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ASSET MANAGEMENT

2020
6th Annual ITAD Benchmarking Report

Managing diverse enterprise IT assets

This report provides information and research on security, environmental, and financial issues related to IT Asset Disposition (ITAD) and the more general IT Asset Management (ITAM) discipline.

As a benchmarking tool, we encourage you to use the information to help understand how your ITAM/ITAD program compares to others and how you can further improve your systems to better attain your desired outcomes.

SURVEY RESULTS
Cascade's annual benchmarking survey polled U.S. enterprises collectively representing over 250,000 employees from 20 different industry segments.

PROCESSING DATA
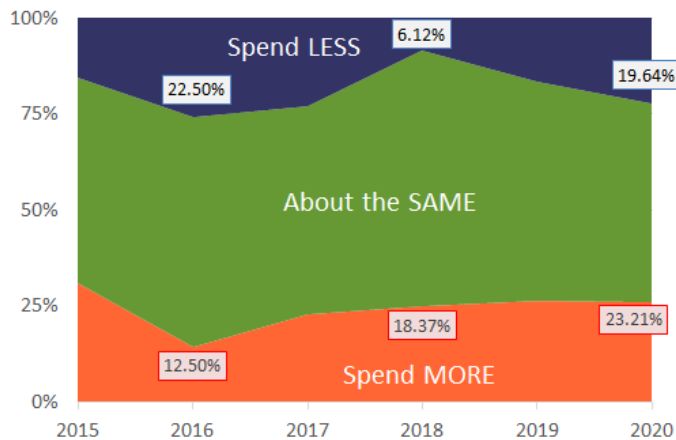We evaluated more than 560,000 assets processed by Cascade for IT asset disposition in 2018 and 2019.

MARKET RESEARCH
ITAD research and industry trend analysis included.

## How much do you expect to spend on IT hardware?

Most organizations plan to spend about the same on IT hardware each year. In this year's survey, 23% of respondents indicated their organizations plan to spend more on IT hardware in 2020, compared to 22% which planned to spend more in 2019. For the second year in a row, significantly more organizations (from 6% in 2018 to 13% in 2019 to 20% in 2020) plan to trim their spending in future years.

The industries starting to cut back in spending are from the healthcare, financial and manufacturing sectors. This graph displays answers to the forecast spending question from the past six annual surveys.

How do you expect to invest in your enterprise owned data center(s) in the next 5 years?

While many companies are moving some or all of their application hosting to the cloud and third party providers, almost 70% of the enterprise clients surveyed still maintain their own data centers or enterprise servers. Forty-five percent house data center equipment in co-located facilities. Our survey finds that over 39% of respondents will either expand or maintain their investments in their own data centers, while 34% plan to decrease investments in their data centers as they move more hosting to third-party providers.
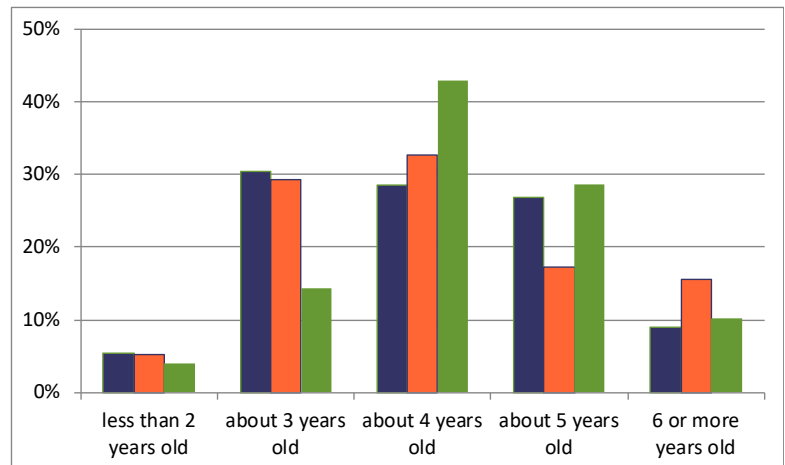

- expand
- shrink
- stay about the same
- unsure or not applicable
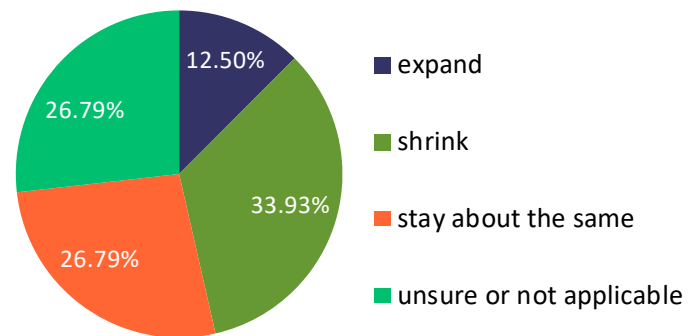
Longer refresh rates

How old are the majority of desktops you expect to retire in 2020 *(compared to 2019 and 2018)*?
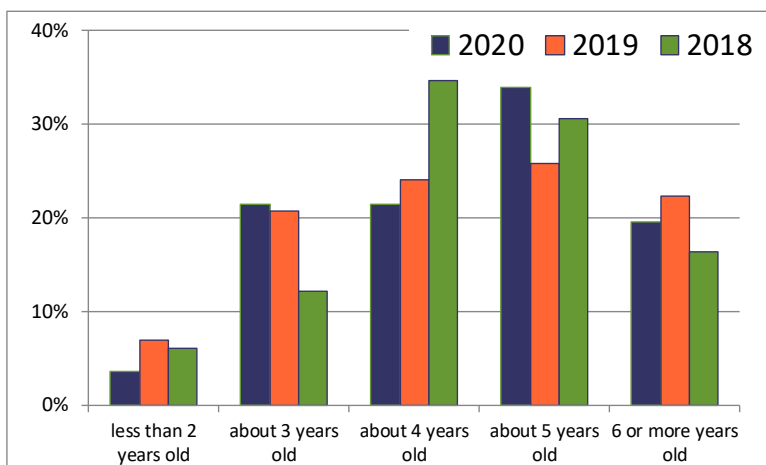
How old are the majority of laptops you expect to retire in 2020 *(compared to 2019 and 2018)*?

Respondents are now refreshing 46.4% of their desktop computers every 4 years or less, compared to 51.7% in 2019. For the last four years, average desktop refresh rates have lengthened and organizations are holding onto these devices longer. Laptop refreshes also lengthened this year with 64.3% planning to replace these devices every 4 years or less, compared to 67.2% reporting a 4 year or faster refresh in 2018.

Learn more about the survey methodology and participants at www.cascade-assets.com/2020Report/demographics.html
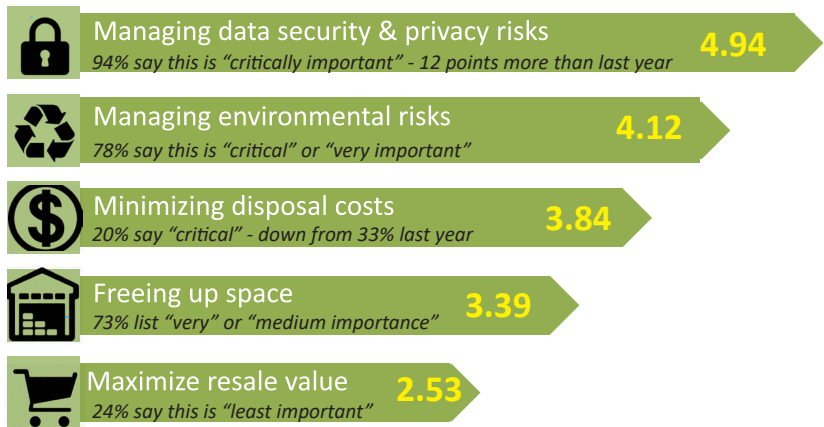
Disposition Priorities

How important are the following criteria when disposing of your IT assets?

Security continues to be, by far, the most important criterion for disposing of IT assets. Over 94% of survey respondents said it is critical in their decision making, with the remainder saying it is very important. Clearly a secure disposal solution is essential to these organizations.
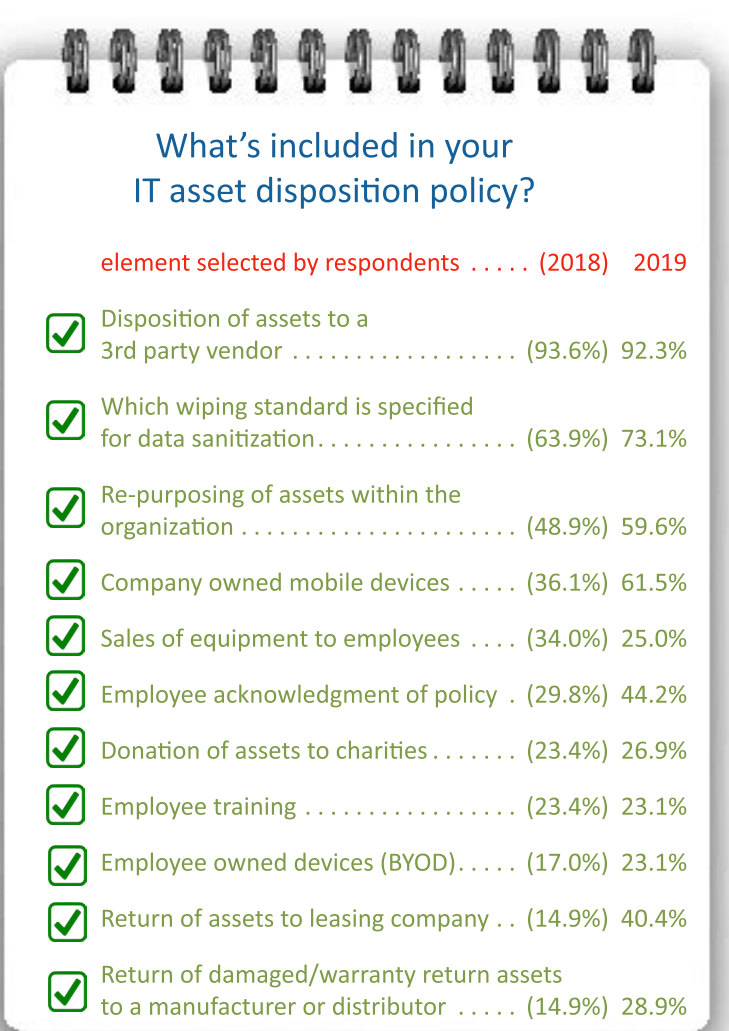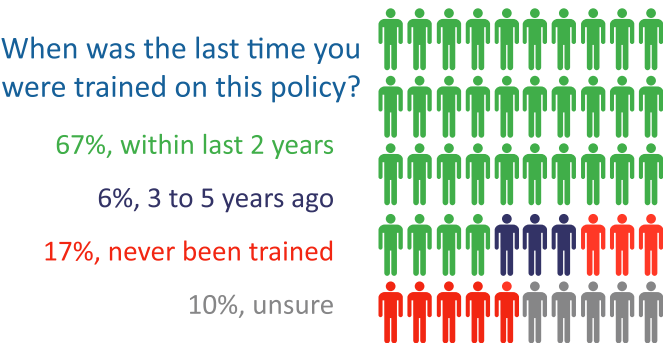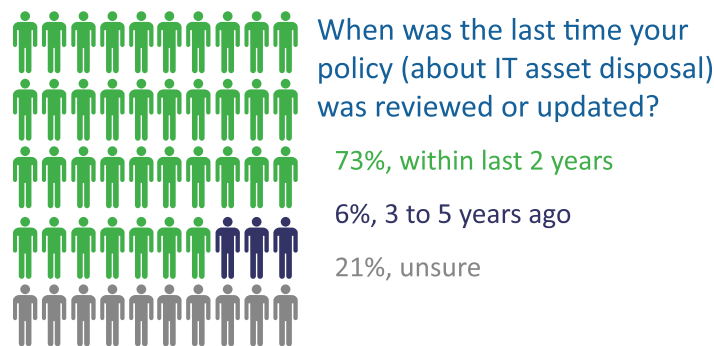
Disposal costs became a much less critical factor in choosing an ITAD solution and continues to trail risk concerns. Even though retired IT assets generate significant resale value, this is seen as the least important factor when making disposition decisions.

rated on a scale of 1 to 5, with 5 being "critically important" and 1 being "least important"

Managing data security & privacy risks
94% say this is "critically important" - 12 points more than last year
4.94

Managing environmental risks
78% say this is "critical" or "very important"
4.12

Minimizing disposal costs
20% say "critical" - down from 33% last year
3.84

Freeing up space
73% list "very" or "medium importance"
3.39

Maximize resale value
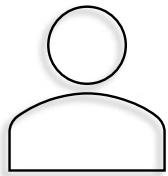24% say this is "least important"
2.53

Security policies and programs

Over 88% of respondents (up from 75% the previous year) indicated their organization has a policy in place that addresses how IT assets are to be retired. Privacy regulations *require* all organizations to adopt a security policy that manages security risks that arise from the multitude of ways data may leave the organization. These policies need to be regularly reviewed to ensure they cover new products generated by the organization, and must also capture all the ways these products, and the data on them, may leave the organization.

When was the last time your policy (about IT asset disposal) was reviewed or updated?

73%, within last 2 years

6%, 3 to 5 years ago

21%, unsure

When was the last time you were trained on this policy?

67%, within last 2 years

6%, 3 to 5 years ago

17%, never been trained

10%, unsure

What's included in your IT asset disposition policy?

element selected by respondents	(2018)	2019
Disposition of assets to a 3rd party vendor	(93.6%)	92.3%
Which wiping standard is specified for data sanitization	(63.9%)	73.1%
Re-purposing of assets within the organization	(48.9%)	59.6%
Company owned mobile devices	(36.1%)	61.5%
Sales of equipment to employees	(34.0%)	25.0%
Employee acknowledgment of policy	(29.8%)	44.2%
Donation of assets to charities	(23.4%)	26.9%
Employee training	(23.4%)	23.1%
Employee owned devices (BYOD)	(17.0%)	23.1%
Return of assets to leasing company	(14.9%)	40.4%
Return of damaged/warranty return assets to a manufacturer or distributor	(14.9%)	28.9%

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A conversation with a mobile carrier about smart phone retirement

Cascade

> What happens to my phone and my information that is on that phone when it goes to you?

> You would have to reset it before sending it.

> If someone gets my information are you responsible for it? Is there anything in your contract when I sign up for this?

> You reset your phone completely before sending it to us. We do not have a contract.

> What do you do with the phone if you cannot resell it? It isn't going to end up in a landfill, is it? Do you resell them? What do you do with it?

> At the very least, all of our phones are properly recycled. We don't have anything in writing to specify this to customers because it's not a request we get very often.

12:45   50%

This is a real message dialogue between one of the top four U.S. carriers and a Cascade representative. Similar conversations took place with other phone carriers.

These exchanges illustrate that phone carriers are not taking responsibility for the destruction of data on your old phone. Their primary focus is with selling and supporting new phones.

Top 4 Carrier

So where does an enterprise go to address their need for data security, and also get some assurance of responsible disposal and optimal value recovery?
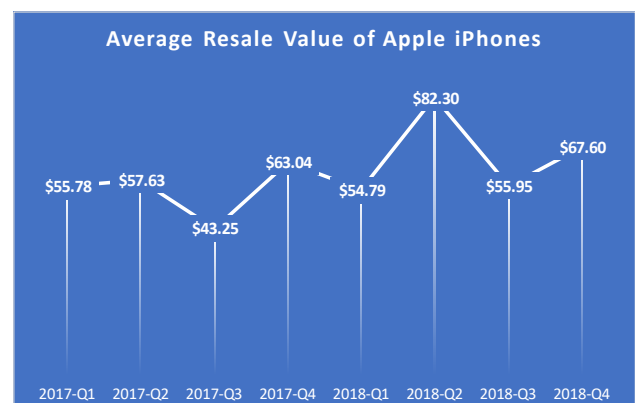
Who clears the data on phones?

In our survey, we asked how many enterprises have an internal process in place to destroy data on their mobile devices. While the percentage of organizations clearing data on phones is improving, nearly 40% of organizations reported they do not have a process to clear data on their phones when disposing of them.

Do you clear the data on your phones before disposing of them?

■ Yes
■ No

2019
Yes = 60.78%

2018
Yes = 54.39%
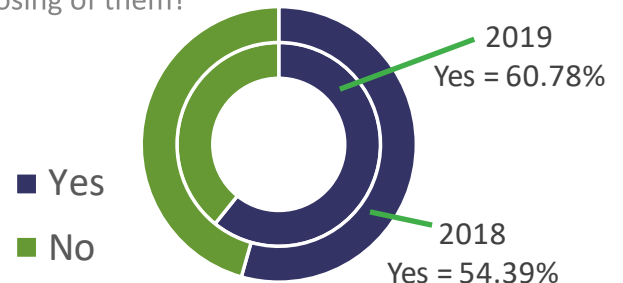
Tracking resale values of second-life phones

Pound for pound, smart phones and tablets in working condition generate the highest resale value of all product types refurbished by Cascade. The graph to the right shows the average sale price of all generations of resold iPhones handled by Cascade the past three years. In the case of an iPhone7 with 128GB of memory, those devices were originally released in September 2016 for $869. Eighteen months later, their resale value dropped to around $300 each and in September 2019, they're worth about $80. On average, these devices lose between 6 - 7% of their value per month.

Average Resale Value of Apple iPhones

2017-Q1	2017-Q2	2017-Q3	2017-Q4	2018-Q1	2018-Q2	2018-Q3	2018-Q4
$55.78	$57.63	$43.25	$63.04	$54.79	$82.30	$55.95	$67.60

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What percentage of employees in your organization are using smartphones provided by . . .

This year's survey revealed divergent trends in mobile device use at organizations. While smartphones and tablets provided by the company increased by 6% this year, the percentage of employee-owned mobile devices used for organizational purposes dropped for the first time ever to just 17%.

Fifty percent of survey respondents indicated they implement a mobile device management (MDM) solution of some kind for all of the mobile devices in their fleet, while 32% applied MDM to at least some of their devices. Nine percent of organization currently do not have any MDM solution in place.

the employer

2018
34%

2019
36%

the employee (BYOD)

2018
20%

2019
17%
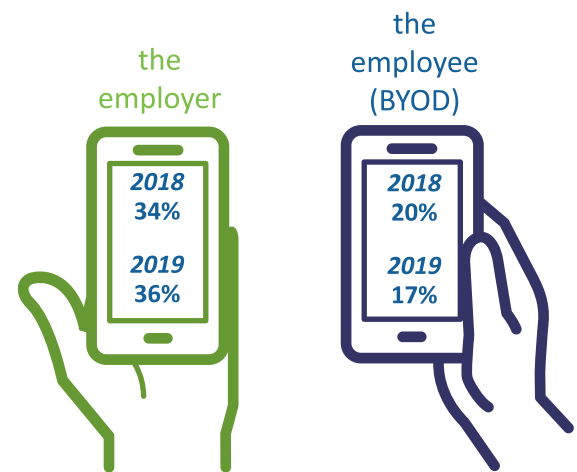
Best practices for enterprise mobile device disposition

1

Get a written contract

Require standards to be incorporated, such as NIST 800-88, NAID AAA, and e-Stewards.

2

Prevent damage to retain value

Proper packaging and return programs with a vendor can increase value recovery.

3

Remove barriers to testing/resale

Once personal data is sanitized, allow devices to be unlocked for reuse.

For the last decade, workforces have been revolutionized by mobile technology. The IT Asset Manager's role has been critical to its success. Selecting devices, contracting with carriers, shipping thousands of individual units, managing telecom expense, running security software, and enabling usability tools are just some of the critical tasks they undertake. So why are most trade-in solutions still focused on consumers?

The scale and criticality of properly operating a mobile asset management program at an enterprise should guide new designs to disposition solutions.

That begins with mitigating risk through proper accountability (from a security and environmental perspective) with the vendor managing the disposition of the devices. A contract backed up by vendor certifications helps.

It then seeks to return greater value by protecting assets from damage when handling and shipping the devices to the vendor for further processing.

Finally, it allows for the vendor to coordinate with the enterprise's mobile device management tools (e.g., Find-my-iPhone and Samsung Knox) to securely unlock units so they can be resold for value recovery once all data have been sanitized.

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Data sanitization options

There is plenty of precedent supporting electronic sanitization in conformance to the NIST 800-88 Guidelines as an acceptable process for effectively eliminating data on storage media. If an enterprise needs to convince its security team to allow for electronic sanitization of reusable media, it can point to established security policies from regulations and high security minded organizations that have already adopted this as a standard.

The Criminal Justice Information Services (CJIS) Security policy allows for data sanitization of digital media after a 3 pass wipe.

The FTC manages FACTA and allows for electronic media sanitization.

IRS Publication 1075 allows for media to be sanitized by electronically "purging" the data prior to reuse.

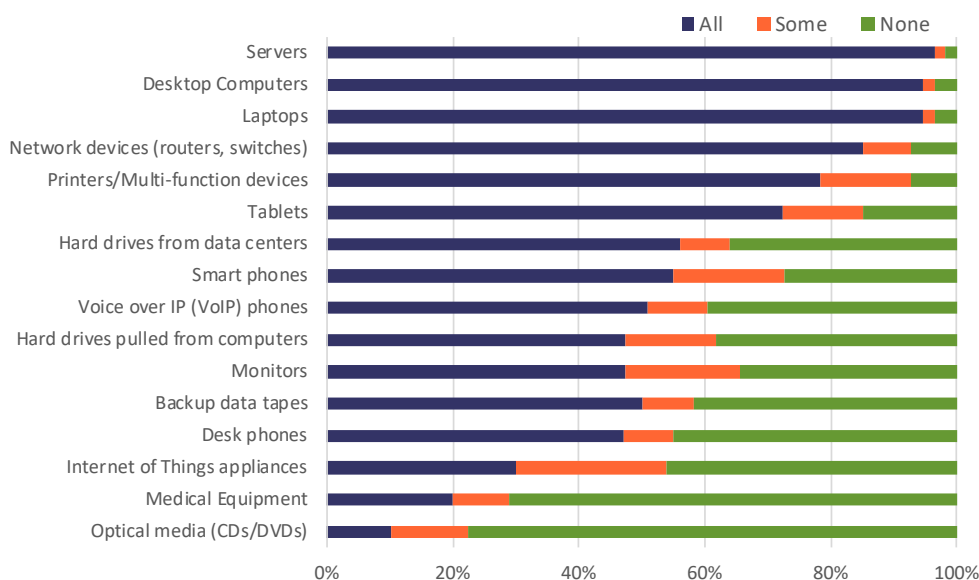HHS governs HIPAA and allows for "clearing" or "purging" to safeguard personal health information.

What types of assets do you track internally?

Legend: ■ All ■ Some ■ None

- Servers
- Desktop Computers
- Laptops
- Network devices (routers, switches)
- Printers/Multi-function devices
- Tablets
- Hard drives from data centers
- Smart phones
- Voice over IP (VoIP) phones
- Hard drives pulled from computers
- Monitors
- Backup data tapes
- Desk phones
- Internet of Things appliances
- Medical Equipment
- Optical media (CDs/DVDs)

(axis: 0% 20% 40% 60% 80% 100%)

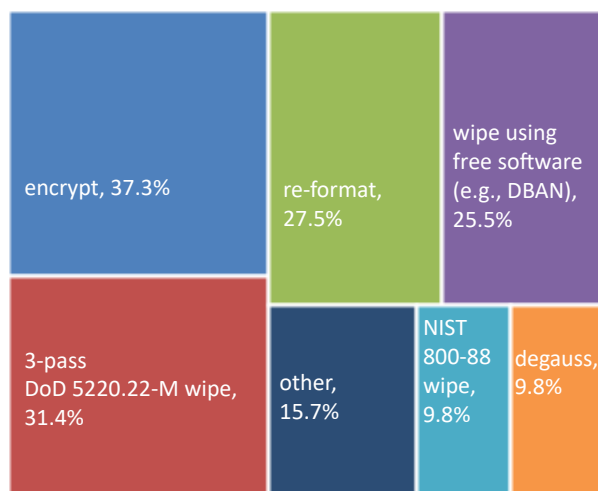This year's survey shows that the types of assets organizations manage and track are growing.

Almost all respondents say they track their servers, desktops, and laptops.

Mobility devices gained the most this year. Over 82% of organization reported tracking all or some of their tablets, compared to just over 70% from last year's survey. Smartphone tracking increased from 43% to 66% overall.

Internet of Things (IoT) devices were rarely tracked last year (31% of organizations tracked some or all of them in 2018). This year, as more of these devices were deployed in the field, over 48% of organizations reported tracking IoT assets.

Which methods do you use (internally) to control and destroy data on hard drives?

Overall, more organizations are taking more steps to secure or sanitize their data before handing over media to a third-party for processing and further sanitization.

- encrypt, 37.3%
- re-format, 27.5%
- wipe using free software (e.g., DBAN), 25.5%
- 3-pass DoD 5220.22-M wipe, 31.4%
- other, 15.7%
- NIST 800-88 wipe, 9.8%
- degauss, 9.8%

Compared to the previous year, 24% more organizations are now encrypting their drives.

Onsite sanitization practices could be improved, since the 3-pass DoD wipe is outdated and formatting drives is not effective at eliminating data.

Special media sanitization

Different technologies are required to destroy data on Solid State Drives (SSDs) and other flash media. We continue to see an upward trend in organizations developing processes for sanitizing these devices internally. For the first time in our survey, a majority of organizations have a process to destroy data on SSDs, but that leaves many others without a defined solution to this challenge.

Do you have an internal process in place to destroy data on SSDs?
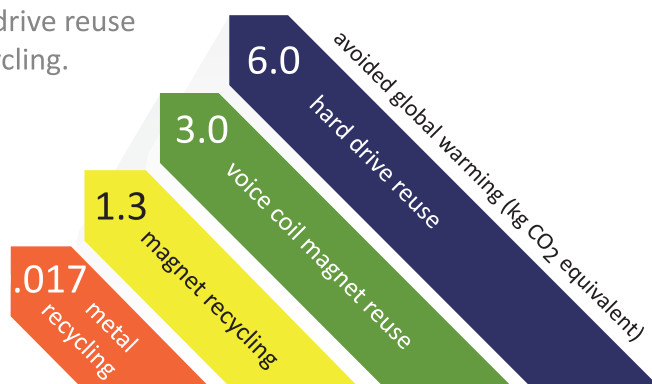
No 49%

Yes 51%
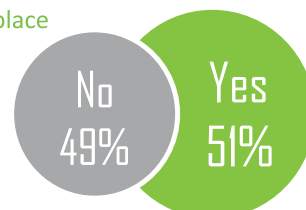
Environmental Issues

Shredding drives is a waste

Enterprises have significant economic value present in hard drives that are ready for retirement. It is important to consider balancing data security concerns against the return on the sale of these drives. Given the maturity of the data sanitization software solutions in the market today, there are many effective ways to manage the risk of hard drive disposal.

A study published in 2019 by iNEMI found that the reusing a drive saves 352 times more CO_2 compared to recycling the drive. For Cascade customers, the average net value return of reuse vs. recycling is about $5 - $10 per drive.

Environmental benefits of hard drive reuse and recycling.

.017 metal recycling

1.3 magnet recycling

3.0 voice coil magnet reuse

6.0 hard drive reuse

avoided global warming (kg CO_2 equivalent)

Trade and tariffs impact e-recycling in 2019

Tariffs and trade disputes are directly impacting the e-scrap industry, causing financial and processing challenges throughout this sector.

Import restrictions on recyclable plastics started in China in 2017 as part of its "National Sword" initiative that was a response, in part, to the high volume of contaminated waste mixed into imports of recyclable materials. Once banned in China, many operators set up new processing facilities in other Asian countries to absorb the diverted plastic stream.
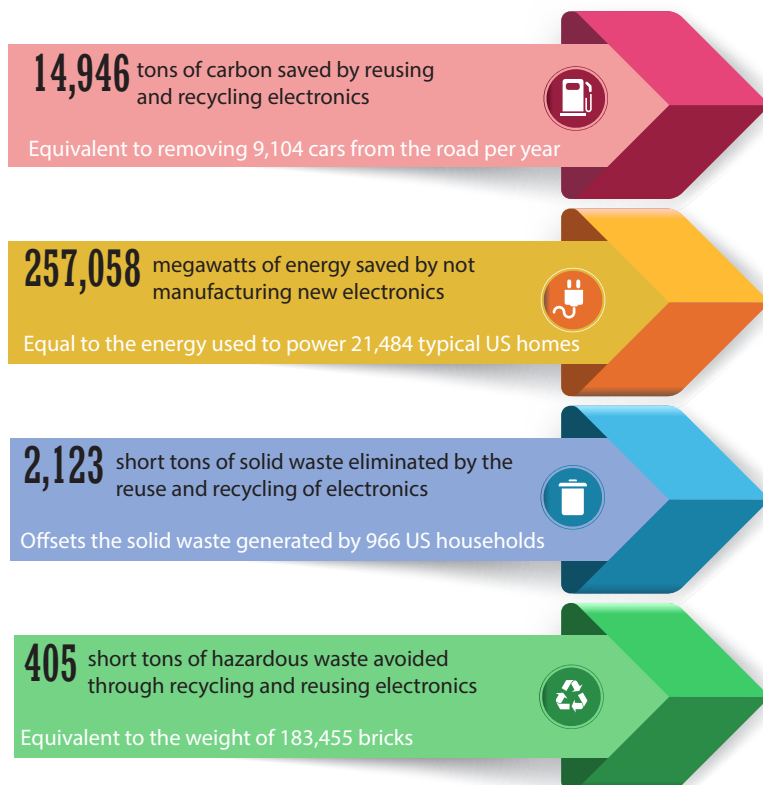
The influx of material quickly created an immense burden on these countries, causing Vietnam, Malaysia, and Thailand to subsequently enact bans on e-scrap plastics and other waste materials.

Import tariffs are also increasing costs on the recycling industry by raising prices on processing materials and supplies often sourced abroad.

Given all these changes, it is essential to know where your materials go and whether your processor complies with all international trade laws. Otherwise, the materials may end up in the wrong hands or be rejected and shipped back at a great cost to all involved.

Environmental benefits of reuse and recycling

Impact of processing activities by Cascade in 2019

14,946 tons of carbon saved by reusing and recycling electronics

Equivalent to removing 9,104 cars from the road per year

257,058 megawatts of energy saved by not manufacturing new electronics

Equal to the energy used to power 21,484 typical US homes

2,123 short tons of solid waste eliminated by the reuse and recycling of electronics

Offsets the solid waste generated by 966 US households

405 short tons of hazardous waste avoided through recycling and reusing electronics

Equivalent to the weight of 183,455 bricks

Cascade and our clients collectively diverted more than 4.2 million pounds of electronics from landfills in 2019. Refurbishing and reusing these devices provides the greatest environmental benefit, since it reduces the need to mine raw materials and expend tremendous amounts of energy to produce a new electronic product. The amount of devices reused by Cascade in 2019 grew over 35% compared to the previous year.

Cascade also demanufactured end of life electronic equipment into sixty-three distinct material streams for recycling and reclamation. By separating materials into shredder and furnace ready product, we can improve recovery rates and reduce the amount of waste throughout the recycling process.
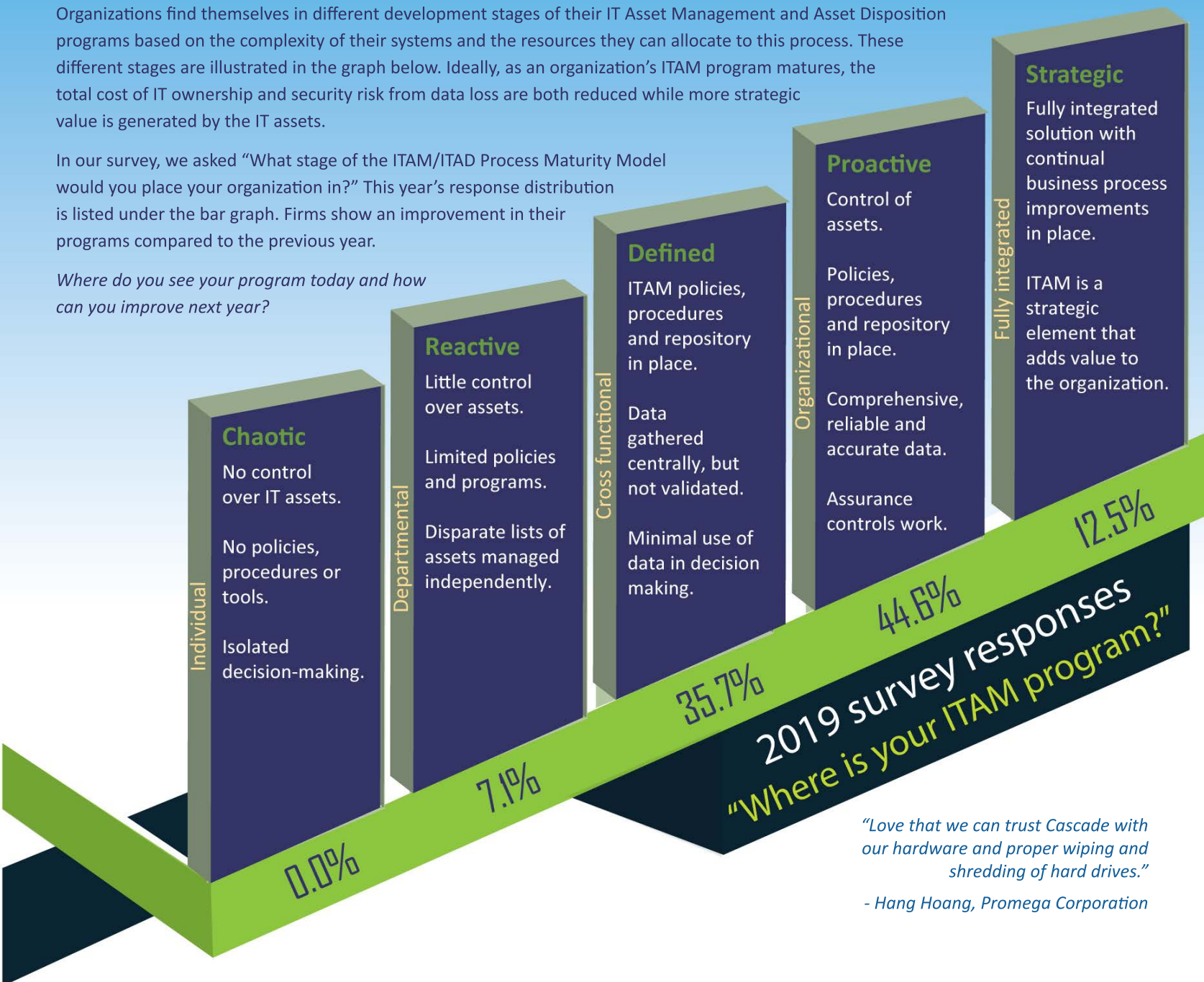
In 2019, 84.4% of all material collected was either reused or recycled into a new raw material by Cascade and its downstream partners. Typically, shredding operations only achieve a 50% recovery yield.

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ITAM/ITAD Maturity Model

Organizations find themselves in different development stages of their IT Asset Management and Asset Disposition programs based on the complexity of their systems and the resources they can allocate to this process. These different stages are illustrated in the graph below. Ideally, as an organization's ITAM program matures, the total cost of IT ownership and security risk from data loss are both reduced while more strategic value is generated by the IT assets.

In our survey, we asked "What stage of the ITAM/ITAD Process Maturity Model would you place your organization in?" This year's response distribution is listed under the bar graph. Firms show an improvement in their programs compared to the previous year.

Where do you see your program today and how can you improve next year?

Chaotic
Individual

No control over IT assets.

No policies, procedures or tools.

Isolated decision-making.

0.0%

Reactive
Departmental

Little control over assets.

Limited policies and programs.

Disparate lists of assets managed independently.

7.1%

Defined
Cross functional

ITAM policies, procedures and repository in place.

Data gathered centrally, but not validated.

Minimal use of data in decision making.

35.7%

Proactive
Organizational

Control of assets.

Policies, procedures and repository in place.

Comprehensive, reliable and accurate data.

Assurance controls work.

44.6%

Strategic
Fully integrated

Fully integrated solution with continual business process improvements in place.

ITAM is a strategic element that adds value to the organization.

12.5%

2019 survey responses "Where is your ITAM program?"

"Love that we can trust Cascade with our hardware and proper wiping and shredding of hard drives."

- Hang Hoang, Promega Corporation

Partnering to mitigate risk and increase value recovery through responsible and responsive IT Asset Disposition solutions

Contact Cascade for further information or assistance.

Safe & Sound® IT Asset Retirement since 1999.

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