

THE TECHNOLOGY LIFELINE:

CHARTING DIGITAL
PROGRESS IN HEALTHCARE



A guided shift towards automation



Shash Anand, SVP, Product Strategy

SOTI's yearly review of the global healthcare space has returned in 2023 to assess the industry's digital maturity and where IT budgets are being targeted.

In 2022, we were still feeling the effects of COVID-19 and the two years that led up to it. The urgency to make operations more streamlined, enable remote or hybrid working, facilitate bring-your-own-device (BYOD) trends and enhance levels of patient care all supported a rethinking of what technologies were needed and where. The growth of telehealth, and the rise of wearables and remote monitoring, was explored where patients could connect to healthcare services via videoconferencing, digital communications and electronic consultations.

This year the focus has shifted towards automation. The adoption of artificial intelligence (AI) and virtual reality (VR) have increased over the past 12 months with Germany, Australia and North America making the most of increasing IT budgets. Even when budgets, staff numbers and current adoption levels are not at a high level – which is the case in the Netherlands and Sweden – the intention for future investment is clear.

Integrating and managing these emerging technologies is a growing concern. Issues around the transition from legacy systems and levels of security as new technologies are introduced were reflected in the research. Respondents also discussed the impact they could have in the form of administrative lapses, maintenance struggles, lost time, lost efficiency and sub-optimal patient care.

Managing digital transformation is a challenge being faced by all organizations and countries, regardless of where everyone is in the process. This survey of global IT professionals highlights the extent of the challenge and why guidance around how to manage new technologies in healthcare is crucial.

“Healthcare organizations need a robust device management solution with strong security capabilities. Any such solution should provide enhanced visibility, security and management of devices used to offer patient care with the ability to remotely manage and shut down any devices or IoT endpoints during a security breach.”

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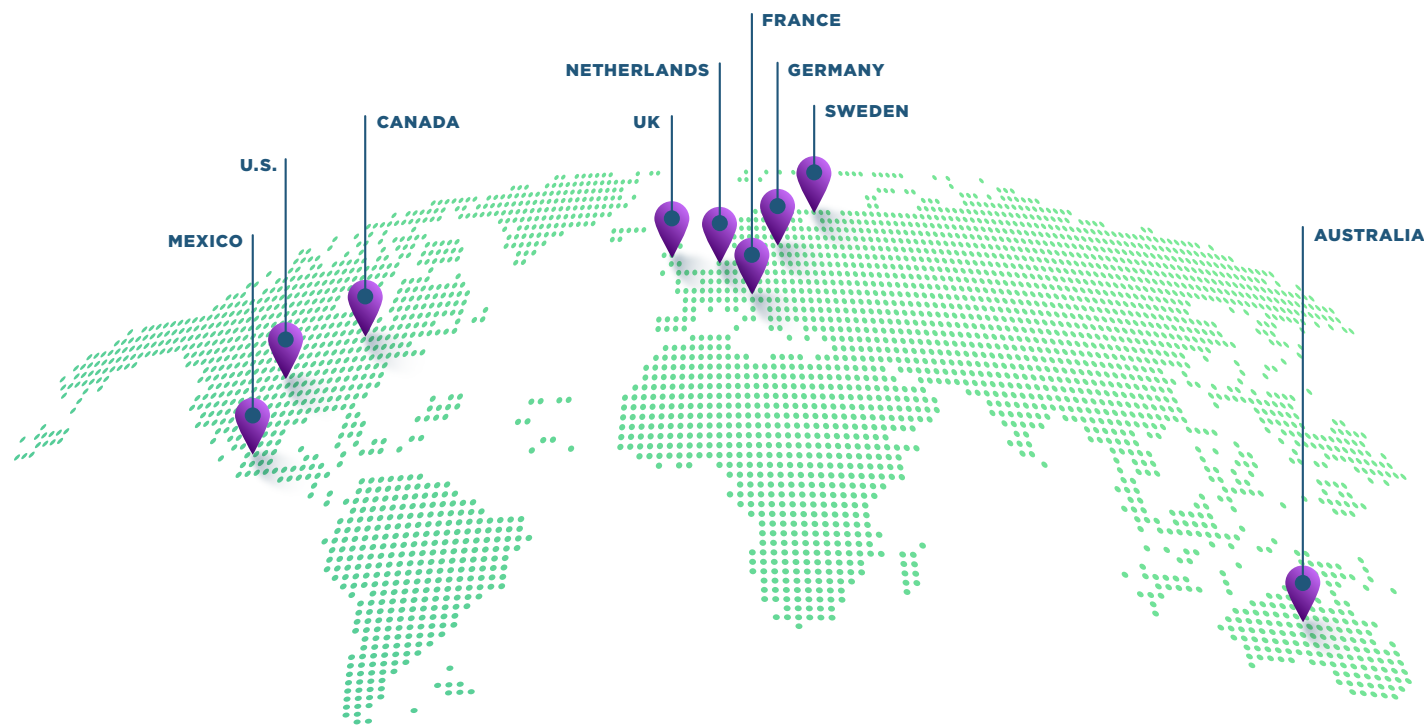
Unmanaged Devices Create Security Risks

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GLOBAL BREAKDOWN

SOTI's research spanned 1,450 respondents across the U.S. (200), Canada (150), Mexico (150), UK (200), Germany (150), France (150), Sweden (150), Netherlands (150) and Australia (150). While different ratios of job roles were seen across each country, overall, one-third (33%) of IT professionals interviewed worked in a general medical practice or clinic, either within doctors' surgeries as a family doctor or in a medical practice. A further 27% worked in a clinic providing frontline patient services across one or more fields, including mental health, neurology and physiotherapy. Additional represented roles included those working in hospitals providing frontline patient services (25%) and healthcare professionals providing direct-to-patient remote or telehealth services (15%).



The regional breakdown below highlights IT's representation in each sector.



U.S.: FAVORING GENERAL CARE DOMAINS

The U.S. had the lowest proportion of representation in frontline areas of mental health, neurology, physiotherapy and additional targeted specialisms (16% compared to the 27% average).



CANADA: A MIX OF TRADITIONAL AND MODERN

Canada upped the averages in both hospital care (36%) and remote or telehealth services (20%), representing a blend of traditional operations and future planning.



MEXICO: PRIORITIZING SPECIALISMS

Almost half (47%) of Mexico's respondents operate in frontline clinics offering one or more specialism across mental health, neurology, physiotherapy and similar fields.



UK: A GLOBAL ARCHETYPE

The UK remains consistent with global averages in each of the four domains. General medical practice representation (38%) brought that particular average (33%) up slightly.



GERMANY: PIONEERING REMOTE AND TELEHEALTH SERVICES

Against the global average of 15%, Germany was the only country to report representation levels above 20% (21%) for providing direct remote or telehealth care to patients.



FRANCE: PHASING OUT THE TRADITIONAL GENERAL PRACTICE

France had the fewest professionals from general medical practices such as doctors' surgeries (23%). All other domains were above the global average.



SWEDEN: RELIEVING HOSPITAL STRAINS

Sweden's 7% representation on the frontline in hospitals decreased the global average significantly, instead channeling personnel to general medical practices (45%) and specialized services (35%).



NETHERLANDS: FOCUSING ON THE FRONTLINES

Only 5% of Dutch personnel provided direct-to-patient remote or telehealth patient services, with most deriving from hospital frontlines instead (47%).



AUSTRALIA: KEEPING CARE LOCAL

Almost half (48%) of IT professionals surveyed in Australia work in general medical practices, favoring of a more day-to-day localized care away from hospital frontlines (13%).

KEY FINDINGS



99%

Nearly all respondents confirmed at least one manual process in their organization would benefit from being automated.



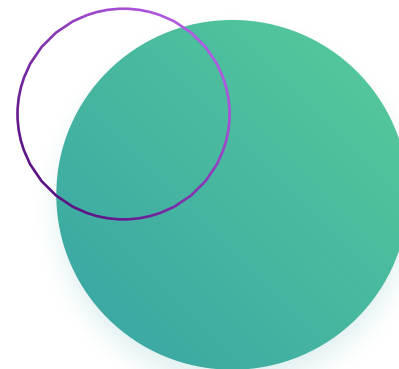
97%

Almost all respondents have at least one concern relating to the security of patient data records.



93%

Almost all respondents indicated that the use of new technologies is a priority.



55%

More than half of organizations experienced either an accidental or planned data leak from internal sources, compared to **49%** in 2022.

53%

More than half of IT professionals are unable to detect new devices connecting to the system due to outdated systems, leading to vulnerabilities.

52%

Legacy systems result in more than half of respondents being unable to resolve issues in a timely way.

47%

Almost half of global IT professionals have seen an increase in the number of unique devices being used in their organizations over the past 12 months.

43%

IT budgets increased for many organizations, with Mexico seeing the highest growth (58%).

37%

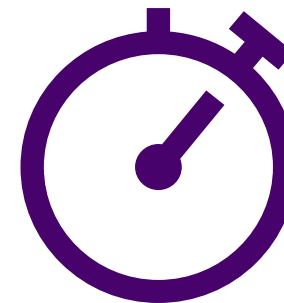
More than one-third believe legacy systems are leaving them more vulnerable to security breaches.

23%

Almost one-quarter of IT teams are managing AI or VR technologies in-house that they weren't managing one year ago.

Only 22%

of organizations avoided either a data leak scare or a DDoS ransomware attack over the past year, compared to **29%** the previous year.



3.4 Hours

IT professionals revealed that each employee loses more than three hours in a normal week due to technical or system difficulties.



EMERGING TECHNOLOGIES REMAIN A PRIORITY

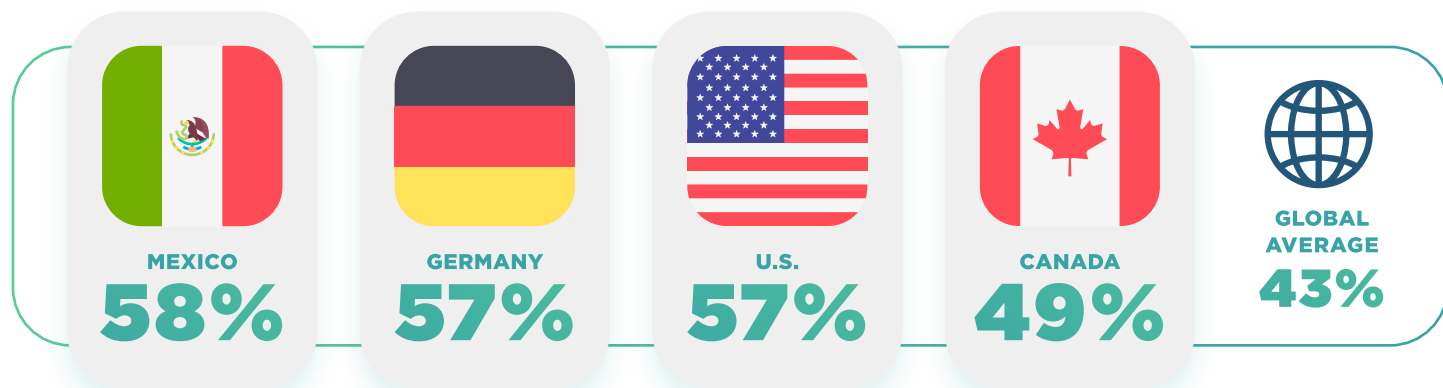


A digital transformation relies on the speed and effectiveness of new technologies, but also on the ability to invest in and manage devices from software, tablets, laptops, AI, VR, rugged devices, RFID readers, scanners and printers.

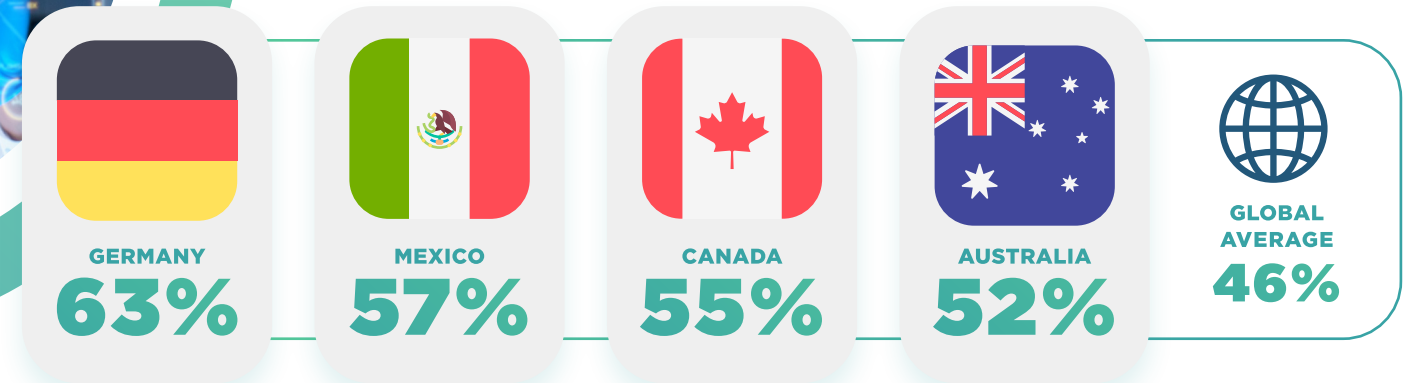
Over the past 12 months, **47%** of global IT professionals have seen an increase in the number of unique devices being used in their organizations. Almost half (**46%**) have introduced new technologies and applications. These figures are driven by **43%** who have seen an increase in their IT budgets over the same time period.

The connection between budget and the adoption of new technologies is a clear correlation in each surveyed country.

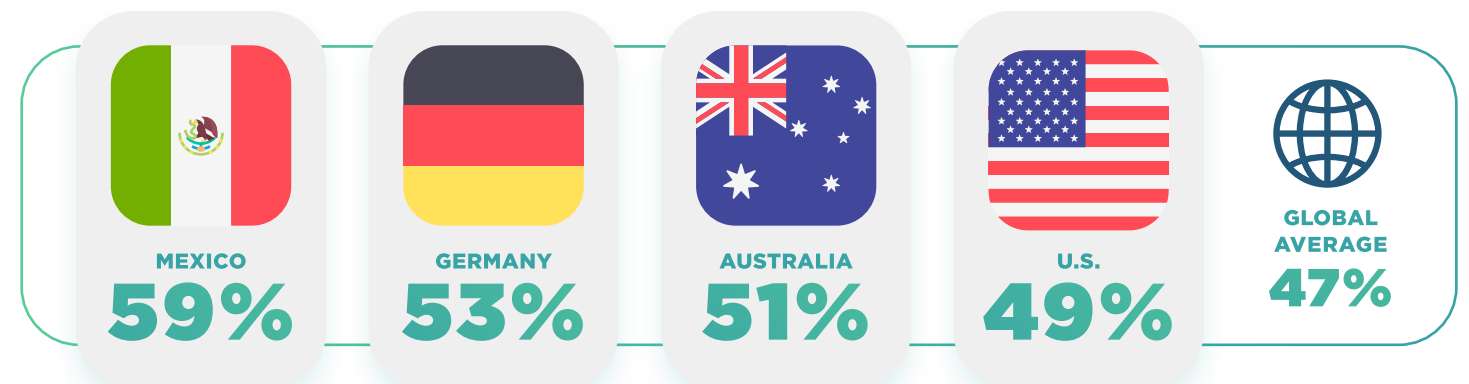
The largest increases in IT budgets were reported in:



Countries with the highest adoption of new technologies and applications:



Countries reporting the biggest increase in the number of unique devices used:



Germany, Australia and North America are looking to channel rising budgets towards new technologies and a greater mix of unique devices to enhance business operations. This same correlation can also be seen at the other end of the scale.

The Netherlands reported the lowest of IT budget increases (**17%** compared to **43%** globally), the smallest increase in permanent staff (**17%** compared to **32%** globally), the highest decrease in the number of permanent IT staff (**23%** compared to **12%** globally) and by far the lowest adoption of new technologies and applications (**24%** compared to **47%** globally). Nearly half (**46%**) of respondents in the country confirmed new technology is still a priority, but they do not have the budget.

With organizational challenges and insufficient budgets, it is difficult to introduce and diversify digital infrastructure, regardless of intention.

IT Professionals Prioritize New Technologies

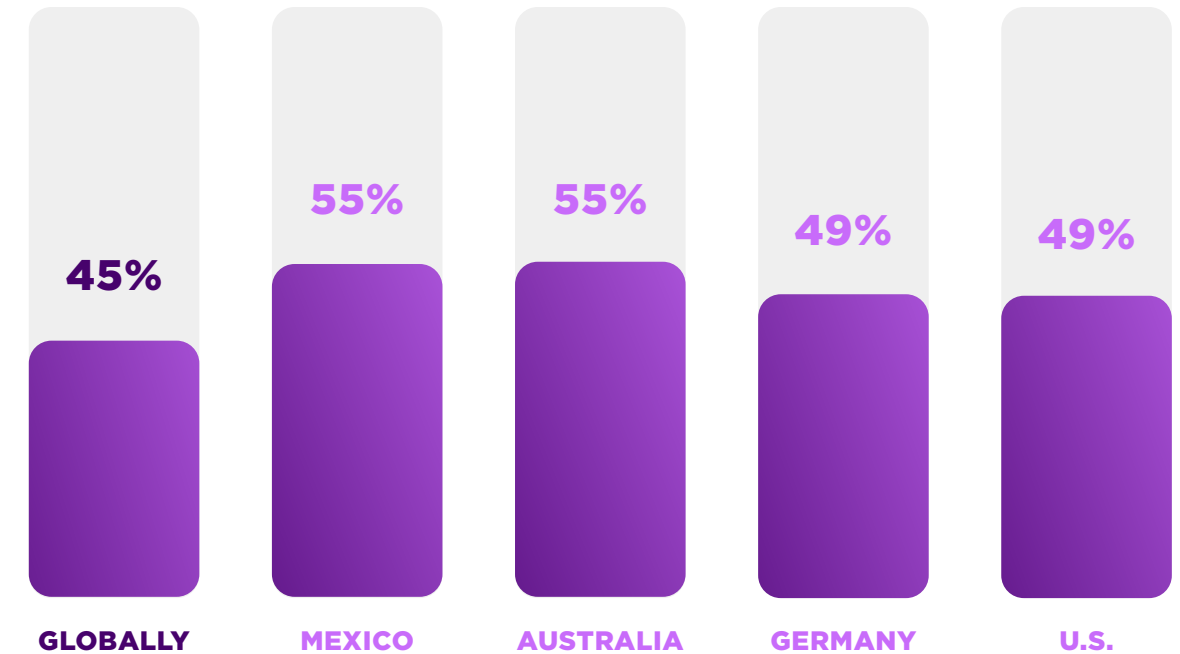
The fastest growing technologies being adopted and managed in-house are AI and VR. Now standing at **42%** globally, almost one-quarter (**23%**) of the entire sample did not manage these technologies in-house one year ago.

The regions managing AI and VR most prominently in-house over the past 12 months were Mexico (**37%**) and Germany (**29%**). Both reported strong IT budgets and rising IT adoption, demonstrating that when the capital is there, the automation of business processes is a clear priority.

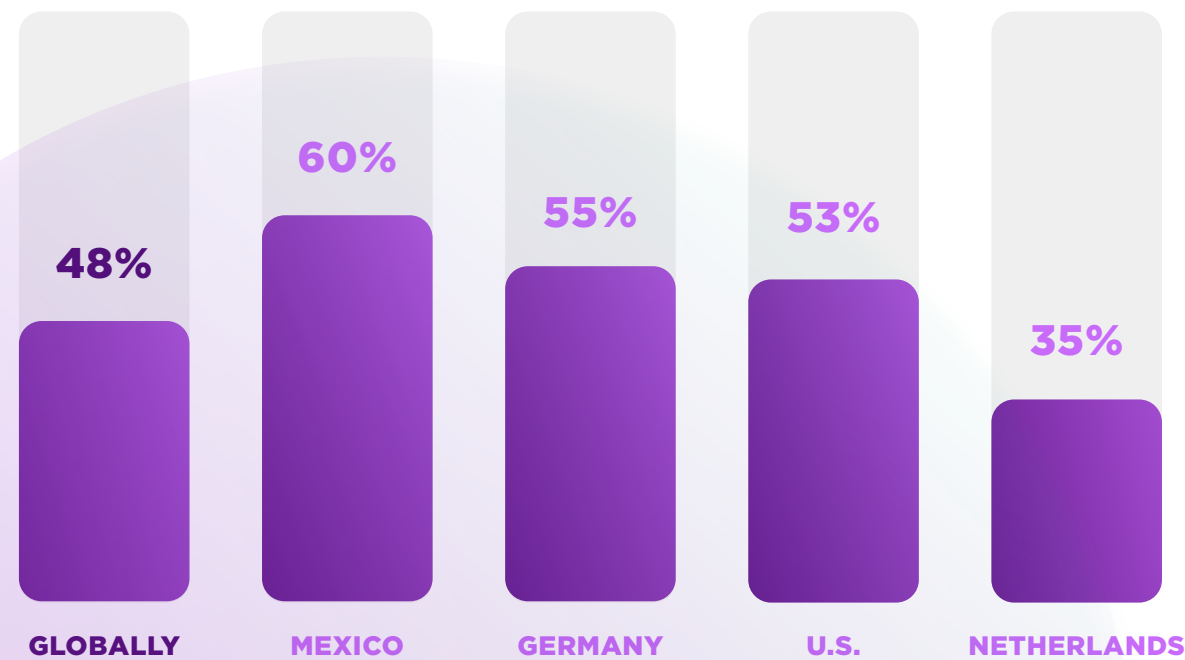
Almost all respondents (**99%**) confirmed at least one manual process in their organization would benefit from being automated using these technologies.

Those surveyed highlighted the following manual tasks in need of automating. The highest and lowest ranked countries are noted for each task:

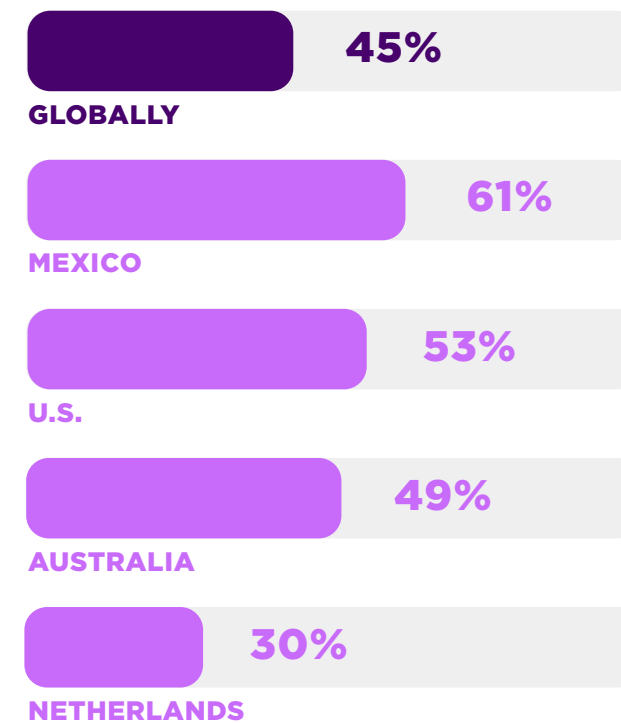
Accessing general medical information/resources



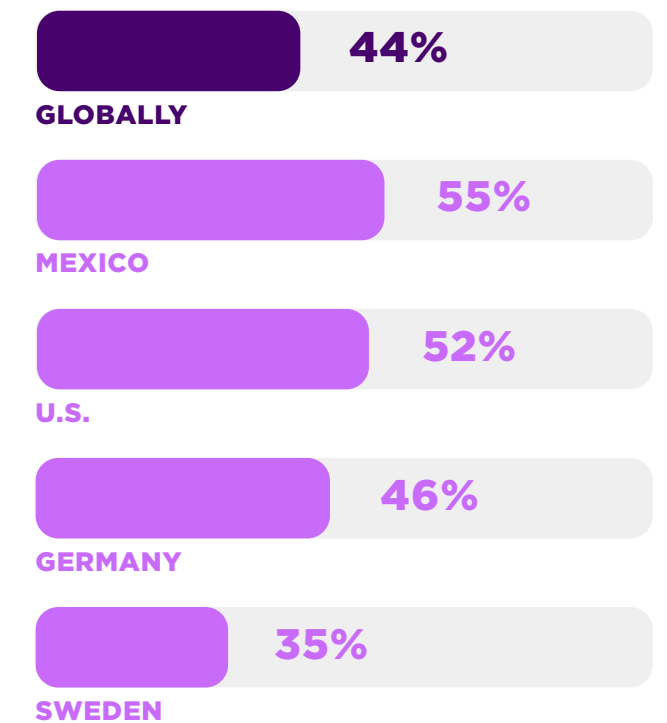
The collection of data during patient visits



Accessing and updating patient records



Recording information for administrative purposes



Overall, 93% of IT professionals revealed that the use of new technologies is now a priority.

However, 41% confirmed that new tech is already being implemented as a result, while 35% are only in the research phase.



Germany, Australia, the U.S. and Mexico were most active in innovating traditional processes across the board. The Netherlands brought the global average down, followed by Sweden which reported the second lowest increase in IT budgets (26%). This suggests a lack of funds impacts both tech adoption and how much attention is paid to automation and digital transformation.

The list of use cases for automation spans patient-facing, administrative, medical and HR/staffing scenarios, with at least 35% agreeing to automation's benefits in every instance.

This points to a need to better manage digital transformation and the adoption of emerging technologies. When automation can help generate revenue and ease financial strains, decision-makers should look to partners who can help navigate the process, regardless of budget or current maturity. Dedicated IT management can highlight priority areas for improvement with data to guide them through the most cost-effective first steps.

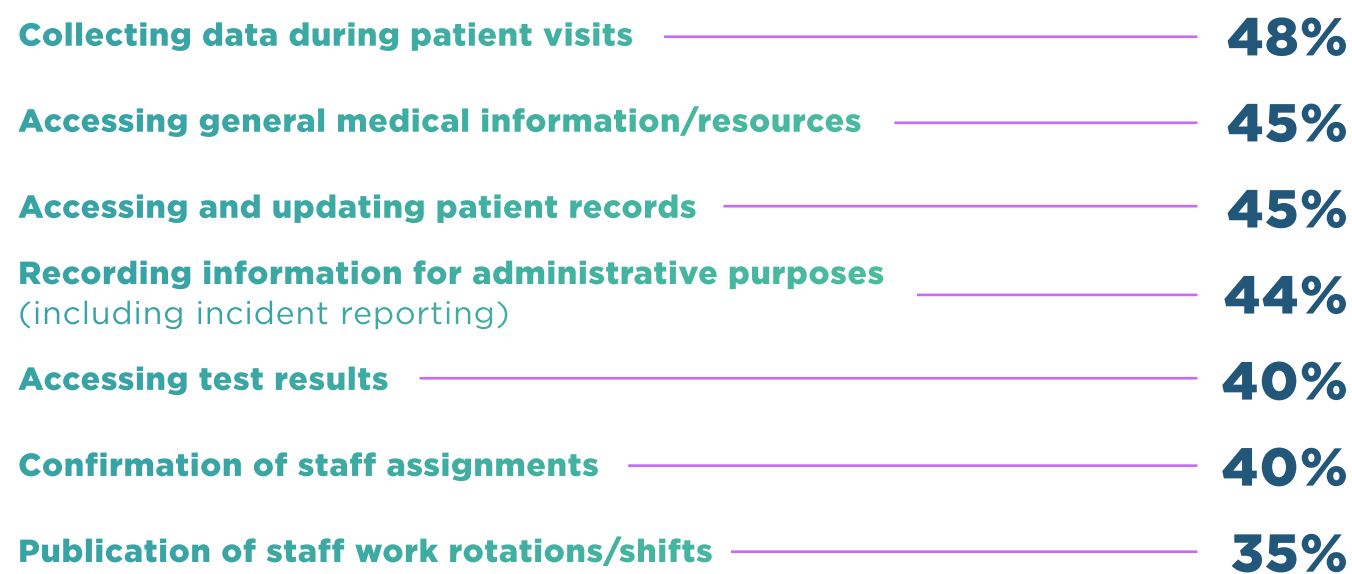




MANAGING DIGITAL TRANSFORMATION

The management of digital transformation presents its challenges. For those with the intention and a limited budget, management might require guidance in getting started and developing a roadmap. For those further along, management refers to the connectivity, maintenance and security of a growing infrastructure.

This infrastructure will only grow moving forward as more business operations are targeted for automation. Only 1% of respondents thought there would be no automation benefit across any of the following areas:



Aside from issues remaining from the pandemic, the top three areas of concern for IT management are still the same as in 2022:

1 The IT team is spending too much time on small issues such as fixing printers, taking attention away from more urgent tasks

- This is a concern for 21% globally
- Respondents from the Netherlands were most likely to highlight this issue (39%), followed by Australia (31%), Mexico (24%) and Germany (23%)

This confirms that management presents challenges at both ends of the scale, whether surrounded by legacy systems or at the start of the digital journey. Those who are investing heavily and quickly are now struggling with the integration of these tech innovations.

2 Data Security Concerns

- 16% were concerned about this globally
- Respondents from the U.S. (25%) and Canada (23%) are the most concerned
- The Netherlands is the least concerned (3%)

A general lack of digital maturity likely explains low security concerns in the Netherlands. Meanwhile, North America's rising budgets and growing digital portfolios can create data privacy concerns if not properly managed.

3 Managing Security of Shared Devices

- 13% were concerned about this globally
- The UK (21%) and France (17%) brought up the global average, and 16% of those in C-Suite and management roles shared this concern

Shared devices are becoming more commonplace with hybrid working and the use of these devices in warehouses and other remote locations. Concerns about managing them are likely to increase further in the coming year as organizations try to connect and protect them in an optimized way.



These statistics highlight why device management is so difficult for organizations. Either there is a lack of investment as seen in the Netherlands which exposes the role of legacy systems in completing admin work or securing new devices. Or, for those countries further along with digitalization, there is an issue with managing integrations effectively.

Regardless of where each country or organization sits, mismanagement will impact the ability to:

- Effectively connect the solutions being deployed
- Collate, store and use data being generated by new applications
- Encourage employee buy-in and move away from manual processes
- Gain data-led insight into the productivity of employees
- Improve the structuring and communication of employee shifts through visible portals
- Enhance accuracy of patient records through a single, connected source of truth

These are only a few examples of how organizations are looking to improve through the adoption of new technologies. However, it will be challenging to do so without effective integration and device management solutions to guide the transformation.





UNMANAGED DEVICES CREATE SECURITY RISKS

The fact that respondents' bottlenecks have remained consistent since the 2022 survey suggests healthcare as a global sector has yet to fully grasp tech management. Business operations will not experience the full potential of these technologies unless they are integrated, connected and secured effectively.

With healthcare data breaches becoming more common, this lack of management also leaves the sector vulnerable to cyberattacks. The impacts extend far beyond disruption to business operations as they risk patient data records and the overall standard of healthcare.

Amidst the rapid adoption of a diverse range of devices in healthcare to improve patient care outcomes, the industry is facing an alarming imbalance between technological advancements and the resources needed to manage and secure these devices. The growing complexity of device management, including managing legacy systems, requires urgent attention and adequate investment in resources to mitigate potential vulnerabilities and protect sensitive data.

Migrations to the Cloud and the role of AI in reducing manual errors are designed to make organizations more secure and resilient. However, these benefits are only realized if the integration and management of new devices and solutions are conducted effectively.

So far, this is not the case, with rates of data leaks and ransomware attacks rising between 2022 and 2023:

	2022 Survey	2023 Survey
A data leak from an employee (accidental)	33%	38%
A data breach from an outside source	31%	33%
A data leak from an employee (planned)	25%	30%
A DDoS ransomware attack	28%	30%

When comparing the results from 2022 to 2023, it is evident that the instances of data leaks have increased. If organizations are adopting more technologies that should make them streamlined and robust and security levels are getting worse, the issue is most likely how these innovations are being integrated and managed.



Aligning with digital adoption and investment, the Netherlands is most likely to report:

53% Accidental data leaks from an employee

41% Data breach from an outside source

43% Planned data leaks from an employee

35% DDoS ransomware attacks

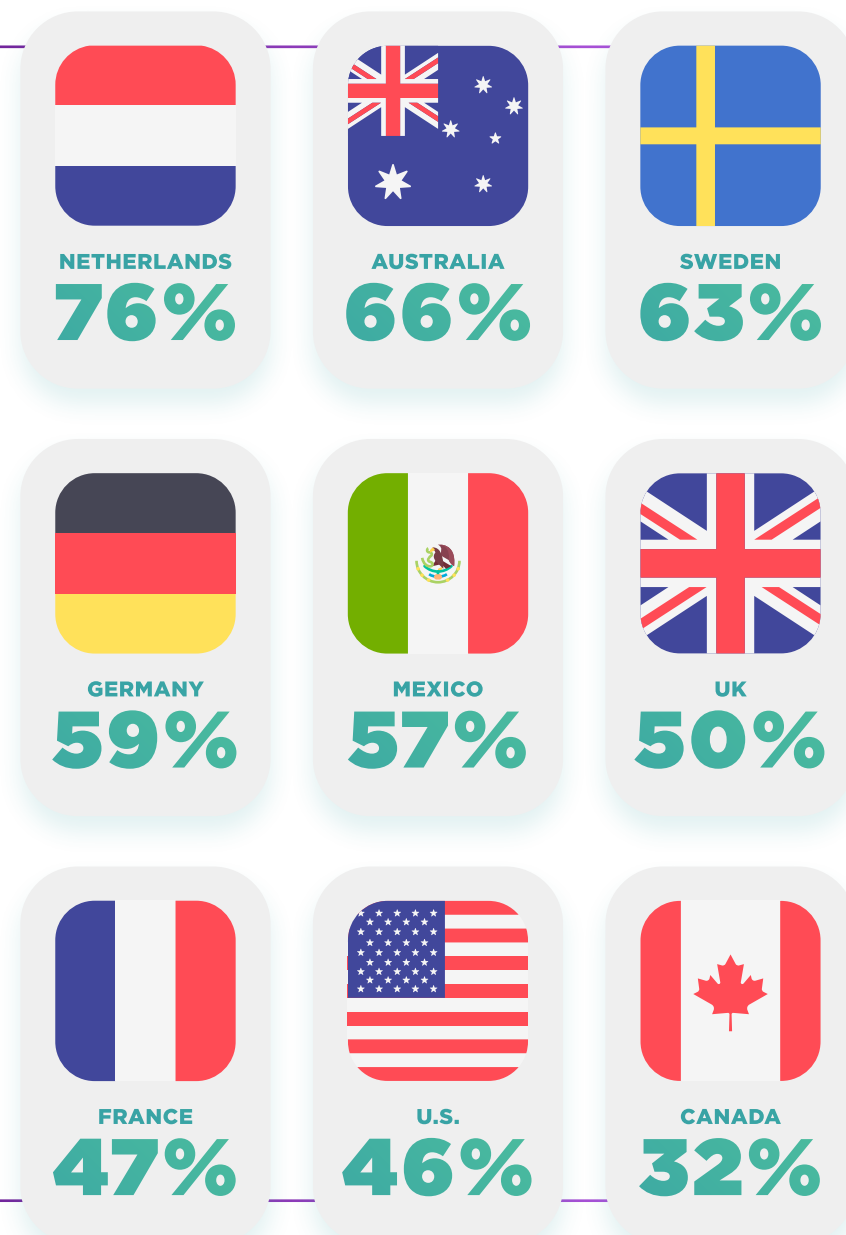
However, this is not just a concern for countries in the early stages of digital transformation.

- Sweden is more likely to have experienced a DDoS ransomware attack (39% compared to 27% in 2022)
- Germany also followed this trend - (33% compared to 31% in 2022)
- Australia (33%) increased the global average of the DDoS ransomware attack data
- Australia was also the most likely to have experienced a data breach from an outside source (49%)

Internal leaks lead to patient data breaches

The strongest sign of device mismanagement comes from statistics relating to internal data leaks (both planned and accidental) from employees. Overall, 55% experienced a leak over the past year, compared to 49% in 2022.

This points to a global issue around how devices are being managed, secured and integrated. The most severe consequences revolve around patient data breaches.



IT professionals in healthcare highlighted their biggest concerns around security regarding patient records (elements that could cause a breach or the impacts of a breach):

	2022 Survey	2023 Survey
Patient records could be stolen in an external cyberattack or by hacking my organization's systems	39%	39%
Patient information being revealed without patient consent	36%	36%
The financial cost if my organization experiences a data breach	35%	36%
The reputational damage to my organization if it experiences a data breach	34%	34%
Devices lost or stolen and could be used to access patient records	34%	32%
Patient information being lost	36%	32%
Data stored on devices is not adequately backed up to the server or Cloud	33%	32%
Unauthorized internal users could access patient records	29%	28%
No training on how to keep patient records secure	27%	23%

In each of these areas, concern levels remain similar to 2022, which suggests security improvements are not relative to the increase in IT and healthcare tech investments. Nearly all (97%) respondents have at least one concern, further demonstrating the security problem is yet to be solved despite investments in emerging technologies.

The missing link is how these devices and solutions are connected and managed and how they are protected against either human error or intentional manipulation. Unless the device management issue is addressed, digital transformations could be putting organizations at greater risk.



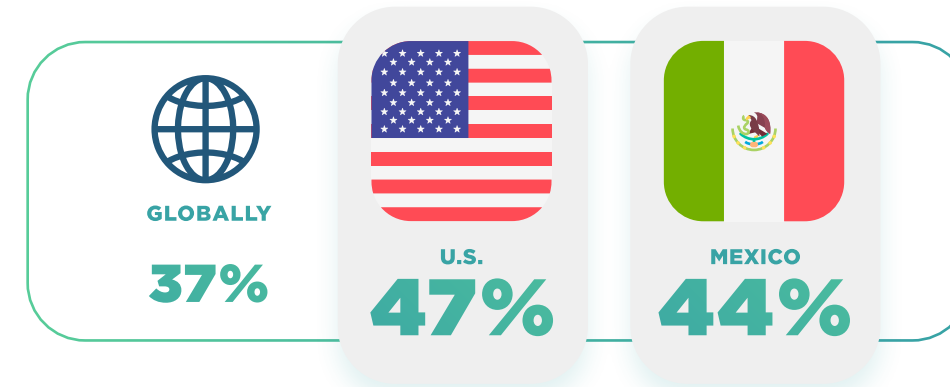
LEGACY SYSTEMS HARM HEALTHCARE'S FUTUREPROOFING MISSION

Issues with technology integration and management often emerge from a blend of new innovations and old legacy systems. This certainly seems to be the case in healthcare, with 95% of respondents confirming their organizations still have legacy systems active in daily business operations.

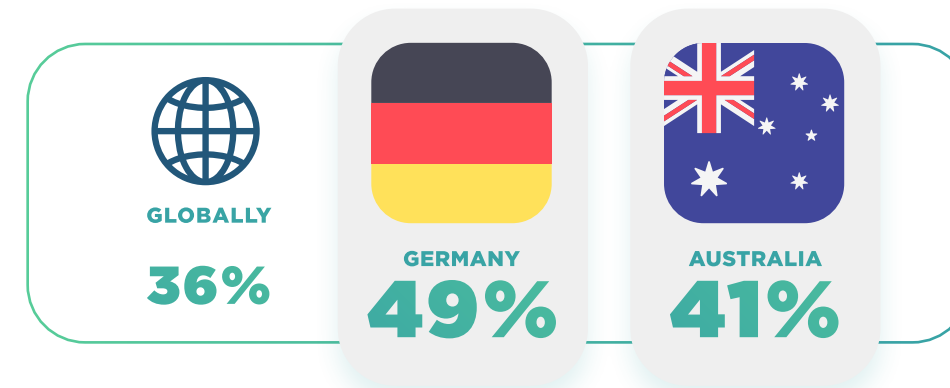


The Impact of Legacy Systems:

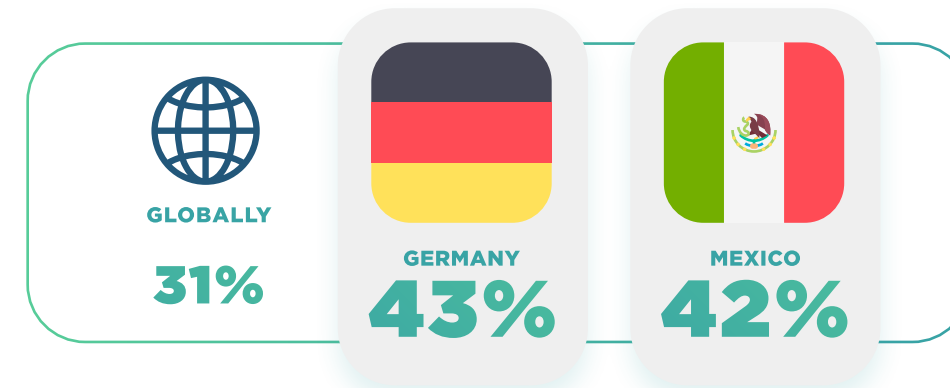
Being more vulnerable to cyberattacks or security breaches



Spending too much time fixing technical issues



Staff being unable to access patient data quickly



Again, Sweden and the Netherlands are at the low end of the scale across all three metrics, reflecting an early stage of digital transformation. The U.S., Mexico, Australia and Germany are once again topping the rankings. Concerns around the impacts of legacy systems could explain higher levels of investment into emerging devices and applications that address these security, maintenance and patient care challenges.

- Being unable to support devices remotely** ————— **26%**
- An inability to receive detailed information on device issues** ————— **26%**
- No time to work on essential IT issues** ————— **25%**
- Being unable to detect new devices connecting to the system** ————— **25%**
- An inability to deploy and manage new devices** ————— **21%**
- Being unable to deploy and manage printers** ————— **18%**



Each of these factors contributes to an overall picture where more than one-third (**34%**) of respondents have device deployment issues; more than half (**52%**) cannot resolve issues in a timely manner; and **53%** are unable to detect new devices that connect to an organization's system. Each problem leads to vulnerabilities.

Legacy systems are creating an uphill battle for IT healthcare investments to hit the mark and for new devices to make operations seamless rather than challenging. The time it takes to solve these problems results in lost productivity, a lack of data accuracy and financial losses from repairs and inefficient operations.

Prioritizing solutions that will aid the management of both old and new technologies will help stabilize the sector during downtime to earmark areas for improvement. This will enable more seamless communications while troubleshooting and help repair issues remotely. By investing in these management solutions first, the transition from legacy systems to futureproofing can be seamless.

Digitizing manual or paper-based work and upgrading from legacy systems in the healthcare sector helps eliminate inefficiencies and reduce the volume of administrative tasks that can divert attention from caregiving responsibilities. However, when technologies that enable automation are not adequately managed, costly device downtime can occur. To improve patient outcomes and avoid device downtime, healthcare IT professionals need advanced diagnostic intelligence solutions that provide performance visibility and remote device support.





OPTIMIZED INTEGRATIONS ENSURE QUICKER TRANSFORMATIONS AND SAVE TIME

Through this study, IT professionals around the world revealed that the employees in their organizations are losing an average of 3.4 hours in a normal week due to technical or system difficulties. This fact works against technology's role in the future of healthcare to enable smoother, more secure and faster levels of care. At its best, it should facilitate better interaction between carers and patients while also encouraging employees to stay in the sector long-term thanks to more efficient, less frustrating and error-free environments.

It is crucial to accept that technologies and devices such as laptops, smartphones, printers, rugged devices, scanners, RFID readers, AI and VR, can only reach this potential if they are being integrated, managed, upgraded and maintained effectively. This requires real-time data and insight into their efficacy and remote monitoring of each individual device's performance as an ongoing visible function.

Most importantly, it depends on connectivity – ensuring each new solution complements existing (and sometimes legacy) systems to create single sources of accessible information that also remain secure – updated in real-time and accessible remotely.

IT professionals in the sector have demonstrated a need for improved management of developing infrastructure by confirming their intention to invest in emerging technologies when budgets are there to support, but also by highlighting the bottlenecks they face when managing new tech solutions. They also shared their fears around security and the role of legacy systems in their digital journey.

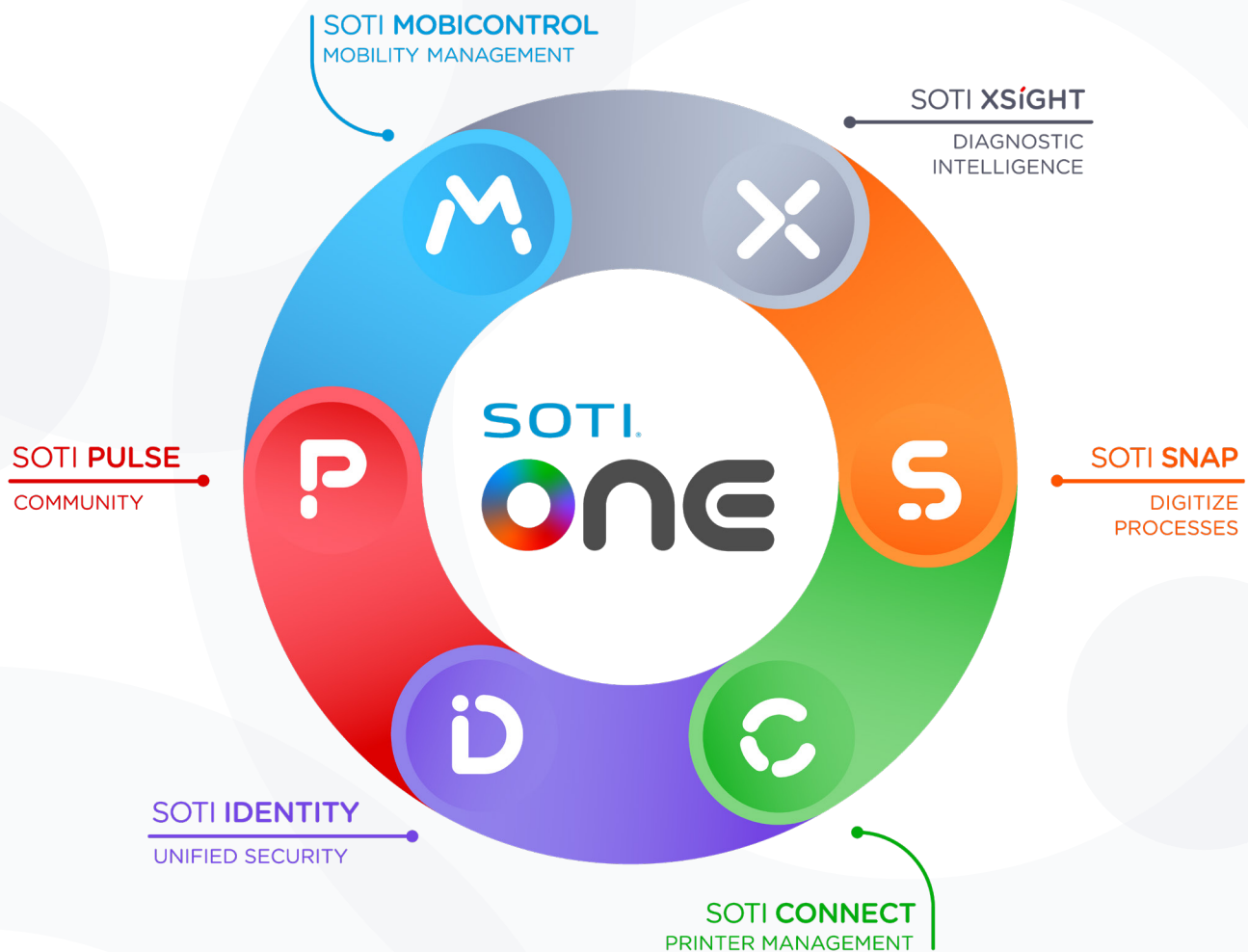
Each section of this report highlights how IT professionals in healthcare are prioritizing innovation and digital transformation. What is important now is to choose the right partners to guide them in this effort. These partners need to be tech providers, transformation guides and enablers of optimized infrastructure management.

ABOUT SOTI

SOTI is a proven leader at creating innovative solutions that reduce the cost and complexity of business-critical mobility and the IoT. Thousands of companies around the world depend on us to secure, manage and support their mobile operations.

The company's two decades of success has built strong partnerships with leading mobile platform providers and device manufacturers. These relationships give us unparalleled insight into new technology and industry trends before they happen.

A proven innovator, SOTI's clear vision, laser focus and commitment to R&D have made it the market leader at delivering exciting, new business mobility solutions. SOTI helps businesses take mobility to endless possibilities.



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