

Planning the Future

Third Party IT Asset Disposition in a Post-Pandemic World

In the first half of 2020, the COVID-19 pandemic impacted many businesses. They had to react quickly to staff working remotely, vendor inventory fluctuations, third-party partner shutdowns, and more. It was no different for providers of global IT asset disposition services. Our customers' IT equipment spending, location, reuse, and disposal patterns changed radically within months. Getting inventory to and from the homes of customers' employees through a box program became an overnight requirement.

Amid this time of behavioral changes, Ingram Micro set out to update our 2021-2026 ITAD business strategy. We quickly realized that customer interviews with our largest and most complex clients were necessary to understanding which changes were temporary and which would become permanent. This white paper presents a summary of those discussions and research done by our team as we planned our strategy alongside our customers.

Prioritizing Health & Safe Interactions

The ongoing safety of Ingram Micro's customers, employees, and third-party partners is of highest importance, and safety will continue to be a top priority beyond 2020. IT Asset Disposition (ITAD) providers like Ingram Micro will be expected to keep physical contact to a minimum when onsite at a client's facility, and processes to avoid close interactions, including alternatives to requiring physical signatures, will be introduced. These changes will drive the creation of more tablet and phone app solutions that enable contactless data exchange between the customer, our drivers and, warehouse associates.

At global warehouses and in offices, regular cleaning and solutions that prioritize employee safety will continue to be implemented, and a higher percentage of employees will work remotely.



IT Device Spending: Personal Computers and Cloud Investment

Across all hardware types, spending dropped in 2020 (see below, Table 1).

The number of device replacements initiated during the pandemic slowed down, reducing the frequency and number of end-of-life assets pickups and the need for ITAD processing. As more device lifecycles come to an end between 2023-2025, downstream remarketing revenue will be impacted and companies that expect a return on their disposed assets (as well as the ITAD providers that process their assets) will need to incorporate this into forecasts during that timeframe.

Desktop Spend	Cloud & Traditional Data Center	Overall
<ul style="list-style-type: none"> • Tablet spend is slowing over time • Laptop demand continues to increase, likely due to remote work & value retention • Desktop spend has been & will continue to decline due to WFH, mobility needs • Remote working is here to stay in greater amounts than pre-COVID19 • BYOD is being considered as a proportion of employee populations 	<ul style="list-style-type: none"> • Public & private cloud spend is growing as a percent of overall infrastructure & will continue to grow into 2024 • Traditional data center spend will also grow but at an increasingly slow rate. • Data center spend slowing due to cloud & consolidation 	<ul style="list-style-type: none"> • Across all high-tech commodities, spend is down in 2020 due to COVID19 • This downturn will be felt again in 2023 to 2025 when these devices are finally dispositioned after their useful life; impacting remarketing revenue of ITAD providers & customers

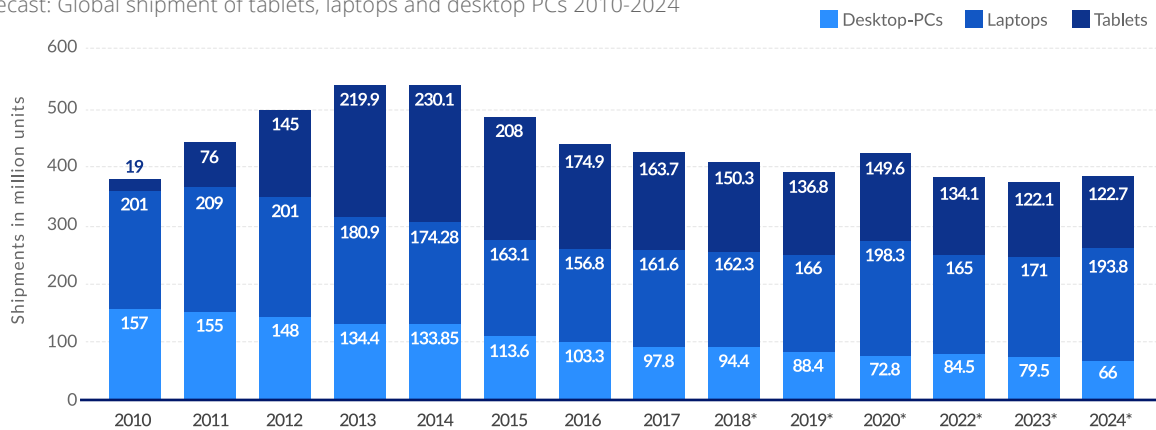
Table 1 – Summary of Hardware Spend Causal Changes, primary research conducted by Ingram Micro

Personal Computers

Regarding personal computers, investments in desktops and tablets are anticipated to decrease as companies more regularly provide laptops for their employees, who prefer them for their versatility, mobility and reusability (see Table 2). A majority of our ITAD clients report that the remote working behaviors of their employees are driving this shift, as well as some institutional enablement of Bring Your Own Device (BYOD) policies.

Shipment forecast of tablets, laptops and desktop PCs worldwide from 2010 to 2024 (in million units)

Forecast: Global shipment of tablets, laptops and desktop PCs 2010-2024



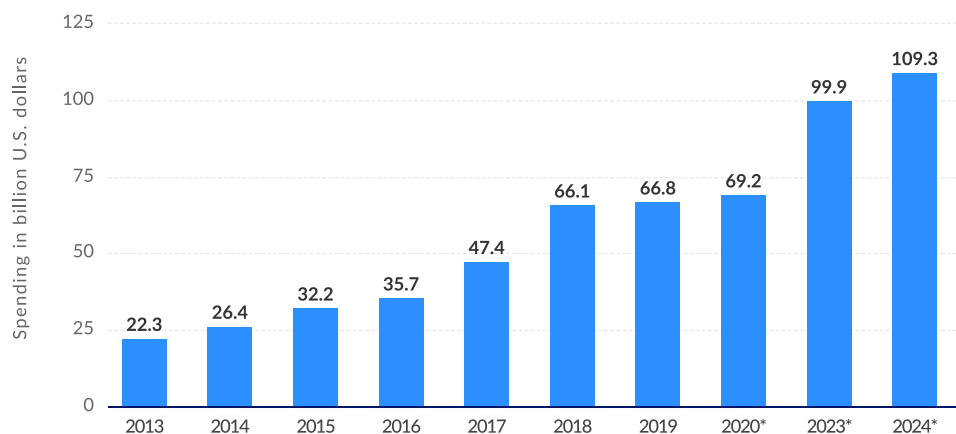
Note: Worldwide, 2010 to 2020

Table 2 – Global Shipments of Tablets, Laptops and Desktops 2010-24, Source: Statista

Cloud Investment

Data center hardware spending is being heavily disrupted by cloud investment (see Table 3). The pandemic has accelerated the use of public cloud services and is offsetting traditional data center spend. In fact, public, private, and hybrid cloud investment in 2020 represents one of the few IT categories that has grown in spend.

Annual spending on cloud IT infrastructure worldwide from 2013 to 2024 (in billion U.S. dollars)



Note: Worldwide; 2013 to 2019

Table 3 – Worldwide Cloud IT spending 2013 - 2024, Source: Statista

What are our ITAD clients saying?

Do their findings align with market analysts' projections? And are these behaviors permanent, or only a result of temporary pandemic-related behavioral changes?

Remote work

A mass shift to remote work had the greatest physical impact on global ITAD laptop inventories in 2020. Companies rushed to ensure their infrastructures could support work-from-home needs and laptops were bought and distributed to enable home office setups. Laptops, both new and used, were shipped to employees around the world. For some companies, their use was already standard, but the global nature of pandemic-related changes meant that workers in countries like India, where remote work was not regularly practiced or normalized prior to the pandemic, needed laptops and other gear rushed to them in volumes so that people who were confined to home offices and virtual meetings could continue to be productive.

Impacts on ITAD: With employees mostly out-of-office, collecting assets for disposition became significantly more complex. IT departments could no longer collect equipment from the desks of employees sharing an office or campus. Instead, processes to collect assets from dispersed locations had to be created. Ramping up programs to handle hot swap or end-of-life device management across global sites is complex and costly to manage, and many CIOs made the decision to stop much of their IT equipment disposition for fear that additional equipment supplies would dwindle if manufacturing slowed down.

Looking forward: Remote work is largely here to stay, given that concerns over employee health continue and businesses have the opportunity to save costs on office real estate. Companies like Uber, Microsoft, Zillow, Google, Reuters, Twitter and Square have all announced remote work as a long-term business strategy. With greater numbers of workers stationed at home offices, the demand is increasing for global third-party box programs and depot services. In addition to supporting these solutions, Ingram Micro's future focus also includes strategies around contactless ITAD pickups.

Bring Your Own Device (BYOD)

BYOD is on the rise within many organizations we serve. Information security concerns and legacy platforms will continue to challenge some companies, likely limiting rollouts to subsets of employees. The growth of company programs will continue, but more slowly than originally anticipated, based on what our research indicates.

Public, Private and Hybrid Cloud Use

All clients interviewed made investments in public or private cloud infrastructure. The pandemic also pushed some to advance their investments beyond what had been budgeted in 2020. The fate of traditional data center infrastructure, however, is mixed. High-tech industries are able to quickly move greater percentages of their

infrastructure to the cloud, while complex healthcare and financial companies are keeping a combination of cloud-based and traditional data center infrastructures in place over the next five years.

A balance must be reached between data security concerns and the higher cost of private cloud storage, and this will take some time. Meanwhile, many organizations are reducing the number of data centers in operation and merging smaller facilities with larger ones to reduce costs and improve sustainability. Services for data center inventory, hard drive destruction, and asset disposition will be needed for the foreseeable future.

Desktop as a Service, Depot, Storage and Box Programs

More companies are outsourcing desktop fulfillment services to resellers and third parties in an effort to increase business resilience and allow their IT departments to focus on business application technology and infrastructure. In addition to fulfillment and warranty support, depot and storage services that enable viable used equipment to be redeployed and returned to a company's inventory are being supported by third parties. Global demand for vendor box programs and depot services are expected to grow, given the increase in remote work and the need for businesses to support device delivery and removal in places that were not supported previously.

Customer Investment in Asset Management Tools

Investments in ServiceNow and other Enterprise Asset Management (EAM) solutions slowed in 2020, as did the move from on-premise solutions to public cloud solutions. Starting in 2022, vendor solutions that support businesses for cloud tracking, remote work, resilience, information security, and cost control will see their revenues grow. Many of our clients are using ServiceNow for infrastructure asset management and our focus in the future will continue to be as an integrator with ServiceNow.

A Growing Global Network

As mentioned, our clients are facing growing global footprints as they expand within the countries where they already do business and add additional geographic regions. This will require ITAD vendors to provide more diverse services to a more locales and regions. Creative global solutions will need to be developed to provide ITAD and other services for existing and future clients.

Information Security and Compliance

Global data protection laws continue to be critical. For industries such as financial services, healthcare and pharmaceuticals, services including chain of custody, secure logistics, hard drive shredding, solid state drive pulverizing, wipe and erasure software, device remote lock security offerings and proper recycling are highly important. Enterprises rely on their ITAD vendors to educate them on new technologies in the field — for example, the newest options in scanning, secure transit capabilities, upgrades in erasure software, and secure retrieval of remotely located devices. In response, Ingram Micro will continue to cover new security options in our monthly, quarterly, and annual discussions with our customers.

Many companies have accelerated the use of automation and digitization internally and externally. When it comes to ITAD services, they are specifically looking for visual access to their data and easy self-service. They expect top-notch data visualization delivered through interactive dashboards that display their service results and invoices, intuitive user interfaces for submitting data to us for pickups, box program and deployment services, and archival capability for certificates of erasure and destruction.

New Focus on Sustainability and Reusability

Corporate boards and shareholders are demanding that companies become greener in their operations and there is a drive to redesign traditional data centers to be more environmentally friendly. Sustainability and reusability also offer a way to attract investors, customers, and talent.

Conversations with our clients were consistent regarding three requirements of their ITAD providers. They want eStewards or NIST certification, data reporting of responsible and successful recycling throughout the ITAD process, and compliance with all global e-waste and recycling laws.

The clients interviewed did not prioritize the reusability of materials in their hardware supply chains, but a market analysis suggests that consumers are increasingly concerned by it and such pressure has the potential to change manufacturer behavior. We will continue to monitor this topic as it evolves.

“Be loyal to your future, not your past.”

There is no return to normal after this pandemic. Our customers have proven they can change course with speed and accuracy to meet the unprecedented forces of pandemic-level change. The same nimbleness is expected of their vendor partners.

An ITAD provider should anticipate changes in:

- Managing the health and safety of our employees and clients through contactless service provision and better mobile app features.
- Hardware purchasing and disposal due to high volume remote working and expanded cloud use.
- Global remote working will also require expanded locations, depot services for the delivery of new hardware to employees' homes, and asset recapturing through box program services.
- Continued development of best-in-class asset management tools for ourselves and our customers' use.
- Expanded service response to new data security concerns, including white glove services, secured freight, and erasure.
- Improved sustainability and reusability through partnerships with global manufacturers, recyclers, and electronic waste experts.

With the research and interview information we have gathered and the adjustments we have made, Ingram Micro's ITAD services are positioned to bring agility to our response times and services and are aligned with the future needs of the industry.