

Digitalization and Change Management

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Schindler

Globalization



Urbanization





Energy Consumption



Aging Population

Shanghai 1990 and 2015

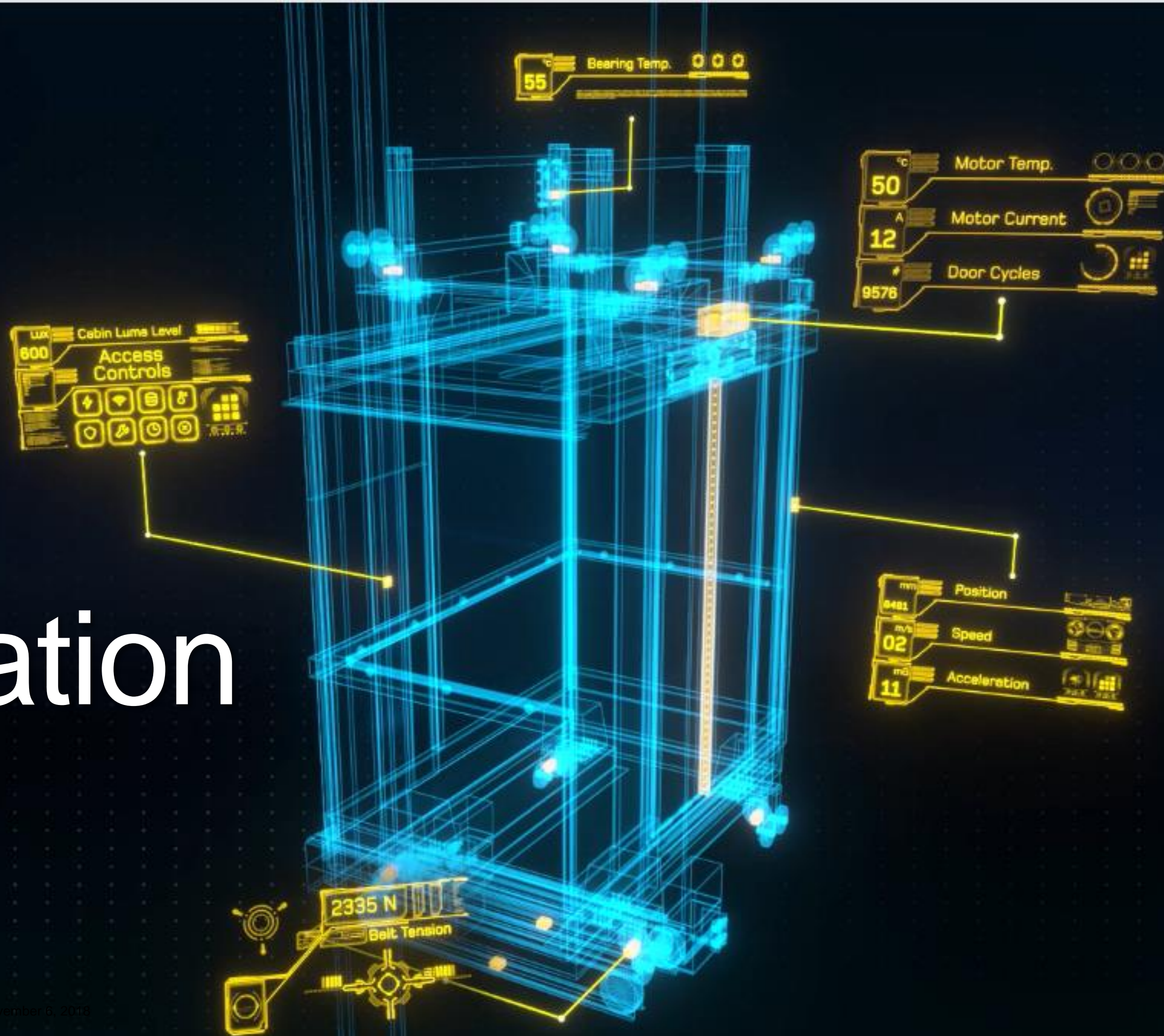


Schindler is urban mobility

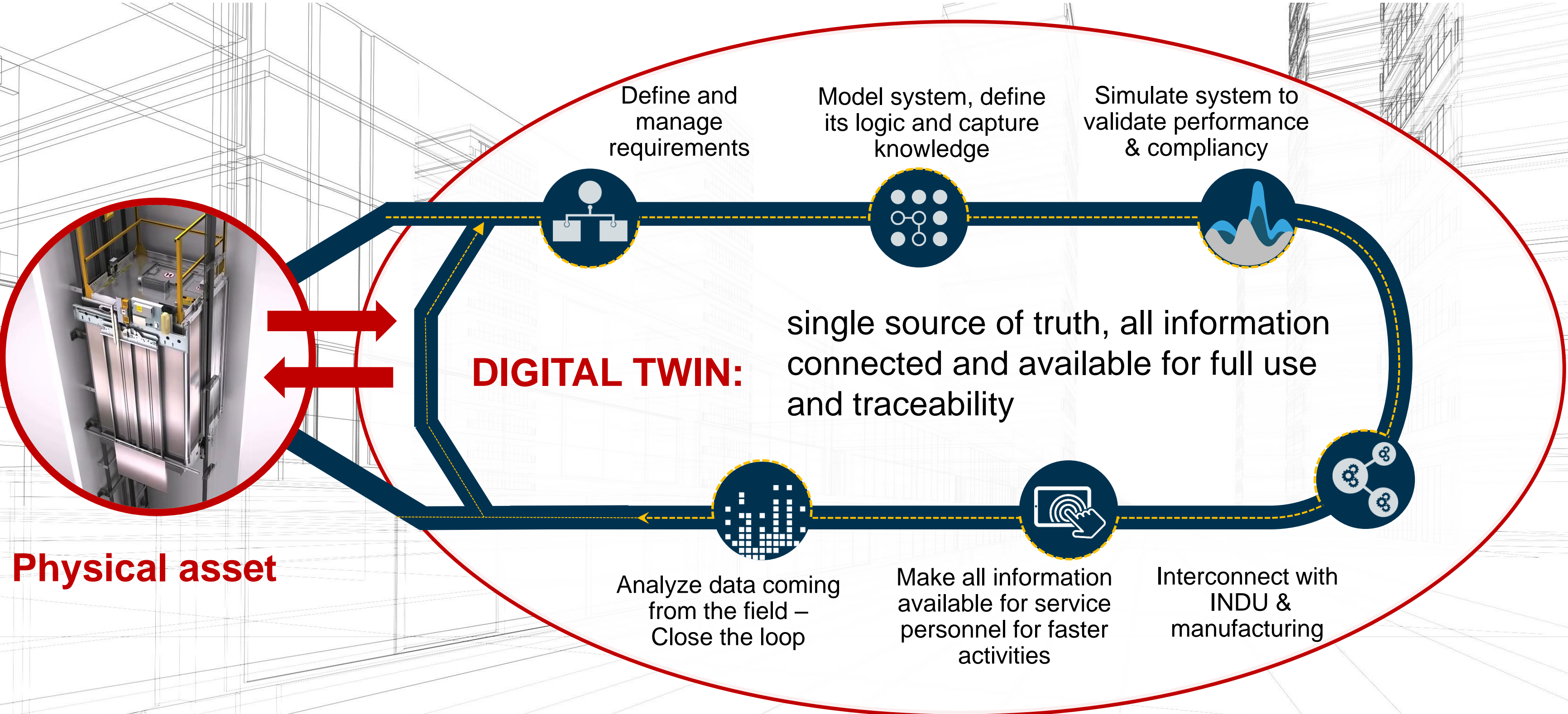
We move more than one billion passengers every day



Digitization

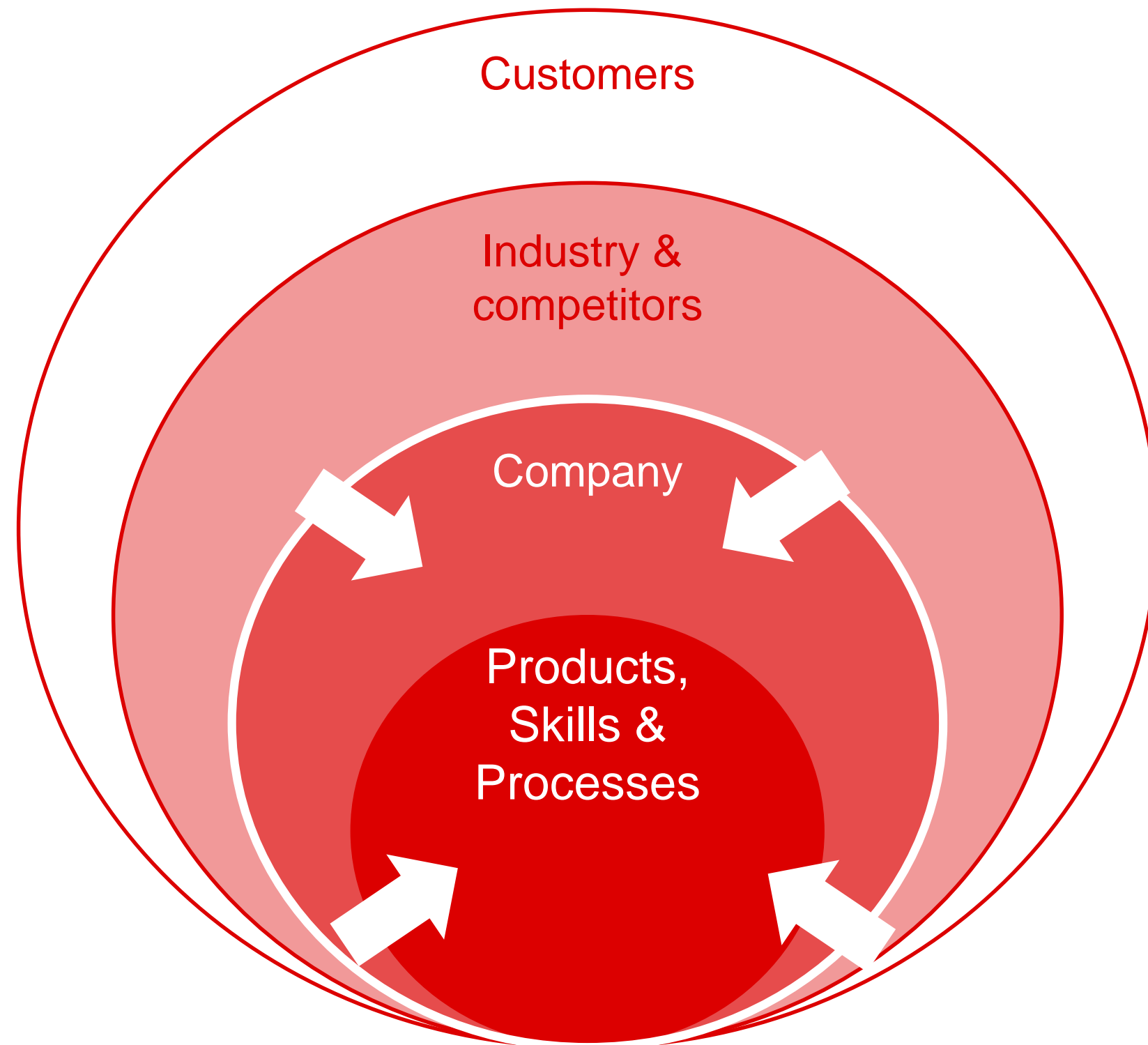


The DIGITAL TWIN is the summary of all information needed to design, product and operate a physical asset



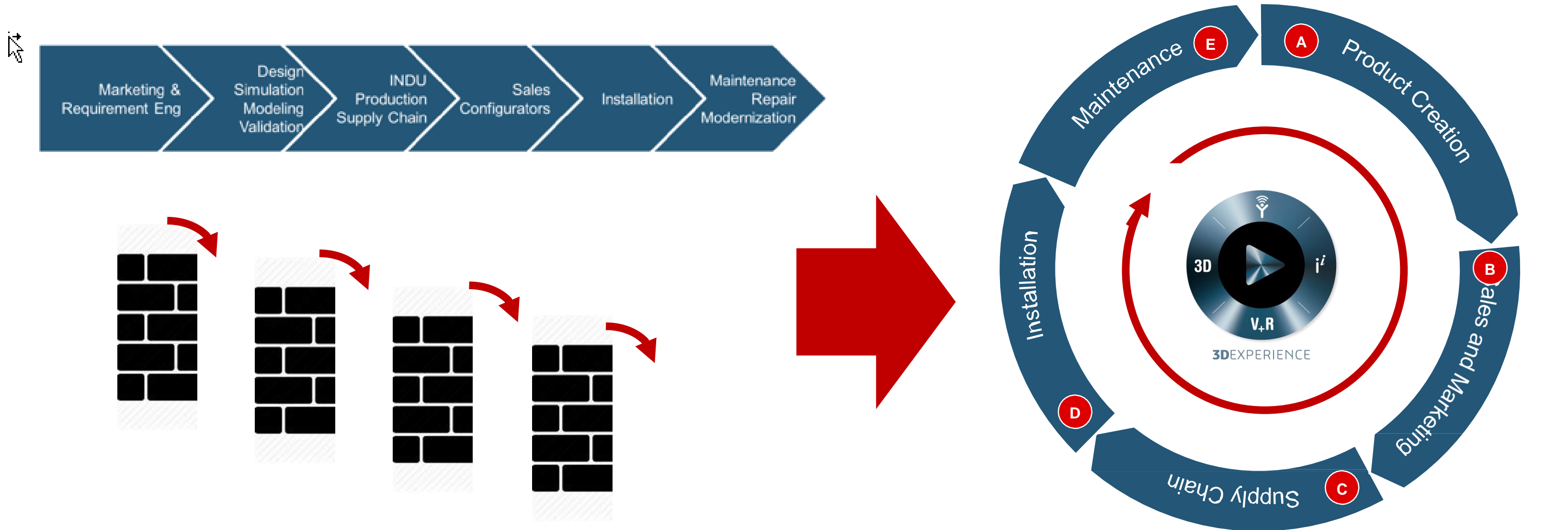
Impact of Digitization

Inside Impact



Impact of Digitization: Inside Impact

Traditional processes and sequences have to be revised



- many manual steps
- different SW environment / data storage
- filtering / loss of information
- organization deals with fragmented / incomplete data

- one source of data
- every step adds information on same skeleton
- one common platform for data sharing
- all parties have access to consistent data

Impact of Digitization: Inside Impact

R&D Environment, traditionally specialized areas

**Layout
and
traffic
capacity**

**Noise
and
vibration**

**Flawless
operation**

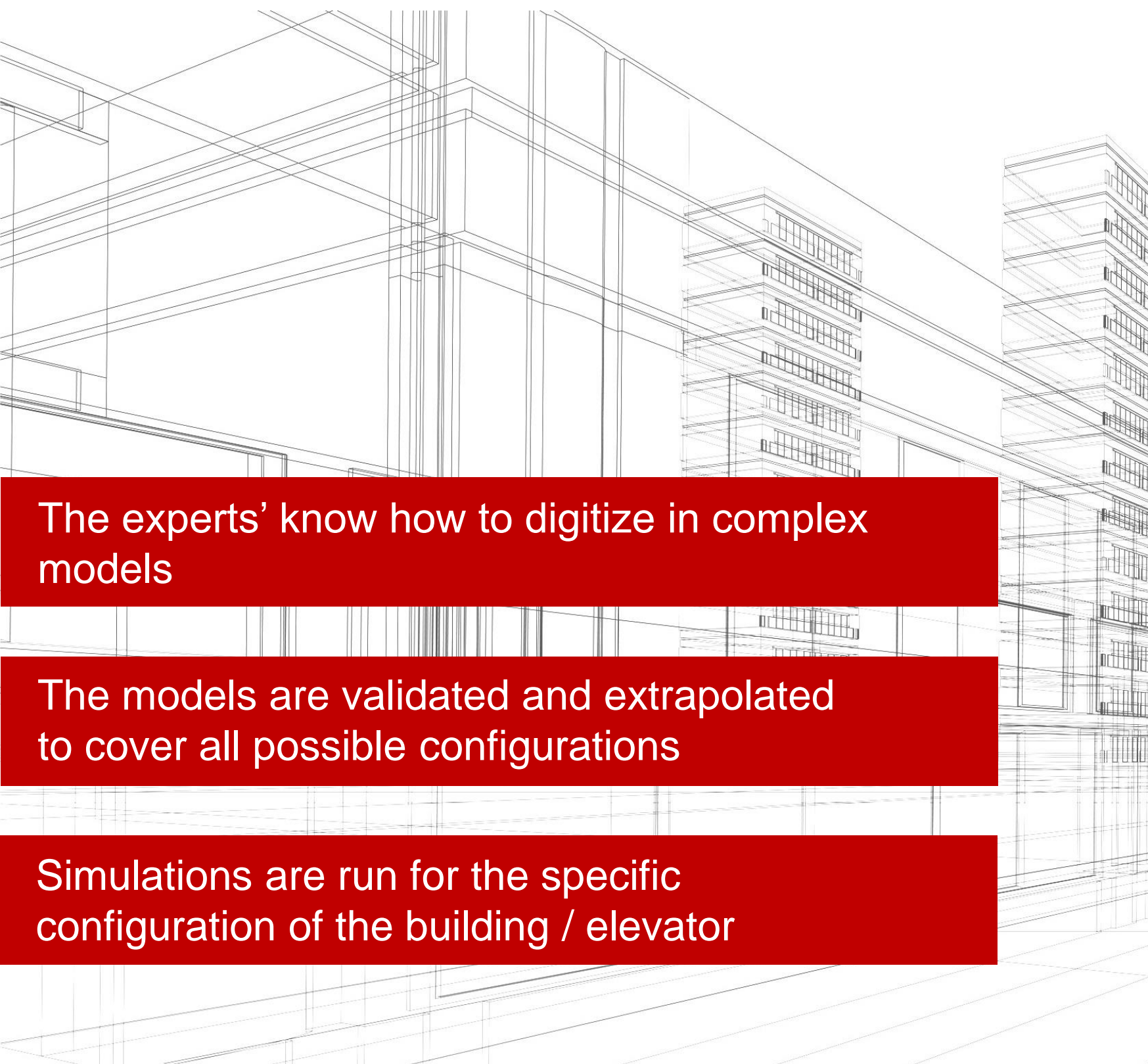
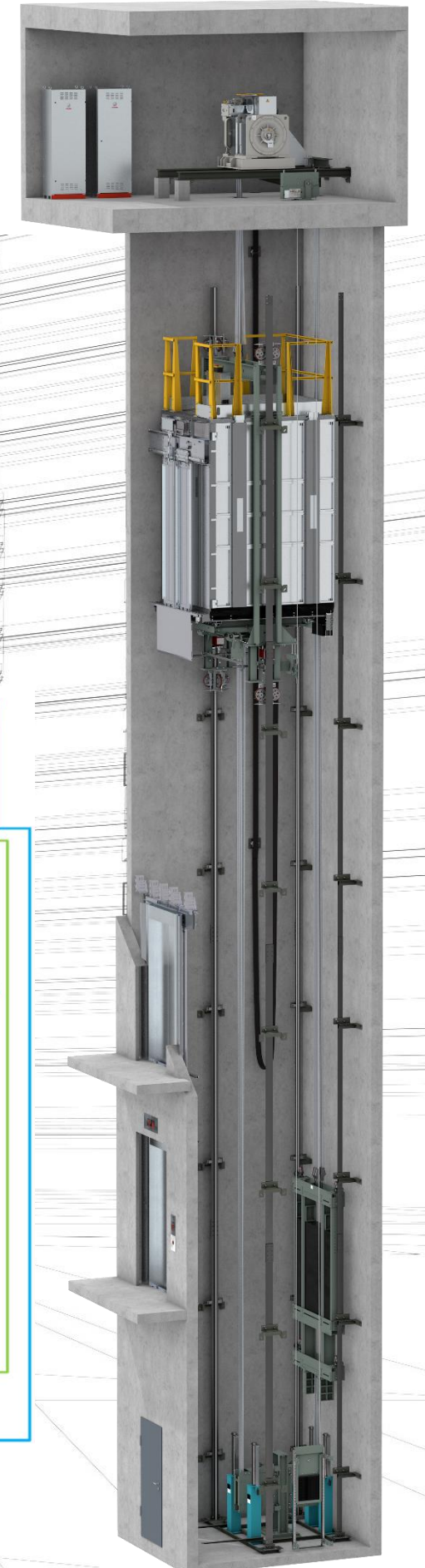
**Impact
of
building
sway**

**Impact
of
chimney
effect**

**Robustness
to net
fluctuation**

Impact of Digitization: Inside Impact

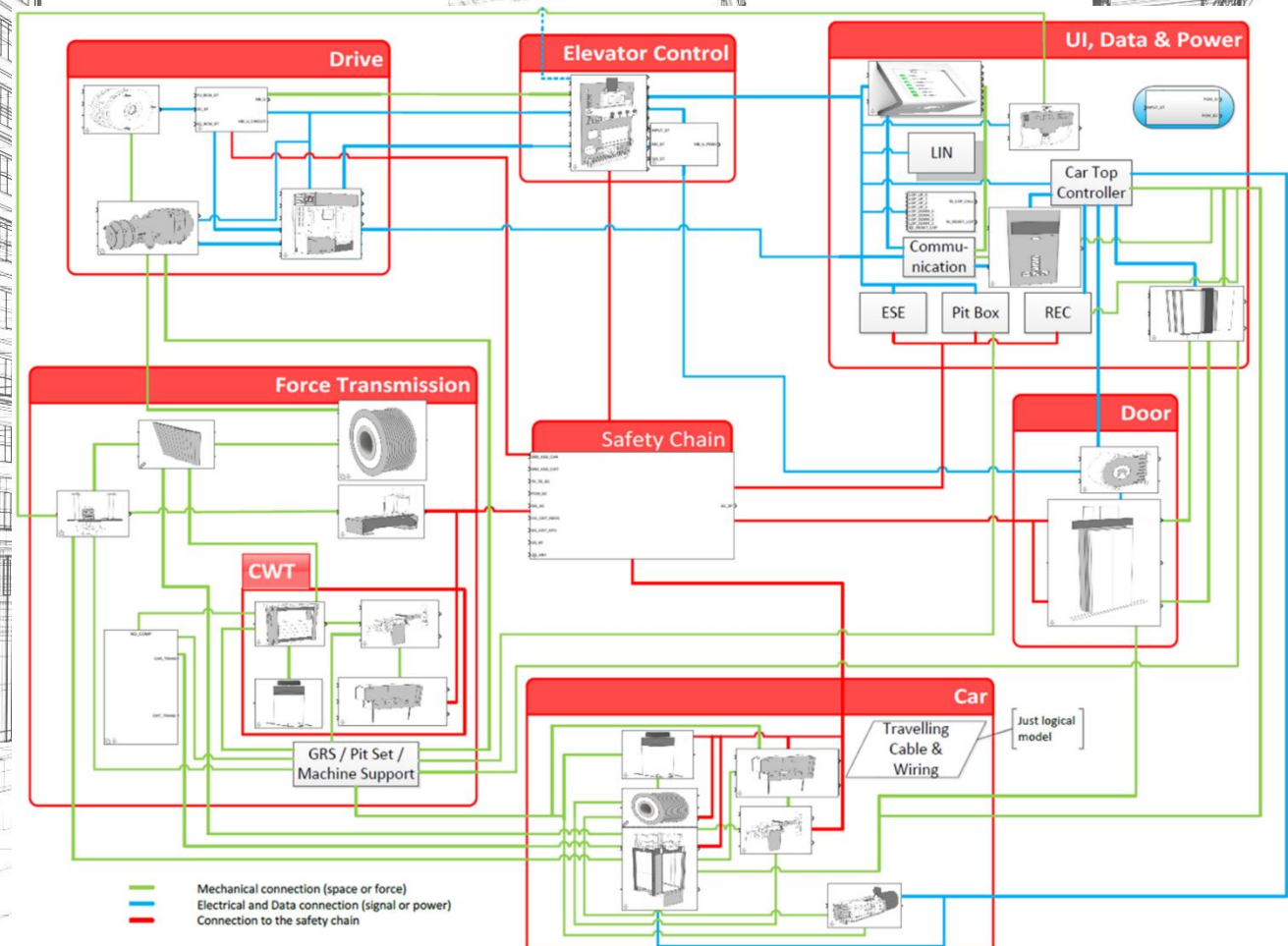
Creation of comprehensive models, shared between experts



The experts' know how to digitize in complex models

The models are validated and extrapolated to cover all possible configurations

Simulations are run for the specific configuration of the building / elevator



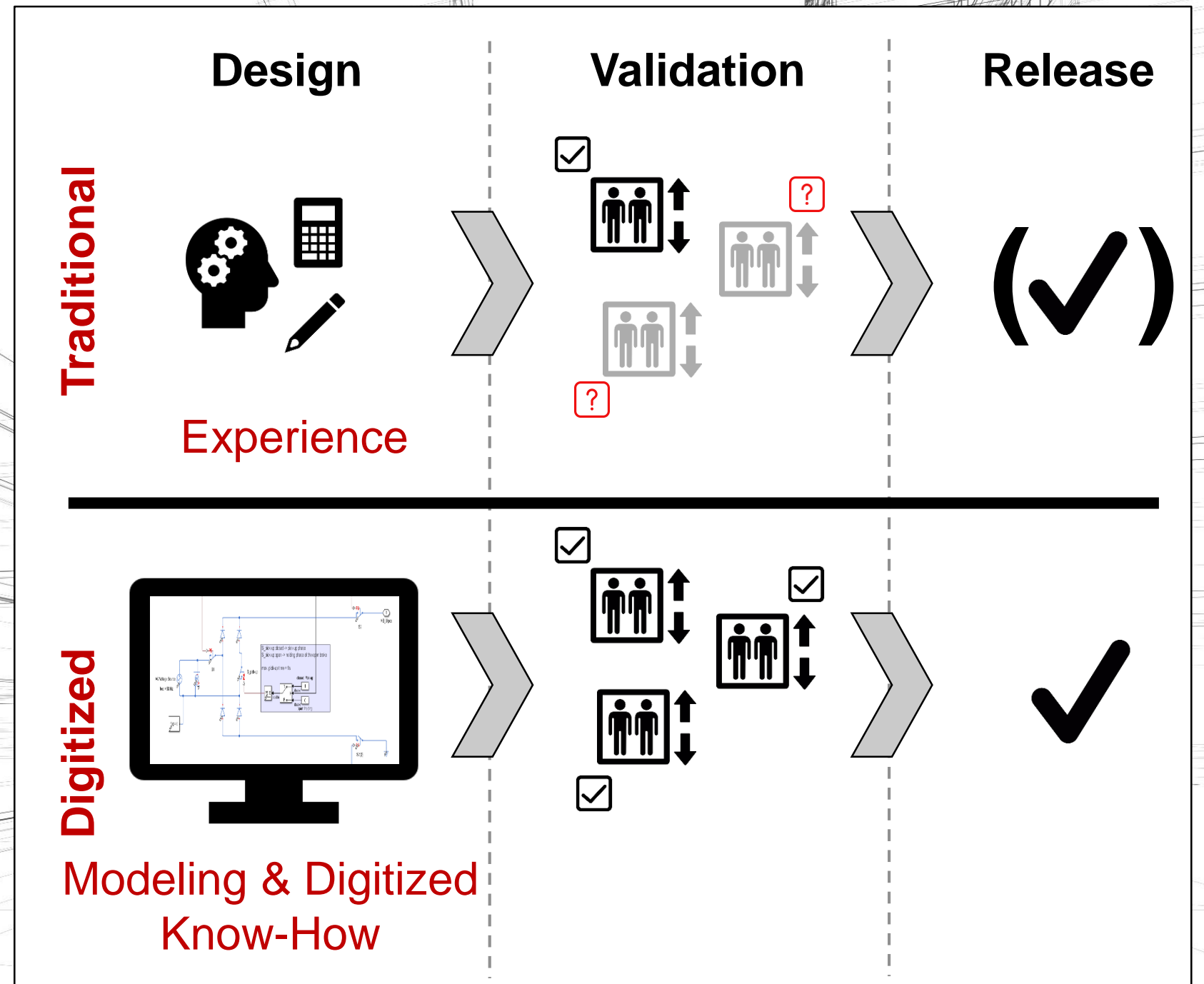
Impact of Digitization: Inside Impact

The specific equipment is verified prior to being physically built

The specific configuration is modeled prior to being built = **HARDWARE IN THE LOOP**

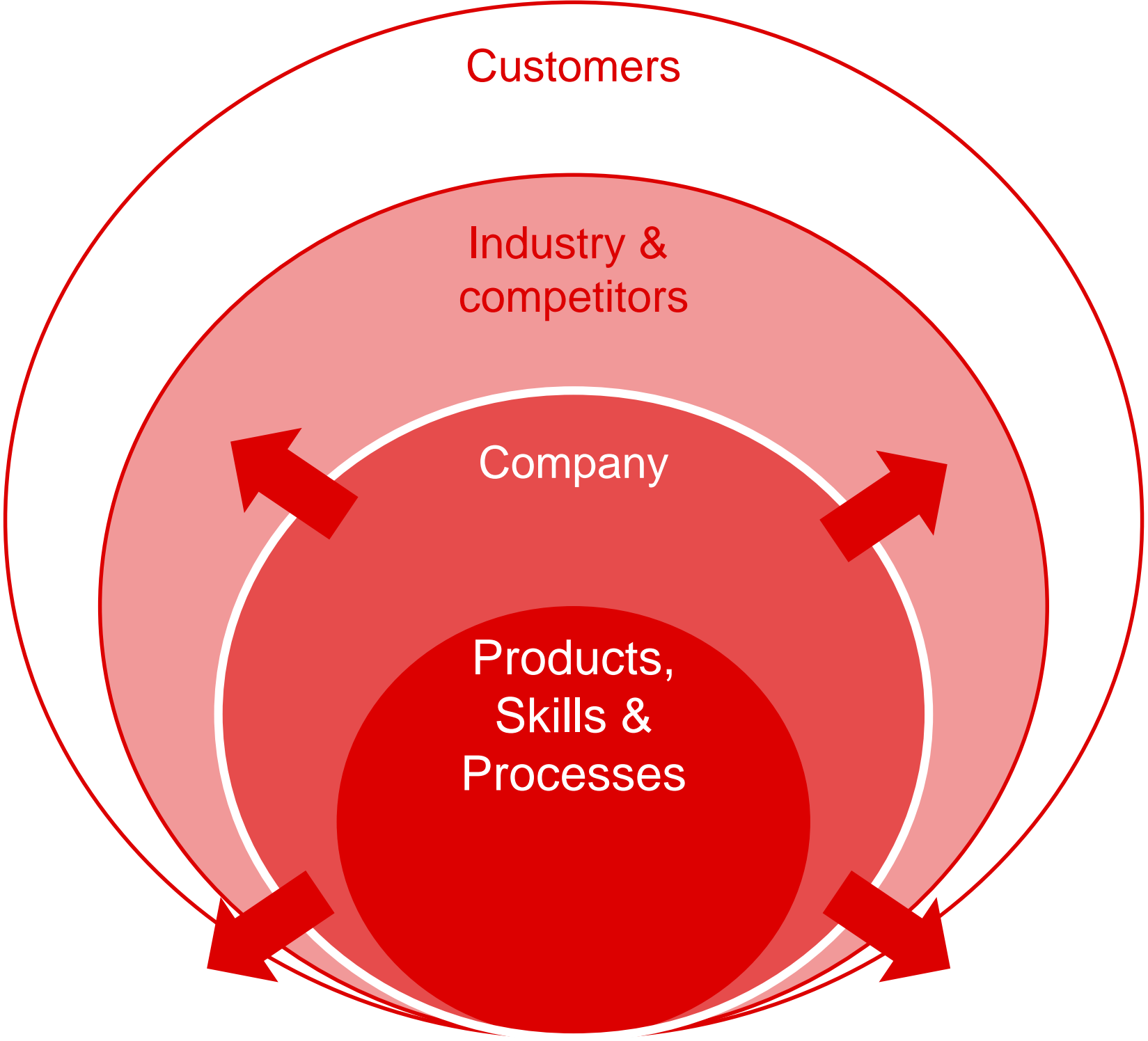
All information are stored digitally and the relevant made available to the customer = **BIM**

All digital copy of the asset is being built and maintained = **DIGITAL TWIN**



Impact of Digitization

Outside Impact



Impact of Digitization: Outside Impact

The models are integrated as BIM in the digital building

Full integration of elevator
in customer building
model

Data from the building
are uploaded to improve
the precision of
simulations

Possibility to run
optimization by
considering different
building configurations
and use

Digital documentation
of product for
maintenance



Elevator installation

Today

Harsh environment

Repetitive

High quality requirements



Elevator installation

Tomorrow



R.I.S.E

Robotic installation
system for elevators

Safety

Health

Quality and accuracy

Installation data from BIM

Automatic installation protocol

Accelerate your projects

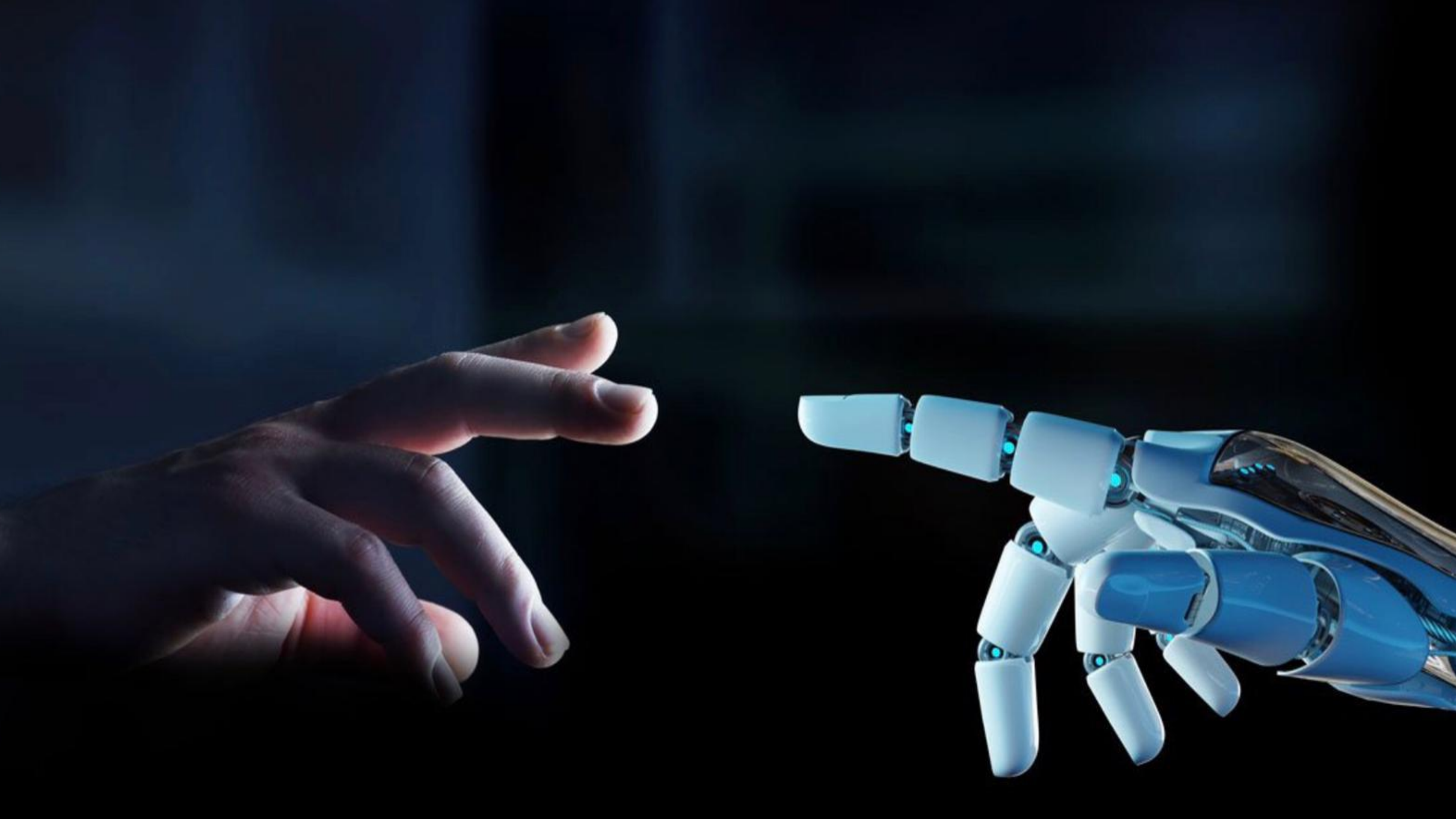
A background of a wireframe cityscape with various buildings and structures rendered in a light gray color, creating a complex geometric pattern.

R.I.S.E - the movie

Impact of Digitization: Outside Impact

Creation of new business models and business areas





The Challenges of Digitization



The Challenges of Digitization

Tools



Huge and long term IT investments, evaluation of capability of tools

Compatibility between different tools, interfaces between them

Missing standards, rather be an early adopter or wait for consolidation?

The Challenges of Digitization

Methodologies

Methodologies



Redesign of current processes needed, in parallel to running business

Shift of power between different parts of the organization

Fear of mistakes, “never touch a running system” attitude

The Challenges of Digitization

Skills



Fear of power losses at individual level, know-how retention

Availability of digital skills on the market, especially if combined with domain know how

Skills up-to-date becoming more and more difficult due to faster and faster technology cycles

In an era of change and technological breakthrough...

... this is still daily life!



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