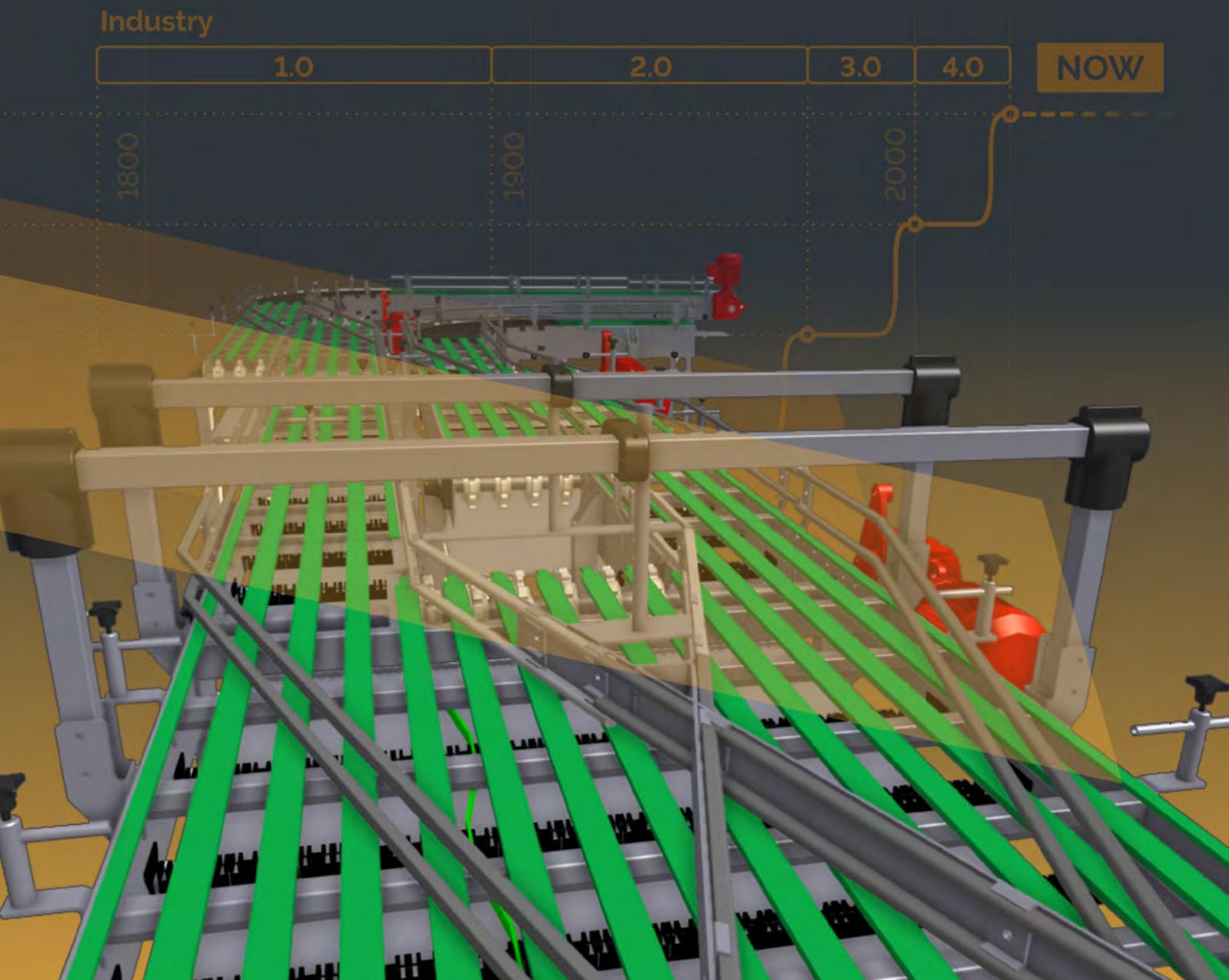
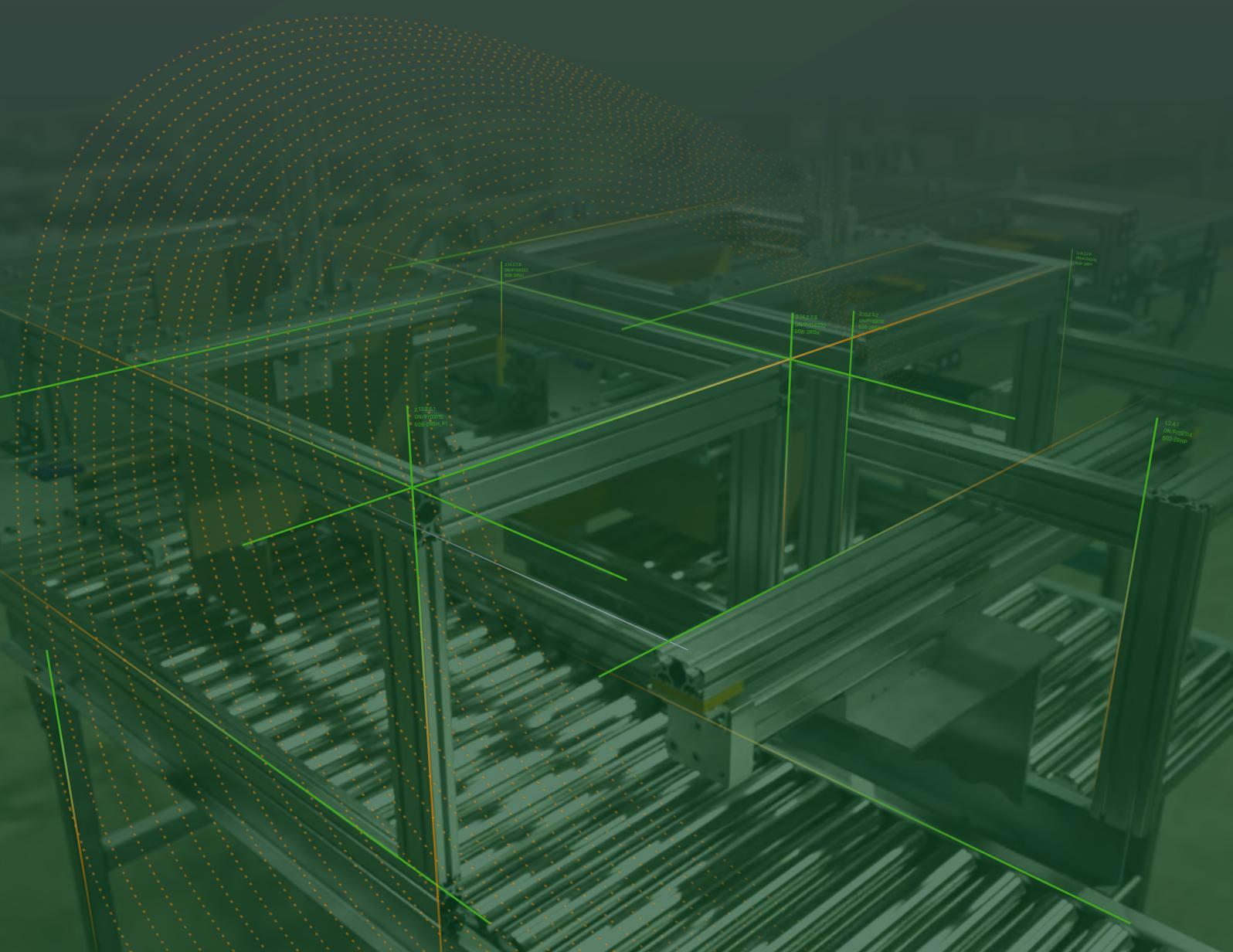
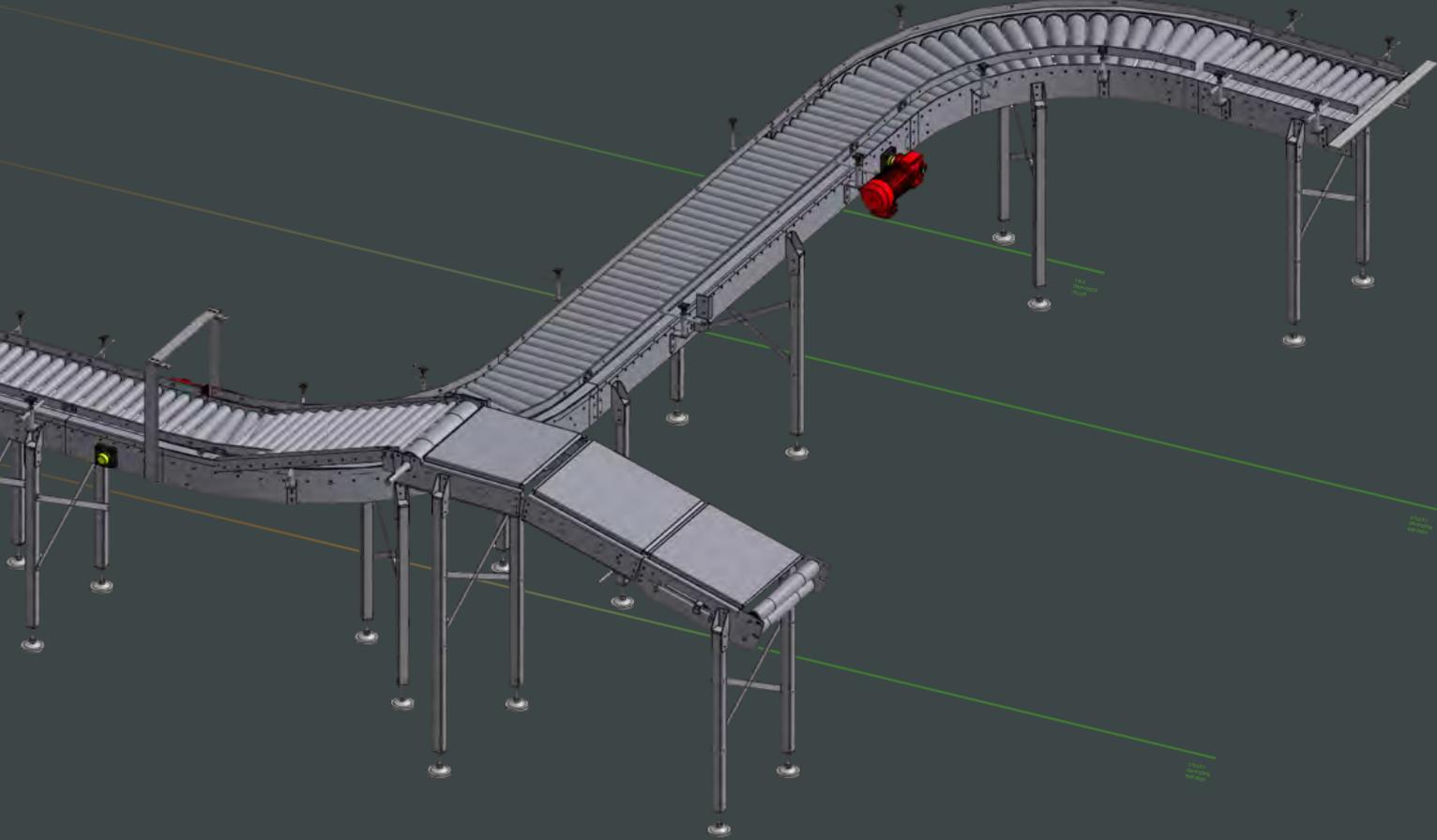


Then and Now: Using Modern Cloud-Native CAD to Design EaaS Machines



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5 Reasons to use modern SaaS CAD to design today's EaaS Machines

In this eBook, we will look back at how the machine design industry has transformed over time, with an emphasis on comparing traditional CAD to modern SaaS CAD.



THEN

Desktop CAD software

Machine Automation

Large capital investments in IT and Machines

NOW

Cloud-Native CAD solutions

Smart Machines, enabled by IoT and Cyber physical systems

Software-as-a-Service (SaaS) & Equipment-as-a-Service (EaaS)



When looking back at a decade of digitalization, it's extremely apparent and humorous how much has changed!

Outcome Based Business Models

Customer Focused Communication

Companies buying EaaS machines are shifting from one-time large capital expenditures to multi-year digital service and maintenance contracts. These outcome-based pricing strategies help to share the cost, risk and rewards between service provider and buyer.

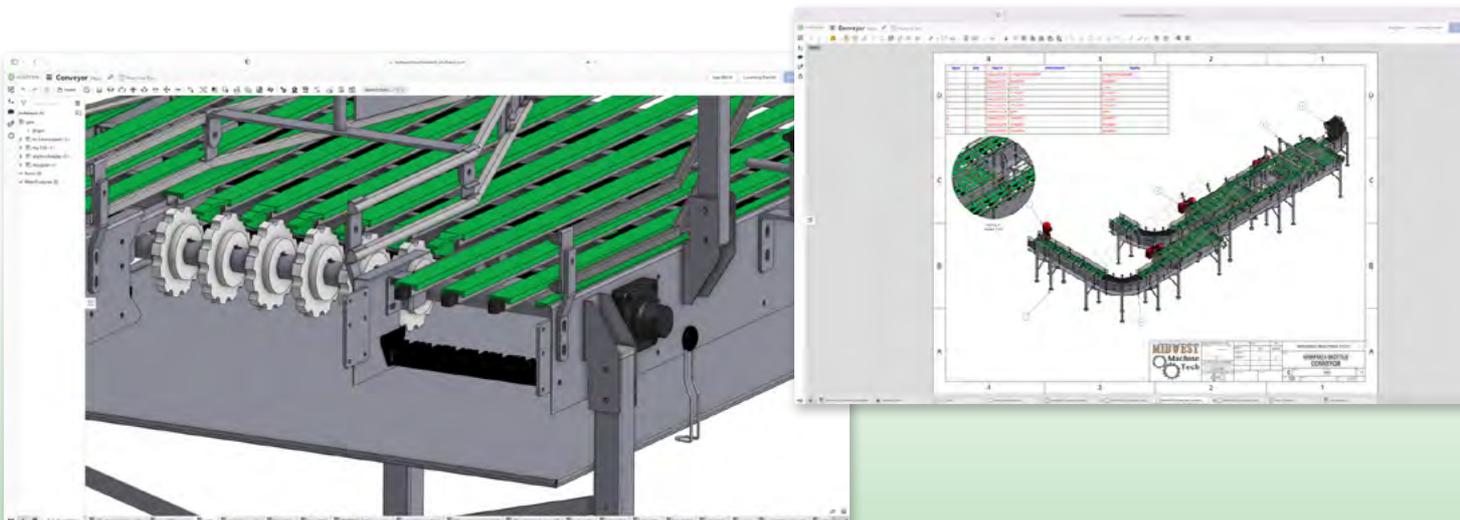
The change in business model means that the machine builder and product manufacturer will need to converse more frequently about the machine throughout its operation and service.

Better communication leads to better outcomes. EaaS sales demand a higher level of customer customization and communication than emailing back and forth PDF Drawings.

//// COMMUNICATION | How We Talk to Our Customers?



➤ Onshape supports real-time multi-user secure collaboration, including online view-only sharing of full CAD models.



Smart Machines

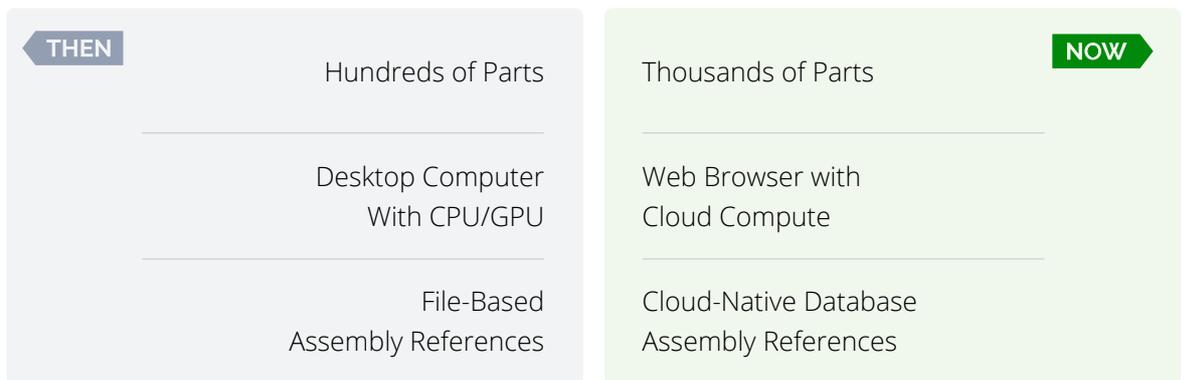
More Digital, More Complex

Manufacturing machines today are more complex, having significantly more components in their assemblies, such as: the additional electrical wiring and IoT sensor components, which make them “smart”.

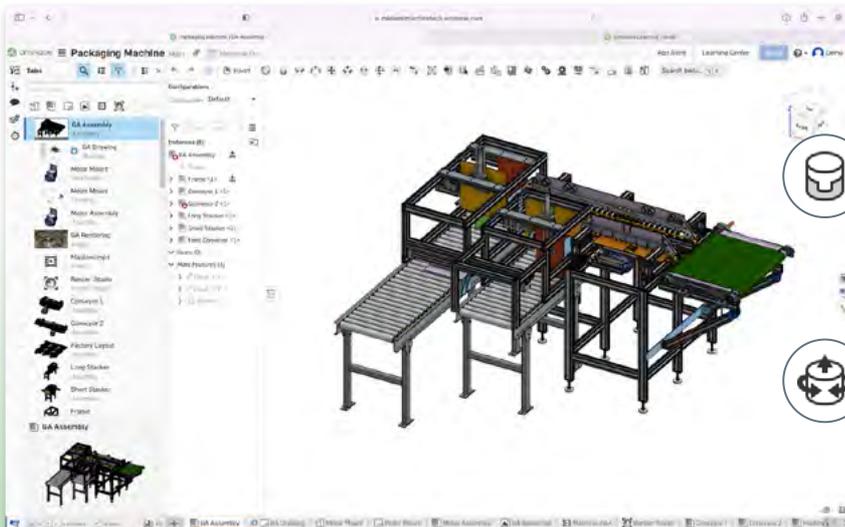
Some industrial equipment machines now have thousands parts. For designers of industrial equipment, the sheer number of parts in these assemblies greatly impacts productivity.

Assembly size and complexity effects the time it takes to load a model for visualization, regenerate after a part change, and how you interact with your model. Not to mention, the time and effort to compress and share models of this size has also changed.

////// ASSEMBLIES | How Complex Are Our Assemblies?



➤ Onshape is performant, leveraging Cloud computing for fast visualization, modeling and interactions with large assemblies.



-  • Revolute
-  • Tangent
-  • Fastened
-  • Pin Slot
-  • Slider
-  • Ball
-  • Cylindrical
-  • Parallel
-  • Planar

Optimization of Manufacturing Process

More Pressure to 'Fit Right the First Time'

Changes in travel policies over the past few years has significantly impacted the way in which machine builders can locally access a customer's factory floor to customize and optimize their machines at the installation site. Consequently, the need for more remote work has become essential to the manufacturing process.

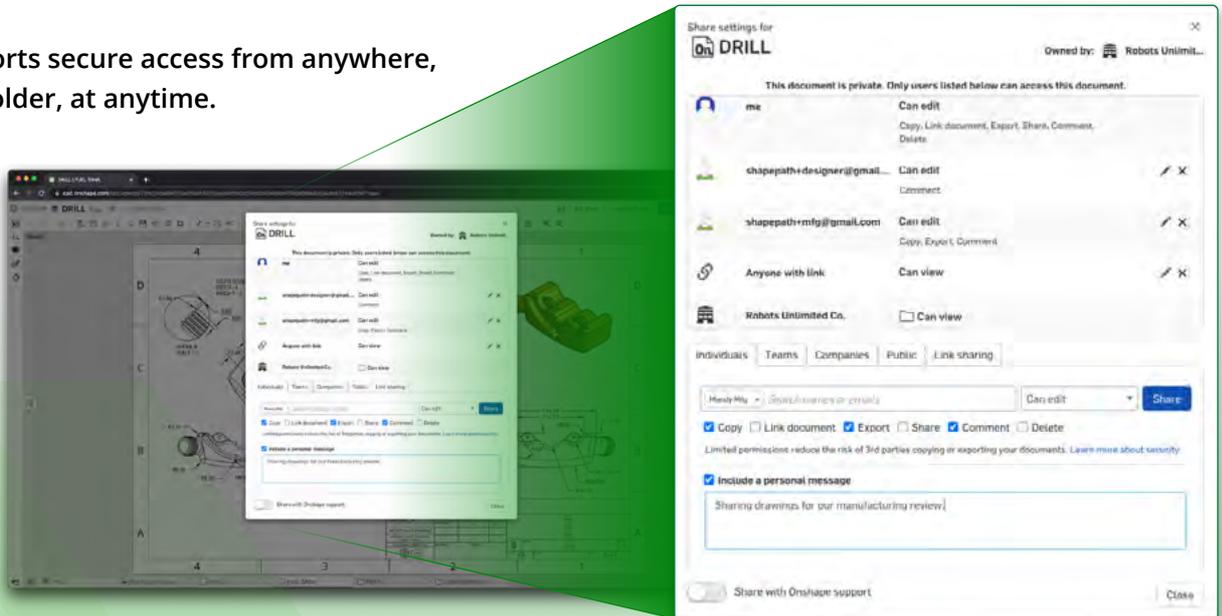
Machine builders don't want to fumble through IT issues in front of their customers, such as: getting on a company VPN to access a PDM vault to check out large files only to have corruption, licensing or hardware issues. When onsite, engineers need the freedom and confidence to be able to work productively between laptops, mobile devices and different access locations.

With all the pressures machine builders have to meet customer requirements the first time the production lines run, they simply do not have the time to waste on IT issues or anything that detracts from building fit-for-purpose machines.

//// ANYWHERE, ANYTIME ACCESS | How We Work?

<p>THEN</p> <p>In the Office or On-Site with Company VPNs</p> <hr/> <p>Specialized Hardware</p> <hr/> <p>Waiting on Licensing and Provisioning</p>	<p>Enterprise Single Sign On (SSO) access from Anywhere</p> <hr/> <p>Web Browser with Cloud Compute</p> <hr/> <p>Cloud-Native Database Assembly References</p>
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Onshape supports secure access from anywhere, for any stakeholder, at anytime.



Maintenance

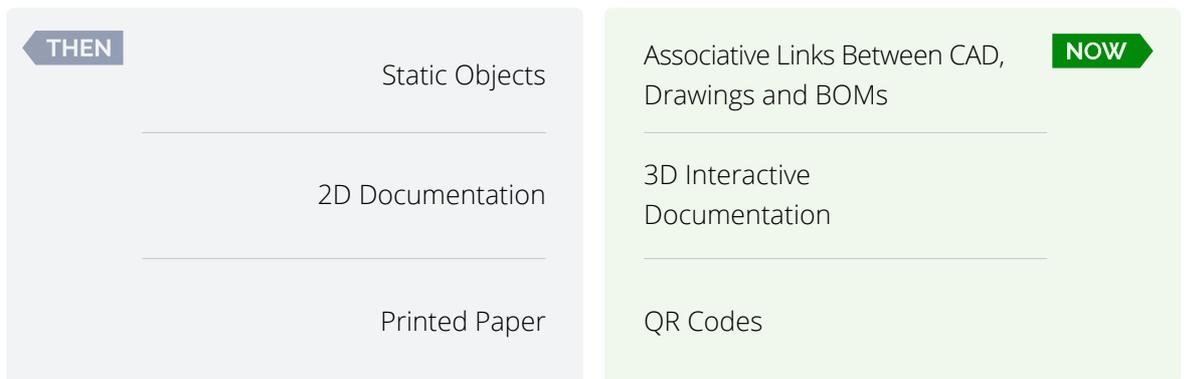
Service, Support and Customer Satisfaction

Long ago when a machine was built, sold and installed, the owner of the machine was responsible for maintenance and service. With the rise of EaaS, manufactures expect their machine service providers to own, estimate and manage those costs.

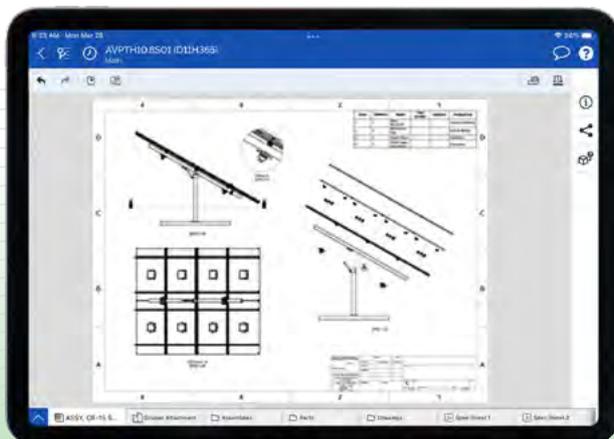
While there are many high-tech strategies, such as IoT predictive maintenance, which lower costs, service providers are powerless without good drawings, electrical schematics, and factory blueprints. Moreover, machine companies now must employ, train or contract maintenance staff.

The notion of 'good' drawings and machine documentation have significantly changed due to a variety of factors. One may cite skilled labor shortages and the evolving modern expectations of technicians as the greatest catalyst for change.

INTERACTIVE SCHEMATICS | How We Document Designs?



Onshape Documents have modern mark-up and unique URLs, so you can share drawings as QR codes.



Modular Design

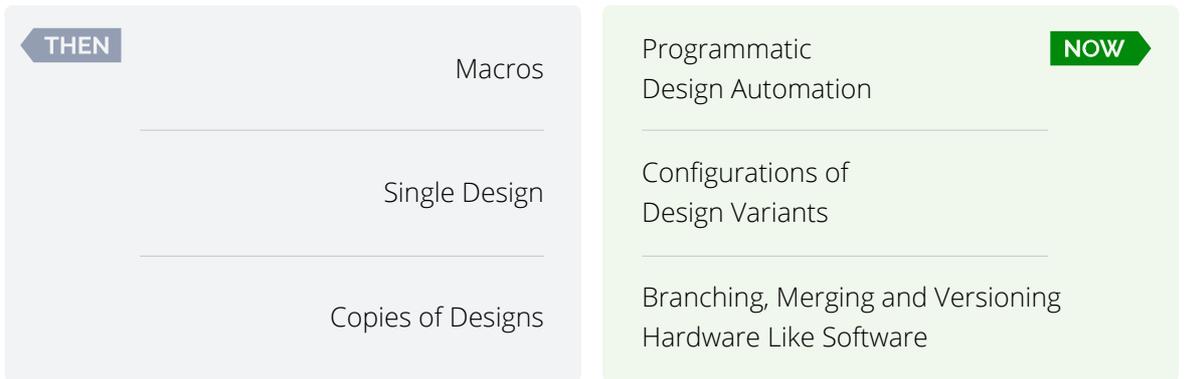
Scaling EaaS Sales with Smarter Customization

In the past, machine builders were guaranteed contract-based revenue to complete customized machine designs. This type of revenue was seen as a one-off large capital expenditure by the manufacturer. Back then, it was hard to have operational efficiency around reusable designs because investments at this price point were so tailored to the manufacturer's specific needs.

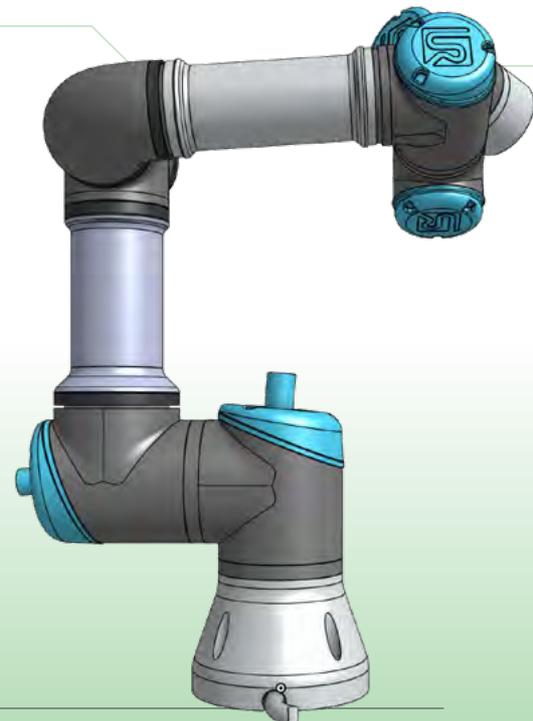
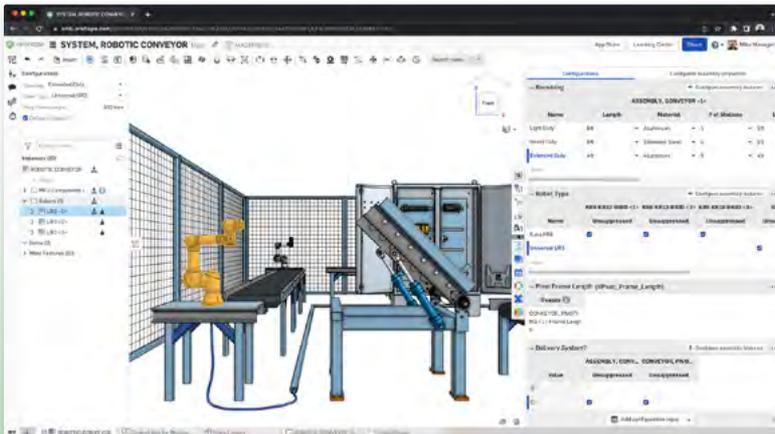
As people move from large expenditures to more long-term service request, the industry is finding that the desire for customization doesn't go away, but rather that customers are more accepting of standardization. For example, there are standard robotic pick and place options now for packaging lines.

Manufactures today are more agile, building and updating production lines faster than ever before. Machine designers can create industrial equipment designs more quickly as configurable assemblies of modular components allow them to scale up business to sell more machines.

//// CONFIGURATIONS | How We Build Design Automation?



A robotic assembly line featuring different configurations of a UR-3 Robot from Universal Robotics



THEN **NOW**

Hopefully, you have found some humor in how much things have changed in the machine design industry.

Many people have made the transition to adopt Cloud-native SaaS CAD solutions, and none of them have regretted it.



HEINRICH KÖCHLING

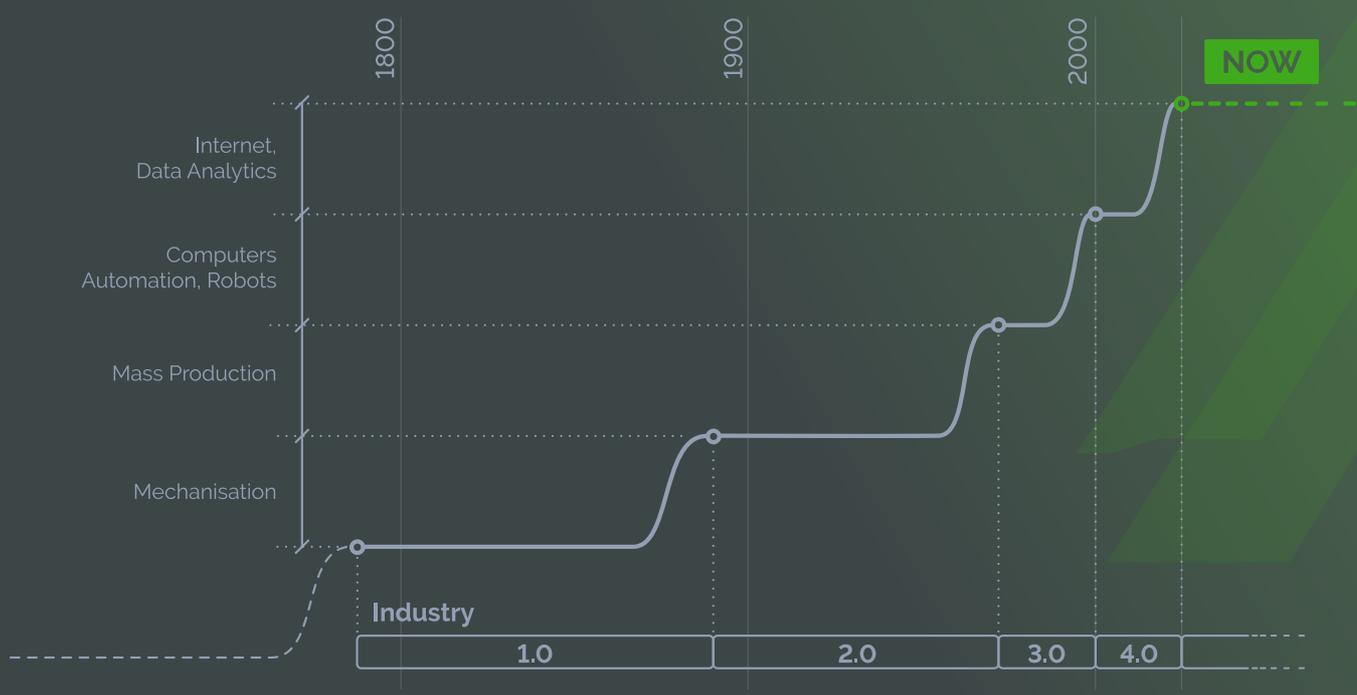
Director of Worldwide Engineering
Formulatrix



“One of the things that most attracted us to Onshape is the collaborative capabilities. The ability for our American team and our Indonesian team to work together in real time is extremely valuable. We were losing a lot of time when we used to have to send files back and forth.”

The only constant is that time will continue to move forward and bring about more digitalization and change. Don't get stuck using outdated CAD solutions to design your future portfolio of smart, IoT enabled, Equipment as a Service (EaaS) Solutions.

Reach out to our Onshape team, who can help you modernize your machine design process.





Onshape is Making Machine Design Faster and Easier Than Ever Before

Sign up for a free Onshape Professional Trial today!

[GET STARTED](#)