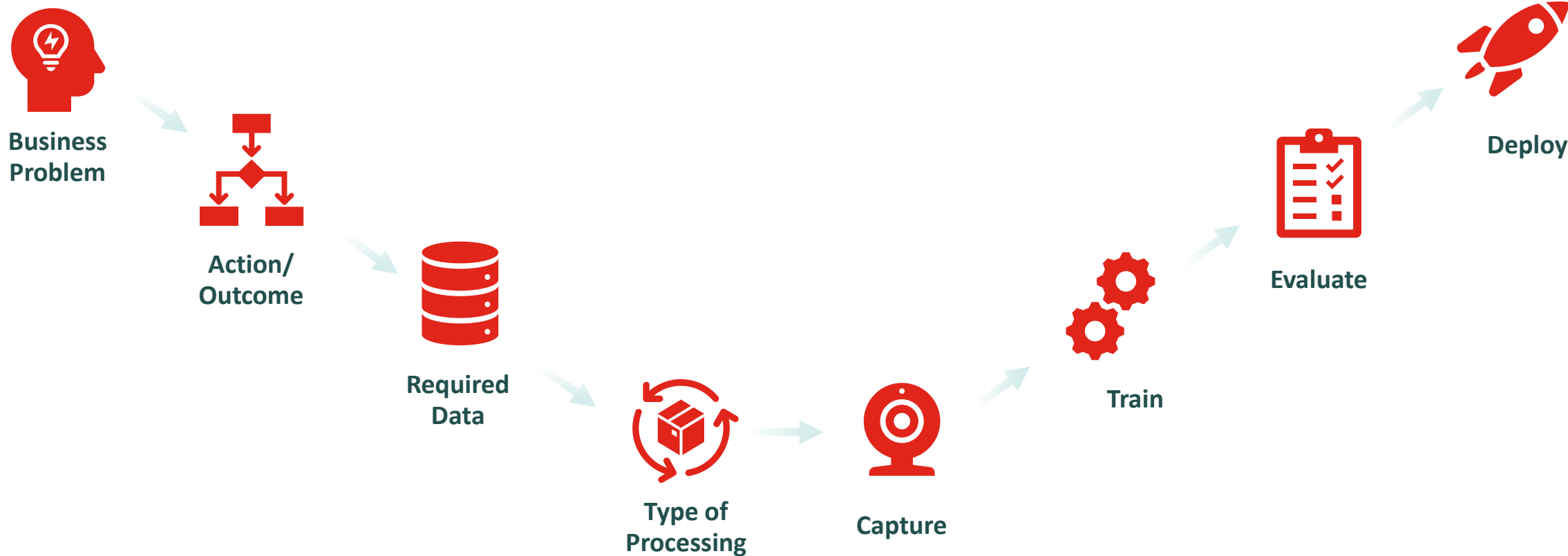


The logo for the 2021 Embedded Vision Summit Virtual. It features a white rectangular box with a thin black border. Inside the box, the text "2021" is at the top in a light blue font. Below it, "embedded" is in a smaller, dark blue font. The word "VISION" is in a large, bold, dark blue font, with the letter "O" replaced by a colorful circular graphic made of small dots. Below "VISION" is the word "summit" in a dark blue font. At the bottom of the box, "VIRTUAL | MAY 25-28" is written in a smaller, light blue font. The background of the slide is a vibrant blue with a faint, circular, technical-looking pattern. To the left of the logo is a cluster of overlapping, colorful geometric shapes in shades of green, yellow, and blue.

2021
embedded
VISION
summit®
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The Five Rights of an Edge AI Computer Vision System

Toby McClean
ADLINK Technology



Start with a well-defined business problem and turn it into a deployable solution

ensure the
right data



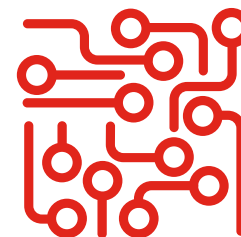
is transmitted at the
right time



to the
right place



to make the
right decision



and take the
right action

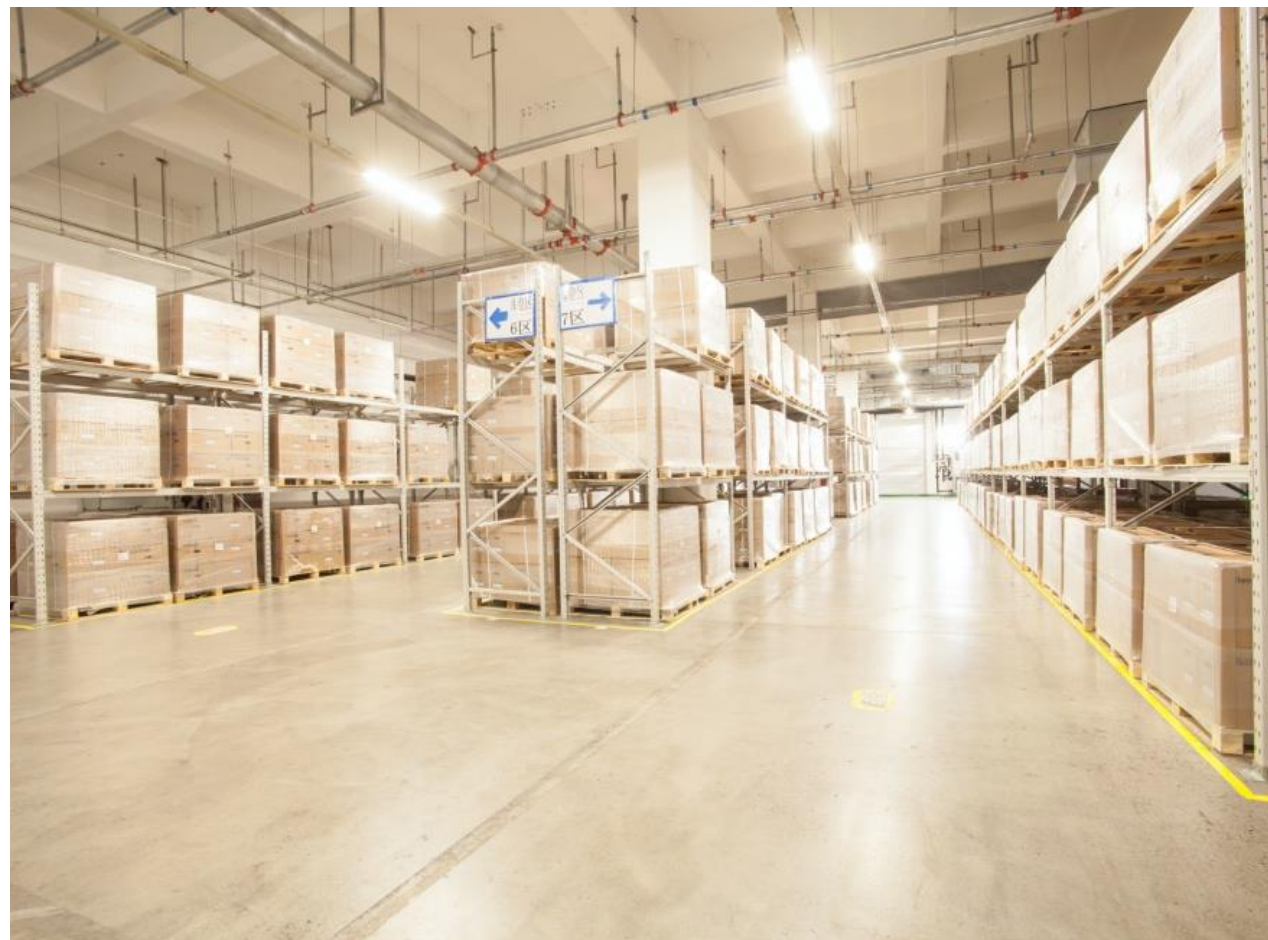


The Edge is an important tool to efficiently and effectively turn **data** into **value**

Use Case Order Validation

.....

A high-volume warehouse logistics operation required increased automation to improve accuracy and efficiency loading packages on correct pallets, as well as to reduce theft or damage.



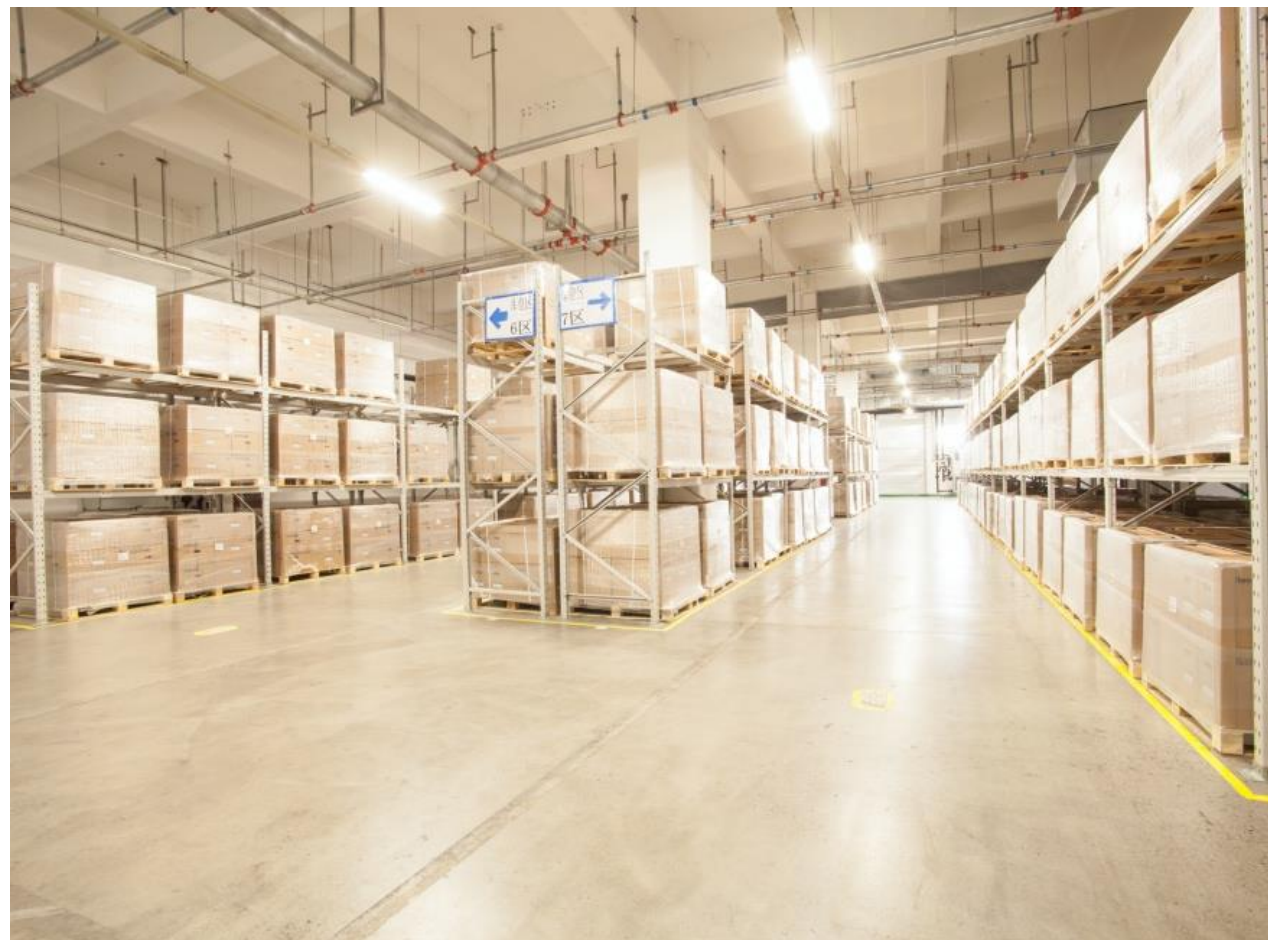
Ensure the Right Data

- The right data allows you to solve the problem
- The wrong data will lead to poor decisions and hence not the desired action
- Should be straight forward when the desired decision and action is understood
 - Acquisition may still be hard



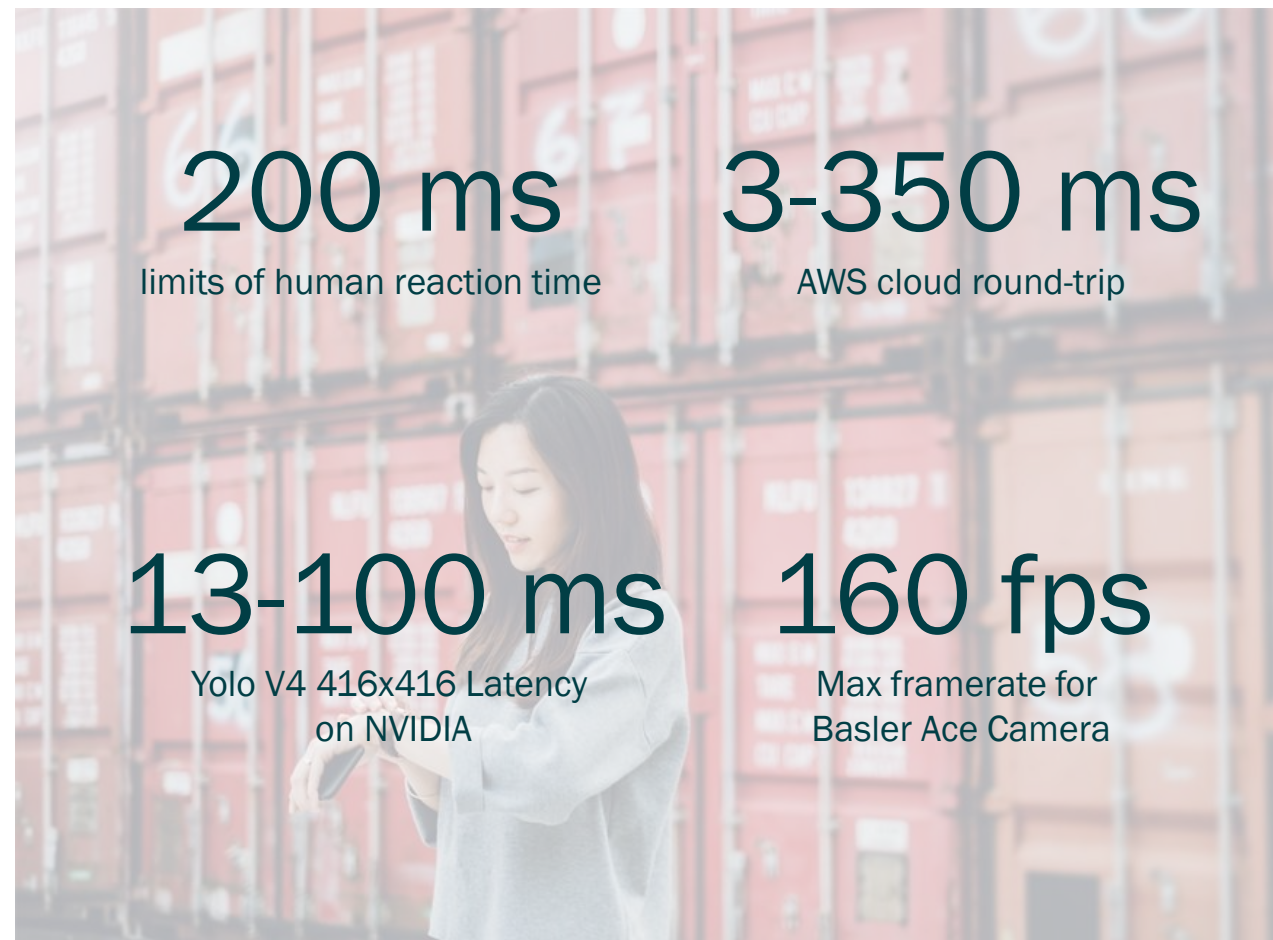
Use Case Order Validation

- Right Data
 - Images of pallets as they are being built
 - Barcodes of packages on pallet, packages without barcode
 - Expected packages on pallet
- Data source
 - Overhead cameras Connection to warehouse management system



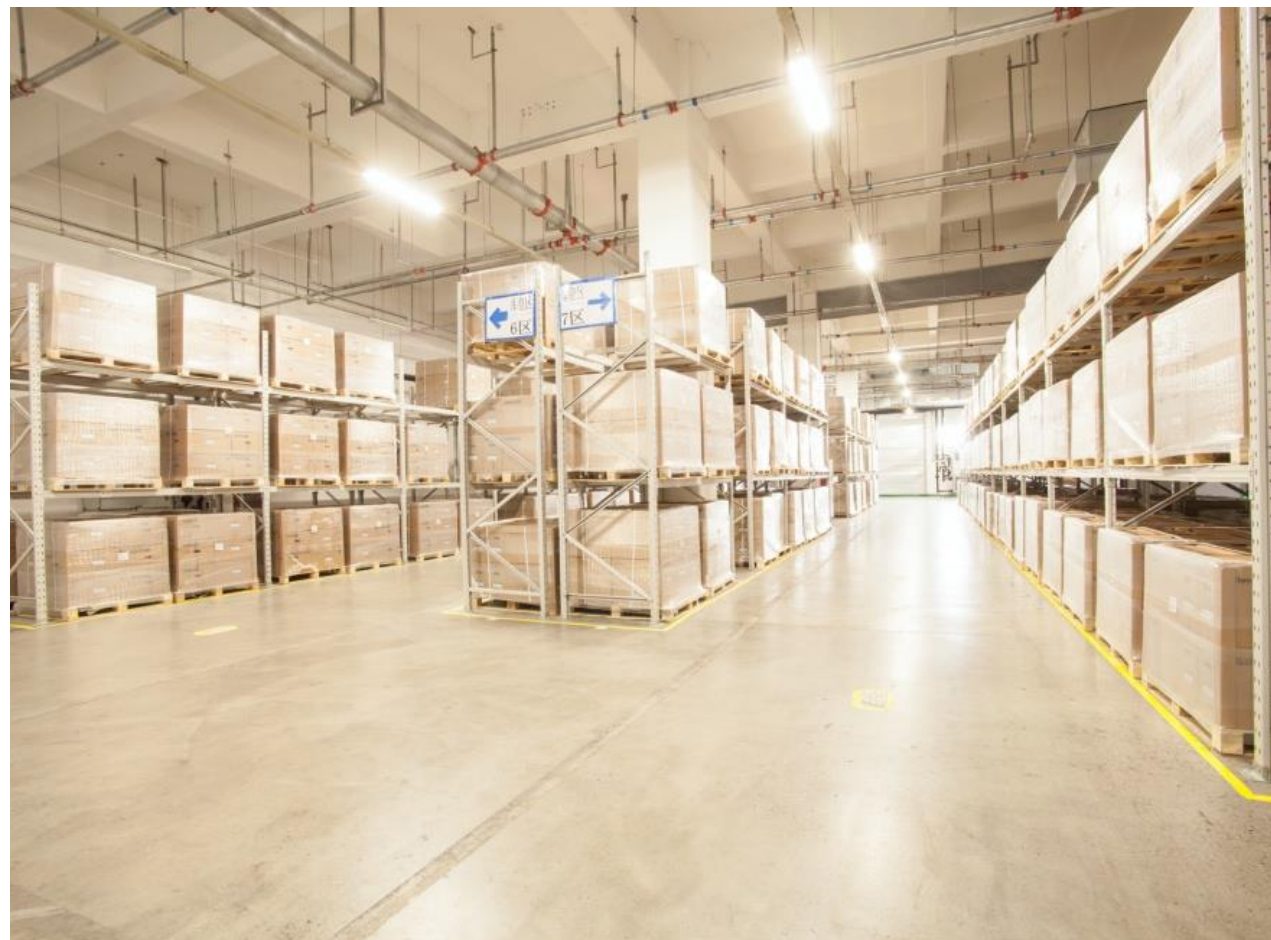
Is transmitted at the Right Time

- Comes from the problem being solved
- Data that isn't on time will lead to decisions and actions that are no longer valuable
- Data that is on time enables value creation by increasing efficiency for example



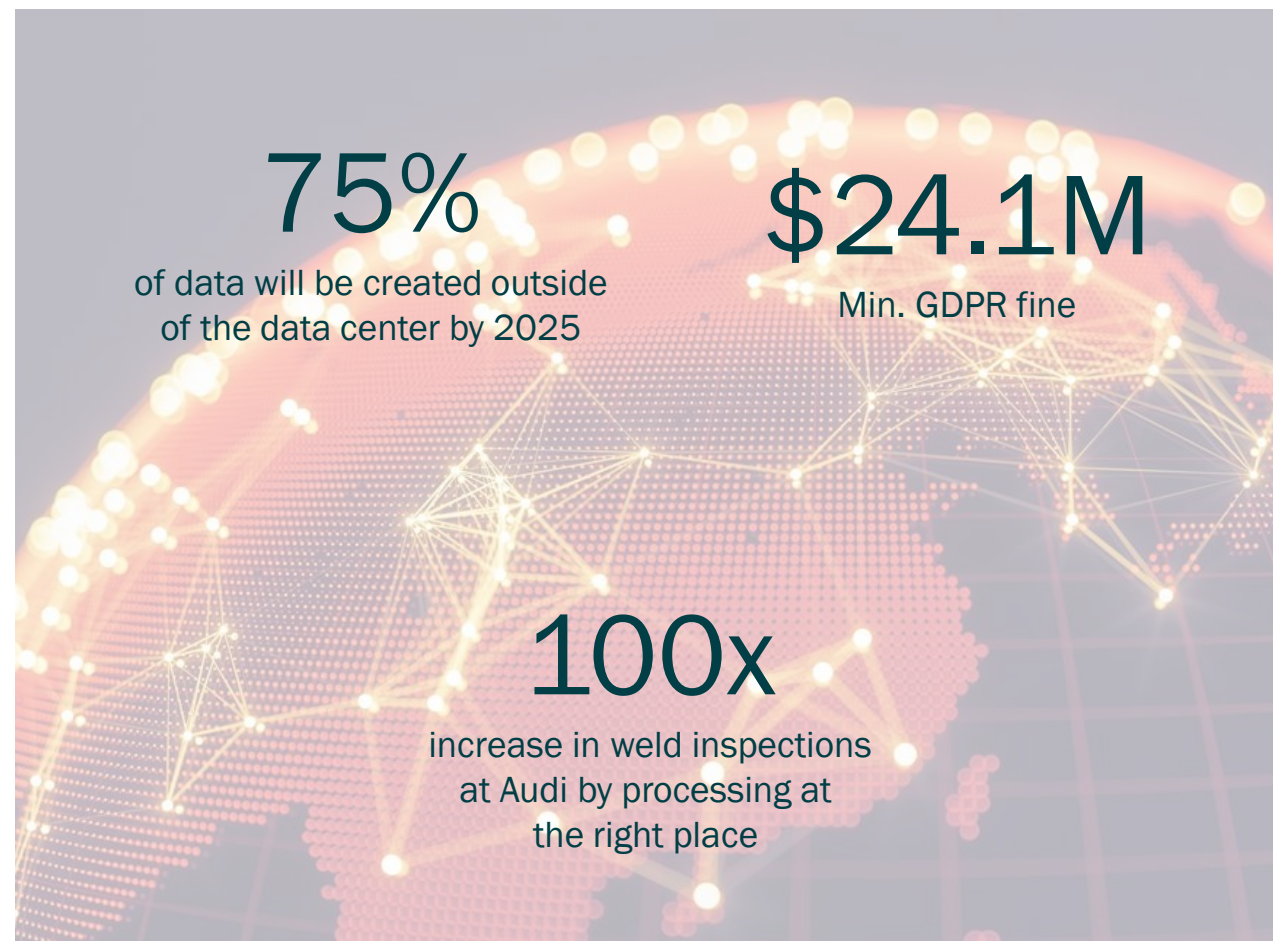
Use Case Order Validation

-
- Constant observation of pallet bays
 - Less than 200ms to provide feedback to the worker



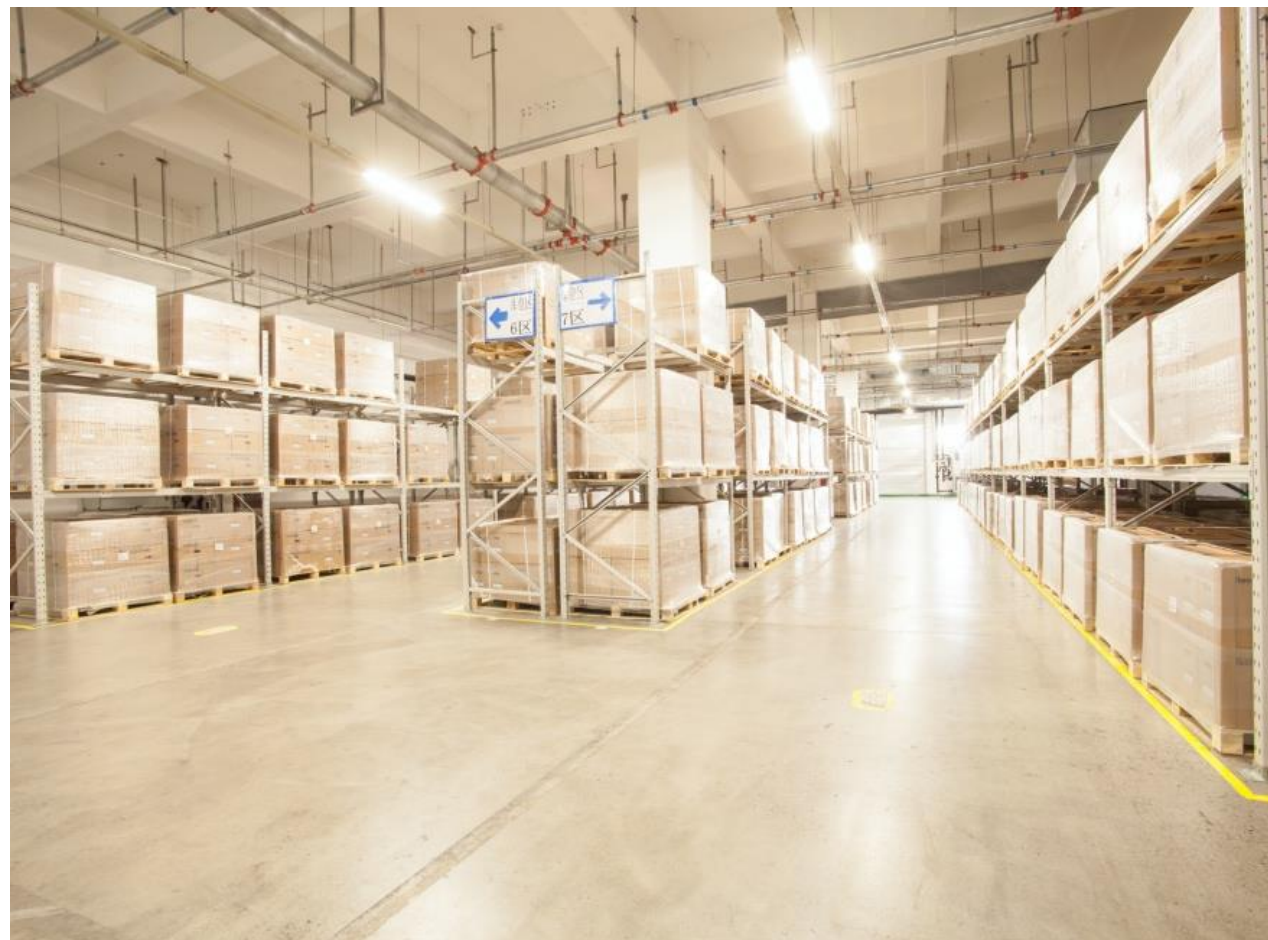
To the Right Place

- When processed in the right place it enables you to obey
 - Laws of Physics
 - Laws of Economics
 - Laws of the Land
 - Murphy's Law



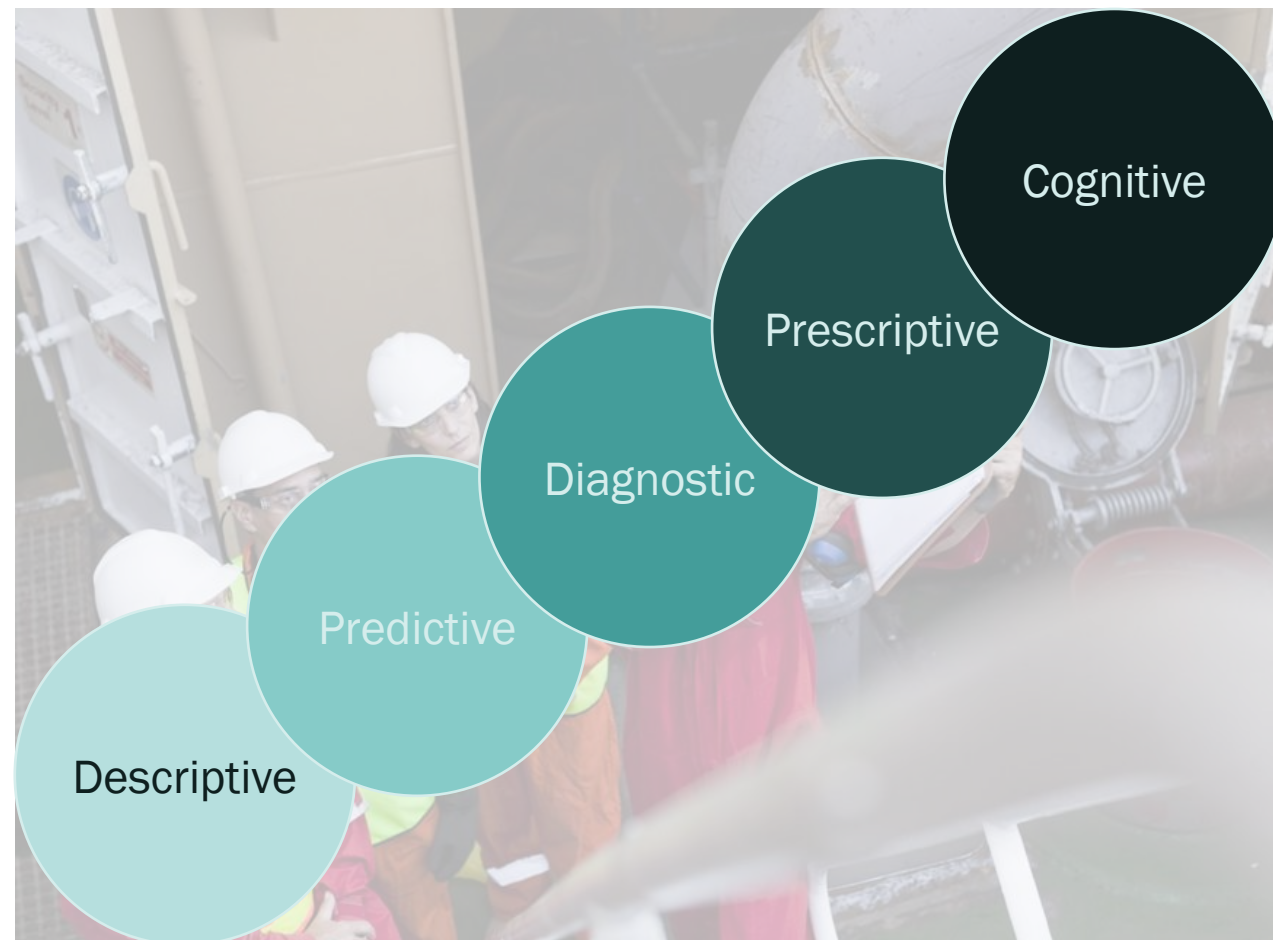
Use Case Order Validation

- Value is created by giving worker immediate feedback
- Given response requirements data needs to be processed at the source of data (in the warehouse)



To make the Right Decision

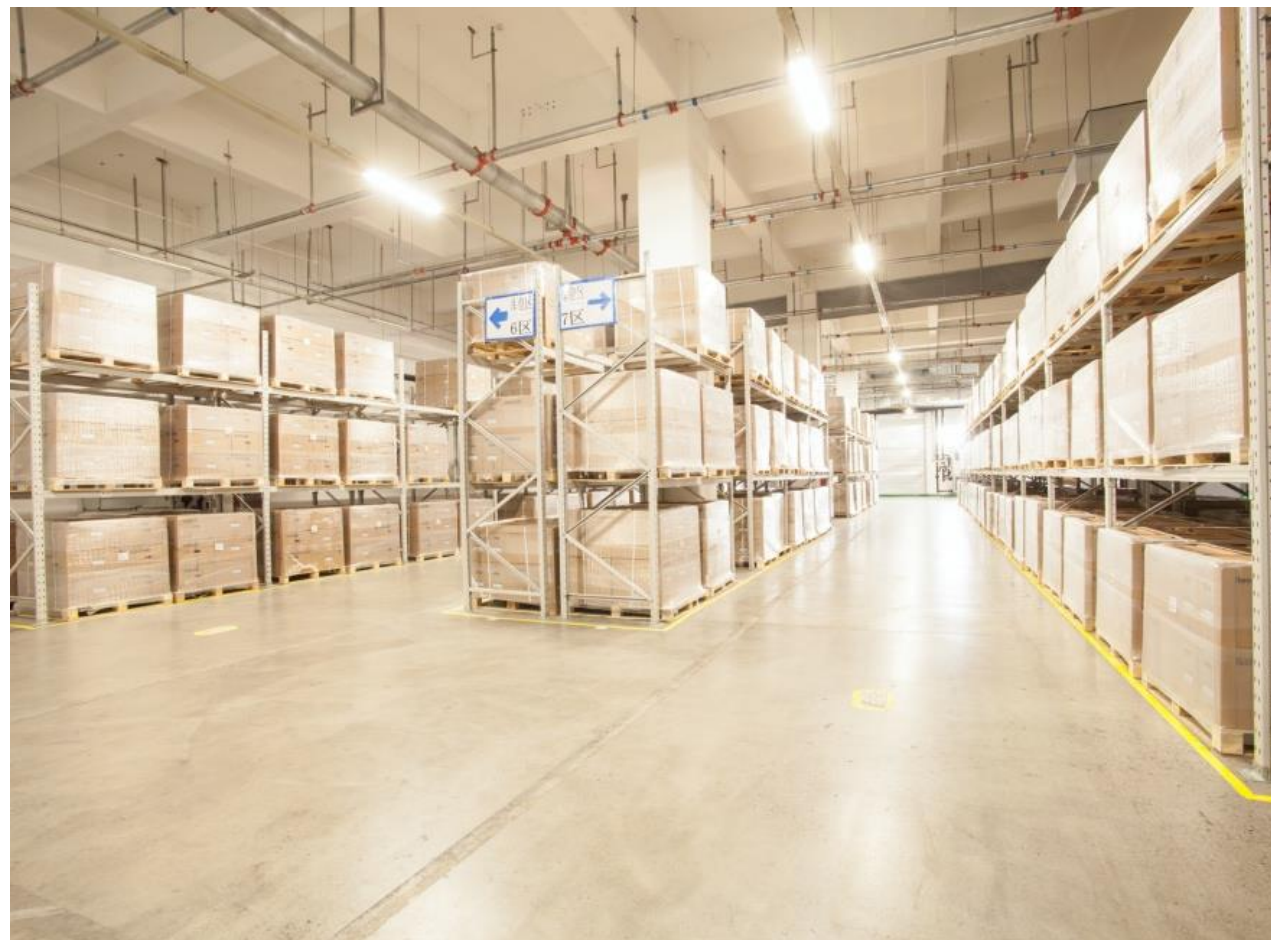
- Making the wrong decision could have a negative impact on the business
- Incorrect processing of the data can lead to unreliable decisions
- Simplest approach to decision making is best



Use Case

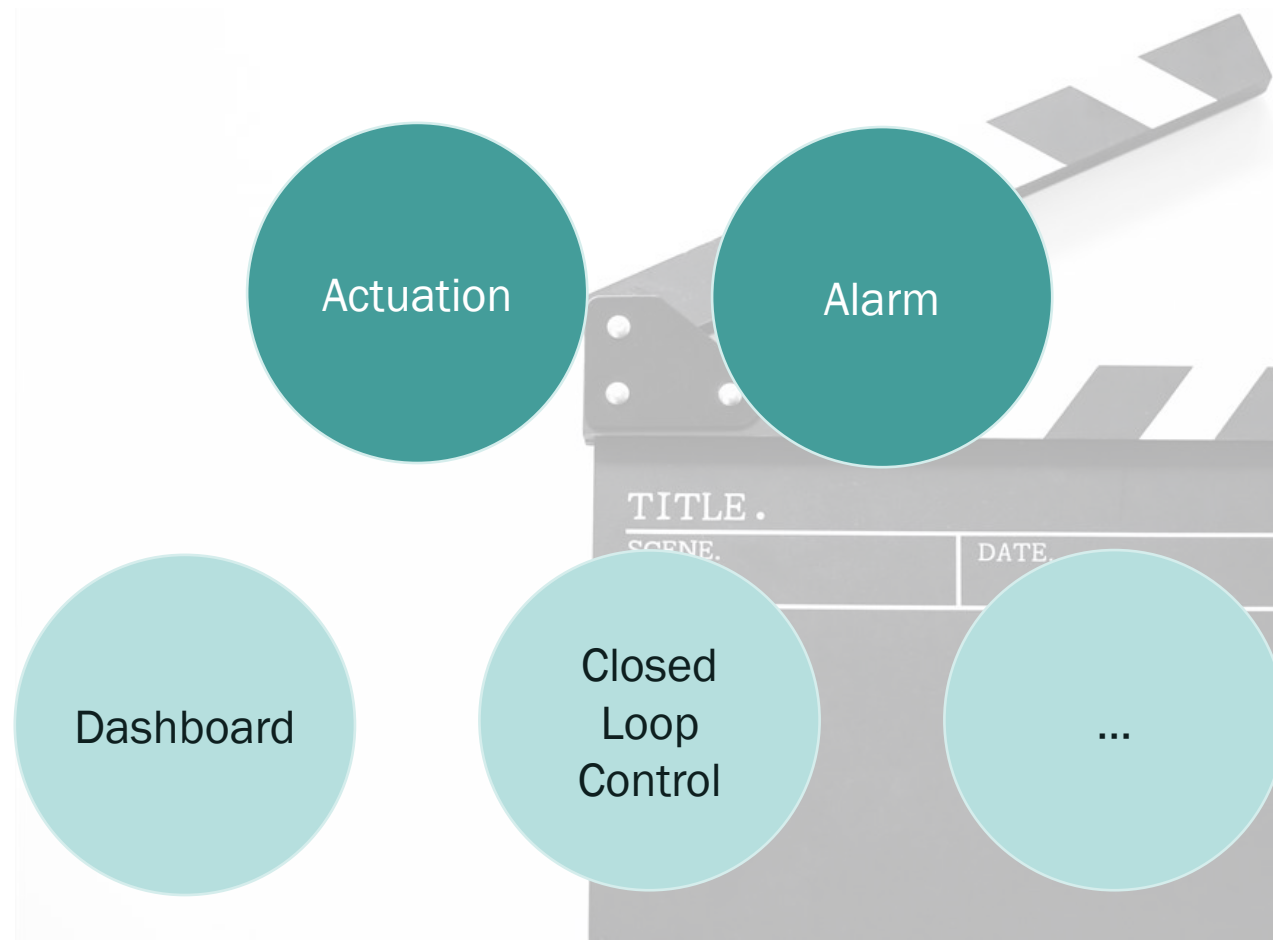
Order Validation

- Based on the barcode on a package is it on the right pallet
- Detection of packages that don't have a barcode
- No data about the worker should be captured



And take the Right Action

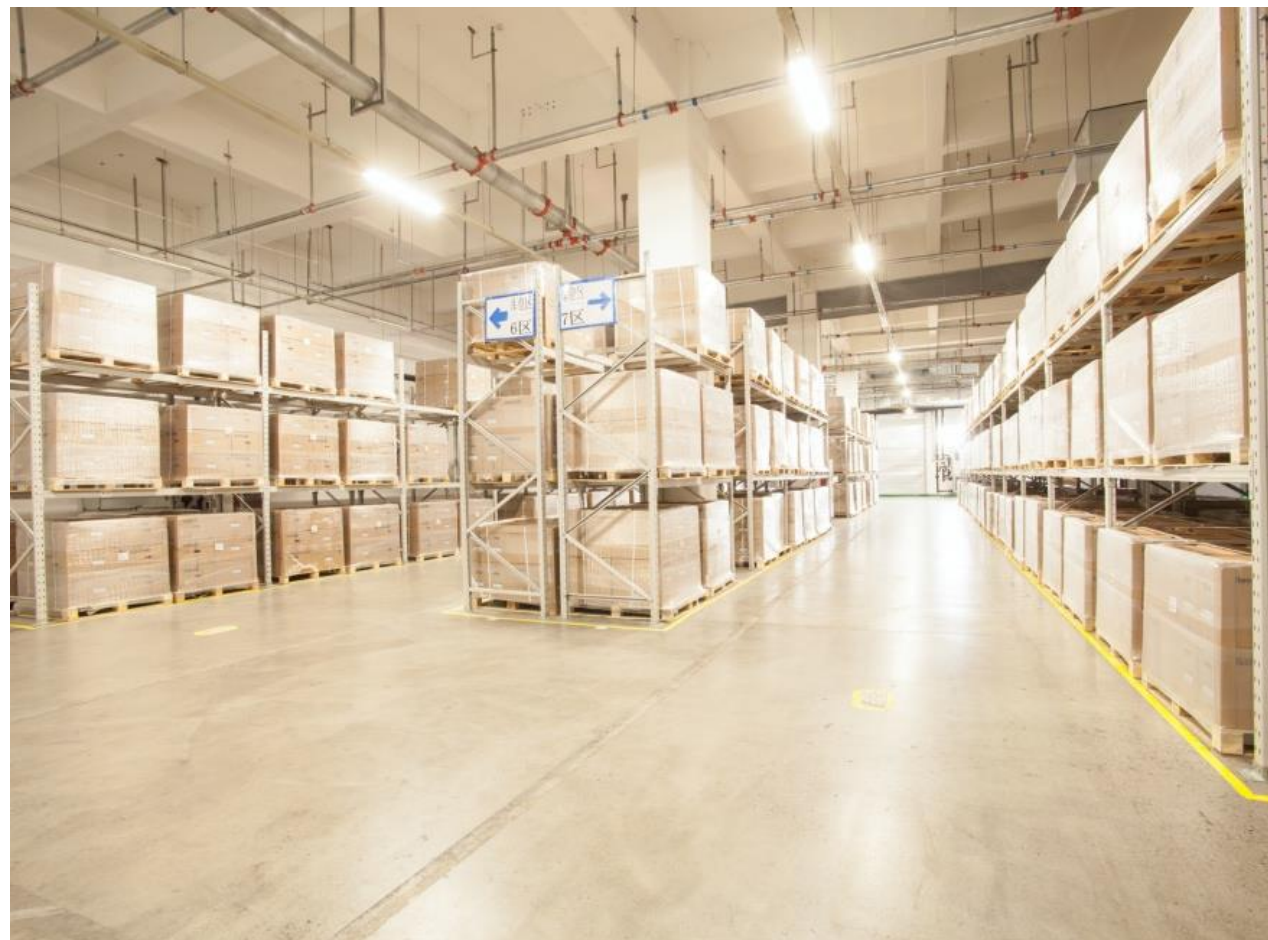
- The action is what drives the value
- Often is multi-modal
- Import to get buy-in from workers who will be impacted
- Without an action data is being collected and processed without business value



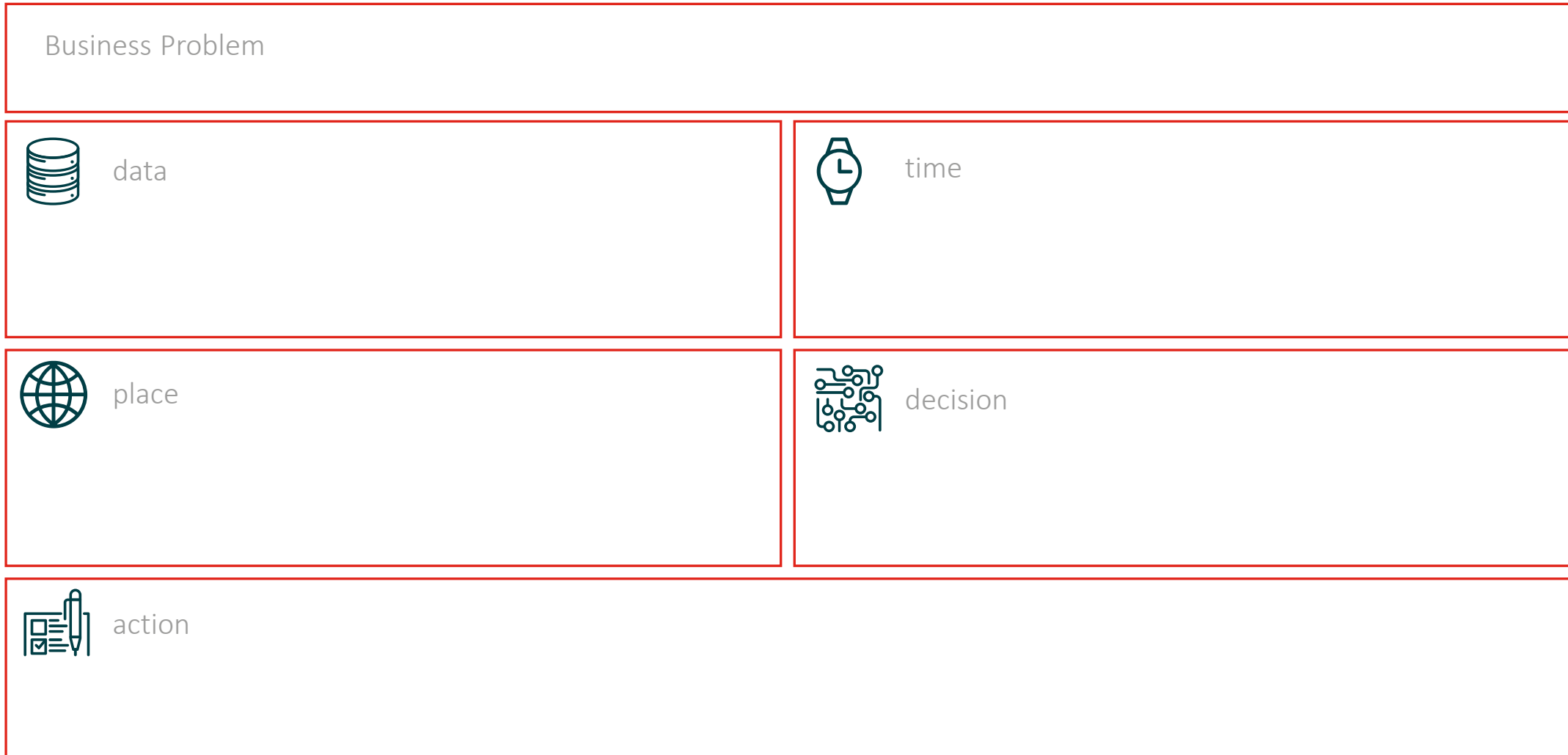
Use Case

Order Validation

- Shine a red light on a package that is on the incorrect pallet
- Show a dashboard in the pallet bay with pallet manifest, highlight misplaced packages



5 Rights Edge AI Canvas



- Applying this approach ensures focusing on the `right` aspects of the system up-front
- We have found that the following order works best
 - Right Action
 - Right Decision
 - Right Data
 - Right Time
 - Right Place

ADLINK Resources

Machine Vision Systems

[adlinktech.com/en/AI Machine Vision Devices](https://adlinktech.com/en/AI_Machine_Vision_Devices)

Edge AI Systems

[adlinktech.com/en/Inference Platform](https://adlinktech.com/en/Inference_Platform)

Machine Vision Solutions Platform

youtu.be/IO7O2th0a5c



Thank You



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