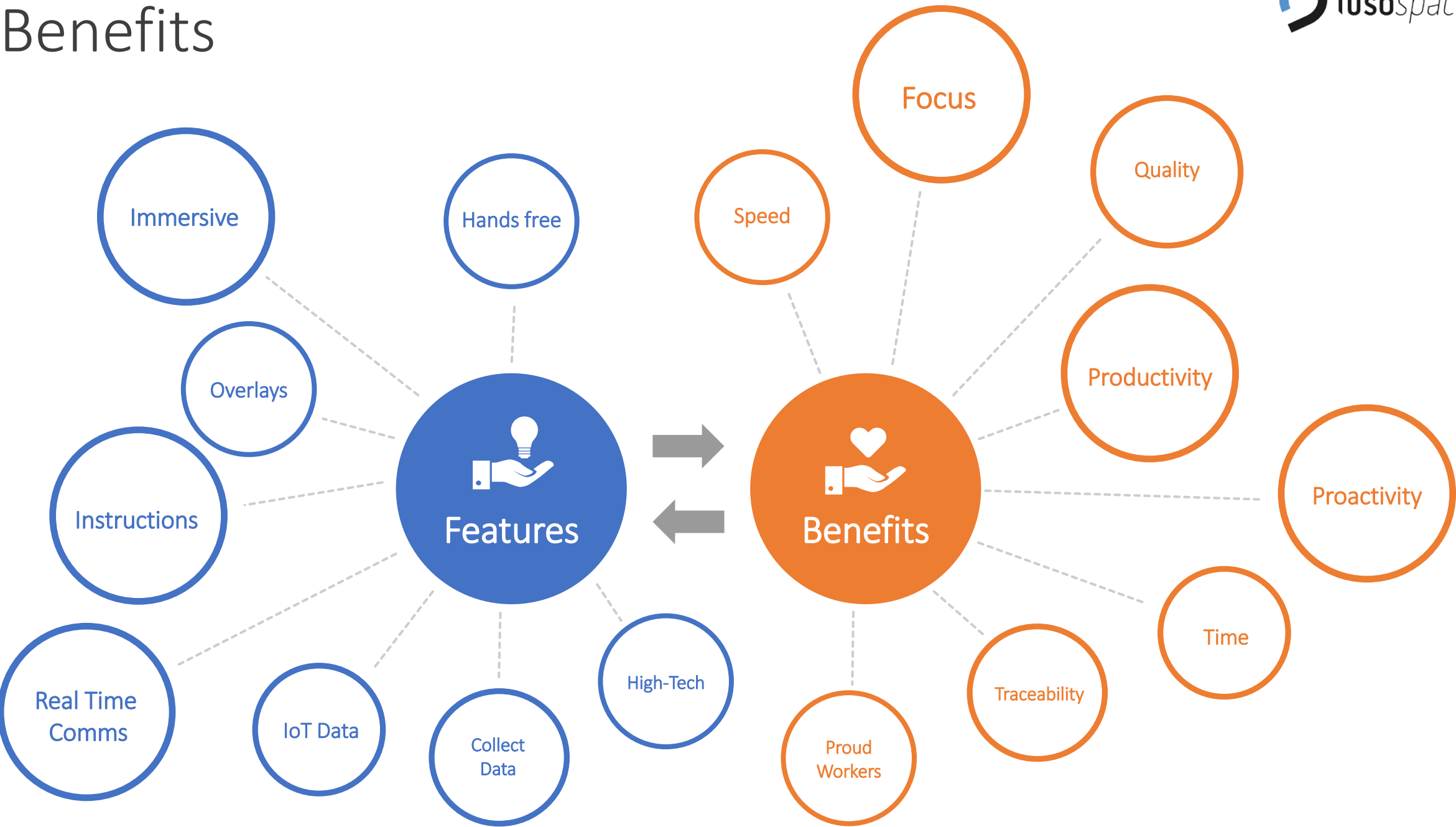




Advantages



Benefits



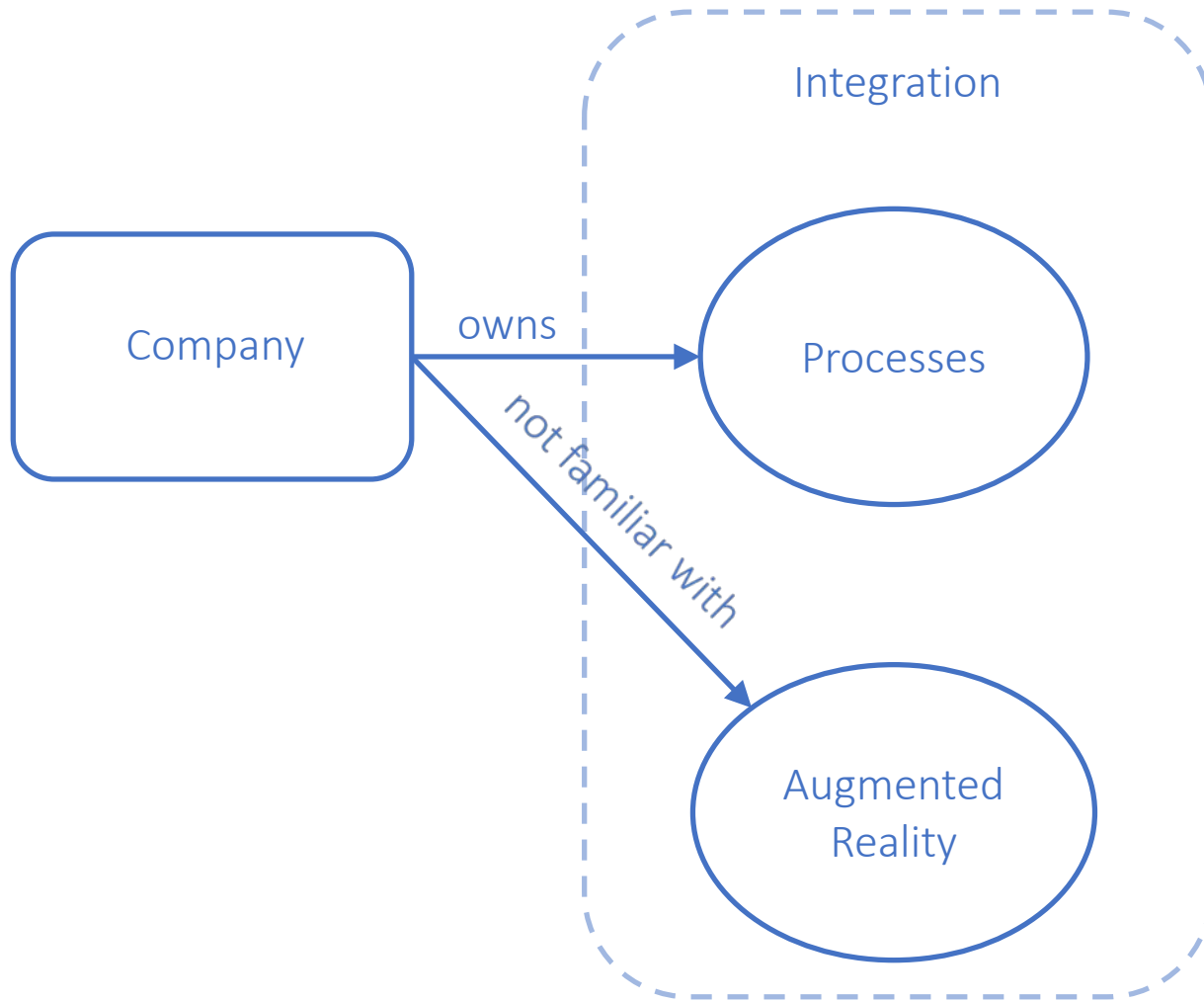
**CONTINUOUS
IMPROVEMENT**

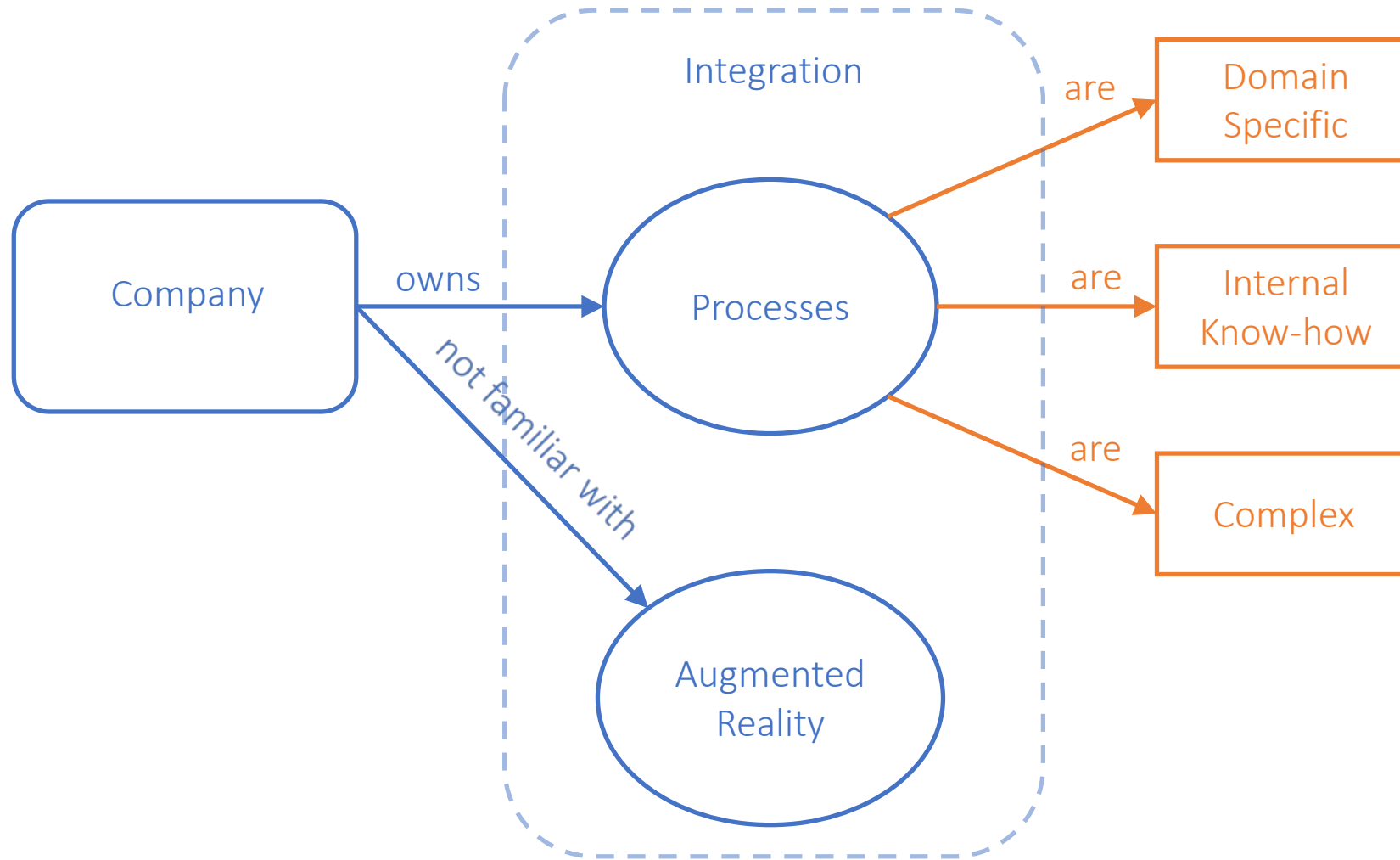
However...

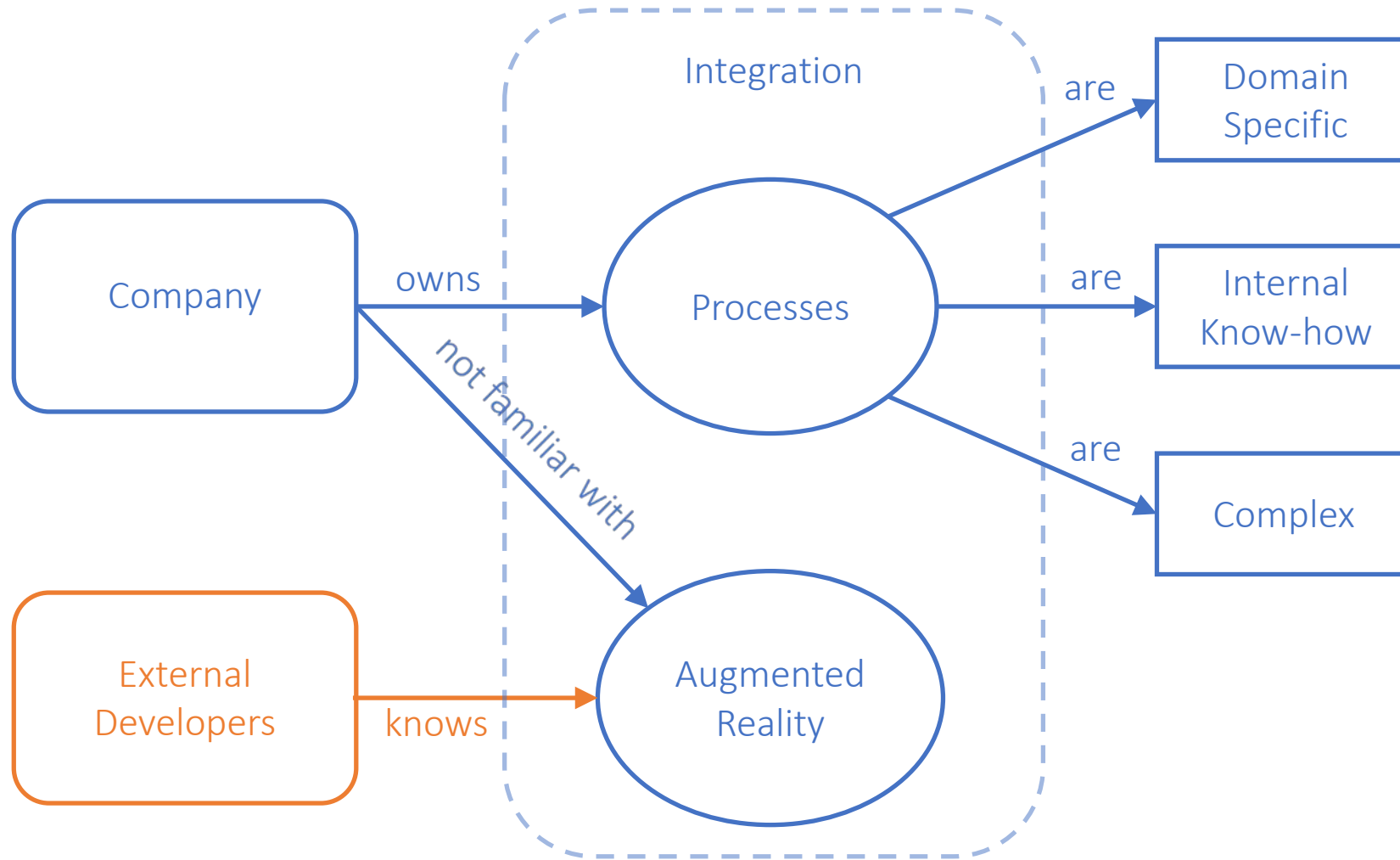


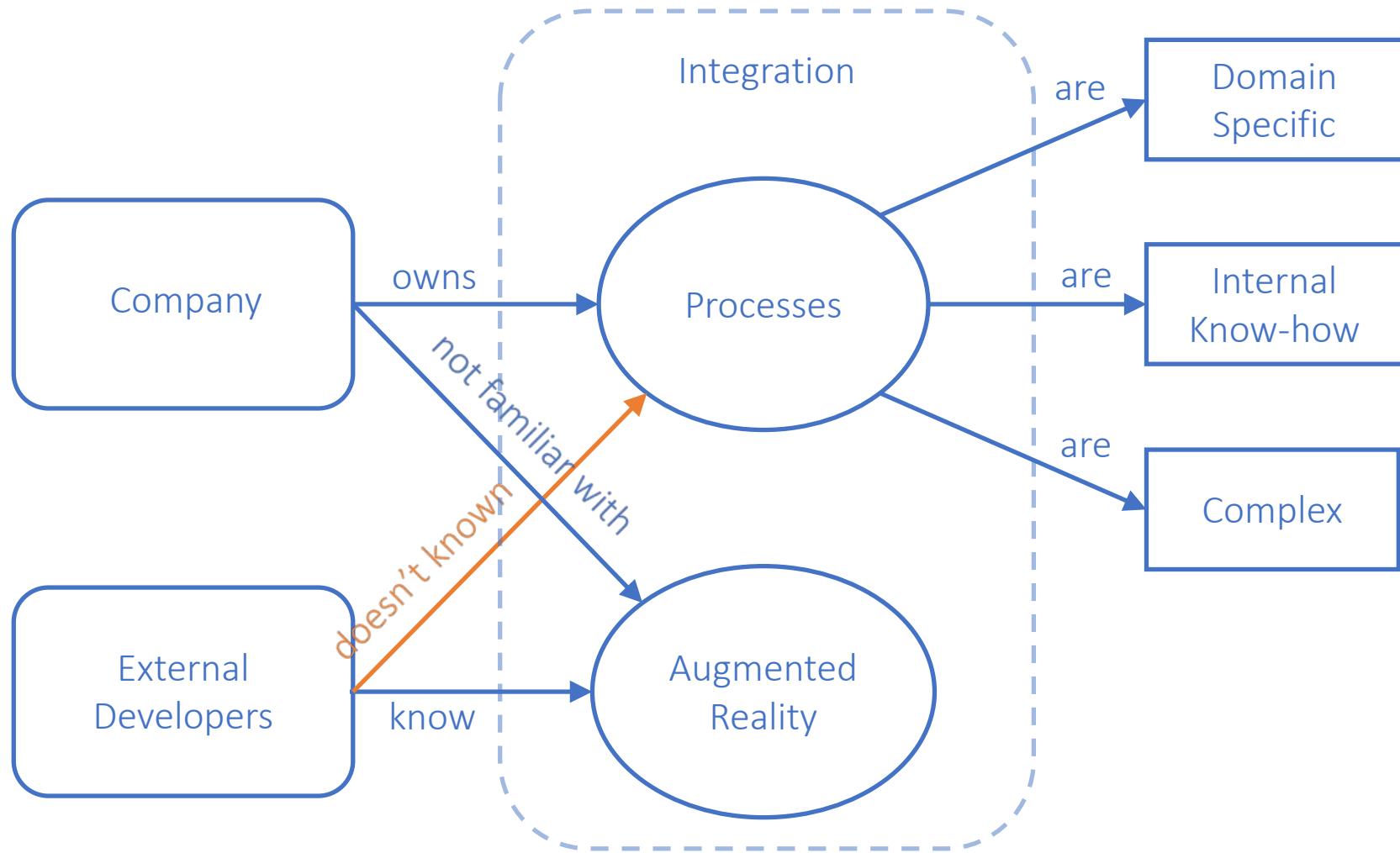


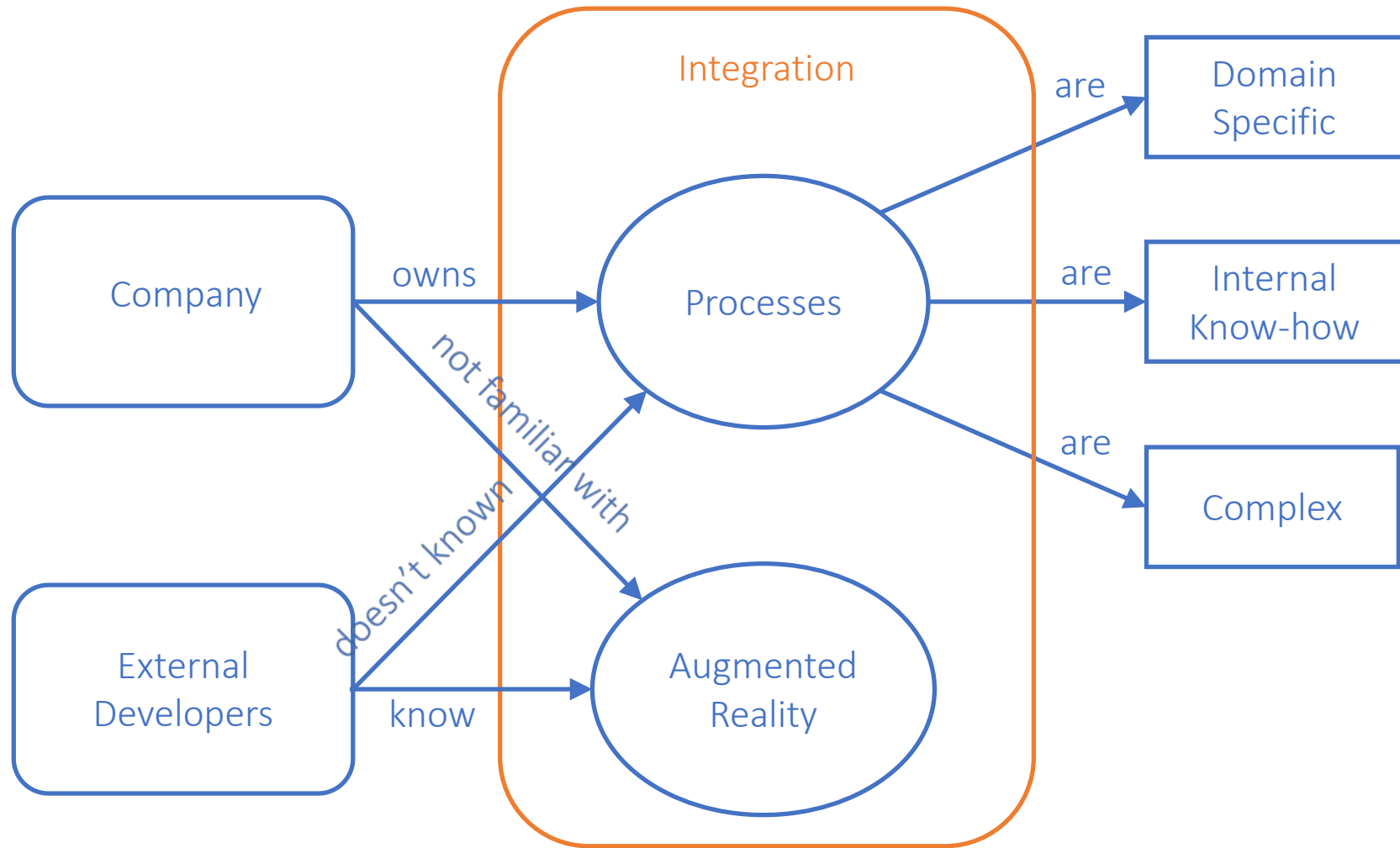
Ownership

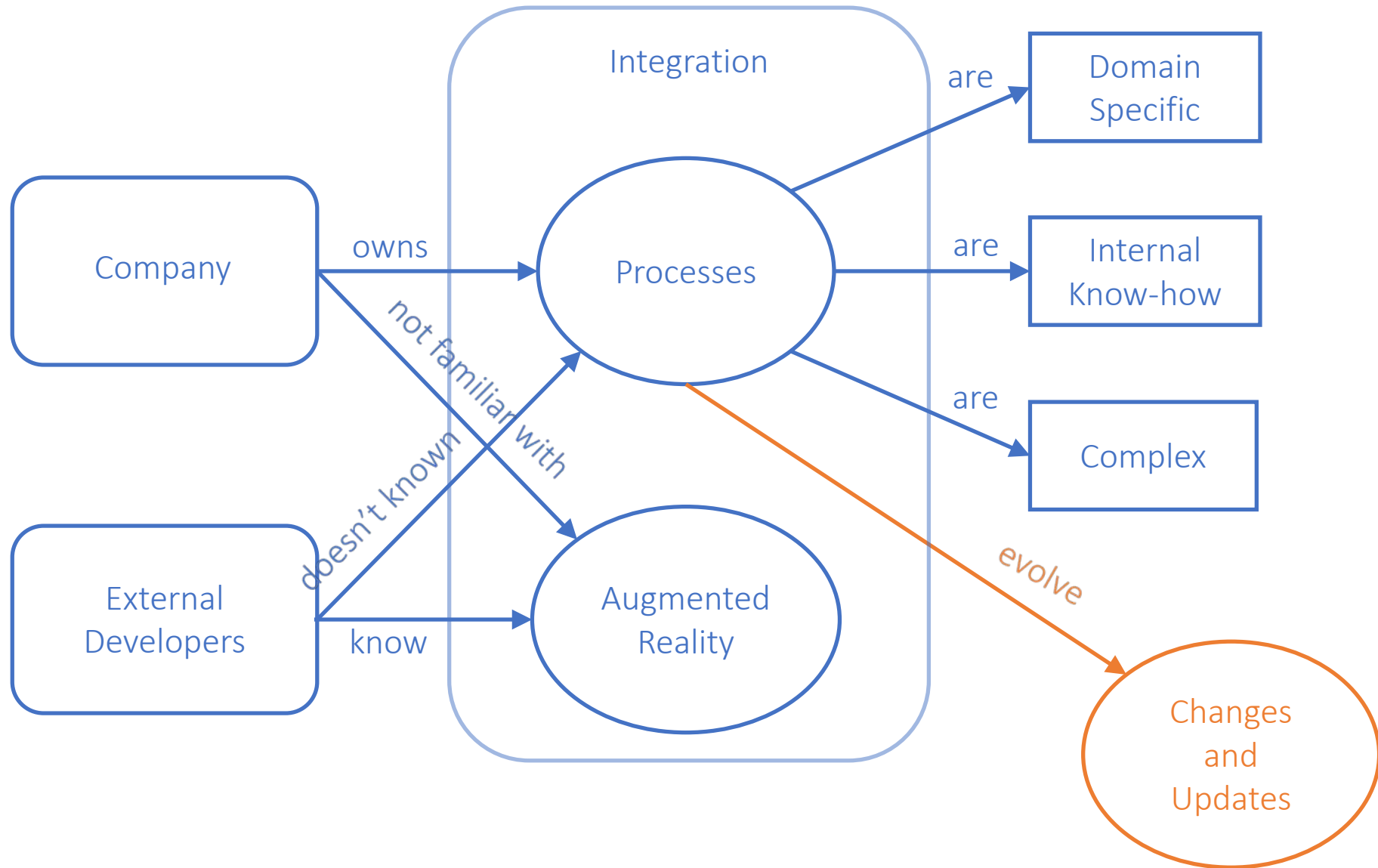


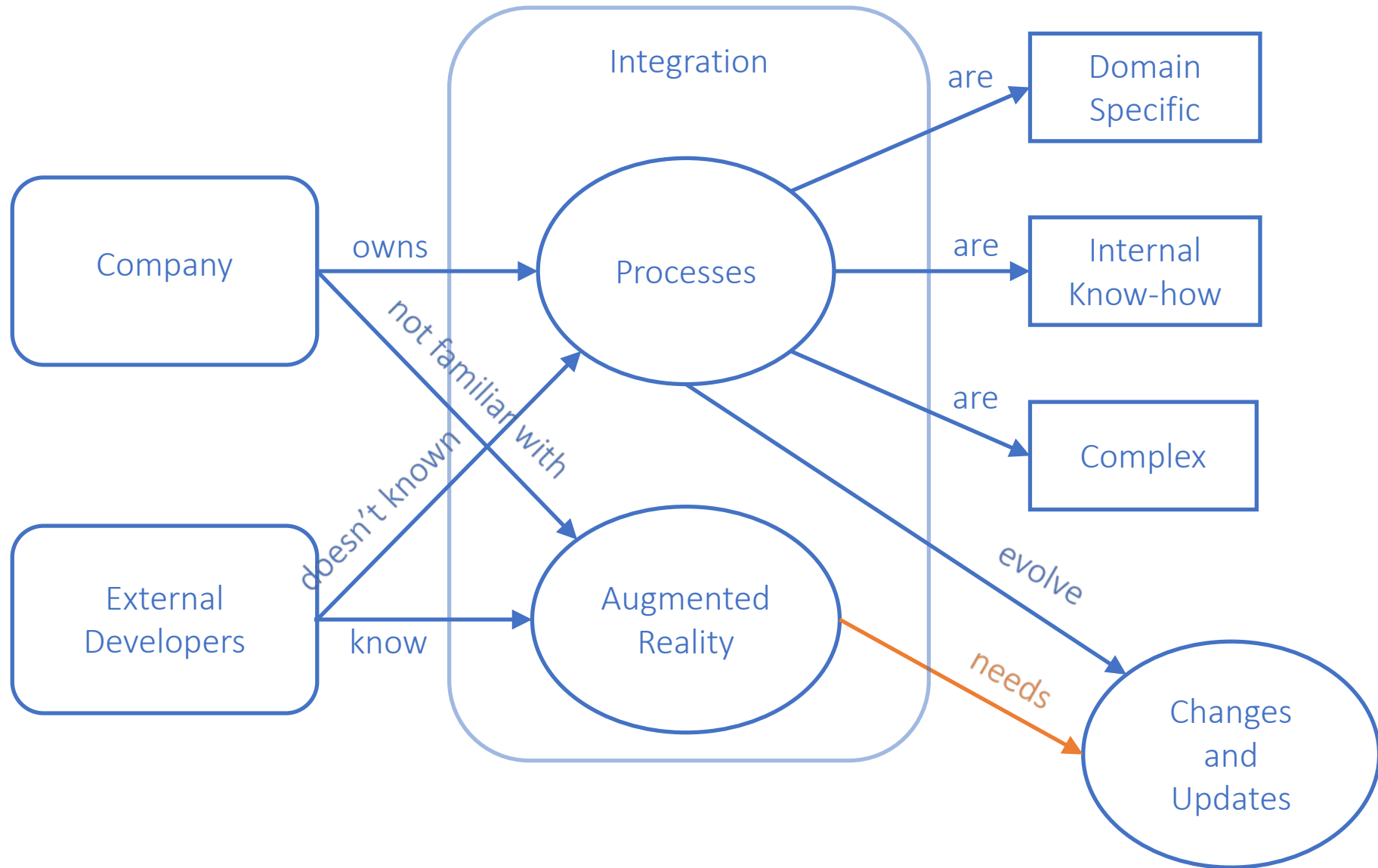


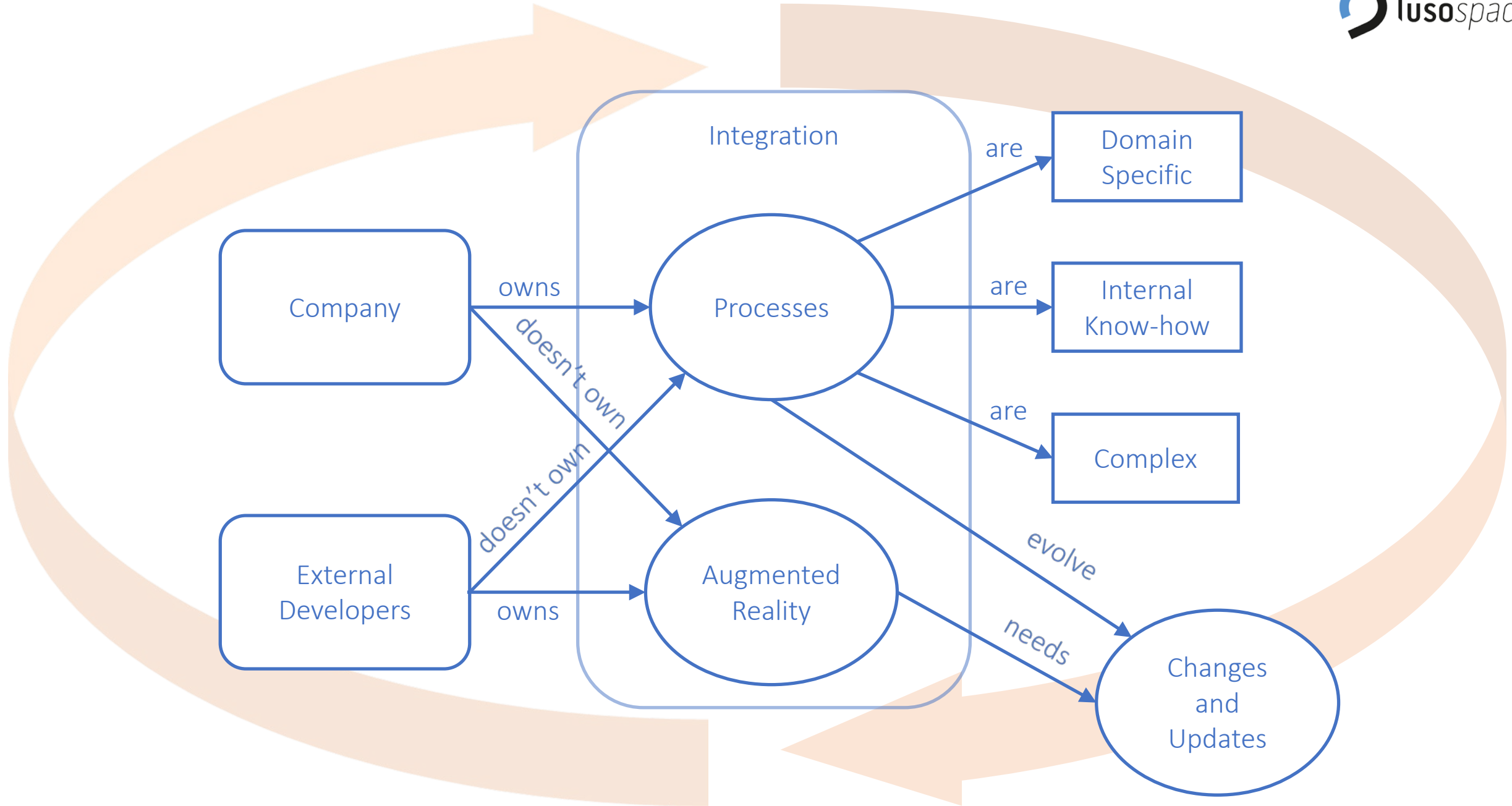










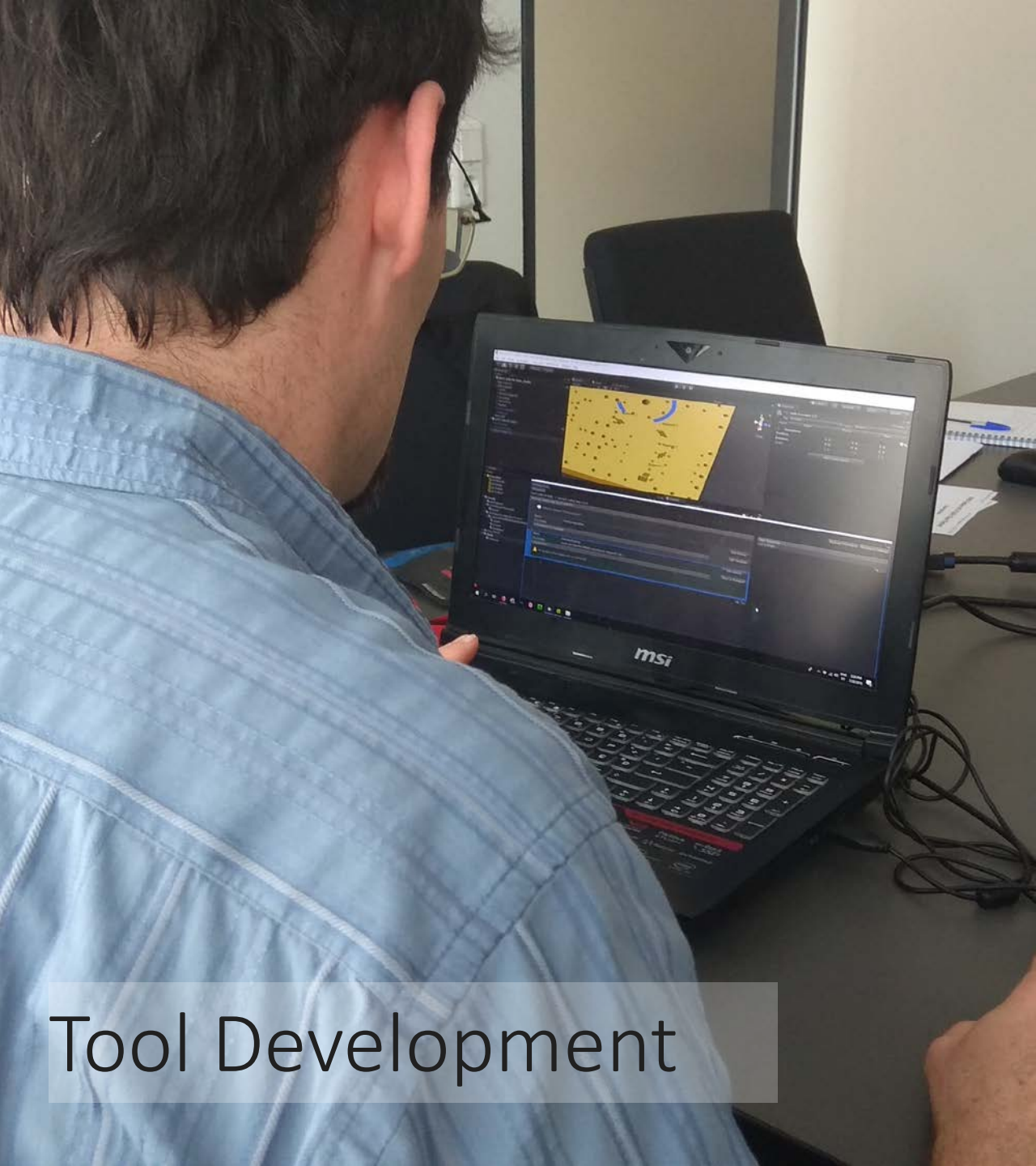




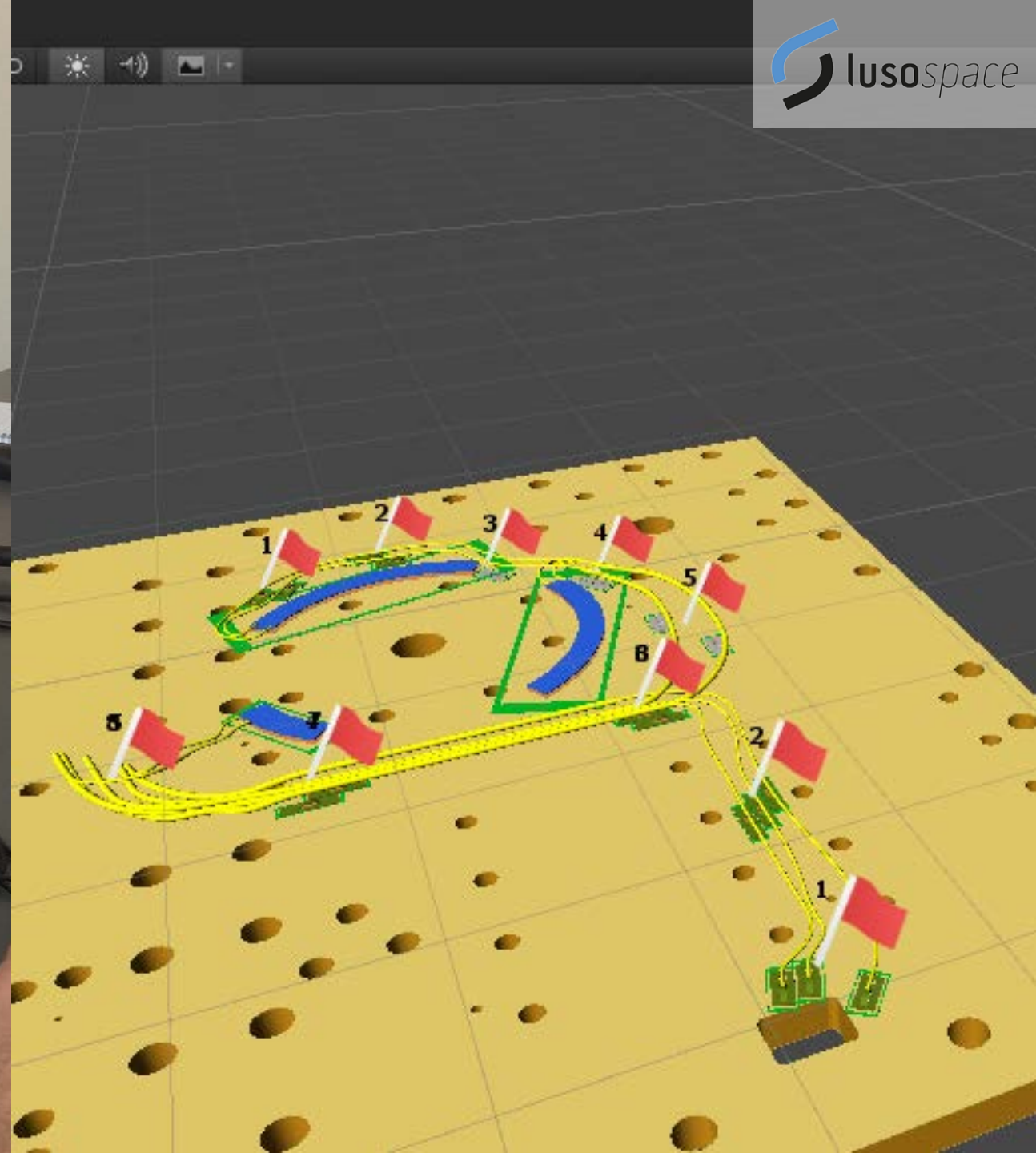
Licensing Authoring Tools

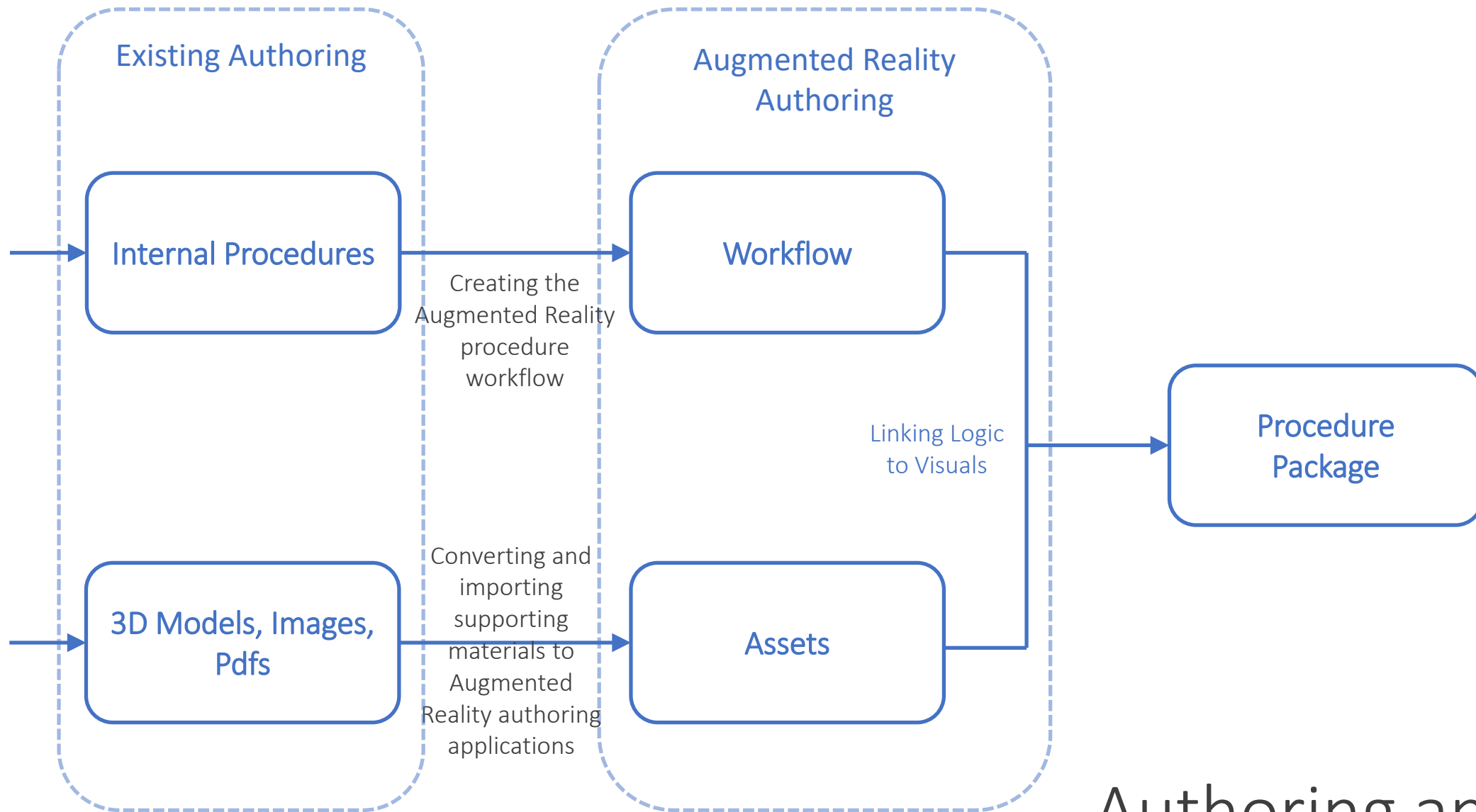


Authoring as is...



Tool Development





Authoring and AR



Requirements

Requirements



Flexible

Requirements



Flexible



Easy to Use

Requirements



Flexible



Integrated

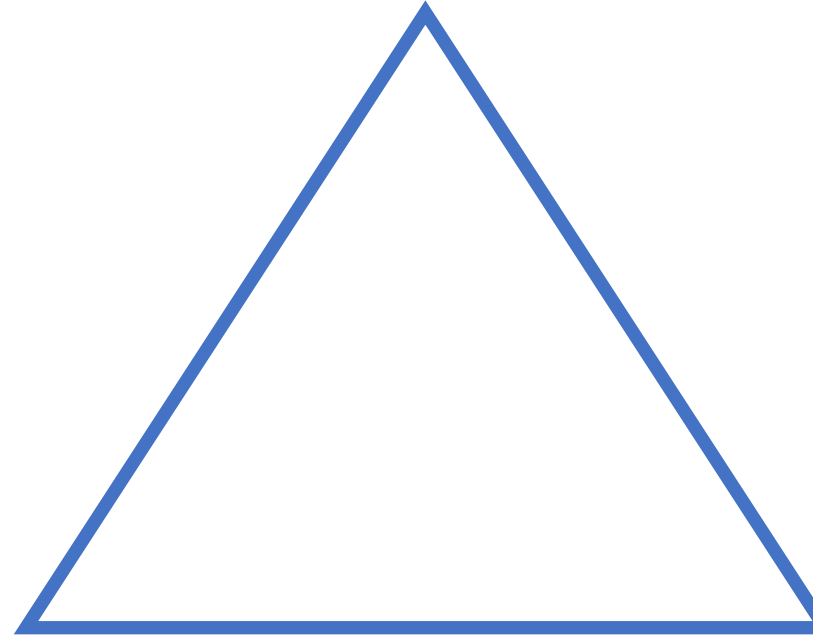


Easy to Use

Requirements



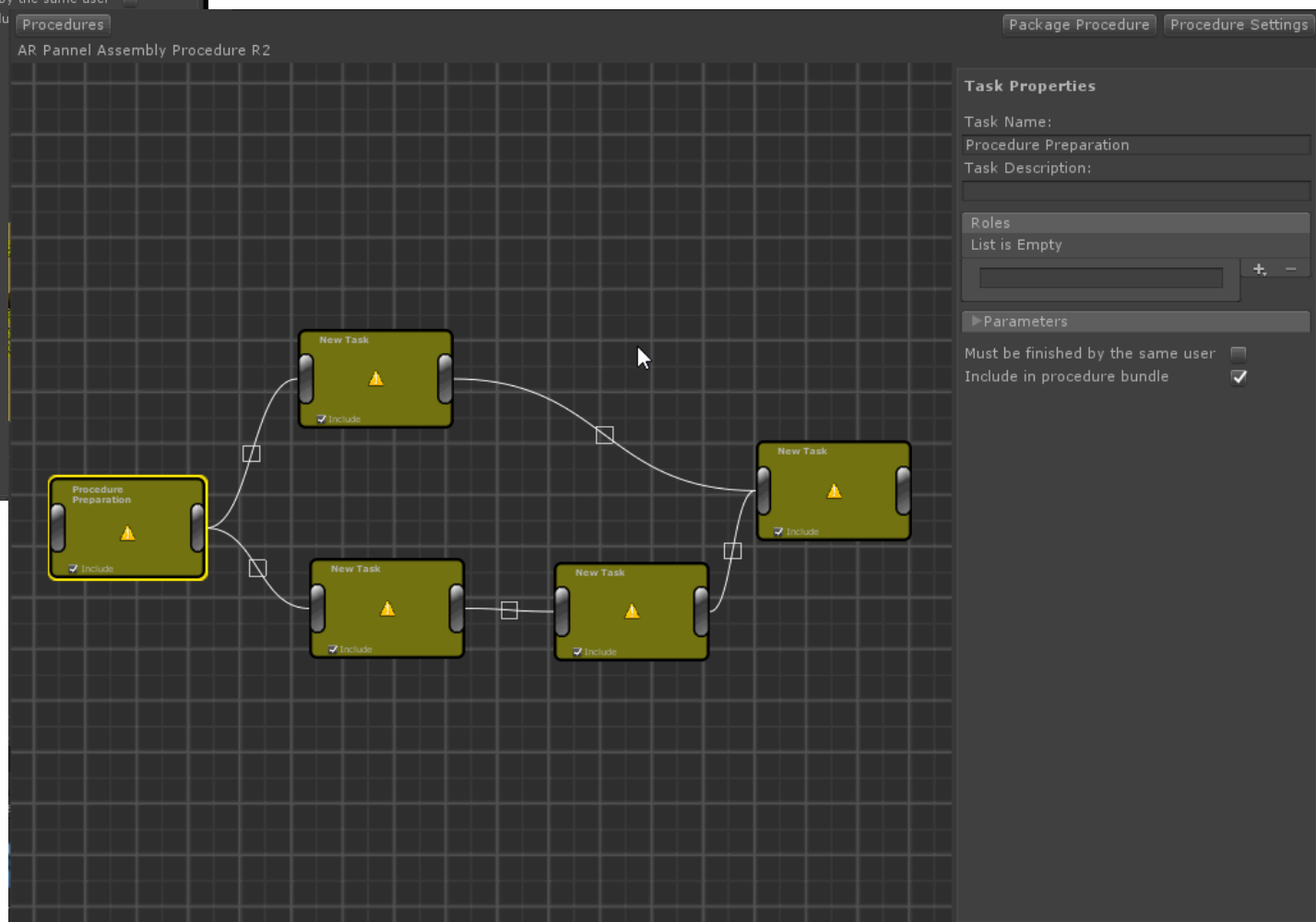
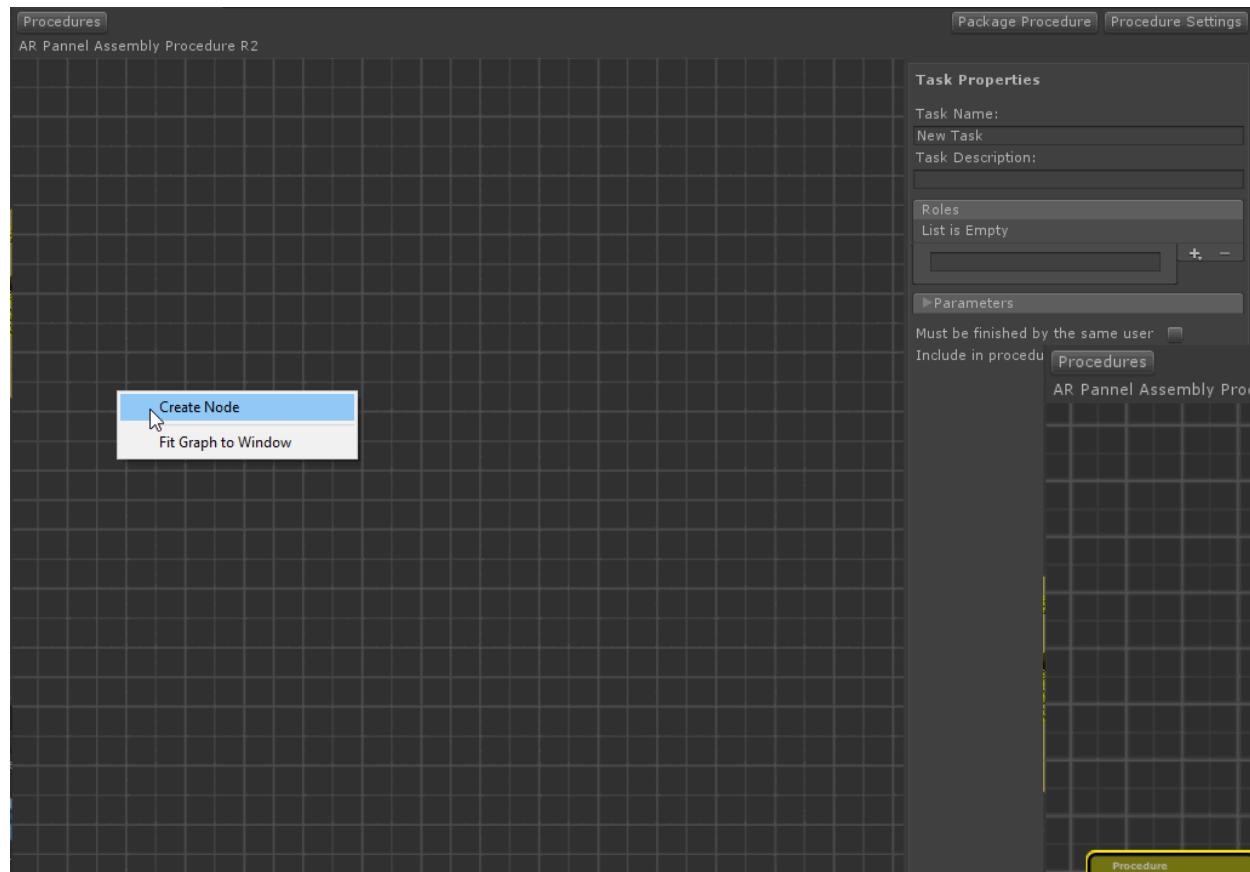
Flexible



Integrated



Easy to Use





Workflow Tools

Procedures
Package Procedure
Procedure Settings

AR Pannel Assembly Procedure R2 > Procedure Preparation

"Procedure Preparation" Activities

Name	Procedure Disclaimers	Edit Activity
Description	Disclaimers and warnings to be shown before procedure execution	Save as Template
Parameters		
 No operators to be included in the procedure build		

Name	Scene Setup	Edit Activity
Description	Environment preparation before executing the procedure steps	Save as Template
Parameters		
 No operators to be included in the procedure build		

Task Resources
List is Empty

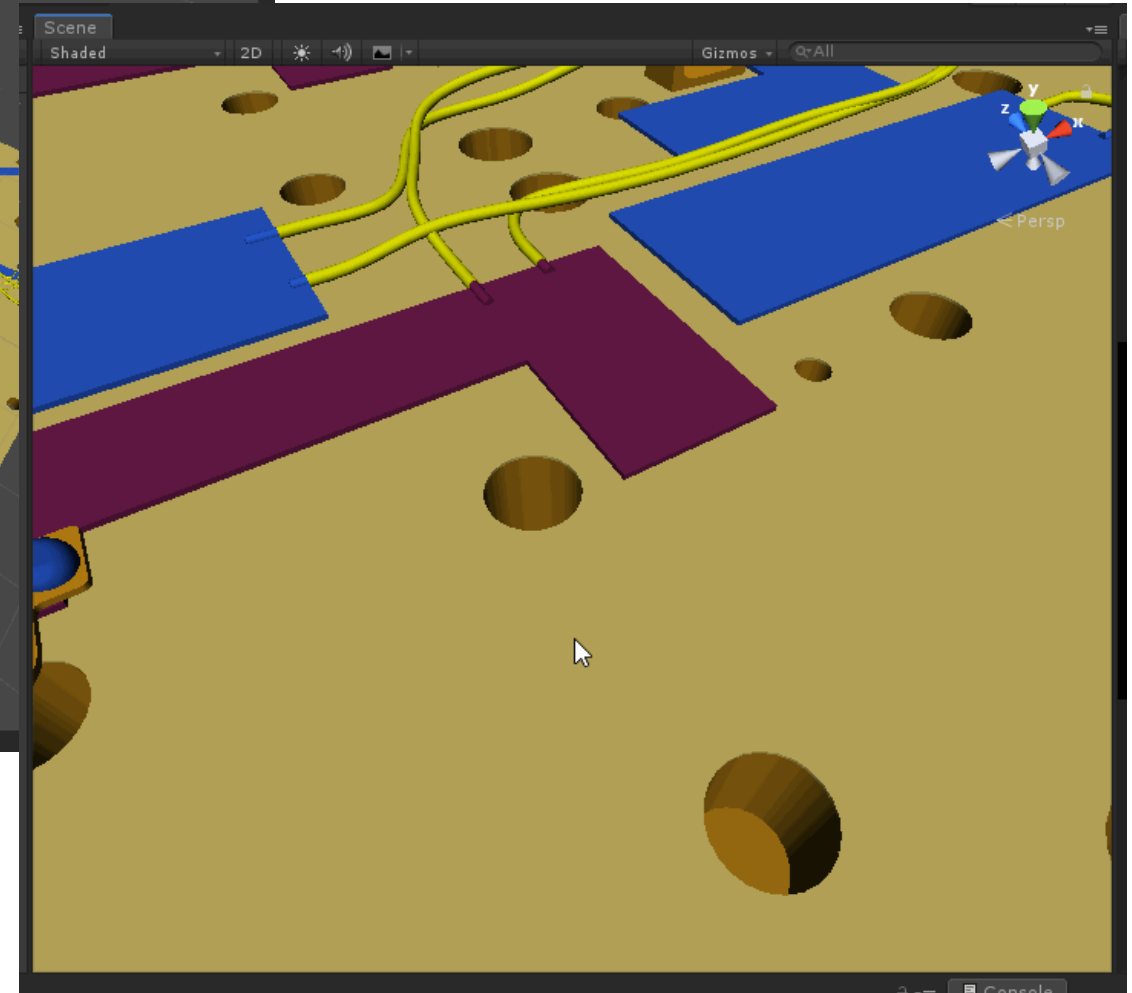
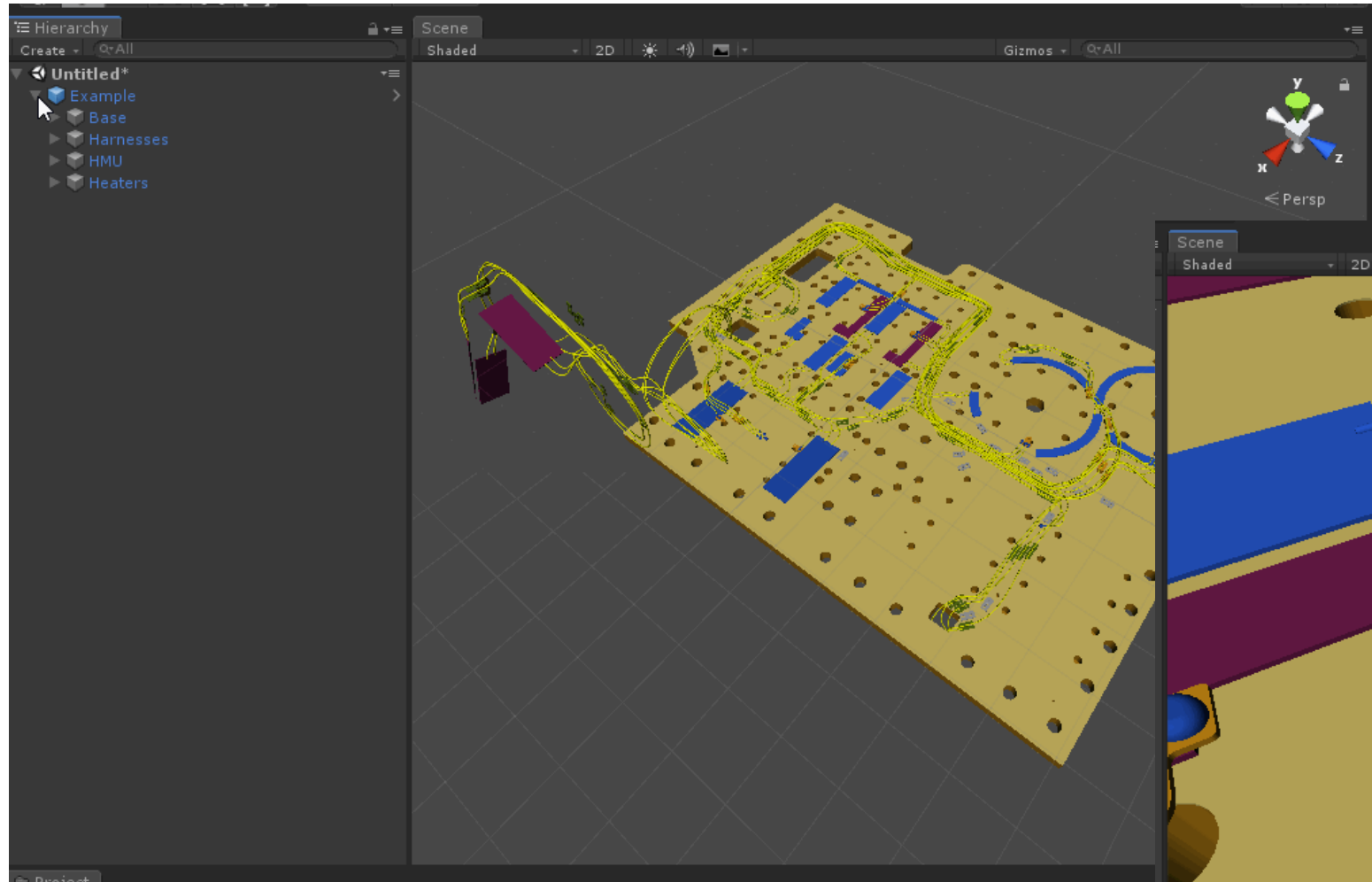
Abrasion Setup
Edit Template
Duplicate Template
Delete Template

Adhesive Application
Edit Template
Duplicate Template
Delete Template

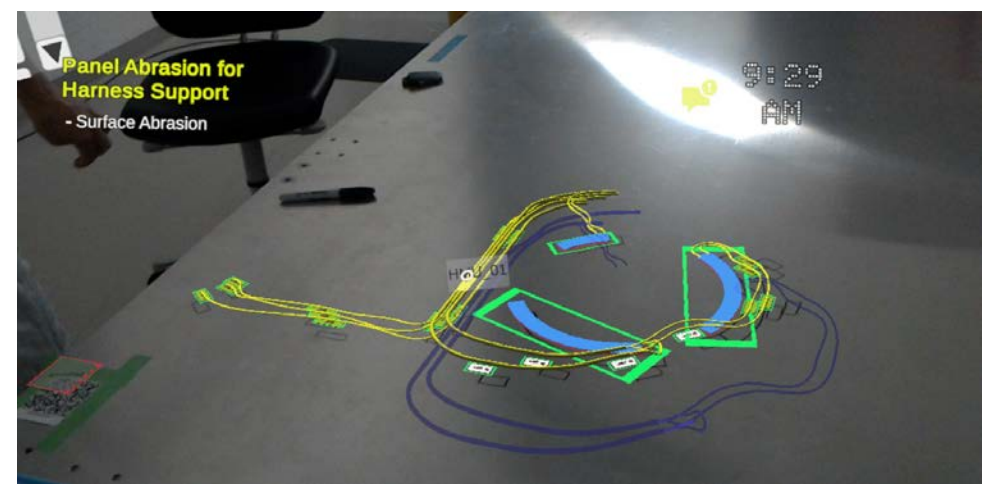
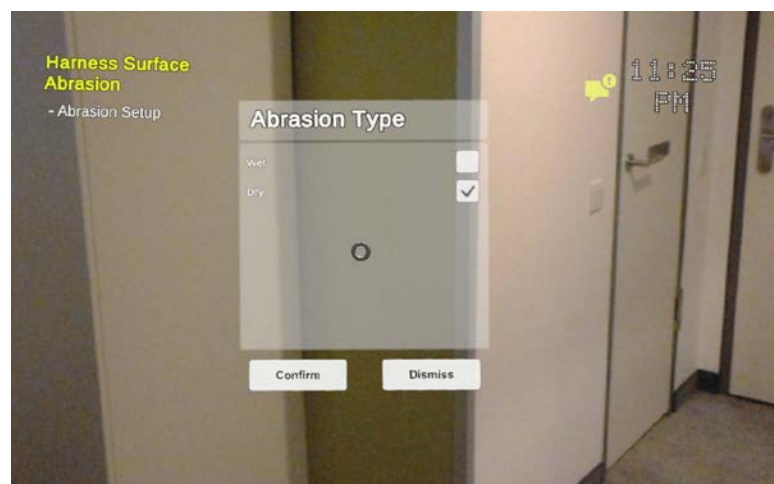
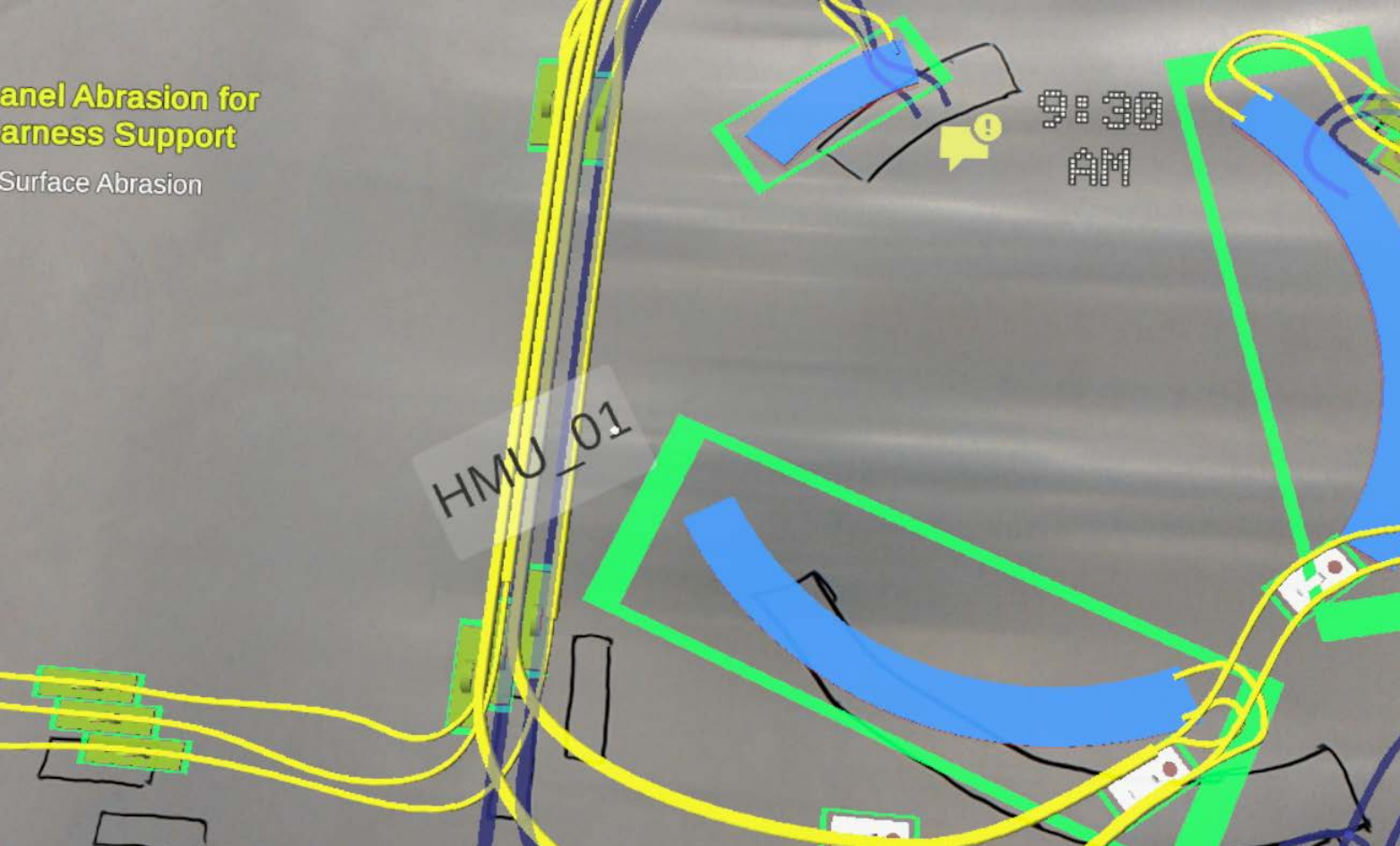
Environment Assessment
Edit Template
Duplicate Template
Delete Template

Gluing Batch Record
Edit Template
Duplicate Template

Workflow Tools



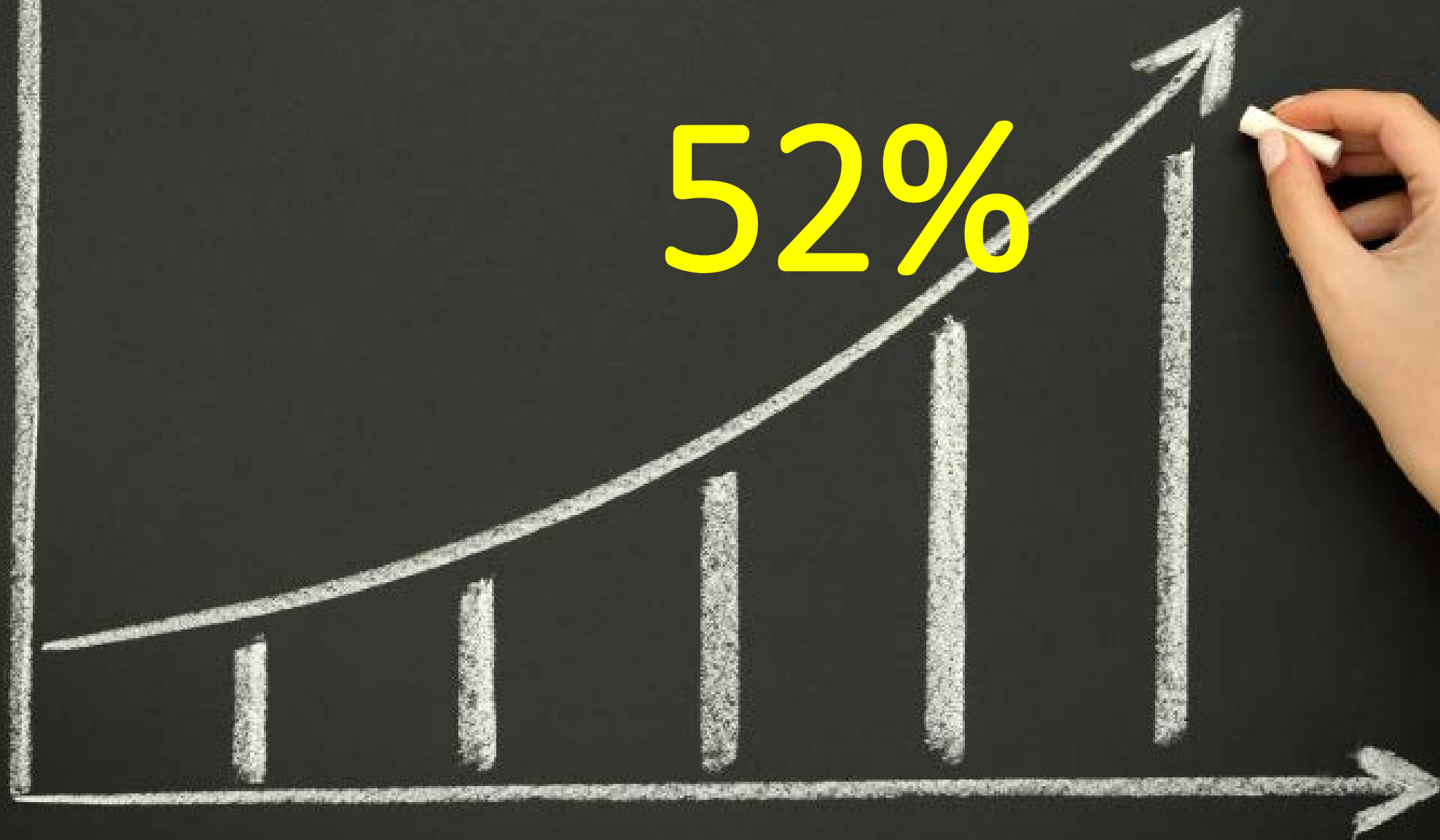
Augmented Scene Tools



26%



52%





QUESTIONS?