

From ROT to ROI: How sustainable Information Management saves money



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Every single company I consult with is paying to store and protect information they do not need. Redundant, obsolete and trivial information is hiding in everything from boxes to departmental collaboration platforms.

We wrote this paper to explain what ROT is, talk about our experiences in dealing with it as Information Management professionals, give some basic guidelines on where to get started as well as articulate the sort of savings you can see (and the environmental benefits, often ignored!).

Our method when we work with clients to clear ROT is straightforward: inventory and baseline, align to a clear retention schedule, digitise by need, and destroy what you do not need with a documented chain of custody. We recommend a 90 day plan to capture quick wins, followed by an operating

rhythm to keep holdings clean. For most organisations the ROI appears within the first year, often much earlier, because avoided storage, backup and application costs stack up quickly, productivity improves, and exposure shrinks. You'll also likely see your like-for-like cloud-based carbon footprint shrink considerably.

If you want one takeaway, start by asking, how much of what we store is actually used, how long should we keep it, and what would we save if we removed the rest.



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A simple story

Let's start with an anecdote, and see if you can spot any parallels where you work:

A regional construction supplier wants to review rising information costs after several acquisitions. Teams had copied content between email, network shares, cloud collaboration sites, and a legacy archive. Paper originals were scanned, then boxed and sent offsite. The firm held 19,000 boxes and more than 500 million digital files.

Across these systems we found repeated copies of the same drawings, contracts and invoices. There were seven copies of a single project pack in three separate storage spaces! Plus the paper set of this in a box. Discovery and audits were taking longer each quarter. Storage bills were rising even after a move to tiering. By linking the inventory to the retention schedule, removing duplicates, digitising the small set of high use paper series, the company destroyed 6,700 boxes, retired a legacy archive, cut 110 terabytes from cloud storage, and sped up discovery. Most of the savings came from not storing what they did not need, the rest came from simpler systems and fewer places to look.

That is ROT to ROI in practice.



What ROT is, and why it matters

ROT stands for redundant, obsolete and trivial information. Industry bodies use the acronym to describe content that is duplicated, past its useful life, or of no business value.¹ ROT is a large share of what many organisations hold. Surveys suggest around half of enterprise data sits unused as dark data.² The presence of ROT conflicts with the storage limitation principle in GDPR, personal data should be kept no longer than necessary for the purposes of processing, with narrow exceptions for archiving, research and statistics, subject to safeguards.³ Supervisory authorities enforce this.



In 2024 the French CNIL fined PAP for failing to comply with retention limits and data security, among other issues.⁴ The business case is clear, ROT increases bills, adds risk, and makes it harder for people to find what they need.



¹ AIIM. Defining Information ROT, 2016.

² Splunk. The State of Dark Data, 2018.

³ UK Information Commissioner's Office. Principle (e): Storage limitation.

⁴ CNIL. Data retention period and data security: the CNIL fined PAP 100,000 euros, 2024.

The business costs of ROT

Storage and backup

Cloud object storage is indeed relatively inexpensive per gigabyte, but large volumes add up. Amazon Web Services (AWS) standard storage is around 0.023 USD per GB for the first 50 TB per month. So avoiding 100 TB of Standard storage saves roughly 27,600 USD per year before backup and replication.

Lifecycle rules can move or expire files, but only deletion stops them from spreading into backups, replicas, and old versions. In AWS, you can set lifecycle rules to delete both current and older versions of objects. Azure offers similar controls, letting you manage hot, cool, and archive storage tiers, plus deletion of current and previous versions.⁵ Lifecycle policies are a safety net, an automated clean up tool. But the biggest savings come from stopping ROT from being created or kept in the first place.

ROT's impact on productivity

ROT does not just sit in storage, it gets in the way. Microsoft's 2023 Work Trend Index found that

62 percent of people say they spend too much time searching for information



which the report links to an accumulation of digital debt and poor signal to noise in knowledge repositories.⁶ McKinsey's research reiterates this, showing that knowledge workers spend a large share of their week searching and gathering information and that better findability leads to higher value work.⁷ When duplicates and outdated versions crowd results, people lose confidence in what they find. Cleaning ROT speeds up productivity.

Legal and security exposure

Holding on to data for too long makes you more vulnerable, it gives criminals, lawyers, and regulators a bigger target. If you keep personal information past need, you're breaking storage rules, and regulators can fine you for it. Old backups, mystery archives, and forgotten file shares often hide sensitive data without proper protection. The safest approach is to keep only what's necessary and securely destroy the rest, with a clear process to prove it's gone.

⁵ Microsoft Learn. Azure Blob Storage lifecycle management overview.

⁶ Microsoft. 2023 Work Trend Index, Will AI Fix Work?, 2023.

⁷ McKinsey Global Institute. The social economy: Unlocking value and productivity through social technologies, 2012.



So how is ROT cleaning sustainable, exactly?

Clearing ROT also reduces environmental impact in three ways.



Data centers: The International Energy Agency projects global electricity consumption for data centres will more than double by 2030, to around 945 TWh in its base case.⁸ Avoided storage and compute reduce energy use at the margin and, at scale, help moderate demand growth in locations where data centres are concentrated.



Paper and packaging: The US EPA shows that paper and paperboard recycling drove the largest share of the municipal solid waste emissions reduction in 2018, about 155 million metric tons of CO₂e, with paper contributing the biggest portion.⁹ Programs that digitise high use series, then securely destroy paper past retention, reduce physical storage and connect securely shredded output to recycling streams, delivering measurable CO₂e benefits using the EPA WARM factors.¹⁰



E waste: The Global E waste Monitor reports that the world generated 62 million tonnes of e waste in 2022, with a formally documented collection and recycling rate of 22.3 percent, and a projection of 82 million tonnes by 2030.¹¹ Retention discipline and media sanitisation policies reduce how many devices and disks are retained solely to hold old data, and when media must be decommissioned, NIST SP 800 88 provides accepted methods for sanitisation and destruction.[16]

⁸ International Energy Agency. Energy and AI, Executive summary, 2024.

⁹ U.S. EPA. National Overview: Facts and Figures on Materials, Wastes and Recycling, 2024

¹⁰ U.S. EPA. Waste Reduction Model (WARM), Documentation.

¹¹ ITU and UNITAR. The Global E-waste Monitor 2024.

What are my compliance anchors?

Think of these international standards and regulations as your “anchors” for compliance:

GDPR and Storage

Limitation: Keep personal data only as long as needed, record why you’re keeping it, and apply narrow exceptions with safeguards.

ISO/IEC 21964 and Secure Destruction of Confidential Material:

Covers how to collect, store, transport, and destroy sensitive information, with proof the process was completed.

ISO 15489 & ISO 13028 – Records Management and Digitisation:

Ensure electronic records are reliable and legally admissible, especially when scanning and disposing of originals.

NIST SP 800 88 – Media

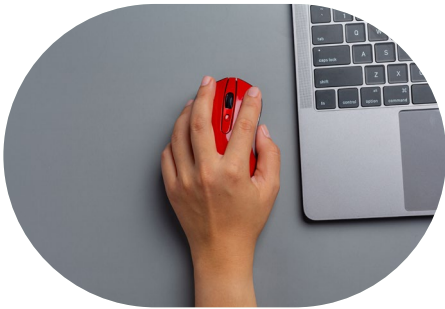
Sanitisation: Defines how to clear, purge, or destroy disks, tapes, and solid state media so data can’t be recovered.

ARMA’s Generally Accepted Recordkeeping Principles:

A practical framework that covers everything from accountability, transparency, compliance, availability, retention, and disposal. One of the best places to start.

From ROT to ROI, a step-by-step program

Here's a short, six step starter plan for tackling ROT. It's a simplified version of the full process, but it's a handy roadmap to help you focus on what matters first.



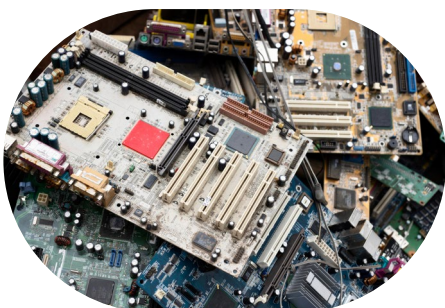
1. Inventory and baseline

Start with the data you have, not what you assume is there. Use automated discovery to scan the cloud, file shares, collaboration sites, archives and email, and pair that with a box and file level inventory of your physical records. For each item, note its size, location, format, sensitivity and basic usage patterns. Link storage types to their unit costs so your baseline shows spend by repository, business unit and record series.



2. Policy alignment and retention rules

Check your retention schedule and make it as clear as possible. Wherever you can, group rules by business function and record type, and include the legal references. Note any narrow legal exceptions, such as keeping records for public interest archiving, research, or statistics, and include the safeguards required. Publish a short, plain language summary so staff can follow the rules with confidence.



3. Destroy what you do not need

Plan your disposals in stages so they're secure. Keep a clear chain of custody and get certificates of destruction. In digital systems, start by removing duplicates and anything past its retention date. Set lifecycle rules to remove old versions and snapshots where it makes sense, then delete the current versions when the rules allow. For physical media and devices, follow NIST SP 800 88 methods for sanitising or destroying them, and make sure the process is verified and documented.



4. Digitise by need

Don't scan everything! Focus on records that are used often, carry higher risk, or are blocking the closure of costly physical storage. Follow ISO 15489 1 with clear steps for capture, indexing, OCR and ICR and retention, remember that scanning isn't just using a flat scanner and uploading everything to OneDrive. Once digital copies are all done, securely destroy the paper to avoid duplicates. Show your stakeholder the benefits by linking digitisation to results like faster retrieval.



5. Right tier and right size

Use lifecycle rules to shift data you aren't using to cheaper storage and remove old versions or snapshots when they're no longer needed. While doing this, cut duplicate copies, clear personal stashes of shared files (a big datacenter footprint in of itself) and finally, shut down legacy systems that only store ROT.



6. Keep control

Build a simple routine. Use dashboards to track growth, disposals, storage costs, retrieval times, and CO2 savings (if possible, try and track CO2 according to international standards). Meet with your colleagues every quarter to check the rules, maybe there are new data sources. Add small nudges like alerts when someone creates a large personal share or uploads an oversized email archive.



What could you save?

Let's suppose you have 300 TB in cloud object storage. If a third is ROT and you delete 100 TB next quarter, you avoid about US \$27,600 a year in Amazon S3 Standard costs. If 40 percent of that 300 TB is old versions and snapshots, and lifecycle rules clear them too, the savings grow. Add the cost of retiring one legacy archive and the backup space you no longer need, and the cash adds up fast. There's also, as we've seen, the productivity gains you get from less time searching for important information. Even without counting those, most programmes pay for themselves within a couple of years.

FAQs

Do we have to scan and destroy everything?

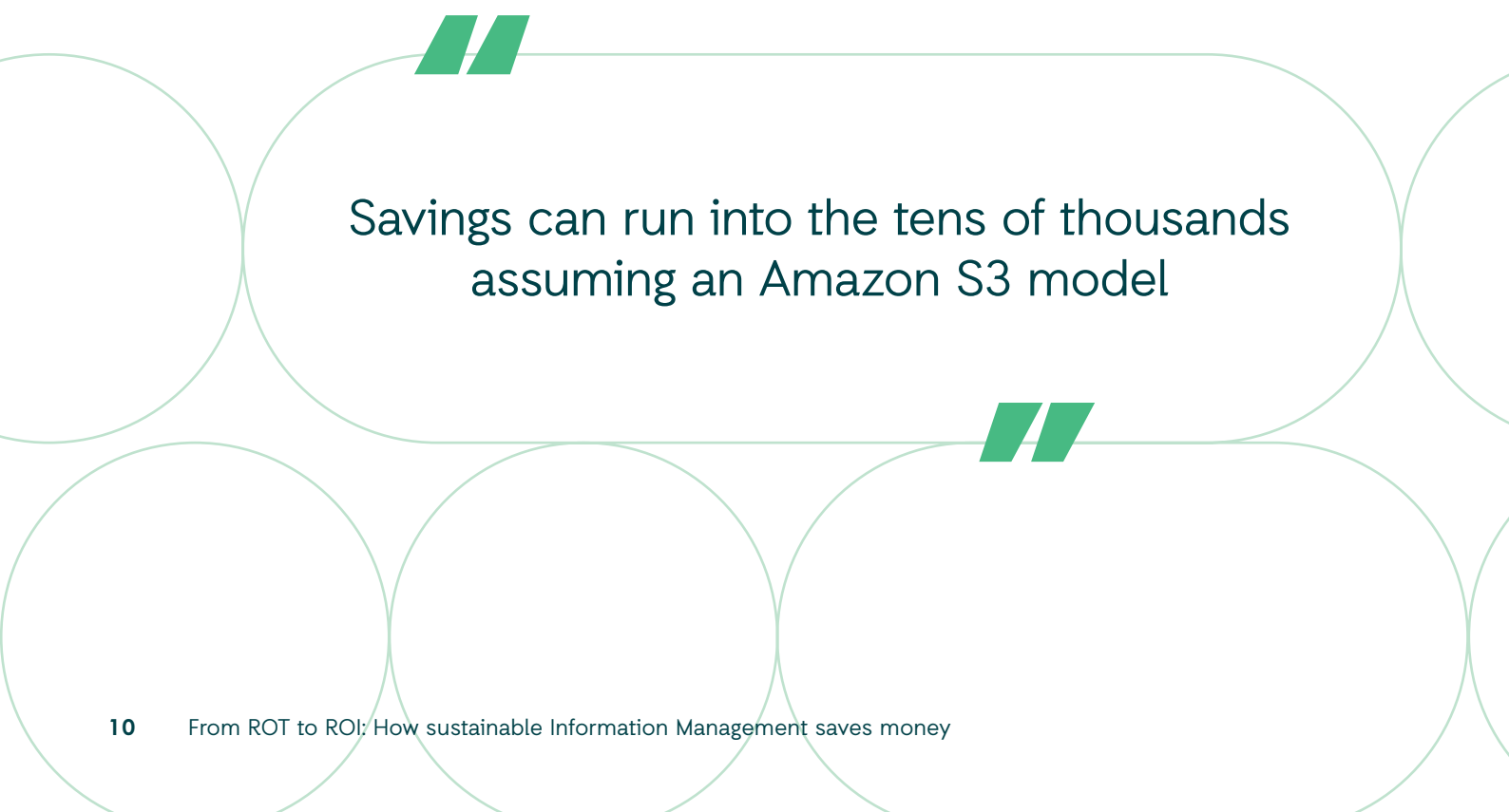
No. Focus on records that are higher risk (PII related and the like) or are stopping you from closing expensive storage. Moving data to cheaper storage helps but deleting it is better because ROT still costs money, uses energy and clutters search results until it is gone.

How should we dispose of disks and old devices?

Follow NIST SP 800-88 to wipe, purge or destroy them. Use vendors who can prove what method they used and keep a clear chain of custody.

Are there exemptions for keeping data longer?

Under GDPR, you can keep data longer for public interest archiving, research or statistics, but only with safeguards. These exemptions are not a reason to keep everything forever however. Keep that in mind.



Savings can run into the tens of thousands
assuming an Amazon S3 model

Let us take the load off you

Worried about taking all of this on internally, by yourself?
Here's how we can take care of everything for you:



We scan your systems to uncover outdated, duplicated, and low-value data.



We help you create a cleaner, more secure, and manageable data environment.



We assess how it's used, who has access, and where the risks are.



All of this is supported by globally recognized Document Management solutions, with priorities, timelines and ROI rapidly clarified through our Business Process Review service. All of this drives your objective to achieve the transformation objectives your business requires.



We identify what's worth keeping and what's safe to remove.



We provide clear, practical steps your teams can act on.

Want to know more? We will continue to share our experience and learnings to drive change across our industry and demonstrate the benefits of responsible business. We welcome a dialogue with anyone who shares our vision and wants to know more about our journey so far. Wherever you are on your journey, Crown Information Management would love to support your digital and sustainability transformation.

Crown Information Management, helps clients to maximise the value of their “corporate memory” through the storage, active management and timely distribution of information assets. Operating in 40 countries, Crown provides secure storage and retrieval of information in physical and electronic format, as well as digital imaging, media management and data destruction. Crown helps companies to remove paper at source, delivering expertise and solutions, driving the digital agenda, ECM solutions and business process reviews, to achieve a digital nirvana.

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