



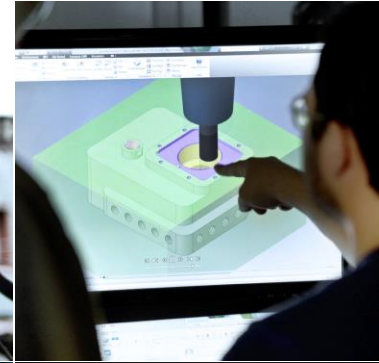
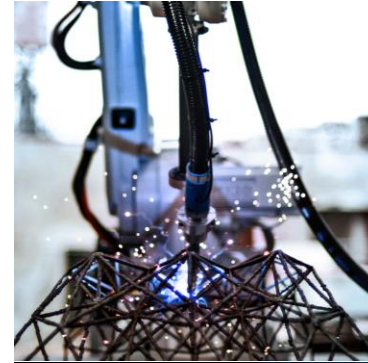
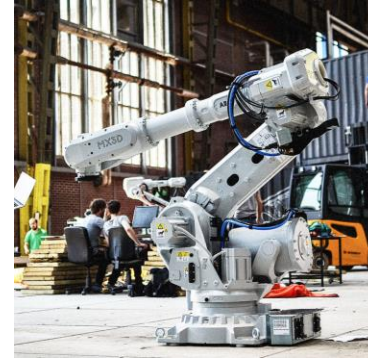
Generative Technology at Autodesk

From Design to Manufacturing

Nanda Santhanam

Generative, Simulation & Factory

THE FUTURE OF MAKING IS HERE,
BRINGING WITH IT RADICAL
CHANGES IN THE WAY THINGS ARE
DESIGNED, MADE, AND USED.



CONSUMER DEMAND



MEANS OF PRODUCTION

EXPECTATIONS OF PRODUCT



THE FUTURE
OF MAKING THINGS
BEGINS NOW



THE FUTURE IS NOW!

GENERATIVE DESIGN
TECHNOLOGY NOW
AVAILABLE WITHIN
FUSION 360



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

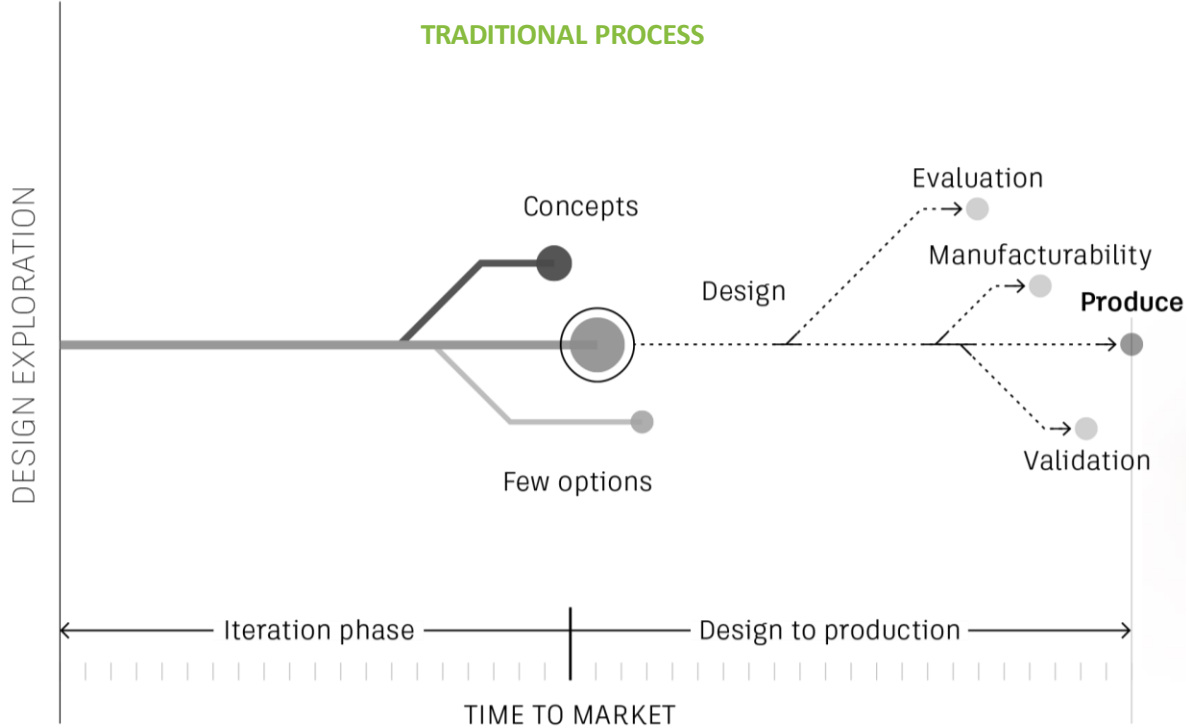


AUTODESK GENERATIVE DESIGN

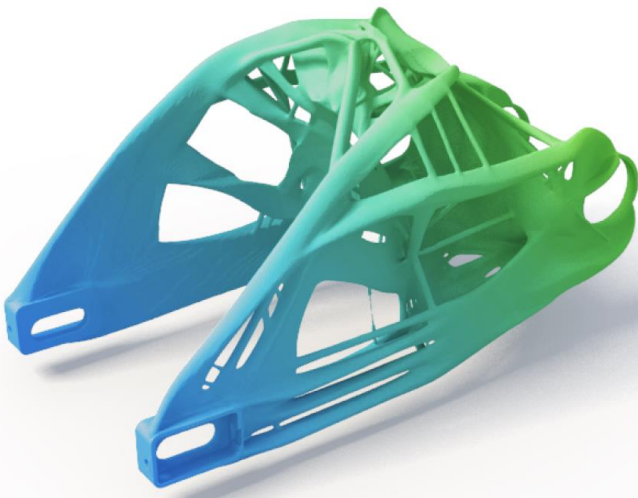
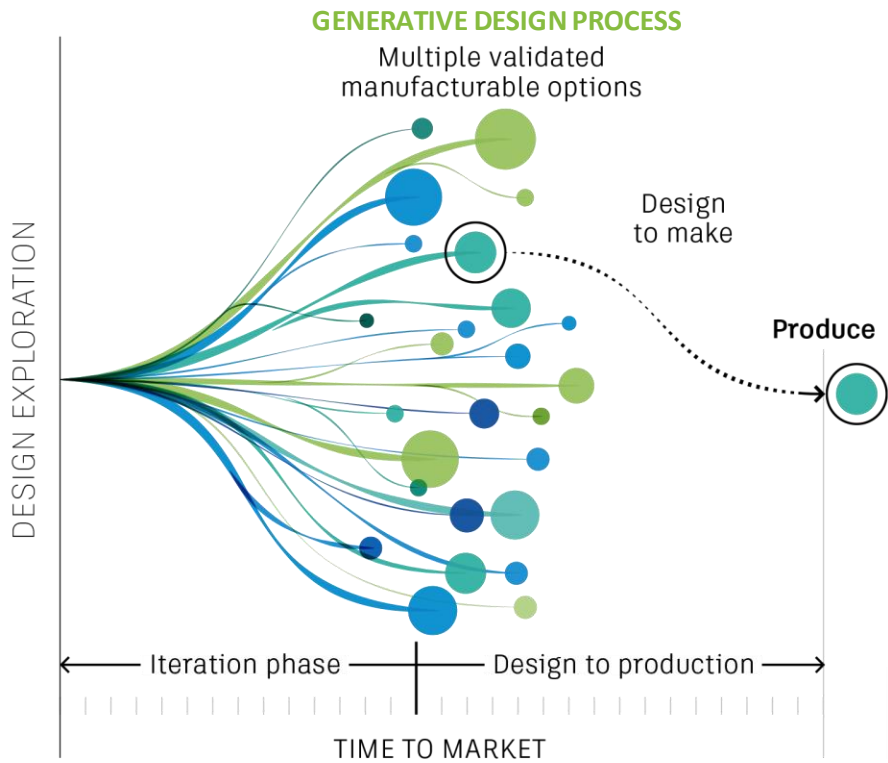
Autodesk generative design is a **design exploration** technology.
Simultaneously generate multiple CAD-ready solutions based on real-world manufacturing constraints and product performance requirements.



HOW DOES AUTODESK GENERATIVE DESIGN HELP THE PRODUCT DEVELOPMENT PROCESS?

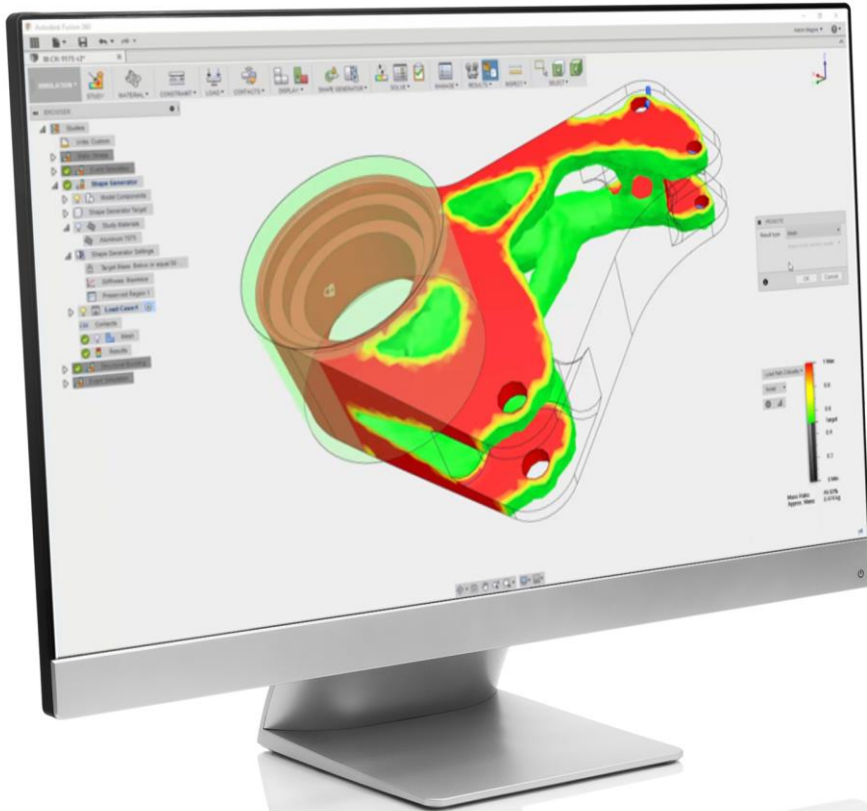


HOW DOES AUTODESK GENERATIVE DESIGN HELP THE PRODUCT DEVELOPMENT PROCESS?



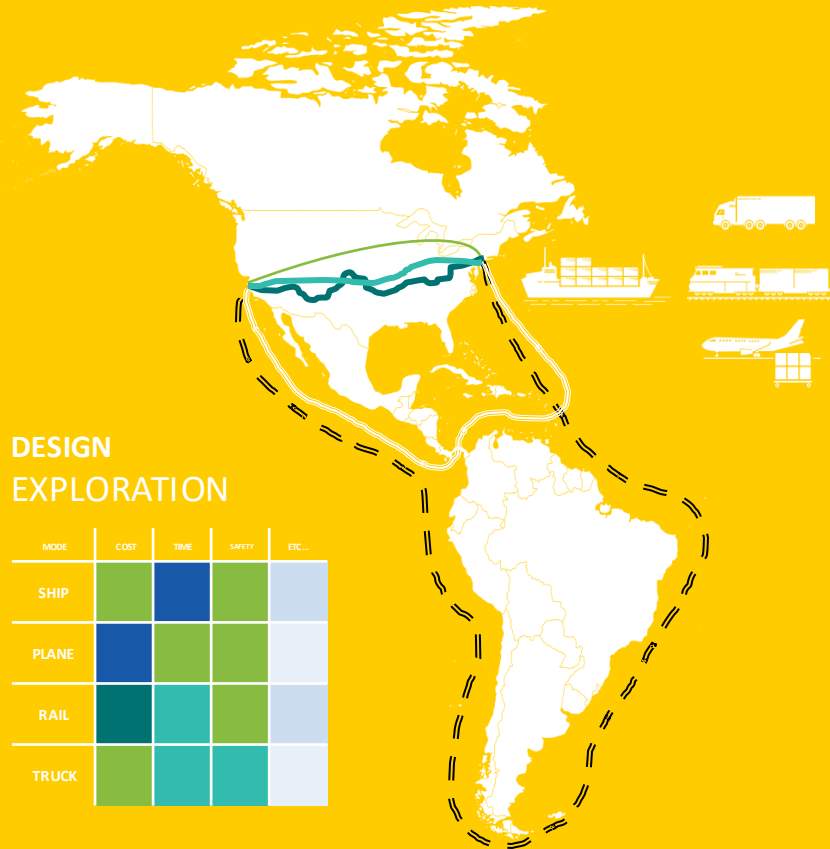
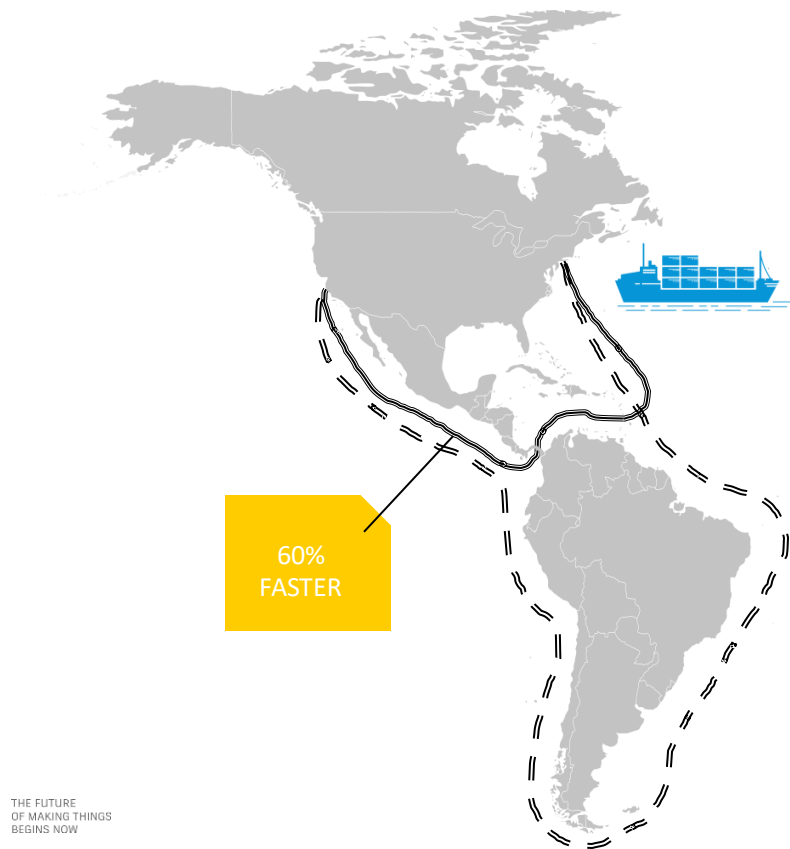
TOPOLOGY OPTIMIZATION

A related technology



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

HOW IS AUTODESK GENERATIVE DESIGN DIFFERENT?



THERE ARE
MULTIPLE PRACTICAL
OUTCOMES
FOR A DESIGN PROBLEM



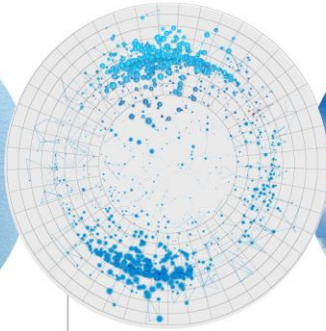
THE NEW WAY

Computer and designer/engineer
unite as co-creators



one
human

+



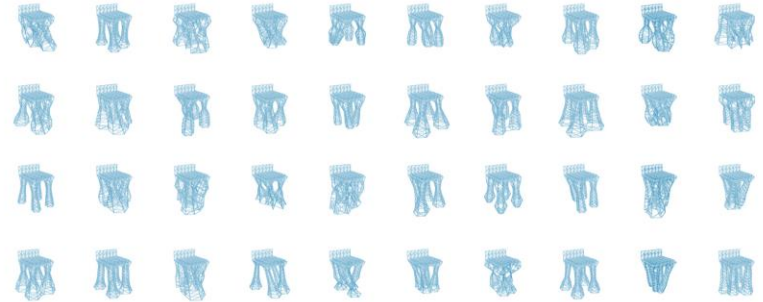
machine
learning
algorithms

+

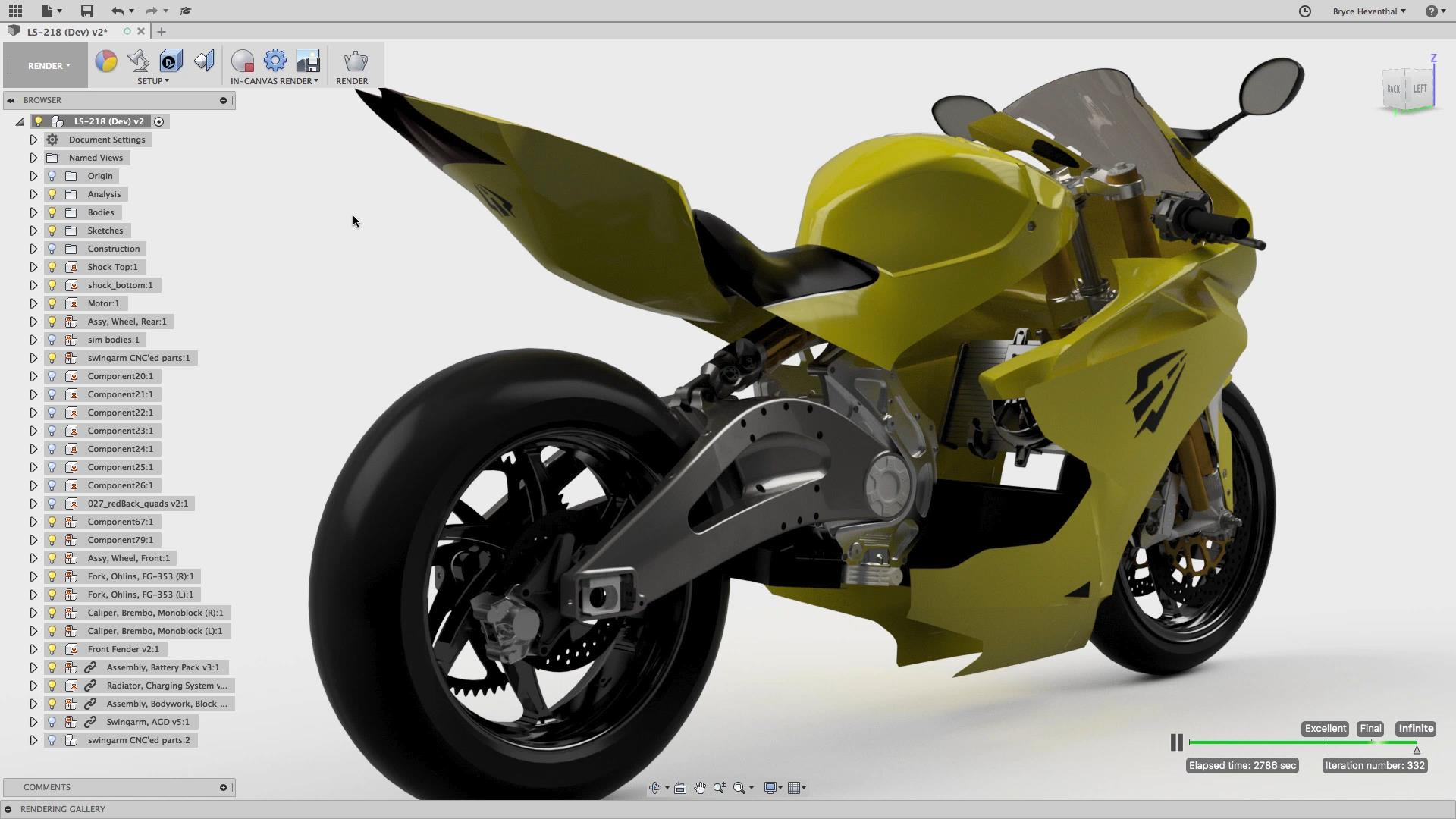


unlimited
cloud-computing
power

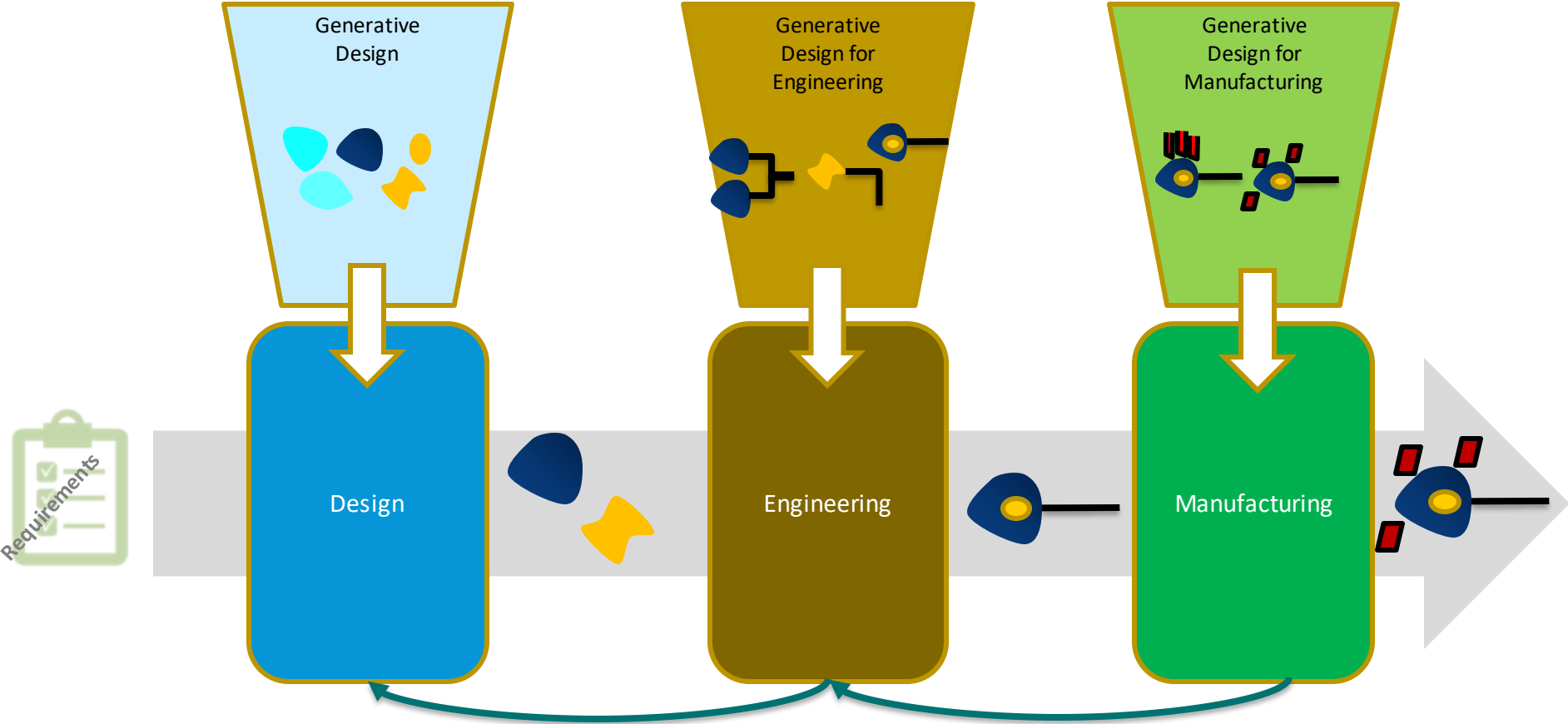
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100s to 1000s of
design options



Generative Design: Into the Future





AUTODESK®

Make anything™

TOPOLOGY OPTIMIZATION

A Comparison

TOPOLOGY OPTIMIZATION

- Requires “expert” user to invest time in fully confining the problem
- Typically a light-weighting goal
- Only represents one solution, totally dependent on accuracy of confinement
- Typically is not manufacturing-aware

GENERATIVE DESIGN

Explorative methodology that has a goal-driven approach

All viable outcomes are presented to the user

User can do tradeoffs for performance (go beyond light-weighting)

Manufacturability is taken into account during ideation



AIRBUS

THE FUTURE
OF MAKING THINGS
BEGINS NOW



