

Startup Survival Guide:

Five Ways Simulation Enables Business Success



Tech-Clarity

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Become a Successful Startup with Simulation

Avoid the Most Common Reasons Startups Fail

How can startup companies improve their chances of success?

Startups have countless opportunities in today's world, making it a very exciting time for new businesses. Unfortunately, many will fail. This report explores how simulation can be a powerful tool to help startups avoid the most common reasons they tend not to make it. From supporting efforts to get more funding, to accelerating the time to evaluate multiple design ideas, to catching problems and supporting optimization, there are many ways simulation can be a valuable asset for a startup company. Further, as a cloud-based platform, it can be even more accessible for the smallest companies. This report reveals both how and why simulation can provide startups an edge to launch a successful product.



Table of Contents



	PAGE
Executive Summary	4
The Opportunities for Startups	5
1. Access More Funding	6
2. Improve Profitability	7
3. Get the Product Right	8
4. Validate Market Needs	9
5. Leverage the Right Talent	10
Recommendations	11
Acknowledgments	12

Executive Summary

Endless Possibilities

Recessions and the years following them often mark the birth of new businesses, making this a very exciting time for entrepreneurs. With expanded options for funding and opportunities for new technologies to enable innovation, there are endless possibilities for startups. As a result, we are now seeing more successful new companies than ever before.

Unfortunately, for every success story, there are even more startups that do not make it. It is hard to start a new business from scratch as funding is limited, and competing with more established companies that have more resources can be challenging.

The good news is that for many, modern software tools are closing the resource gap. New software solutions, supported by a modern infrastructure, allow even the smallest businesses access to resources that previously were available only to large companies with deep pockets.

Cloud-Based Simulation

A cloud-based simulation software platform is one such tool. Simulation software allows you to evaluate more options in less time, optimize the design, and catch problems early in the design

process. In addition, startups can avoid significant upfront investments in software and hardware by using a cloud-based solution. Plus, companies do not need to worry about investing precious resources in an IT department to implement and maintain it.

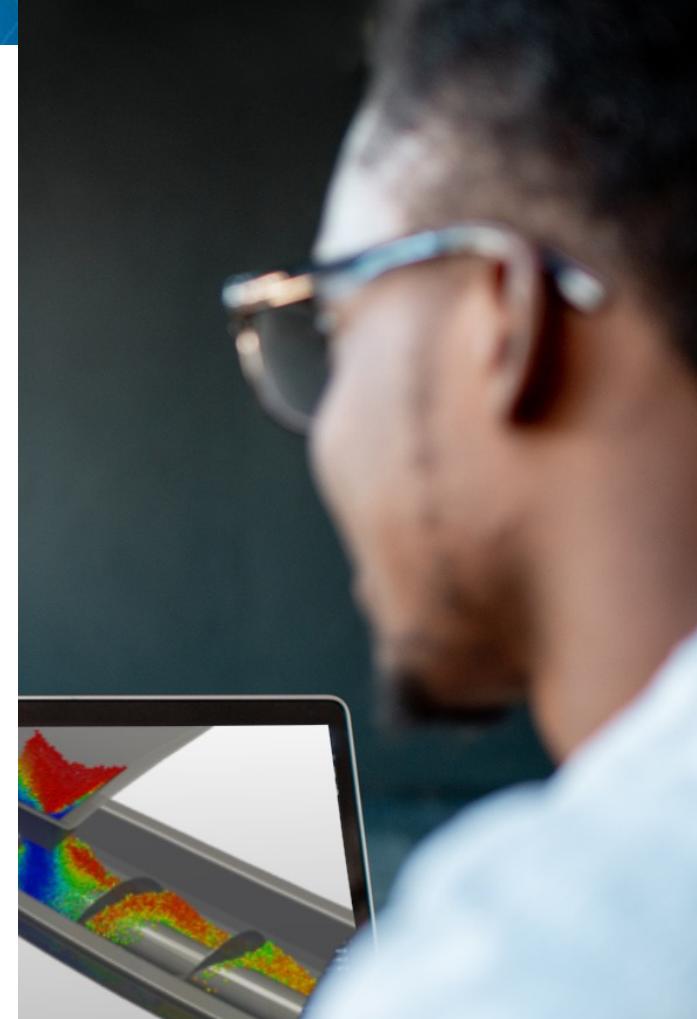
This Report

This report discusses the most common reasons startups fail and explains how a cloud-based simulation platform can help. By taking advantage of the technology, it can allow you to:

- Access more funding
- Improve profitability
- Get the product right
- Validate market needs
- Leverage the right talent

This powerful combination can help you add your company's name to the growing list of successful startups.

Typically, it is not a single problem that leads to failure, but the ability to simultaneously address all of this will go a long way toward improving your chance of success. A cloud-based simulation solution can help you tackle the multifaceted challenges of starting a new business to profitably bring your ideas to reality.



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The Opportunities for Startups



Since 2013, there has been a 353% increase in the number of successful startups in the US. Much of this increase can be attributed to improved access to funding and technology tools.²

Exciting Trends for Startups

The opportunities for startup companies are extremely exciting. Indeed, *Harvard Business Review* estimates the startup economy is worth \$3 trillion.¹ Further, since 2013, there has been a 353% increase in the number of successful startups in the US. Much of this increase can be attributed to improved access to funding and technology tools.²

This combination has provided startups with access to previously unavailable resources and has allowed many to flourish. In fact, unicorns, or startups worth over one billion dollars, once considered rare, are now growing at a surprising rate, with a new one born every three days.³

But There Are Challenges

Despite all this good news, it is still hard for a new business to succeed, and sadly, many fail. For example, in the US, only 51% of small businesses started in 2014, lasted five years.⁴ Many factors make it difficult, as Matt Murphy, Managing Director at Menlo Ventures, observes in an interview published by *Medium*, "[S]ometimes a market never develops; sometimes competition kills a market. A product might not work, or not be as differentiated as expected, or not command a high enough price. And finally, some teams just execute better than others."⁵

Simulation As a Solution

While timing and luck can be factors in overcoming these challenges, founders can also take several steps to improve their chances of success. Interestingly, simulation, especially as a cloud platform, can be a powerful tool to overcome these challenges.

We will now discuss five ways that simulation can be a secret weapon to support the success of a new company.

1. Access More Funding

Funding Requires Progress

A study conducted by CB Insights finds that, not surprisingly, running out of cash is a top reason startups fail.⁶ Until a startup becomes profitable enough to support itself, entrepreneurs often rely on investor funding to keep going. To justify continued investment, investors want to see that startups are on the right path. Consequently, they expect to see progress on milestones to minimize their risk. Simulation can be a powerful tool to help you reach milestones faster and demonstrate developments to investors. This way, they will see more clearly what they are getting for their investment.

How Simulation Helps

With simulation, you can use virtual prototypes for demonstrations without incurring the cost of physical prototypes or wasting time waiting for them to be built. You can also use simulation to show investors how you've overcome a technical hurdle. You can even explain how the technical features and quality criteria make the product unique and reveal what will excite potential customers.

All of this reinforces progress in a meaningful and visible way that will make a more powerful impression than a simple slide presentation. This can go a long way to support the next round of funding.

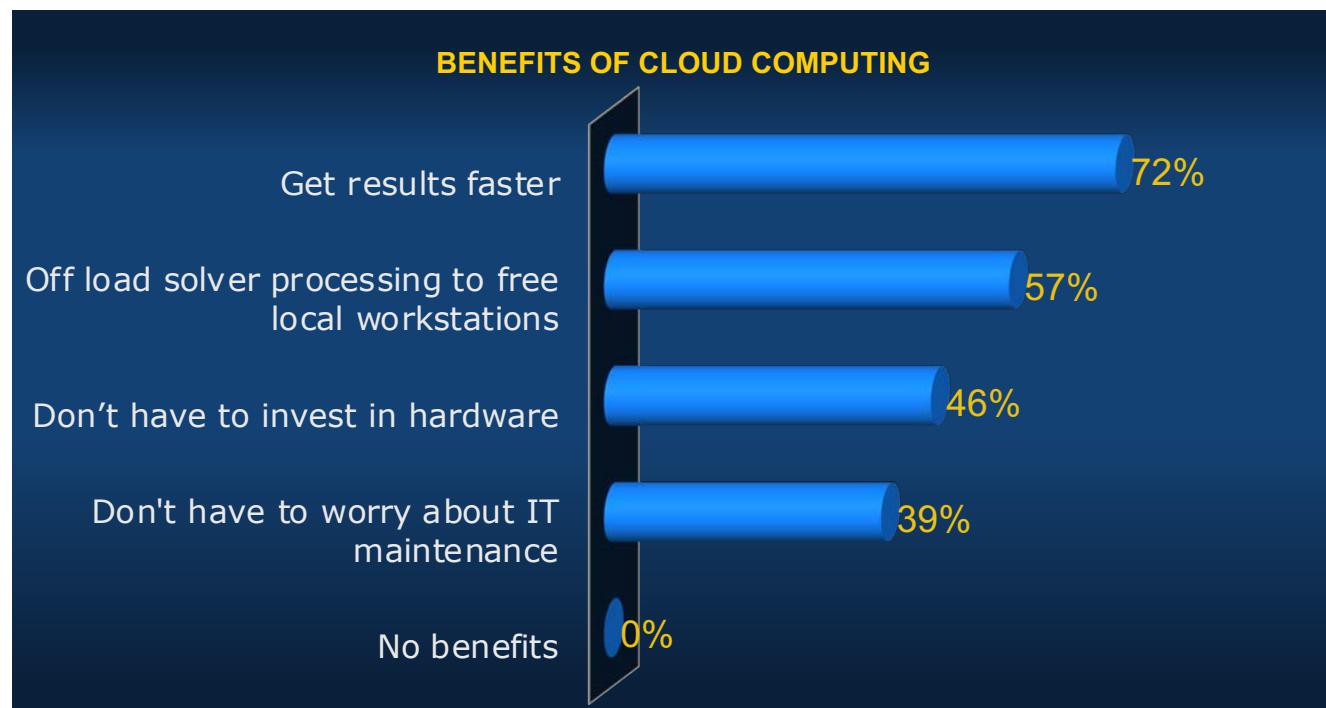
Preserve Capital

While simulation is a powerful tool, it can be more accessible to a startup as a cloud solution. With a subscription service, you can access cutting-edge tools without the significant upfront investment typically required for a simulation license. You can also leverage powerful cloud computing without investments in high-end hardware. Previous research from Tech-Clarity reveals numerous benefits of cloud computing. (See graph.)⁷

The cloud offers a level of computational power that was previously available only

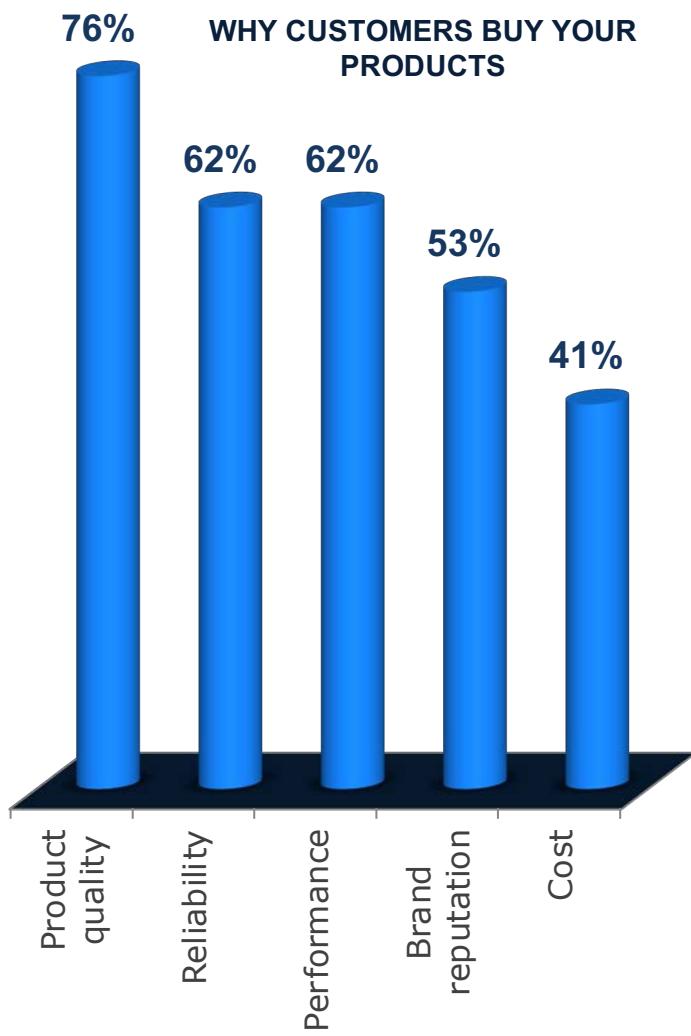
to companies with the deepest pockets that could afford powerful workstations and servers. With this power, founders and engineers can work through complex problems using simulation and get their results in less time.

Finally, you don't need to worry about hiring IT staff to manage, implement, and maintain the required hardware and software, or waste your own valuable time doing it. Instead, your cloud vendor will take care of it for you. All of this means you can focus more funding on improving the business.



2. Improve Profitability

Engineers are 3.7 times more likely to say simulation is the ideal way to solve problems, compared to other options.



Profitability Challenges

Although profitability is always a goal, it is not always easy to achieve. Only 40% of small businesses are profitable, while 30% break even, and 30% are continually losing money.⁸ Even though many factors contribute to profitability, CB Insights found that pricing issues are the fifth most common reason startups fail,⁹ which leads to profitability struggles.

Pricing can be a delicate balancing act. You must charge enough to cover costs and fund the business, while keeping the price competitive. Your offering also must provide the qualities that will attract customers to bring in needed revenue. Previous Tech-Clarity research has found that quality, performance, reliability, brand reputation, and cost are the most critical buying criteria for customers. (See graph.)¹⁰

Startups cannot rely on brand reputation yet, so the other criteria become that much more critical. However, quality and cost compete as a high-quality product costs more. This makes engineering decisions especially challenging, but the wrong decision will lead to poor product pricing, putting the business at risk. This is an area where simulation can provide tremendous value.

Optimize with Simulation

Balancing these competing factors requires solving many complex engineering problems. You have to consider many aspects, for example: Which material will yield the best performance results without compromising cost targets? How much material is required to maintain structural integrity? Is there a more cost-effective solution to ensure proper cooling? These are not simple questions, and the more complex your product is, the harder it is to come up with an ideal solution.

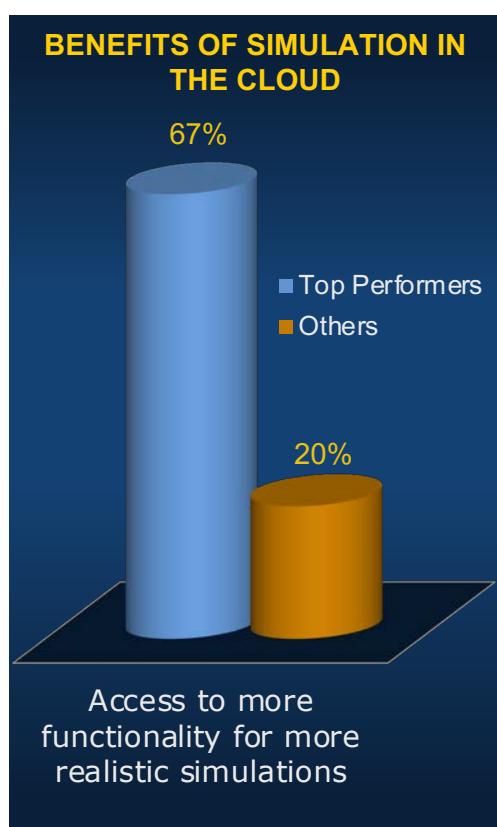
Interestingly, Tech-Clarity survey results find that engineers overwhelmingly point to simulation as the best way to solve engineering problems. In fact, they are 3.7 times more likely to identify simulation as the ideal solution compared to any other option, including seeking expert advice or waiting for physical testing results.¹¹ As a result, with simulation, you can have more confidence that you've made the right design decisions to meet the criteria that will drive revenue, yet keep costs under control to offer attractive pricing that will boost profitability.

3. Get the Product Right

Beat the Competition

Startups also struggle with getting out-competed, the No. 4 reason CB Insights found that startups fail.¹² A McKinsey study finds that markets disproportionately reward companies with innovative products. Their research identifies rapid iteration as critical for this level of innovation.¹³

BENEFITS OF SIMULATION IN THE CLOUD



Considering startups are founded on innovative ideas, this is exciting news. The agility of startups also makes it easier to move quickly. However, limited resources may make it difficult to go through multiple iterations, especially with time and cost pressures to release a product before funding runs out. Despite this, those iterations can make the critical difference between bringing the wrong product to market and the right one.

Innovate with Rapid Iterations

Simulation allows you to rapidly iterate in less time by using a virtual environment rather than waiting for physical prototypes. You can also test more scenarios than you can with physical tests.

More Functionality

With the cloud, you can easily access the physics you need, when you need them, without worrying about traditional license limitations or trying to figure out what you'll need before you even start design work. In fact, Tech-Clarity

research finds that Top Performing companies, defined as those who beat their competitors at meeting design criteria, recognize this as a top benefit of using simulation on the cloud. (See graph.)¹⁴ Assessing multiple physics can be extremely powerful as you rapidly iterate the design and consider various engineering challenges.

Tech-Clarity's research further identified top ways better insights would improve products. (See diagram.) These vital product improvements can require numerous iterations, but complexity makes manual efforts

tricky and time-consuming. However, simulating multiple physics can provide an ideal mechanism to analyze rapid iterations to arrive at a superior design that will beat the competition.

TOP AREAS THAT WOULD IMPROVE PRODUCTS WITH BETTER INSIGHT



4. Validate Market Needs

Connect with Customers

When caught up in the excitement of a new product idea, sometimes it's easy to overlook the importance of involving potential customers to confirm its need. This leads to the top reason startups fail. CB Insights found that 43% of startups failed because there was no market need for their product.¹⁵ To overcome this, startups must validate their ideas with customers as early and as often as possible. This way, they can solicit feedback and incorporate it to improve market potential. In fact, McKinsey found that the most successful companies foster a culture of sharing early prototypes with outsiders.¹⁶

However, it can be tricky to capture customer impressions when the product does not even exist yet. If you wait until the point when a physical prototype is available, you've already invested so many hours and resources into the design; it's harder to incorporate customer suggestions. In addition, investor pressures to see results compound the problem.

Early Customer Feedback

With simulation, you can use a digital prototype very early to demonstrate your product to potential customers and validate its need. At this early stage, it will be much easier to incorporate customer suggestions to ensure its appeal. Simulation also makes it easier to play around with customer suggestions to figure out the best way to implement them.

During the demonstrations, should you find you are not getting the customer reactions you hoped, you can then use the digital prototype as a reference to discuss problems they need solved and get their thoughts on what would be useful. This way, it will be easier to pivot to a new idea that will resonate better with your target market. The best part is that you can evaluate these concepts very early with simulation, so you do not waste valuable time on ideas that will not meet market needs.

Finally, with a cloud platform, you can also demonstrate the product anywhere that's convenient for your customer and on any device. This will help you solicit as much feedback as possible to inform your design.



With simulation, you can use a digital prototype very early to demonstrate your product to potential customers and validate its need.

5. Leverage the Right Talent

Tap into Needed Skills

A final area that creates significant challenges for startups is not having the right team. CB Insights found this to be the No. 3 reason contributing to startup failures.¹⁷

With a very small company, every role is vital to the company's survival. The wrong talent or not leveraging additional outside skills when needed can be the death of a small company. Even as the company finds initial success and starts to ramp up, you need the right person to fill every role.

Staffing Flexibility

Innovation often involves leveraging new technologies and cutting-edge solutions. Unfortunately, it is impossible to be an expert in everything, and you may find you need to tap into other knowledge experts.

Perhaps you need advice from an expert in composites, flexible electronics, or battery technology. While the expertise may be invaluable, you may not need a full-time person, so contracting with a third party may be a more economical and appropriate way to tap into that expertise. Still,

traditionally, it can be hard to bring a third party into the team temporarily.

The cloud solves this by making it possible to share what you are doing with a third-party expert by sending a link. Then, after seeing what you are trying to do, they can offer suggestions, perhaps try other ideas, or take over a small portion of the work. With simulation, you can validate their work or they can demonstrate what they've done. Later, when you are done working with them, you can simply turn off their access.

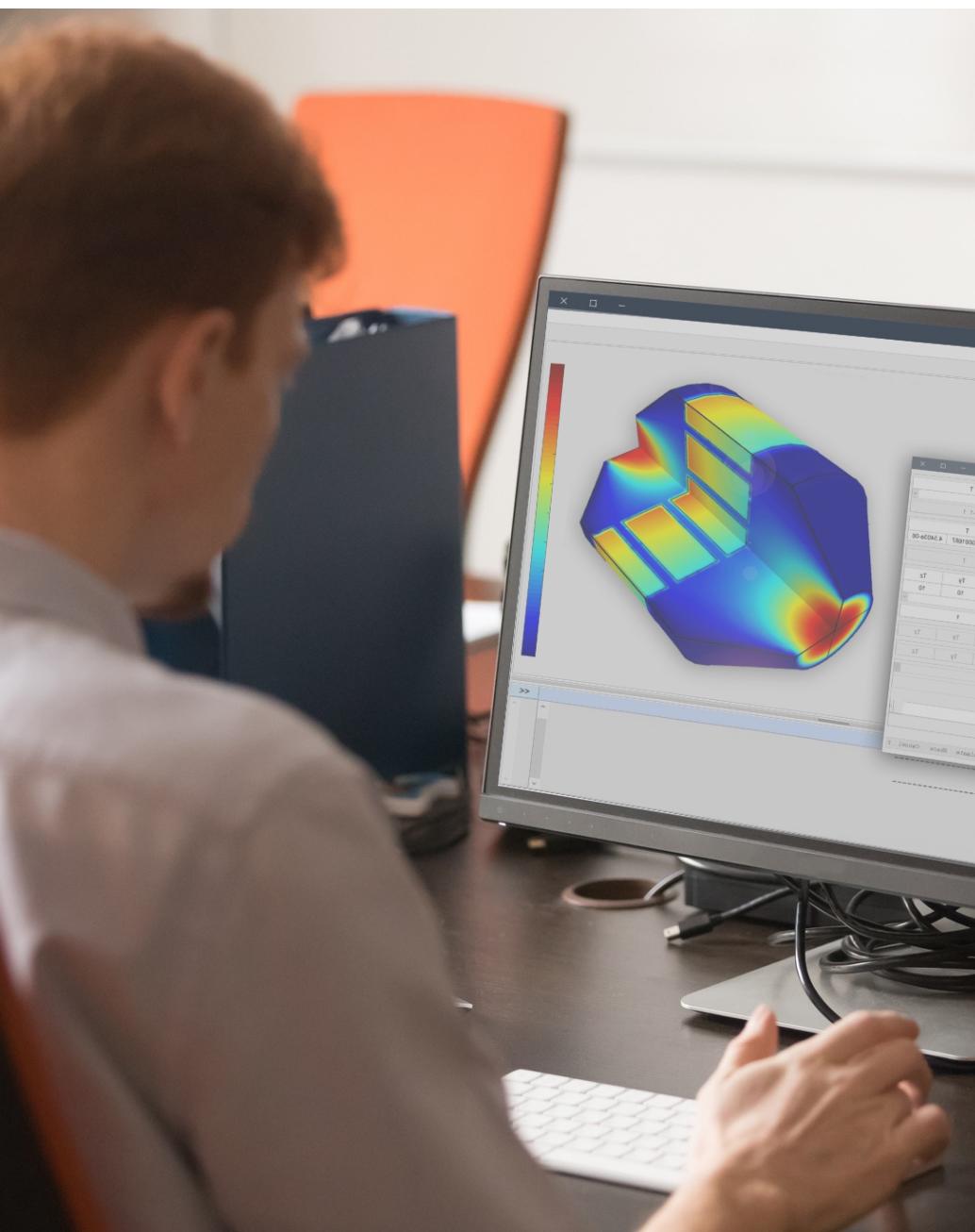
Scale Your Team

When you are ready to expand your team, you want to ensure you hire the best people for the job. Historically, you may have been limited to people located in the same general geographical area. Conveniently, with the cloud, team members can connect from anywhere, expanding your pool of potential talent to hire, thereby making it easier to find the best person for the job.

The cloud makes it possible to share what you are doing with a third-party expert by sending a link.



Recommendations



Recommendations and Next Steps

Based on industry experience and research for this report, Tech-Clarity offers the following recommendations:

- Use simulation to demonstrate progress to investors to help justify additional funding.
- Leverage a cloud platform to preserve capital by avoiding high upfront costs for software licenses and investments in high-end hardware.
- Optimize your product for quality and cost to maximize profitability and allow you to price your product competitively.
- Support rapid iterations with simulation to develop a more innovative, competitive product.
- Take advantage of simulation in the cloud to validate your product early and often with potential customers to verify it will meet market needs.
- Tap into additional expertise as needed with a simulation cloud platform that will provide flexibility to easily collaborate with third parties.

Acknowledgments

About the Author



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Michelle Boucher is the Vice President of Research for Engineering Software for Tech-Clarity. Michelle has spent over 20 years in various roles in engineering, marketing, management, and as an analyst.

Michelle graduated magna cum laude with an MBA from Babson College and earned a BS in Mechanical Engineering, with distinction, from Worcester Polytechnic Institute. She is an experienced researcher and author, having benchmarked over 7000 product development professionals and published over 90 reports on product development best practices.

Tech-Clarity is an independent research firm dedicated to making the business value of technology clear. We analyze how companies improve innovation, product development, design, engineering, manufacturing, and service performance through the use of digital transformation, best practices, software technology, industrial automation, and IT services.

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