

Autodesk Manufacturing





Globalization and Localization



Skilled Labor

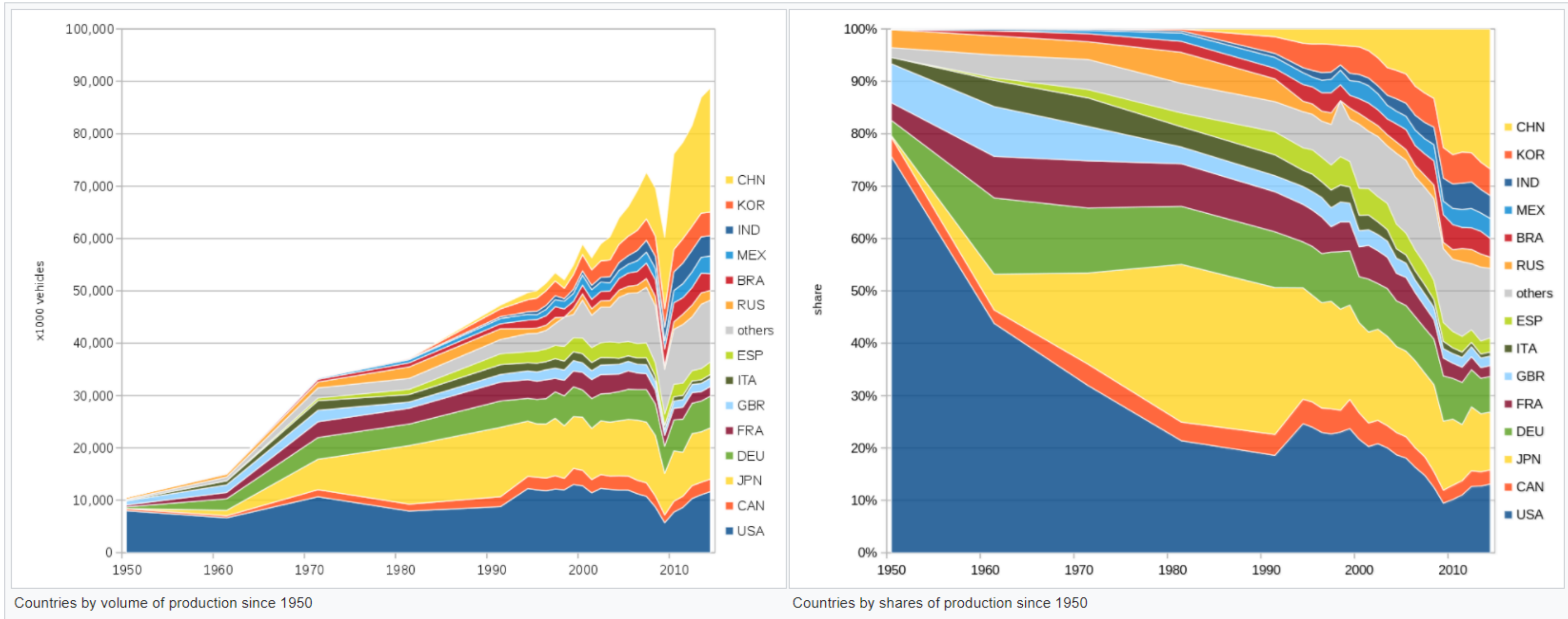


Smart Manufacturing

Globalization and Localization

Globalization & Localization |

Changing Automotive market share by country



Ford To Phase Out 'Traditional Ford Sedans' Such As Fusion And Taurus In The U.S.

April 26, 2018 · 8:43 AM ET

BILL CHAPPELL



Skilled Labor

Tim Cook says this is the real reason Apple products are made in China

Published: Dec 21, 2015 3:12 p.m. ET



Aa 



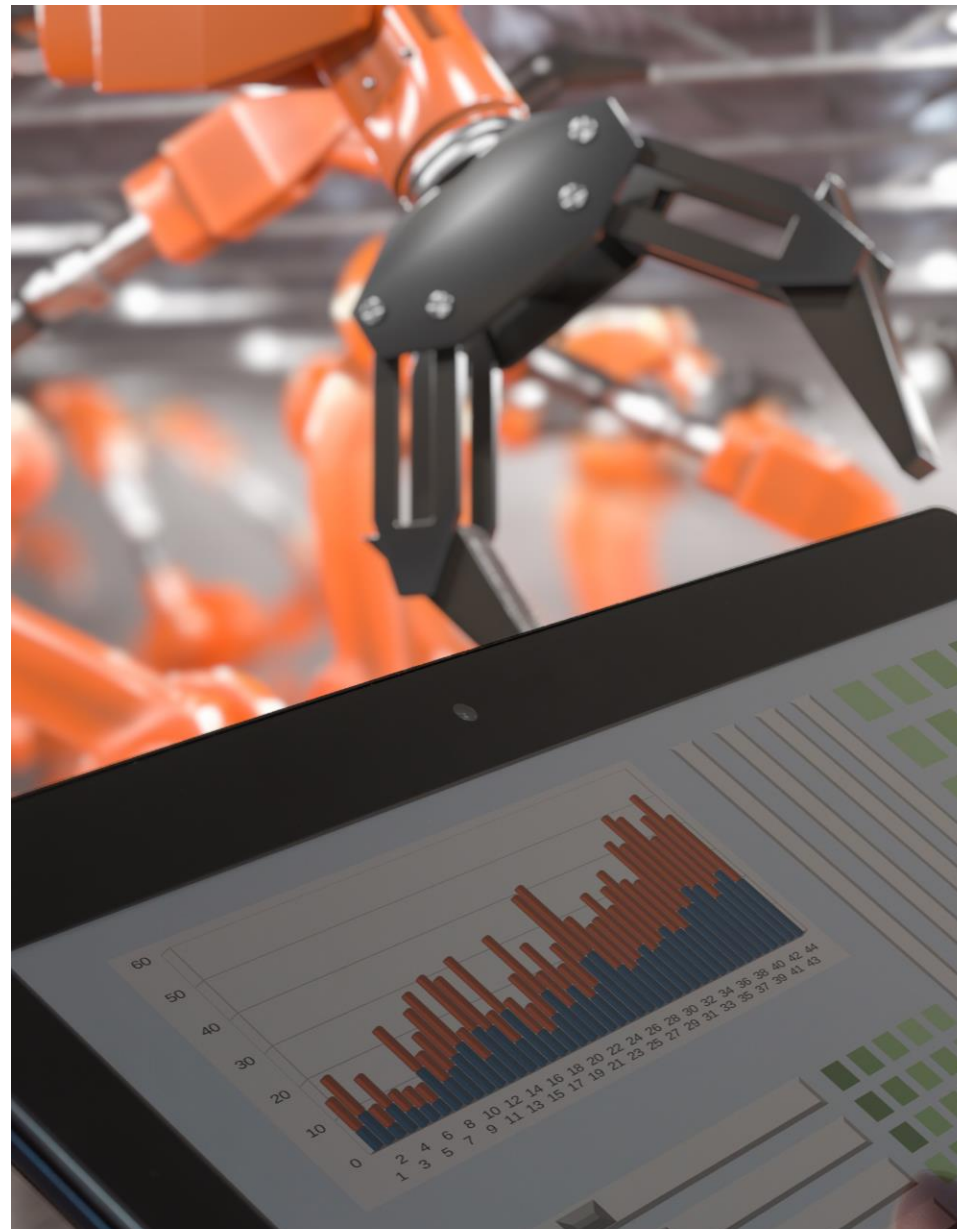
By
**SHAWN
LANGLOIS**

“It’s skill,” Apple CEO Tim Cook said in response to a question on “60 Minutes” Sunday from Charlie Rose as to why the company’s products are made in China.

Narrowing the skills gap



**INCREASED
AUTOMATION**



**CONNECTED
MANUFACTURING**



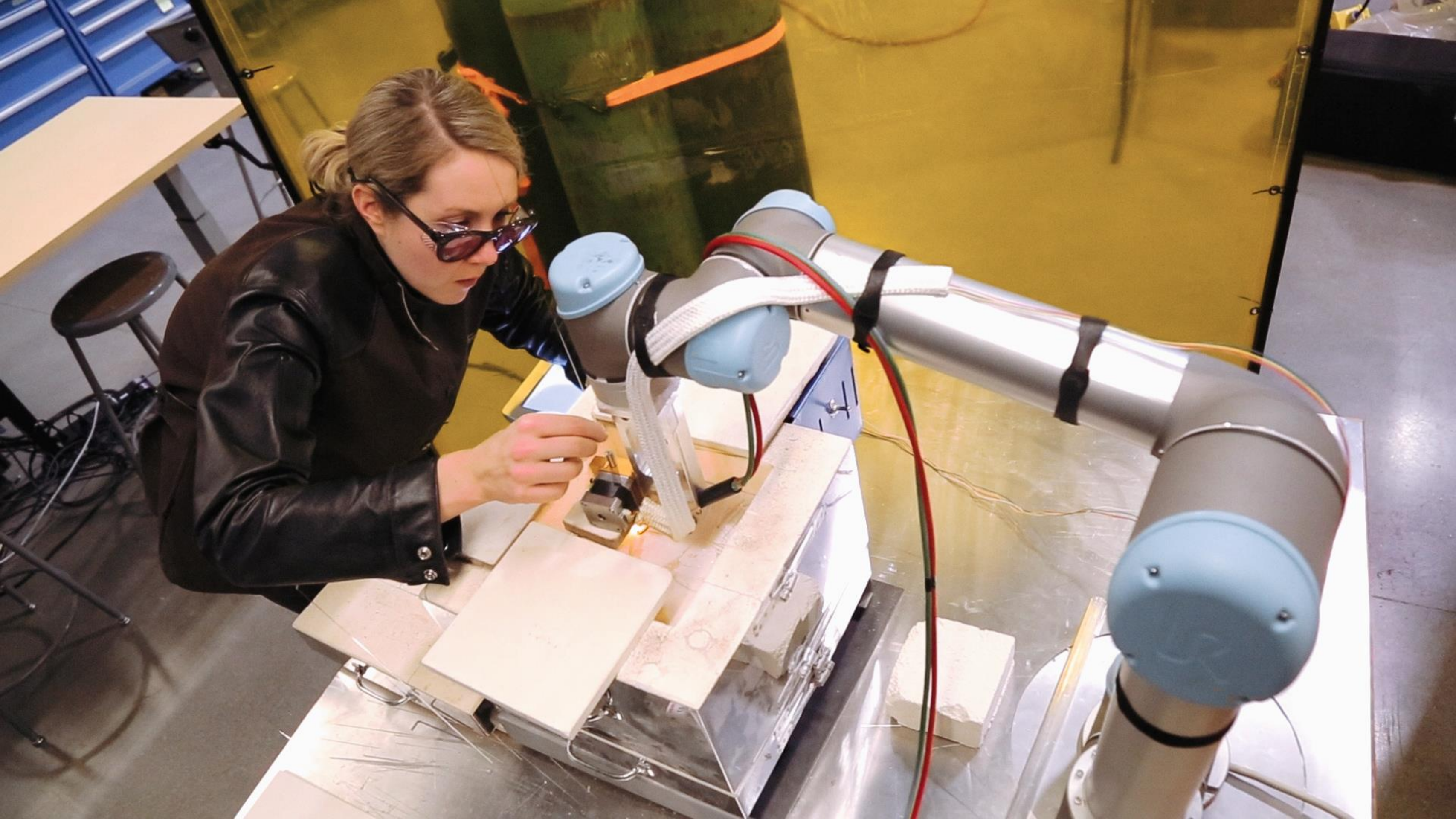
**INVESTMENT IN
EDUCATION**

Smart Manufacturing

A high-angle, wide shot of a car manufacturing assembly line. The perspective is from above, looking down the length of the factory floor. In the center, a long line of car chassis is being assembled. On both sides of the chassis, numerous yellow robotic arms are positioned, likely for welding or painting. The factory environment is industrial, with metal structures, overhead lighting, and various mechanical components visible. The overall tone is somewhat dim, with the yellow of the robots providing a focal point of color.

47%

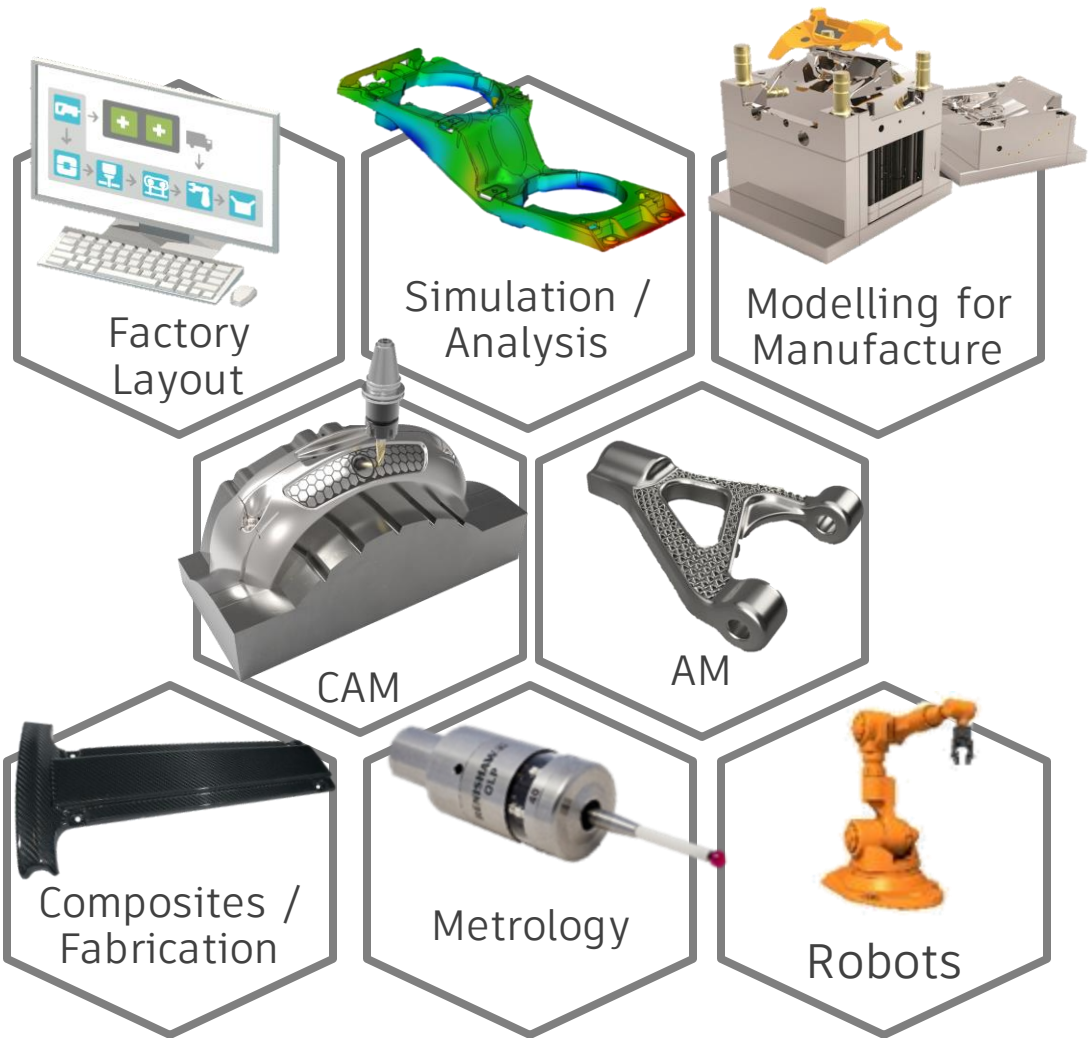
OF JOBS WILL BE AUTOMATED





Autodesk Manufacturing Technology

Complete manufacturing solution



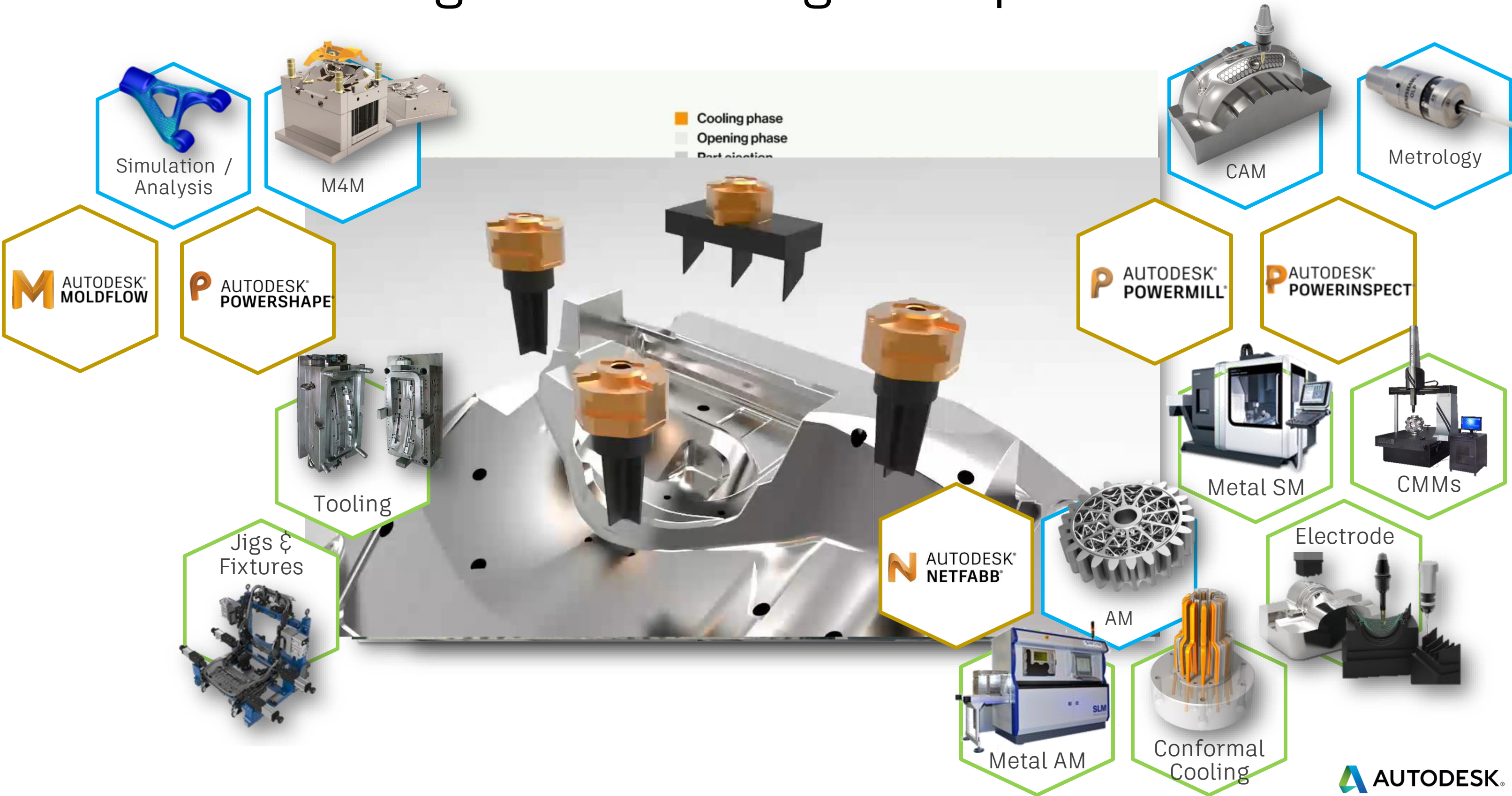
Manufacturing expertise

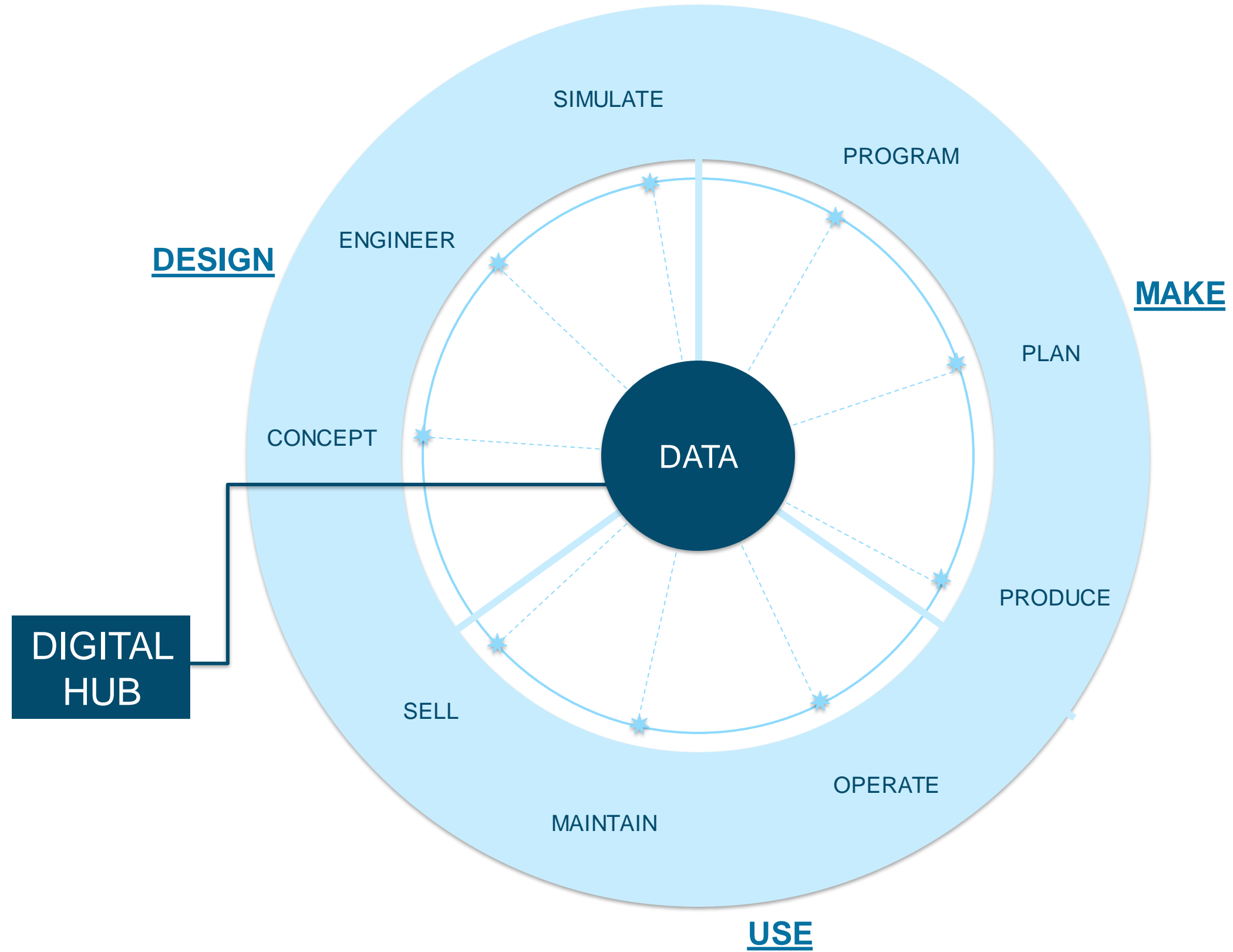


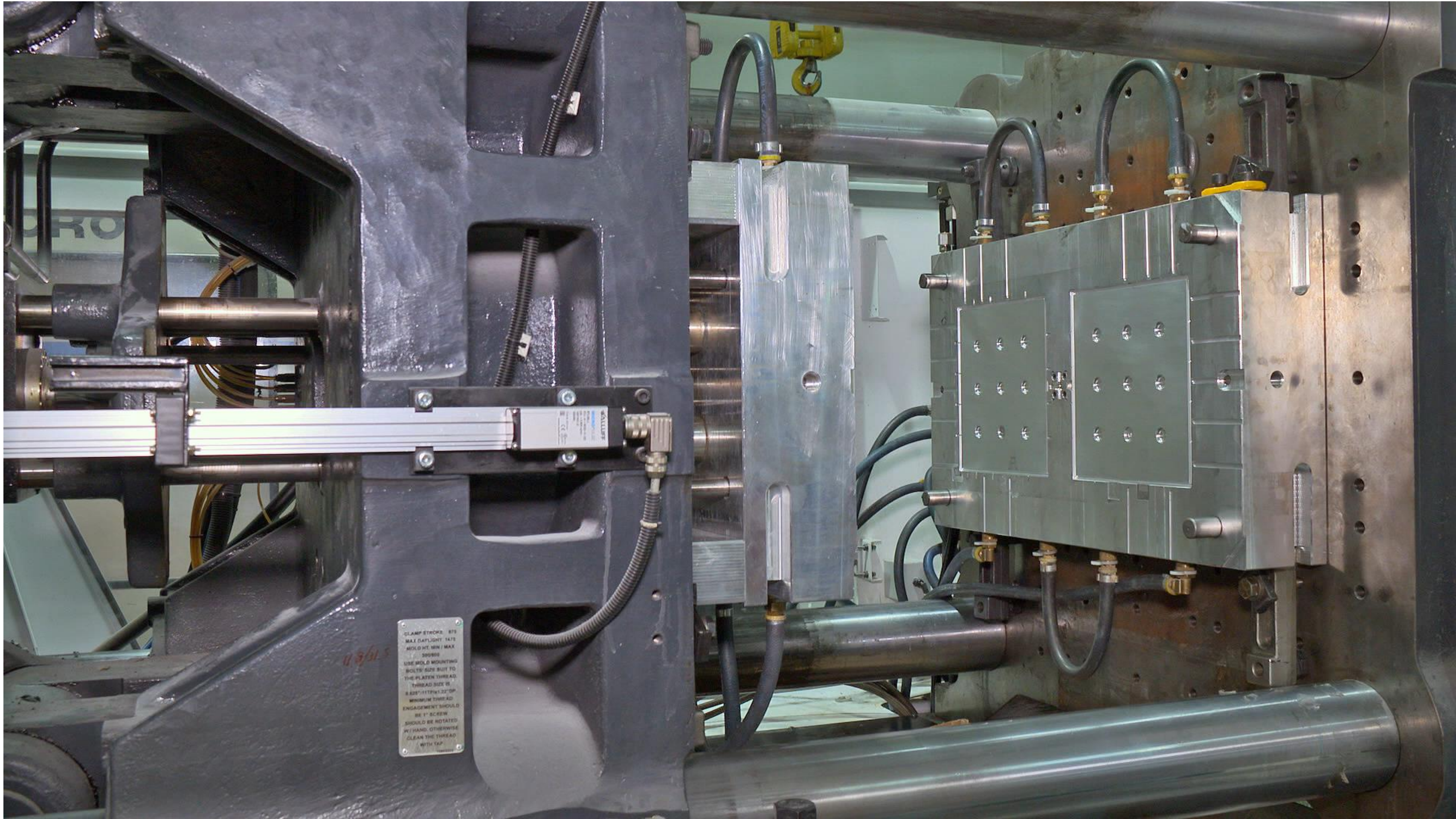
Connected Platform



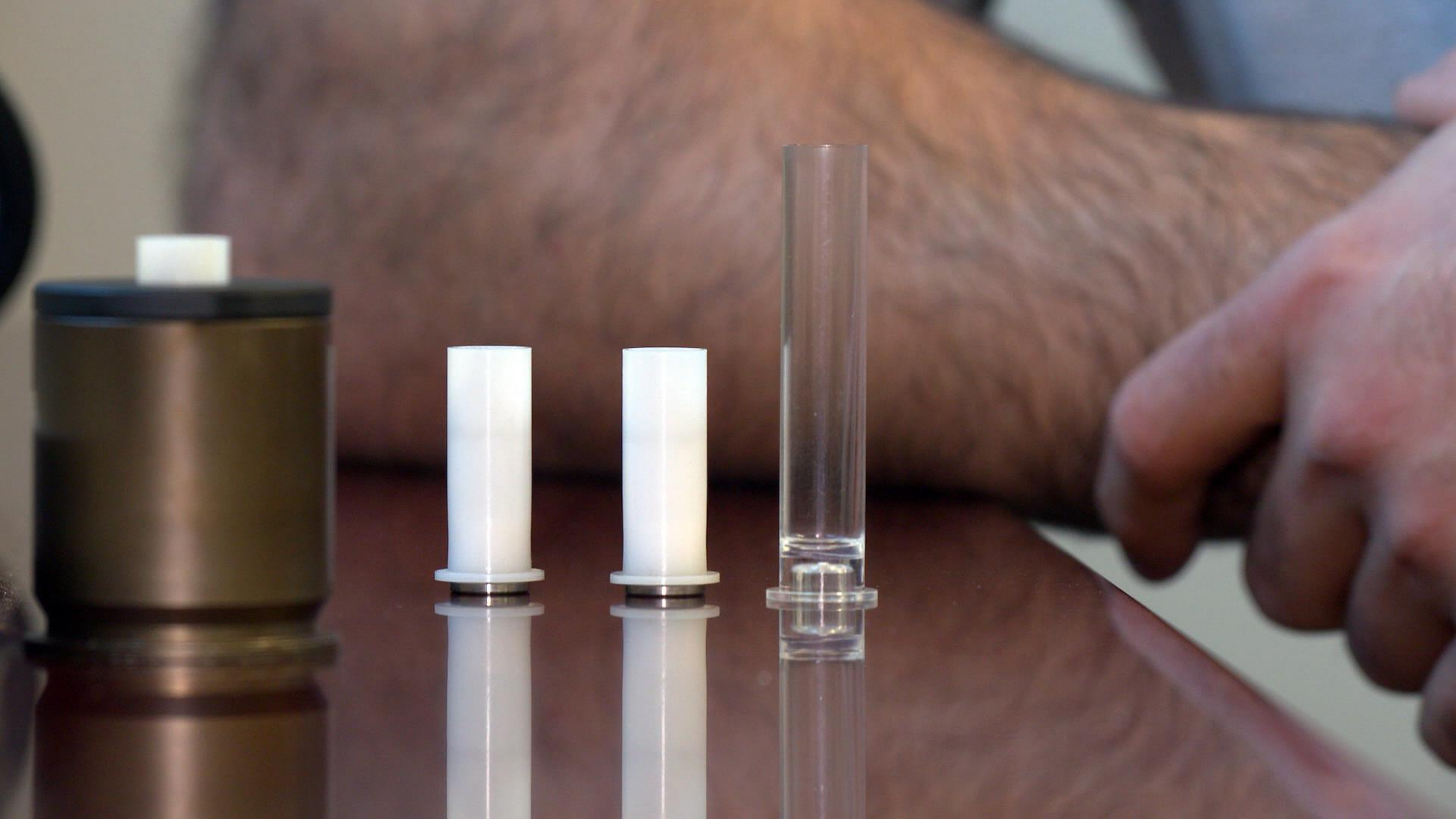
How it all fits together: Tooling example







CLAMP STROKE 875
MAX DAYLIGHT 1475
MOLD HT MIN / MAX
300/800
USE MOLD MOUNTING
BOLTS SIZE SUIT TO
THE PLATEN THREAD
THREAD SIZE IS
8.825" (11TIN) 1.32" DP
MINIMUM THREAD
ENGAGEMENT SHOULD
BE 1" SCREW
SHOULD BE ROTATED
W/ HAND OTHERWISE
CLEAN THE THREAD
WITH TAP

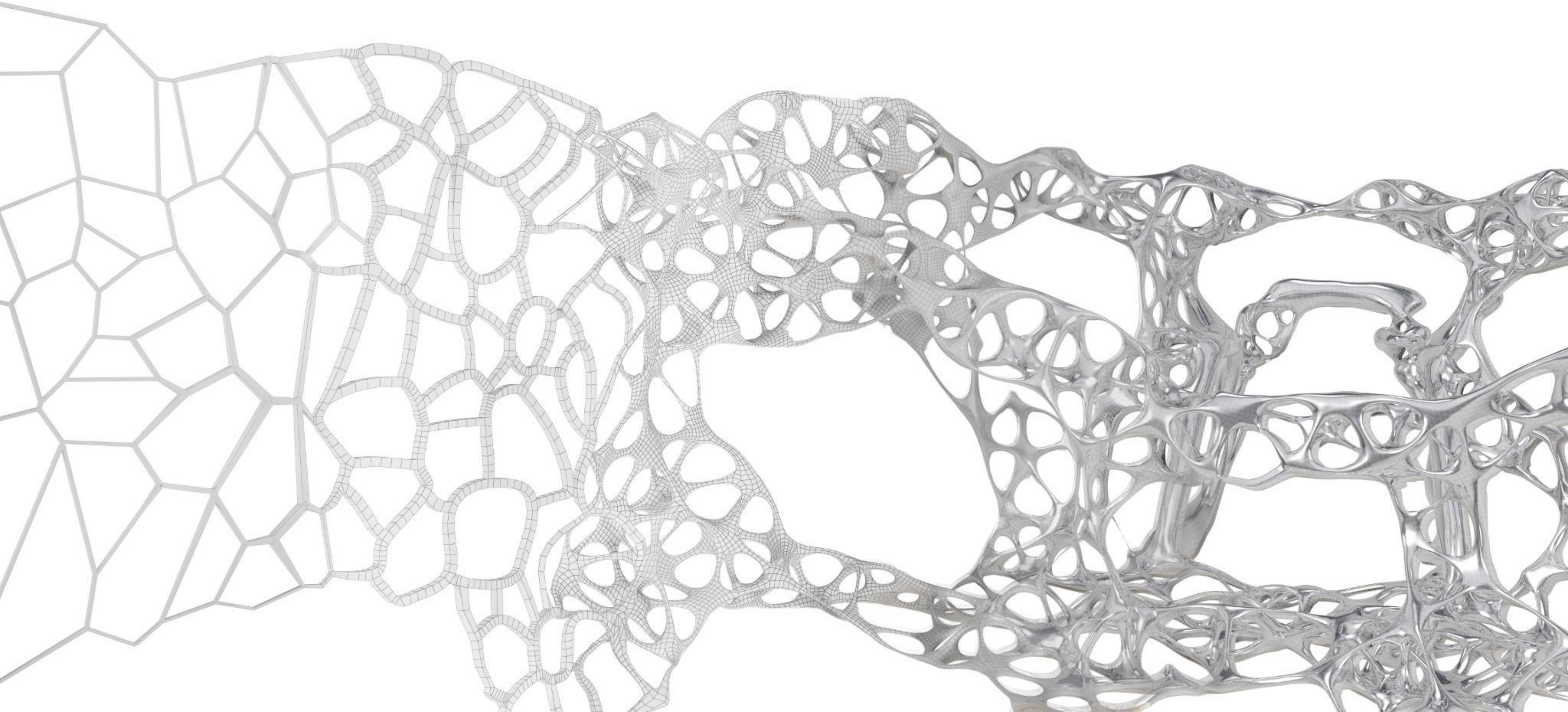


EXISTING BARRIERS TO INNOVATION, PRODUCTIVITY & PROCESS

1. Limited time to ideate/conceptualize
2. Teams are constrained by engineering expertise
3. Downstream processes not considered during design
4. Late-stage changes are cost prohibitive



EXPONENTIALLY EXPAND
YOUR TEAM'S PRODUCTIVITY AND ABILITY TO INNOVATE



AUTODESK GENERATIVE DESIGN

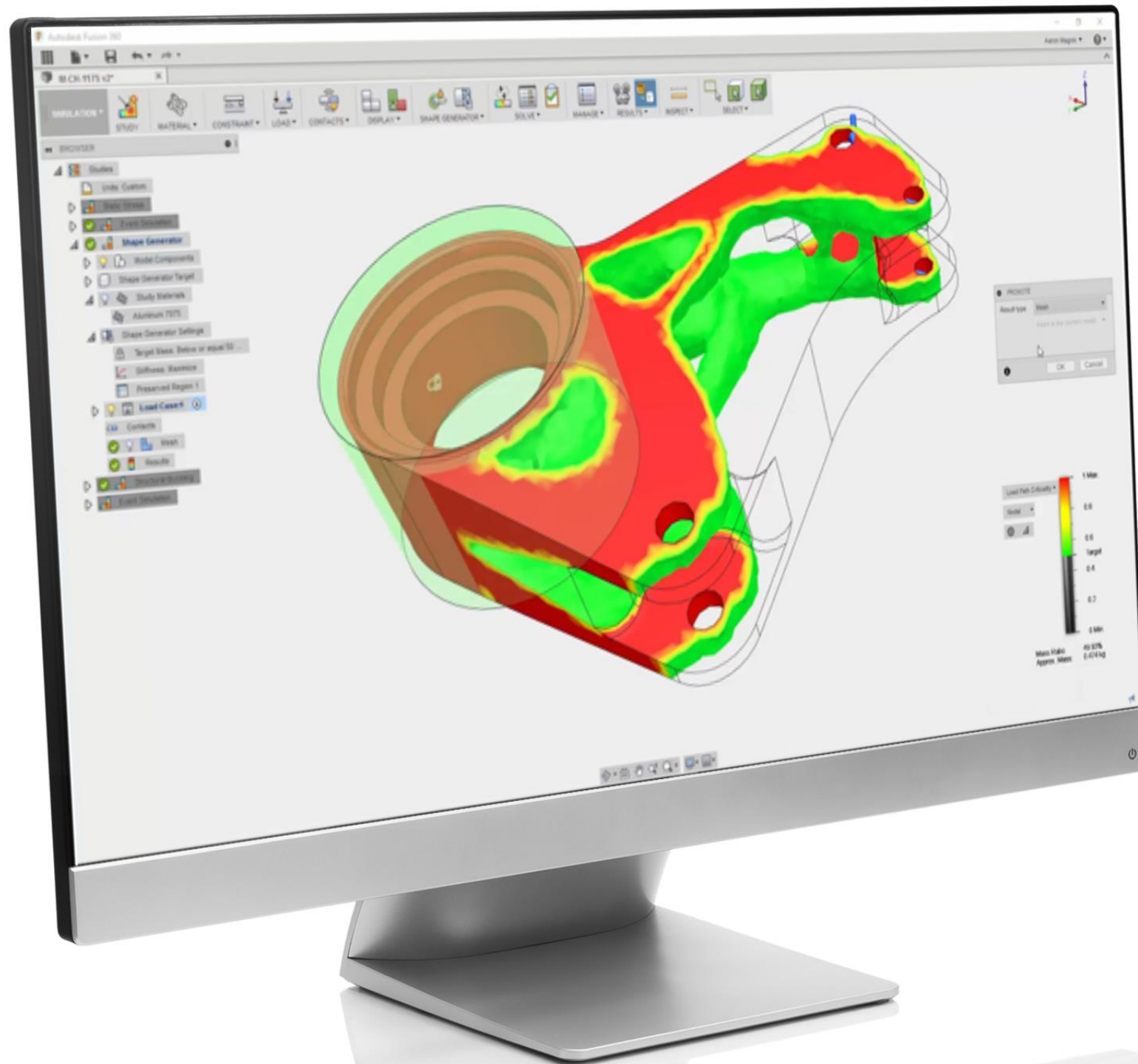
Autodesk generative design is a **design exploration** technology.

Simultaneously generate multiple CAD-ready solutions based on real-world manufacturing constraints and product performance requirements.



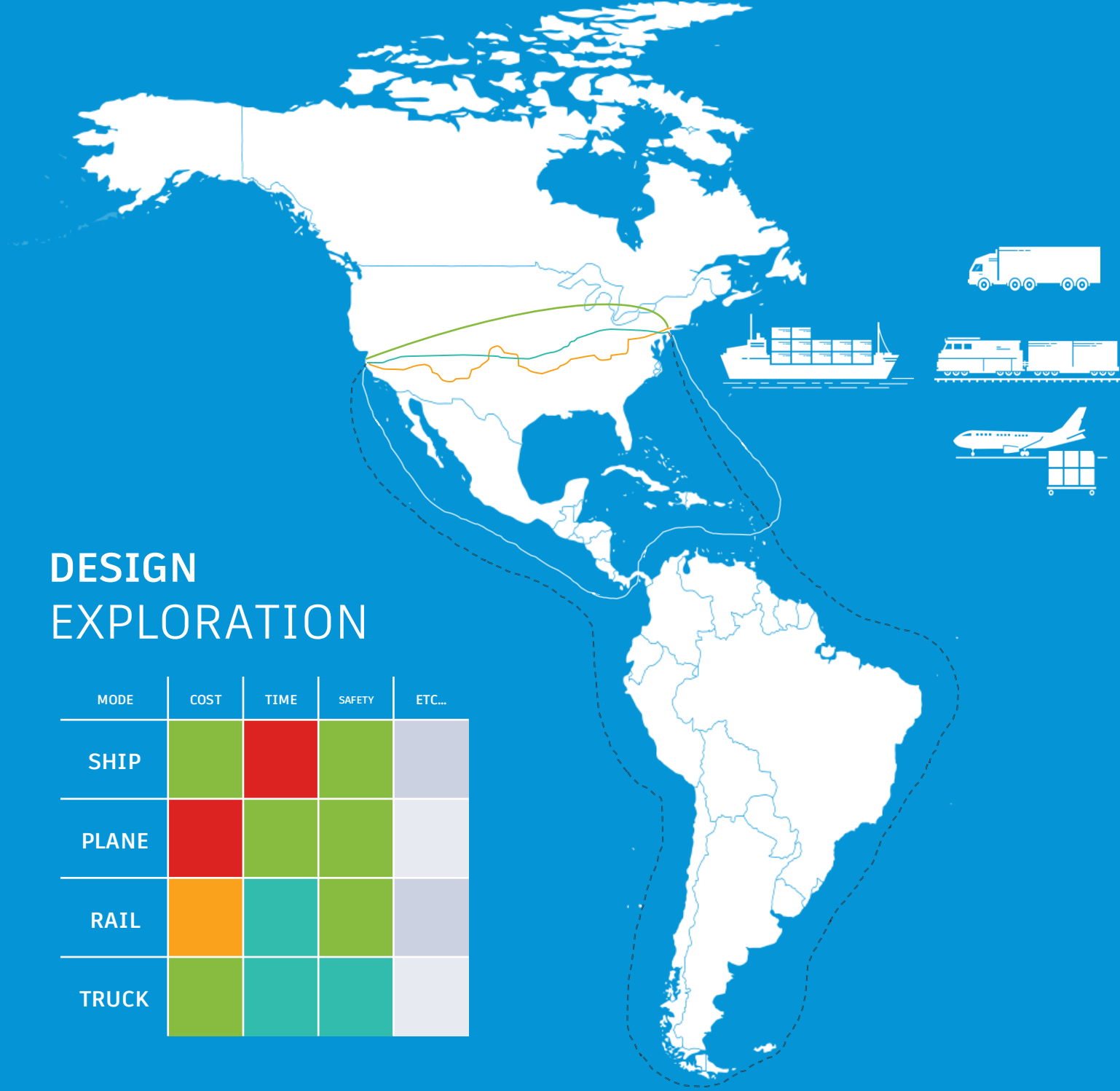
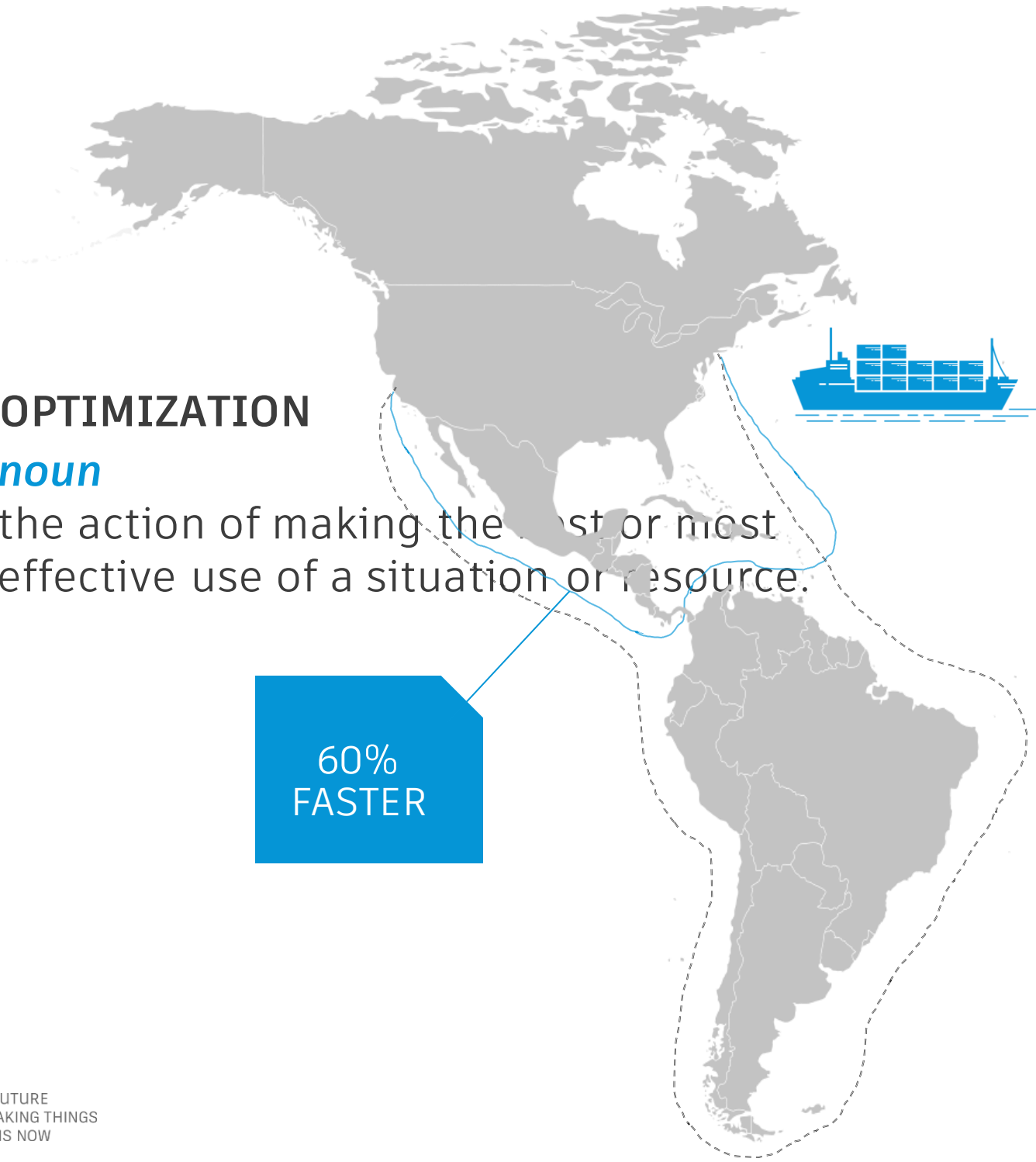
TOPOLOGY OPTIMIZATION

A related technology



- Generally used to achieve light-weighting goal
- Represents one solution, totally dependent on accuracy of confinement
- Typically not manufacturing and cost-aware
- Autodesk provides this technology within Fusion 360

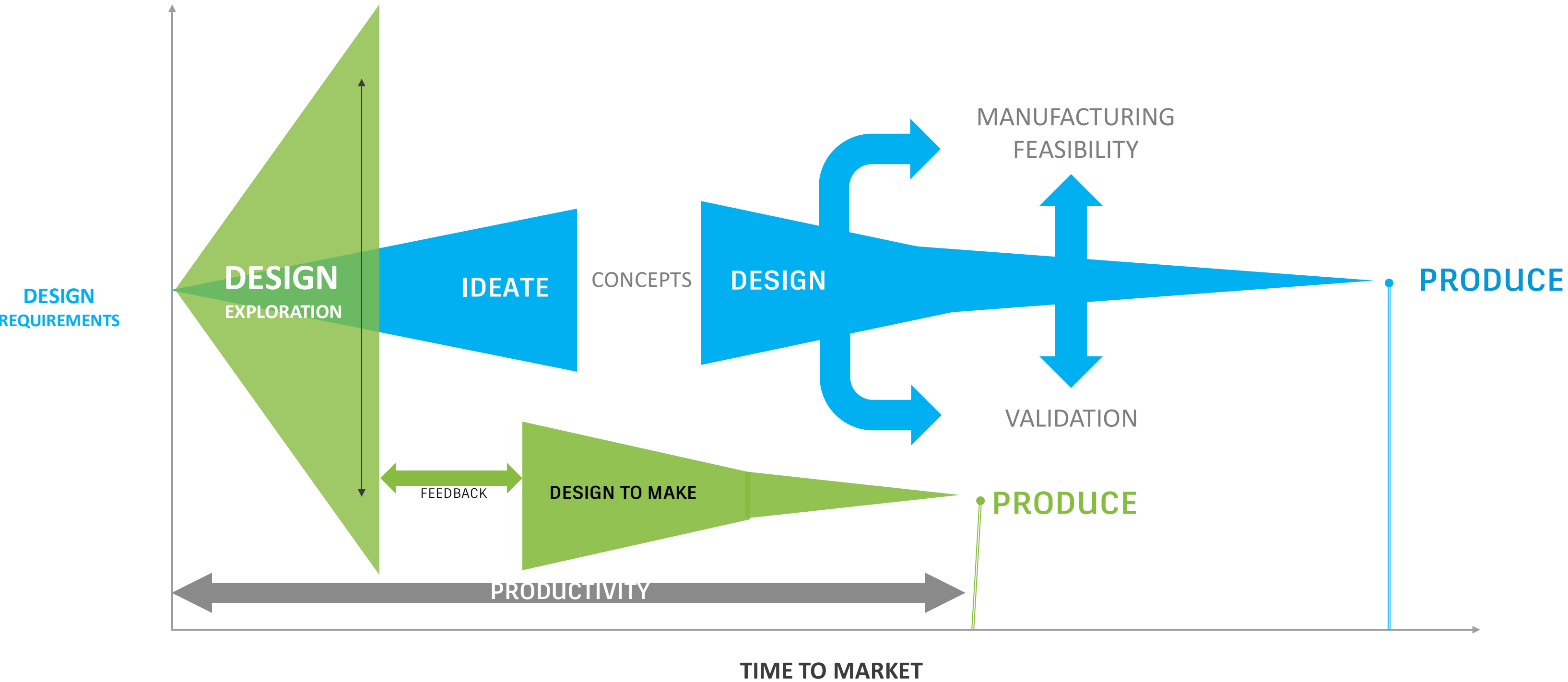
HOW IS AUTODESK GENERATIVE DESIGN DIFFERENT?



THERE ARE
MULTIPLE PRACTICAL
OUTCOMES
FOR A DESIGN PROBLEM

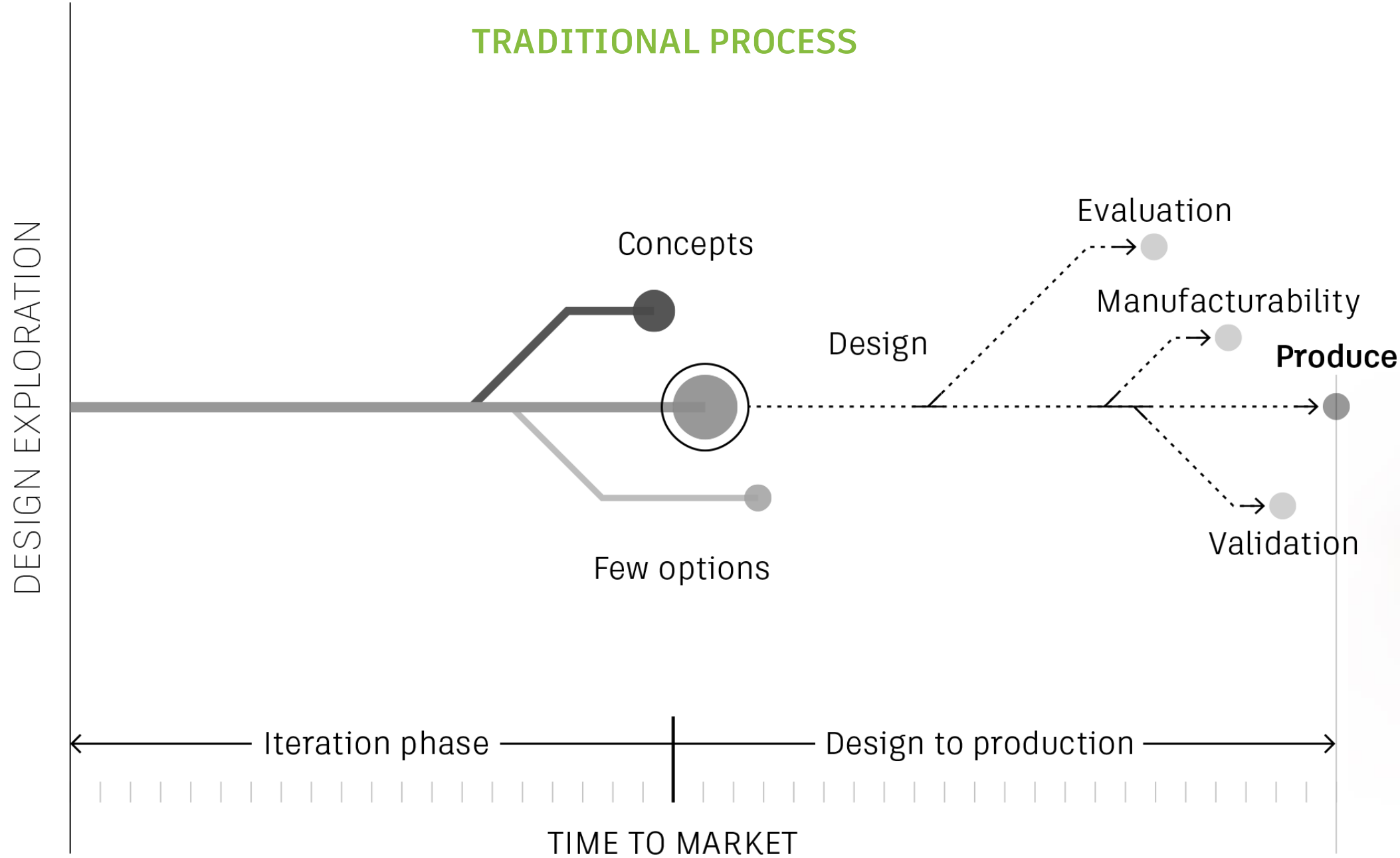


HOW DOES AUTODESK GENERATIVE DESIGN HELP THE PRODUCT DEVELOPMENT PROCESS?



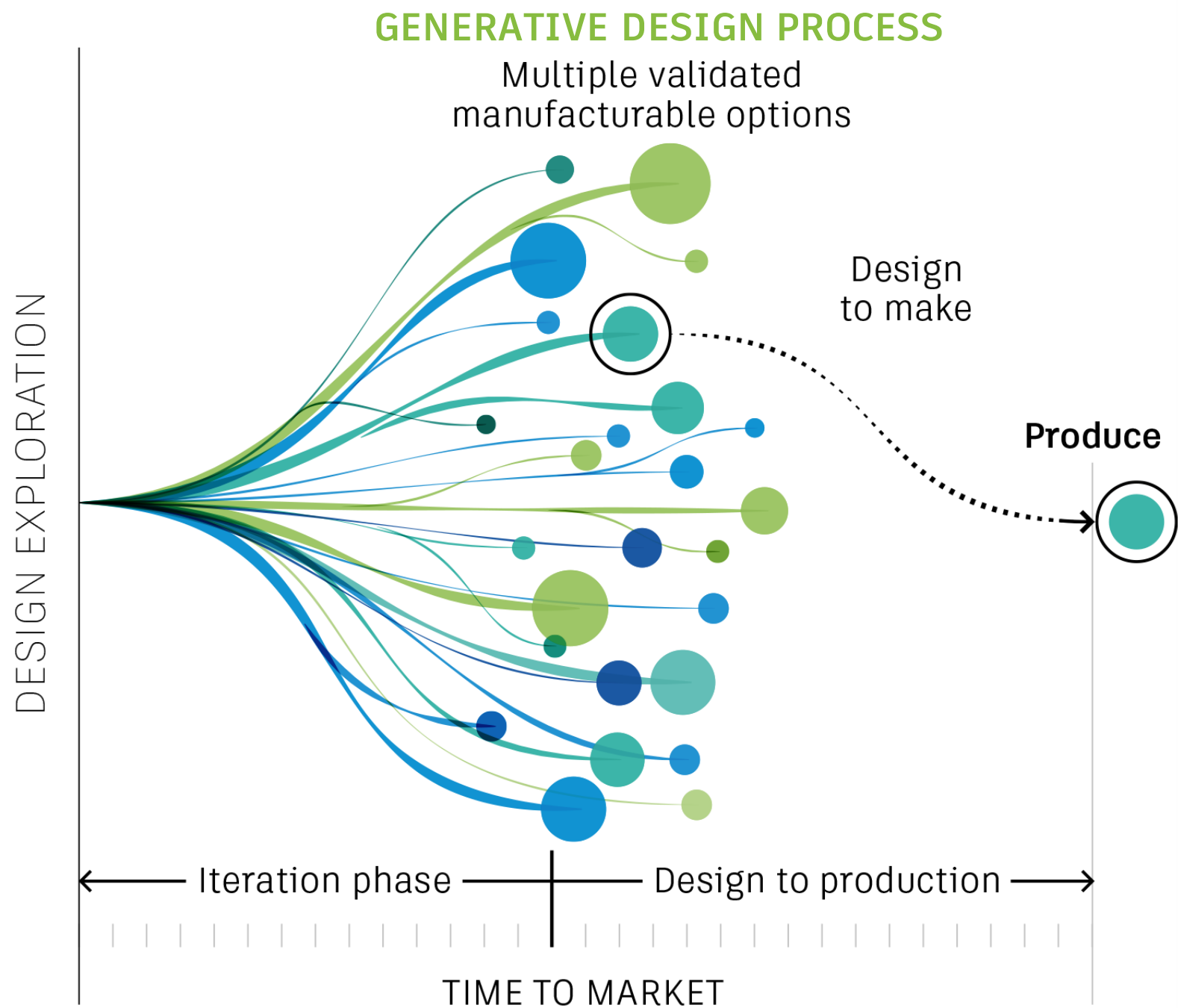
HOW DOES AUTODESK GENERATIVE DESIGN HELP THE PRODUCT DEVELOPMENT PROCESS?

BETA



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BETA



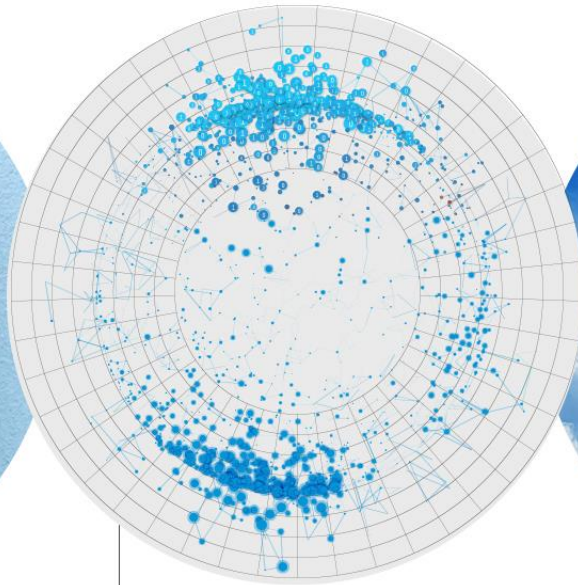
THE NEW WAY

Computer and designer/engineer
unite as co-creators



one
human

+



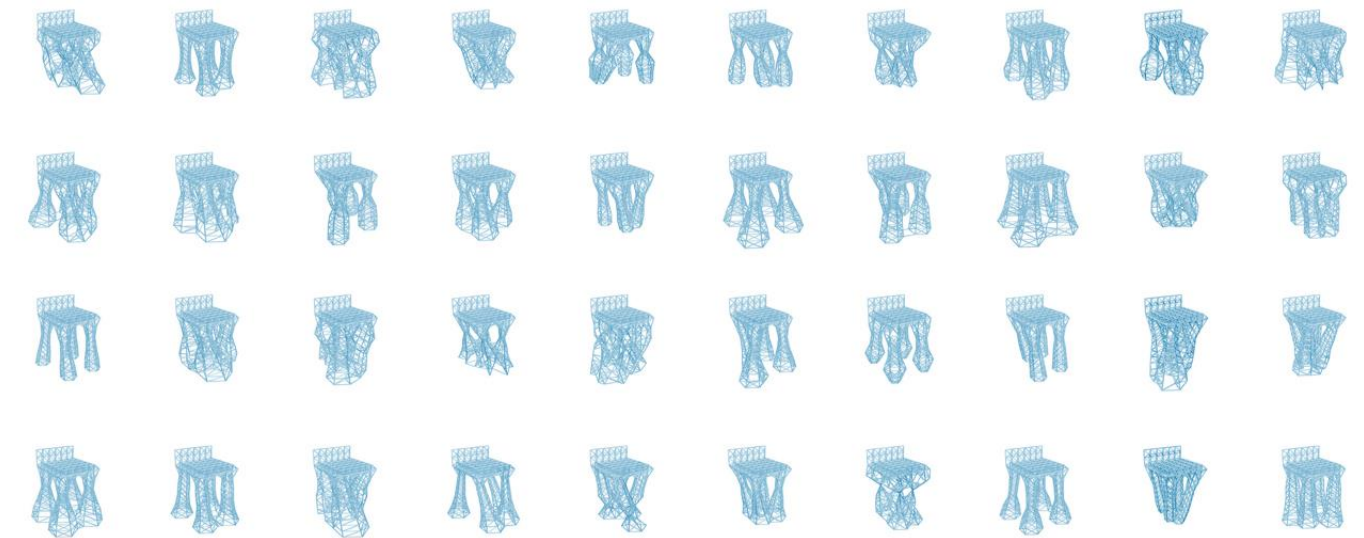
machine
learning
algorithms

+



unlimited
cloud-computing
power

=



100s to 1000s of
design options

For Release: Thursday, May 3, 12:01 a.m. EDT

Advanced Software Design Technology Leads GM Into Next Generation of Vehicle Lightweighting

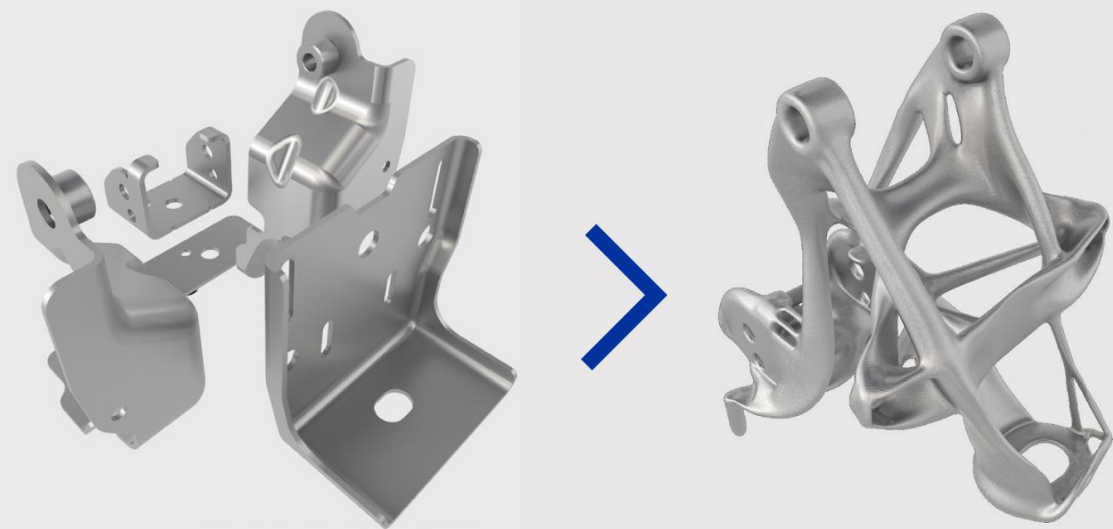
*Alliance with Autodesk includes advanced AI-based generative design technology
and 3-D printing advancements to help lighten and transform future vehicles*

DETROIT — General Motors is using new, advanced software design technology to introduce the next generation of vehicle lightweighting. The technology is key to developing efficient and lighter alternative propulsion and zero emission vehicles.



GENERAL MOTORS NEXT GENERATION VEHICLE LIGHTWEIGHTING

MAKING GM VEHICLES LIGHTER



3D PRINTED SEAT BRACKET

Proof-of-concept shown

GENERATIVE DESIGN
150+ DESIGNS,
1 PART

CONSOLIDATING
8 COMPONENTS
INTO 1 PART

40%
LIGHTER

20%
STRONGER

Design Challenge: I need a laptop...



MacBook Air

Design Challenge: I need a device to browse the internet...



MacBook Air

VS



Pick the “best-fit” from all possible solutions

GENERATIVE DESIGN TECHNOLOGY NOW AVAILABLE WITHIN FUSION 360



AUTODESK®
FUSION 360™

