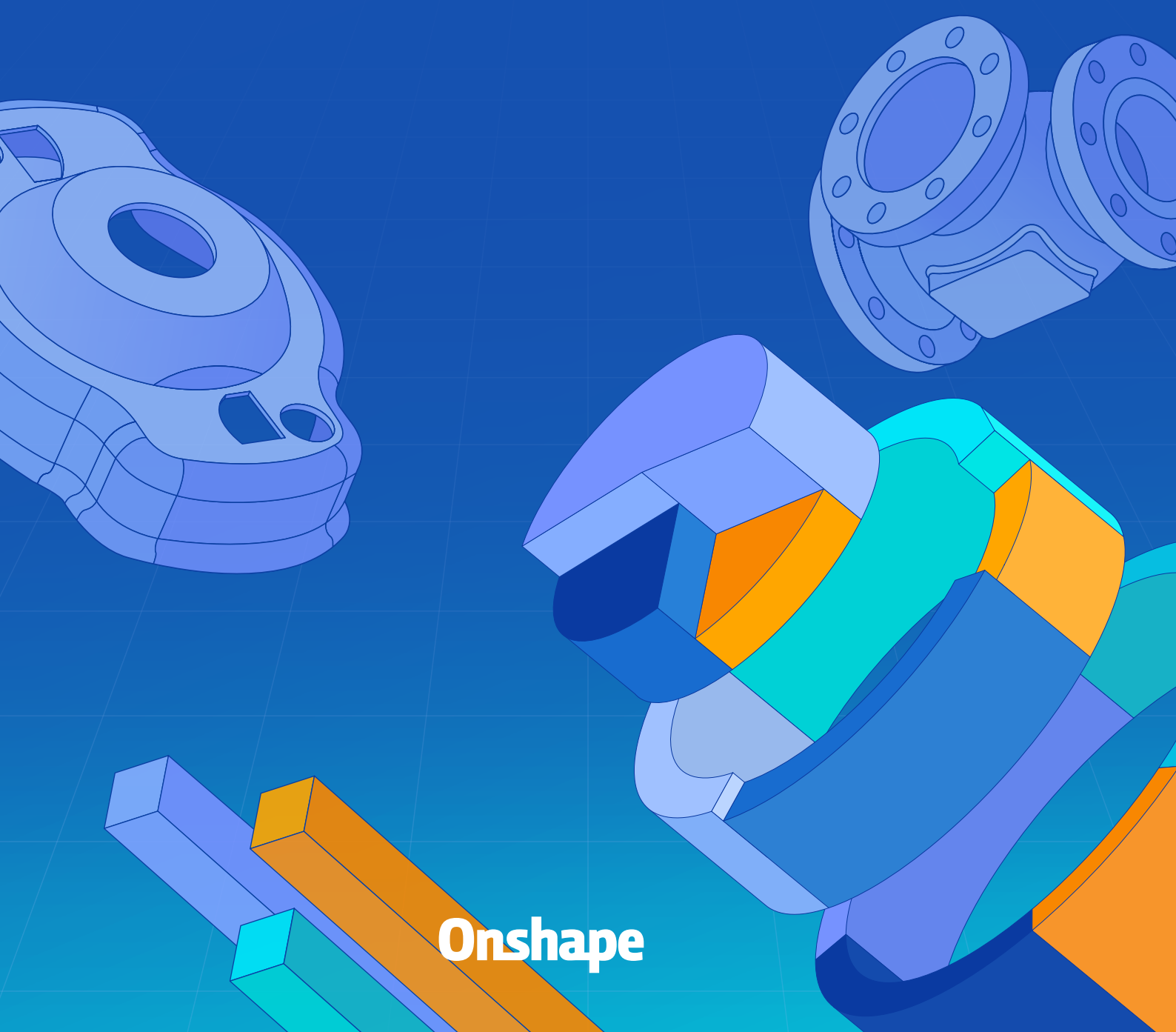


The State of Product Development & Hardware Design 2020

What are the biggest challenges facing today's design and manufacturing teams – and their most important priorities for improvement?



Onshape

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What a difference a year makes.

While the foundational skills and processes of product development haven't changed over the past 12 months, the coronavirus pandemic has added extra layers of complexity and uncertainty to every business operation.

Consumer habits have radically changed in a very short time, with fewer people wanting to purchase products in retail stores (which already were struggling before the pandemic). Product differentiation and more frequent innovations have become even more important for products to grab the attention of online shoppers. This is not just a marketing/sales challenge – designing products that people want and need should impact conversations that happen before you even fire up your CAD system.

For B2B companies, such as those specializing in machine design, for example, there are also numerous new variables in play. How do social distancing regulations and new safety precautions change how the factory floor operates? Does automation become more of a factor?

Both B2B and B2C companies need to consider what percentage of their jobs can be performed remotely – and if they are currently equipped with the technology to do so. Businesses with multiple locations, manufacturing partners, and long supply chains need to come up with not only a Plan B – but Plans C, D, E and F as the pandemic can flare up and recede in different regions with little warning.

INTRODUCTION

To better understand the challenges facing product development teams, during so-called “normal” times and under unexpected conditions, Onshape commissioned the independent third-party research firm [Isurus](#) to conduct a broad-based industry survey.

In this survey, which took the pulse of nearly 1,000 professionals at manufacturing companies across the world, we wanted to learn:

- How do executives, managers, engineers and designers rate their own productivity?
- How do product development professionals rate their companies' ability to drive innovation?
- Do executives and engineers have differing views about the capabilities and performance of their product development teams?
- How satisfied are product development professionals with the technology being deployed to do their jobs?
- What aspects of the product design process need to be improved the most?
- How prepared are companies to equip their employees to work remotely?

Let's dive into the report and explore some of the top engineering, design and manufacturing concerns facing companies today.



Survey Demographics

To better understand the current State of Product Development & Hardware Design, we analyzed the survey responses of

989 product design and manufacturing professionals

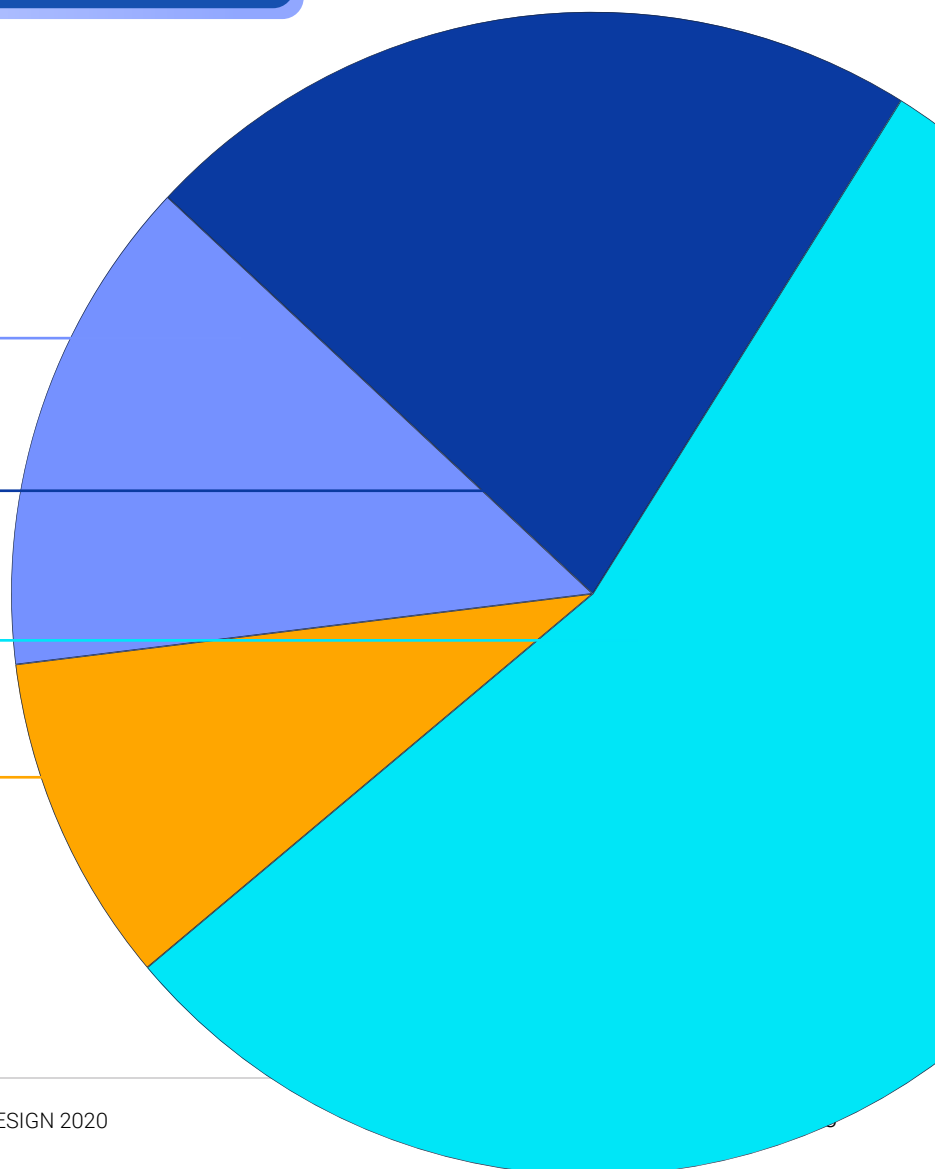
with the following **JOB ROLES:**

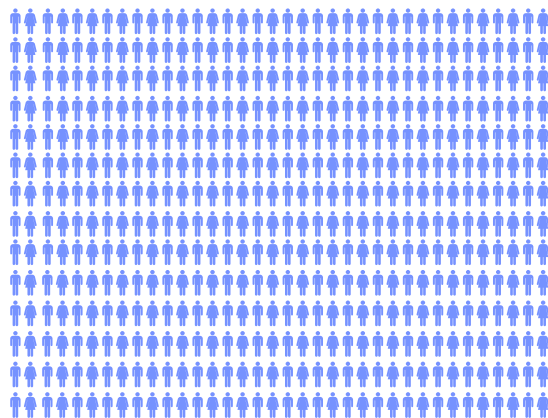
14% Director, VP or Executive

22% Engineering Manager or Team Lead

55% Designer or Engineer

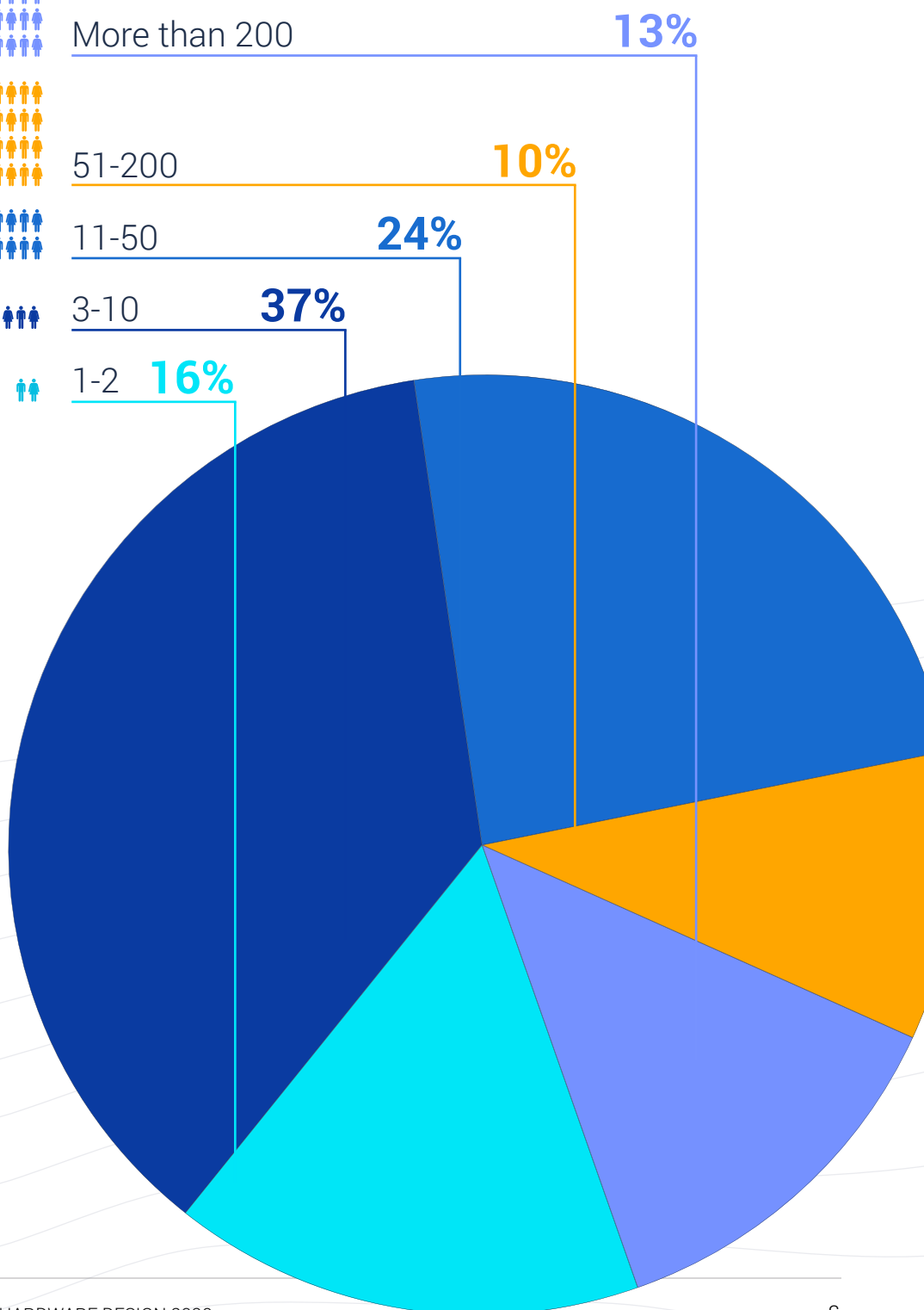
9% Other / Individual Contributors





Nearly half of survey respondents work on product development teams with more than 10 contributors.

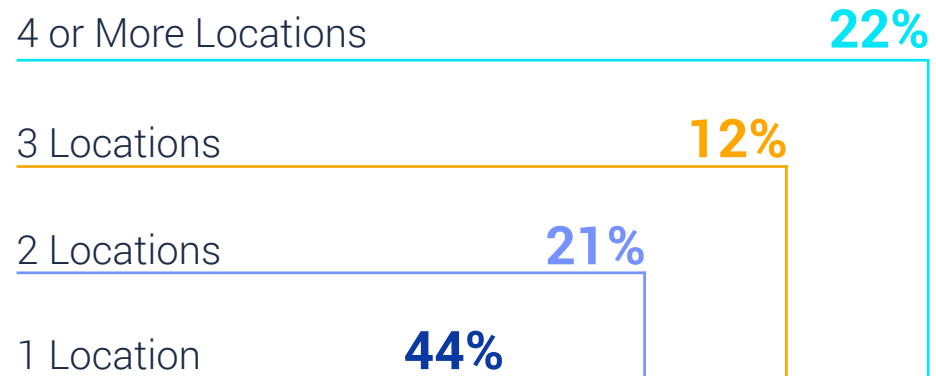
NUMBER OF PEOPLE INVOLVED IN PRODUCT DEVELOPMENT PROCESS



**SURVEY
DEMOGRAPHICS**

More than half of responding companies had distributed teams based in two or more locations.

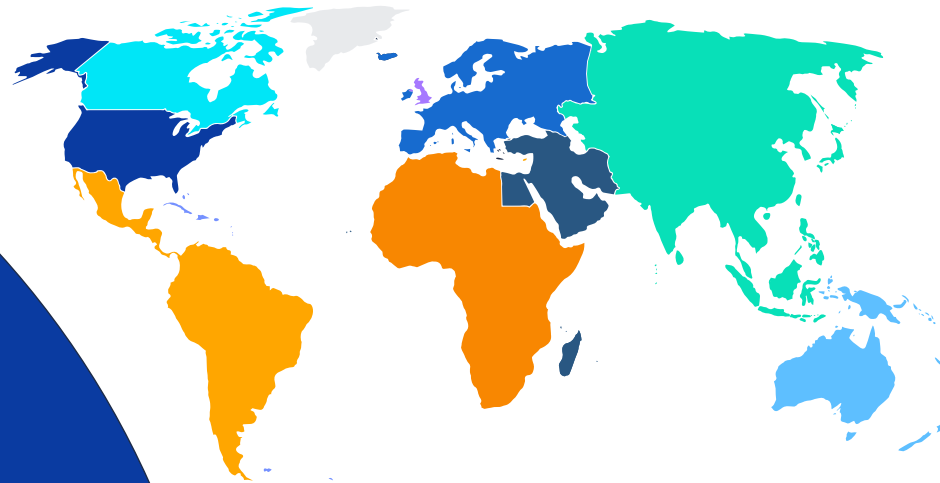
MULTI-SITE DESIGN & MANUFACTURING TEAMS: NUMBER OF LOCATIONS



SURVEY DEMOGRAPHICS

HEADQUARTERS LOCATION

More than half of respondents work at companies based in the United States, but survey responses were received from professionals on every continent except for Antarctica.



United States **55%**

Europe (not including UK) **13%**

Canada **9%**

United Kingdom **9%**

Asia **5%**

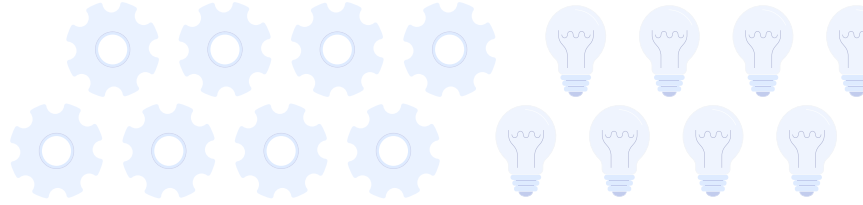
Australia + New Zealand **3%**

Middle East **2%**

Africa **2%**

Central / South America **1%**

Base: 983 respondents.

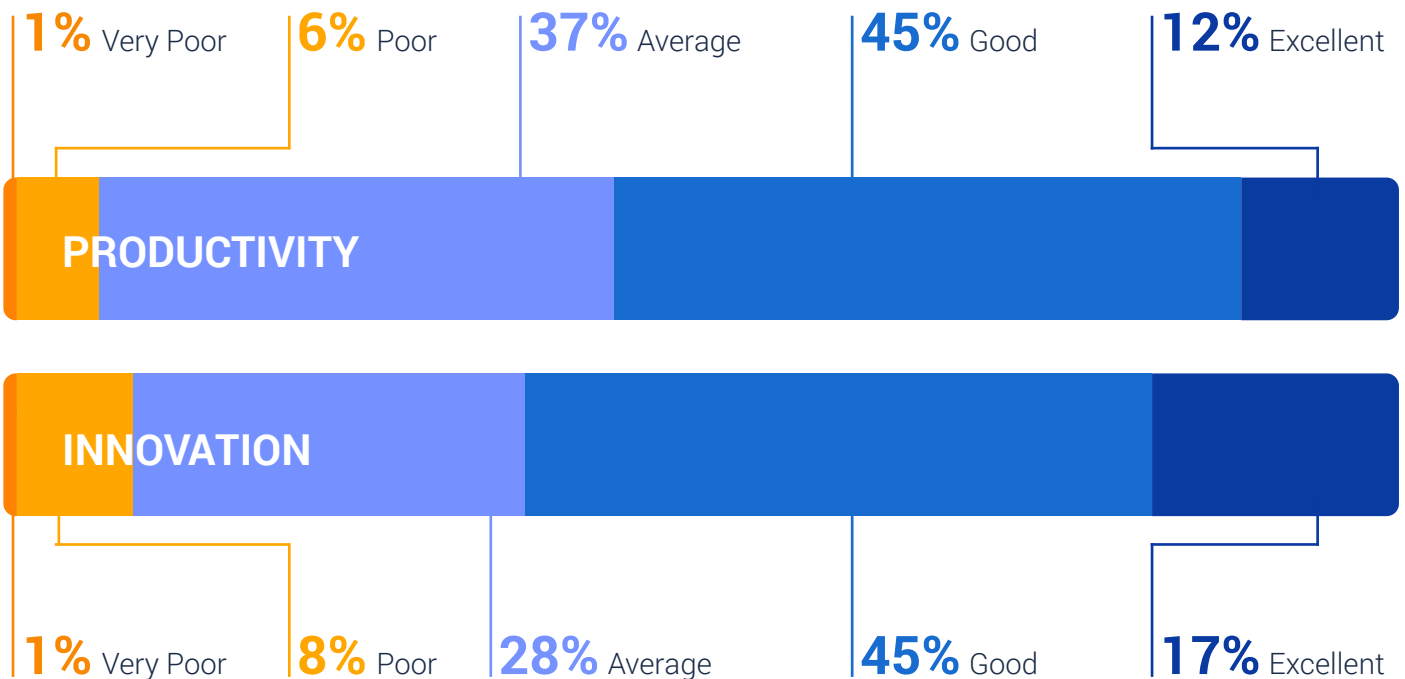


Design Team Productivity vs. Innovation

In today's digital economy, the pressure to continually increase productivity and drive innovation is well established. We asked survey participants to candidly rate their own company's performance on both criteria – on a scale from “very poor” to “excellent.”

HOW COMPANIES RATE THEIR OWN PRODUCTIVITY AND INNOVATION

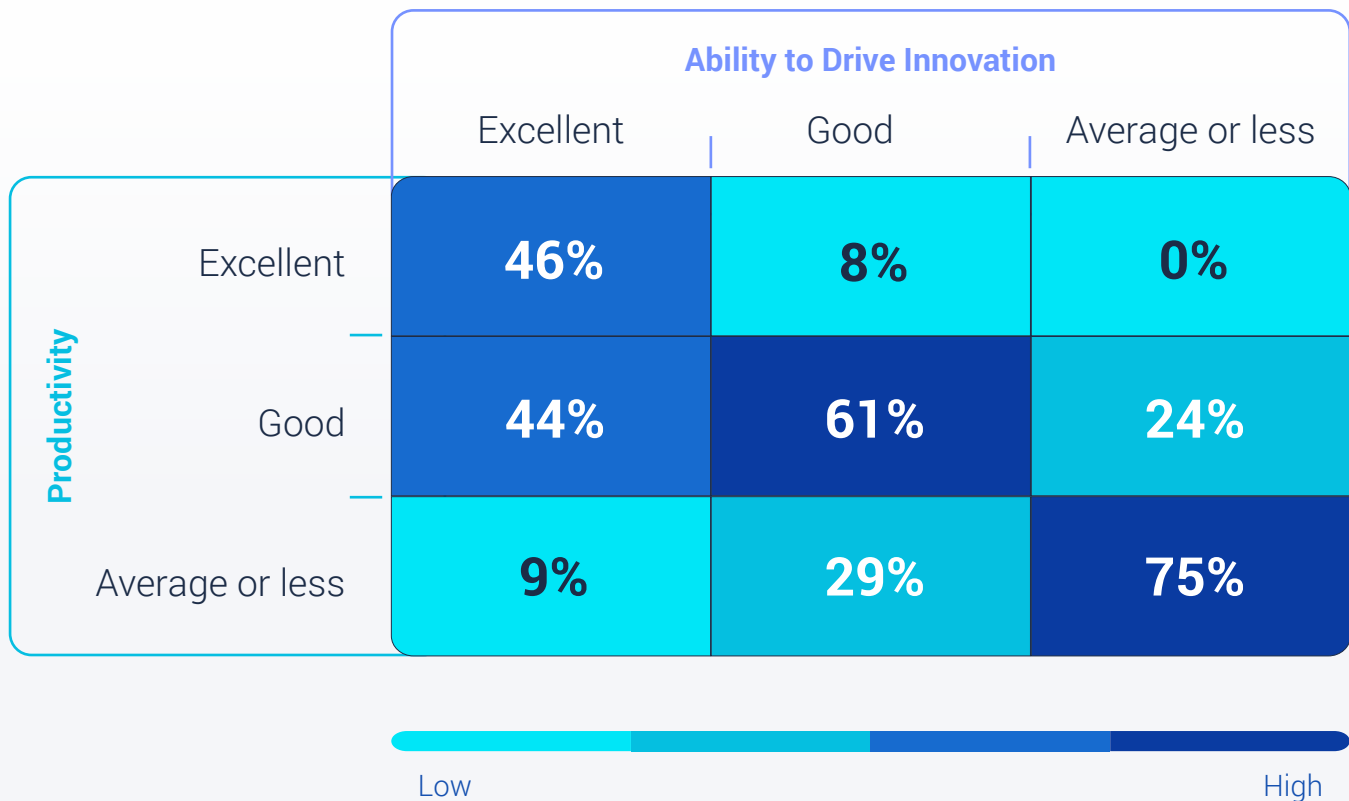
Base: 989 respondents.



As one might expect, most companies regard themselves as good or average in both categories, leaving plenty of room for improvement. This is the sweet spot for gaining insights from industry peers, as we will explore in the next section of this report.

Perhaps more compelling is the correlation between self-reported productivity and self-reported innovation:

CORRELATION: PRODUCTIVITY AND INNOVATION



Base: 989 respondents.

Companies that view themselves as productive are more likely to rate themselves highly as innovators – and vice-versa. Note that **zero percent** of people who rate their innovation as “average or less” see themselves as “excellent” at productivity.

The implications are clear: Productivity and Innovation drive each other. You can’t achieve peak productivity by continuing to do the same things you’ve done year after year.

These results likely reflect a positive feedback loop. Firms that improve in one area are motivated to improve in other areas. Conversely, firms that feel stuck in one area may likely feel too discouraged to try elsewhere.

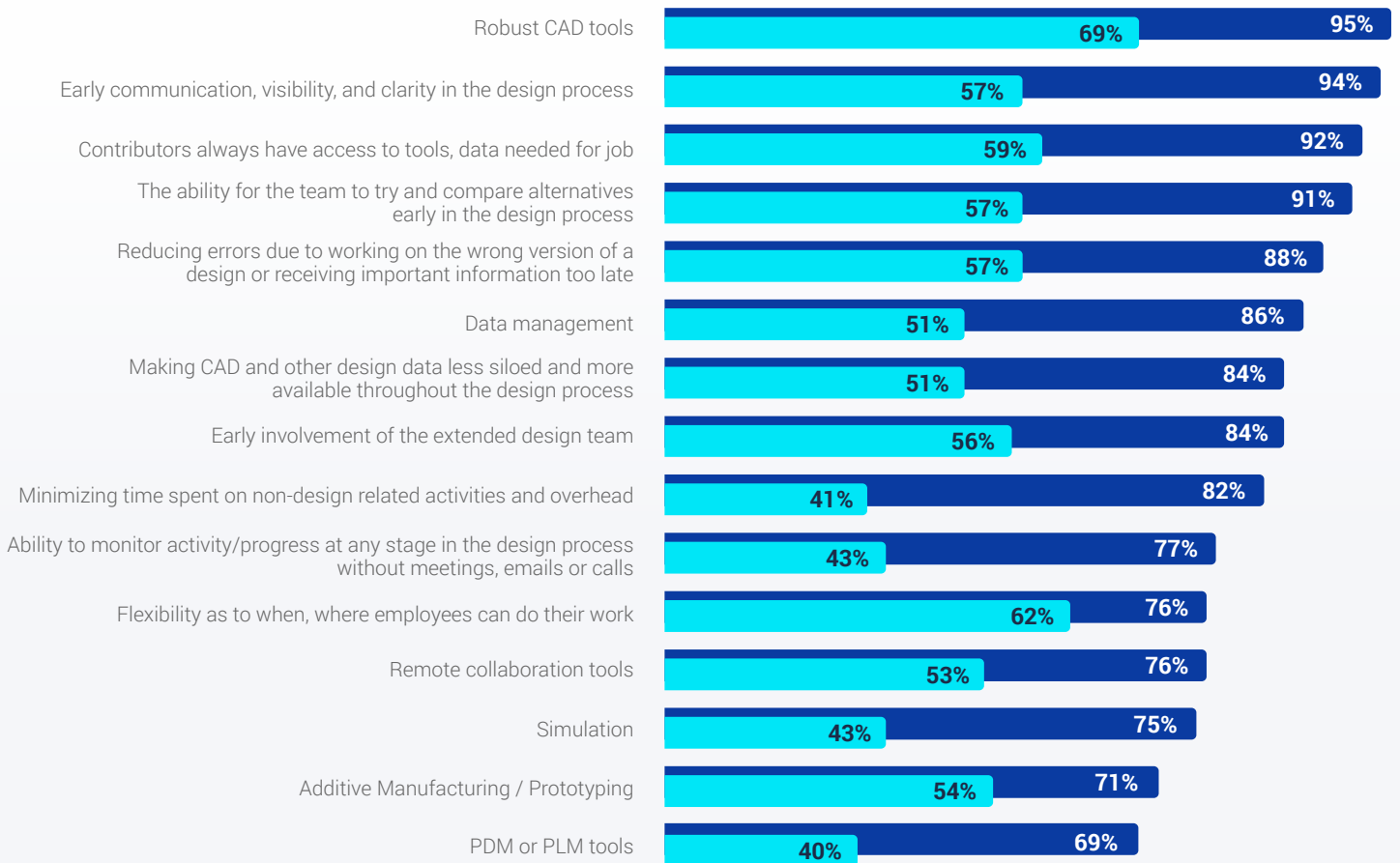
WHAT DO ENGINEERS AND EXECUTIVES WANT TO IMPROVE IN 2020?

In nearly every identified priority area, companies report that they are falling short of where they know they need to be. This pattern of dissatisfaction is consistent across product development processes and design tools/technologies.

GAP ANALYSIS: IMPORTANCE VS. CURRENT ABILITIES

Base: 800 survey respondents.

● Is this area critical for success? ● Are your current capabilities good or excellent?



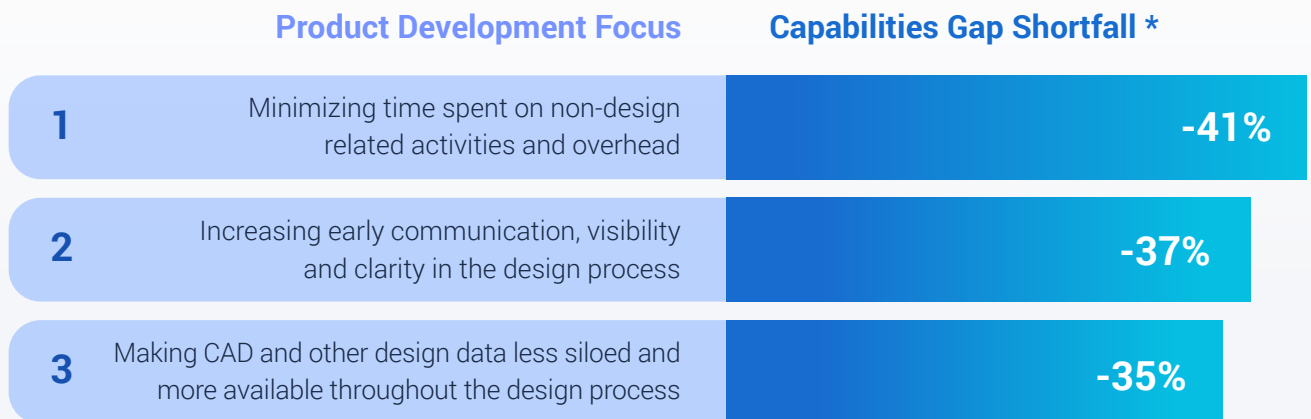
The priority areas above are organized by the respondents' overall perceived importance in the product development process. Of the top eight most important priority areas, seven are related to communication, collaboration and improving team access to tools and data.

However, a more telling story can be extracted from these statistics by comparing the lengths of the light blue and dark blue bars – the gap between a company's current abilities and the critical area's level of importance.

**WHAT DO
ENGINEERS AND
EXECUTIVES WANT
TO IMPROVE IN
2020?**

Based on the size of those gaps, let's look at companies' top priorities for improvement.

WHAT COMPANIES SAY THEY NEED TO IMPROVE THE MOST



** The Capabilities Gap is the shortfall between how companies scored the importance of various product development areas and how they rated their current abilities in those same areas.*

The three focus areas noted above are themes that kept resurfacing throughout the industry survey results, and it's not a surprise why. Engineers and designers love to create things. They want to spend 100 percent of their time engineering and designing, but as with any job, there are obstacles and distractions. Unfortunately, for engineers and designers, the distractions seem even greater.

What's getting in the way of productivity? Let's find out.

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Product Development Survey Insights



insight **1**

A Supermajority of Companies Still Have Problems Locating the Correct Version of Design Data

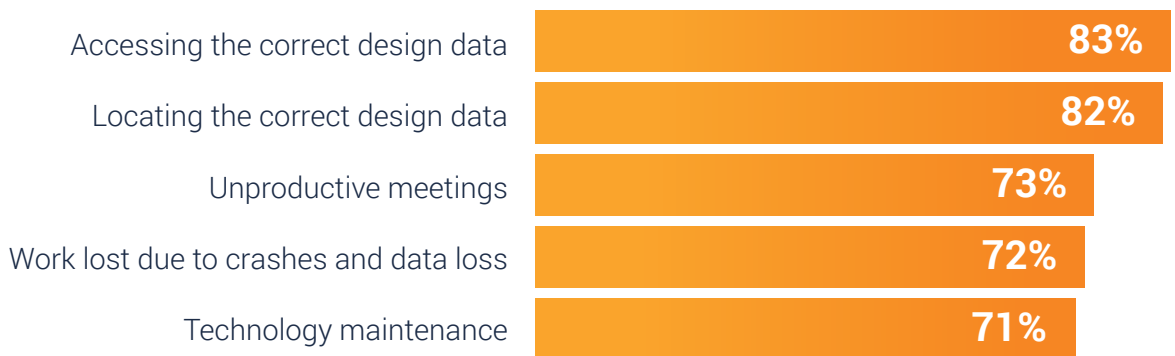
Firms that rate themselves higher on productivity, innovation and enabling employees to work from home are the most likely to rate the importance of reducing wasted time as critical. Of course, there is no shortage of ways to waste time.

We asked survey participants to rate which productivity-killers were the most problematic at their company on a scale ranging from “not important at all” and “somewhat unimportant” to “somewhat important” and “very important.”

REDUCING WASTED TIME

Q: How important is it to reduce time related to each of the following activities?

Percentage who said “somewhat important” or “very important”



Base: 980 respondents.

These results are stunning. More than 4 out of 5 product development professionals report having trouble finding the correct product design or accessing it. Working on the wrong version of a design can lead to costly manufacturing errors, frustrating rework, wasted materials and possible liability issues. But it’s also stolen time that could have been devoted to the next project. Not being able to locate the design in the first place is equally frustrating and unproductive.

INSIGHT #1

A Supermajority of Companies Still Have Problems Locating the Correct Version of Design Data

The fact that these data management problems beat out unproductive meetings – everyone’s favorite punching bag – is a notable feat. The engineering field, which places a high value on accuracy and precision, is still struggling with version control and making it easy for multiple contributors in a project to get to the right data.

Rounding out the list of top time-wasters are CAD crashes and data loss (nothing is more aggravating than watching your work instantly vanish), and software and hardware maintenance.

Ultimately, every minute spent on rebooting your system or dealing with administrative and IT tasks is a minute not spent on developing innovative products. It’s unproductive and demotivating.

insight **2**

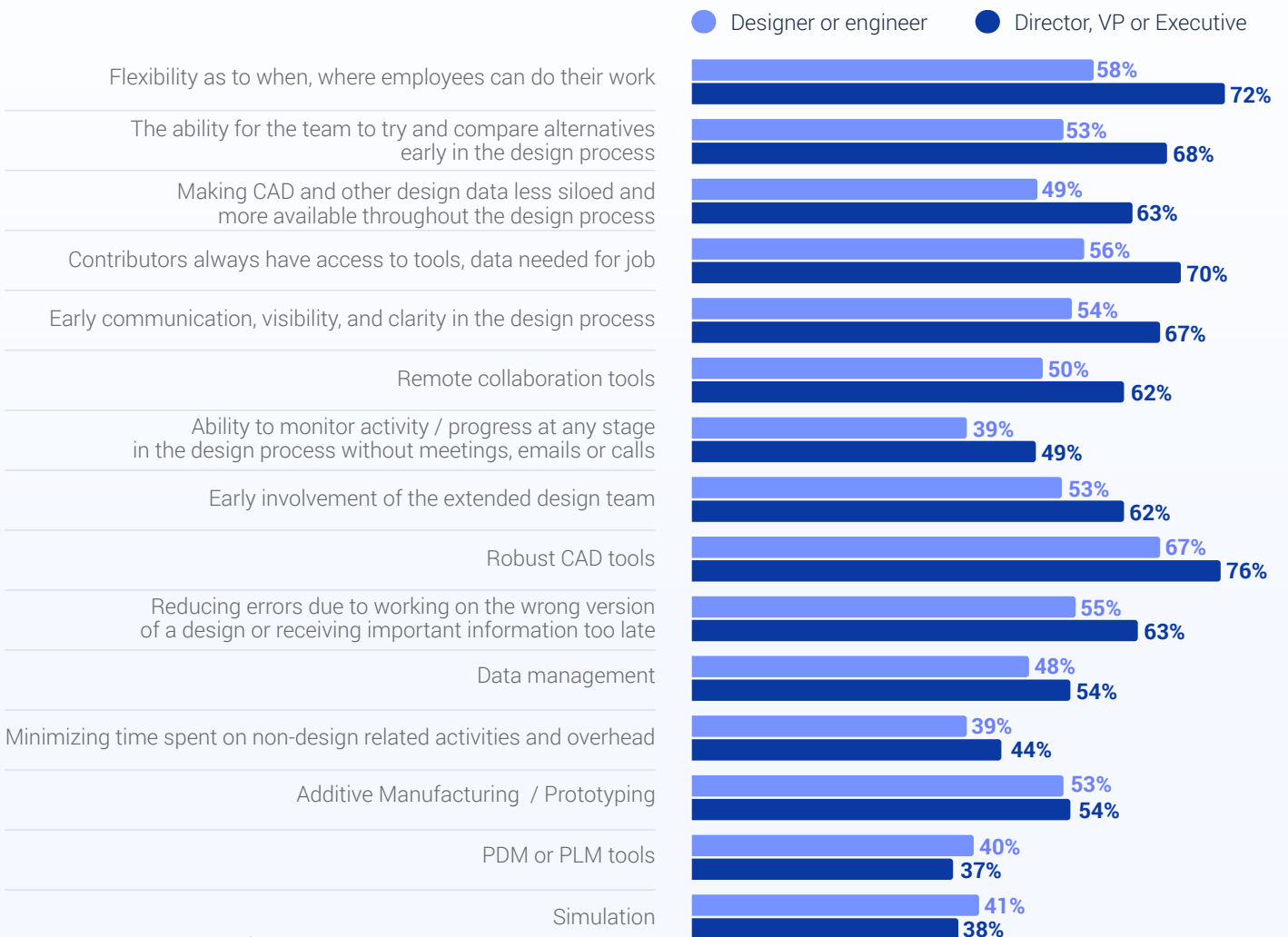
There is a Disconnect Between Executives and Individual Contributors About Their Biggest Problems in Product Design

The view from the top always looks different from the view from the trenches. After asking design professionals to assess their companies' abilities across 15 product development categories, we sorted their answers by job role.

How did executives and designers/engineers judge their teams' strengths and weaknesses differently?

The bar graphs below measure the percentage of respondents who rated their company "good" or "excellent" in each category:

CURRENT CAPABILITY RATINGS BY PRODUCT DEVELOPMENT ROLE



Base: 920 survey respondents.

INSIGHT #2

There is a Disconnect Between Executives and Individual Contributors About Their Biggest Problems in Product Design

These results might reasonably be interpreted in one of two ways:

1. Designers and engineers are more critical of their company's current capabilities.
2. Executives have an inflated view of their company's current capabilities.

But regardless of how you look at it, these results should sound some alarm bells for executives.

Specifically, the gulf between executive perceptions of their firm's technological capabilities and the candid assessments of their rank-and-file engineers could lead to systemic business challenges – including unrealistic expectations for delivering on critical project deadlines and customer demands.

So where are the biggest gaps?

According to the survey, executives may be wearing rose-colored glasses when it comes to the following business-critical areas:

The Perception Gap: Executives vs. Engineers

a Flexible Work Environment

Does your company offer a flexible work environment allowing employees to sometimes work from different locations and shift their hours?



b The Right Technology for the Job

Do individual contributors always have access to the tools and data needed for the job?



INSIGHT #2

*There is a Disconnect
Between Executives and
Individual Contributors
About Their Biggest
Problems in Product
Design*

c Earlier Comparison of Alternative Ideas

Is your team able to compare alternative ideas early in the design process?



d Early Communication in the Design Process

Is there enough communication, clarity and visibility early in your design process?



e Early Involvement of the Extended Design Team

Is there early involvement of the extended design team?



f Remote Collaboration Tools

How available are tools for remote collaboration?



INSIGHT #2

There is a Disconnect Between Executives and Individual Contributors About Their Biggest Problems in Product Design

These results should cause concern for product development leaders.

Significant gaps in perception about company culture, access to new technologies, and the quality of collaboration – think early, early, early – should be on the radar of every executive. Though every company is different, it’s prudent for leaders to explore if they have similar differences in outlook with their own workforce.

Because junior-ranked and younger employees are often reluctant to rock the boat, is management making decisions based on what’s really happening on the ground? With the biggest disconnect being the definition of a “flexible work environment,” is your company doing its best to be an attractive employer to younger recruits?

Millennials and Gen Z workers are [motivated by different criteria](#), and companies that do not account for those motivations are going to find themselves with less productive workforces in the short term – not to mention having trouble recruiting top young talent in the first place.

Equally interesting is examining the areas where executive and rank-and-file perceptions are roughly the same.

Both don’t think their companies are doing a great job minimizing time spent on non-design related activities



an observation we explored with Insight #1

And both don’t have high opinions about their PDM or PLM tools



This is the only category in which executives were more critical than the individual contributors. We’ll later explore some of that discontent with Insight #4.

insight **3**

Cloud-Based Productivity Tools Improve Early-Stage Communication and Collaboration

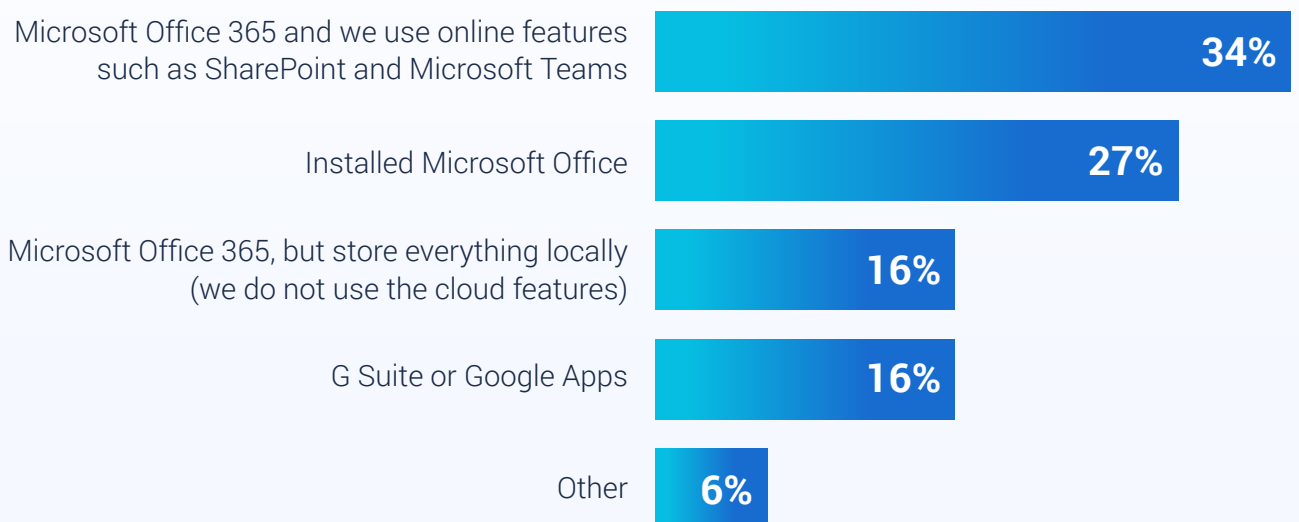
As reported in the Gap Analysis chart (page 12), 94% of design professionals regard early communication, visibility and clarity in the design process as “critical” or “very important” for successful product development. Similarly, 91% place the same high value on the ability for the team to try and compare alternative ideas early in the design process.

That makes sense because the more iterations that a product development team goes through, the more likely they will have made significant design improvements or discovered new solutions.

Cloud-based productivity tools make it easier to share files and collaborate with multiple colleagues and partners in real time. The most popular tools being used by survey respondents are Microsoft Office 365 and Google Suite.

OFFICE PRODUCTIVITY TOOLS USED MOST

Single response



Base: 986 respondents.

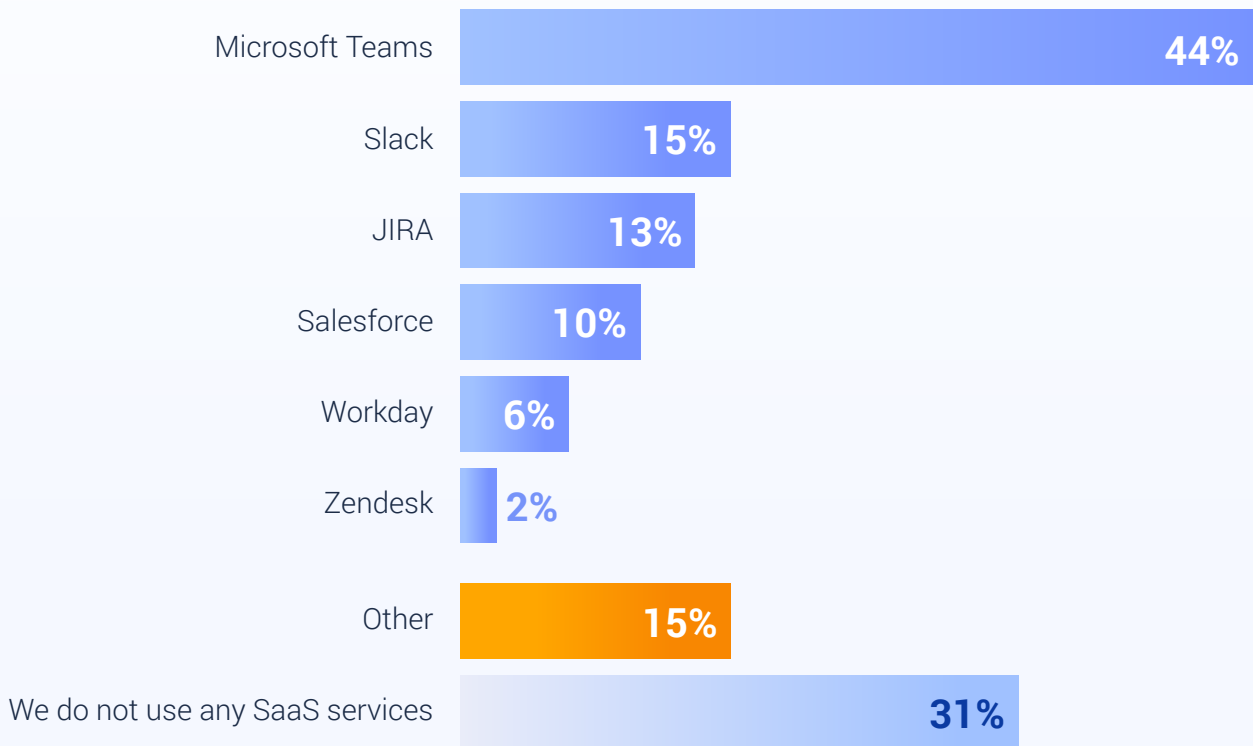
INSIGHT #3

Cloud-Based
Productivity Tools
Improve Early-Stage
Communication
and Collaboration

With both Microsoft Office 365 and Google Suite, multiple contributors are able to more easily work together on the same documents, spreadsheets or presentations online. Instead of emailing static files back and forth and naming them “V1, V2, V3, etc.,” collaborators can create, edit, revise or provide feedback in one central place in the cloud – and go back to any stage of the document’s history to track changes (or even restore an earlier version that they like better).

Over two thirds (69%) of organizations participating in the survey say they are using at least one Software-as-a-Service (SaaS) cloud productivity tool. Purchased by subscription, true SaaS is web-based on-demand software that requires no maintenance, downloads, or installations. When they log in, every user is automatically on the same version of software.

USE OF SAAS TOOLS



Base: 907 respondents.

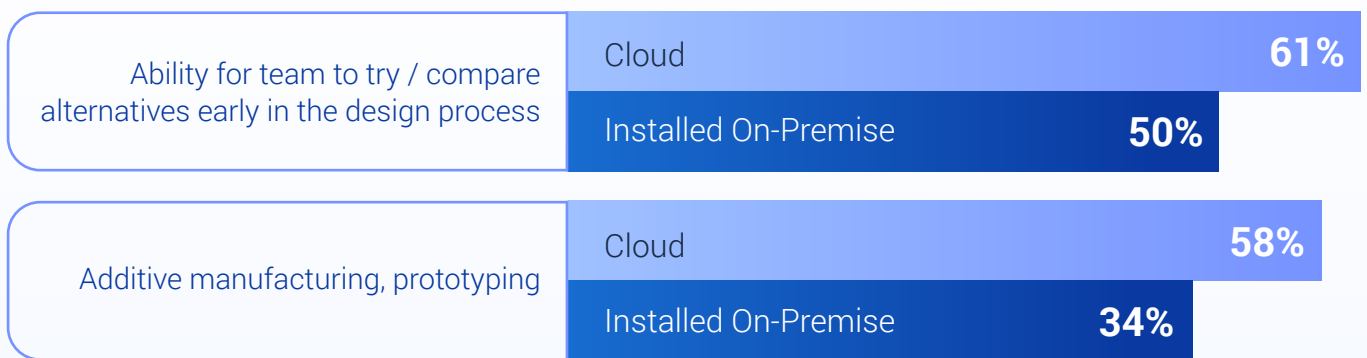
INSIGHT #3

Cloud-Based
Productivity Tools
Improve Early-Stage
Communication
and Collaboration

Teams that use cloud-based productivity tools report better early-stage collaboration and better capabilities for additive manufacturing/prototyping.

BETTER CAPABILITIES AMONG TEAMS USING CLOUD-BASED PRODUCTIVITY TOOLS

Percent who rate ability as *Good* or *Excellent*



Base: Use Cloud productivity tools, 404 respondents
Use installed office productivity tools, 340 respondents.

- Use cloud / online productivity tool
- Use installed / local tools

Because cloud tools enable data to be instantly updated and shared, there is no latency. Teams no longer need to wait for edits to be made on individual computers and for those versions to be synchronized. Instead, all comments are visible and accessible to team members simultaneously. This improved level of communication and access fosters significantly higher levels of collaboration, productive iteration, and ultimately, product innovation.

When using cloud tools, there is no longer any confusion over which version is which in a design's history. When teams are not busy trying to find or access the latest data, they have more time to test prototypes and develop more incremental improvements.

insight **4**

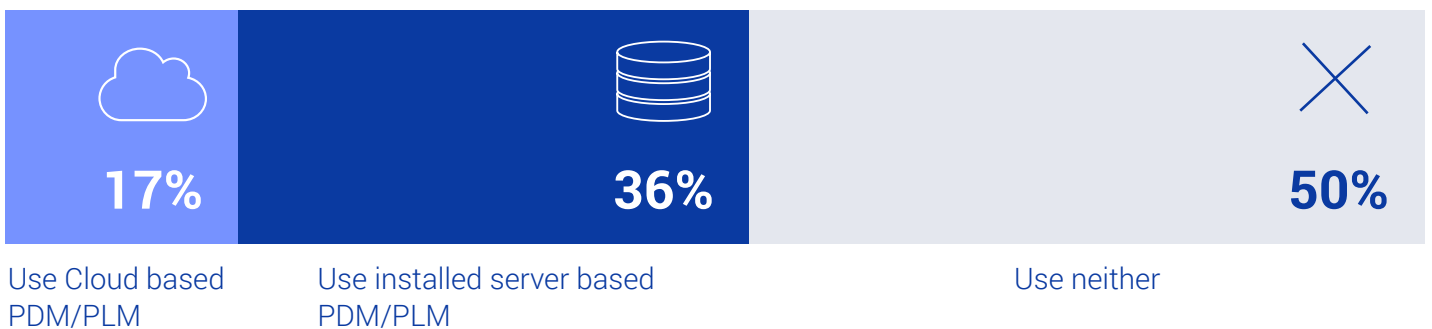
Most Users Agree That PDM/PLM Systems Help Avoid Costly Mistakes, But Feel “There Has to Be a Better Way.”

Many firms using installed server-based CAD systems report that they are bogged down by the time-consuming nature of managing years of legacy designs and new projects. Their add-on [Product Data Management/](#) Product Lifecycle Management (PDM/PLM) systems require cumbersome processes of “checking in” and “checking out” files, inherently restricting access and creating a slow, “serial” or “waterfall” editing process for collaborators.

In a time of Agile Product Development and instant communication, the challenges of this old form of data management are myriad. Here’s what companies had to say about their situations right now.

In this survey, 50% of companies use an add-on PDM/PLM system for data management.

PRODUCT DEVELOPMENT TEAM USAGE OF PDM/PLM SYSTEMS (2020)



Twice as many PDM/PLM users are now using installed file-based systems compared to those using cloud-based data management. *(Respondents were allowed to answer in both categories.)*

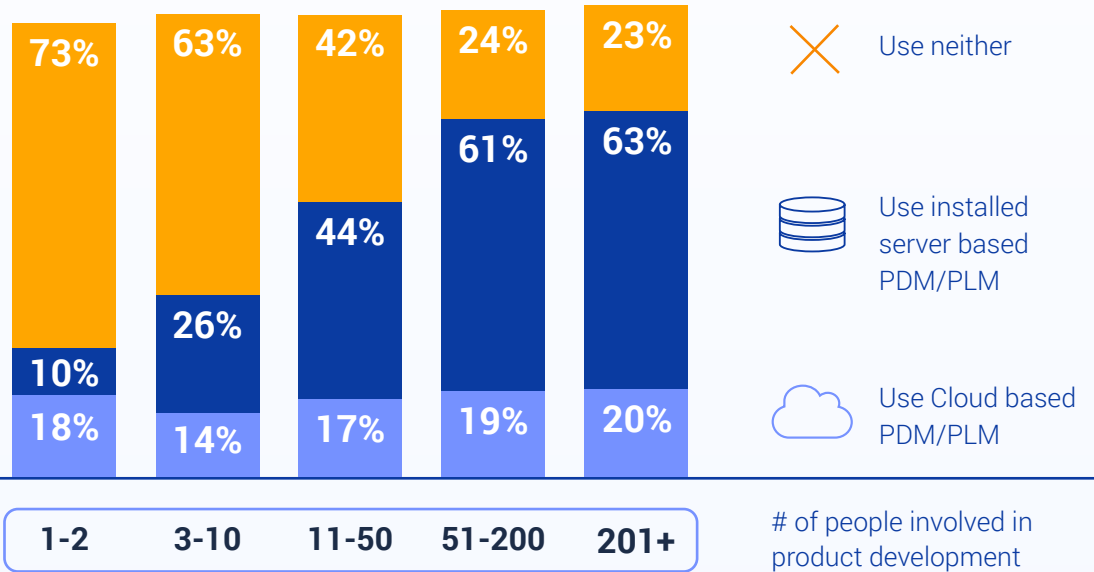
INSIGHT #4

Most Users Agree That PDM/PLM Systems Help Avoid Costly Mistakes, But Feel "There Has to Be a Better Way."

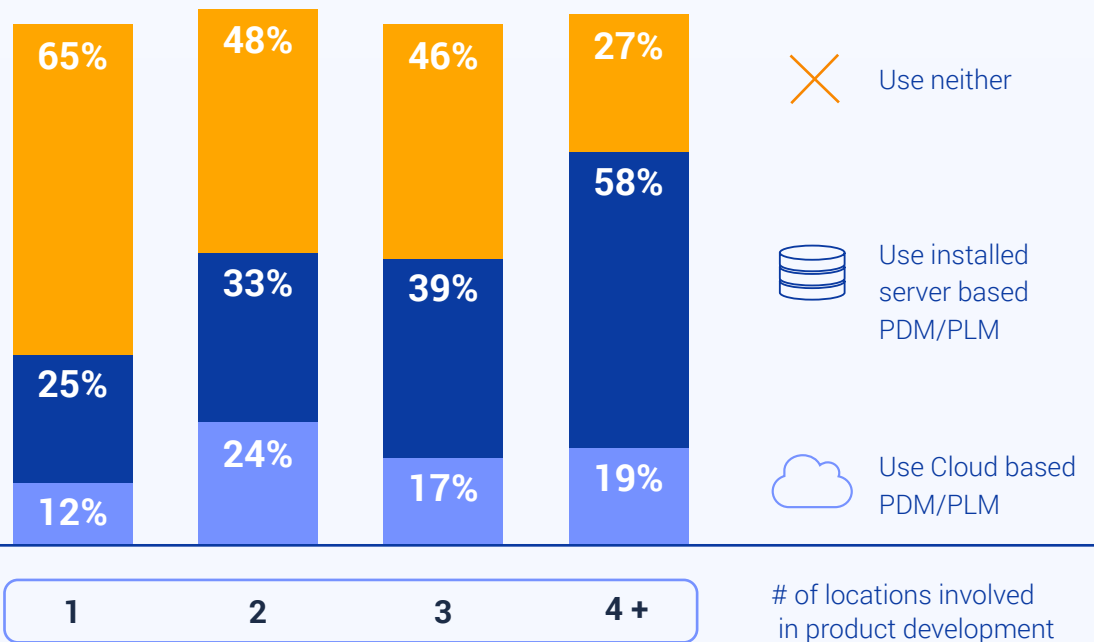
PDM/PLM usage is more prevalent with larger product development teams with more complex data management needs and with companies with multiple locations.

PDM/PLM USAGE

BY PRODUCT DEVELOPMENT TEAM SIZE



BY PRODUCT DEVELOPMENT LOCATIONS



INSIGHT #4

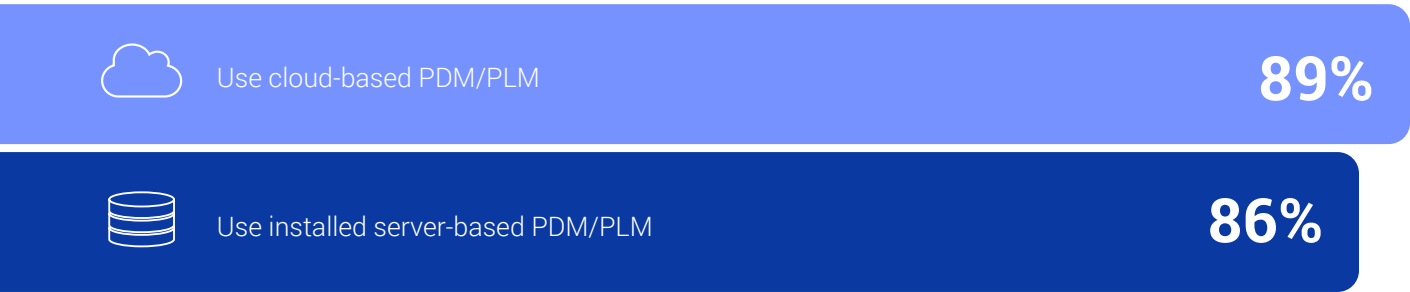
Most Users Agree That PDM/PLM Systems Help Avoid Costly Mistakes, But Feel "There Has to Be a Better Way."

An overwhelming majority of PDM/PLM users, both cloud and installed, agree that their systems do minimize the risk of working on the wrong version of a design.

BENEFITS OF PDM/PLM: CLOUD VS. INSTALLED SYSTEMS

Percent who *Agree* or *Strongly Agree*

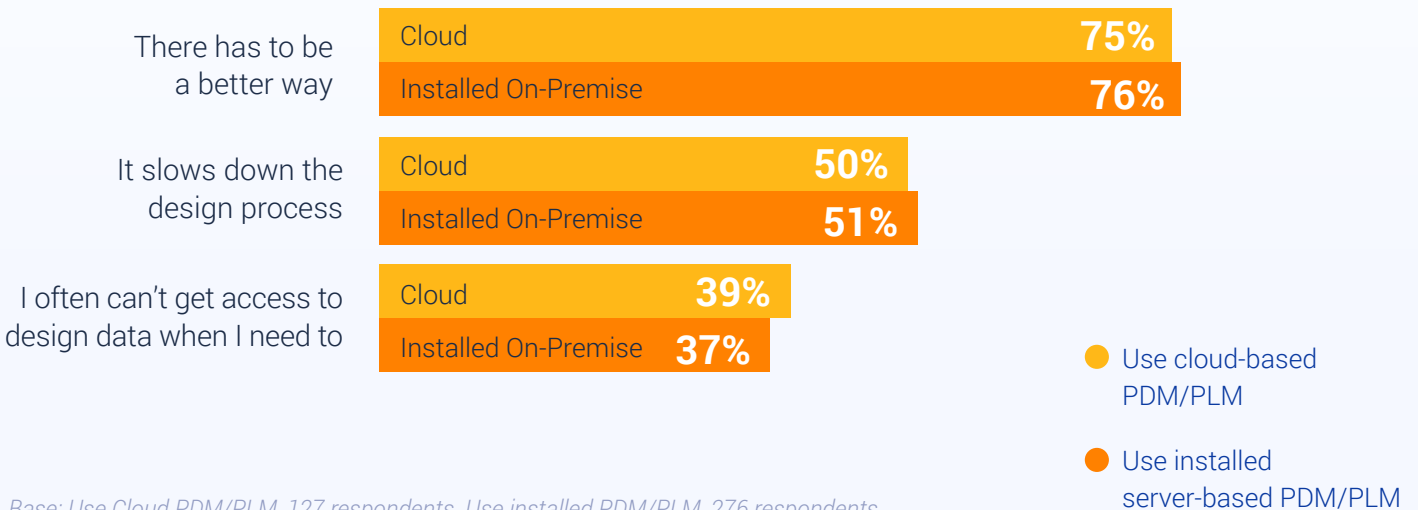
It helps avoid costly mistakes



Although PDM/PLM is solving the version control problem, a significant number of users believe that their current data management systems also come with substantial drawbacks.

CRITICISM OF PDM/PLM: CLOUD VS. INSTALLED SYSTEMS

Percent who *Agree* or *Strongly Agree*



Base: Use Cloud PDM/PLM, 127 respondents. Use installed PDM/PLM, 276 respondents.

INSIGHT #4

Most Users Agree That PDM/PLM Systems Help Avoid Costly Mistakes, But Feel “There Has to Be a Better Way.”

1 of 2

PDM/PLM users say the systems slow down their overall design process.

That’s the inevitable byproduct of the vault system that requires users to check files in and out – and allows only one user at a time to open and edit a design file. Because one design file often references many others (think of a big assembly), this can mean locking up many files at once. This leads to a serial workflow in which most engineers need to wait for co-workers to finish their work before they can continue with their own. Following these protocols is a safeguard against mistakenly working on the wrong version, but it also creates needless downtime.

2 of 5

PDM/PLM users say they often can’t get access to design data when they need it.

On first glance, this statistic seems incongruent with our earlier finding that nearly 90% of users think PDM/PLM is doing a great job with helping teams avoid costly mistakes. But the current trade-off for preventing those errors is a price too high for many.

INSIGHT #4

Most Users Agree That PDM/PLM Systems Help Avoid Costly Mistakes, But Feel “There Has to Be a Better Way.”

PDM/PLM is solving a problem that shouldn't exist in the first place. When data is file-based and there are many copies of the same files that can't be edited in parallel, errors are inevitable. To address that, PDM/PLM lets only one person check out and edit a file, forcing everyone else to wait around. It solves the data management problem by slowing everybody down, reducing access, and blocking meaningful teamwork.

So as effective as add-on PDM/PLM software is at its promised function, it comes as no surprise that

3 of 4



**PDM/PLM users say
“There has to be a better way.”**

Having 75% of users wish there were tools that provide a better way to manage and access their design data is not a ringing endorsement of their current systems.

Product developers overwhelmingly want a data management system that helps avoid version control errors, but that doesn't slow them down as a result.

insight **5**

Cloud Productivity Tools Give Companies More Confidence in Their Ability to Support Remote Work

It goes without saying that in the first half of 2020, most of us around the world have witnessed the workplace being turned upside down. The timing and longevity has varied by country and region, but essentially the pandemic has turned virtually every white-collar worker into a remote worker, and forced many hands-on manufacturing and frontline maintenance jobs to re-examine and change their processes.

Within a product development team, not every job can be accomplished remotely. But many can keep forging ahead with the right technology.

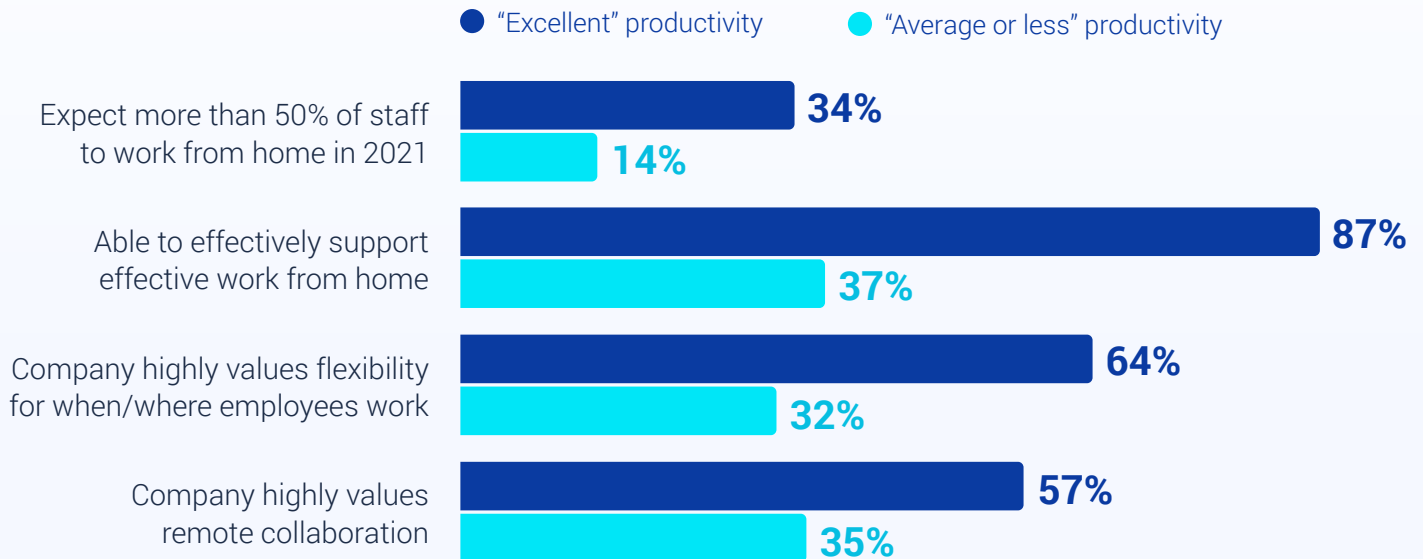
Think about how quickly the words “Zoom” and “Teams” have become infused into the everyday vocabulary. Videoconference meetings are now the norm at work for many of us. In December 2019, Zoom reported having 10 million daily meeting participants. In April 2020, that number ballooned to [300 million](#). According to [The Verge](#), rivals Microsoft Teams and Google Meet had 75 million and over 100 million daily meeting participants respectively during the same period. *(Note that the meteoric rise in workplace video calls has also led to more interest in [cosmetic surgery](#), but the issue of vanity is not covered in this survey.)*

After being caught off guard in 2020, how prepared are companies to support a remote workforce? Across the board, product development professionals who rate their companies as having “excellent” productivity (see page 09) are far more optimistic about being able to have their team transition to home offices when desired or needed.

INSIGHT #5

Cloud Productivity Tools
Give Companies More
Confidence in Their Ability
to Support Remote Work

COMPARISON OF HIGH AND LOW PRODUCTIVITY COMPANIES ON WORK-FROM-HOME EXPECTATIONS AND CAPABILITIES



Base: Average, poor or very poor productivity, 431. Excellent productivity, 114 respondents

Based on our survey, high-productivity companies are...

2X + more likely to expect more than 50% of their staff to work-from-home at some point in 2021.

2X + more likely to say they can support effective work from home.

2X more likely to highly value giving employees flexibility for when and where they work.

63% more likely to highly value the use of remote collaboration tools.

INSIGHT #5

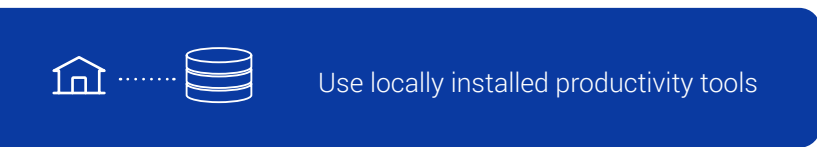
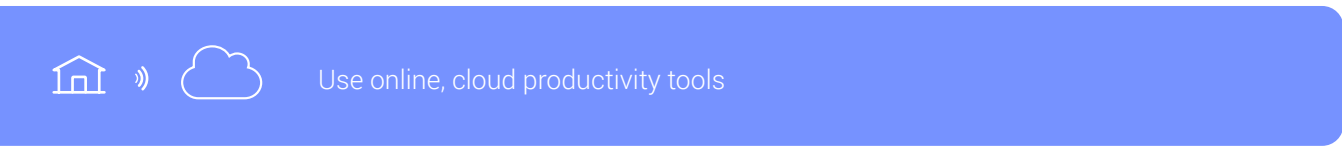
Cloud Productivity Tools Give Companies More Confidence in Their Ability to Support Remote Work

The expectation from highly productive companies that up to half their staff could sometimes work from home next year is not necessarily related to COVID-19, but could also reflect that many companies have recently experienced largely positive results from the new work-from-home (WFH) arrangement and as a result, [are more likely to consider flexible work arrangements in the future.](#)

As for making sure their employees are fully equipped to work at home, companies which already use cloud productivity software (as measured in **Insight # 3**) are significantly more likely to feel like they are prepared for any scenario.

USE OF CLOUD PRODUCTIVITY TOOLS AND READINESS TO SUPPORT WORK FROM HOME

Percentage who rate their ability to support remote workers as "Good" or "Excellent"



8 of 10 companies

that use cloud productivity tools are confident they are ready to support their teams regardless of where they are working from.



Again, this result seems largely intuitive. Going back to the centrality of Zoom and Microsoft Teams meetings in our recent work lives, think about what communication and collaboration would be like without the internet. (Some older readers don't have to imagine too hard!)



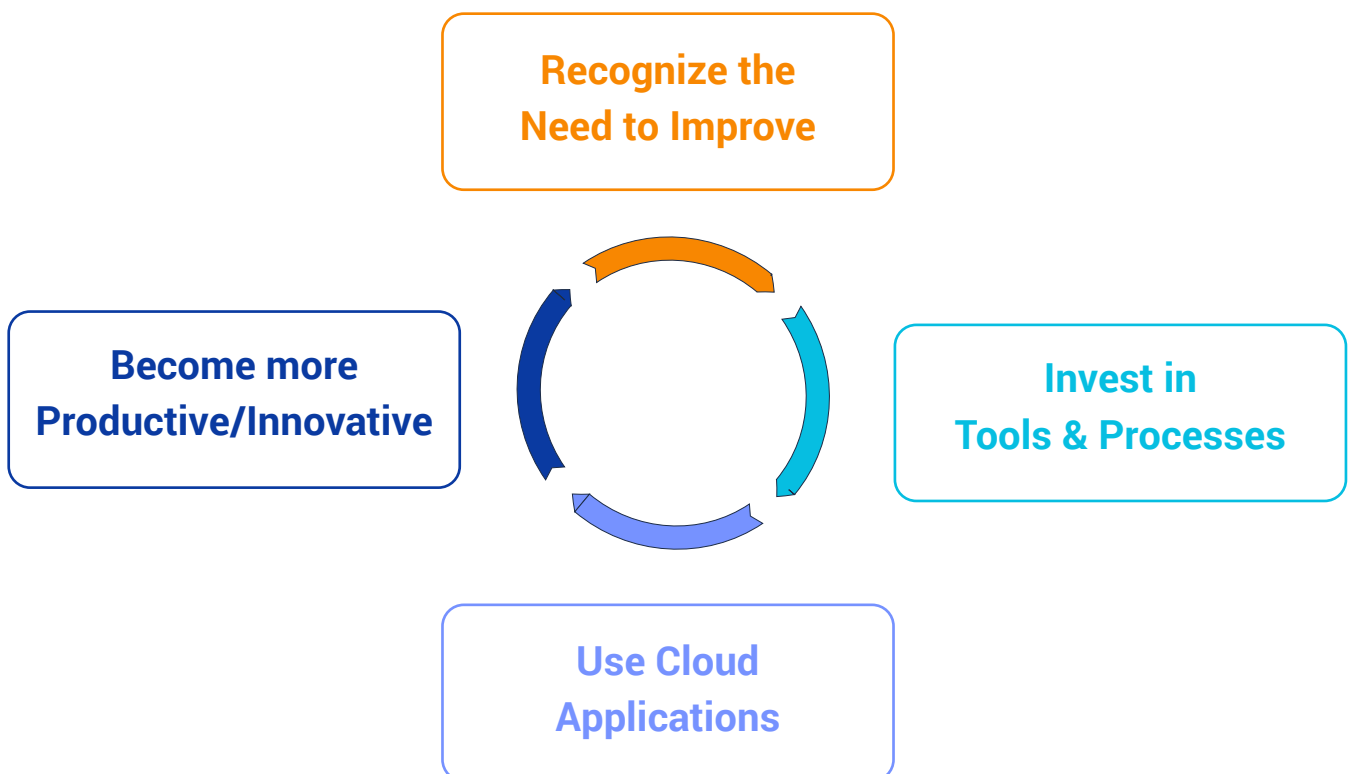
INSIGHT #5

Cloud Productivity Tools
Give Companies More
Confidence in Their Ability
to Support Remote Work

Collaboration has existed before the early 1990s, when the World Wide Web first made the internet useful for business purposes. But the design and manufacturing world is far more complicated now than it was decades ago. It is becoming far less common for products to be designed and manufactured under the same roof, where questions to colleagues can be answered after a quick walk down the hall. Pandemic aside, many product development teams today are dispersed between multiple locations around the country or around the world.

Being able to quickly add the best talent to a project, regardless of geography, has become an invaluable ingredient for building successful teams. And having the online tools in place to make remote collaboration seamless is a no-brainer.

In the end, investments in better tools, processes and cloud applications leads to a positive feedback loop. The most productive companies recognize a constant need to improve – and to invest in the technology to facilitate those improvements. As these companies become even more productive and innovative, their thirst for finding additional improvements gets even stronger.



Accuracy is Not Optional in Product Development

Some Early New Year's Resolutions for 2021

What do Product Developers Want to Fix Right Now?

"Our CAD software is outdated, and our PDM system is not used correctly (everybody has full access to change anything)."

"We have a wide range of disconnected tools used to manage a product and its development. This results in errors and wasted time."

"Our current MRP system is very slow and makes locating and incorporating existing parts/hardware frustrating."

"We need to better connect the data that exists in so many different places other than CAD."

"There's a lot of risk avoidance when making improvements. We don't see the rewards (of innovation) because of a CYA mentality."

"We need either more people or fewer projects."

"We have to wait until the end to approve small parts of a design project due to the hierarchy of the process."

"We have to reduce resistance to iteration, learn more from each iteration, and reduce the iteration period."

"We'd like better integration with external suppliers whose designs must integrate seamlessly with our own designs and ensure that data received from and sent to suppliers remains up-to-date."

"We develop medical devices and need better communication with the doctors we work with."

"Time-to-market is the most crucial thing for the industry."

**ACCURACY IS
NOT OPTIONAL
IN PRODUCT
DEVELOPMENT**

As product development leaders look ahead to the future, which skills and capabilities do they view as most urgent for improving right now?

Sometimes it's helpful to step away from the metrics and just have a conversation. The frustrating quotes on the previous page were responses to our open-ended question that created the Word Cloud on page 11: "In your own words, what aspects of your company's product development process most need improvement?"

If we "eavesdrop" on this discussion, it's clear that **design teams just want the freedom to work together uninterrupted.**

Immediate access to the right data at the right time seems intuitive to many, but surprisingly it is a need that has yet to be addressed by legacy, desktop-installed CAD solutions.

Engineers want to work together without the aggravation of searching for the latest version of a design or having to wait forever to access it. They just want to work together without worrying about computer crashes or corrupted files, and without pausing for hours or days so their IT department can install software upgrades. Lastly, they want to be able to immediately work with anyone they choose, anytime and anywhere.



The fact that

8 of 10 engineers and designers

have trouble finding the correct version of their product designs – and also have problems accessing their data – is inexcusable.

**ACCURACY IS
NOT OPTIONAL
IN PRODUCT
DEVELOPMENT**

Think about how vital accuracy is in other professions.



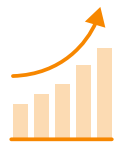
80% of doctors
would not tolerate

having trouble finding their patients' updated medical records.



80% of accountants
would not tolerate

having trouble finding the latest payroll information.



80% of sales professionals
would not tolerate

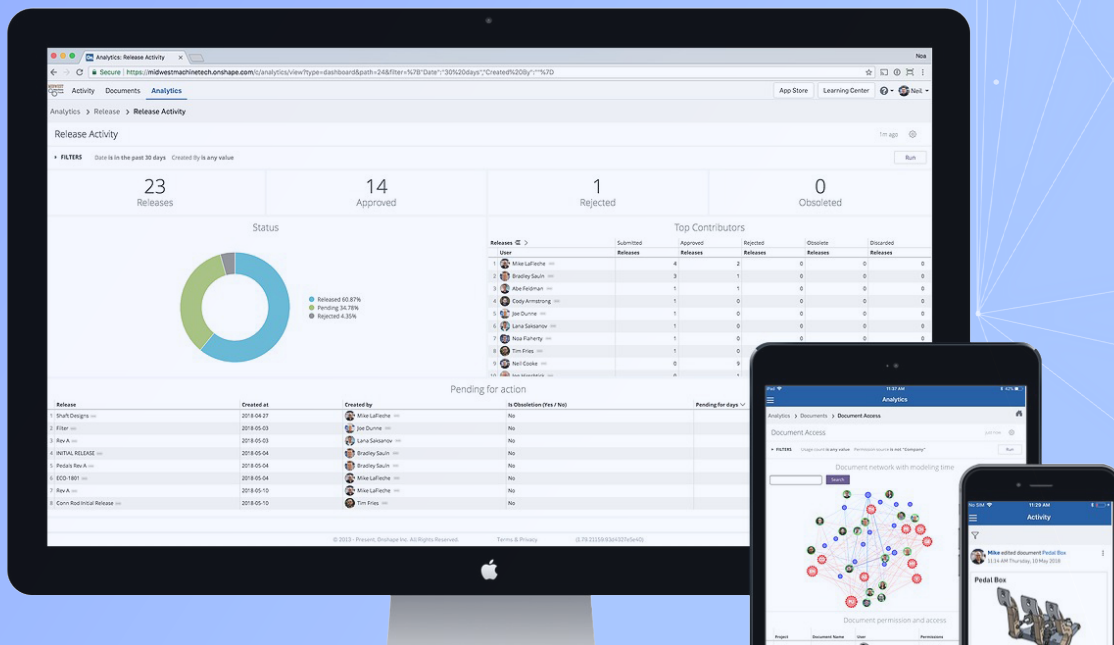
having trouble finding their leads.

Accuracy is not optional with most jobs, and it's certainly not optional in product design. Why then, with the business-critical (and sometimes even "life or death") specifications inherent to product development, should the engineering and manufacturing world tolerate the current situation?

A cloud-based CAD and data management platform takes the guesswork out of teamwork. Data is instantly updated so every team member sees design changes as they happen. Every team member, anywhere in the world, is also on the same software version – the latest one.

Let's explore how Onshape, the only [cloud-native product development platform](#) that combines robust CAD tools with built-in data management and real-time business analytics, can improve your daily processes and boost your team's productivity and innovation.

How Onshape Can Help Future-Proof Your Business



Onshape is a Software-as-a-Service (SaaS) platform that speeds up product development by eliminating the most common [obstacles that slow companies down](#). As it has been for years in software development, agility has become absolutely vital for hardware companies. Now more than ever, organizations need to improve their ability to respond quickly to unexpected or unforeseen conditions.

SaaS CAD and data management platforms give distributed product design teams the flexibility to work together from any location. Engineers can instantly access their work and their design software from any computer, tablet or phone via a web browser or mobile app (iOS or Android) without delay. If one computer crashes or malfunctions, work can continue uninterrupted on another device.

Regardless of where an engineering team is working – on different floors, different office buildings, different states or different countries – cloud-native product development tools allow team members to work as if they are in the same room looking over each other’s shoulders. Unlike with file-based installed CAD and PDM systems, multiple engineers can work on the same 3D CAD model simultaneously and provide immediate feedback as easily as making a comment on social media. There is no need to email screenshots back and forth or deal with downloading file attachments.

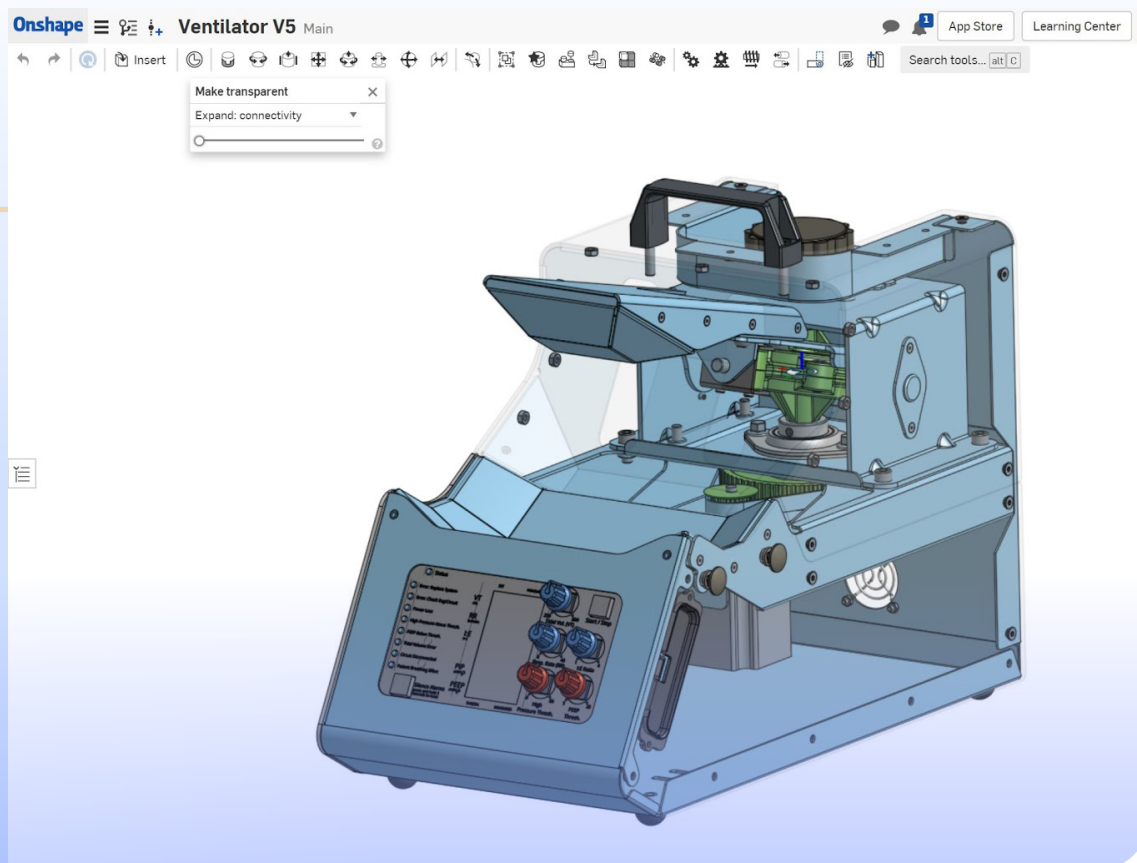
**HOW ONSHAPE
CAN HELP
FUTURE-PROOF
YOUR BUSINESS**

When engineers' downtime is minimized, IT overhead reduced to zero, and communication is streamlined, the acceleration of the design process can be dramatic. [Meter](#), a San Francisco and Boston-based industrial hardware startup, recently designed, built and clinically tested the [Rise Emergency Ventilator](#) in only 21 days – a process that normally would have taken many months.

This is an extraordinary example performed under emergency pandemic circumstances – there were 6 product iterations in those three weeks and engineers were working unsustainable 18-hour days – but this achievement was only possible because of real-time cloud collaboration tools.

While the life-or-death circumstances make the Rise story especially dramatic, the product development lessons in this case are transferable to nearly every distributed design and manufacturing team. Being able to radically improve communication and efficiency to accelerate the time to market is an achievable goal for everyone.

Product development teams using Onshape's SaaS design platform benefit from built-in version control without the need for an external PDM system. (CAD screenshot courtesy of Meter).



Here's how Onshape addresses some of the biggest product development challenges identified in this survey:

- ✓ **Reducing Time Spent on Non-Design Related Tasks**

Engineers are never wasting time looking for the latest version of a design because there is only one place to look – their Onshape Document, which they can access the moment they sign in. Because Onshape is a SaaS platform, there are no downloads, installs, license codes or upgrades to worry about – engineers can spend more time being engineers. (Companies [should not be devoting their best CAD talent to time-draining administrative tasks.](#)) Simultaneous editing means that teams can say goodbye to productivity-killing serial workflows.
- ✓ **Data Management Chaos: Yes, There is a “Better Way”**

Onshape's built-in [Release Management](#) and advanced workflows eliminate the hassles of external add-on PDM/PLM systems. With this easy-to-use and intuitive system, there is no checking in or checking out files from a vault, forcing engineers to wait for colleagues to finish their work before they can start theirs. Teams can explore alternative branches of designs and later merge the best elements together. A comprehensive edit history tracks who made which change and when, allowing teams to instantly revert back to any prior state of the design – think of it as “unlimited undo/redo.”
- ✓ **Bridging the Communication Gap Between Executives and Rank-and-File Engineers**

With executives often focused on big-picture planning and strategic initiatives, and engineers busy with daily hands-on tasks, it's easy to see how perceptions about the status of a project are not always aligned. Onshape's [real-time business analytics](#) offer an up-to-the-minute snapshot of who's working on what and when – and help identify potential bottlenecks before they become problems. Having anytime access to the latest version of a design – or alternative experimental branches under consideration – means that progress doesn't need to wait for formal scheduled design reviews. Everyone can stay on the same page all the time.

**HOW ONSHAPE
CAN HELP
FUTURE-PROOF
YOUR BUSINESS**

✓ **Improving Early-Stage Communication and Collaboration**

In product development, it's widely accepted that improved collaboration and communication results in more innovative products. Onshape's secure [Sharing](#) feature gives external partners immediate view-only, commenting or editing access to your designs – without the burden of installing any special viewing software. And once a project is over, access permissions to your designs can be instantly revoked ([better protecting your company's IP](#)). Design teams can get earlier feedback from their customers, who may normally have no access to CAD. Live chat and commenting enable more frequent real-time design reviews.

✓ **Empowering Companies to Support Productive Remote Work**

Team members can instantly access their CAD system and CAD data on any computer, tablet or phone – eliminating the barrier of needing a high-performance workstation to do engineering work. Onshape's [SaaS delivery](#) means that teams no longer require IT support for maintenance and upgrades and can keep working uninterrupted from anywhere. Having full [CAD for Mobile](#) capability is not only beneficial for working at home, but also for frontline service engineers who may need to access designs on the factory floor at client sites.

While COVID-19 has caused enormous disruption and harm to business and personal lives, it also has put a greater focus on the need for work-life balance. The pandemic has rapidly accelerated an already growing demand from employees to have more flexibility with where and when they work. While traditional offices are unlikely to go away and the production floor will never disappear, major changes are already occurring in the workplace.

Analysts are reporting a desire from workers for greater flexibility and remote access. One recent [PwC survey](#) found that 72 percent of office workers want to work from home two or more days per week once the pandemic is no longer a concern.

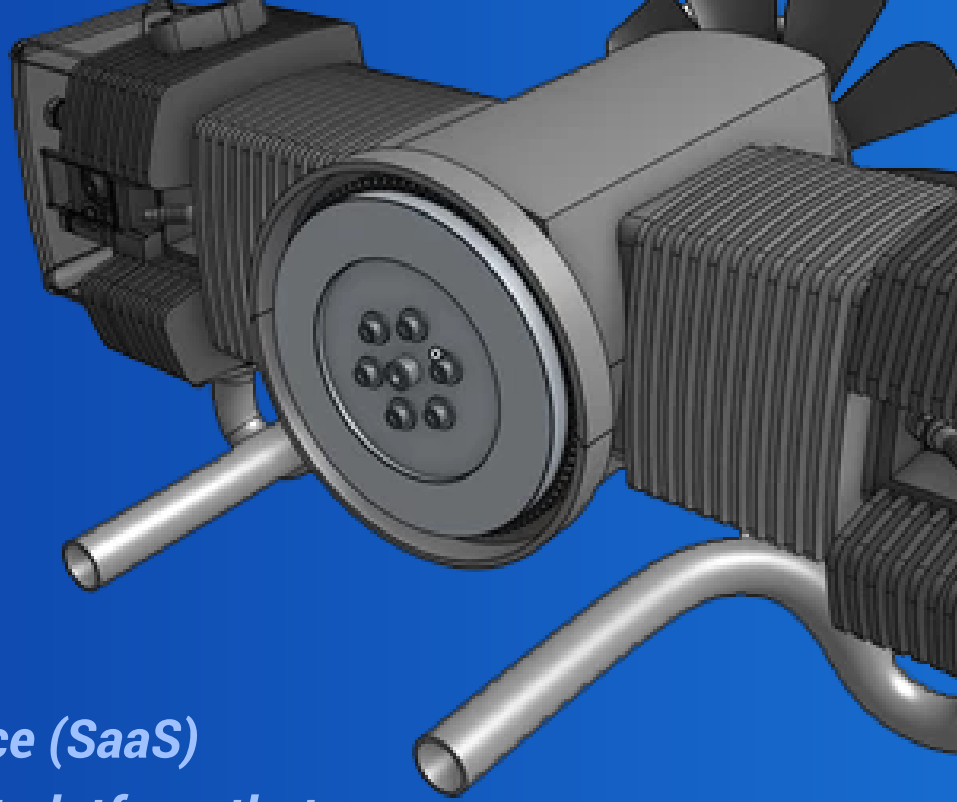
In July 2020, [Google announced](#) that nearly all of its 200,000 employees and contractors will continue working remotely until summer 2021. Earlier in the spring, Twitter had announced that its workforce could [stay home indefinitely](#) – even after the pandemic is over. Twitter CEO Jack Dorsey [told analysts](#) that he viewed a remote workforce as a competitive advantage. “Our concentration in San Francisco is not serving us any longer and we will strive to be a far more distributed workforce which we will use to improve our execution,” he said.

As Dorsey notes, offering remote opportunities isn’t just an employee perk – appealing to those who want to skip the commute – it’s a recruiting advantage, too. Why limit your candidate search to a narrow geographical area when you can tap into the best talent in the world instead?

The rapid adoption of more remote-friendly work policies is not confined to Big Tech or Silicon Valley. French automaker [Groupe PSA](#) – parent company of the Peugeot, Citroën, and Opel car brands – has just declared a [“new era of agility”](#) in which its non-production workers will stay remote. Europe’s second largest vehicle manufacturer touted the shift as an employee-friendly move that will improve work-life balance and reduce stress from commutes.

For forward-thinking product manufacturers, the implications of a greater shift toward remote work seem clear. In order to recruit and retain the best talent who can bring innovative products to market, firms must rethink their business models. Having agile product development processes is now more important than ever. Investing in remote collaboration tools and other cloud-based productivity tools is no longer a “nice-to-have,” but a “must-have” technology.

Onshape



Onshape is the only Software-as-a-Service (SaaS) product development platform that combines powerful CAD tools with real-time data management, collaboration, and business analytics. Executives and managers can get up-to-the-minute progress reports on a project's status and built-in version control prevents costly delays and manufacturing errors.

Sign up for a free Onshape Professional Trial and experience the benefits of cloud-native product design today!

GET STARTED

Onshape is a [PTC](#) Business.

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