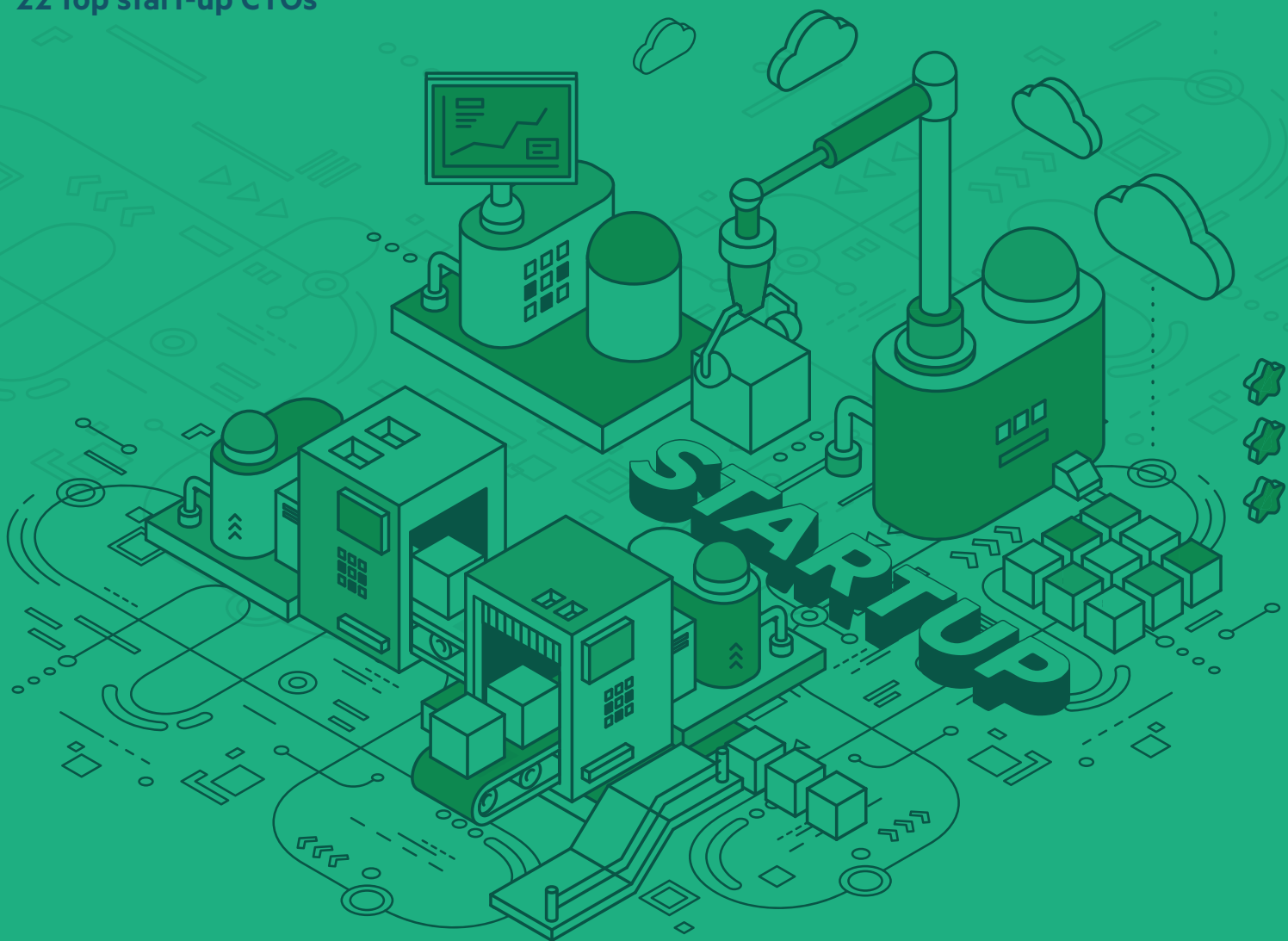


CTO AGENDA '23

The tech plan of action, recommended by
22 top start-up CTOs



CTOAGENDA'23

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PUBLISHED AND PRINTED BY

9.9 Group Pvt Ltd
121, Patparganj,
Mayur Vihar Phase 1
New Delhi-110 091

ISBN

978-81-961892-1-1

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CTO Agenda 2023



I do not need to tell you how India's start-up ecosystem is growing or how technology is central to that growth.

The genesis of the book lies in a sincere effort to understand the challenges the chief technology officers in Indian start-ups are facing, how they are meeting them, their approaches and best practices in deciding on and rolling out technology plans for their respective organizations and the immediate agenda items.

When CIO&LEADER and HPE India set out on this mission, what was an absolute no-brainer is to listen it from them directly. Based on our experiences with the enterprise CIO community, we were clear that in-depth peer group discussion was far more effective in achieving that goal than conducting formal individual interviews or structured research.

From there came the idea of BEYOND 2022 – a series of such discussions in two regions where most of the action in the start-up space is happening – Bengaluru and the National Capital Territory of Delhi. By the time we organized the roundtable discussions, the realization dawned upon us that the captured insights should go beyond us and reach people who would find it most useful, their peers in hundreds of other large start-ups.

“The book is the culmination of intense interactions among start-up CTOs. It captures a summary of thoughts as well as individual perspectives of 22 CTOs”

The book that you are holding in your hands – CTO Agenda 2023 – is the result of that realization. It is the culmination of those interactions, where we have captured the major thoughts and insights that emanated from those discussions. While the summary has been captured in an article that we have prepared based on those deliberations, we thought we should also present individual thought leaderships as articulated by individual participants. After all, that is the language most of their peers would relate more seamlessly to.

The book is, in that sense, the best of what got deliberated. By no means is it a comprehensive representation of challenges of the entire start-up community. It is illustrative, yet fairly representative.

We have planned, coordinated, edited and produced three books in the last two years before this, all of which have been well-received. The books – Future of Enterprise, Futurescape and Futurescape 2.0 – can be obtained from Amazon.

While the broader method that we have used has been the same co-authored model based on deliberations, this is the first book

that captures the thoughts of start-up CTOs. All others have been in the enterprise technology space.

I thank the participating CTOs and senior members of HPE India who participated in the discussions.

I hope you will find the book useful and engaging.

Shyamanuja Das
Editorial Director -
Enterprise Technology
9.9 Group



Start-ups need partners who are futurist

“We are working with our partners from the edge to the cloud, to provide technologies for start-ups because both internal users and their customers have expectations of a better response while their data needs to be secured. Start-ups really need partners who have a long-term view of what's going to happen.”



The start-up culture is something that we are proud of. It is also critical for them to move extremely quickly since doing so is essential to their existence; if they slow down, they will fail. We are working with our partners again, from the edge to the cloud, to provide technologies for start-ups because both internal users and their customers have expectations of a better response while their data needs to be secured. Start-ups need partners who have a long-term view of what's going to happen.

Earlier businesses never allowed company devices to be connected to any other network or allowed outside devices to be connected to their network. Now they welcome enumeration, where enterprise and consumer applications can be used within the company networks. If not, then without Swiggy, employees will go hungry in the office! This is now the reality and hence brings in conflict of applications.

With various device types, change in place of work, different applications, and the need to adhere to regulatory compliance, security experts, first need to understand what they are securing. Businesses need to build security parameters from a compliance perspective, then use security parameters to build app strategy, from an app perspective, build your cloud strategy. In order to help you respond rapidly to business needs, such as using data to make faster decisions, AMD and HPE collaborate to create workload-optimized solutions.

At the same time, they always keep your data's security in mind. Speed and time-to-value across a hybrid infrastructure that meets the demands of workloads and applications are becoming more and more demanding.

We have partnered with a few service providers and are working with start-up organizations. We'll onboard them and give them free credits. However, it is not comparable to AWS, Google, or Microsoft. We collaborate with Google or AWS, and normally, if you need unanticipated infrastructure and want more, you can easily burst onto the cloud, so those are the things we also work.

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The Scaling Up Conundrum



One of the biggest challenges start-ups face is scaling their operations once they achieve product-market fit and acceptance in their industry. When a company focuses on growth and scaling, even the most seasoned and gifted Chief Technology Officers (CTO), who typically double as the founding members of these tech-driven start-ups, are put to the ultimate test.

Scaling while ensuring quality excellence calls for a speedy response to operate at a high level while expanding. To scale and develop resilient business models, they often have to balance between enthusiasm and reality by zeroing in on the most appropriate approaches in integration, cost, talent management, and security strategies.

Top start-up CTOs discuss their challenges while trying to scale up rapidly, what they are doing to meet them...and offer recommendations for their peers. This chapter has been prepared by CIO&Leader based on the insights gathered from two insightful discussions involving 22 CTOs in two cities.

This chapter is divided into two sections – CHALLENGES & STRATEGIES.

The first section identifies the top challenges. It is organized around seven broad challenges. Each sub-sections, based on one broad challenge, goes in-depth

into specific challenges within that broad challenge area.

The second section focuses on recommended strategies. This section deals with five specific strategies and best practices within each.

1. KEY CHALLENGES

For start-ups, maintaining focus on their growth objectives may be challenging due to a variety of causes, including ever-changing customer expectations, inability to attract talent, and unanticipated breaks in financial flows.

1.1 Hiring and retaining top talent

Hiring, motivating, and retaining talent is unquestionably the biggest challenge for most start-up CTOs. As a result, many start-up CTOs have acknowledged devoting as much as 50% of their time to identifying the right talent and setting up processes for it.

Start-ups are under constant pressure to develop innovative products and services, and without great programmers, coders, and developers at work, it's challenging to scale and innovate. Having a fantastic idea or product can help attract a lot of investor interest, but scaling the operations of any firm requires

intelligent and dedicated employees who must also share the company's vision.

- **Talent demand vs supply:** The market for hiring technology specialists in fields like programmers, developers, cyber security experts, and data scientists, among others, is extremely competitive. To compete, start-ups must invest significant time and effort in attracting and retaining highly qualified personnel. As if this wasn't enough, the gap in demand-supply means that retaining skilled tech professionals is an uphill task, especially for companies with limited resources. Finding people with the required skill sets within budget is a time-consuming task, involving screening candidates, articulating vision and goals, and mentoring, among others. Experts in new and emerging technologies are particularly in short supply and come at a premium, necessitating extra work to win the battle.
- **The new dimension of remote work:** With remote working becoming the new normal, talent management has become even more problematic for start-ups. Start-ups are known to be dynamic, quickly modifying processes in line with the changing requirements. They also focus more on experimentation and innovation than traditional businesses do. Most start-up CTOs believe brainstorming and closely working with the team to resolve problems is crucial to creating a culture of innovation. Additionally, according to them, maintaining staff productivity and building strong relationships can be challenging when teams work remotely. In this scenario, CTOs must ensure the tech experts they hire are self-driven, have multitasking capabilities, and can act independently when necessary.
- **More than the lofty hikes:** With the possibility that relocating may no longer be a requirement for changing employment, winning talent wars just by offering better compensation becomes increasingly challenging. There will always be a company willing to pay top performers more. Start-

Hiring, motivating, and retaining talent is unquestionably the biggest challenge for most start-up CTOs. As a result, many start-up CTOs have acknowledged devoting as much as 50% of their time to identifying the right talent...

up CTOs then think of innovative ways to retain top talent by emphasizing work-life balance and wellness initiatives, among others.

- **Lack of recruitment experience:** The process for selecting the right recruits also deserves detailed discussion. Particularly in the early stages, start-ups and CTOs lack the recruitment expertise and funding necessary to set up HR set-ups. In addition, the CTOs also have a challenging task ahead of them in ensuring that their tech talent is aware of what they do, what their long-term goals are, and how their career will shape up if they join their brand, which may be relatively new.

1.2 Delivering a consistent user experience

While each start-up has its own story, all start-ups need to provide a consistently exceptional user experience to draw customers and boost revenues.

The challenge for start-up CTOs is how to scale and expand operations without compromising the user experience.

- **High customer expectations:** Companies like Amazon have already raised the bar for user experience to the point that even a minor instance of poor experience can spark a significant public backlash. It has become essential to have a user interface with strong analytical capabilities, accessibility, platform availability in several languages, and a reliable feedback mechanism.
- **Technology relevance:** Besides, considering how quickly technology is evolving, anything that appears notable today will be entirely out-of-date in the coming years. Therefore, it is becoming more crucial for businesses to modernize their outdated systems to improve operational performance. But that requires significant investment.

All businesses depend heavily on data, but this is more so in the case of a digitally native start-up. Gaining relevant insights from data by leveraging AI and ML is essential for start-ups...

Start-ups that have made significant technological investments in legacy platforms but haven't yet realized the benefits of their prior efforts have concerns here. They need to make sure that their legacy systems have sufficient access to the latest tools to support rapid growth while providing their users with the same sub-zero millisecond latency and highly customized experience. Strategically, managing the entire process upgrade is crucial. In addition to the expenses involved, choosing the proper consumption strategy to meet user demand is vital because it can significantly impact user experience.

- **Losing focus:** With all the plans for growth and expansion, many businesses tend to overlook the significance of addressing the primary pain issues of consumers. The absence of a strong team may be one of the causes. The overemphasis on marketing and revenue generation could be another factor.

1.3 Collecting and analyzing data

All businesses depend heavily on data, but this is more so in the case of a digitally native start-up. Gaining relevant insights from data by leveraging AI and ML is essential for start-ups because it enables them to better understand their customers, identify market trends, and deliver superior customer experiences.

- **Scattered data:** All start-ups nowadays grapple with the problem of data strewn across sources. Start-ups use a range of techniques to collect data and store it in various formats while offering services online. The amount of data being produced, both structured and unstructured, is growing dramatically. Making this data available to data analysts so analysts can use it to gain crucial insights and take an informed decision is a challenge for the CTO of a start-up.

For start-ups, this creates a bottleneck because no one can access and use the data without a suitable data dictionary; only the data team can give the business insights.



Finding the most effective methods to combine and integrate data from many sources remains challenging for organizations of all sizes. Moreover, if there are obstacles in acquiring the data, culling important and practical insights from it is more challenging.

- **Maturity curve of the start-up:** The organization's maturity is another challenge that makes data management a complex process. The expense of gathering and keeping data may not be a massive burden for many businesses and their CTOs if they have efficient ways to do so. The bigger problem is figuring out what to do with the data now that they have it and how to get valuable insights that can advance the business.
- **How much data is pertinent?:** The prevailing consensus is that the algorithms will perform better with more data. Start-up CTOs, however, are faced with the question of whether they need all

of this data. As a result, there is a greater focus on the data's long-term worth and whether or not to use it to train a model in the future. This is because start-ups that are digital natives must frequently adapt to the fast-changing demands of consumers

Identifying trends from two years old data may not be helpful for a start-up because its consumers have changed over time and now have different likes, preferences, and usage patterns. Hence, most start-up CTOs constantly evaluate how much historical data is needed to influence decisions because customers' preferences are changing quickly and market demands are dynamic.

- **The dearth of human resources:** Finding people who can understand it is a costly endeavour, given the talent shortage that the majority of the sector is experiencing. It cannot only be done by a team of engineers or data scientists since their results will be highly speculative or technical.

1.4 Reduce IT infra cost

Start-up CTOs must focus on diversifying their revenue streams, staying ahead of the competition, concentrating on strategic goals, and simultaneously optimizing their core business processes. In addition, start-ups must manage an abrupt surge of hitches of all types when they scale up.

- **Cost of elastic network:** One of the major problems they face is fluctuating consumer demand, which must be addressed by using flexible services that can easily expand or contract in keeping with the demand. Many start-ups experienced a wide variance in the market during the most recent global health crisis.

With a cloud-native design, it is possible to automatically scale cloud usage on a contemporary network to accommodate varying demands. However, particularly in the beginning, tech-enabled firms might not be completely aware of the numerous costs connected with the cloud and how it might impact their budgets in the long run. While cloud technology provides for growth and productivity, it could be expensive if it is not efficiently managed.

- **Infrastructure expenses vs performance measurement:** The relationship between infrastructure costs and performance is another measure entrepreneurs pay attention to. This is a severe issue for CTOs at start-ups. For their own unique reasons, many start-ups continue to host their assets on-site. For many start-ups, understanding the potential of the cloud, and its economies, and assessing how it functions for them remains a significant challenge.

Even more so because there is never just one ideal strategy for dealing with these issues. Consistent gap analyses and capability assessments frequently take a backseat because there is constant pressure to increase sales and the customer base.



- **Monolithic to microservices:** Many start-ups began their journey using monolithic architecture to design and develop their applications. The adoption of microservice architecture provides a significant advantage when a company prepares to scale. Start-ups can use a wider range of services and tools, like containers and Kubernetes, by leveraging microservices, which allow them to scale as needed.

Additionally, it gives them a choice to move their infrastructure to multiple cloud providers, if necessary. However, the shift demands a well-planned strategy with readiness for a culture change, monitoring skills, and infrastructure to support it. It also requires significant testing efforts to prevent regressions.

61%. And this presents a significant issue for start-up CTOs, as it does for any technology executive.

CTOs consider it to be a significant task to stay up to date on the latest threats, devise innovative countermeasures to these dangers, and endeavour to stay one step ahead of hackers.

- **Security at the backseat:** As the custodians of exceedingly sensitive data, start-up CTOs must establish a robust information security posture and put in place the required access controls to protect themselves from expanding attack vectors – from both inside and external. However, when your focus is on quick expansion and growth, as in the case of start-ups, implementing rigorous security standards and governance comes with a unique difficulty.

Typically, start-ups are focused on adopting the best methods to provide exceptional user experience to grow revenues and meet business targets. This often keeps their decisions around security investments as an afterthought. However, they have to deal with numerous threats and protect multiple access points, which might become expensive. Budgetary limits and a shortage of dependable internal security personnel worsen this issue.

- **Risk of decelerating innovation:** When boosting cyber security and governance, start-up CTOs also have to deal with the risk of data analysis efforts slowing down if systems have too many security restrictions. For instance, product engineers may wish to access specific customer experience data and analyze it using AI/ML technologies to spot bottlenecks and improve the user experience. They worry that excessive restrictions or request-based manual processes for accessing such data may hinder a product team's capability to innovate. On the other hand, they run the danger of operational and compliance issues by granting data access privileges more freely, a common practice in the start-up culture.

1.5 Enhance data governance and security

Fast-growing tech start-ups deal with sensitive user data and CTOs can leverage this information to make informed strategic decisions. They receive massive data from users who come directly to their platform and third-party suppliers and partners.

- **Constantly evolving threat landscape:** Threats keep on changing and evolving every year. According to DARKReading, weekly efforts at cyberattacks against businesses increased by 50% last year. Accenture reported a 31% rise in cybersecurity attacks against businesses from 2020 to 2021 in its State of Cybersecurity Resilience study. Additionally, it notes that third-party risk still reigns supreme and that successful supply-chain breaches have increased from 44% to

A start-up's fundamental tenet is innovation and service distinction. Without these, they are bound to lose market appeal and business edge over the competition. However, it takes a significant amount of effort to accomplish it...

- **People and culture issues:** CTOs also have to cope with the difficulties of integrating different tools with the data warehouse or one another. Additionally, employees are not always open to accepting new security technology or processes introduced.

1.6 Product innovation and service differentiation

A start-up's fundamental tenet is innovation and service distinction. Without these, they are bound to lose market appeal and business edge over the competition. However, it takes a significant amount of effort to accomplish it consistently.

The constant demand for new ideas, the development of new brands, and the requirement to diversify one's current offerings add to the challenge of a start-up CTO. In addition to growing the business and concentrating on what is working, they need a disciplined and comprehensive strategy to maintain a competitive advantage.

Especially in the case of B2B start-ups, feedback regarding what's new is usually received rather late in the process. Applying new technologies to delayed input might put a new product or service much behind schedule because it may no longer be relevant.

1.7 Finding right partners

The market is so fiercely competitive now that companies that want to become market leaders need strong, reliable partners to thrive and scale.

Due to strong belief in one another's talents, several FinTech-Bank partnerships have been successful and have increased one another's profits. They best illustrate how start-up-incumbent partnerships can produce better results by building on one another's advantages.

However, one of the most complicated problems start-up CTOs face is finding a partner who can understand their goals and vice versa. Before working with a partner, they must thoroughly assess the partner's reputation, market presence, and readiness for technology.

2. STRATEGIES

Start-up CTOs are adopting several strategies, including using automation to enhance operational efficiency, using data to improve user experience and offering ESOPs to the workforce to attract top talent, among others to address the challenges.

In this section, we touch upon the strategies which are helping them overcome challenges and accelerate their journey to realize their business objectives:

2.1 All-inclusive talent management strategy

A comprehensive talent management plan is needed to address the persistent problem of finding people with the right skill sets. Industry analysts believe identifying people with the necessary capabilities is the single biggest barrier to start-ups recruiting tech

professionals. Many start-up CTOs who have been successful in their people management initiatives have stressed the need to make sure candidates are culturally comfortable with the business and that they are the right match for the organization's operations.

■ **A well-documented onboarding process:**

Start-ups have started to appreciate the conventional methods of thorough onboarding exercises. Many digital-native firms overlook this aspect in their zeal to expand quickly and instead focus on hiring tech staff from day one to achieve more significant aims and ambitions. However, it makes it challenging for individuals to comprehend the fundamental philosophy on which a business is built.

Every business works with certain cultural attributes. Before new employees are even onboarded, CTOs and founders must ensure that the new hires have a sense of the company's cultural norms. A company's culture determines how it operates and how it treats its employees under various conditions, such as when things are not going well. Therefore, it is crucial to select people who would match the culture. The way a company runs, the type of culture it has, and the rationale behind it all need to be fully understood by new hires.

To make sure that the organization's adoption of the common values, aims, and practices is deeply established throughout functions, the start-up CTOs recommend delegating the duties of regulating and building the culture to next-in executives. Most talented and seasoned tech experts prefer to work with a business that upholds high standards for professionalism, offers flexibility, and accords employees with respect.

- **Leveraging tech for the right hiring:** Utilizing various tech techniques to select competent candidates for a range of abilities has come under increased focus. Start-ups now have a better awareness of how hiring non-relevant IT personnel



regularly and firing them after a short period of time can harm a company's brand and long-term growth objectives. CTOs of start-ups are looking at leveraging AI and analytics for streamlining hiring processes and evaluating candidates on different aptitude and attitude parameters. Several predictive analytical tools can be leveraged, for instance, to gather data on potential employees from various websites and social media platforms, assess their hobbies, and determine whether they match the company's culture and values as well as their skill sets.

- **ESOPs:** Employee Stock Ownership Plans (ESOPs), in the opinion of the majority of start-up CTOs, are excellent tools for attracting and keeping top talent. In order to attract employees and gig workers, several digital-first start-ups offer ESOPs with buyback options in exchange for their services. This enables workers to significantly grow

Many start-ups, especially those in the early stages, struggle to attract tech talent simply because the prospective talent is not aware of them. As a result, even while they present exciting learning and growth opportunities, they often lose top talent...

their wealth and motivates them to put in more effort and stick around for a more extended period. In addition, CTOs are placing a lot of emphasis on preserving a healthy work-life balance and ensuring that their employees have ample time to be with their families.

- **Upskilling and reskilling:** Any organization that wants to be competitive in today's highly unpredictable climate must ensure that its talent is equipped with the new skill sets necessary to take on new challenges. Not only do reskilling and upskilling make that possible, but they may also aid CTOs in keeping their top talent for longer. The CTOs have been looking to find better ways to engage their talent, connect with them and play an active role in their growth. As a leader, the industry expects them to play the role of educator and mentor and show the larger picture, what emerging technologies can actually do and the impact they can drive.

- **Increasing brand reputation and visibility:** Focusing more on educating prospective employees about their company and long-term business strategy to build brand awareness is another tactical move to recruit talent. Many start-ups, especially those in the early stages, struggle to attract tech talent simply because the prospective talent is not aware of them. As a result, even while they present exciting learning and growth opportunities, they often lose top talent to software giants. This is especially important for numerous businesses engaged in B2B operations. Start-up CTOs understand the value of raising brand awareness, and many are engaging with universities and campuses as well as working with PR firms to improve their visibility and reputation among potential hires.

2.2 Scaling intelligent automation

For organizations that have attained size, automation is helping them in the development of new capabilities. Automation technologies not only

support and supplement existing talent to do tasks more quickly but also allow them to concentrate on high-quality work and increase productivity. This presents a significant opportunity to drive productivity and improve the human experience, as roles are redesigned and work is made more meaningful.

According to a study titled, Automation with intelligence – Reimagining the organization in the 'Age of With,' over the next three years, executives expect automation to increase their workforce capacity by 27 per cent, equivalent to 2.4 million extra full-time employees in the workforce of the 523 organizations that took part in the survey.

- **Focusing on relevant use cases:** Start-up CTOs are aware of the benefits of automation and have been working on a plan to design an effective automation strategy and derive real value from their automation initiatives. In addition to adopting AI, they have been testing many initiatives as part of their intelligent automation plan.

The main areas of focus for scaling enterprise-wide automation are the selection of appropriate use cases, the quality of the data, and the availability and aptitude of personnel. In addition, utilizing automation for low-value task-based employment and establishing quantifiable results and return on investment has become more critical.

- **Automation + Platformization + Agility:** An approach to watch out for is platformization combined with automation. By identifying platforms that may be developed, such as knowledge management systems or boot camps, it becomes very self-sustainable and helps in scaling to the next level, according to the experts.

Another essential element is agility. Businesses want to grow quickly, so it is problematic when a product begins to lag. Experts say that in order to exceed consumer and market expectations, CTOs must respond promptly and alter direction.

Therefore, all three elements—automation, platformization, and agility—are related.

2.3 Effective data management

We are currently living in the era of data which is growing unabated. It could be challenging to make sense of the excessive amount of noise in the world of data we currently live in without relevant solutions. Today, a variety of solutions are accessible to convey the value of analytics.

However, these tools can only be used effectively if an organization is aware of its research aims.

- **Outlining business objectives and finding data relevance:** One cannot make any sense of the abundance of data accessible unless one is crystal clear on the final goals. Rearchitecting only for the sake of it is of no use since they will only wind up hindering the firm rather than assisting it.

According to the start-up CTOs, this problem can only be overcome if the start-ups can identify the data that is useful to them. They can reduce the costs associated with the data management strategy, and it also helps them produce insights in a controlled way.

Industry experts opine that a team of engineers or data scientists cannot complete the task alone since the solutions they develop may be very technical. Therefore, it's critical to make sure the business is represented when a digital-first start-up attempts to determine the relevance of the data at hand.

- **Data lakes:** A data lake is the first step in efficient data management, and by utilizing modern tools and technology, it can be made more accessible and widely used. It gives data scientists a more detailed update and enables them to have a more significant influence. Since it may be challenging to find qualified data scientists in the current talent-starved environment, start-ups are increasingly

looking into low- and no-code tools to improve their data lake capabilities.

- **Building trust through effective data governance:** For start-ups that are actively looking at boosting security, the primary focus should be the safety and security of customer data. According to the experts, if you know where your customer is and the flow of your data, then half the job is done. You then know what to protect. The ramifications of ignoring security are immense and start-ups are beginning to understand that.

It's crucial to entrust the data to reliable people to ensure that team members are well-informed and trained on their responsibilities, rules, and procedures for collecting data.

Training is also critical because some of the data may need to be manually added to the data management software, even if most of these duties are carried out automatically.

2.4 Enhancing security through closing the knowledge gap

There is no denying that the cloud will remain the foundation for all start-ups in the future. But it also means that security cannot be an afterthought.

- **Safe the unsafe:** The first line of security defence is the network. Start-ups tend to secure only what is necessary, but this is a short-sighted strategy. According to experts, start-ups can overcome security concerns only by safeguarding every level, from the ID where the programmer is presently writing it to the numerous gateways where the complete application pipeline runs till production. These are weak areas with many access points. Furthermore, the focus should be given to ongoing application security and monitoring, even at the micro level, rather than postponing it.
- **Continuous monitoring and training:** At each stage of data, where it is scattered,

stored on the cloud or lying with the end user, experts recommend a systematic method and embrace a shift left approach towards security. Continuous security monitoring methods must be implemented, and security architectures must align with larger objectives. For enterprise-wide security, it's also critical to offer the right security training, guiding documents, and expectations to staff.

- **Analyze the consequences:** Experts propose a systematic strategy and embrace a shift-left approach to security at each stage of data, whether it is dispersed, kept on the cloud, or lying with the end user. It's critical to establish the value of data and the potential consequences of a breach. Strong encryption regulations must be in place, and sufficient time and money should be allocated to creating an incident response strategy that has been tried and tested.



- **Defined roles and responsibilities:** The roles and responsibilities should be clearly defined by start-ups for keeping a careful eye on procedures, taking the right actions, and allocating additional tasks should there be a breach or incident reporting. CTOs of start-ups are expected to provide access to the policies and procedures for evaluation for all stakeholders.
- **Automating security operations:** Many companies still use manual procedures to check security and compliance. The experts advise start-ups to actively concentrate on automating their security operations in order to more effectively combat changing security risks and fully take advantage of cloud-based services. This is of utmost relevance to CTOs who frequently struggle with a shortage of trained cybersecurity experts. The use of centralized management tools and automation

capabilities similar to those employed by many well-established companies is advised for start-ups.

2.5 IT Infrastructure optimization

Moving to the cloud is the cornerstone for optimizing the IT infrastructure and reducing unnecessary hardware costs. The cloud and related tools not only provide better user experiences but also more affordable capacity augmentation. However, a sizeable percentage of a start-up's revenue is wasted due to repeated unnecessary software costs incurred during testing.

Veteran CTOs encourage businesses to constantly prioritize their most urgent requirements while planning for those that will need to be met in the following six to twelve months.

It is essential to monitor billing, repair hardware components closely and set up alerts to a pre-defined financial threshold to optimize IT infrastructure.

CONCLUSION

Digitally native start-ups are changing the rules of the game in unimaginable ways. Their CTOs have been playing a significant role in boosting the digital quotient and achieving higher levels of speed, agility, resilience, and business success. However, it is also clear that while having the best concepts and technological capabilities, they have been dealing with enormous challenges in pushing the accelerator and reaching new milestones.

They need to use technology more strategically and develop a strong plan to develop their growth strategy and fill the gaps in personnel, security, data management, and infrastructure. Accelerating automation efforts, managing talent, and reducing infrastructure costs will be high on the agenda for start-up technology leaders in the months to come. These leaders will continuously strive to give their users an exceptional digital experience and drive new capabilities to broaden their business horizons.



CTO PERS

Top start-up CTOs share their insights on the challenges of scaling up rapidly, how they are addressing these issues, and recommendations for their peers.

PECTIVES

“A brand head is an entrepreneur here and his job is to scale the brand. To support them, we have created a process or a framework wherein, unless a framework is tested to a certain level, we do not invest in an in-house tech team or infrastructure.”

Ajay Tiwari

CTO, Healthkart



Identify the problem before deploying technology



Healthcare is looking at a 50% year-on-year growth. For the coming year, our focus is on creating new brands as well as scaling the current brand. The three pillars that will help us achieve our goal are people, processes and technology.

Post the pandemic, one of the biggest challenges we are facing is acquiring the right talent, motivating them and retaining skilled employees. People are fundamental to the growth of any company. As a leader, I can build processes and deploy leading-edge technologies only if I have the right people driving my vision. Currently, technology leaders are spending 50-60% of their time addressing the people challenge.

Next comes the process. Creating a new brand is like testing a hypothesis. We are a power house of brands and keep on creating new brands, any newly created brands will not have much internal tech investment until it has reached a certain revenue threshold. Brand heads mostly use no code/low code frameworks to prove their hypothesis and reach the revenue to that threshold. Once that is done, we use internal tech investment to scale that brand.

Technology is changing at a fast-paced rate. Over the years, we have seen technologies going obsolete overnight. Embracing new technologies every day then becomes a real challenge. Every technology solves a particular problem. There is no silver bullet technology that solves all our challenges. It is imperative to identify the problem you are trying to solve and then deploy technology accordingly. Adopting technology just because it is 'hot' or for the sake of it never works.

“While it might be challenging to justify the investments, particularly in the short term, automation remains key to capability building and scale of the organizations.”

Anup Daware

CTO, Hector Beverages



Important to identify the right automation opportunities



Automation is the key to building a scalable business. In a setup where there are numerous opportunities for automation, it is crucial to set up a framework to choose the right processes. The framework should consider aspects such as if the process is core to the business (or can be outsourced), the medium-term scale of the operations, and ROI.

Then comes the decision of choosing the right automation solution. In today's world, the term automation is loosely addressed as an umbrella of solutions. Process innovation, new portal/app, Robotic-Process-Automation (RPA), API based integration are all effective ways of achieving results.

As start-ups are flexible by design, continual change is the norm. This raises the question of how to leverage a technology such as RPA for automating the tasks that are changing frequently and perhaps are non-standardized. Building the RPA process stack is not a one-time activity. Unless upgraded and maintained as a continual process, the benefits of automation remain unrealized.

Companies can respond to the changing regulatory requirements and fill the supply-demand gap of talent thanks to automation capabilities. However, the modern landscape of automation platforms is going under rapid transformation, there are numerous options available, and locking into a particular ecosystem for the long term is a judgment call.

Effective management automation capabilities must also be present. Analyzing the skill sets required to handle the entire automation process as well as a successful change management strategy is essential.

To make it a success, automation demands a holistic framework to choose the right opportunities, deploy right solutions and a model for sustenance. Champions from business and tech departments must work closely to realize the gains of automation investments.

“With the talent market being so difficult, you have to scale your internal processes and culture, and that too in a remote setting.”

Apoorva Gaurav

VP, Engineering, Yellow.AI



Focus on building a sustainable company



It is true for almost all startups that you have to scale or perish. With the talent market being so difficult, you have to scale your internal processes and culture, and that too in a remote setting. A common phenomenon I have seen in startups is that most of them are reinventing their company culture every year. The culture you had as a budding startup will not work when you are a 50-member company, and that will not work when you are a 500-member company. So, as you scale, your culture has to change.

With this comes discomfort among employees. They feel that the company has changed and that they no longer enjoy working there as they did previously. This is a Catch-22 situation as the company aspires to grow, but people enjoy working in a nimble and agile set-up. So finding this delicate balance is a big challenge for CIOs of growing startups. We need a more nuanced and psychological solution to the challenge of scaling culture if we want to build a sustainable company.

While startups face several problems related to infrastructure and technology evolution, but these have multiple scientific solutions. As the organisations scale and the startup industry becomes more and more matured, we need to come up with scientific solutions for scaling teams.

“Technologies such as artificial intelligence, machine learning, and algorithms have a great potential to increase performance and supply chain efficiency leading to a more sustainable energy ecosystem.”

**Bhaktha
Keshavachar**

Founder & CTO,
Chara Technologies



Revolutionizing supply chains will be a major focus



We've learned a few lessons from the pandemic and the current crises. that some of the basic materials used in the manufacturing of things we take for granted are incredibly brittle and that the supply chain is particularly vulnerable.

If you haven't heard about redux, please go check it up since it's going to be crucial in the coming few decades. Redux is made up of 15 elements (used in numerous products, including motors, batteries, displays, and defense equipment) on the periodic chart, and help maintain and update data across your applications for multiple components.

Businesses have to identify the best ways such as Blockchain to revolutionize the supply chain disruptions keeping in mind labor shortages, erratic demands, and weather conditions among other critical things. With the cloud at the backbone, technologies such as artificial intelligence (AI), machine learning (ML), and algorithms have a great potential to increase performance and supply chain efficiency.

Another area that is a major emphasis and challenge is data security. There are some specialized applications, such as fintech, where we are required to keep the data for eternity for regulatory reasons, and security is always a nightmare. I'm very certain that we have all experienced two or three hacking attacks.

“As a growing start-up, we rely completely on data to make business decisions. A lot of it is structured, but some of it is unstructured data as well. The challenge is to make this data available to analysts across the company.”

Gaurav Bagga

SVP & Head - Product & Engineering, Pristyn Care



Data defines our long-term growth strategy



As a healthcare company, our top priority in the next six to 12 months is to draw relevant data insights that will help us serve our patients better. We are a completely data-driven company, and therefore we have been able to grow fast.

Secondly, our focus is on providing a differentiated experience to our patients, as it defines our future growth. Further, ensuring employee well-being and building a growth culture is highly important to us. We are currently spending time with different teams to understand their challenges and trying to find ways to solve them.

We are also providing an opportunity to build new products and learn new technologies. In doing so, we are using cloud-based platforms as they help us leverage services without having to reinvent the wheel.

As a growing start-up, we are voraciously collecting data. A lot of it is structured, but some of it is unstructured data as well. The challenge is to make this data available to data analysts across the company. These analysts then derive insights from the data and help us make informed decisions in all aspects of our business. The data team provides insights to the company. We are trying to have a proper data dictionary that will enable all to make use of the data.

“Businesses with a large amount of data are under tremendous pressure on how to leverage it, how to store it, how to retrieve it from legacy systems, how to secure it, and more!”

Hemant Misra

VP - Head of Applied
Research, Swiggy



Data is not the new oil; it is a burden on many occasions



The general paradigm is that data is the new oil. It is only partially true. While having data is essential, there is a limit to how much value it can bring beyond a point. Though some of the recent generative models like GPT and DALL-E have used a huge amount of data to their advantage, not many companies can afford to train these large models with such huge datasets. Moreover, though data is an asset, it could also be a burden on many occasions as it brings with it many associated challenges. Businesses with a large amount of data are under tremendous pressure on how to leverage it, how to store it (and manage its storage cost), how to retrieve it from legacy systems, how to secure it, and more!

We are all aware that data is constantly expanding. In the meantime, it is always changing. Customers' demands are quickly changing today, and the market's demands are likewise dynamic. When collected at scale, in a mature organization, six months to one year of data may be enough in most cases to understand the business's priorities and needs of the customers; we may not need very long-term historical data for everything (there could be exceptions).

We are witnessing a lot of reinventions of technology. For example, first, we had shallow networks in machine learning, and now we have deep learning. Both of them use similar neural network frameworks which were developed decades back. Two major differences between then and now are: newer systems are more deep/complex and data-hungry. Also, in the newer systems, many times we are not able to explain the reasons for the results. One question many of us are facing today is: Do we need to have the explainability today itself OR can we live with the tech debt knowing that the performance of the newer systems for certain tasks is extremely good vis-a-vis that of the earlier systems?

**“As companies grow,
the challenge is to lower
the cost and expand
service availability.”**

Kunal Chourasia

Head of Engineering,
CureFit Healthcare



Rethink your tech strategy



Over the last few years, the world has changed completely. As companies grow, the challenge is to lower the cost and expand service availability.

At Curefit, we had to reinvent ourselves during the COVID-19 pandemic. Our primary business was offline, wherein our revenue went to zero. We had to pivot and build an online digital fitness solution. This is now a monetised service that aims to make fitness accessible. How do you bring fitness to a homemaker who cannot step out of the house or to people who do not have time to visit the gym? And you also have to make it very engaging; this is where the technology comes in. We have created the model, but how do we scale it up?

Moreover, we want to make the price as low as possible. In India, if someone pays Rs 99 per month for a Hotstar subscription, will they spend more than that for a fitness subscription? My core concern in the next six months is how to bring down the infrastructure cost, so I can make my service accessible to a larger set of people.

Another challenge is how you make the business sustainable in the long run. For example, we were building a model similar to Peloton wherein many people take a class together, and there is a leader board, which requires a machine learning model. So, you need to rethink your tech deployments. A thumb rule that I like to follow is that once your technology has crossed three years, you have to scrap it and rethink your tech strategy.

“In the pandemic, our revenues took a nose-dive, but the traffic surge on our platforms was 3x. Everyone was at home and browsing through cars! This was a huge challenge, but the entire leadership took a stand. We ensured that there was no impact on the customer experience we deliver. Pre, during or post-pandemic; we ensured that CarDekho remains a customer’s first choice.”

Naveen Gulati

CIO, GirnarSoft (CarDekho)



Scaling up has never diluted customer experience



With CarDekho, Gaadi.com, Ruppy and InsuranceDekho, we are an intrinsic part of the start-up world. In the start-up ecosystem, businesses need things to be done as of yesterday. In such a scenario, there is rarely much focus on information security or compliance. Instead, the emphasis is on launching new ideas or responding to the moves of competitors. This, I would say, is an everyday struggle for every disruptive tech start-up. Another issue that has blown up during the pandemic is that of people. With a talent shortage, it has become extremely difficult to attract and retain talent.

We are a start-up that was born and has grown in the cloud. This helped us survive the pandemic and lockdown. We experienced one fascinating thing during the pandemic. Revenue-wise we took a hit but witnessed a three times traffic surge on our platforms. Everyone was at home and browsing through cars! This was an absolute first for us, and we were clueless about what to do and how to leverage this trend.

However, we took a stand that we would ensure there was no impact on the customer experience we deliver. No matter how much we have to scale our infrastructure, we will give our customers the same sub-zero millisecond latency that we have been providing. We were sure we had to maintain the brand reputation we had painstakingly built over the last few years. We survived this because we were already using the cloud. This ensured that scalability was not an issue for us. All the larger platforms were already on microservices, and this helped us contain our costs to a larger extent.

“As CTOs, it is our duty to show team the larger picture, how to leverage disruptive technologies to create business impact and relate the impact of their work with organization goals.”

Pankaj Kankar

Chief Product & Technology
Officer, AJIO/Fashion &
Lifestyle, Reliance Retail



The people challenge has grown 10X during the pandemic



There is little doubt that in 2021, we witnessed a significant change in the talent market. It is now exceedingly difficult to acquire and retain talent. While this issue was prevalent earlier too, it has grown 10X during the pandemic. Our entire roadmap, which we have created based on our goals, boils down to acquiring & retaining the right talent. Unfortunately, there is a huge gap in the talent we need vs. what we have. Appropriate talent is key to realize our audacious vision

As leaders, we have to play the role of a coach to our team members. We need to find ways to engage them, connect with them, and play an active role in their growth. Technology is no longer a differentiator but lifeline of businesses across spectrum. As CTOs, it is more important now than ever to clearly articulate the organisation vision to the team, establish technology vision in harmony with the organisation vision, and inspire team with it. It is our duty to show team the larger picture, how to leverage disruptive technologies to create business impact and relate the impact of their work with organization goals.

The second challenge I have seen across my different roles is to achieve excellence at scale. When a company starts in a product-market fit and achieves excellence in its domain, the next step is to scale. Unfortunately, this is where they fumble. Some companies retain their excellence but are slow to scale, on the other hand, most companies that are able to scale end up losing their excellence. The key is to traverse this trajectory where companies can maintain their excellence while scaling.

“As we build different solutions, we realize they are tightly coupled. The challenge here is to uncouple them and make them interoperable to quickly and easily achieve scale.”

Puneet Kumar

VP - Products, Moglix



Keeping the data accurate to enable collaboration is key challenge



We are a very young start-up in the B2B commerce space aiming to bring the manufacturing sector into the digital era. While sectors such as retail, healthcare, and banking, among others, have embraced new-age technologies, the manufacturing industry has some ground to catch up. It is hard to believe but Indian manufacturing companies continue to use machinery that old. You may not even have heard of the parts they need to procure.

We have built products and solutions on the supplier side, customer end, logistics front, and more. The biggest challenge we face is how to bring all this data together. How do we assimilate it, make sense of it and derive insights from it to drive growth? In our business, most of the data is external – it comes from our customers, suppliers among other sources. So, the key challenge for us is how to keep this data accurate and relevant for all parties involved so they can collaborate better.

Secondly, as a start-up looking to grow fast, we are trying to come up with new products and solutions to enter new markets. As we build different solutions, we realize they are tightly coupled. The challenge here is to uncouple them and make them interoperable to quickly and easily achieve scale. This is a challenge that companies face typically face in the growth phase.

“We tend to ignore the larger vision in our zeal to quickly introduce new products in the market. Unfortunately, this way, we spend a lot of time and effort in redoing and revising in the long run. It will be beneficial if we invest more time during the design stage itself. We mistakenly believe we are being agile and saving time, but this approach is counterproductive.”

Ram Awasthi

CTO, Gaana.com



Security should be an intrinsic part of design



Typically, security is not part of product planning, resulting in many gaps. In my experience, this has massive ramifications in case of an eventuality, but by then, it is already too late to fix the problem and address the security gap. I believe we can avoid all this by ensuring that security is, by default, part of our product development lifecycle. Security should be part of the culture and not an afterthought in product design.

We have learnt it the hard way and now we have created an in-house Center of Excellence for security. We have also collaborated with White Hat security researchers, who regularly conduct vulnerability assessment tests of different applications. We also work with them to fix any security-related gaps.

Apart from the need to rethink our approach to security, I believe we tend to ignore the larger vision in our zeal to quickly introduce new products in the market. Unfortunately, this way, we spend a lot of time and effort in redoing and revising in the long run. It will be beneficial if we invest more time during the design stage itself. We mistakenly believe we are being agile and saving time, but this approach is counterproductive. We have now adapted this in our design strategy. We think about how the product will evolve and implement those in the first phase itself. Our mantra now is to design for 10X and deploy for 3X, so we don't end up spending time and effort on designing in the next run-up.

“Security aspect must be evaluated at every level and should be part of the design, not an afterthought”.

Raman Pillai

Director IT,
VerSe Innovation



Security has to be done by design



I believe that the core challenge of security must be fixed at the design level. As a startup, it becomes even more critical as well as challenging to find the right security deployments for the company. Talking about my own company, we have access to data from customers' vehicle number, registration numbers, Geo Location, mobile number, email IDs, and more.

So, the security aspect must be considered at every level and should be part of the design, not an afterthought. If the firmware is compromised when the vehicle is manufactured in the factory, somebody can remotely control it, you have already lost the game, thus OT security is important.

On the other end, we cannot leave security at the mercy of the coder or security team, it has to be embedded in processes and systems. We must ensure every level is secure -- from the IDE from where the coder is coding it to the different gateways from where the whole application pipeline flows like Git report, CICD till the production deployments, systems and its interfaces and APIs. Moreover, we must ensure continuous monitoring and securing of applications at each of these levels.

Data is scattered; stored on the cloud, SaaS based CRM, ERP, at Stores or in the customer owned vehicle, we need a systematic method and embrace a shift left approach towards security.

Additionally, talent acquisition and retention are a major challenge for organizations today. It takes a significant amount of time to convince people why some companies and startups are a great place to work, what they are doing that is technologically exciting, and sometimes more challenging with new problems which industry have never faced and why they should join. Of course, you cannot hire an army of security engineers as threat scape is wide and thus support from security partners is eminent.

“We cannot do everything on our own in all the four areas of people, process, practice and platform. I believe collaboration in these four areas is crucial to addressing the market needs, providing an exceptional business case and growing our business in line with our strategy.”

Rana Pratap Singh

VP - Technology & Digital
Transformation, Pine Labs



Collaboration is key to thriving in the competitive era



Over the last few years, at Pine Labs, we have developed many applications and solutions in terms of contactless payments and payment gateways for offline and online payments. These are very tricky applications that require optimized IT infrastructure to run them. From mobile applications and servers to cloud or mainframe, we support a variety of things for these applications.

People, process, practice and platform are the four key pillars for any company to run on. While we try to do a lot of things in all four areas, we cannot do everything on our own in all four areas. I believe collaboration in these four areas is crucial to addressing the market needs, providing an exceptional business case and growing our business in line with our strategy.

We are still exploring how to optimize whatever things we have in terms of robotic process automation, and BI [Business Intelligence] dashboard, among others, where we still have a lot of manual interventions.

In the kind of competitive business we are in, we need to collaborate with others to thrive. A few years ago, we came up with an initiative called, Integration. As I mentioned, we have several different types of businesses – online and offline. We need to provide a platform where we can integrate with even our competitors as well. For example, some customers may like our gateways but not our data analytics. Our application should be designed in such a way that we can integrate with anyone where we can leverage their expertise and create a win-win situation for everyone.

“A significant difficulty that needs careful consideration is figuring out how to execute integrations in advance.”

Ripunjay Bararia

Co-Founder & CTO,
Sugarbox



Need more than just reinventing the wheel



All of us, over the years, have been working with various technologies at one point or the other and often come to a juncture, where we have had to "integrate" and "scale" external players into our ecosystems. During such times, the primary requirement from business is either to "compete" in the market or to grow faster. Teams involved in doing such integrations are often caught on the backfoot, as they navigate through two very different tech-stacks and various definitions of simple tech terminologies, across teams. For example, "microservices" for one team might mean - various services spread across the cloud infrastructure and each operating independently. Whereas, for another team "microservice" might denote - architecture with a highly scalable front-end service that is tied together at the backend, via a big fat layer of "caches" and "proxies".

Independently, both these explanations are probably correct, but integration of these two by any single team becomes challenging. So, for integration and scaling there isn't any standard playbook, or a one size fits all approach. Each integration is a unique problem and scaling it up to serve millions of users is a completely different one. This is where the biggest assets of any company shine - 'People'. Ensuring the right set of people are looking at the right task at hand, and then ensuring that teams are involved in delivering the desirable output, is a tall task. But if people management is closely designed, every integration or scaling or any other challenge, becomes a walk in the park.

“Standardizing processes through automation also enables businesses to grow, meet compliance and regulatory requirements, launch new goods and services, and concentrate on innovation.”

Sachin Gupta

CIO, Amagi Corporation



Continuous process improvement is key



Continuous process improvement is essential for any firm. It is crucial for startups to be adaptable enough to ride the wave of success because consumer interests and needs are shifting at a breakneck rate. Continuous process improvement is not just merely an option, it is necessary for any type of company and industry nowadays. In that sense, automation is essential to success. Standardizing processes through automation also enables businesses to grow, meet compliance and regulatory requirements, launch new goods and services despite difficult market conditions, and concentrate on innovation. One of the biggest areas of concern even in this aspect is knowledge management. You need to have a robust change management process to improve and strengthen processes.

For instance, we offer specific trainings to new hires to our company to assist them in understanding the fundamental culture and various organisational procedures. Additionally, we offer a library of videos and how-to guides that allow our employees to regularly brush up on their knowledge or learn about new processes.

Process enhancement and automation has become all the more critical in a market which faces shortage of talent and you face consistent challenge to get the best out of talent.

Process simplification increases output and effectiveness while reducing expenses. In addition, automated tools also enhance visibility around customer service process and drive meaningful conversations with them through effective feedback mechanisms. Although we certainly aren't where we want to be with various automation technologies, there has been constant focus.

“We must ask ourselves if we are giving our vendors a fair price increase. Are we renegotiating at the renewal time? It's a mindset issue and the workforce problem is related to this. If an organization is not going to make money, how will it pay more to its employees? If this mindset changes, things will change.”

Samiran Sengupta

CEO & Co-Founder
JustMyRoots



Be fair to the vendors to scale smoothly



We are a listed company on the National Stock Exchange in India. We got listed in 2017 and got oversubscribed 86 times. It is common knowledge that it is difficult to get an anchor investor but because of the strength of our business, we were able to get two anchor investors, HSBC Mutual Funds and Yes Bank.

Like for several industry verticals, the pandemic has changed our business. While the pandemic was terrible for several industries, it was excellent for us. We recorded exponential growth during the pandemic. We are now working towards realizing our vision of 100% growth this fiscal year.

Human resources is becoming a significant concern. The main challenge in the Indian mindset is that we tend to bargain a lot. We do not want to pay but want the best of services. Businesses across sectors have to pay minimum wages to be compliant with the government. Moreover, the government has been increasing the stock price every few months. But we must ask ourselves if we are giving our vendors a fair price increase. Are we renegotiating at the renewal time? It's a mindset issue and the workforce problem is related to this. If an organization is not going to make money, how will it pay more to its employees? If this mindset changes, things will change.

Regarding technology, it is continuously evolving every day we must be practical in how to scale. I believe the combination of technology, infosec and strategy have to come together. That is the only way to grow.

“In a technology deployment, there are so many aspects that need to be thought through – from integration, cost and scale to security.”

Satya Kaliki

CTO, Infra.Market



While tech is available, there is no playbook on how to use it



There is little doubt that technology is changing rapidly and can offer disruptive solutions to business challenges. Even so, there is no playbook on how to use it to build something comprehensively. Everything needs to be done purely based on experience. I believe this is one of the biggest challenges technology leaders face.

In a technology deployment, there are so many aspects that need to be thought through – from integration, cost and scale to security. We, as CIOs and CTOs, need to find answers to all of this by reinventing our own way of building a technology infrastructure unique to our business needs. Moreover, we need to do this very quickly, as, in the dynamic startup world, there is no time to create a roadmap and work towards it.

Secondly, talent acquisition and retention occupy a lot of bandwidth. There is definitely a shortage of talent as few people have expertise in new technologies and come with a mindset to solve real problems. Even if we find them, retaining them is a different ball game altogether.

Lastly, managing and leveraging data using analytics and Artificial Intelligence (AI) is emerging as another massive challenge. The general view is that the more data you have, the better your algorithms perform. But do we really need all this data? People store data because they don't know when they will need it or if they will need it at all. Also, there is no traceability as you don't know when the data will start losing its value, what is the value derived from the stored data or whether it was actually used in a training model. And keeping all this data secure is another mountain to climb!

“The challenge arises when there is an influx of customers and businesses have to think about scalability. To manage this growth, start-ups have to think about architecture, information security, multiple clouds, compliance, and more.”

Shailendra Gupta

Chief Product & Technology
Officer, University Living



Too much focus on now and present is the challenge



University Living is a global student housing managed marketplace and a unified 360 degree solution with a mission to transform the student housing ecosystem and deliver the best-in-class living experience. Through our platform, students can search, compare and book accommodation from over 1.75 million beds in 300+ student popular cities across the UK, Ireland, Australia, Europe, USA & Canada. We have also added a host of post-admission value added services to make student's transition easier. Despite the pandemic, we survived and saw 2X growth because we were also serving domestic students in these markets. Now the goal in the next 12-18 months is to achieve five times growth.

When a start-up is launched, a lot of things get overlooked. This is especially true for unfunded start-ups. Without the requisite funds, it isn't easy to plan in a strategic, idealistic manner. The focus is to get things up and running to cater to current needs. The challenge arises when there is an influx of customers and businesses have to think about scalability. To manage this growth, start-ups have to think about architecture, information security, multiple clouds, compliance, and more. A start-up with a lean team finds it very difficult to understand these various nuances. The solution for this is to work with consultants who can bring in their expertise and help start-ups navigate these challenges.

Another challenge that every technology leader will highlight is that of people. In today's market, getting the right talent has become extremely difficult. While there is a shortage of skilled people, another aspect that adds to this problem is our expectations. Therefore, businesses need to manage their own expectations from the talent force. Instead of hiring based entirely on skill sets, hiring people with the right attitude and a good balance of aptitude is imperative, and then grooming them.

“We are attempting to extensively leverage AI and ML for better and faster output and enhancing our current skills.”

Sudhakar Reddy

AVP - IT & Studio Operations,
88 Pictures



Finding the right tech can be a challenge



Tech-enabled start-ups have been able to provide great value to clients with the aid of technologies like artificial intelligence (AI), algorithms, and automation. The use of cutting-edge technologies in the animation industry are well known. As an animation studio, we focus on producing premium 3D animation with high aesthetic standards and cutting-edge technology. We use sophisticated automation in our daily workflows. Additionally, virtual reality and augmented reality have been among our strengths.

Certain studios have made substantial use of AI and ML to quickly create rich, original content. Additionally, we are attempting to embrace AI and ML for better and faster output and to enhance our current skills. Animators can focus on generating and animating instead of complex manual tasks. Some AI capabilities supply animated mesh frames that's easier to handle. These emerging technologies can assist in converting static visuals and photos into animated ones that are seemingly realistic. One can be quite productive using these kinds of tools.

With these tools, our artists have been experimenting a lot and have seen excellent outcomes, such as in capturing the delicate detail to model a still 3D face.

Many OEM software providers now offer solutions that make it possible to read data from various software. Finding the best fit for your organization can occasionally be a difficult challenge because technology is constantly growing and we want to be on the cutting edge.

“For start-ups actively looking at boosting security, the primary focus should be customer data. If you know where your customer is and the flow of your data, then half the job is done.”

Vikas Yadav

CISO, Nykaa



Be aware of the customer data flow to secure it



Security has gained a lot of prominence in the start-up world in the last two-three years, and rightfully so. There has been a vast improvement from the previous decade when security was an afterthought. Security has now come into the limelight and demands a place at the table. Having well-thought-out security measures in place not only enables the business but also brings in speed, agility and scalability.

For start-ups actively looking at boosting security, the primary focus should be customer data. If you know where your customer is and the flow of your data, then half the job is done. If you have built a good architecture and built your systems well, then you will have a good understanding of where your data is flowing. On the other hand, if you are just building and patching products and you are not aware of the flow, then you don't know what to protect. The ramifications of ignoring security are immense and start-ups are beginning to understand that.

Talent is most definitely a significant challenge for start-ups. Coming from a defence background, I would say there is a lot of similarity between how the Army and start-ups function. The focus is on getting the job done. This is why the transition was very smooth for me. To all the start-ups fighting the talent war, I would say the Army is a great place to hire the best people!

“Businesses want to grow fast, which is worrisome when the product lags. You need to move quickly and pivot to market and customer demands.”

Vikram Verma

Site Leader & SVP -
Engineering, CredAvenue



Automation + platformisation + agility = success



I believe automation is key to managing growth. However, automation comes with its own challenges. For instance, when you look at it in a pipeline, you realise that you have automated a particular process but not the next step, which becomes a bottleneck. This then becomes a lever for you to find the next solution. If you have the mindset to automate as soon as possible, you can solve all these challenges.

The next thing is about scaling. The theme that works for me a lot of time is automation plus platformisation. If you can identify platforms that can be developed, for example, knowledge management solutions or boot camp for people, then it becomes very self-sustainable and helps you scale to the next level.

The third critical aspect is agility. Businesses want to grow fast, which is worrisome when the product lags. You need to move quickly and pivot to market and customer demands. So, in a way, all three factors – automation, platformisation and agility tie together.

It is difficult to justify all your automation efforts if you take the planned obsolescence approach. I have a contrarian view on it. I believe don't fix it until it is broken. If you have a decent solution that works, don't mess with it. If it is creating a constraint in your pipeline, then yes, find a solution for it. Re-architecting for the sake of it doesn't work because you will just end up negatively impacting the business rather than enabling it.

Re-architecting at times is necessary though in order to solve the problem in a manner that is better than the previous solution. At times, the constraints in your current architecture will necessitate the need to re-architect rather than make incremental changes in the current one.

“The more significant issue is what to do with so much of data and how to derive relevant insights.”

Vineeth Narasimhan

Founder & Director
Kristal.AI



Collecting data is easy; deriving insights from it is a different ball game



The challenge of data is linked to the maturity of the organisation. A couple of years ago, our CEO decided that we should build this product that is around recommendations. He presented this challenge to our team.

At that time, while we had a point of view on how to go about it, we had no way to validate it or build it out further. We were at a nascent stage and didn't have enough data that would give us credible information about our customer's behaviour, profile, demographics, etc. We then decided to concentrate on data collection since we were in the early stages and didn't have much to work on.

The cost of collecting and storing data is not an enormous burden. There are effective means to handle this in a growing company. The more significant issue is now that we have the data, what we do with it, and how we derive relevant insights that can help propel the company to the next level. Given the talent crunch we are facing in this space, it is a very costly affair to get the right people who can make sense of it. It cannot just be done by an engineering or a data scientist team as what they come up with will be very hypothetical or technical. We need someone from the business side to be also involved, which is another challenge altogether.



**Ajay
Tiwari**
PG. 22



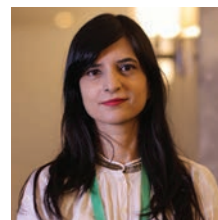
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Daware**
PG 24



**Apoorva
Gaurav**
PG 26



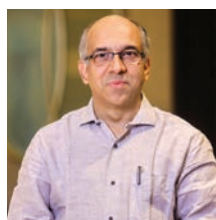
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Keshavachar**
PG 28



**Bhawna
Agarwal**
PG 7



**Gaurav
Bagga**
PG 30



**Hemant
Misra**
PG 32



**Kamal
Kashyap**
PG 7



**Kunal
Chourasia**
PG 34



**Naveen
Gulati**
PG 36



**Pankaj
Kankar**
PG 38



**Puneet
Kumar**
PG 40



**Ram
Awasthi**
PG 42



**Raman
Pillai**
PG 44



**Ramu
Raghavan**
PG 7



**Rana Pratap
Singh**
PG 46



**Ranganath
Sadasiva**
PG 7



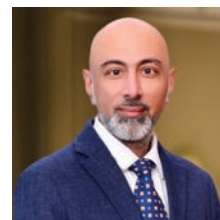
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Bararia**
PG 48



**Sachin
Gupta**
PG 50



**Samiran
Sengupta**
PG 52



**Sanjiv
Mehta**
PG 7



**Satya
Kaliki**
PG 54



**Shailendra
Gupta**
PG 56



**Shilpesh
Shah**
PG 7



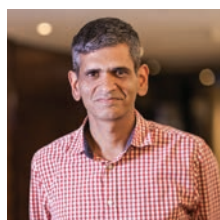
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Das**
PG 5



**Sudhakar
Reddy**
PG 58



**Suryanarayan
CS**
PG 7



**Vikas
Yadav**
PG 60



**Vikram
Verma**
PG 62



**Vineeth
Narasimhan**
PG 64

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