



# Old Laptops Can Put Business at Risk

## **Introduction: It's a rough life for a laptop**

Most business laptops face a daunting array of physical challenges and not-always-careful users. In fact, given the complex nature of the environmental challenges they endure, it's a wonder we don't see machines failing more often. It's a tribute to the fine engineering of companies like Toshiba that make their laptops so durable and dependable.

Indeed, most laptops endure shocks, shakes, and jostles without having their hard drives crash or their screens break. They encounter extremes in temperature—being left in sun-baked cars that can exceed 110 degrees or in frigid cars in cold climates where the temperature can go well below zero, and they still operate when users need them.

Even when a laptop is buried under a pile of luggage or dropped unintentionally, it often bounces back. Granted, there are dramatic impacts that may total a laptop, but most business users can avoid those, and they've come to expect that their machines will just work! The question is, for how long?

## **What happens when laptops age**

As laptops age, they become more prone to failures, as might be expected given the accumulation of physical and environmental stresses they endure. The reliability and durability of a laptop is related both to its overall

design and the components utilized. In fact, most vendors design for longevity in laptops, but different models and classes of machines can have substantially different aging characteristics. One defining characteristic of older machines, though, across the board, is that failure rates increase.

According to research firm J. Gold Associates, new business-class laptops generally have a failure rate of 10-15 percent in the first year, with consumer-class devices exhibiting even higher failure rates (20-35 percent or more). This can vary substantially by brand, with some exhibiting failure rates commensurate with a lack of durable design and a choice of unreliable components. It is important to choose machines from vendors that have a proven track record in designing and building robust laptops in order to minimize the cost and inconvenience of laptop failures.

As machines get older, they fail more often. The failure rate for business-class laptops increases to 20-30 percent by the fourth year, and increases even more the longer they remain in use. This makes failures far more common and repairs increasingly necessary for machines still in service past 3-4 years. Further, the residual value of a machine drops below 20 percent of its new value by the third year, as technology progresses and older machines find no ready secondary resale market.

As a result, by the third or fourth year of a notebook's life, repairing a defect may easily cost more than the worth of the machine.

### What's likely to break?

There are a number of critical failure points in laptops that exhibit increasing levels of vulnerability as the machines become older. The highest rates of component failures occur within the mechanical systems of the machines. Keyboard and hard drive failure constitute the largest portion of machine failures. It is imperative that manufacturers design these subsystems to endure the rigors of continuous use.

Another key point of failure in laptops is the LCD panel, which can often be damaged by careless handling or accidental abuse. Again, it is imperative that the machine vendor designs the most durable housing and interconnect systems, enabling the LCD to remain operational throughout the diverse physical challenges it encounters.

Toshiba's vast experience with designing and engineering reliable and durable components, its ability to integrate them into a "designed for business" platform, and its extensive pre-and post- production system testing enables users to be assured of the most reliable laptops long-term, with a low failure rate throughout their life cycles.

### Other things that can go wrong

While mechanical durability is important, it is not the only factor that can make older machines unreliable. Over time, the average laptop becomes loaded up with "junk" files left over from applications deployed and removed, user downloads, Web surfing, and so on.

These files of dubious origin and/or use can represent a substantial portion of the data on the hard drive, and, in extreme cases, can represent 35-50 percent of the contents of a hard drive. Further, the longer machines remain in use, the more likely they are to accumulate unnecessary data and files. As disks fill up, they can get bogged down when accessing critical data and applications. This slows down overall machine performance and lowers user productivity. Further, with a large number of extraneous files comes the very real possibility that not all of them are benign.

An older machine may not have all the latest updates, patches, and security measures in place—especially when some attacks target older BIOS and firmware versions. In this case, the laptop's age can increase its susceptibility to cyber attacks and data loss. It is therefore important that laptop vendors also provide tools to maintain the effectiveness of system components, including disk and data protection, performance monitoring, and so on. Toshiba provides a suite of such solutions in its EasyGuard®-equipped systems.

Finally, older machines often do not have the level of protection needed for disk file encryption, strong authentication, and secure connectivity that the modern business requires. Toshiba offers enhanced security capabilities in all of its business-class laptops as part of its EasyGuard features set.

### Average life of a laptop

Many experts believe that the optimum useful business life of a laptop computer is 2-3 years. Beyond this period, machines start exhibiting higher failure rates, driving up the total cost of ownership (TCO) and lowering user productivity. Further, it is not uncommon to find 4-year-old machines that are unable to run many of the most updated applications, due to their operating system vintage or due to increased needs for memory and processor capability.

Because of this, many organizations are forced to maintain older version of applications and forego improvements in functionality and productivity that could be available to their users, if their machines were newer and more capable.

### What happens when a laptop is past its prime?

There are some very specific challenges that are encountered when a laptop ages beyond its prime. These challenges include:

- **It takes longer for users to get work done, so productivity suffers** – It is not uncommon, because of faster processors and better graphics, for a worker who uses a new laptop to see a 5-10 percent improvement in productivity over the same tasks performed on a 3- or 4-year-old machine.

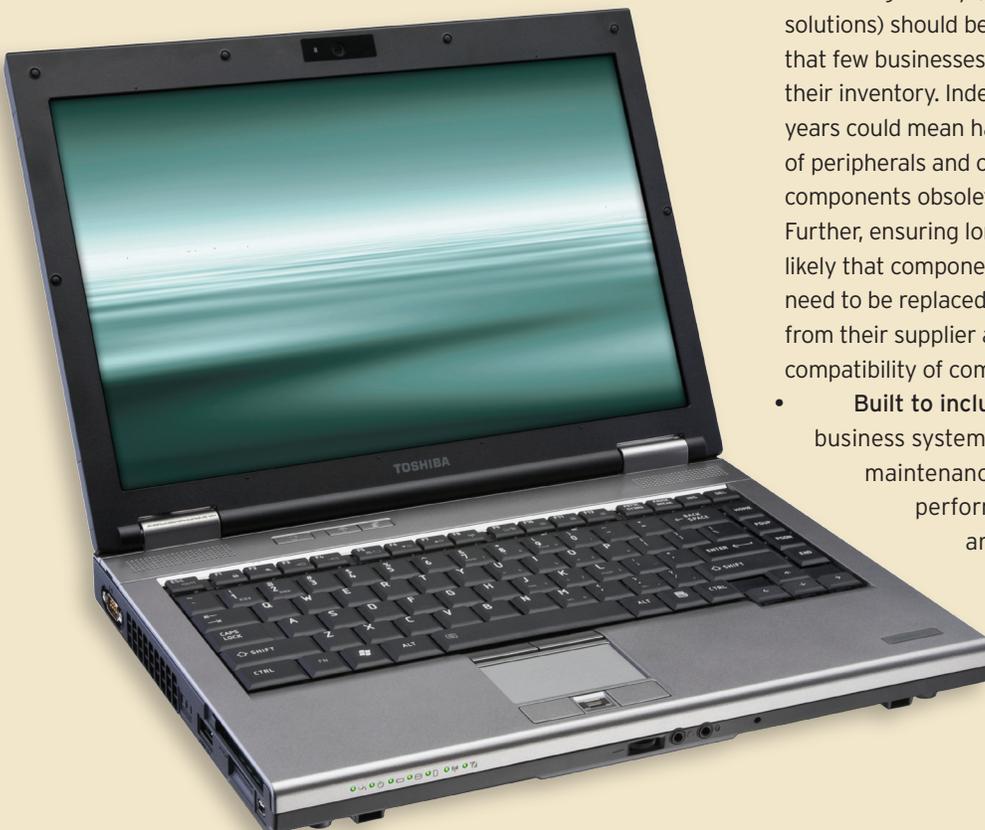
- **Failures occur more often, like a car with high mileage** - Not only is this costly, as machines of older vintage are generally outside of warranty, but it also means users undergo work disruption and companies have to invest in back-up/replacement machines, which can prove expensive.
- **Replacement parts become scarcer** - Often, older machines are not easily repaired, because replacement components are no longer in stock. This is especially true of some custom components specific to a single vendor. Waiting for a special part may cause a delay in getting the machine repaired, or, in a worst-case scenario, may prevent the repair altogether
- **Overall cost of operation increases** - It is costly to retrieve, diagnose, and repair machines. Once the warranty period expires, repairing a laptop can cost many hundreds of dollars. This can significantly raise the overall cost of operations in a business.
- **Lack of compatibility with newer technologies** - Both hardware and software continue to advance at an accelerated pace. Users of older technology may have to forego the latest peripheral or application that could increase overall productivity. When this "if it ain't broke

yet" philosophy is applied across a company's laptop fleet, the entire operation grows less competitive with each passing day.

### How can well-designed and well-engineered systems help?

While it is important not to keep a laptop beyond its prime, it is equally important to select a laptop from the outset that will maintain its vigor as long as possible. It's important to choose a machine that has, within its DNA, the makeup to operate smoothly and to allow self-renewal as often as necessary. To achieve this, business buyers should look at laptops that are:

- **Designed from the start for durability and reliability** - Vendors can choose components and technologies that can become obsolete very quickly, or they can choose to employ the latest advances to assure long-term viability. Business users should be selective and choose only those products that will maintain durability and reliability over an extended product life cycle.
- **Engineered for ease of parts replacement and interchangeability** - Systems designed for ease of maintenance, upgrading, and component interchangeability (e.g., hard drives, batteries, docking solutions) should be an important consideration, given that few businesses have only one model of laptop in their inventory. Indeed, buying machines over several years could mean having to stock several different models of peripherals and components, as some vendors make components obsolete when new models are released. Further, ensuring long-term compatibility makes it highly likely that components will be available if they ever need to be replaced. Businesses should get assurances from their supplier as to the long-term availability and compatibility of components and peripherals.
- **Built to include on-board diagnostics** - Most business systems must undergo continuous maintenance in order to achieve peak performance. Further, most companies are best served by identifying and resolving potential issues before they become major problems. Businesses should select laptops from those vendors who provide substantial built-



in diagnostic capabilities that allow problem detection and resolution. Such automated tools can easily cover any potential additional cost over laptops that do not include them, and may do so many times over in lower failure rates and increased user productivity.

- **Integrated with the latest technologies** - Using previous-generation technology may allow a vendor to achieve a lower cost for a particular machine, but it also assures an early obsolescence and shorter useful life cycle. Companies should only select those laptops that incorporate the latest technologies from vendors that know how to integrate these advances without charging users a significant premium. Choosing the latest technologies will increase the useful life of the machine and will ultimately result in lower total cost of ownership.

## The Toshiba advantage

Many vendors claim to offer all of the above capabilities. However, Toshiba's extensive experience with designing durable laptops for business users allows it to offer some of the best machines available. Toshiba's answer to maximizing laptop endurance and life expectancy includes a number of advantages and innovations, including:

- **Better engineered/greater reliability** - With many years of experience and as one of the largest manufacturers of laptop systems worldwide, Toshiba can provide the best features for business-friendly prices, all with the highest level of engineering expertise and high reliability.
- **Better tools and techniques for problem resolution** - Toshiba's commitment to usability and ease of maintenance has resulted in its industry-leading EasyGuard® features, which can help both companies and individual users maximize their laptop experience and minimize the cost and inconvenience of problem-solving and management.
- **Availability of compatible system parts** - Toshiba maintains an array of compatible components to minimize repair costs and reduce the need to stock numerous peripheral component models. This reduces

the potential for obsolescence and increases the longevity of its business machines.

- **Focus on the needs of SMB as well as enterprise** - While both groups need high quality and reliable machines at affordable prices, the subtle differences between large enterprise users and SMBs are not lost on Toshiba, with specific laptop families and models geared toward the needs of each class.
- **Extensive testing** - Toshiba engineers engage in extensive testing and failure analysis during the design, pre-, and post- production phases as part of their dedication to continuous improvement and industry-leading reliability and durability.
- **Quality manufacturing from Toshiba's own factories** - Having total control of the design, engineering, and manufacturing processes, down to the component level, is something few other vendors can claim.

## Conclusion

It's important for business organizations to understand the ramifications of the aging of their laptops, and the steps they must take to both minimize costs over the machine's life cycle while maximizing its useful life.

This trade-off can best be addressed by selecting devices that are carefully engineered to provide a robust and productive computing environment for an extended period. But companies should not try to "nurse" their systems beyond the acceptable limits of reliability and user productivity.

The best balance can be achieved by acquiring well-crafted machines—like Toshiba laptops—that are designed for ease of maintenance, long-term stability, and serviceability, all of which can contribute to the low cost of ownership and consistent productivity so necessary in today's business world. ■

**To learn more about Toshiba's business-ready laptops, visit <http://explore.toshiba.com>.**

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