



White Paper

Pay Now, Save Later: The Business Case for Rugged Devices

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IDC OPINION

The explosion of mobile technology has profoundly changed the way employees get work done. First, the transition from traditional tower PCs to notebooks gave people the ability to take their work off the desktop and on the road. Now, the rise of increasingly powerful tablets and handheld devices has made truly mobile productivity flourish. And companies have wholeheartedly embraced this evolution. A recent IDC survey of U.S. IT decision makers (ITDMs) showed that 86% of businesses surveyed were buying, deploying, and managing smartphones for their employees; 79% were supporting notebooks; and 62% were supporting tablets. This is in addition to the 86% that are still supporting desktops.

While this push toward mobile devices has driven incredible productivity gains, it is not without costs. Specifically, notebooks, tablets, and smartphones are at significantly greater risk of damage than traditional desktops. From drops on floors and drops into water to usage in extreme conditions, the mobile nature of these devices leaves them much more susceptible to damage than traditional desktops. And when that happens, productivity suffers and costs go up. The same IDC study showed that the average annual failure rates of notebooks is 18%. The rate of failure increases each year a device is in use, ranging from 11% failing the first year to more than 20% failing by year five. By the end of year five, 61% of notebooks will have a failure that will require repair. The average annual failure rate for tablets and smartphones is 15.7% and 13.9%, respectively.

As the number of notebooks, tablets, and handheld devices supported by IT grows, the issue of device damage becomes increasingly important for a number of reasons including repair costs and lost productivity. Among those ITDMs surveyed, the average out-of-pocket cost to repair a notebook was \$295 and the cost of fixing a tablet or a handheld device was \$224. In addition to these costs, there are also numerous costs associated with the time that IT and the employee spend dealing with the damaged device. And for the worker, there's the productivity lost during the downtime without the device. The same survey showed that employees lost an average of about 5.8 working hours due to notebook repairs, 4.2 hours due to tablet repairs, and 6.0 hours due to handheld device repairs.

As mobile devices become increasingly important to businesses, a growing number of businesses are looking at ruggedized versions of the devices as an option. Once reserved for a handful of specific industry verticals that saw employees using their devices in especially harsh conditions, ruggedized devices are increasingly finding their way into more businesses, seeking to cut down on the high costs and lost productivity associated with damaged devices.

IDC believes that all IT departments should be closely monitoring device damage statistics. In many cases, a shift toward ruggedized devices for a subset of employees may be warranted. While such devices cost more up front, over time, the benefits in terms of durability and productivity will typically far outweigh the higher initial cost.

Methodology

To fully understand the costs of notebook, tablet, and handheld device damage to organizations, IDC performed an end-user study of 800 U.S. organizations. In this study, IDC surveyed ITDMs in organizations of all sizes and across a broad range of vertical industries, including public safety, retail, healthcare, transportation, and utilities, to understand their usage of, downtime experienced with, and overall perspective on ruggedized notebooks, tablets, and smartphones. The study was conducted in August 2016.

For this survey, smartphones and handheld computers are combined into a single category called handheld devices. Devices in this category include smartphones (<7in. screen, running mobile OS such as iOS, Android, or Windows Phone) and handheld computers (non-smartphone devices with a <7in. screen, running Windows Mobile, Windows CE, Windows Embedded Handheld, Windows 10 IoT Mobile Enterprise, or Android).

Tablets include both detachable and slate tablets. Detachable tablets come with a first-party keyboard that can be detached, such as Surface Pro 4 or iPad Pro), and slate tablets come with >7in. screen and no first-party keyboard, such as iPad Air or Galaxy Note.

SITUATION OVERVIEW

The Mobile Workforce

It's impossible to deny the massive productivity gains that the rise of mobility has brought about. Notebooks, tablets, handheld devices, and smartphones have made it possible for people to work where they want and when they want. As a result, companies enjoy greater productivity from their employees, and those same employees tend to see the increased flexibility as a positive in their lives.

However, as an increasing number of employees shift from doing most of their work at static desktop computers to doing it on highly mobile devices, one of the unintended consequences has been the increasingly common issue of damaged devices. Damage occurs in a wide range of ways, from employees dropping devices and spilling liquids on them to carrying them into dusty or damp areas.

An average of about 18% of a company's notebooks require repair of some kind during a year. The majority of these repairs are due to accidental damage. The numbers are slightly lower for tablets and handheld devices, but they are still material. For annual repair details across devices, see Figure 1. On a year-to-year basis, devices suffer more failures as wear on the device components takes its toll. While 11.5% of devices are likely to fail the first year, by year five, the likelihood of failure nearly doubles to 21.3%. For more detail, see Figure 2.

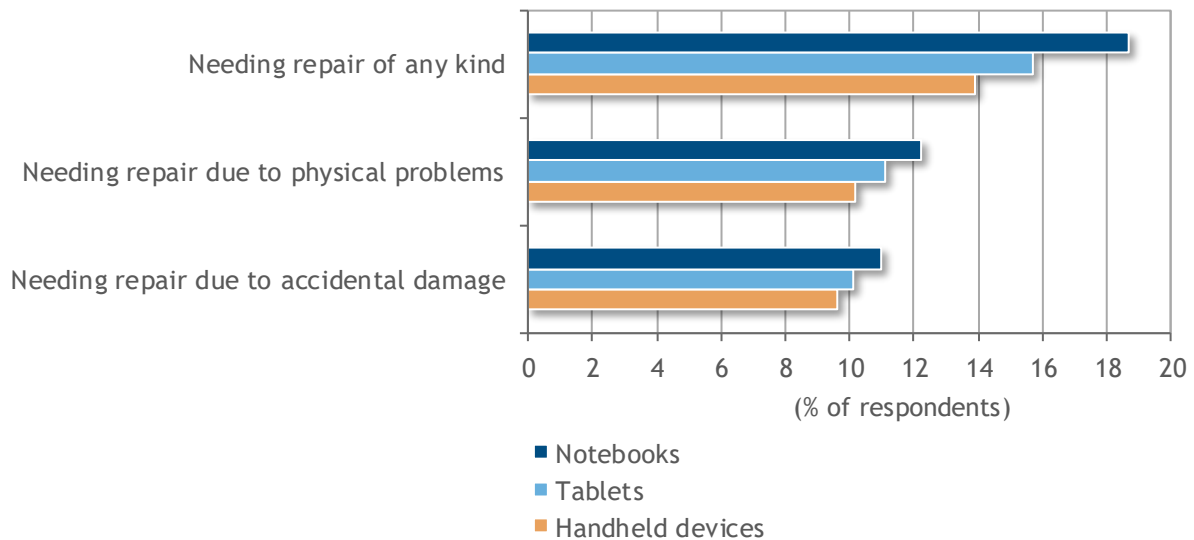
As companies look at ways to address the issue of repairs, it's important to understand that not all devices are created equally. Broadly, there are often differences between traditional and commercial notebooks, tablets, and handheld devices. Consumer products typically look more fashionable but are built to less robust specifications than commercial-focused products. Conversely, commercial-focused products have traditionally been more staid in design, but they are built to endure slightly more robust use. Beyond the normal commercial versus consumer distinction, however, is another level of products known as ruggedized. For the purposes of this white paper, IDC includes in this definition both systems that are officially classified as "rugged" and those that are more loosely classified as "semi-rugged." Rugged systems are notebooks, tablets, and handheld devices built to comply with the military standard MIL-STD-810G, which incorporates specific testing parameters for durability,

endurance, and strength. This standard is used by the U.S. Department of Defense (DoD) and many companies that have operations in harsh environments. Semi-rugged systems are computers designed with some of the features of the MIL-STD-810G incorporated to strengthen specific aspects. While such specifications are a handy benchmark, they tell only part of the story as truly rugged devices must also be highly usable in the conditions where employees need to use them. This includes displays that are highly viewable in bright sunlight, swappable batteries that ensure a device is always powered when needed, and rugged ports and connectors that don't wear out over time.

FIGURE 1

Device Failure Rates

Q. What percentage of devices required repair?



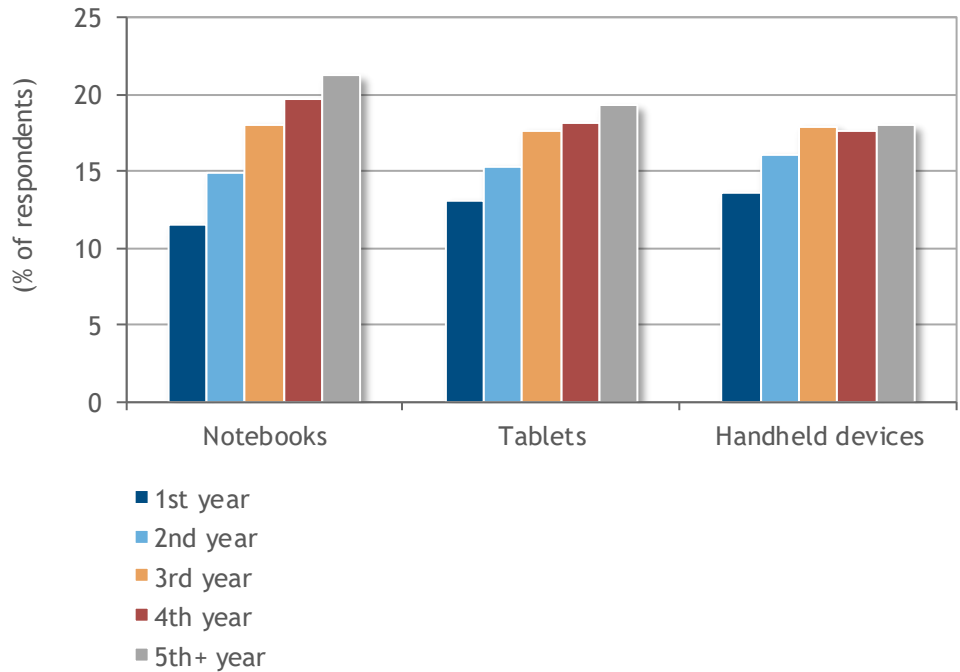
n = 800

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 2

Device Failure by Year

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



n = 800

Source: IDC's *Rugged Device Survey*, 2016

Components Most Likely to Suffer Damage

Even conscientious employees occasionally put their devices into damaging situations, and some employees necessarily spend much of their time in such environments. Because employees can take their mobile device anywhere, they often do. This has long caused issues for IT staff supporting notebooks, and the rise of smartphones, handhelds, and tablets has just made the situation worse as these devices are even more portable.

When we surveyed ITDMs about the components most often damaged in their notebooks, the top selection was the screen, followed by the keyboard and then the storage drive (HDD or SSD). For tablets, the most damaged component was the screen, followed by ports or connectors and then the outer chassis. For handhelds, the top component likely to be damaged was the screen, the battery, and the outer chassis. For details about the components most often damaged on all three types of devices, see Figures 3-5.

The lure of mobility often overrides common sense for employees. When we asked ITDMs to estimate the top ways employees damage devices in their company, the overwhelming top choice across categories was simply dropping the device. The number 2 issue was spilling liquid on the device, and the number 3 issue was the device falling off a desk. It's important to note that many of the issues

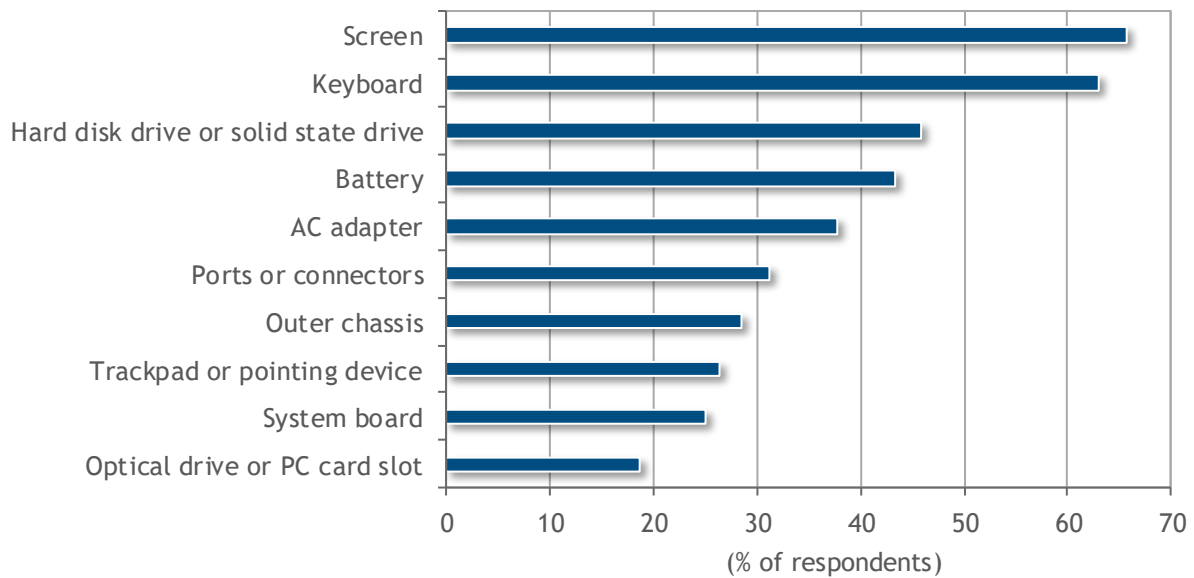
outlined here reflect situations where a ruggedized system would continue to work when a standard device would require repair. For details, see Figure 6.

As you might expect, there are some departments within most companies that see the highest rates of device damage. These departments are typically the ones with employees that find themselves in situations where damage is more likely to occur. Among U.S. ITDMs surveyed, the department with the highest incidence of device damage is field workers. Interestingly, the second most damage-prone department is office administration, followed by maintenance/operations/facilities. For details, see Figure 7.

FIGURE 3

Most Common Components in Notebooks That Suffer Damage

Q. Which of the following components of your organization's notebook PCs have suffered damage or breakage?



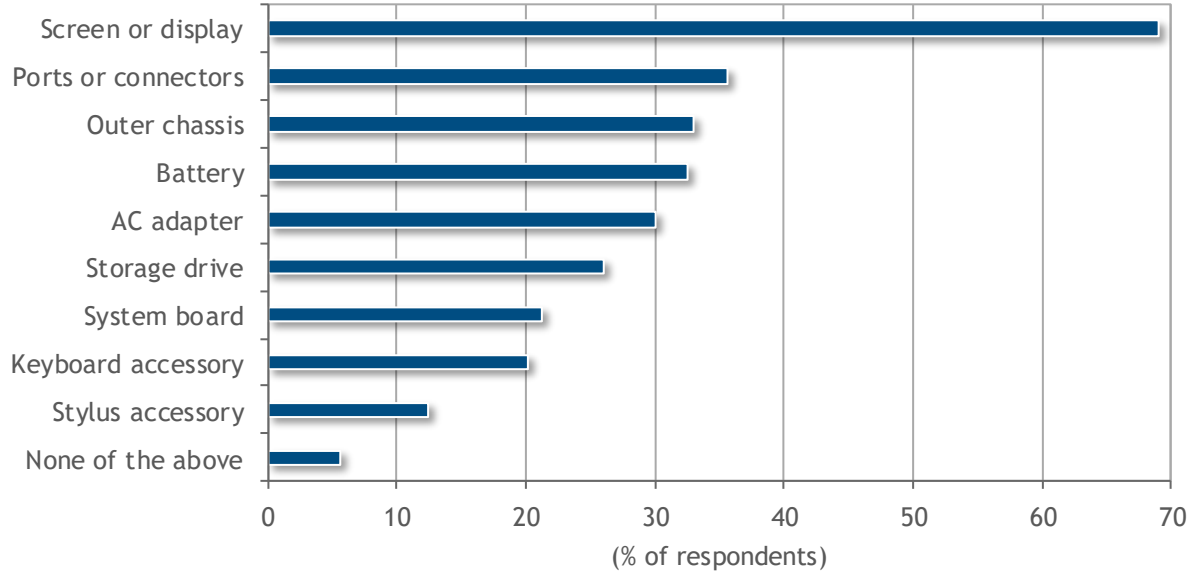
n = 636

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 4

Most Common Components in Tablets That Suffer Damage

Q. Which of the following components of your organization's tablets have suffered damage or breakage?



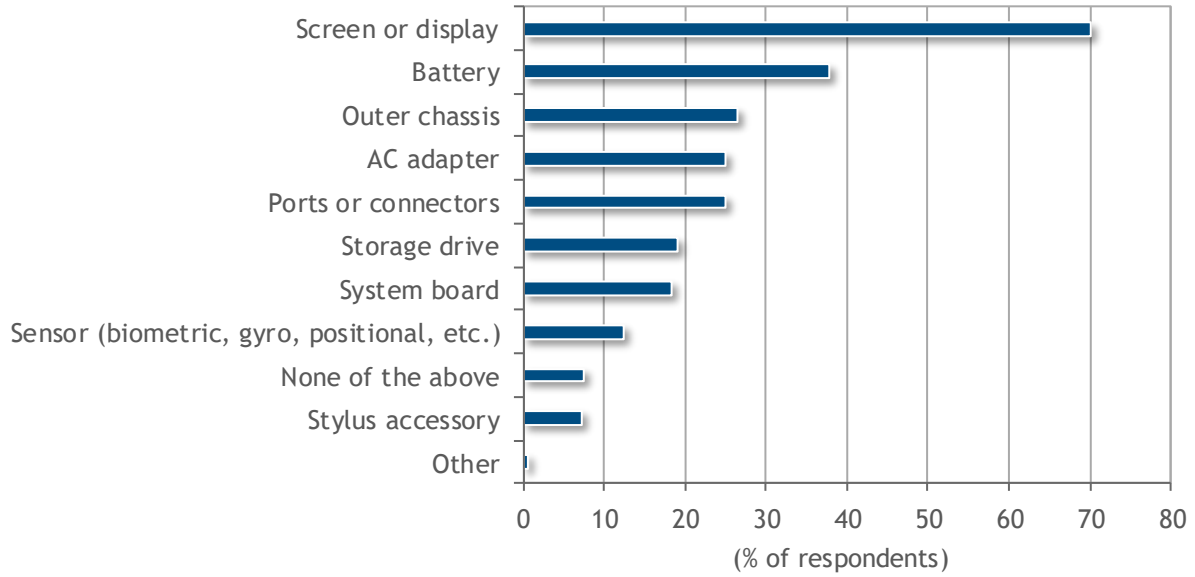
n = 500

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 5

Most Common Components in Handheld Devices That Suffer Damage

Q. Which of the following components of your organization's smartphones have suffered damage or breakage?



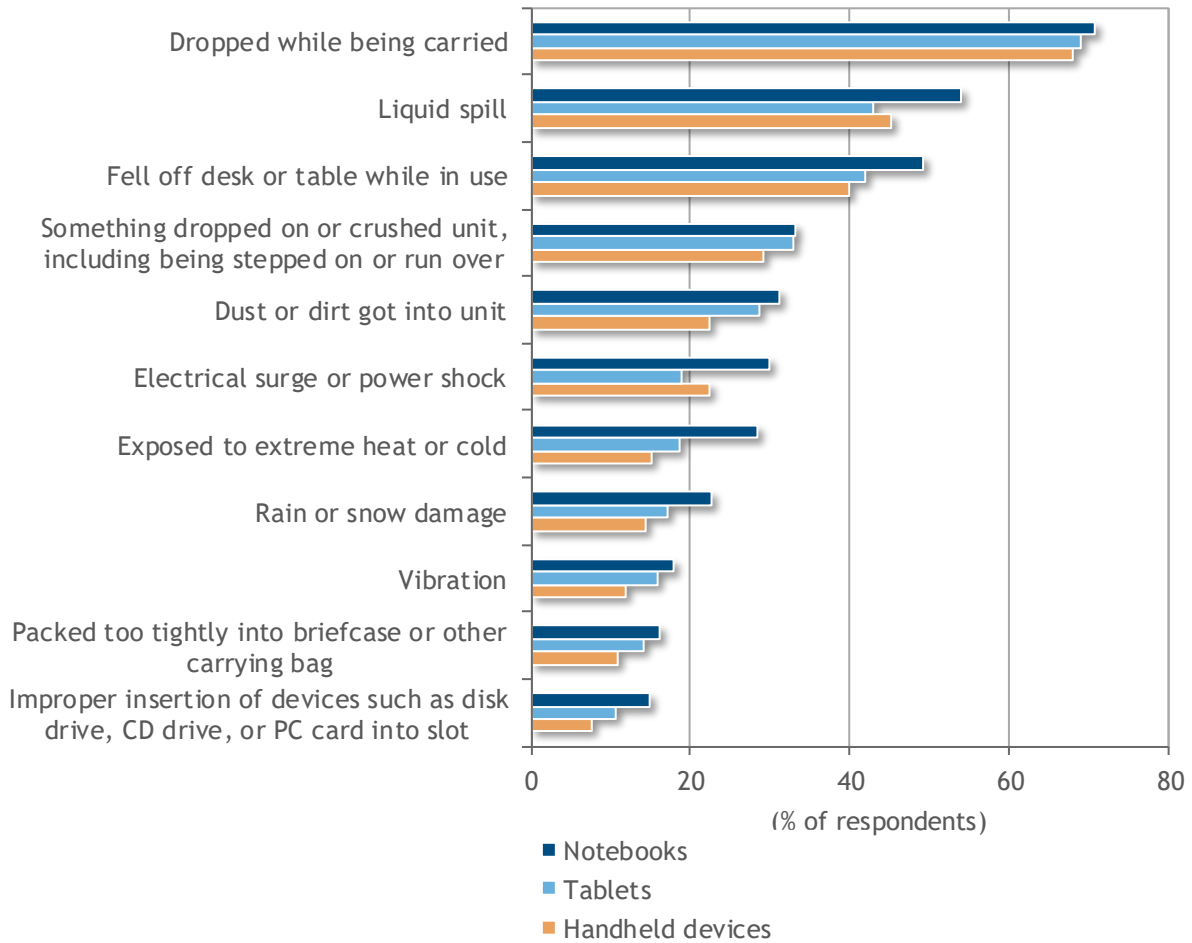
n = 688

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 6

Types of Device Accidents

Q. Which of the following types of accidents have caused damage to your organization's notebook PCs/tablets/handheld devices?



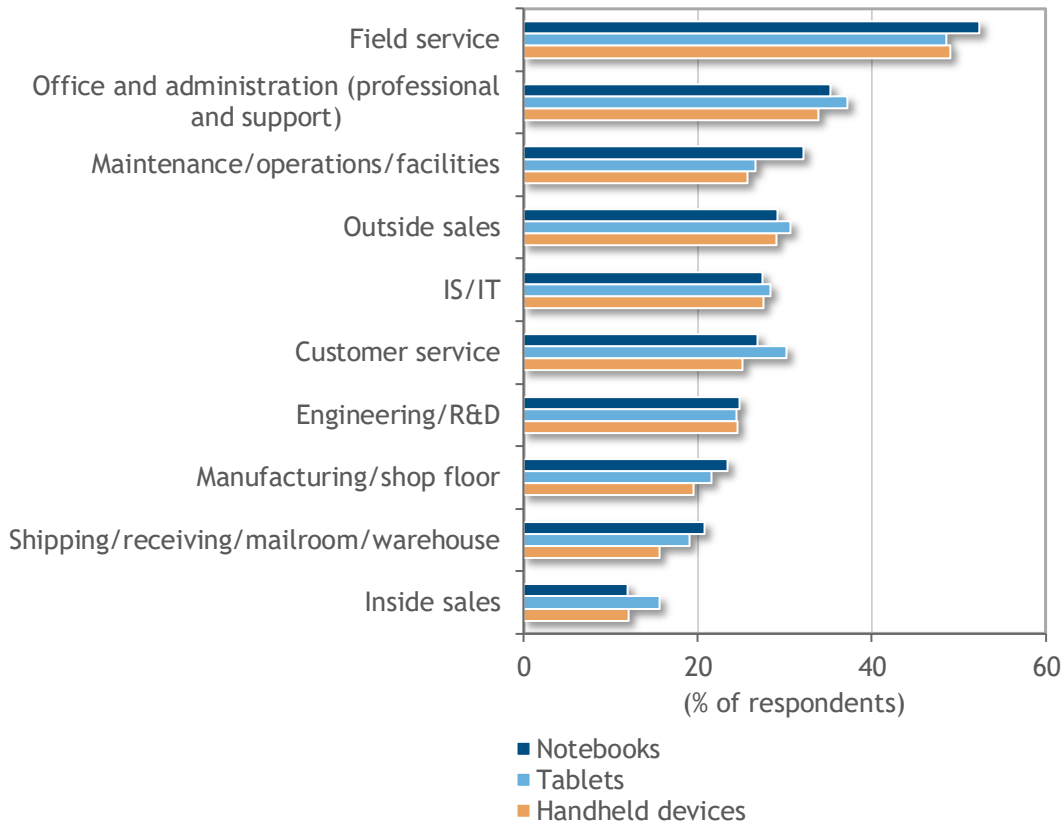
n = 800

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 7

Departments That Most Often Require Device Repair

Q. Which departments or functional groups in your organization most often require notebook/tablet/handheld device repair or replacement due to physical damage?



n = 800

Source: IDC's *Rugged Device Survey*, 2016

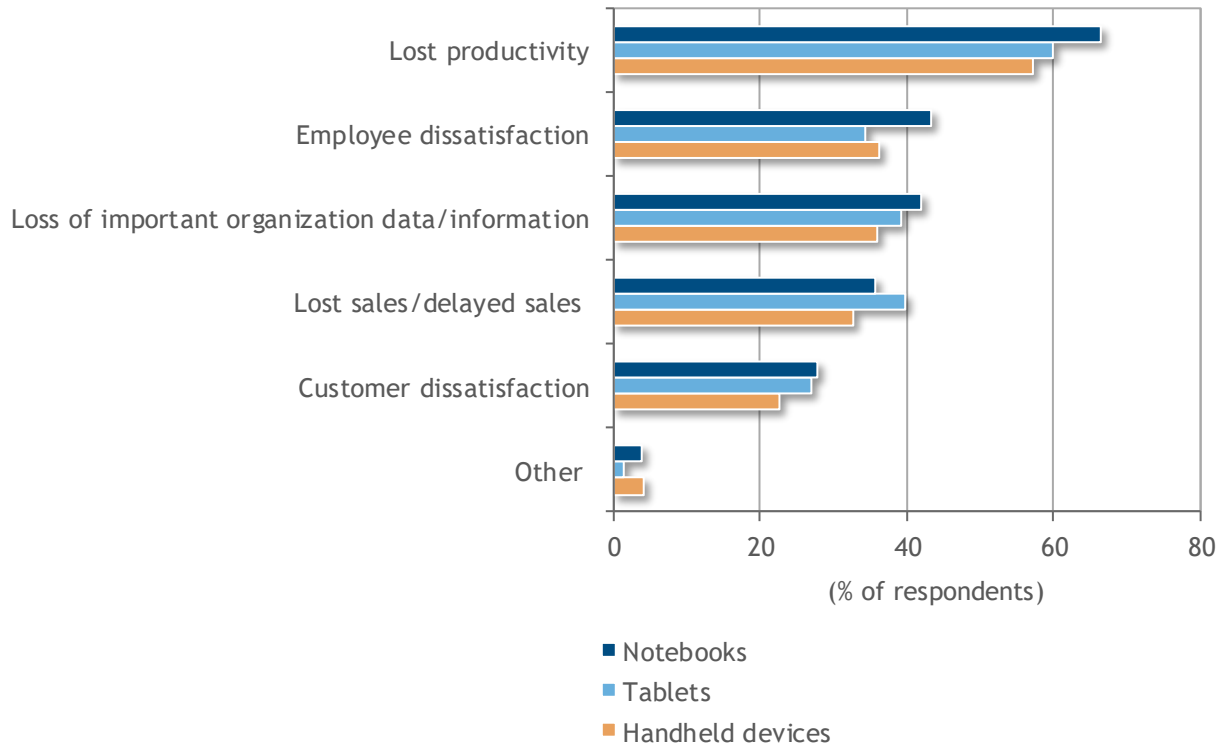
Nobody is happy when a device goes down. But among most respondents, the biggest problem is lost productivity, followed by employee dissatisfaction and then lost data. We can't overstate the importance of this result: Every time a device breaks, that employee becomes less productive. Lost productivity means lost dollars. For details, see Figures 8 and 9. For customer-facing employees, onsite device failures can negatively affect a company's brand image, especially if employees are seen as not being provided with adequate tools to meet customer needs.

Quantifying lost productivity isn't easy. The impact of a device going out of commission will vary greatly depending on the employee. For some, work stops completely. When we asked ITDMs to estimate how long an employee in their organization would have to wait for a repair after initiating a help desk ticket, the results were eye opening. On average, workers lost about 5.8 working hours for notebook repairs, 4.2 hours for tablet repairs, and 6.0 hours for smartphone repairs – so at best, half a working day; at worst, three-quarters of a working day. And remember, these are averages. For more than 18% of companies, an employee could expect to be without his/her notebook for a stunning 1-2 working days.

FIGURE 8

Significant Problems Caused by Device Damage or Failure

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/tablet/handheld device?*



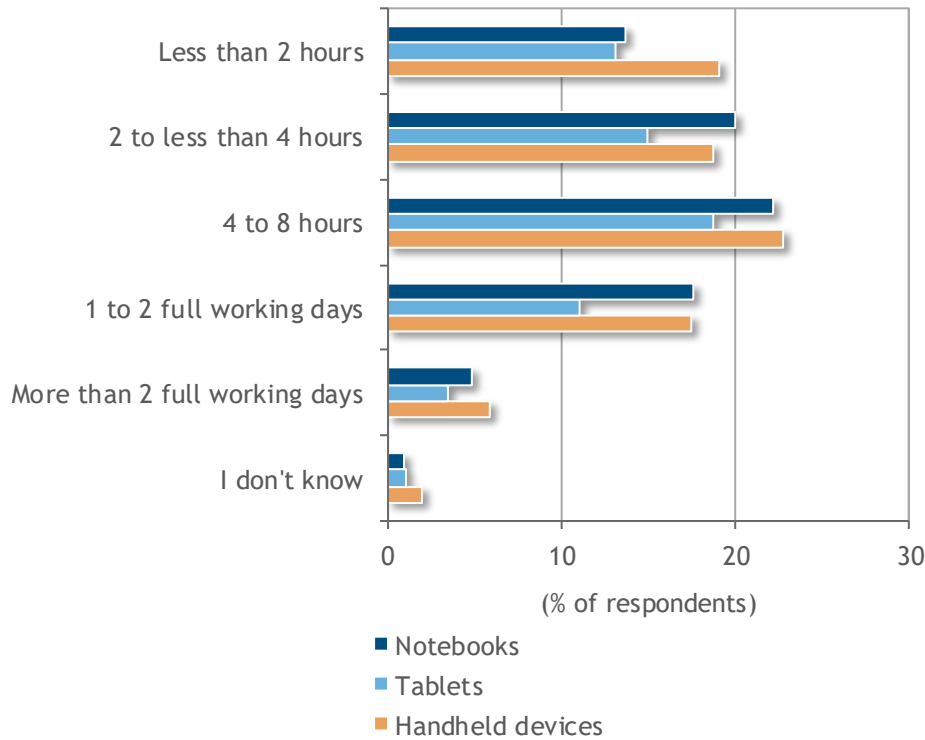
n = 800

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 9

Employee Downtime Due to Device Repair

Q. In your organization, how long is a user typically without a notebook/tablet/handheld device after he or she reports the need for repair?



n = 800

Source: IDC's *Rugged Device Survey*, 2016

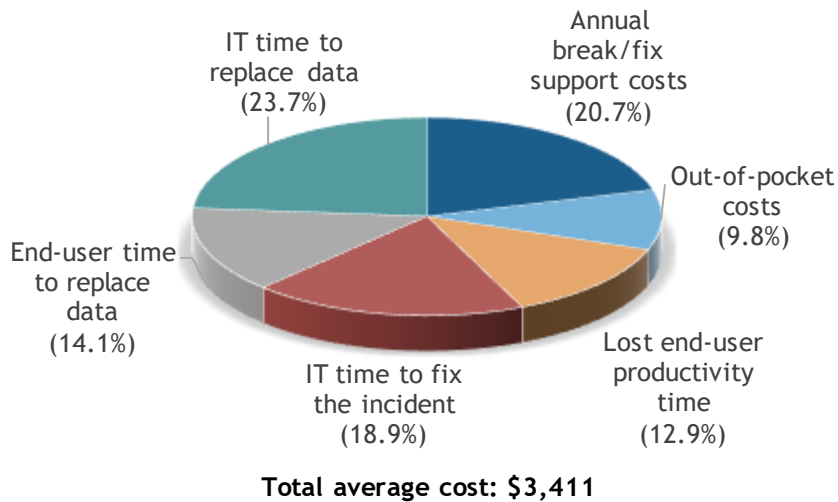
Employee downtime is just one of the issues that results from a down device. To get a more holistic view of the cost, we asked ITDMs a series of additional questions about the time and costs associated with such issues. IDC estimates that the average cost associated with a notebook repair is \$3,411, a tablet is \$2,462, and a handheld device is \$3,087. For details, see Figures 10-12. These costs are broken out as follows:

- **Annual break/fix support costs:** Costs to the organization to maintain break/fix support agreements
- **Out-of-pocket costs:** Costs not covered by break/fix agreements or that must otherwise be covered by the organization
- **Lost end-user productivity time:** The value of lost time and productivity experienced by the user while his or her notebook is out of commission
- **IT time to fix the incident:** The amount the organization must spend on IT staff salaries to manage, track, and (in many cases) implement the necessary repairs

- **End-user time to replace data:** Beyond the time lost by the end user while his or her system is down, the value of the time required by end users to replace critical lost files and data
- **IT time to replace data:** The time required for IT staff to assist end users by pulling data from backup systems and otherwise helping recover lost data

FIGURE 10

Total Cost per Incident to Repair Notebook

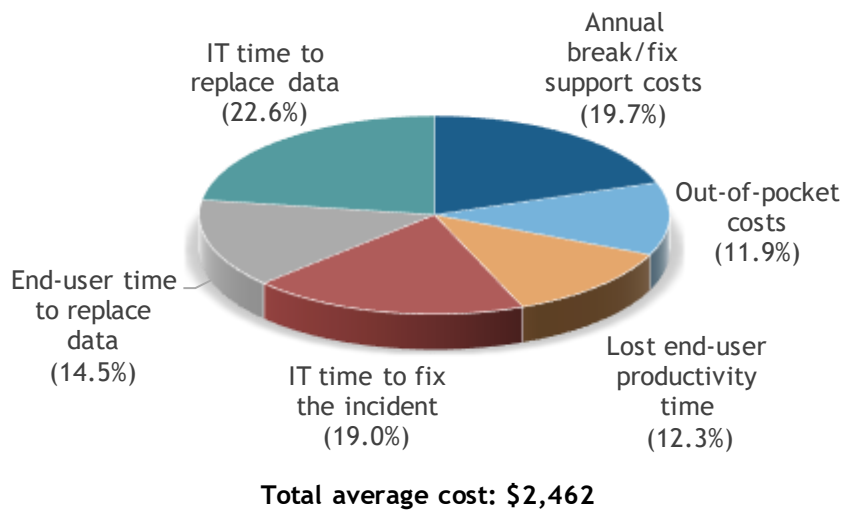


n = 636

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 11

Total Cost per Incident to Repair Tablet

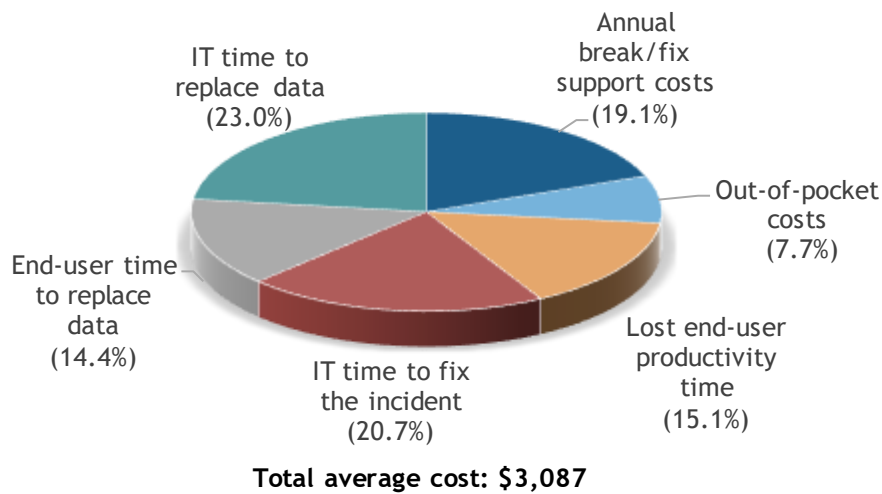


n = 500

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 12

Total Cost per Incident to Repair Handheld Device



n = 686

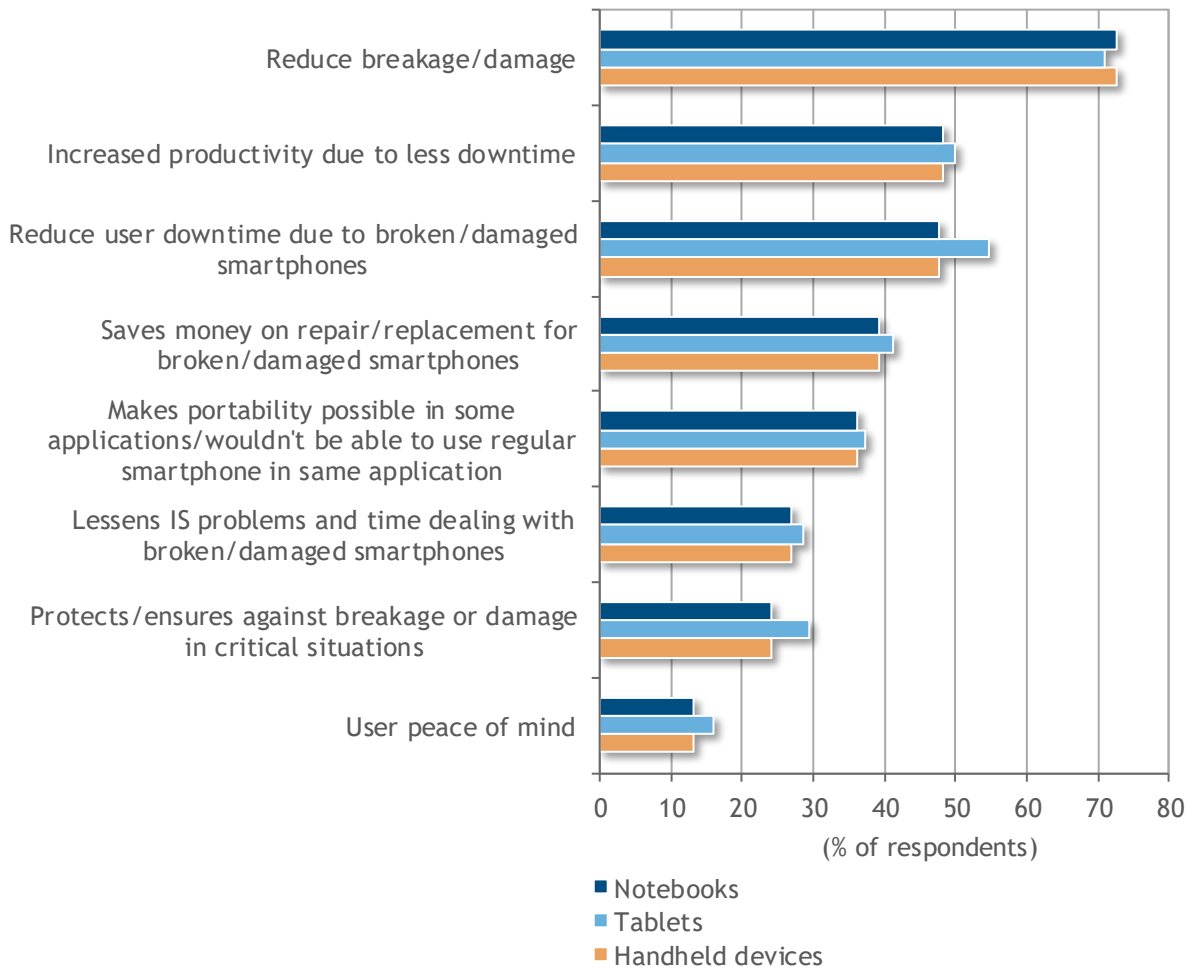
Source: IDC's *Rugged Device Survey*, 2016

Figure 13 presents the key benefits of ruggedized devices.

FIGURE 13

Key Benefits of Rugged Devices

Q. What are the key benefits of using rugged notebooks/tablets/handheld devices to your organization?



n = 520

Source: IDC's *Rugged Device Survey*, 2016

Industry Needs

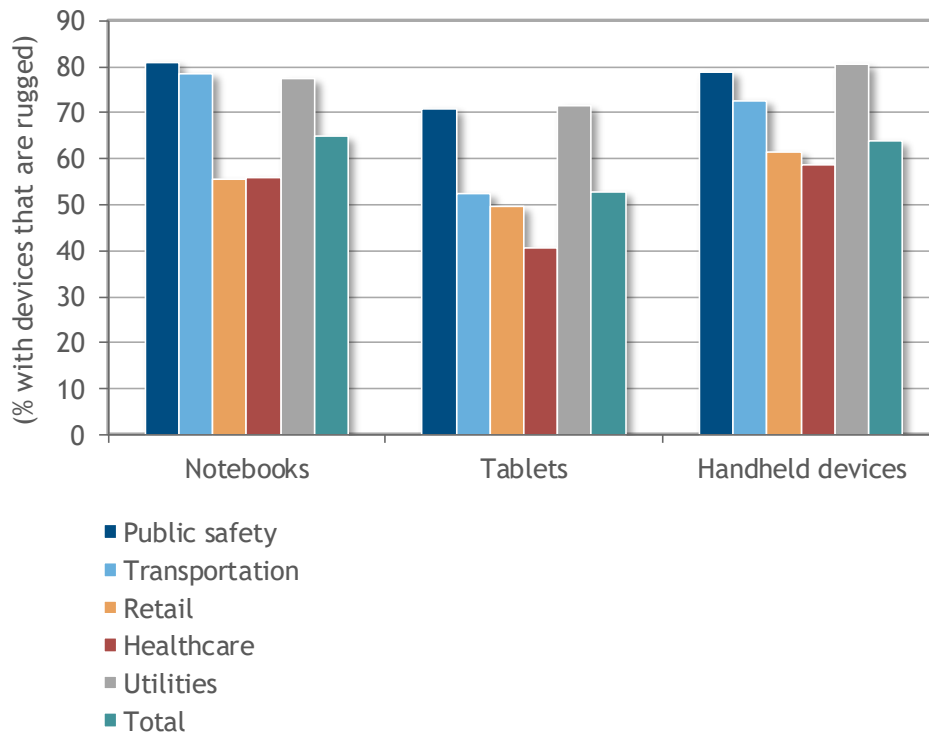
Industries with highly mobile workforces or where the workplace includes harsh environments are more likely to experience the types of drops, spills, and crushes that lead to device failures and extended downtimes. In these industries, companies are likely to experience a greater benefit from the deployment of rugged devices to their mobile workforce.

For this survey, IDC looked at five industries where workers are highly mobile and are likely to experience drops, spills, and crushes due to their work environments. These were public safety, transportation/logistics, healthcare, retail, and utilities. In each of these verticals, we see a higher usage of rugged devices compared with the total market. For details, see Figure 14.

FIGURE 14

Rugged and Semi-Rugged Device Usage by Industry

Q. Are any of the devices deployed within your organization considered rugged or semi-rugged?



n = 800

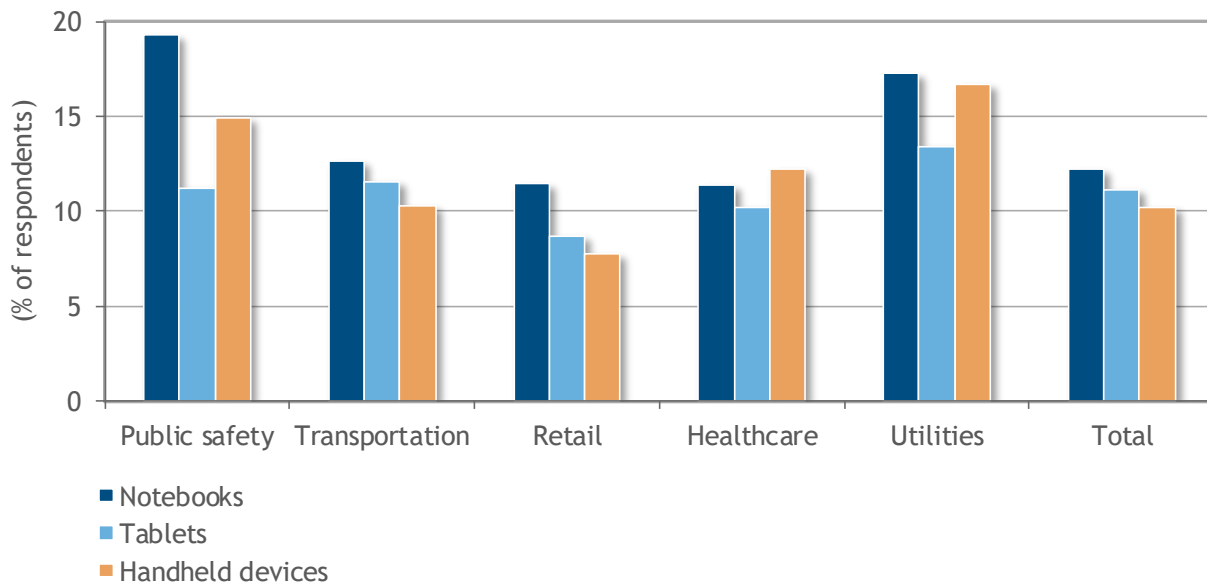
Source: IDC's *Rugged Device Survey*, 2016

In these key industries, we typically see that users experience issues with their devices that require repair at higher rates than the market as a whole. This is especially the case for public safety and utilities. In the retail industry, we actually see rates somewhat below the market as a whole; however, as POS devices move from traditional standalone devices to mobile devices on the sales floor, we'd expect to see these rates increase, especially for tablets and handheld devices. For details, see Figure 15. Also, we see that these industries are more likely to experience many of the types of accidents that cause devices to need repair (see Figure 16).

FIGURE 15

Device Failure Rate by Industry

Q. *In the past 12 months, what percentage of your notebook/tablet/handheld device users had a unit that required repair or replacement because of a physical problem such as a cracked screen, failed home button, and so forth, whether by accident or through normal wear and tear?*



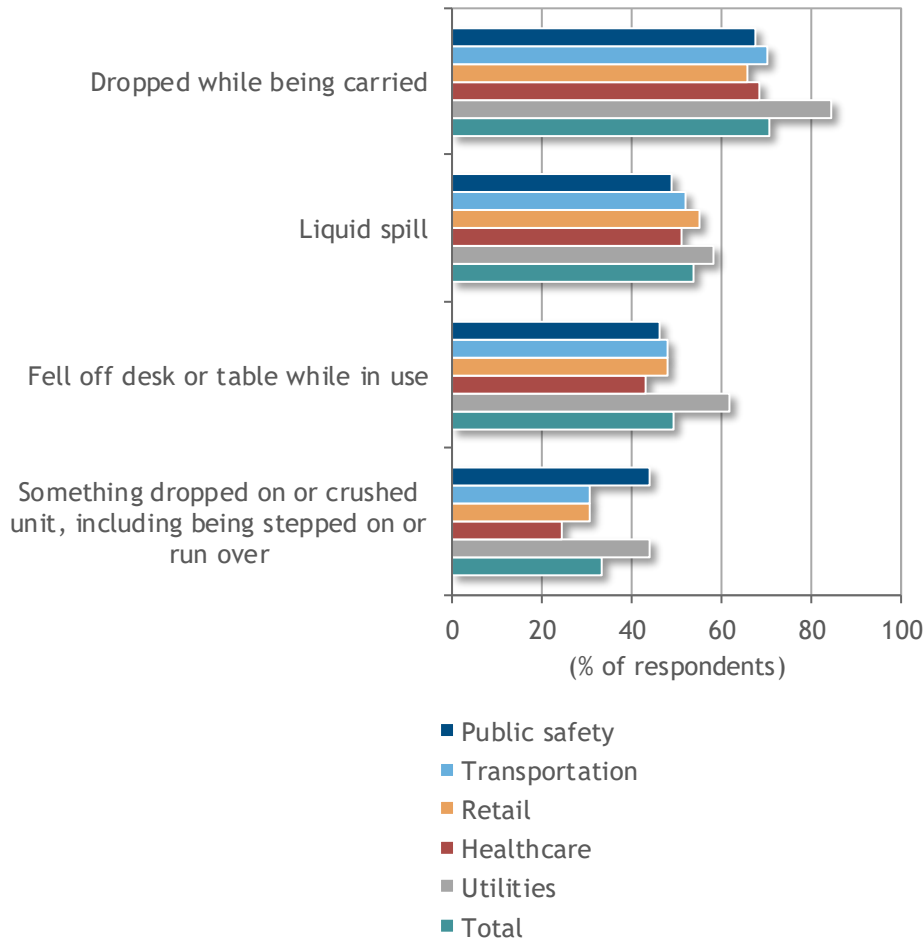
n = 800

Source: IDC's *Rugged Device Survey*, 2016

FIGURE 16

Most Common Types of Accidents

Q. Which of the following types of accidents have caused damage to your organization's notebooks/tablets/handheld devices?



n = 800

Source: IDC's *Rugged Device Survey*, 2016

Benefits of Ruggedized Notebooks, Tablets, and Handheld Devices

As mobility becomes an increasingly important part of every organization's IT infrastructure, an increasing number of companies have turned to ruggedized devices as a way to help eliminate costly repairs, maintain employee productivity and satisfaction, and eliminate the IT time spent dealing with damaged devices. For many years, rugged notebooks were the primary option for companies, but more recently, there has been an explosion of rugged tablets and handheld products. Traditionally, to get the benefits of rugged devices, a company would have to accept a long list of trade-offs including larger, heavier devices that tended to have dated designs and relatively poor performance. Today, this is no longer the case, with rugged designs now looking more modern and lightweight. In addition, performance is typically quite comparable with traditional devices.

Among companies that have already embraced ruggedized devices, the key reasons for doing so are quite compelling, the chief among them being reduced breakage/damage, increased productivity due to less downtime, and saving money on repair and replacements.

In our survey, respondents report spending an average of \$1,322 per non-rugged notebook and \$1,987 per rugged notebook. A look at the annual device failure rates (refer back to Figure 2) and the average per-incident repair cost (lost productivity, etc.) of \$3,411 shows that the ROI for rugged devices is achieved by the second year of the non-rugged device. This schedule is well within the two-year eight-month average PC refresh cycle for respondents in this survey.

For tablets, the premium for rugged devices is less than for notebooks and the cost benefits of rugged devices are easily achieved. Respondents report paying \$1,249 for non-rugged tablets versus \$1,402 for rugged devices. Given an average repair cost of \$2,462, the ROI is achieved after the first year.

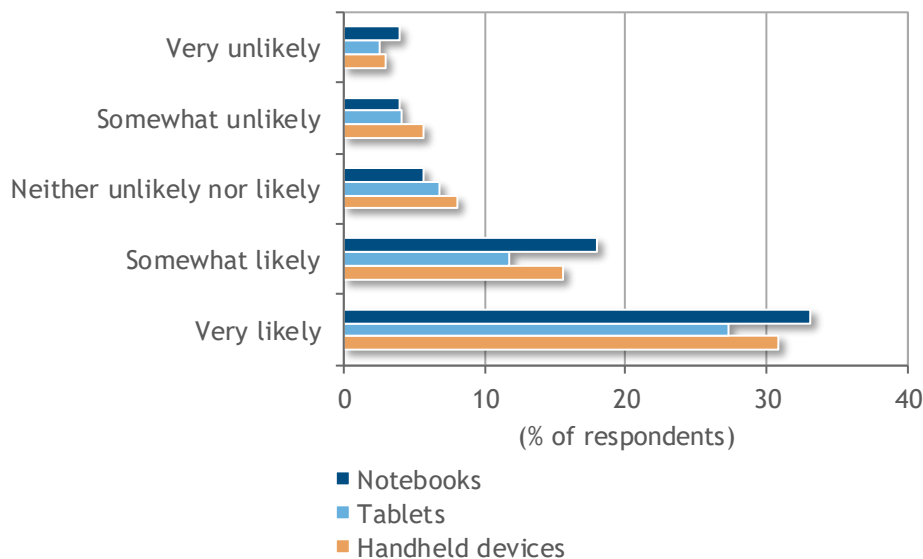
For smartphones and handheld devices, the average price paid for non-rugged devices is \$811 and for rugged devices is \$937. Given an average repair cost of \$3,087 for these devices, the ROI can be expected to be achieved after the first year.

When IDC asked ITDMs if they intended to buy ruggedized notebooks in the next 12 months, an impressive 33% said they were very likely and another 18% said they were somewhat likely. Those same percentages for rugged tablets were 27% and 12% and for handheld devices were 31% and 16%, respectively. In others words, any company seriously considering rugged devices in the future would be in very good company. For details, see Figure 17.

FIGURE 17

Likelihood of Buying Rugged Devices in the Next 12 Months

Q. *How likely is it that your organization will purchase rugged or semi-rugged notebooks/tablets/handheld devices in the next 12 months?*



n = 800

Source: IDC's *Rugged Device Survey*, 2016

CHALLENGES/OPPORTUNITIES

Clearly, there is a strong business use case in many companies for adding ruggedized devices to their device mix. As some verticals like retail move to more mobile applications in the workplace, having rugged devices will result in benefit in terms of cost savings, productivity improvements, and customer and employee satisfaction. Obviously, not everyone within an organization requires such a device, but within any company, there are certain departments and employees that could benefit from such devices. Broadly speaking, these include employees within departments such as field service, maintenance/operations/facilities, and the manufacturing floor. The decision to roll out ruggedized devices should not be taken in haste, and the following challenges must be considered prior to embarking on such a course of action:

- **Up-front costs.** One characteristic of ruggedized notebooks, tablets, and handheld devices is the simple fact that they cost more than their standard mainstream brethren. While the cost disparity has declined rather dramatically in recent years, they still cost more. There's no escaping the fact that in survey after survey, ITDMs continue to point to low price as a key reason for choosing the hardware they buy. However, as discussed in this white paper, simply compare the initial purchase price with the total cost of ownership over time. When one considers the overall cost a company pays for a device when repairs, lost productivity, and other factors are added up, ruggedized devices are often a better deal than standard devices.
- **Desire for consumer-designed hardware.** The second concern relates to the ongoing impact of the consumerization of IT on the types of devices that employees want to use. Put bluntly, employees aren't interested in using oversize, heavy, and slow devices. They want their IT-provided devices to look and perform as well as the consumer-grade phones, tablets, and PCs they use at home. For years, this was a true downside to ruggedized products, which tended to lag behind even the more staid commercial products in the market. This is a much less prevalent problem today, as it's entirely possible to get semi-rugged devices that offer comparable form factors, weights, and performance to consumer products. Obviously, the highest class of rugged devices are still weighed down by their robust materials, but this is much less of a problem than it has ever been. For most employees, the positives are often well worth the increasingly small negatives.

CONCLUSION

Smart companies have utilized rugged notebooks for many years, and an increasing number are beginning to explore enjoying the same benefits from rugged tablets and smartphones. Obviously, rugged devices aren't necessary for a company's entire workforce, but for a subset, such devices can lead to meaningful benefits. In some verticals, such as retail, rugged devices are bringing increased functionality and durability into settings where they have traditionally not played a role. Rugged devices cost more to purchase, but based on the amount of money saved in terms of employee downtime, IT employee time, and related costs, the investment in a high-quality rugged device can pay dividends for years. And the latest crop of devices are slick, fast, and well suited to the needs of today's mobile workforce. IT organizations looking to maximize their hardware investments would do well to take a long hard look at rugged devices the next time a hardware refresh is in order.

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