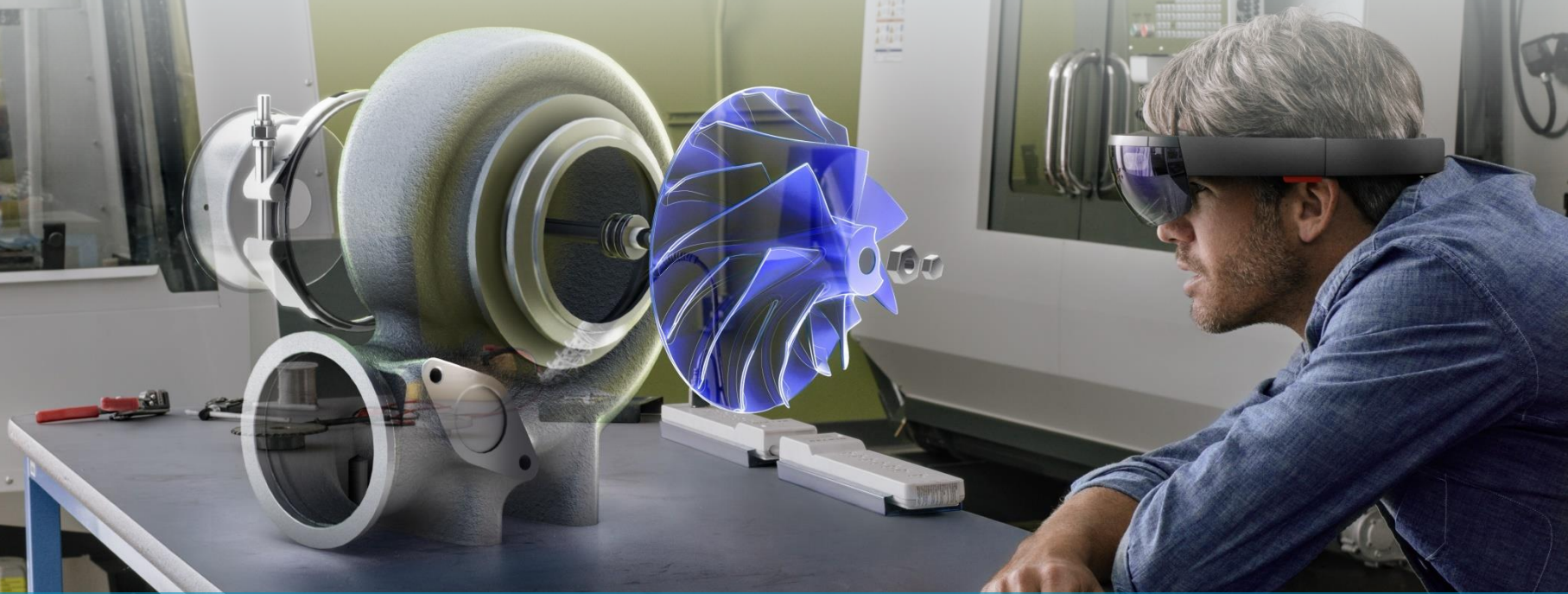




Guido van Gageldonk
CTO | Co-Founder

VISION VIRTUAL AND PHYSICAL WORLDS ARE MERGING



*“When you change the way you see the world,
you can change the world you see.”*

THE PROBLEM IN INDUSTRY GOING FORWARD



Ever more complex systems, less resources, and fierce competition.

*Leading into an overly complex system-development-process,
with it a strong **need for more agile development methods.***

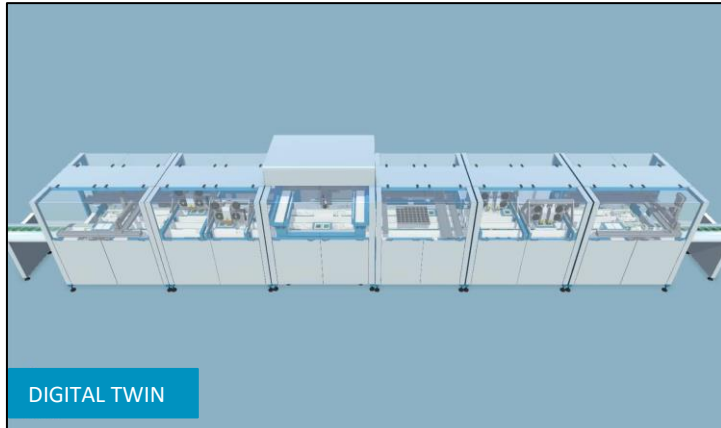
PERSPECTIVE



DIGITAL TWINS WHAT IS IT?

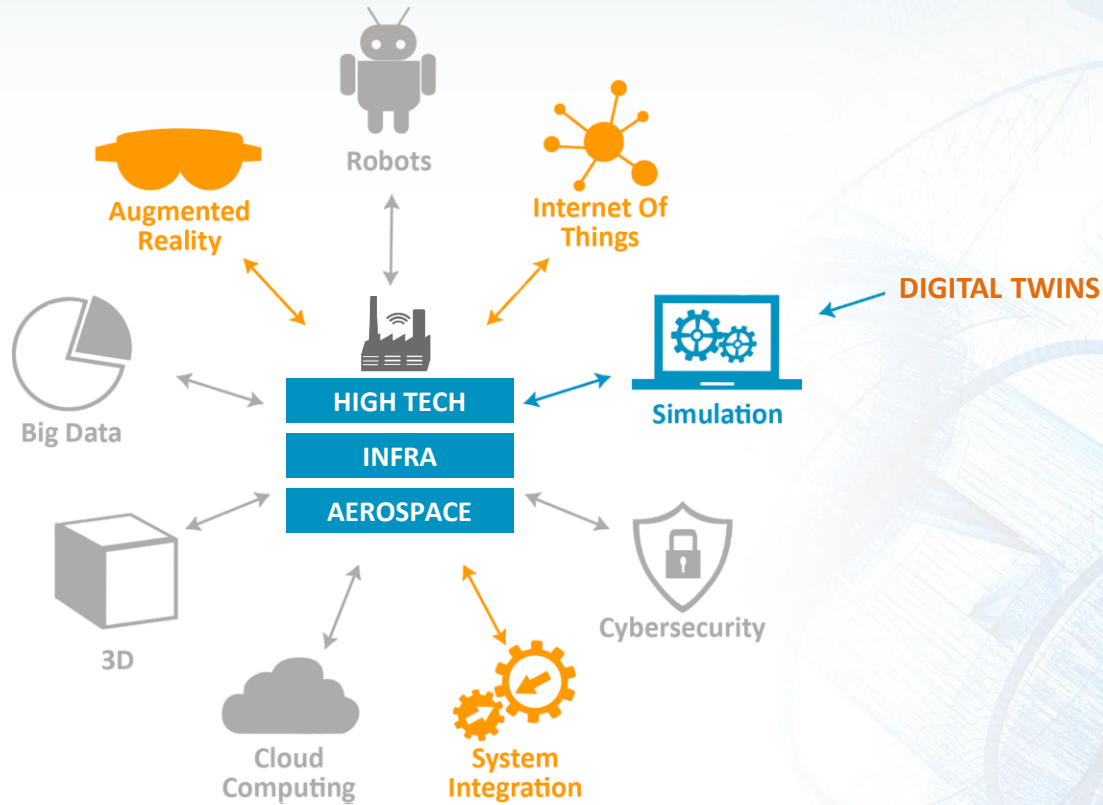
A FULLY WORKING DIGITAL VERSION OF A SYSTEM

- Our Digital Twin **behaves exactly the same** as the Real System would
- It allows for **virtual testing, before applying** it in the real world
- It **predicts** and shows what will happen
- **Virtual damage/errors** instead of real damage/errors



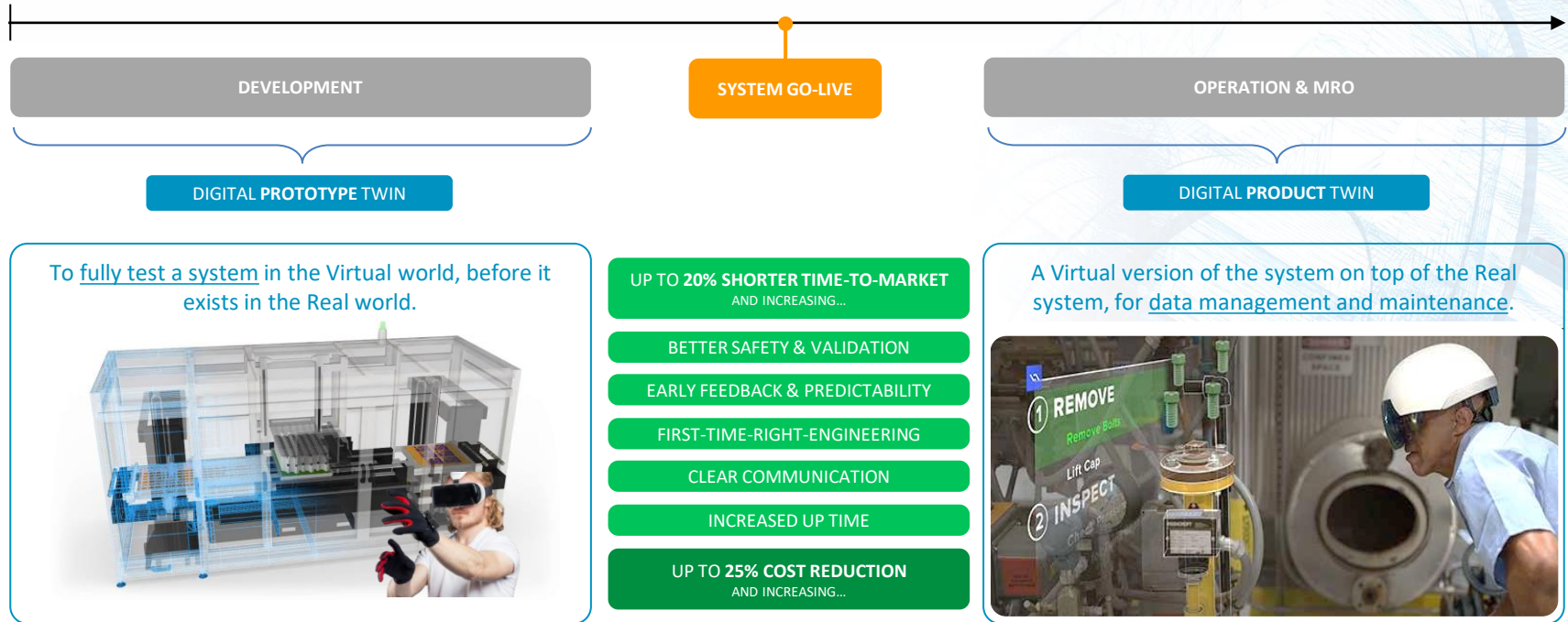
SOLUTION

DIFFERENT VERTICALS – SAME SOLUTION



DIGITAL TWINS DIFFERENT TYPES / BENEFITS

PREerspective **successfully** applies Digital Twin technology for High Tech Industry & Infra

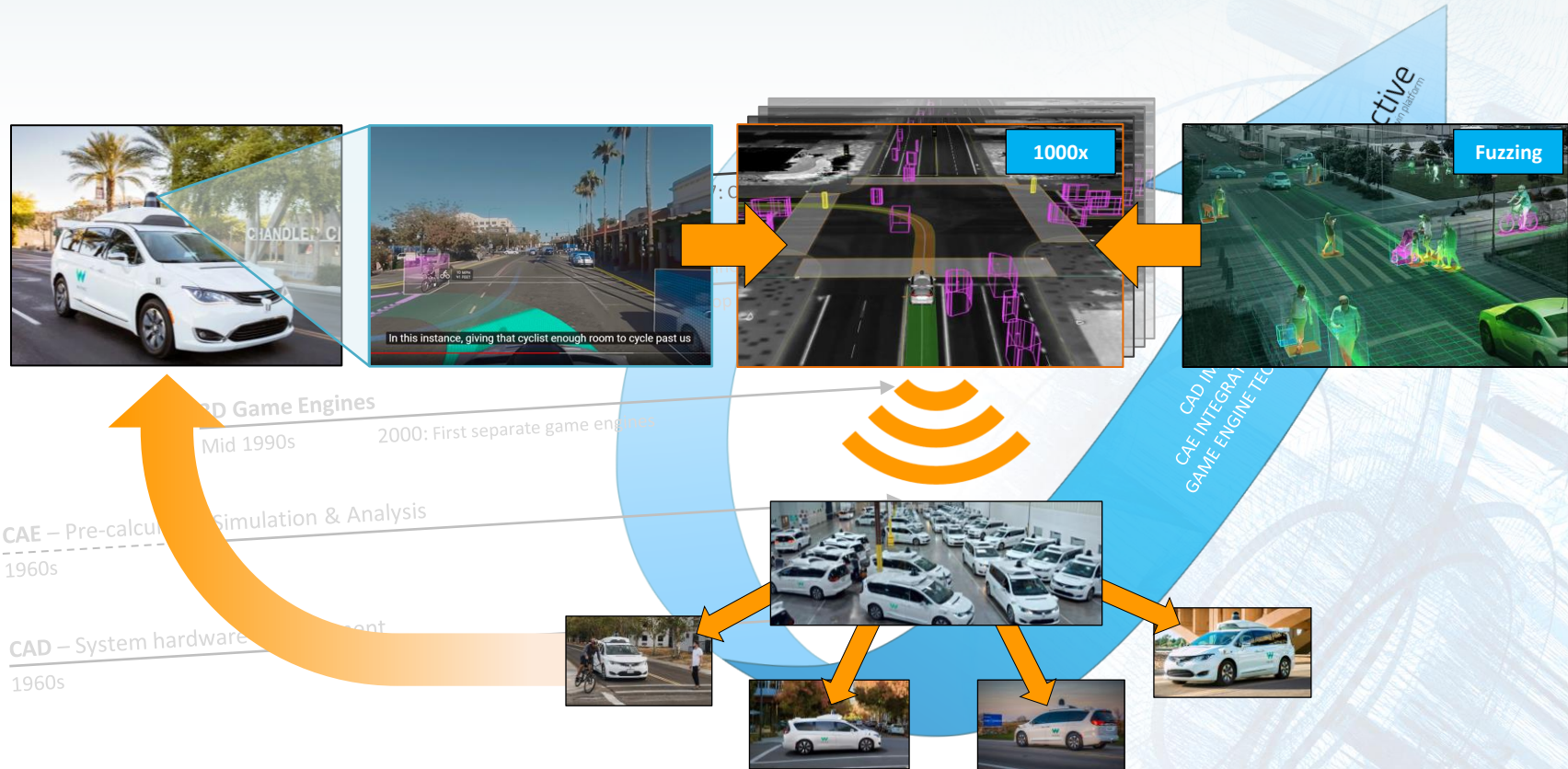


PRESPECTIVE IS DISRUPTING THE NEXT DECADE IN INDUSTRY



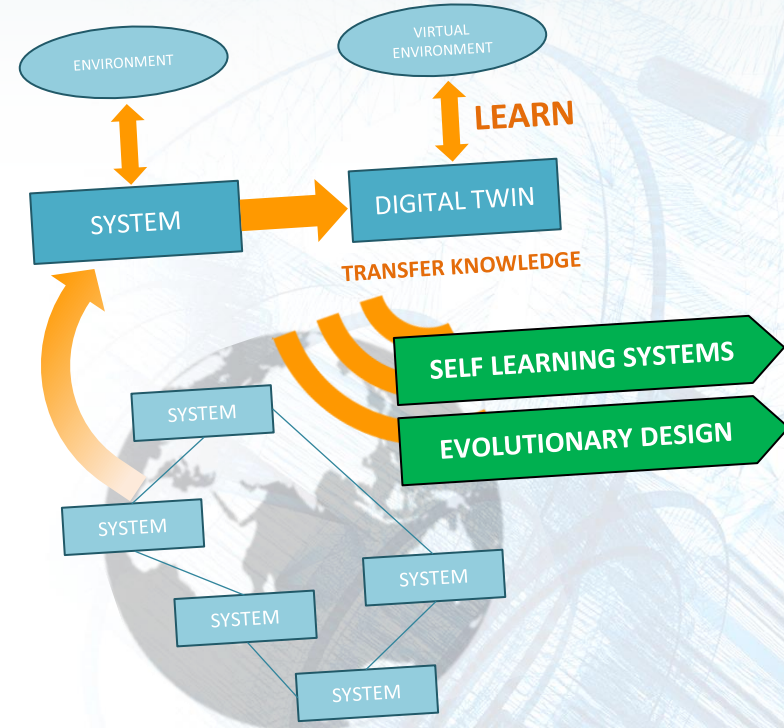
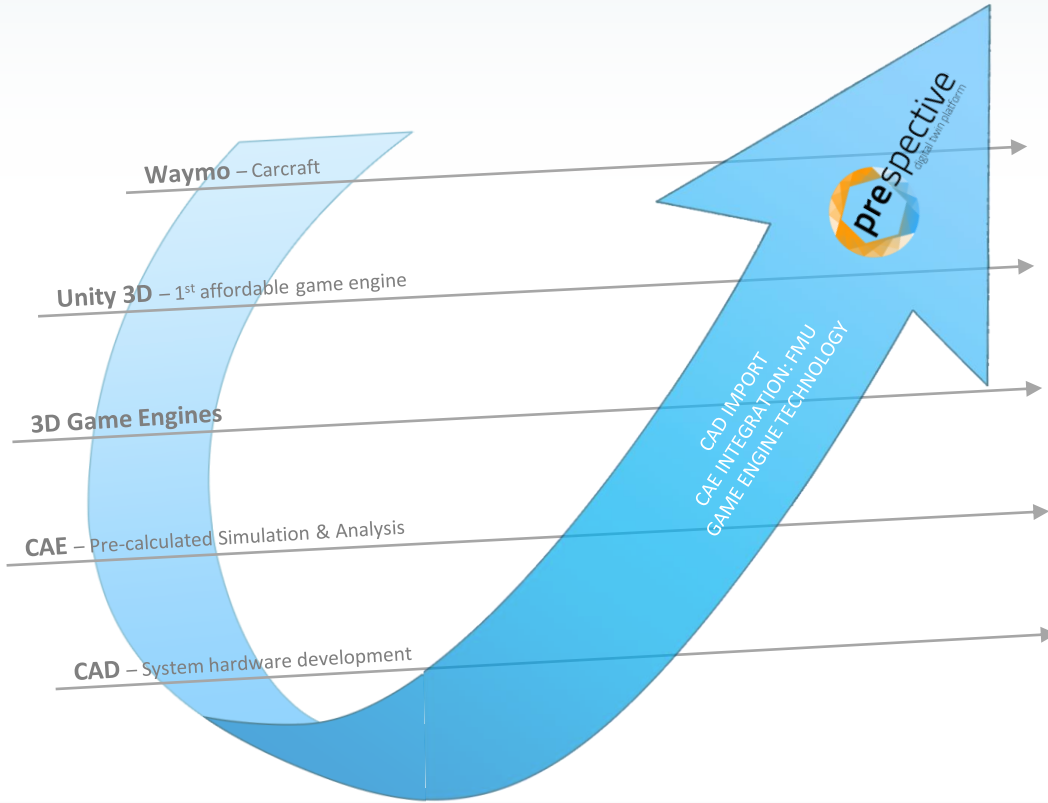
PREspective does not replace these items, it rather connects to them in a way that opens up a much smarter path into the future of industry. Thereby enabling seamless integration in existing workflows.

PRESPECTIVE IS DISRUPTING THE NEXT DECADE IN INDUSTRY



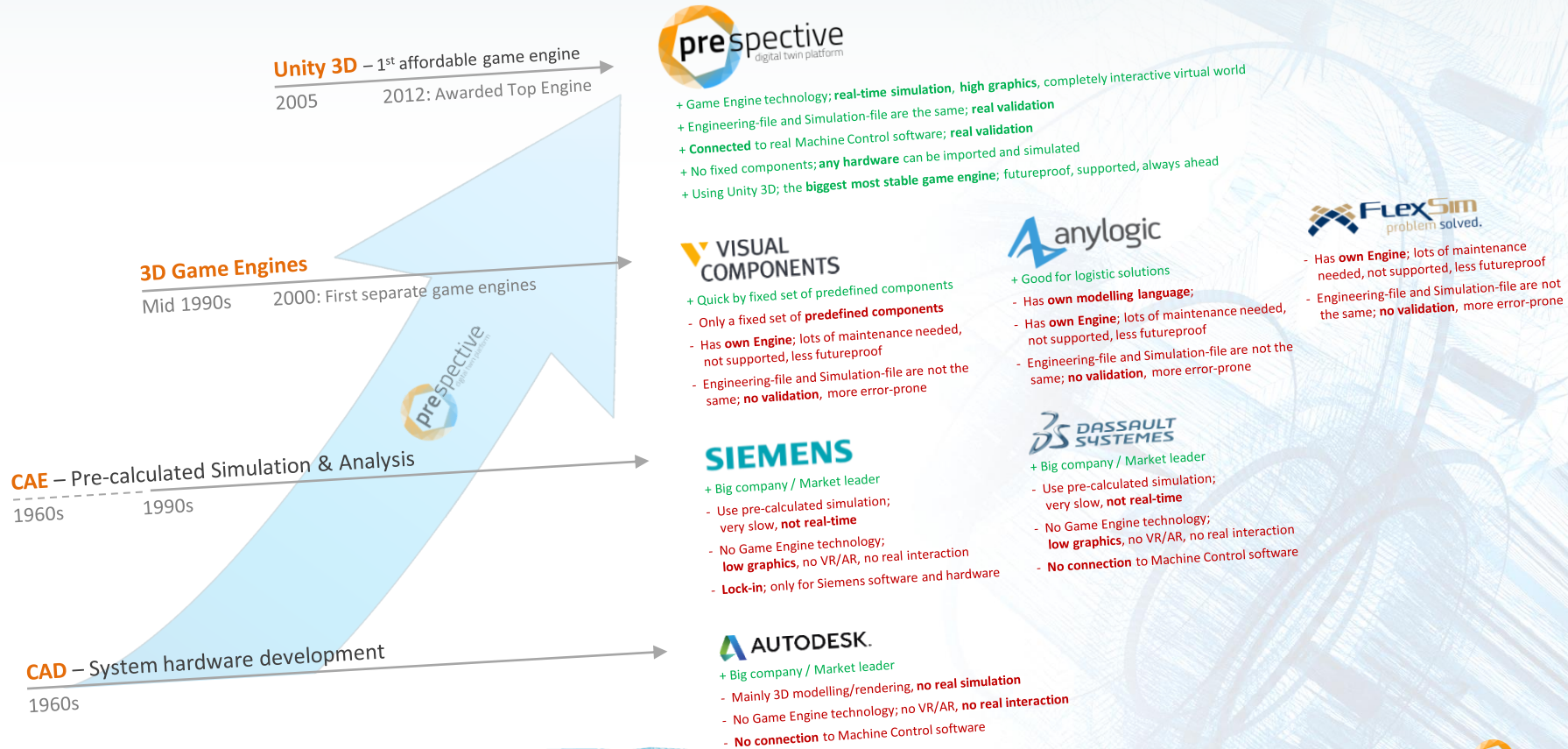
All the cars bring the new knowledge with them in the real world, while encountering new situations. This is where a feedback-loop enables a powerful self-learning and self-improving system.

PRESPECTIVE IS DISRUPTING THE NEXT DECADE IN INDUSTRY

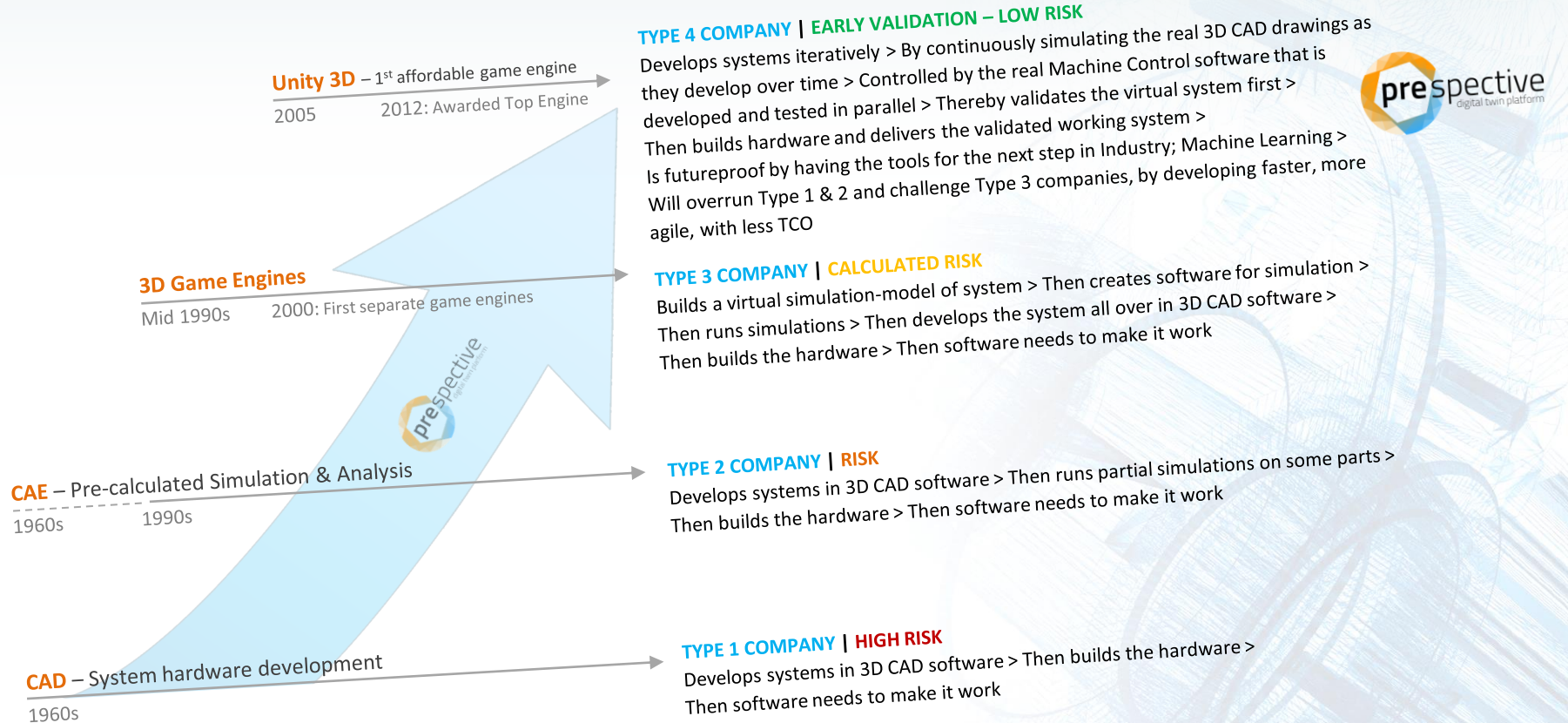


These systems send their data back into the ever learning loop, enabling self-learning systems and evolutionary design.

OUR COMPETITION IS WHAT WE TAKE SERIOUSLY, BUT WHERE WE ARE AHEAD



GAIN THE ADVANTAGE BY STARTING NOW





PROBLEM / SOLUTION

WHOSE PROBLEM ARE WE SOLVING?



SYSTEM ARCHITECT

Can now **develop, test and iterate quickly** on the system design **without hardware costs**

- + Communication
- + Assumption testing
- + TCO
- + Less friction



3D CAD ENGINEER

Can now **breathe life into the otherwise static 3D model** of the system

- + Communication
- + Show system behavior easily



CLIENT OF SYSTEM

Can now use the system;
Earlier, Better, Cheaper

- + Time to market
- + First time right
- + Predictive use & maintenance
- + Augmented information
- + TCO



SOFTWARE ENGINEER / MODELLER

Can now **test the software** on the system, **before the system is built**

- + Early testing
- + Early feedback
- + Early and better delivery



MARKETING / SALES

Can now **show, sell and try out** the system **with the client**

- + Communication
- + Client feedback
- + Early sales

PERSPECTIVE HOW IT WORKS

FIVE EASY STEPS:

1



UPLOAD CAD

Insert 3D Engineering file into Perspective

2



DEFINE COMPONENTS

Select and define the components of the system

3



DEFINE BEHAVIOR

Create and define behavior of the components

4



CONNECT TO DATA

Connect the Digital Twin to dynamic data

5



TEST & VALIDATE

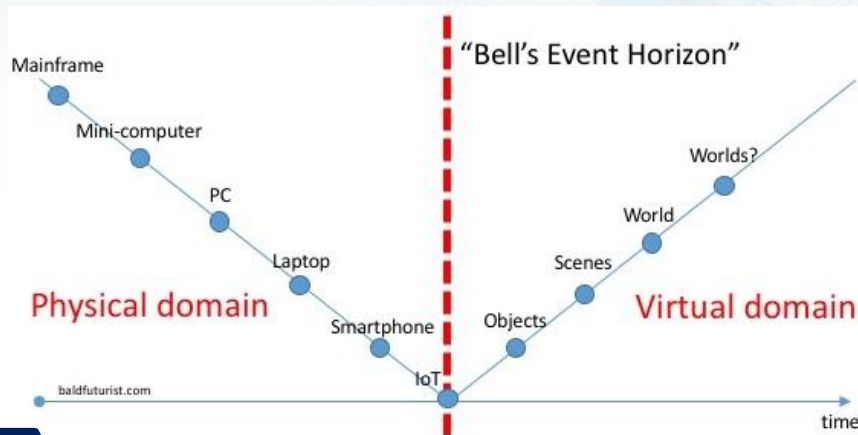
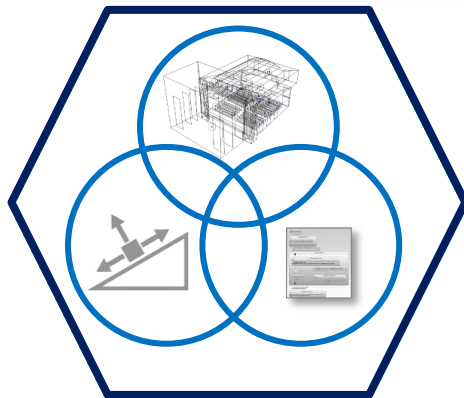
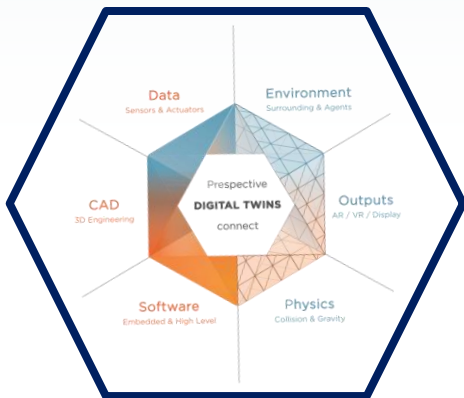
Test and validate the Digital Twin of the system in the most advanced Virtual environment

PRESPECTIVE HOW IT WORKS



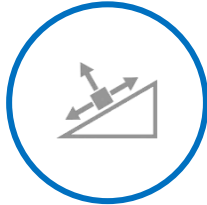
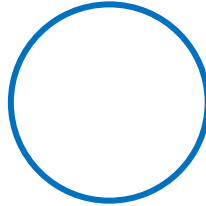
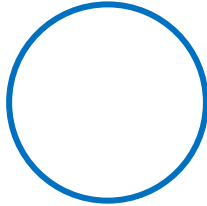
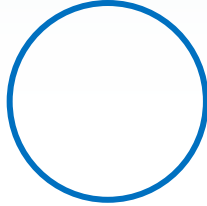
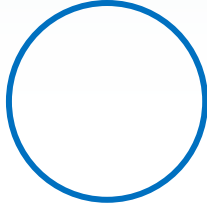
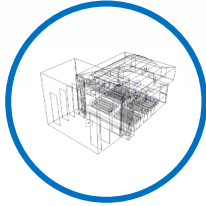
TECHNOLOGY INFRASTRUCTURE

Simulation Continuum



WAY OF WORKING AGILE PROCES

Time



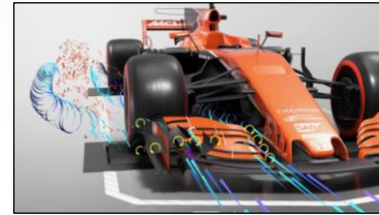
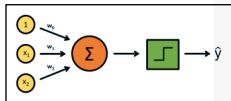
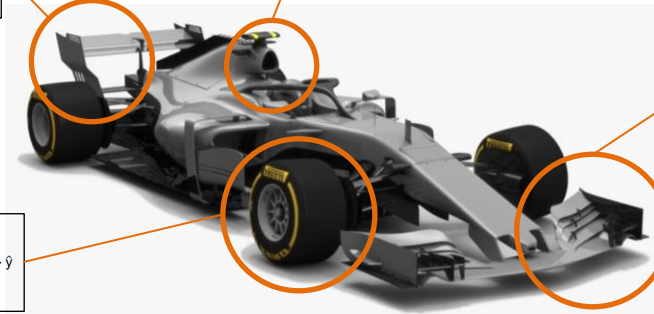
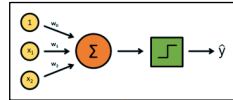
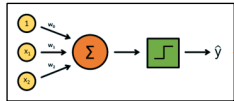
PRESPECTIVE WHAT IS A FMU? AND WHY IS IT AWESOME?

Functional Mockup Unit

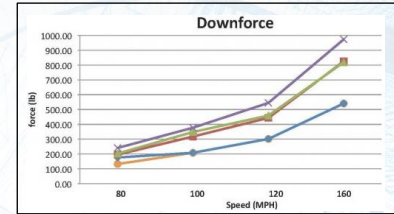
A method that enables real-time simulation of ultra-complex behavior.

How? An example:

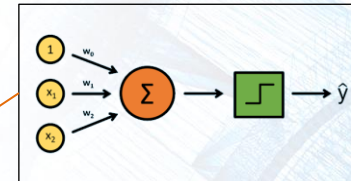
A complex system can exist of multiple FMU's that are simulated in real-time and even interact with each other



A front wing of a F1 car is too complex to simulate in real-time.



But it can be extensively simulated and tested beforehand, for its effect at different input values.



The combined package that contains 3D geometry, behavior and an algorithm that controls this behavior, is what is called a FMU

This is then transformed into a formula, an algorithm, that *can* be simulated real-time

EXAMPLE CASES DIGITAL TWINS IN PRESPECTIVE



VANDERLANDE | Scannojet

NORMAL CASE:
Software Development starts after building
Weeks of programming dynamic tests

OUR CASE:
Software Development ready before building
1h VR testing instead of weeks

TBI | Rijnlandroute Tunnel

NORMAL CASE:
Testing when tunnel is built.
Cost of closing a tunnel = 2 Mln per day

OUR CASE:
2 FTE – 3 Mth: Digital Twin for
Scenario testing / Assumption testing
Less closing of tunnel needed



NORDSON DIMA | C-Quence

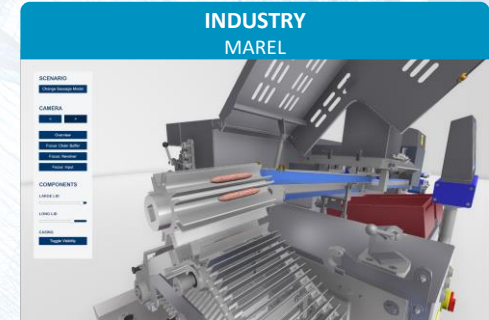
NORMAL CASE:
Multiple prototypes / Staged Development

OUR CASE:
No prototype (First Time Right)
Iterative simultaneous development

MAREL | Animation

NORMAL CASE:
1 FTE - 8 months

OUR CASE:
0,5 FTE – 2 months
Interactive animation



WE SAVE UP TO
30%
OF TCO

EXAMPLE CASES **LOAD ROBOT VIRTUAL PROTOTYPE**

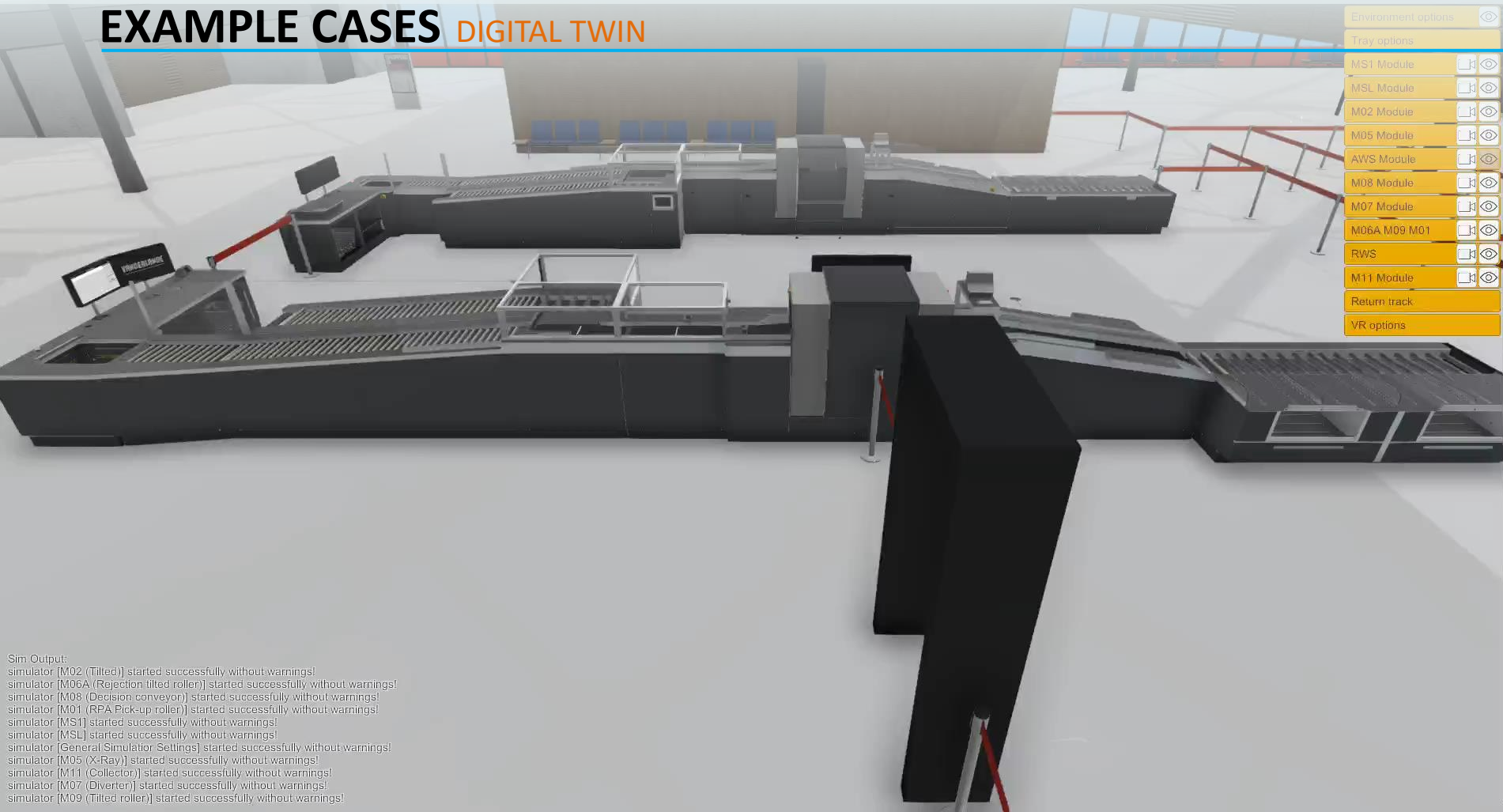


EXAMPLE CASES HIGH FIDELITY SIMULATION



EXAMPLE CASES

DIGITAL TWIN



- Environment options
- Tray options
- MS1 Module
- MSL Module
- M02 Module
- M05 Module
- AWS Module
- M08 Module
- M07 Module
- M06A M09 M01
- RWS
- M11 Module
- Return track
- VR options

Sim Output:
simulator [M02 (Tilted)] started successfully without warnings!
simulator [M06A (Rejection/tilted roller)] started successfully without warnings!
simulator [M08 (Decision conveyor)] started successfully without warnings!
simulator [M01 (RPA Pick-up roller)] started successfully without warnings!
simulator [MS1] started successfully without warnings!
simulator [MSL] started successfully without warnings!
simulator [General Simulator Settings] started successfully without warnings!
simulator [M05 (X-Ray)] started successfully without warnings!
simulator [M11 (Collector)] started successfully without warnings!
simulator [M07 (Diverter)] started successfully without warnings!
simulator [M09 (Tilted roller)] started successfully without warnings!

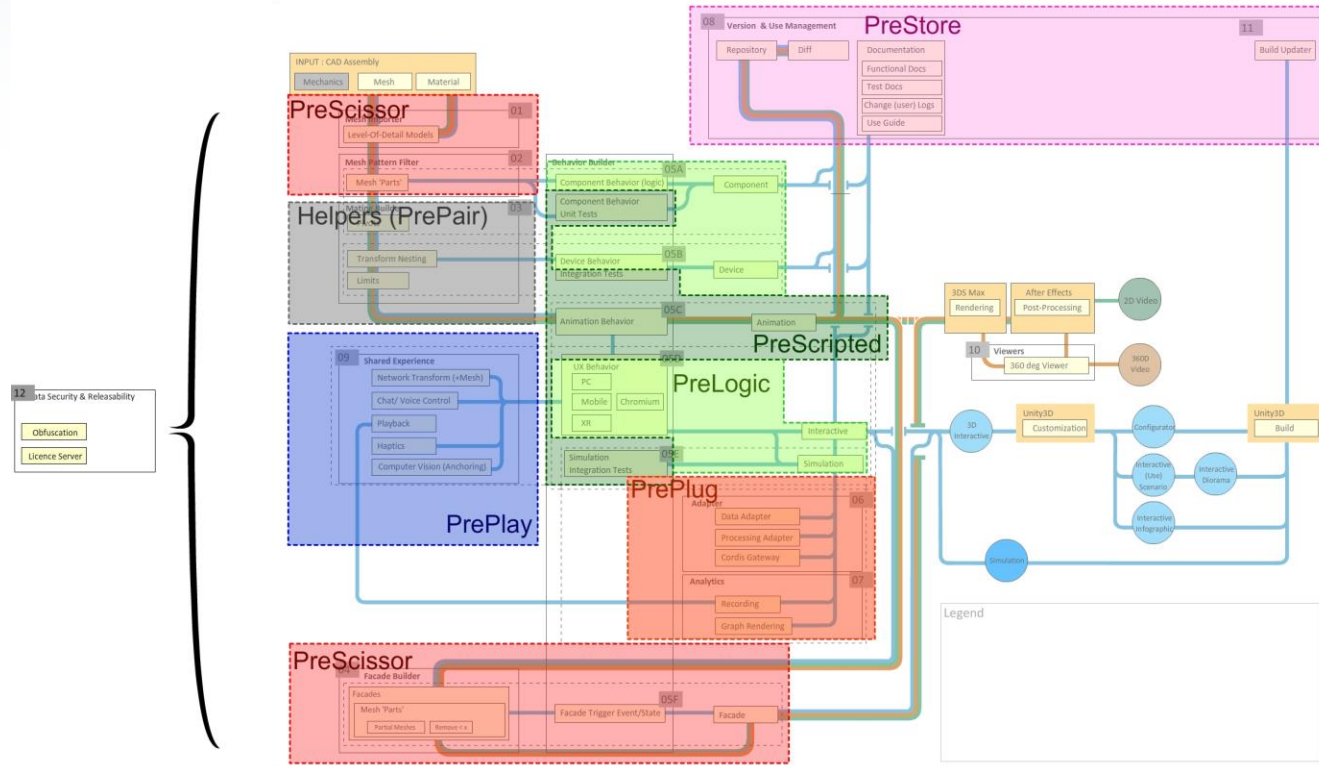
EXAMPLE CASES DIGITAL TWIN

EXAMPLE CASES DIGITAL TWIN



PRESPECTIVE FEATURES OVERVIEW

PRESPECTIVE FEATURES OVERVIEW & RELATIONS



v1.01_180531

CLICK THE IMAGE FOR A DETAILED DESCRIPTION

BACKGROUND PRESPECTIVE | UNIT040



IS THE **DIGITAL TWIN SOLUTION** OF



PRESPECTIVE

UNIT040

WE ARE

: Since 2 years: Full Digital Twin Technology > Digital Twin Platform

: Smart Visualization > High Tech clients > 20 FTE

: Continuously providing the most advanced **Virtual Test Environment** for Digital Twins

BACKGROUND

: Founders from TU/e

LOCATION

: Eindhoven (NL), at the pinnacle of High Tech Industry

ACTIVE MARKETS

: High Tech Industry & Infra



Guido van Gageldonk
CTO | Co-Founder