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IDC

The Case for Deploying Rugged Devices in Your Organization

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IDC Opinion

The digital transformation of frontline work continues at a rapid pace. Every day, more companies, nonprofits, and government agencies are moving to outfit their teams with the digital tools and hardware they need to be productive when working in the office, at home, in the field, and everywhere in between. For many, the COVID-19 pandemic greatly accelerated this digital transformation. As devices such as notebooks, tablets, and smartphones push further into areas where paper-based processes were once the norm, we have seen interest in rugged computing devices increase as well.

Across a wide range of industry verticals, the appeal of rugged devices designed specifically to endure in the challenging environments of frontline workers is clear. When a job is mission critical, so too must be the tools. And while rugged products have always cost more than their non-rugged, standard brethren, for many organizations, the higher initial cost is well worth the long-term savings these devices can yield.

For example, IDC's 2021 *Rugged Device* Survey showed that on average IT organizations had to make repairs to about 15% of their notebook fleet in the past 12 months, with a sizable percentage of those needed repairs due to physical damage to the device. The rate of repair among tablets was higher at 21%, while repair rate for smartphones was even higher at 26%.

It follows that every time a device needs repair, the organization incurs costs for the repair. Yet that is never the whole story. An organization must also calculate the hours that both IT and the employee must dedicate to triaging the workflow built upon access to that device, as well as the data that is stored upon it. On top of the hours spent dealing with a device issue, the actual lost hours of productivity when the device is removed from service should be considered. These numbers add up quickly, and the full associated costs are detailed later in this paper.

Another key data point is the enhanced durability of rugged devices leads to a longer life cycle. So not only do rugged devices stand up to the rigors of rough conditions better than a regular device, on average they remain in use longer than non-rugged devices, which means an organization replaces them less frequently.

Rugged devices aren't right for every organization, and even those that see the value don't typically feel the need to deploy them to every end user they support. It is worth noting, however, that most companies that have deployed rugged devices in the past suggest they will continue to do so into the future. This white paper takes a closer look at the components that drive the highest number of repair tickets for IT, the most common causes of physical device damage, the costs associated with repairing regular devices, and the potential long-term cost savings of deploying rugged devices to some percentage of an organization's installed base.

Methodology

To fully understand the costs of notebook, tablet, and smartphone and handheld device damage to organizations, IDC performed an end-user study of 410 U.S. organizations. In this study, IDC surveyed IT decision makers (ITDMs) in organizations of all sizes and across a broad range of vertical industries, including public safety, manufacturing, retail, transportation/logistics, and utilities, among others, to understand their usage of, downtime experienced with, and overall perspective on both standard and rugged devices. The study was conducted in May 2021. For this survey, smartphones and handheld computers are combined into a single category called smartphones. Tablets include both detachable tablets and slate tablets. Notebook PCs are inclusive of standard clamshell laptops as well as convertibles.

Situation Overview

The past several years have seen an increasing number of companies embracing digital transformation, and for many industries that means putting mobile devices into the hands of many workers that have lagged in terms of access to PCs, tablets, and smartphones for their work. According to IDC's 1Q21 Worldwide Quarterly Personal Computing Device Tracker, worldwide shipments of commercial PCs increased more than 7% in 2020, and the category is forecast to grow 15% year over year (YoY) in 2021. That growth was driven primarily by a huge shift from desktops (which dropped 25% YoY in 2020) toward notebooks (which increased 33% during the same year). Meanwhile, shipments of commercial tablets grew 25% in 2020, driven by a huge shift toward detachable (products with first party keyboards) models. Commercial smartphones didn't fare as well in 2020, yet they are forecast to grow by nearly double digit in 2021.

The common thread through commercial shipment growth in all these categories is the increasing need for computing capabilities on the go. Inside the historical and forecast growth of these three device categories, IDC is also seeing an increased interest and demand in rugged versions of notebooks, tablets, and smartphones. Rugged devices leverage more durable materials, long-life components, and product designs that survive harsh use, as well as keep out damaging elements, such as dust, sand, and water, to bring computing power to workers who operate in all manner of extreme environments, from manufacturing floors to oil and gas rigs, from ambulances to police cruisers, and from operating rooms to military operating theaters.

Rugged devices leverage more durable materials, long-life components, and product designs that survive harsh use, as well as keep out damaging elements.

Rugged devices have been around for years, and in the past, users often had to make compromises—typically around style and weight—in exchange for the increased durability. That has changed over the years. While most rugged devices still weigh more than standard versions, the difference has decreased over time and is often a direct function of just how durable a product needs to be. And today's rugged devices are more stylish than ever before.

Another recurring criticism of rugged devices is that they cost more than non-rugged devices, and that is still true (although the costs in terms of initial purchase price have come down dramatically in recent years). However, when most IT organizations that have employees who *need* rugged devices run the numbers, they realize that the cost savings of buying non-rugged devices are sacrificed over the lifetime of the product. Standard notebooks, tablets, and smartphones require more repairs over their lifetimes, which drive high incident costs plus IT staffing dollars. The time these devices are out of service also drive lost productivity costs for end users.

In the end, it's clear that for many organizations, it makes long-term financial sense to invest in rugged devices to save money over the lifetime use of the product. Some of those cost savings are outlined in the sections that follow.

The Cost Benefits Of Rugged Devices

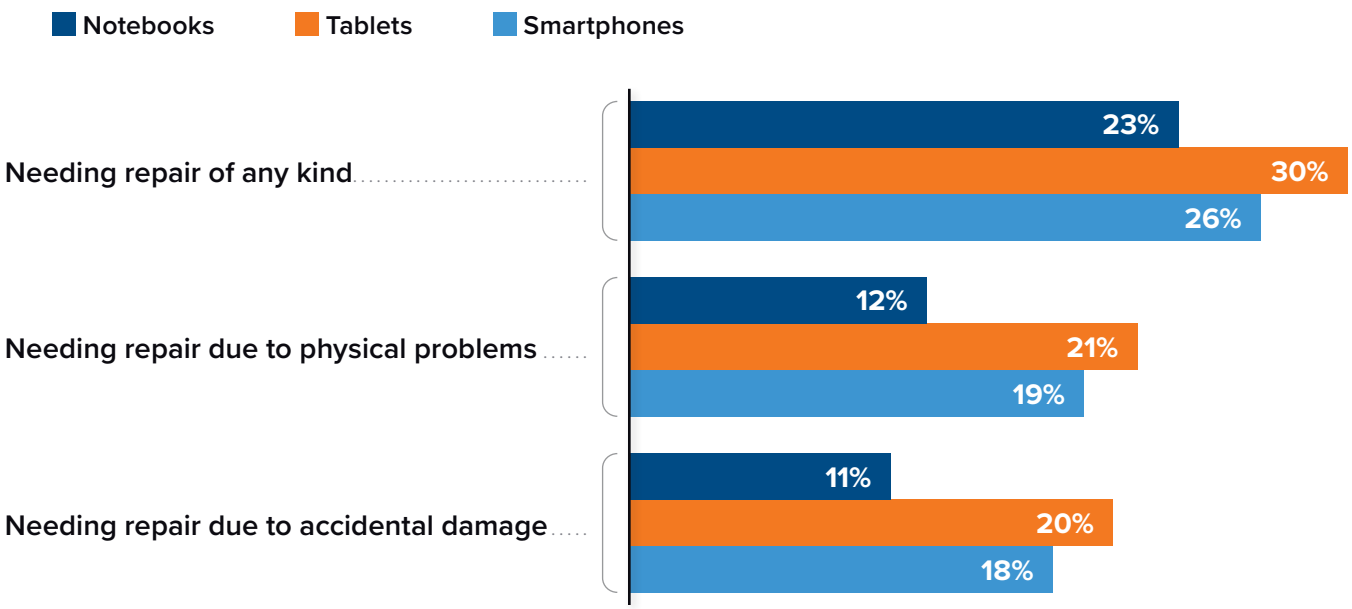
To understand the potential to save long-term costs by spending more up front for rugged devices, we must first explore the challenges IT face regarding the average number of repairs it has to make to notebooks, tablets, and smartphones during the year. When we asked IT decision makers (ITDMs) what percentage of their installed base needed repairs of any kind in the past 12 months, they cited some astounding numbers: 30% of tablets, 26% of smartphones, and 23% of notebooks. Digging deeper into these results, we see that a significant portion of the needed repairs in any device category was due to physical problems with the device. Further, a subset of those problems was the result of accidental damage (see **Figure 1**).

FIGURE 1

Device Failure Rates

(% of respondents)

Q. What percentage of devices required repair?



n = 296 for notebooks, n = 204 for tablets, n = 207 for smartphones, Source: IDC's *Rugged Device* Survey, 2021

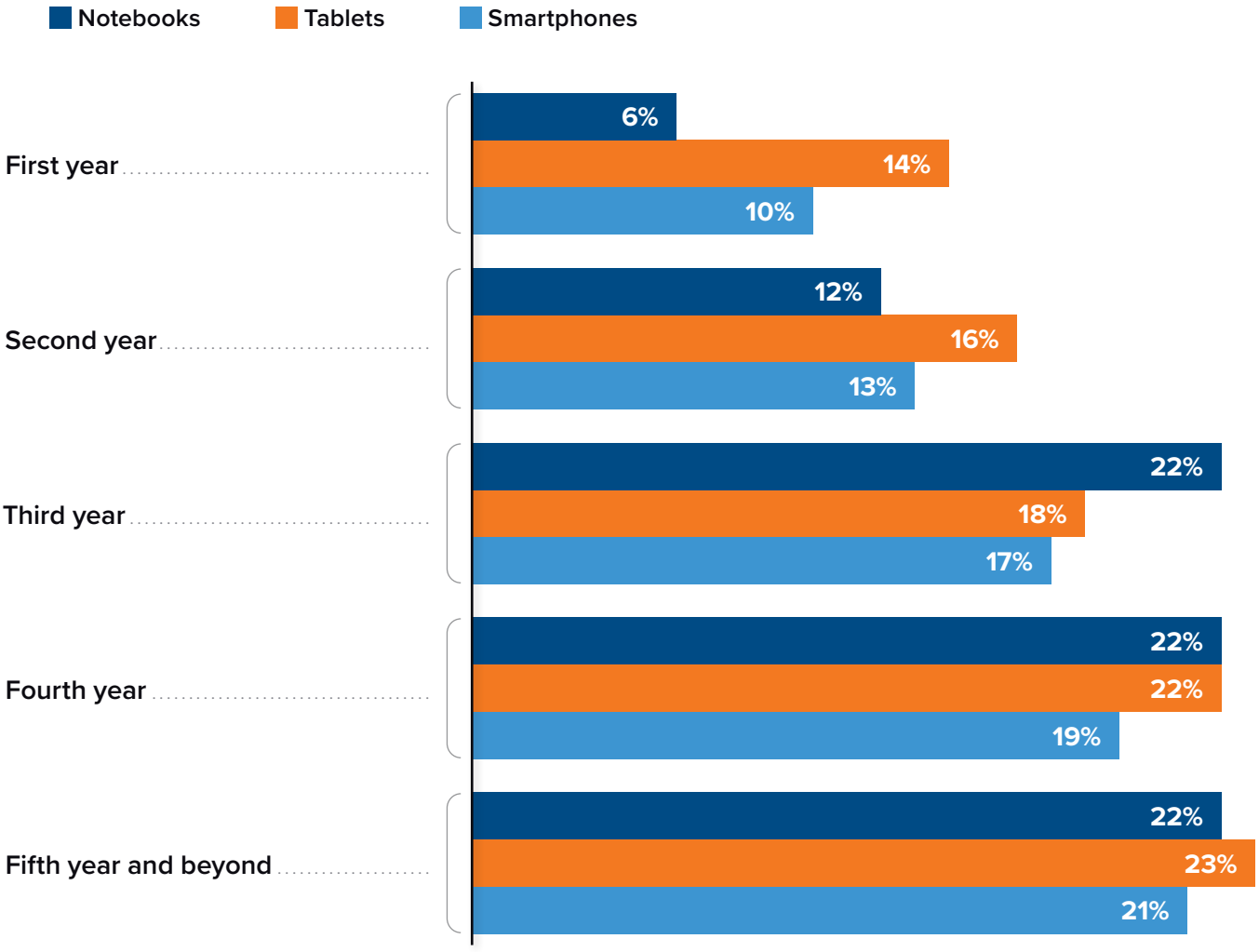
Beyond repairs to actual device failures, we see another illustrative trend: about 6% of notebooks fail during their first year, and that volume increases year over year to reach about 22% by the fifth year in service. A greater percentage (14%) of tablets fail in their first year, but the final failure rate in year five is still comparable to notebooks at 23%. Finally, failures in smartphones in the first year land in the middle at 10%, and by the fifth year, those smartphones still in service see a 21% failure rate (see **Figure 2**).

FIGURE 2

Device Failure by Year

(% of respondents)

Q. What percentage of each device has a failure during each year it is used?



n = 296 for notebooks, n = 204 for tablets, n = 207 for smartphones, Source: IDC's *Rugged Device* Survey, 2021

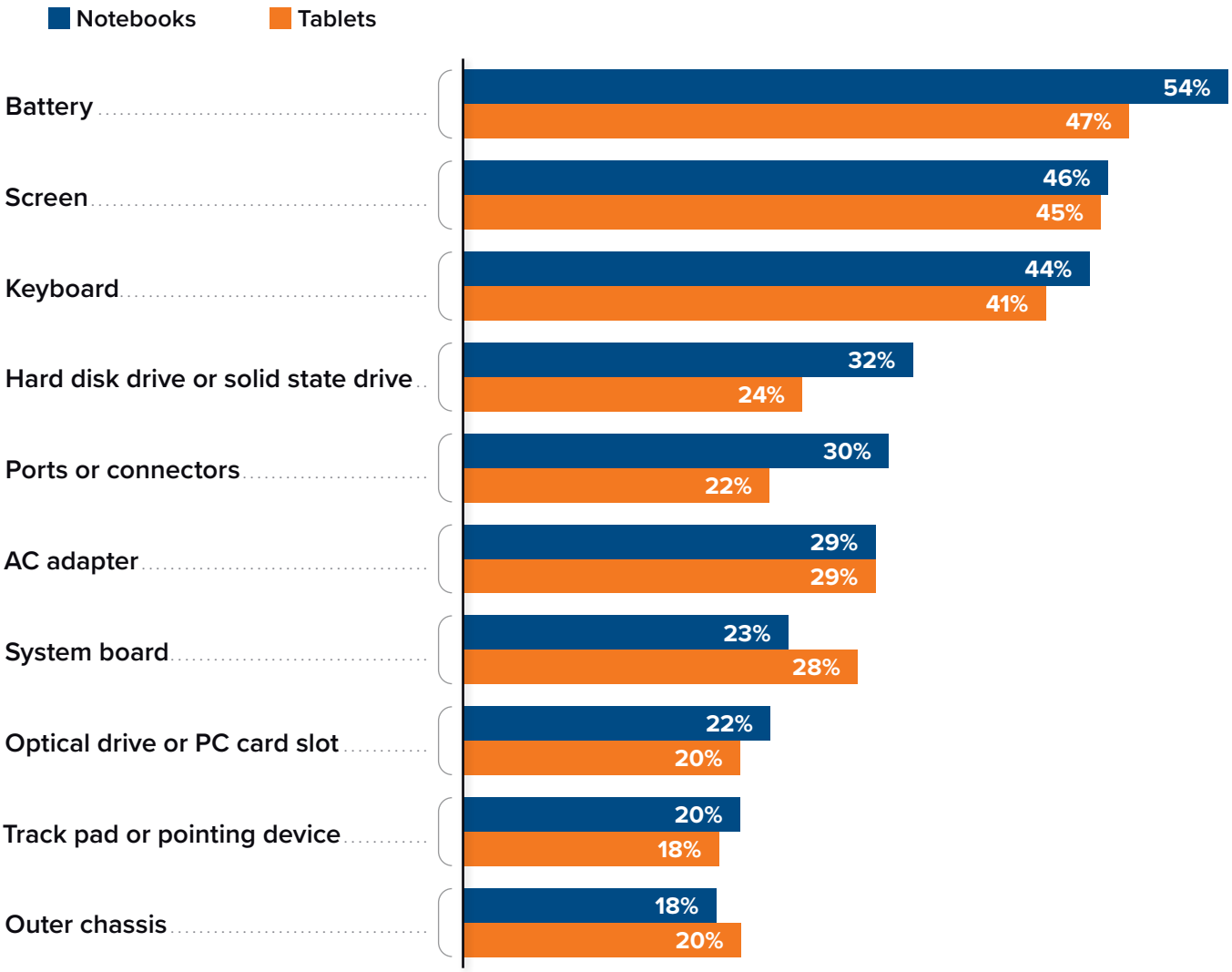
One of the most notable changes between the 2021 survey and the one conducted in 2016 was that, across device types, battery is the leading component that suffers damage. Screen and keyboard were numbers 2 and 3, respectively, components for both notebook PCs and detachable tablets (see **Figure 3**). For smartphones, the number 2 component was screen, followed by ports or connectors.

FIGURE 3

Most Common Components in Notebooks/Tablets That Suffered Damage in the Past 12 Months

(% of respondents)

Q. In the past 12 months, which of the following components of your organization's notebook PCs have suffered damage or breakage?



n = 296 for notebooks, n = 204 for tablets, Source: IDC's *Rugged Device* Survey, 2021

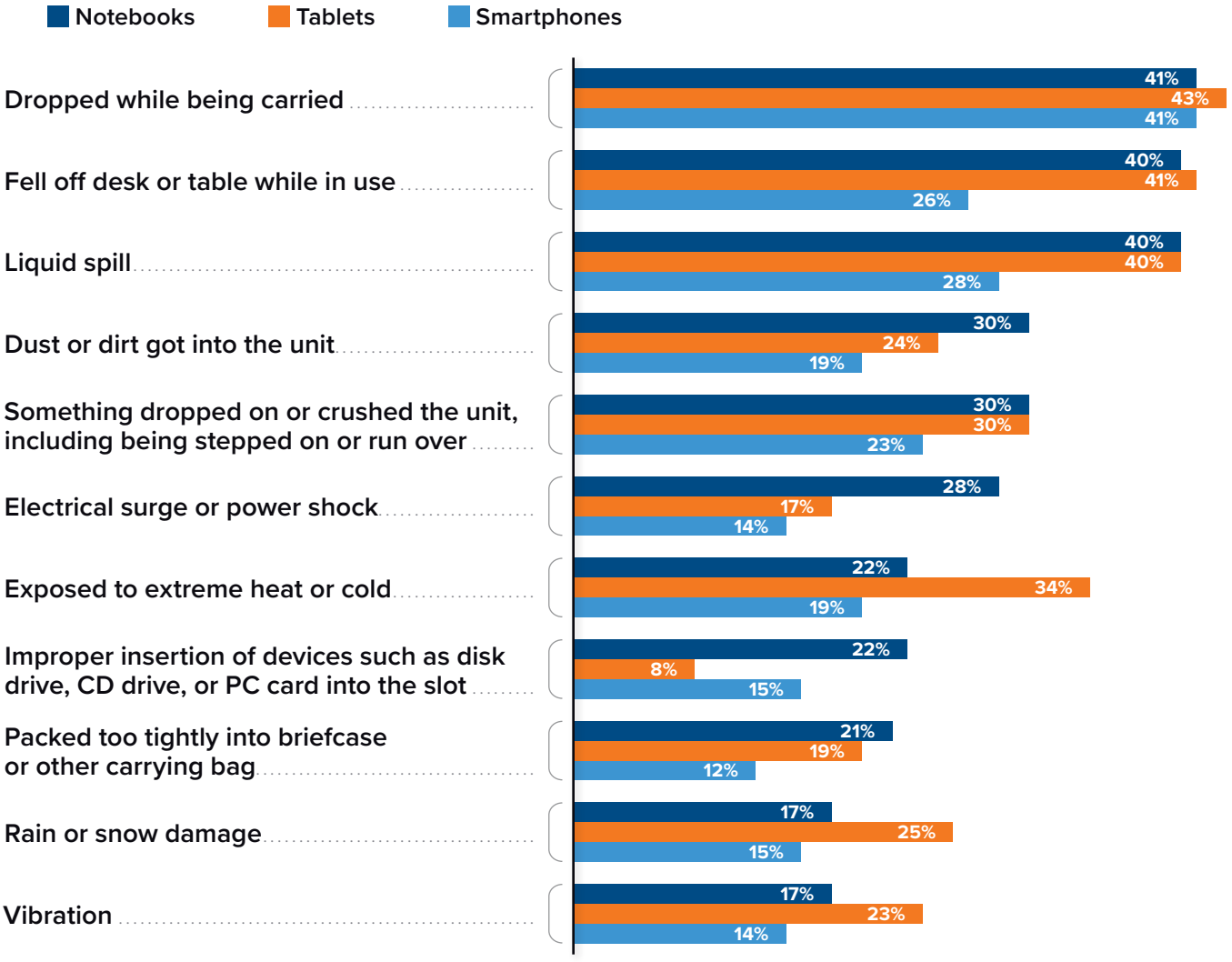
Mobile devices are meant to be used on the move, but this means they are at much greater risk of damage than a traditional desktop that never leaves its safe spot on the desk. The most cited type of accident that caused damage across all devices was a drop, with 43% of companies with tablets, 41% with smartphones, and 40% with notebooks pointing to this as the top cause of damage. For notebooks, the rest of the top five device accidents are falling off a desk, a liquid spill, dust or dirt intrusion, and something getting dropped on the unit. Companies with both tablets and smartphones saw exposure to extreme heat or cold replace dust or dirt intrusion in their top five cause of device damage (see **Figure 4**).

FIGURE 4

Types of Device Accidents in the Past 12 Months

(% of respondents)

Q. In the past 12 months, which of the following types of accidents have caused damage to your organization's notebook PCs/tablets/smartphones?



n = 296 for notebooks, n = 204 for tablets, n = 207 for smartphones, Source: IDC's *Rugged Device* Survey, 2021

Significant Problems Caused by Device Damage or Failure

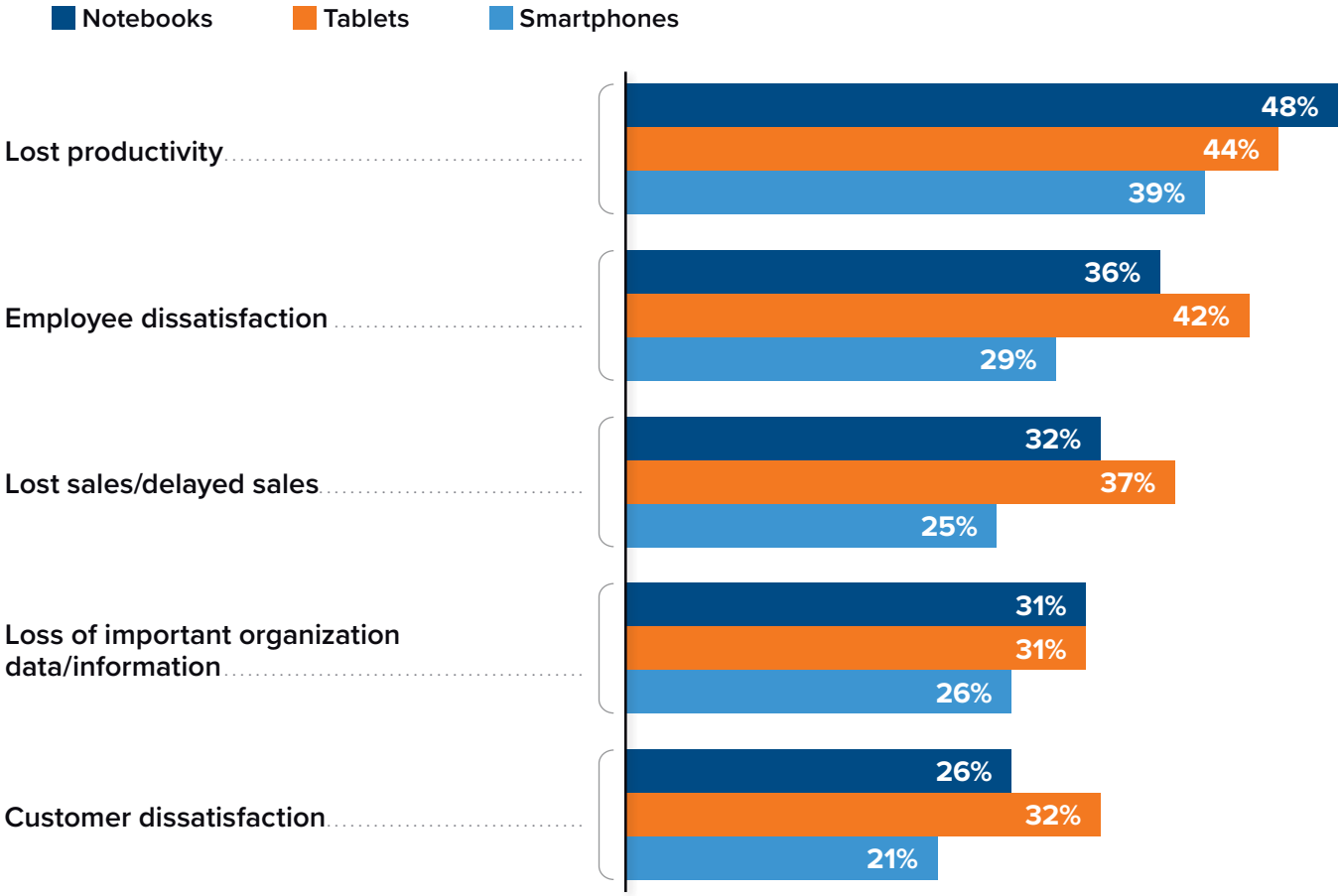
When a device is damaged, it sets off a chain reaction inside of an organization. When IT decision makers (ITDMs) were asked to rate the significant problems caused by damaged devices, the answer across the board was lost productivity. Other key challenges included employee dissatisfaction and lost or delayed sales (see **Figure 5**).

FIGURE 5

Significant Problems Caused by Device Damage or Failure in the Past 12 Months

(% of respondents)

Q. In the past 12 months, which of the following problems has your organization experienced due to incidents caused by physical damage to a notebook PC/ tablet/smartphone?

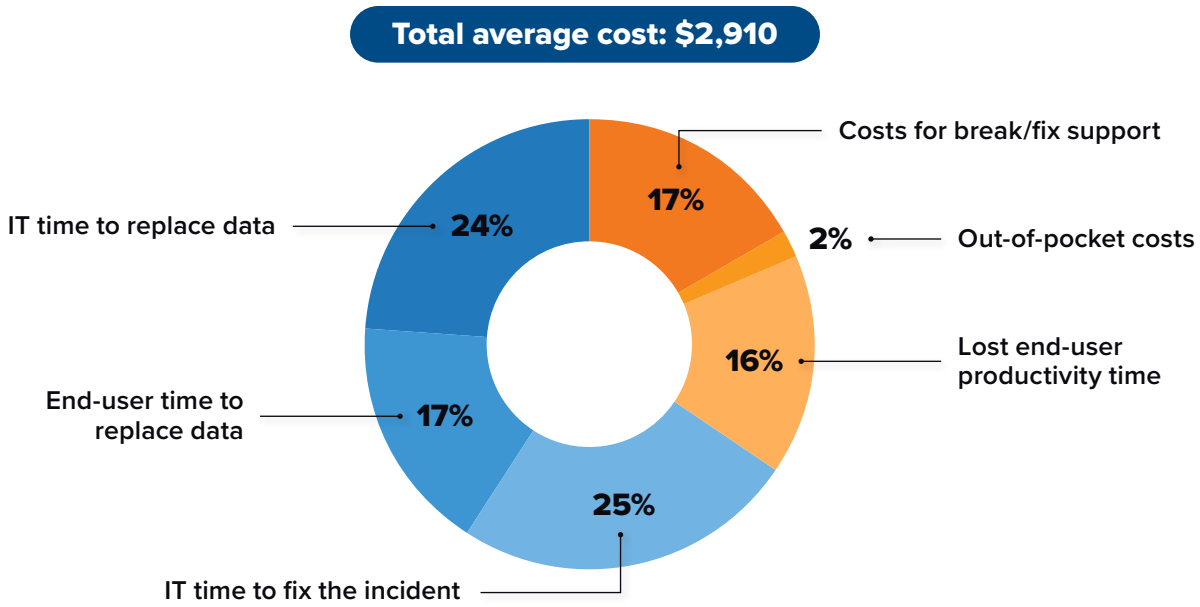


n = 296 for notebooks, n = 204 for tablets, n = 207 for smartphones, Source: IDC's *Rugged Device* Survey, 2021

Employee downtime is just one of the issues that results from an out-of-service device. To get a more holistic view of the cost, IT decision makers (ITDMs) were asked a series of additional questions about the time and costs associated with such issues. IDC estimates that the average cost associated with a notebook repair is $2,910, a tablet is $2,198, and a smartphone is $1,903 (see **Figures 6–8**).

FIGURE 6

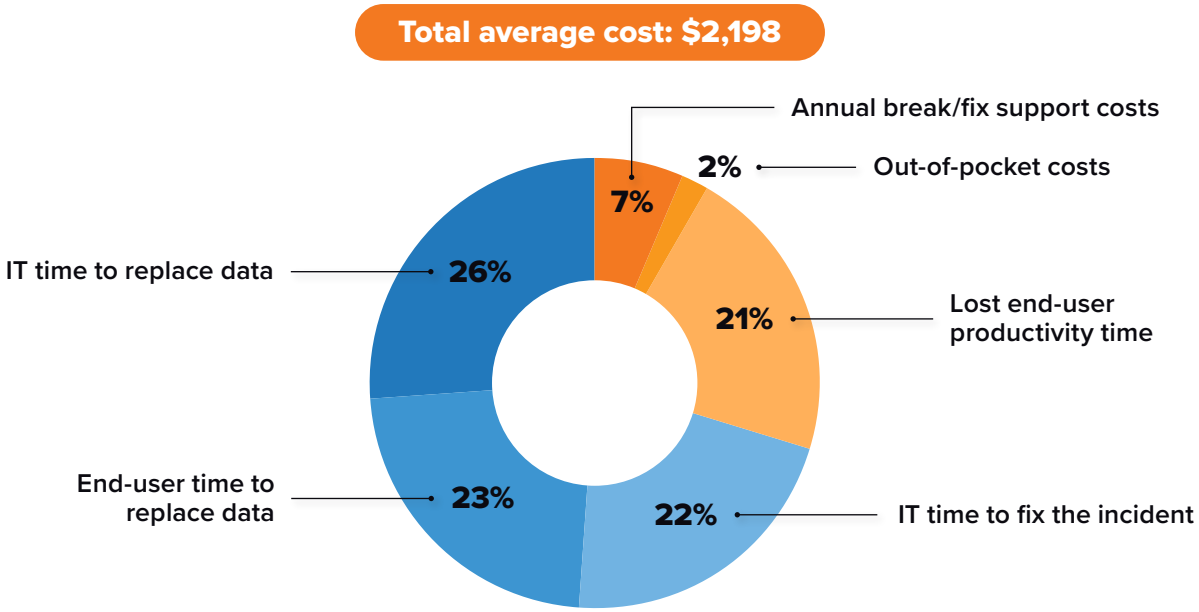
Total Cost per Incident to Repair Notebook



n = 296, Source: IDC's *Rugged Device* Survey, 2021

FIGURE 7

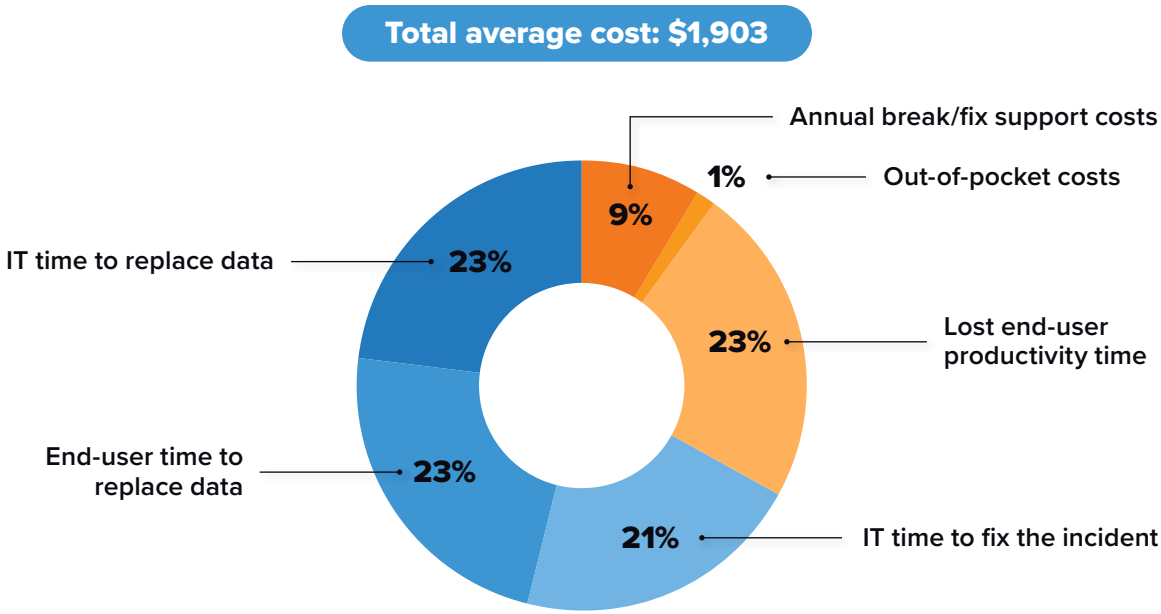
Total Cost per Incident to Repair Tablet



n = 204, Source: IDC's *Rugged Device* Survey, 2021

FIGURE 8

Total Cost per Incident to Repair Smartphone



n = 207, Source: IDC's *Rugged Device* Survey, 2021

Rugged Devices Life Cycle and Cost Savings

The previously mentioned survey results tell a daunting story around how frequently employees damage devices, how those accidents happen, the negative impact such incidents have on productivity, and the high costs associated with fixing the device.

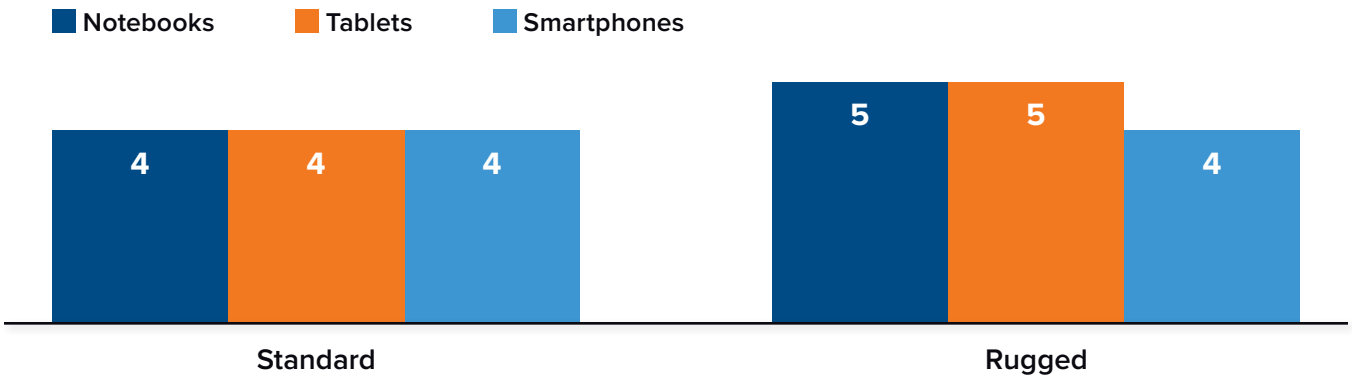
As we dive deeper into the advantages of buying rugged devices for employees, here's a key data point: Not only are rugged devices less likely to suffer damage requiring repairs, but they also have a notably longer life span than non-rugged devices. Respondents said they replace their standard notebooks on average every 3.9 years versus 4.8 years for rugged notebooks. For tablets, those numbers were 3.6 years versus 4.6 years. And for smartphones, they were 3.7 years versus 4.4 years (see **Figure 9**).

FIGURE 9

Rugged Device Versus Standard Device Life Cycles

(years)

Q. About how often does your company refresh its "standard" notebooks, tablets, or smartphones compared with "rugged" notebooks, tablets, or smartphones?



n = 296 for standard notebooks, n = 238 for rugged notebooks, n = 204 for standard tablets, n = 181 for rugged tablets, n = 207 for standard smartphones, n = 135 for rugged smartphones, Source: IDC's *Rugged Device* Survey, 2021

IDC used these figures, plus the average purchase price per device, the previously mentioned cost per incident, and a number of other metrics, to calculate the potential total cost of ownership (TCO) benefits of going with a rugged device over a non-rugged device.

While paying a higher up-front cost for rugged devices, across all three categories, there are significant savings to be captured by going rugged in the right situations (see **Figure 10**).

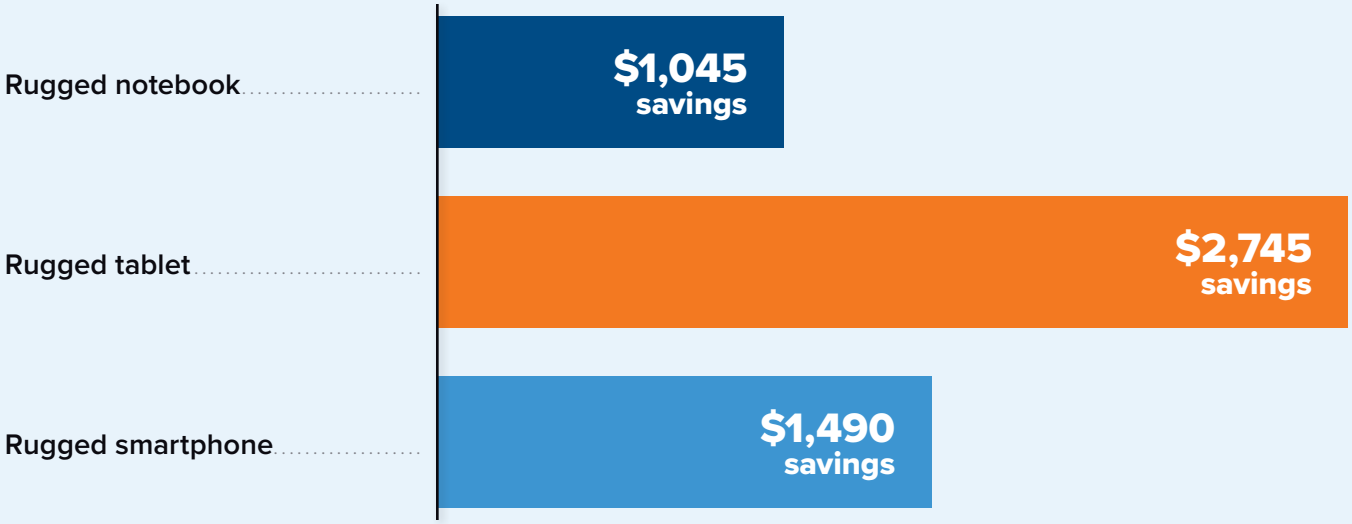
FIGURE 10

Cost Savings of Rugged Devices Over Time

The Results

Despite paying a higher up-front cost for rugged devices, across all three categories there are significant savings to be captured by going rugged in the right situations.

Over the average life cycle of a rugged device, a company can expect to save close to:



Source: IDC, 2021

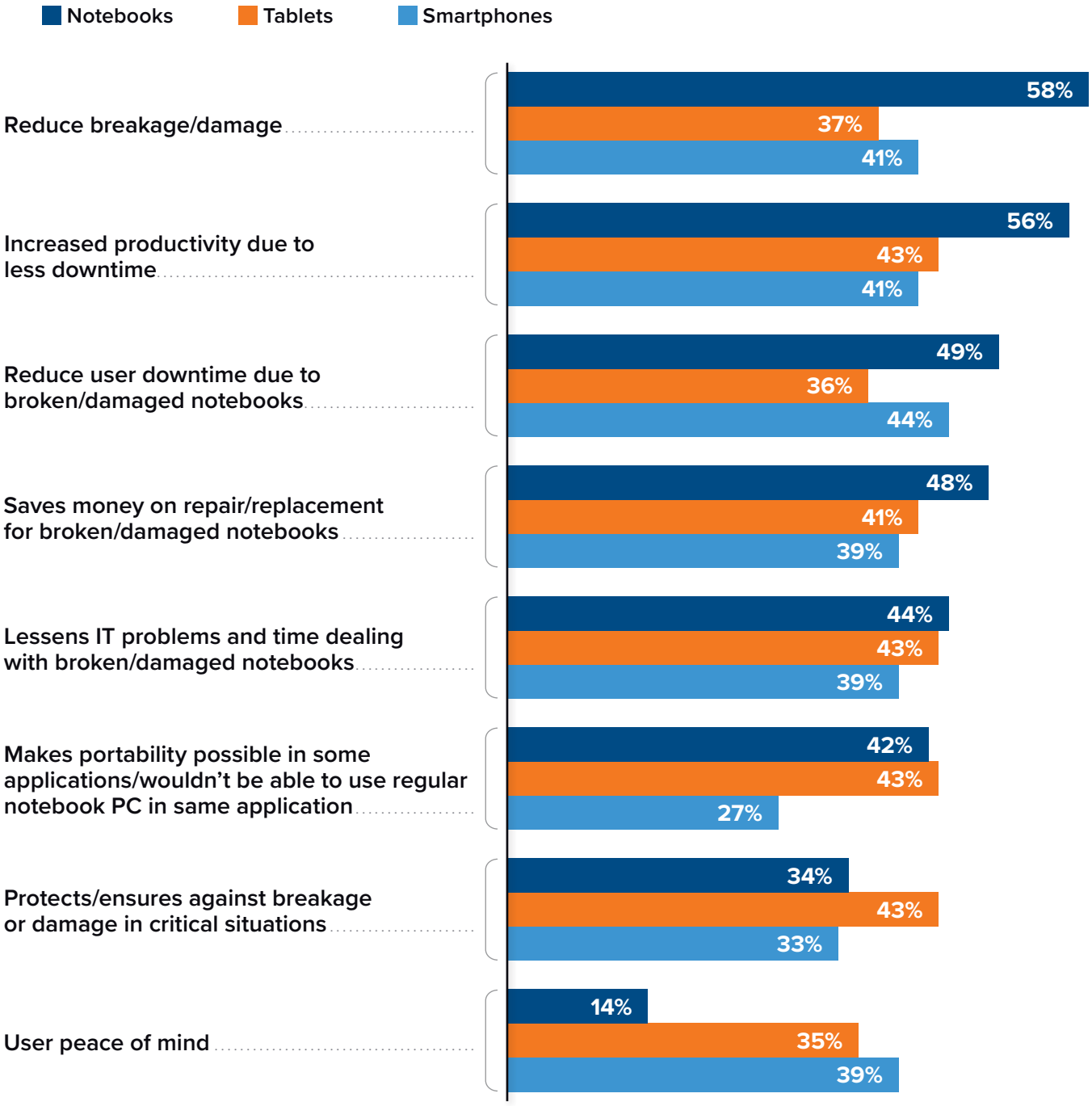
When ITDMs with rugged devices were asked what they saw as the benefits of using rugged devices, the largest percentage pointed toward reduced breakage/damage, followed by increased productivity and reduced downtime (see **Figure 11**, next page).

FIGURE 11

Benefits of Rugged Devices

(% of respondents)

Q. What are the key benefits of using rugged notebook PCs/tablets/smartphones to your organization?



n = 248 for notebooks, n = 181 for tablets, n = 135 for smartphones, Source: IDC's *Rugged Device* Survey, 2021

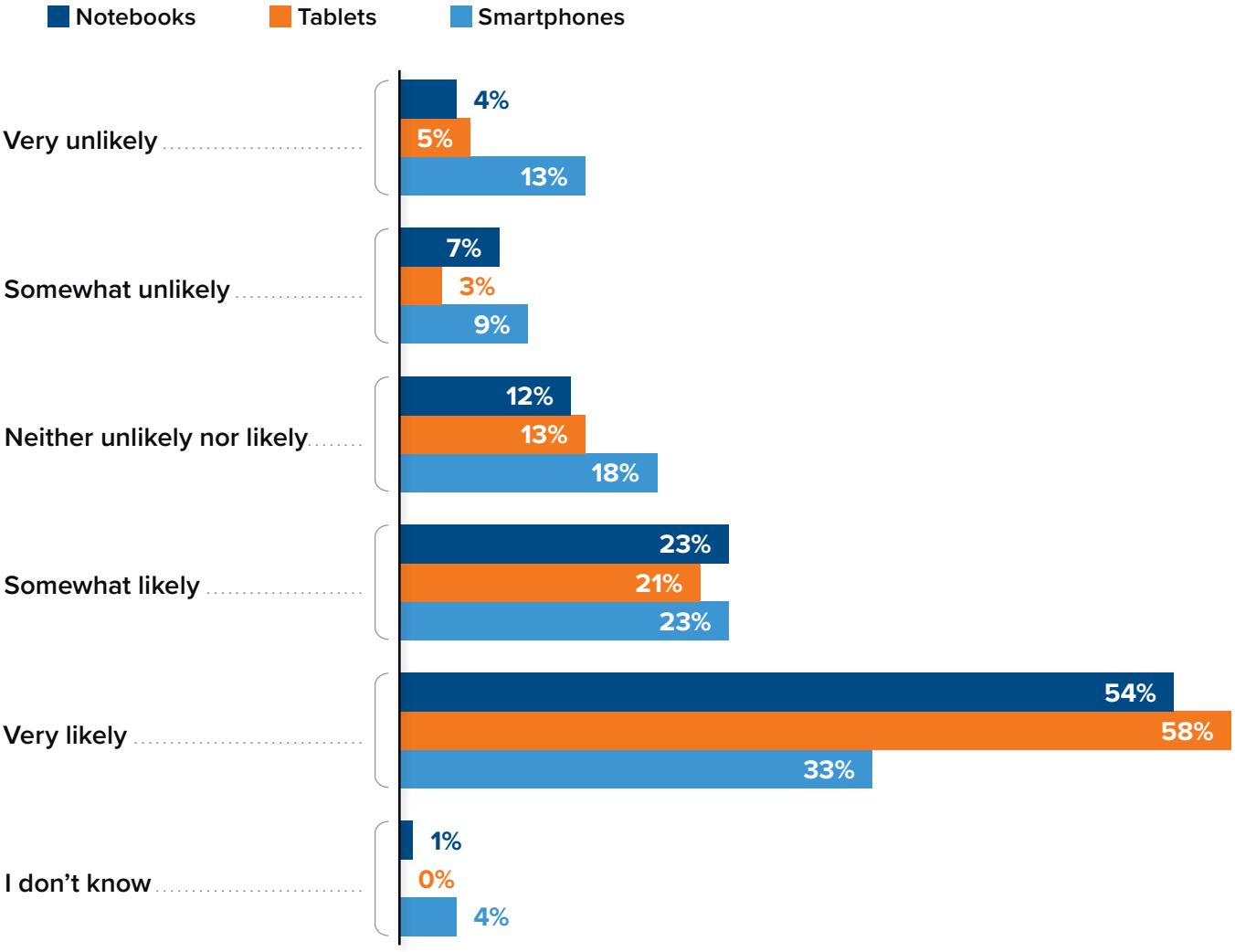
When respondents were asked whether they planned to buy rugged devices in the future, an overwhelming percentage said they were either somewhat likely or very likely to buy rugged notebooks, tablets, and smartphones in the future (see **Figure 12**).

FIGURE 12

Likelihood of Buying Rugged Devices in the Next 12 Months

(% of respondents)

Q. How likely is it that your organization will purchase rugged or semi-rugged notebook PCs/tablets/smartphones in the next 12 months?



n = 296 for notebooks, n = 203 for tablets, n = 199 for smartphones, Source: IDC's *Rugged Device* Survey, 2021

Challenges/Opportunities

As discussed previously, IDC has articulated the advantages of buying rugged devices for those employees that need them. While the benefits are clear, there are always challenges associated with bringing new technologies into an organization or trying to expand their use, and rugged devices are no different in this regard. **There are two key challenges most IT organizations face: pushback from finance on the higher initial cost of rugged devices and the potential for end users to complain about having to use rugged devices over more consumer-centric designs.**

Both challenges are well met by today's rugged devices. The first, for reasons described in this document, is that while the up-front cost may be higher for a rugged device, that cost is quickly recovered due to the advantages rugged options bring in terms of eliminating costly repairs and substantial time spent by both employees and IT dealing with a damaged device. In terms of end users and their desire to use consumer-grade devices, most will find today's rugged devices dramatically more usable than previous products, offering more powerful, sleeker designs and lighter weights. And for many, the added productivity—and the ability to get work done wherever they are—outweighs any potential negatives.

Conclusion

As an increasing number of organizations move to streamline existing processes through digital transformation, the need to outfit frontline workers with rugged, dependable devices continues to increase. Forward-thinking companies can look past the high initial cost of rugged devices to see that for a subset of their users, these devices can drive increased productivity plus a notably lower lifetime cost of ownership than a non-rugged device. **When you do the math, rugged just makes good sense.**

About the Analyst

Tom Mainelli
Group Vice President, Device & Consumer Research, IDC

Tom manages the Device & Consumer Research Group, which covers a broad range of hardware categories, inclusive of both home and enterprise markets, as well as IDC's growing consumer research practice. The device research includes PCs, tablets, smartphones, wearables, smart home products, thin clients, displays, and virtual and augmented reality headsets. He also manages IDC's supply-side research team that tracks display and ODM production across a wide range of products. IDC's consumer practice, built upon its Consumer Technology Strategy Service, tracks numerous consumer-focused metrics utilizing frequent surveys and IDC-branded indexes. The consumer research also includes in-depth services focused on gaming and video.

In his role as group vice president, he works closely with company representatives, industry contacts, and other IDC analysts to provide in-depth insight and analysis across a wide range of both commercial and consumer topics. He also oversees the collection of historical shipment data and the forecasting of shipment trends in cooperation with IDC's Tracker organization. A frequent public speaker, he travels often and enjoys the opportunity to work with colleagues and clients all over the world.

More about Tom Mainelli

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