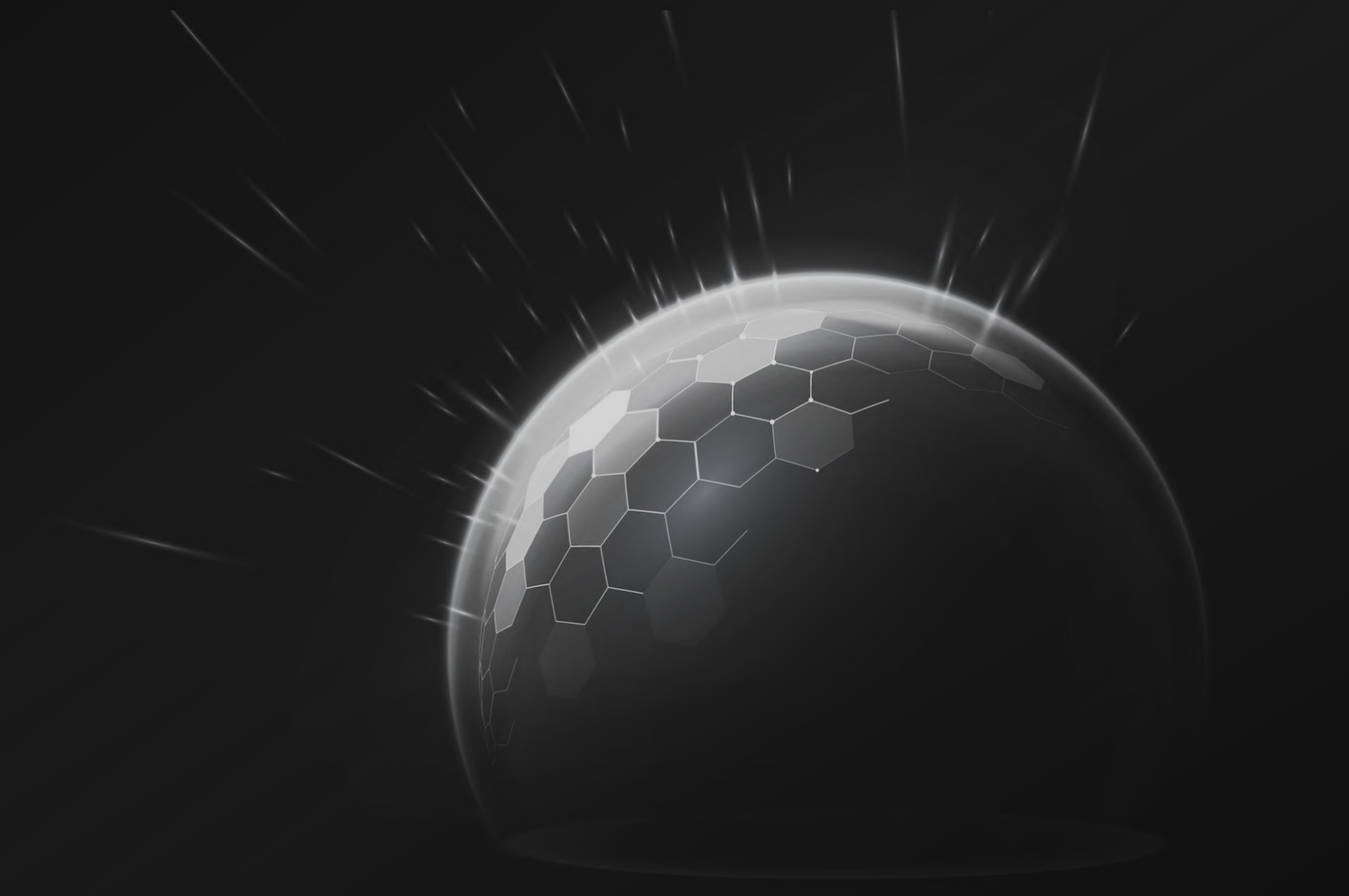
# IT Resilience Playbook

A Comprehensive Approach to Strengthening Your IT Processes and Operations



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# Preface

Over the past several years, the global communities have been hit by a series of adverse events that shaped the current business climate.

First, COVID-19 changed the habits and demands of global consumers, forcing businesses to adapt to stay afloat. Leaders accelerated the adoption of digital technologies, applying them to advertise, showcase, and deliver their products and services while maintaining customer and employee safety.

59% of organizations have accelerated their digital transformation due to the pandemic.

IBM

Now, geopolitical uncertainty, inflation, and rising resource costs are slowly adding up to the echoes of pandemics.

As the next recession is looming, businesses once again have to re-draw their future strategy for growth. Many are focused on improving their existing business operations — increasing operational efficiency, leveraging IT automation, and managing supply chain risks — to thrive at present. Others are more focused on ensuring long-term growth and innovation.

80% of businesses plan to shift their innovation approach from creativity to resilience.

Forrester


What remained consistent over the previous periods of instability is businesses' dependence on technology. In the next wave of disruption, the reliance on technologies — as an enabler of business continuity — will become even more critical.

Companies are committed to improving their business performance while allocating resources for innovation and building secure and scalable IT systems. To accomplish both, they will need to adopt a "tech-driven" mindset. In other words, they need to achieve IT resilience.

> The world is experiencing a level of disruption and business risk not seen in generations. Some companies freeze and fail, while others innovate, advance, and even thrive. The difference is resilience.
>
> McKinsey

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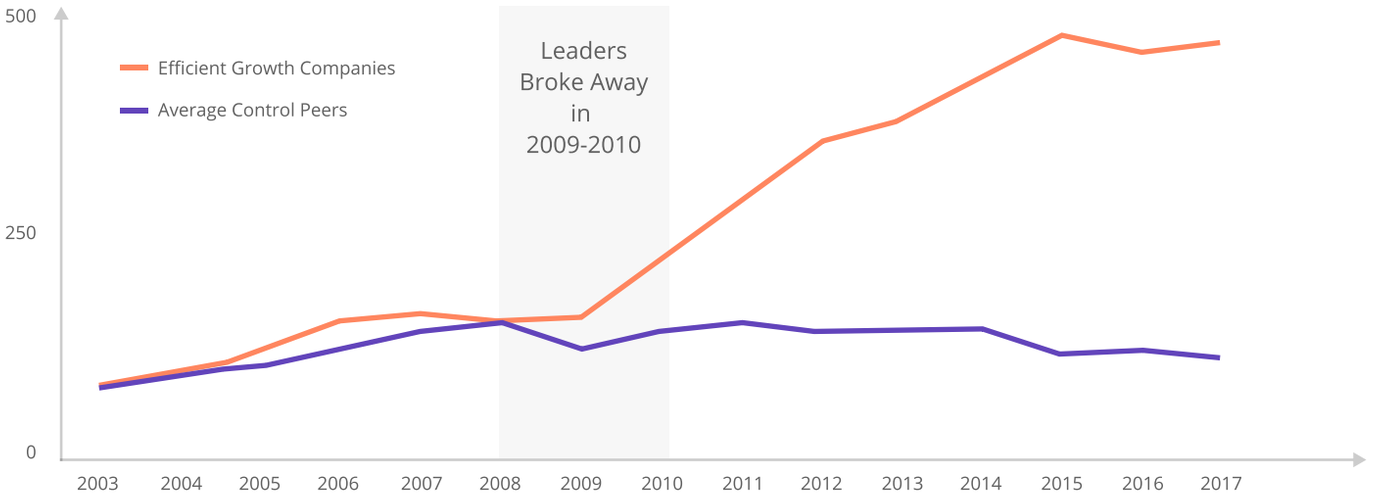
# A Glance Back to Move Forward: Takeaways From Past Crises

Global recessions – whether caused by natural disasters, economic mishaps, or geopolitical turmoils — test businesses' ability to respond to new conditions and maintain their existing operations. Companies that apply lessons learned from previous downturns and are not afraid to (re)invest in strategic initiatives — eventually gain growth momentum. As Gartner puts it, “Winners accelerate in the turns''.




We witnessed the above dynamics during the global pandemic. According to PwC’s Global Crisis Survey 2021, 70% of respondents said pandemics had a negative impact on their business. Meanwhile, 20% indicated a positive tendency. What helped the latter group tone **down the negative effects?**

Crisis response plan enabled high-performers to quickly allocate resources and stabilize operations.

Resilience culture equipped teams with a mindset, practices, and tools to proactively respond to risks.

Retrospective analysis helped businesses determine the strong/ weak areas and get better prepared for the future.

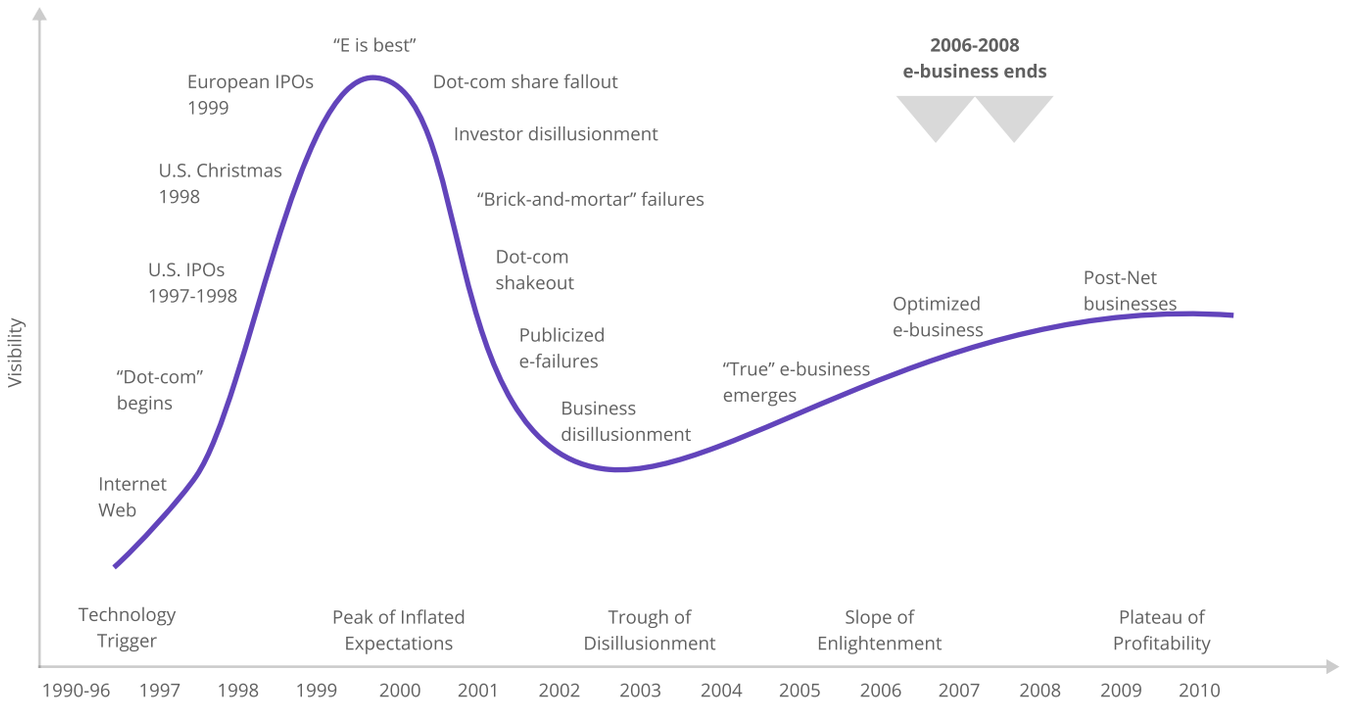
Retrospectives are an important component for building IT resilience, yet are an often overlooked practice. Although each recession presents unique challenges, learning from past experiences is a valuable source of best practices.


# Dot-Com Bubble – a Pure Tech Crisis (2001-2002)

## Crisis Outbreak

Surging web traffic prompted substantial investments in tech startups. More and more dot-com companies entered the stock market. The Nasdaq Composite Index skyrocketed from **740 to 5,048 companies** between 1994-2000. However, most dot-coms did not have a solid business plan and did not generate profits. Most aggressive ones burnt the raised capital on advertising and customer acquisition. In 2000, the bubble burst with most dot-com businesses declaring bankruptcy. Even the leading high-tech companies, like Cisco and Intel, lost more than half of their stock value.

## The Dot-Com Hype Cycle:




Source: Gartner

### Success Story of Amazon

The money Amazon raised before the bubble burst was sufficient to deal with the market volatility. A key element of Amazon's resilience strategy was to evolve even when the market didn't. Amazon maintained a sharp focus on **customers' needs, continued with strategic profit reinvestment, and released innovative offerings.** In the aftermath of 2000, Amazon tapped into the European ecommerce market, launched Amazon Prime and Amazon Web Services, and created the concept of Kindle.

> As the stock price was going the wrong way, everything inside the company was going the right way.
>
> **Jeff Bezos,**
> CFO & COO, BigCommerce

### Success Story of eBay

After the bubble burst, eBay's core coping strategy was to **reach out to its users**. By putting the idea of community at the center of its operations and business model, eBay created a prototype of the future successful marketplace, which connected small businesses to sellers. They also added a simpler payment option (by acquiring PayPal in 2002). Moreover, eBay's team surveyed users on which new features they wanted and updated their platform accordingly. Such a customer-centric approach helped eBay thrive through the crisis.

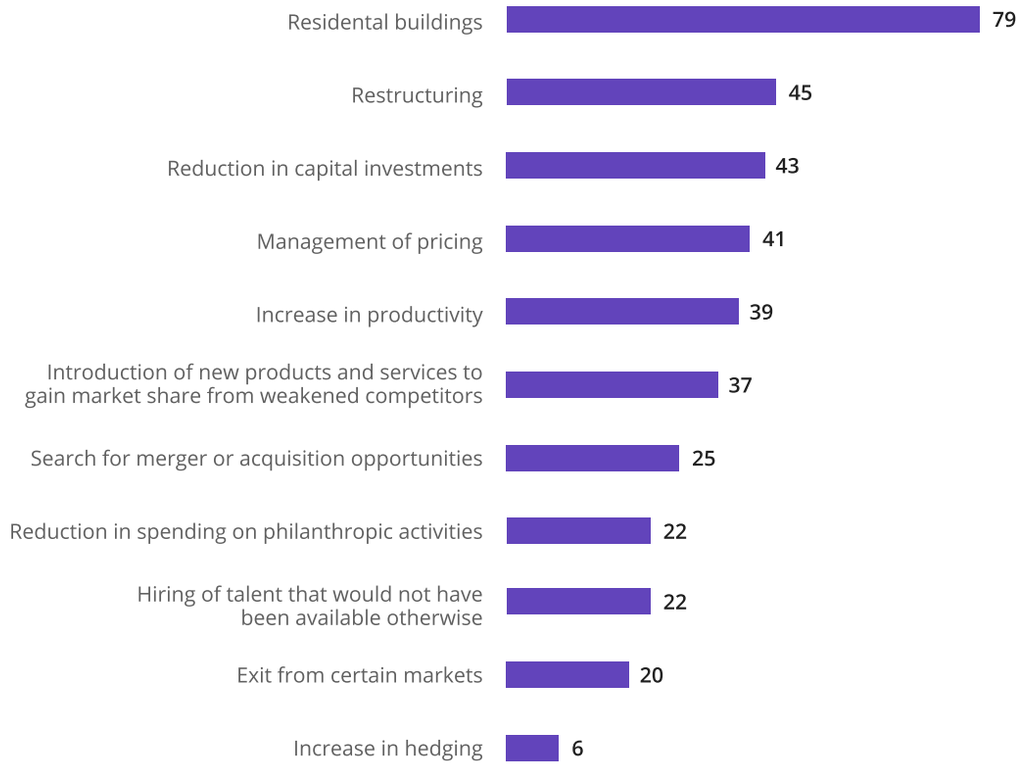
## The Great Recession (2007-2009)

### Crisis Outbreak

Prior to 2008, investors, homeowners, and bankers held very optimistic views about the US economy. The collective oversight led to an increase in high-risk bank loans and further credit overconsumption. As the borrowers' purchasing power increased, housing prices rose astronomically until the bubble burst, causing havoc across all financial markets. A number of investment banks collapsed or had to be bailed out in September 2008 due to the devaluation of mortgage-backed securities.

The 2008 financial crisis impacted small businesses more severely than large ones, causing budget cuts and employee layoffs. To at least stay afloat at that time, companies took the following steps.

## Steps Companies Have Taken as a Result of a Global Turmoil




Source: McKinsey

### The Role of Tech in Recovery

Most businesses chose “cost reduction” as the coping strategy. Often, IT was a go-to source for cost optimization. Companies could achieve higher performance at a lower cost by **evolving their IT architecture, consolidating legacy systems, and introducing process automation**. According to Deloitte, 50.3% of respondents indicated improvements in tech as the top three reasons behind the rise in business productivity since the onset of the Great Recession.

> Aside from saving money, information technologies helped ease the impact of the 2008 recession by enabling tech-based financial companies to fill the bank markets left vacant by failed institutions.

### Success Story of Netflix

Amidst the recession, not only Netflix's operations remained stable but the company also started to pick up growth. As consumers tightened their belts, Netflix decided to maintain low prices for its DVD rental service. Such a decision drove a loyal customer base, increasing the number of subscribers to more than 10 million by 2009. At the same time, Netflix started **plotting its future growth strategy and went digital**. Inspired by the rapid development of YouTube, the company introduced the video-on-demand web service (the one we know today). Netflix also landed a technological partnership with Xbox, which allowed them to stream movies on consoles as well.

### Success Story of MailChimp

Faced with the tight market, many businesses had to optimize their advertising costs. MailChimp, like eBay in the 2000s, took the approach of **customer-centric product development**. In 2009, the company switched to a freemium model (which they still maintain today). Within a year, Mailchimp's customer base grew from tens of thousands of users to a million.

## The Global Pandemic (2020-2022)

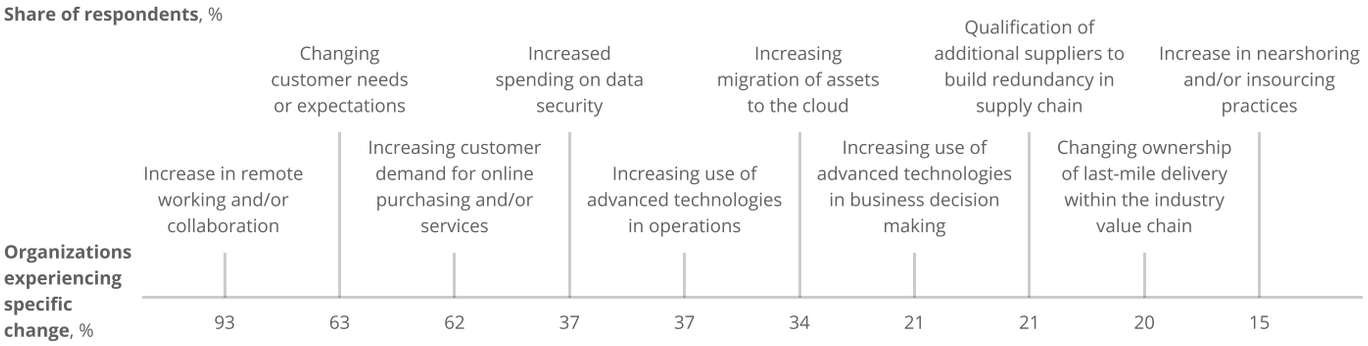
### Crisis Outbreak

The COVID-19 virus spread rapidly across the globe in 2020, forcing governments to take strict containment measures. With lockdowns and imposed social distancing rules, businesses had to transform several areas at once: supply, distribution, and operations. Global supply chains got fractured. Fulfillment became constrained. Consumers shifted to online spending and the workforce had to adapt to remote work. Many companies —- especially those with a strong brick-and-mortar footprint — initially laid off employees and switched to perseverance mode. The entire business world seemed to have stalled for a couple of months.

### A Turning Point

Global consumers, however, swiftly transitioned most of their everyday activities online. In March 2020 alone, 43% of internet users increased their in-home media consumption, and 27% — bought hygiene products exclusively online. The use of VPN services back then rose by 190%. Businesses, in turn, had to meet this major shift in consumer behaviors, changing their distribution channels and investing more in IT infrastructure.

## What Businesses Dealt With During Covid Crisis:




Source: McKinsey

### Pandemic-Propelled Demand for Tech

The sudden slowdown and then revival of business operations in 2020 affected the technology sector as well. Similarly to the previous downturn, some companies initially chose to cut back on IT costs and lay off tech staff in order to create a financial cushion for securing their future. Between April and June, at least 60 thousand tech startup employees lost their jobs.

But this crisis was different for the world of tech. Global consumers adopted digital channels, and companies had to follow them there. By 2021 global IT expenditures skyrocketed, growing by 10%.

## Worldwide IT Spending (in Millions of Dollars)

| | 2020 Spending | 2020 Growth (%) | 2021 Spending | 2021 Growth, % |
|---|---|---|---|---|
| Data Center Systems | 178.466 | 2.5 | 189.506 | 6.1 |
| Enterprise Software | 529.028 | 9.1 | 732.030 | 14.8 |
| Devices | 696.990 | -1.5 | 807.580 | 15.8 |
| IT Services | 1.071.281 | 1.7 | 1.207.966 | 12.8 |
| Communications Services | 1.396.287 | -1.4 | 1.459.483 | 3.8 |
| **Overall IT** | 3.872.052 | 0.9 | 4.396.565 | 10.2 |

Source: Gartner (July 2021), Gartner (October, 2022)

Since The Great Recession, the view of digital technologies has progressively evolved from a “cost-saving tool” to a “critical business component”. The increased reliance on IT services augmented the need for IT talent. In 2020, 87% of companies recognized that they had a technical skills gap or would face one the next year. The demand for some tech competencies rose to unprecedented levels: by 319% for DevOps and by 137% for Python, as per Robert Half's report. Companies with a strong tech backbone were the first to harness the digital-led growth, created by the pandemic.

Eventually, almost every company had become a tech company and invested in digital transformation initiatives. **Businesses shifted to omnichannel selling, pioneered new online offerings, and adopted advanced analytics to better predict demand surges and manage supply, inventory, and delivery.**

> The business had made more progress in e-commerce in the past six weeks than in the previous three years.
>
> McKinsey, as of October 2020

### Success Story of Microsoft

Microsoft saw a substantial demand for its offerings during the onset of pandemics, just as the global workforce transitioned to remote working and education. With unprecedented sales of Azure, Teams, Office 365, and Xbox, the tech giant hit a $2 trillion market value.

Such massive growth in use bases initially caused outages of Teams, Outlook, and Office 365. However, Microsoft was swift in adapting its IT infrastructure to handle peak traffic loads. The company doubled down on its investment in Azure services to meet the growing demand. They added new servers to regions with the most traffic spikes, implemented better site reliability engineering (SRE) practices, and expanded support options among other strategic actions.

> Fortunately for Microsoft, the investments we have been making over the last couple of years align very well with what they [businesses] are prioritizing
>
> **Mike Spencer,**
> the Head of Microsoft's Investor Relations

**Success Story of Zoom**

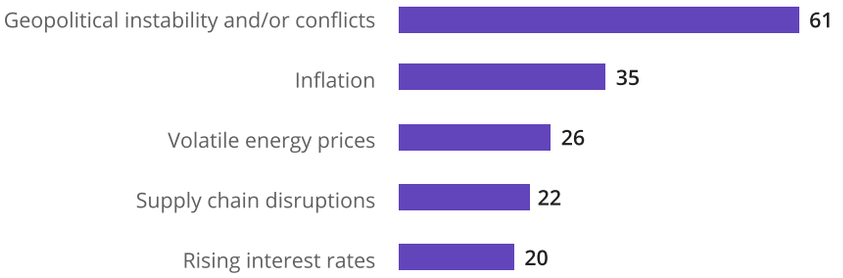
While other video conferencing apps were more popular prior to the pandemic, Zoom's ease of use and easy setup made it a new user favorite in 2020. In early 2020, Zoom decided to offer its app for free to a lot of non-profits and schools. Consequently, between the years 2019-2020, the profits of the company rose from $21.7 million to $671.5 million. To handle the increasing demand for their services, Zoom added servers into the company's data centers and transitioned part of its IT infrastructure to multiple cloud providers – Amazon Web Services and Azure.

# Becoming Tech Resilient to Power Through the Permacrisis

Analysts are still divided on the exact timing of the next global recession, but we all feel it's getting closer.

Echoes of the pandemic, the energy crisis, growing private and public debt, inflation, and Russia's aggression against Ukraine have built up to a state of a permacrisis.

## Potential Risks To Economic Growth in 2023:




Source: McKinsey

> Permacrisis (noun) – an extended period of instability and insecurity, especially one resulting from a series of catastrophic events.
>
> Collins Dictionary

The current permacrisis is another market calamity that will eventually end with a new growth curve. To prepare for future growth, businesses once again will have to re-evaluate their investment priorities, operational practices, risk management plans, and technology portfolio.

Our recommendation for your first preparation step is to focus on your IT function as technology will once again differentiate the next leaders from the laggers.

Although digital technologies have been playing a central role in businesses for over two decades, some leaders underestimate their full impact on their businesses.

Often, leaders realize the importance of tech resilience only when infrastructure disruptions, server downtimes, repeated user issues, and inadequate tech support negatively affect their financial performance, customer satisfaction, and growth opportunities.

**How Low Tech Resilience Affects Businesses:**

**1 in 5**
organizations report experiencing a "serious" or "severe" outage
Uptime Institute

**$4.35M**
the global average total cost of a data breach in 2022
IBM

**56%**
of customers abandon an online purchase after a negative experience
Emplifi

**72%**
of customers leave a brand after a negative support experience
Hiver

> IT resilience is a set of operational practices and IT solutions that enable organizations to maintain operations and provide sufficient service levels despite disruptions in critical processes and IT infrastructure availability.

With tech resilience practices in place, companies can avoid the above risks, as well as allocate more resources to innovation and accelerate business growth.

**Benefits of High Digital Resilience:**

### Strong Business Continuity

- Accelerated recovery of critical systems, operations, and data
- Diversified data storage and backups
- Maintenance of uninterrupted services during traffic spikes

### High Customer Satisfaction

- Adequate CX levels during disruptions
- A timely response to reported user issues
- Multi-channel customer support

### Improved Operational Efficiency

- Reduced manual labor with process automation
- Lower cost and impacts of incidents
- Optimized workflows and enhanced employee collaboration

### Increased Innovation

- Swift response to changes in market demands
- Extra capacity for product and services development
- Higher IT infrastructure availability

# The State of Technical Resilience at Your Company: Self-Assessment

Wondering if your business is well-equipped to withstand continuous disruptions? Use our short self-assessment form for an initial evaluation. ***Select each statement you agree with.***

**Our organization:**

- [ ] Doesn't have a disaster recovery plan (DRP) in place
  - [ ] Has a DRP, but it wasn't tested for 12+ months
- [ ] Doesn't have redundant sites for data and automated data backup processes
- [ ] Has legacy systems hampering growth and innovation
- [ ] Faces recurring unplanned IT infrastructure downtime and disruptions
- [ ] Has isolated systems that are not integrated in the overall IT infrastructure
- [ ] Has IT assets only located in on-premises
- [ ] Relies only on one cloud provider
- [ ] Doesn't handle traffic spikes well, with customers losing connection to their data and applications
- [ ] Doesn't have automated failover and switchover processes in place
- [ ] Doesn't have network management practices and network performance monitoring tools in place
- [ ] Has incomplete and cluttered IT documentation and knowledge bases
- [ ] Lacks end-to-end tech support to resolve customer/user issues of different complexity
  - [ ] Help desk is the only tool to handle IT support issues
  - [ ] Responding to recurring user issues takes much time
  - [ ] Developers sacrifice time to resolve complex user issues
  - [ ] Does not have tech support processes automated and integrated

*If you have agreed with at 3 or more statements, your company should strongly consider investments in new tech resilience practices.*

# **Best Practices** for Building up Tech Resilience

IT resilience isn't a one-off activity. Rather, it's a journey and mindset companies need to adopt in order to achieve technical excellence and recognize weak areas before they cause systemic disruptions. To improve your resilience capabilities, an IT operations team needs to understand your business's context and reconcile it with your IT infrastructure needs

**Taras Romanyk,**
Technical Director at Edvantis

# **Step 1:**
# Conduct an Inventory of Your IT Estate

Initiate group discussion with stakeholders, responsible for your IT operations management (ITOM). Evaluate the strategic importance of each process (and IT infrastructure components, powering it) to your corporate objectives.

To facilitate the discussions, ask the following questions:

- Which process and tech capabilities' gaps are the most imperative to address?
- What IT infrastructure improvements would best support corporate objectives?
- Can you formalize the exact list of improvements and changes you'd wish to implement?
- Can a particular process be adjusted without critically impacting the whole system?
- Can you predict the outcomes of each adjustment?
- Do you have all the relevant resources — technical, financial, and organizational, to set the process right?
- How do you want to see these processes in the future?

The below matrix can further help you assess your as-is state.

**Capability Maturity Model Integration (CMMI) For Rating Process Maturity:**

| | |
|---|---|
| **1. Initial Level** | A process is in place but it is poorly structured and doesn't generate consistent results |
| **2. Managed Level** | A process is planned and controlled according to requirements but follows no specific standard |
| **3. Defined Level** | A process is standardized and described using proper procedures and methods, plus augmented by tools |
| **4. Quantitatively Managed Level** | A process follows quantitative objectives and aligns with company and customer needs |
| **5. Optimized Level** | A process is stable, flexible, and continuously being further improved |

Based on the identified process gaps, create a list of improvements you need to make. Evaluate the following areas:

- Legacy systems to understand if they're nearing the end of support (EOS)
- IT infrastructure components that pose security threats or cause high downtime
- Structural tech components that cause most repeated system failures
- IT infrastructure components that need standardization and integration
- Accumulated tech debt not resolved for years

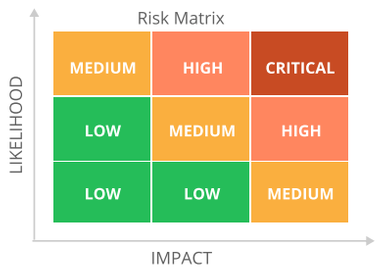
The purpose of a business process is to ensure you can achieve cost-effective results efficiently and swiftly. To prevent your IT processes from falling victim to internal inertia and delaying your project, define the key roles responsible for providing initial input, identifying expected outcomes, and delivering desired results.

**Ruslan Zakharchenko,**
Edvantis CEO

# **Step 2:** Create a Risk Management Plan for Most Critical IT Processes

# 1. Identify Risks Associated With Your IT Systems and Assess Them:

Consult with your stakeholders and employees to identify what risks could disrupt your IT infrastructure in the short and long term. Organize feedback as shown in the sample table below:

| Risk Type | Risk Matrix | Impacts | Drivers |
|---|---|---|---|
| Data breach |  | • Costly remediation<br>• Regulatory investigations<br>• Reputational damages | • Gaps in security policies<br>• Human factor<br>• No data backup/ recovery plans |
| Direct attack | | • Service level disruptions<br>• Unplanned downtime | • Unpatched/ undetected vulnerabilities<br>• No proactive threat monitoring |
| IT system outage | | • Disrupted customer experience<br>• Revenue losses<br>• Missed growth opportunity | • Insufficient system load tolerance<br>• Legacy architecture and/ or system components |

# 2. Create a Reactive Risk Response Plan

Having defined the type, probability, and severity of various risks, you can determine the most appropriate response strategy.

For every type of risk, describe the necessary remediation steps, the process owners, and other stakeholders, who must be kept informed. This way you will improve accountability and accelerate response times.

Select a risk response strategy that best reflects the likelihood and impact of identified risks. For instance, very low-impact risks may not be worth investing effort and budget. Some critical-impact risks might damage your reputation so drastically that it might be better to refrain from initiating the activity that's causing the risk. Use the table on the next page to govern your strategy selection.

## Common Risks Response Strategies:

| Type of strategy | Description | Risks | Example |
|---|---|---|---|
| **Mitigation** | Using interim measures to reduce the impact or likelihood of a threat | Applicable for risks with low, medium, and high impact | Rerouting traffic to a failover server to avoid service disruption |
| **Avoidance** | Avoiding or postponing an activity that causes a risk | Applicable for risks with critical impacts and no external dependencies | Postponing the deployment of a new feature to avoid app performance issues |
| **Acceptance** | Accepting the risk and possible losses | Applicable for risks with low impact | Proceeding with the deployment even though there's a risk of minor uptime |
| **Transfer** | Delegate the risk management to a party with more expertise and resources (e.g., to your partner, outsourcing vendor, or another branch) | Applicable for long-term risks with moderate impact | Requesting an outsourcing partner to help achieve product compliance with an ISO standard |

# 3. Select a Mitigation Strategy for Long-Term Risk Prevention

A long-term mitigation strategy will help you reduce the number of potential extended risks, lower their impact, or make future risk management faster, cheaper, or more effective.

## Potential Risks To Economic Growth in 2023:


Source: Accenture

# **Step 3:**
# Build an IT Resilience Task Force

Ownership over IT resilience is a requirement for steady progress. Set up a dedicated work group, which would take over process improvement and risk management.

In most cases, you'll need to engage your company's IT staff and other stakeholders. A sample team composition may be as follows:

| Team role | Responsibilities |
|---|---|
| Internal resilience manager (e.g., CTO) | Conceptualize initiatives, set goals, allocate resources, monitor execution, ensure IT/business alignment. |
| Project manager/tech lead *(available at Edvantis)* | Facilitate lower-level management: Plan, allocate workload to specialists and oversee daily performance. |
| Software developers *(available at Edvantis)* | Perform engineering work, set forth with the plans; perform system upgrades and IT maintenance work. |
| Tech support specialists *(level 2 and 3 available at Edvantis)* | Obtain, analyze, and respond to customer tickets; escalate complex customer issues and feature requests to SRE specialists or developers. |
| DevOps specialists *(available at Edvantis)* | Take ownership of the releases, optimize SDLC, automate workflows, enhance environment configurations, and assist with IT estate maintenance. |
| SRE specialists *(available at Edvantis)* | Ensure the systems' health and availability, investigate root causes of user issues, and automates away mundane and repetitive tasks. |

Evaluate whether your company has sufficient IT staff with the necessary skills to fill in all roles. When a talent gap exists, you can adopt three strategies:

- **Upskill:** Invest in workforce development and training to cultivate required competencies and knowledge of new tools. But keep in mind: upskilling programs take time and have delayed results (your employees will require more than one training session to develop a new competency).
- **Hire:** Recruit the relevant specialists and integrate them into your IT team. You will need to factor in salary plus overhead costs (recruitment, onboarding, benefits, retention).
- **Delegate:** Partner with an outsourcing vendor who can bridge your talent gap and provide access to a lacking tech expertise. This decision will incur vendor onboarding and operational readiness from your side.

*An IT outsourcing vendor can conduct a discovery phase to identify processes that need improvement, develop a risk management plan, and suggest a relevant team composition.*

# **Step 4:**
# Build a Tech Support System to Timely Respond to Customer Concerns


To better understand what processes, product components, and services need improvements, you need to listen to your customers. The technical support function helps you capture, evaluate, and act upon major customer concerns.

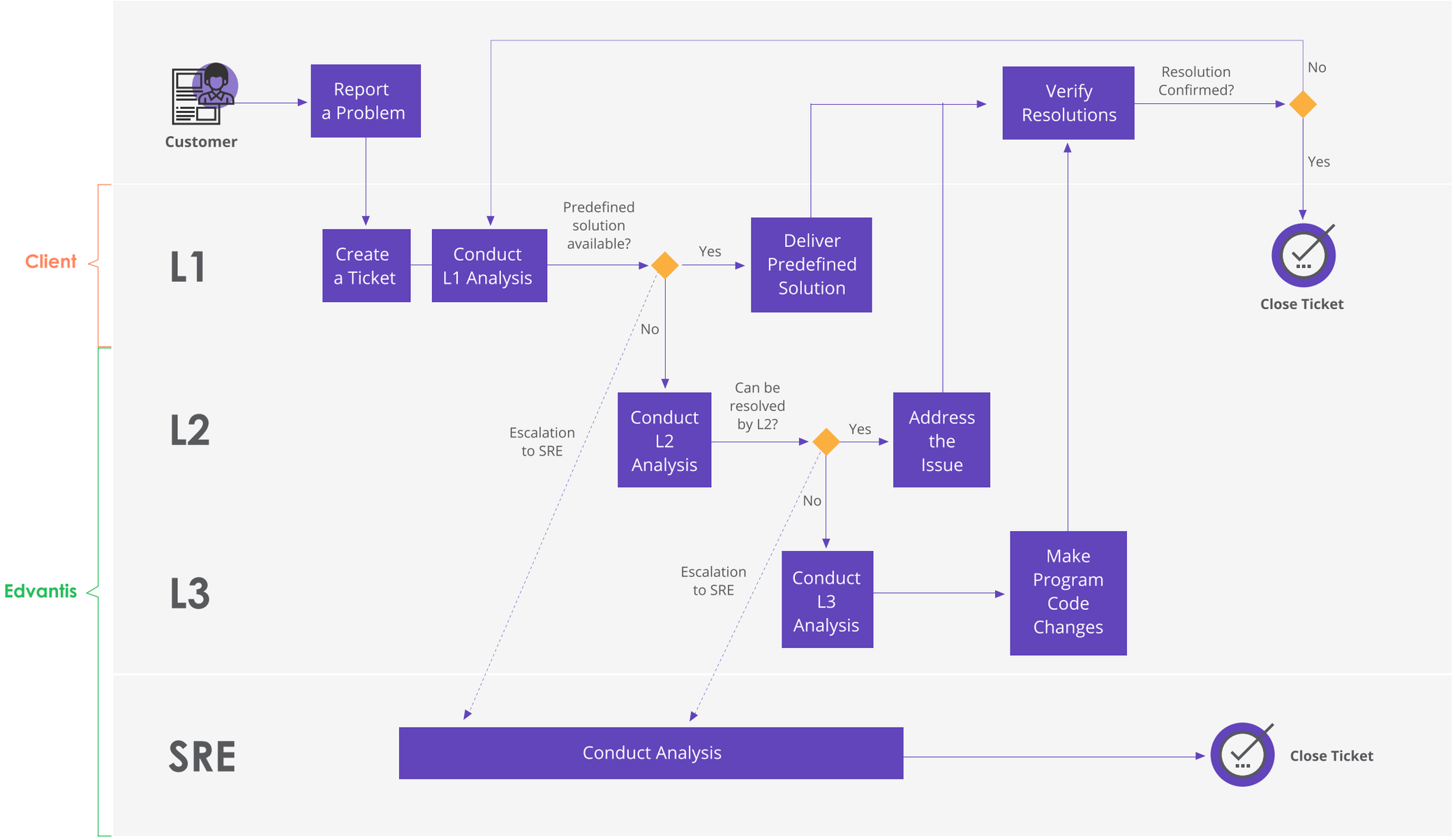
An efficient IT tech support system includes 3 tiers. Each tier takes charge of a specific subset of customer issues:

## IT Technical Support Tires

| | | |
|---|---|---|
| **Level 1** | **On the Client's Side**<br>Help desk specialists | **Basic Customer/User Support**<br>• Creating a ticket for a new inquiry and prioritzing it<br>• Obtaining the additiional information<br>• Resolving the basic problems following the pre-defined scenario (like the answer script) |
| **Level 2** | **On the Edvantis' Side**<br>IT support specialists | **In-Depth Support**<br>• Addressing more specific incidents that couldn't be resolved with Level 1 support<br>• Recovering a failed IT services without changing the software code |
| **Level 3** | **On the Edvantis' Side**<br>• Software developers<br>• Other IT experts, if required | **Advanced Technical Support**<br>• Addressing the most difficult or advanced issues<br>• Making changes to the software code to solve problems |

The above structure establishes a clear and effective escalation process, which results in faster resolution times. Furthermore, well-defined support flows help ensure that different types of issues land with the right type of specialist — a senior tech support staffer, a developer, or an SRE team.

# Support Flow in Edvantis' Operations Services



# Steps To Establish a High-Performing Tech Support Team

- [ ] Identify the present and missing tech support processes
- [ ] Select customer support channels (service desk, ticket system, on-site chat, etc.)
- [ ] Define operating metrics (First reply time (FRT), resolution time, average ticket handling time, etc.)
- [ ] Hire competent tech support staff for each level
- [ ] Define issue escalation rules and standard operating procedures
- [ ] Introduce tools to automate internal tech support processes
  - [ ] Helpdesk software
  - [ ] Notification system
  - [ ] Progress monitoring system
  - [ ] Address book tool
  - [ ] Sysadmin toolkits
- [ ] Introduce customer self-service tools
  - [ ] Chatbots
  - [ ] Knowledge base
  - [ ] Educational materials

*Your outsourcing partner can analyze your business context and present IT processes. Then set up your tech support system around them, creating or integrating relevant automation tools.*

# **Step 5:**
# Ensure System Availability with SRE, DevOps, and Cloud Migration

# 1. Invest in a Mature SRE Function

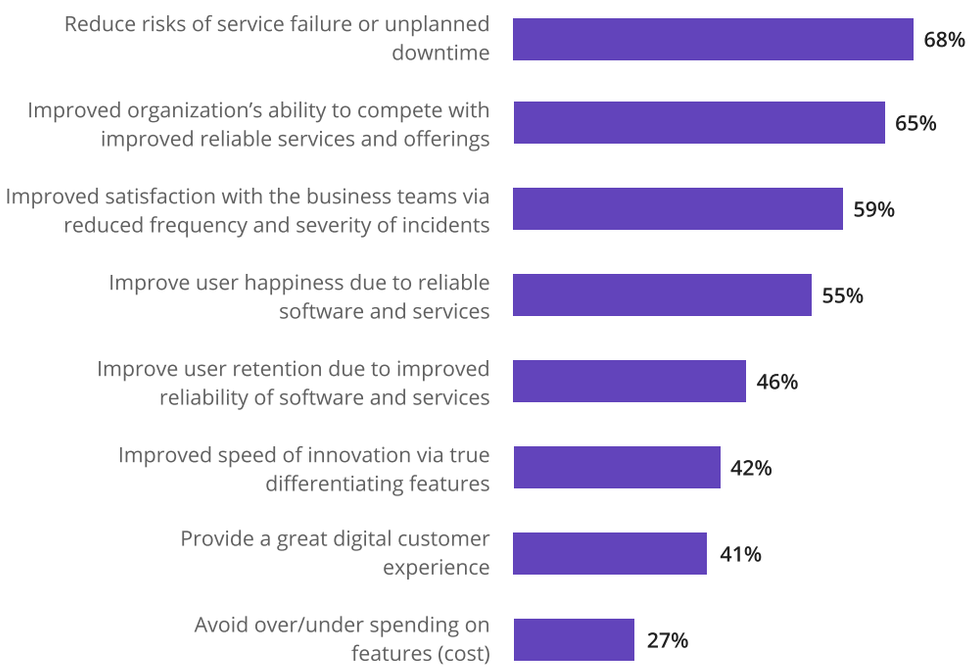
Site reliability engineering (SRE) is a methodology of combining processes and technologies to achieve greater predictability, scalability, and reliability of software systems. The goal of SRE: ensure that users receive the best experience possible, every time. To do so efficiently, SRE teams typically follow the principles of:

- Cross-functional collaboration
- Strategic process automation
- KPI-based application monitoring: (service-level agreements (SLAs), service-level indicators (SLIs), and service-level objectives (SLOs)
- Incremental, but frequent change releases

Businesses adopt SRE for a number of reasons: from improving their CX to tackling unplanned downtime:

## Top Reasons to Adopt SRE

What are the top reasons your organization has adopted SRE? (select all that apply)




Source: DevOps Institute

SRE, however, isn't a one-off task you can cross off with some specialist. It's a set of operational practices you need to adopt, software tools you need to implement, and a mindset you need to nurture in your whole team (because SRE specialists closely collaborate with other departments). The more deliberate and consistent you are in this process, the more mature your SRE function will become.

But what does it take to make your SRE team operationally mature? Google identified the following signs:

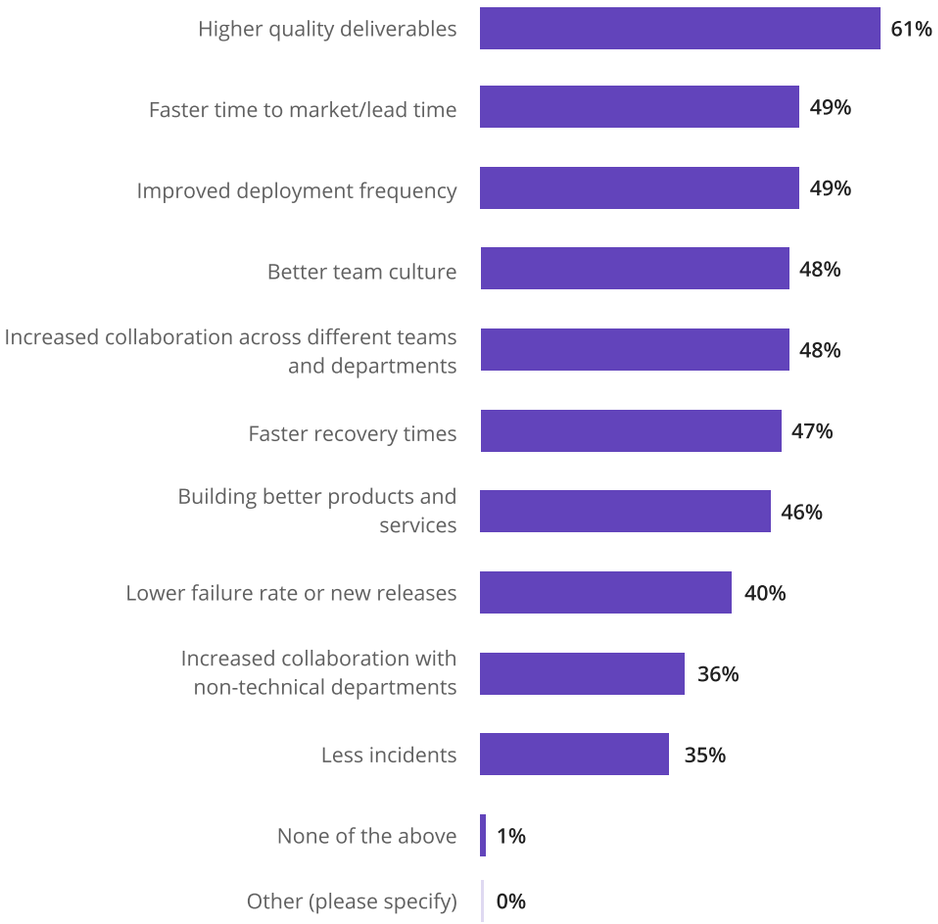
| Maturity Level | Signs |
|---|---|
| Starter | • Only a few service-level objectives (SLOs) have been defined<br>• There's a culture of writing blameless postmortems – incident analyses that don't specify a responsible party<br>• A process for production incidents management is present |
| Beginner team | • The SRE team makes time to respond to production incidents while working on at least part of the operational load.<br>• Release process, service setup, and teardown are documented<br>• Canarying principle has been evaluated for the release process<br>• There's a mechanism for a reliable rollback of changes<br>• Disaster recovery testing takes place at least once per year<br>• SRE plans and performs project work<br>• Regular incident response procedures are established<br>• Periodic meetings and planning sessions between SRE specialists and developers |
| Intermediate team | • Business leaders periodically review SRE's impact and their SLOs<br>• There's a low volume of toil – manual and repetitive work<br>• Automated fallback mechanisms are present<br>• Regular incidence management testing performed<br>• SLO violation policies are in place<br>• Periodic testing of disaster recovery is performed<br>• SRE develops joint roadmaps with other development teams |
| Mature team | • At least some team members have a positive impact on some aspect of the business beyond firefighting or ops<br>• Horizontal project execution – SRE specialists have a significant say in project decisions, consulting other teams and establishing best practices<br>• Most service alerts are based on SLO burn rate<br>• Disaster recovery is fully automated |

# 2. Follow DevOps Best Practices

DevOps is both a mindset and a set of practices (and tools), designed to break the silos between software development and operations teams and increase the efficiency and speed of software delivery. DevOps heavily relies on Agile practices, process automation, and cross-team communication based on the culture of joint responsibility and empathy.

Process optimization and team accountability are at the core of DevOps philosophy, which leads to the following benefits.

## Impact of Devops on Organization




Source: Atlassian

Consider implementing the following DevOps best practices into your development workflows:

- **Continuous integration/continuous delivery (CI/CD):** a method for frequently delivering software development products, regularly testing the code changes, and committing them into production. CI/CD helps achieve consistent code quality, reduce time for code reviews, eliminate the number of production bugs, identify integration issues early on, and improve customer feedback loops.

- **Version control (VC):** a system that tracks changes in the code, making a snapshot of the files and identifying problem areas. VC helps teams notice the code issues early on and resolve them before unintentionally committing them to production. Version control also provides a tracked history of changes and enables easy rollback if anything goes wrong.
- **Continuous testing (CT):** a best practice, integrating quality assurance in every stage of the software development lifecycle (SDLC). CT promotes issues prevention, ensures code quality, and improves system performance and security.
- **Orchestration:** a process of simultaneously automating a set of development and code deployment tasks that run in parallel. It helps standardize processes, eliminate human error, and accelerate time-to-market.
- **Containerization:** a virtualization method where application components run in isolated containers at the same time using the same operating system. Containers enable DevOps to rapidly update applications stored there and deploy them consistently in multiple environments – whether on-premise or cloud.

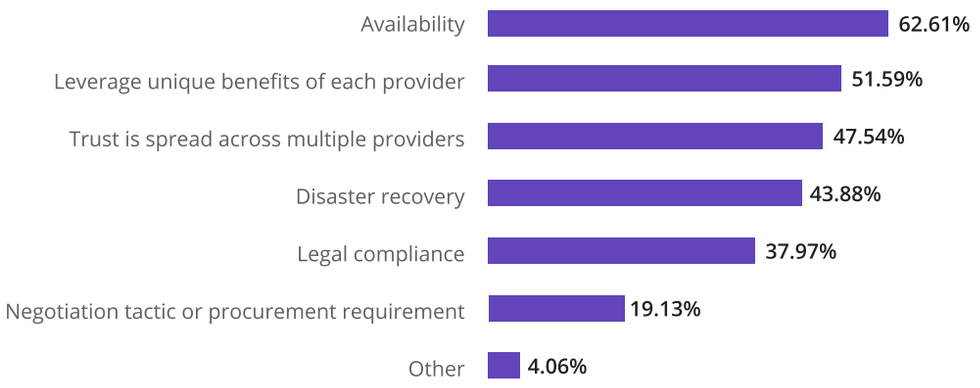
**High performers who meet reliability targets are:**

| 33% | 39% | 46% |
|---|---|---|
| more likely to use version control | more likely to practice continuous integration | more likely to practice continuous delivery |

Source: Google

# 3. Diversify Your Cloud Portfolio

Another way to increase the reliability and availability of your core IT infrastructure is to consider a multi-cloud strategy. This way, you will reduce your dependency on on-premise servers or a single cloud provider. Consequently, your company would be able to better mean traffic spikes and avoid downtime (by rerouting traffic to available alternative sites). There are also other benefits associated with adopting multiple cloud providers:



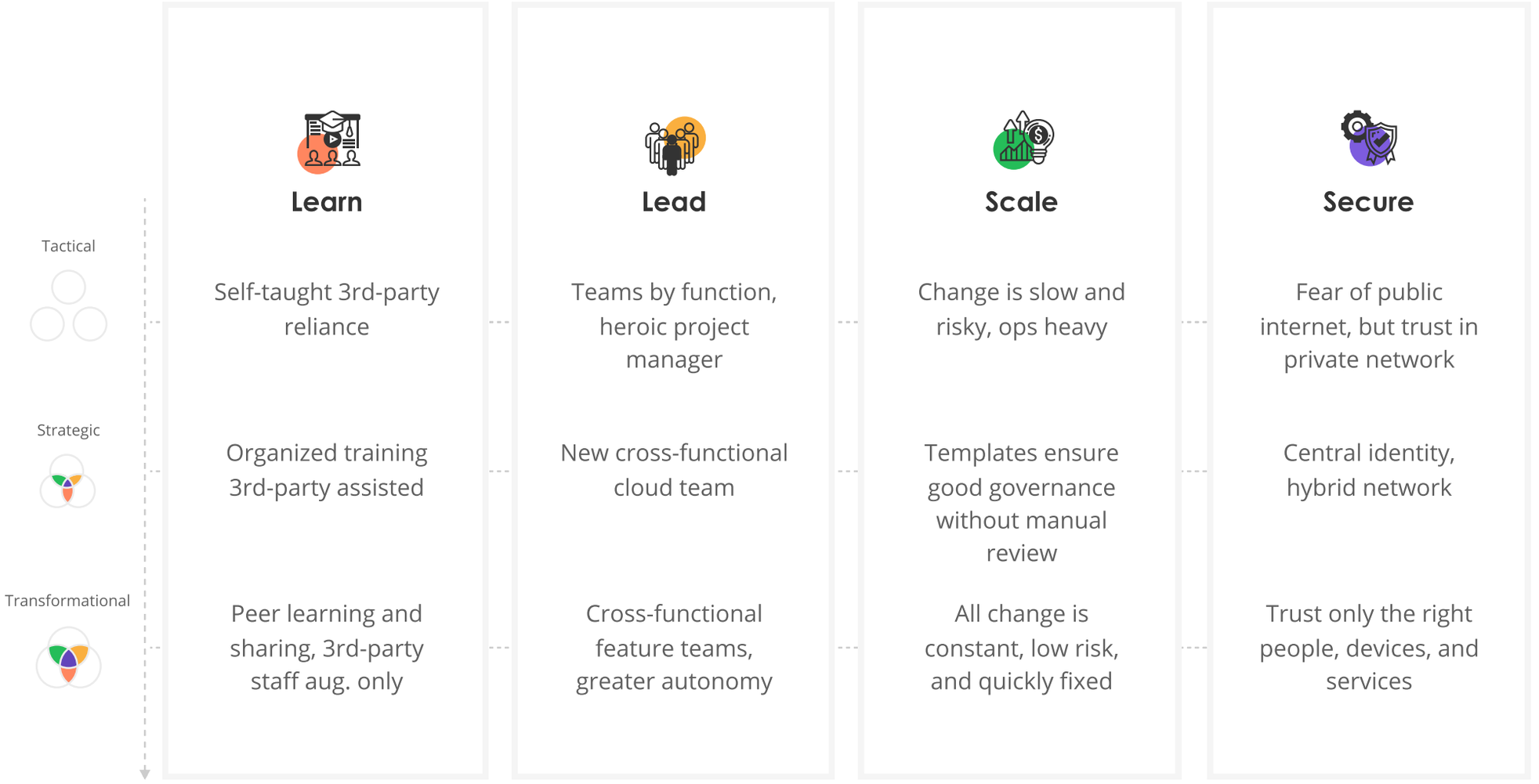

Source: Google

Cloud migration seems straightforward on paper. First, you define which system components should be moved off-premises. Then select a cloud provider and allocate a respective budget and begin the execution. If you migrate isolated workloads, this might be the case. However, most cloud migration projects are more complex.

Systems interoperability issues, no clear understanding of dependencies between applications, lack of data backups may complicate cloud migration process and present challenges such as data loss and unplanned downtime. To avoid these, make sure to you consider the following points prior to migration:

- **Reliable cloud provider:** Choose a cloud provider that complies with industry-wide security standards (HIPAA, GDPR, ISO), has strong data management and governance policies, and high SLA-backed uptime. Amongst the most popular and mature cloud providers, according to Gartner's Magic Quadrant, are:
    - **Leaders:** AWS, Azure, Google Cloud
    - **Visionaries:** Alibaba Cloud, Oracle
    - **Niche players:** Tencent Cloud, IBM, Huawei Cloud
- **Compatibility:** Access if your workloads need to be modernized or are already cloud-native. Legacy systems will have to be re-architectured and modernized to comply with the cloud environments.
- **Complexity:** The complexity of the workload you intend to migrate will impact the migration timelines and costs. Define:
    - Data size
    - Number of users
    - Critical apps
    - Custom fields, integrations, and apps
    - Legacy systems
- **Latency:** Determine the impact of latency on the applications you have selected for migration. Make sure your selected cloud provider offers latency optimization services if availability is critical.
- **Dependencies:** Make sure the applications you are migrating don't have any unknown dependencies with on-premises systems.
- **Skills:** You will need engineering talent with relevant skill sets to support ongoing maintenance of the cloud infrastructure.
- **Backups:** Prepare data backups and design recovery routes to avoid data loss if your cloud provider experiences service disruptions.

# The Cloud Maturity Scale:




Source: Google

# **Step 6:**
# Use IT Operations Data for Relevant Insights

Outages and service disruptions are becoming more expensive and difficult to manage as IT systems get more complex. Over 60% of server outages cost organizations more than $100 000. What's more the outages are getting more prolonged: 30% of them lasted more than 24 hours in 2021.

Therefore, more businesses refer to IT operations analytics (ITOA) as a way to predict and prevent downtime. ITOA is a set of methods and tools for retrieving, segmenting, and interpreting data from IT systems to evaluate the system's overall performance and process efficiency.

ITOA helps businesses:

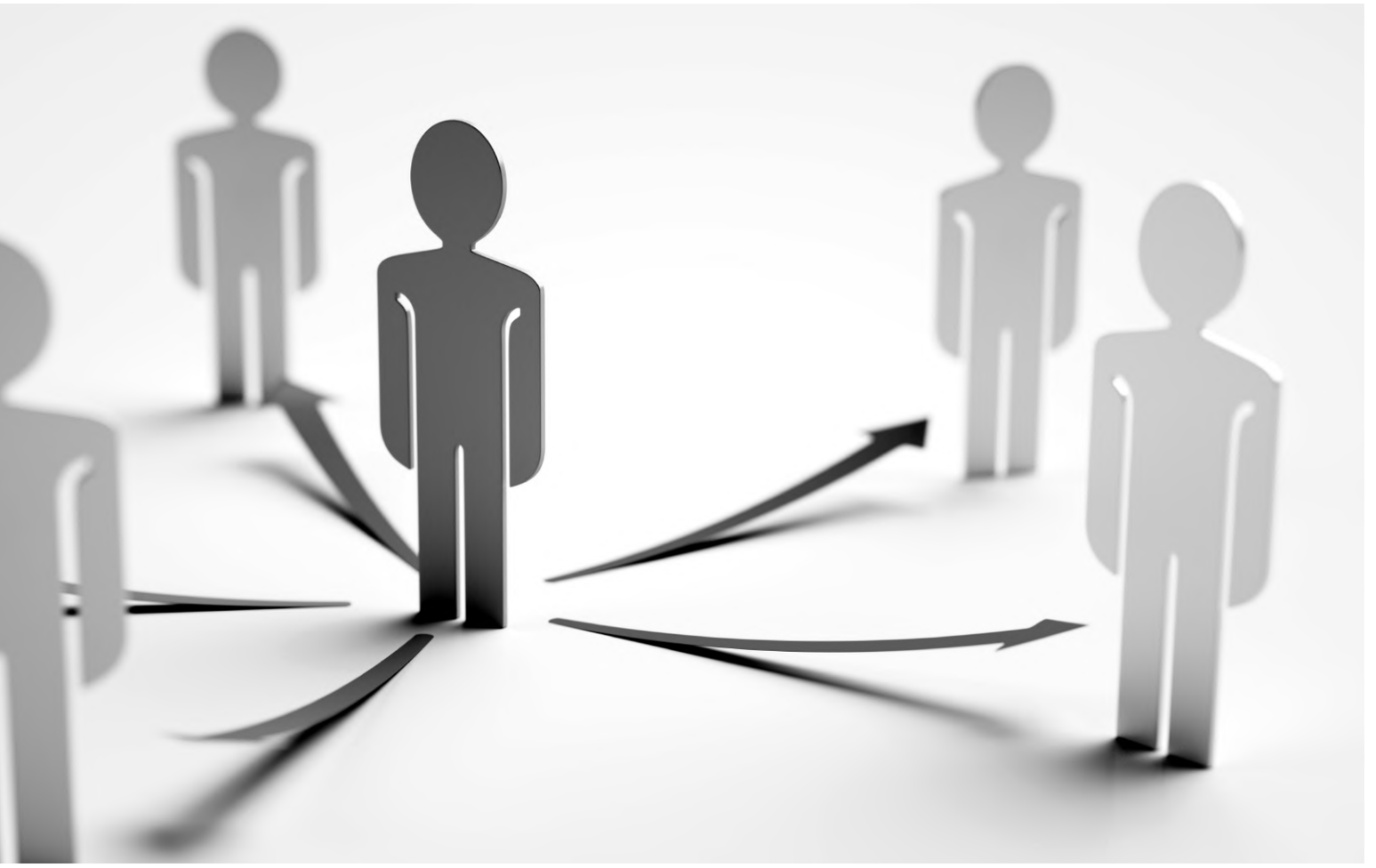
- Maintain high uptime and service availability
- Detect root cause of system deficiencies
- Improve the algorithm of repeated issues resolution
- Analyze the impact of external factors on your services

To achieve the above benefits, you will most probably need ITOA software (e.g., Splunk, Sentia, or ScienceLogic) and IT staff, who will facilitate setup. Modern ITOA platforms offer comprehensive features for:

- Infrastructure and service monitoring
- Data collection, analysis, and visualization
- Behavioral analytics and baselining
- Compliance monitoring
- Automated event clustering
- Workload monitoring and management

Ensure the selected software is capable of covering your entire IT infrastructure and handling the amount of data you have without omitting key components and functions. If you have legacy systems, make sure to consider the potential integration issues that might emerge during ITOA implementation.

*Your outsourcing partner can analyze your IT monitoring requirements and assist with ITOA platform selection. Further, they can ensure a secure implementation of ITOA software and processes.*

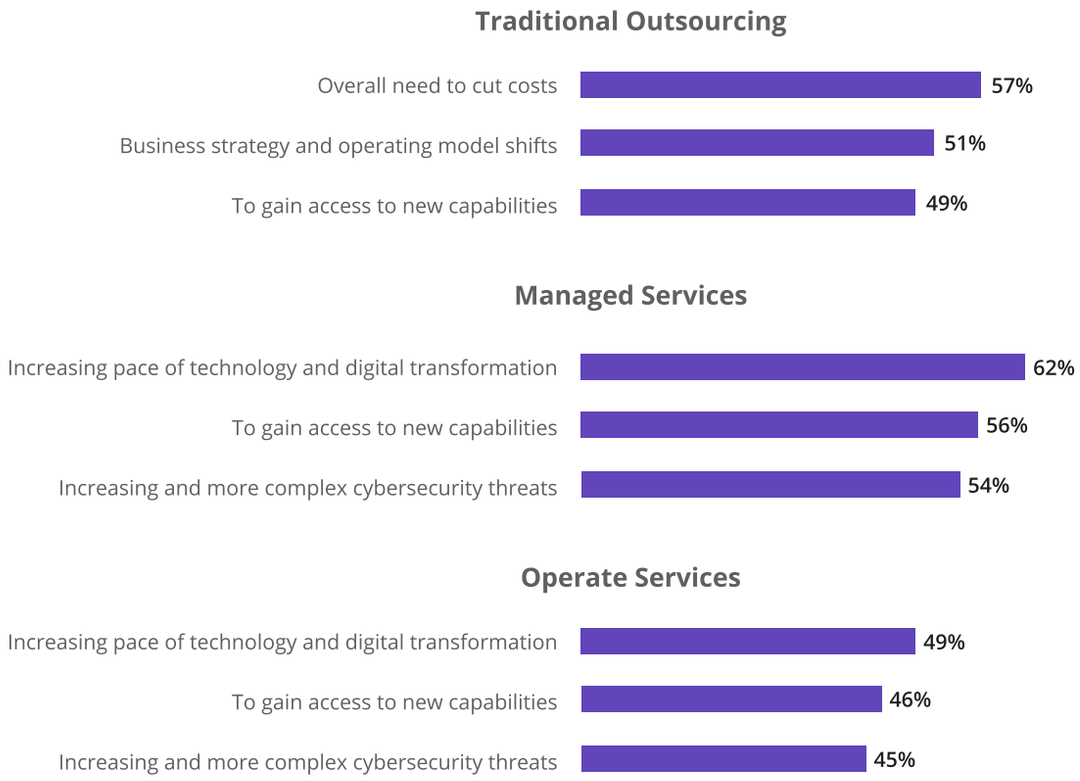


## Delegating IT Operations to Outsourcing Partners

> Outsourcing generates the most value when both parties treat it as a strategic partnership rather than a short-term contractor-client relationship. It's about maintaining a close focus on the customer result, shared strategy, proactive attitude, and transparency in vision.
>
> **Ruslan Zakharchenko,**
> Edvantis CEO

After the 2008 recession, 37.7% of businesses said that they increased their outsourcing capacities while 70.6% indicated that this step significantly helped their productivity. At present, 63% of leaders increased or retained expenditures on IT outsourcing to deal with ongoing talent shortages. Outsourcing has proven to be one of the go-to strategies for bridging the talent gap and accelerating tech transformation:

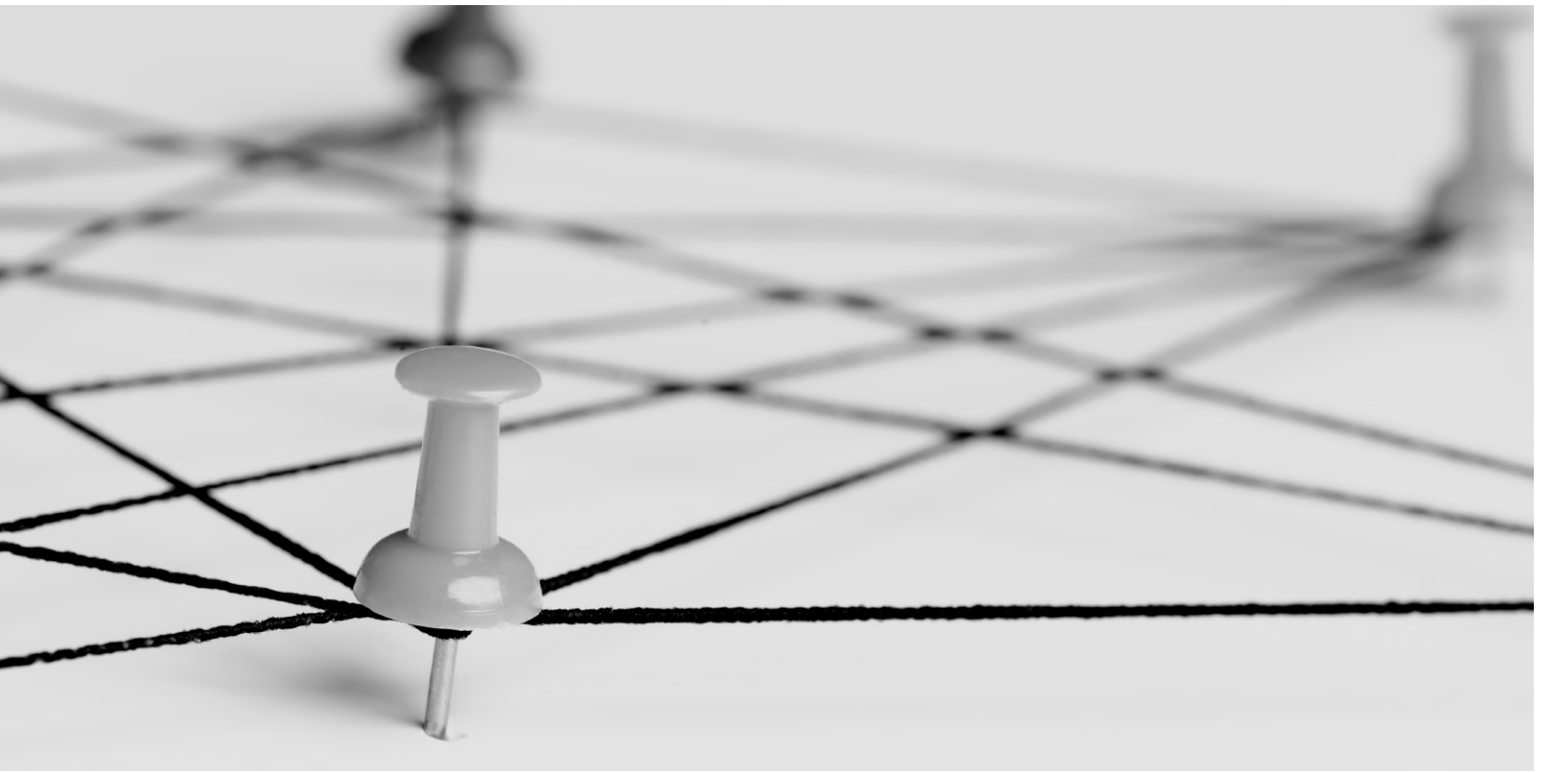
## What are the Primary Drivers Behind Your Growing Use of Each Delivery Model?




Source: Deloitte

The core benefit of outsourcing is that it offers flexible and tailored service models fit for IT operations services. For instance, at Edvantis, we can tailor our service offering according to the level of commitment you request. We can provide you with operations as a managed service (SLA coverage), separate IT operations experts, or the whole IT operations team.

If, however, you don't have a clear vision about what functions you want covered and to what extent, we will offer you an IT Consulting service where we conduct a series of assessments and communication sessions to evaluate your as-is IT infrastructure and define steps to take for achieving IT operations efficiency. Plus we define what further service specification that is better for your situation: e.g., SLA coverage 24/5 or 24/7, L2/L3 or in combination with SRE?



**Benefits of a cross-functional IT operations team:**

**Coordinated efforts:**
Exchange of valuable insights between SRE, support, and DevOps specialists helps identify first-priority issues, discover their root causes, and provide a fast and reliable fix.

**Flexibility in priorities:**
Availability of experts in all three fields helps you adapt to changing requirements and delegate system maintenance tasks while focusing on what's important at the time.

**Better feedback loops:**
Tech support receives constant feedback from customers, validating the product's value. SRE helps timely resolve issues and DevOps ensures a quick and reliable deployment of changes, increasing customer loyalty.

# About Edvantis

With over a decade of experience delivering software development services worldwide, Edvantis is a recognized leader in IT services. Driven by a culture of technology excellence, radical transparency, and sharp customer focus, **we can help you set up:**

**Technical Support**
From helpdesk system setup to knowledge database management, Edvantis help you assemble a robust technical support function from the ground up (or modernize your existing processes and technologies). Speed up issue resolution times. Minimize operational downtime. Automate routine tasks and manual inefficiencies with Edvantis as your technical support partner.

**Site Reliability Engineering (SRE)**
Take a closer look at your system health and find the root causes of your IT bottlenecks. Make product reliability your corporate strength with our acute advisory and proactive implementation of SRE principles. Streamline standard workflows with intelligent automation and Edvantis' engineering expertise.

**DevOps Services**
Deploy code frequently and efficiently to meet the evolving market conditions. Reign in the chaos during the release phase by adopting CI/CD and continuous testing (CT) practices. Our DevOps experts can help you with process improvement, workflow automation, and developer environment configurations.

LEARN MORE ABOUT OUR IT OPERATIONS EXPERTISE

## Edvantis Operating Principles:

**From beginning to end, we aim for transparency and consistency in collaboration to cultivate win-win partnerships.**

Therefore, we clearly communicate our responsibilities, potential risks, and terms of co-creation. We also establish an effective communication & reporting process to keep you, as well as ensure diligent business record-keeping.

**We honor commitments and focus on results.**

Quality comes first. We proactively advise our clients on how to get the most value from their investments through continuous recommendations on better team management, technology, and operational practices. Our goal is to become an organic extension of your business and ensure your success at different stages of your journey.

**Customer data confidentiality and security are of the highest priority.**

Edvantis takes proper steps to ensure that information entrusted to us is secure. Signing NDA is standard practice before we begin our collaboration, and we strictly follow the ISO 27001 standard. All our employees receive the *"Information on Security Policy and Anti-Phishing"* training guide.

CHECK EDVANTIS

## **Quick** Numbers:

| 400+ | 30+ | 16+ | 90% | 300+ |
|---|---|---|---|---|
| delivered projects | active clients | years of experience | of clients refer us | best employees |

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