USU

White Paper

Trustworthy Data in IT Asset Management

Lay the foundation for modern IT governance with proven strategies –
A guide for decision makers

Content

Introduction

Modern IT estates are complex and multi-faceted. Teams responsible for governing these estates need to build a holistic view of them to know where they should place their focus. And they need to trust the information they use for decision making.

In order to do so, they need tools and technologies which can discover, inventory and make sense of a wide range IT assets – such as on premises, physical devices, virtual servers, cloud, and applications delivered as software-as-a-service. This hybrid approach to modern IT in turn requires a robust multi-faceted approach to gathering governance data.

This white paper explains how to build a foundational strategy that ensures you have trusted data about your IT estate, and what opportunities that trustworthy data opens up for a broad set of stakeholders across IT.

The Critical Importance of Trustworthy Data

Trustworthy Data is the foundation of IT Asset Management according to ISO 19770-1 (2017) and is defined as follows: "Trustworthy Data is data that is accurate, complete, relevant, readily understood by and available to those authorised users who need it to complete a task."

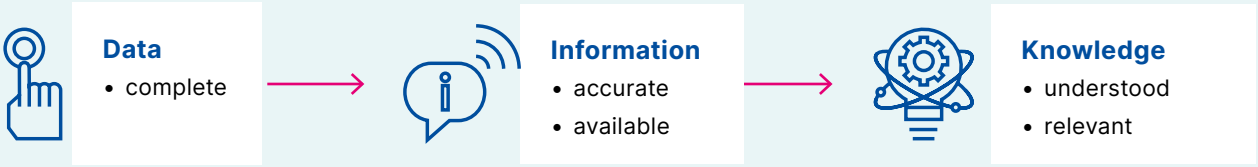
It's easy to interpret this statement as simply meaning "we should know everything about our IT environment" but there is much more to it than that. It recognizes that accurate data gathered is useless if it isn't understandable and available to authorized users who would find it useful. It presents a tantalizing opportunity to build an accurate model of IT assets that's available to stakeholders beyond the ITAM team. If Security, Procurement, IT Ops, Finance, and ITAM all make decisions based on the same trustworthy data those decisions will undoubtedly be better than if all they were working in their own silos relying on their own tools.

This unified approach to gathering and maintaining Trustworthy Data is gaining traction in IT governance realms, including ITAM. Other stakeholders are now catching up with what ITAM has been doing for many years. For example, the National Institute of Standards & Technology (NIST) published a detailed model for an ITAM system focused on financial services enterprises and approached from a cyber-security viewpoint. This is just one example of a general trend within IT to take a platform approach to IT Governance.

From Data to Knowledge

At this point, it is important to note that when ISO19770 refers to trustworthy data, what it's proposing is that raw data is converted into knowledge. What do we mean by that? It's useful to explore this through a practical application of the Data – Information – Knowledge information science framework.

Framework for trustworthy data

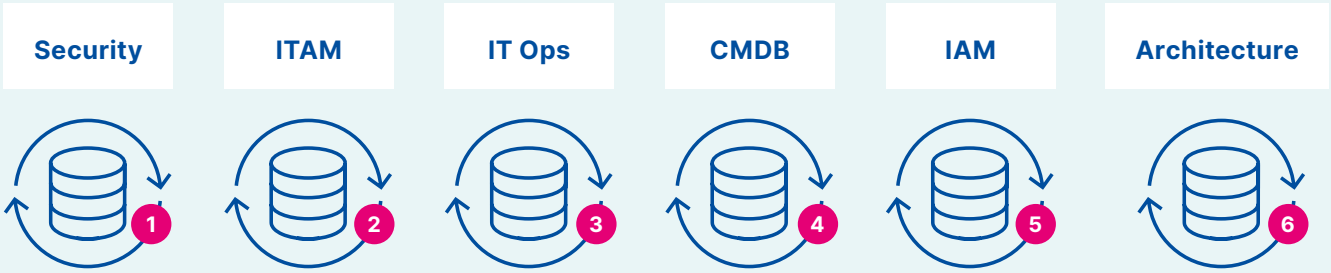


In this framework we gather raw data from multiple sources. This data consists of facts which lack context and structure. Our goal here in meeting the ISO definition of Trustworthy Data is to gather complete data. Context and structure are provided by processing this complete raw data and turning it into accurate and available information. In turn, structuring that information and learning from it leads to knowledge – an understanding of the IT estate that's relevant to the stakeholder.

How to Ensure & Maintain Trustworthy Data

Above, we noted that multiple stakeholders will benefit from centralized trustworthy data. We also noted that these stakeholders will typically be running their own discovery and inventory tools to build their own databases, resulting in silos being built and maintained across the organization.

Organizational silos



This is inefficient from a cost perspective – multiple tools doing similar jobs – and from an efficiency perspective – as there is considerable duplicated computing and employee effort. The solution is to combine and normalize data sources to generate rich data which can serve all stakeholders. To do this, we need to take the following steps.

Engage with stakeholders

Determine who might benefit from centralized Trustworthy Data, and analyze what their current approach is to gathering the necessary data, information, and knowledge to meet their goals. Assess these stakeholder goals for alignment with your own ITAM goals and determine the best strategy to recruit the stakeholders to support gathering trustworthy data.

Define your data strategy

Trustworthy data is gathered via a conscious data strategy. It's important to only gather the data you need to answer the questions your stakeholders want answered. This is a complex task and with complexity comes risk, so it makes sense to only gather the minimum data you need to meet stakeholder requirements and to ensure you have a complete picture of your environment. Work with your stakeholders to determine the data required, the frequency of collection, and desired retention periods. Remember to ensure compliance with corporate policies and local regulations on storage and processing of such data.

Integrate stakeholder toolsets

With stakeholders engaged and a defined data strategy, the next step is to integrate data, information, and knowledge from the inventory and discovery systems in scope. In practical terms this will likely involve using custom connectors and APIs to pull data from these systems in real-time into a centralized database. Modern hybrid IT environments are highly diverse and need tools which are flexible and easy to integrate to manage the rise of cloud, departmental and shadow IT, and bring-your-own-assets. The latter is particularly important – it isn't just about managing personal mobile devices now. Employees will select and use their own applications and with the growth of remote working may be using personal laptops, and certainly personal network connections.

Normalize data

Currently, our journey to trustworthy data is at the stage where we've got multiple unstructured data feeds from stakeholder systems. We now need to assess the quality of that data and to normalize it.

A step-by-step process that systematically cleans and identifies the data, normalization filters out what's unneeded while standardizing the information that is kept. It's critical that your SAM tool has built-in normalization to automatically perform this manual work for you.

SAM departments face large amounts of procurement and inventory data that needs to be identified & reconciled on a regular basis – and they need an automated method to know their data is reliable. There are five key steps that your SAM tool uses to normalize data properly:

- Filtering
- Standardization
- Transparency
- Traceability
- Scalability

USU data normalization

Filtering

Filters data to the optimal level without deleting relevant records

Standardization

Unbeatable & extensible out-of-box, full coverage software catalog

Transparency

KPIs and metrics provide insight into each process step

Traceability

Drill down your results all the way to the original raw data

Scalability

Robust approach that adapts to your IT growth

It's what you do with the data that you get back from those connections that adds real value, and that's where a solution provider like USU comes in.

ITAM solutions such as USU Software Asset Management achieve this normalization with highly specialized rulesets and asset recognition libraries.

Normalization rulesets are vital to building and maintaining trustworthy data and it's an area of great differentiation between tool providers and solution providers. Inventory and Discovery tools tend to be relatively generic because they rely on the instrumentation provided by the underlying asset (e.g. WMI for Windows devices, SSH for *nix, API connectivity for IaaS & SaaS).

Manage access

With extensive normalized data comes a responsibility to ensure that access is managed correctly. Your asset data is sensitive because it provides a richly-detailed view of your entire IT estate – an estate that increasingly is the engine of value creation. Furthermore, this asset data will also contain personal information which, regardless of the jurisdiction and regulatory framework in which you work, must be protected from unauthorized access.

On the flip side, authorized stakeholders need timely access to the data they need to achieve their governance goals. Work with your internal Access Management experts to define the controls around access to data, and ensure that your tools provide highly granular access levels which can meet individual stakeholder requirements.

Present results

The fundamental purpose of gathering trustworthy data is to enable informed decisions to be made. To do this, data must be presented in a way that is relevant and easy to understand. For stakeholders this will mean presenting data in a context that's familiar to them, and this means that your toolset must be flexible.

There is usually base reporting available in every tool. But it's important to consider that your SAM tool allows you to configure reports, have access to time-saving templates, built-in KPIs, and customizable dashboards. Other critical features include an automated export option that can send reports via automated email or connects with external tools such as Tableau, PowerBI, & BusinessObjects.

ITAM solutions such as USU Software Asset Management already have rich business analysis functionality available but it still makes sense to be able to easily and securely share data with stakeholders.

The Risk of Untrustworthy Data

When multiple stakeholders rely on centrally managed data it's absolutely vital that your data is accurate. This may seem an obvious point to make but it can often be overlooked. Inaccurate, out-of-date, or incomplete data leads to poor decision-making and increased risk.

Consider, for example, an unknown blind spot on your network. Just such a blind spot resulted in Equifax leaking over 150 million customer records over a period of 3 months in 2017. Equifax estimated the cost of responding to this breach to be more than $1bn as of 2019.

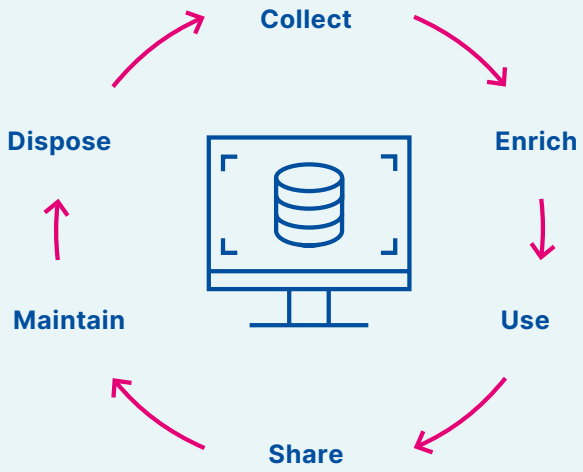
What you don't know that you don't know is far more harmful than being aware of a blind spot and knowing the steps you need to take to mitigate its risks. For example, you may be unable to run discovery and inventory tools in sensitive environments, or environments with limited connectivity. When considering licensing risk in these environments it may be sufficient to know the number of devices deployed rather than the usual daily software scan you'd expect to receive from machines elsewhere in your environment.

With this in mind, how do you assess data quality and take steps to improve it?

Building Quality Data

Data, and the knowledge derived from it, is an asset. And as we know, assets have lifecycles. The lifecycle for data is as follows:

6 steps of the data lifecycle



IT Asset Manager can use this lifecycle to improve data quality – collecting the right data, enriching it with context from other sources, putting it to use and sharing it. Maintenance is also key, particularly in fast moving modern IT environments which change in hours and days rather than in months and years. And, once data is out of date, redundant or of no further use, it's important to ensure it's disposed of correctly to avoid effort being wasted on maintaining it.

Key measures of data quality include

01 | Age

The older the data, the less it can be trusted to be an accurate representation of current facts. With assets living shorter lives, particularly in virtual environments or in the cloud, the age of your data is important. Set a standard for data refresh frequency and tackle exceptions as they arise. Machine learning and automation have a role to play here in highlighting new blind spots, identifying why they've happened, and potentially even remediating the issue.

02 | Completeness

Set a standard for completeness of data. It is rarely possible or desirable to chase 100% completeness – you're unlikely to get there and the law of diminishing returns will apply. If you've got 95% coverage it may be possible to estimate the compliance risk of not having full visibility of the remaining 5% of assets.

03 | Confidence

Closely related to completeness is confidence. When collecting data from disparate sources it is important to establish a confidence interval for that data. For example, confidence is higher for an asset inventoried consistently by three separate tools than if it has only been discovered by one. Further confidence is built by reference to the age of the asset record.

04 | Availability

Data must be readily available, ideally presented in real-time. Continuous scanning and inventory will be necessary in fast-moving deployment scenarios. Furthermore, blind spots should be identified by your tools so that remedial action can be taken to shine a light into those dusty corners of your estate. Having multiple data sources derived using different tools from the same asset base is vital in ensuring blind spots are identified. For example, active machines listed in Active Directory but not discovered by other tools indicates that there is a scanning issue to be resolved.

05 | Time to Value

Data may be the new oil, but the time taken to Extract, Transform, and Load (ETL) it must be worthwhile. If extensive manual steps are required to cleanse and normalize data, then clearly the value derived from that exercise must be greater than the cost of doing it. It is important to factor in that manual, human processing of complex data is prone to error and so automation and machine learning also have a vital role to play in processing data in a timely and cost-effective manner.

06 | Consistency

Finally, and in relation to the cost of manual processing noted above, results derived from processing data must be consistent and repeatable. In short, you must get the same answer if you use the same data to answer the same question. This can be difficult if there are manual steps employed to calculate the answer and so, yet again, it is important that data processing is automated wherever possible.

Using Trustworthy Data to Meet Business Objectives

So far, we've highlighted strategies and methods to help build a complete, accessible, secure, and accurate repository for trustworthy data. What does that enable us to do? As IT Asset Managers we are primarily focused on managing costs and managing risks. In the next section we present a scenario where a positive outcome is enabled by Trustworthy Data.

Scenario: Optimizing Microsoft 365 Costs

Microsoft 365 (M365) is a hybrid office productivity and collaboration application suite. In most cases it is licensed per user although per device licensing is also available for certain deployment scenarios. Perpetual licensing is also still available for certain scenarios. It is available for Windows, Apple, iOS, and Android. In total, 8 business editions are sold alongside 5 add-on packs which provide enhanced security and compliance capabilities. For home, government, and academic users there are further editions available. For full details on all the editions available see here (direct download).

As you can see, Microsoft 365 is a complex product to buy, and therefore a complex product for ITAM managers to optimize. Where should you start? A hybrid approach to getting the data needed to optimize the deployment is the best way.

Data Sources

The following data sources are relevant for M365 optimization:

- ITAM tool inventory agent
- Active Directory or similar user directory
- M365 administration console/API
- License & Subscription entitlement data

Stakeholders

Large-scale optimization of end user software requires interaction with multiple stakeholders and their systems. These may include:

- Service Desk
- End User Computing
- IT Asset Management
- Identity & Access Management
- Human Resources

The optimization process

In order to optimize M365, we need to know the following:

- Which edition is assigned to the user
- Whether the user is an active employee
- Which features the user is using
- Where they are using it, including number of devices
- Subscription and license entitlements
- Renewal dates
- Pricing

This data enables us to determine which edition, if any, the user requires. For example, we may discover users with subscriptions assigned who have left the company by cross-referencing data from the M365 Admin Console or API with data from Identity & Access Management or HR systems. Similarly, we may find users who have been assigned a higher cost subscription than is required based on their metered feature usage discovered by a SaaS Management toolset.

The output from this exercise is a list of users and suggested subscription levels which can be used by Service Desk or other administration teams to assign the right subscription or harvest unused ones. However, this isn't the whole story, due to the size of a typical M365 estate and the inherent complexity resulting from the number of subscription tiers. This complexity increases once any historical perpetual license rights are taken into consideration. What's the solution?

Automation & machine learning

Complex rulesets provide an opportunity for automation and machine learning. Specifically, machine learning relies on plentiful trustworthy data as its foundation, as this enables scenarios to be "understood" and actions to be taken based on them. This enables advanced ITAM tools to recommend optimization outcomes – in the case of M365 this would be the optimal subscription to be allocated to the user.

Furthermore, if we have confidence in our data and the machine learning and rulesets configured in our ITAM tool, we can automate this process of subscription allocation. This is essential for fast-moving estate-wide deployments of end user software, as any ITAM manager who has tried to manually harvest unused perpetual licenses will attest.

Outcome

Trustworthy data has provided an optimized license and subscription allocation for our M365 estate. Users have the right tools to do their jobs, waste has been minimized, and costs optimized. By leveraging machine learning and automation this process happens continuously and automatically with minimal impact on scarce employee resources.

Conclusion

Trusted data supports IT strategy

Trustworthy data lies at the heart of modern IT governance. If you can't manage what you can't see, you certainly can't govern it. IT Asset Managers are just one stakeholder who can benefit from trustworthy data, but our estate-wide focus on Asset Management and our obsession with data means that we are well-placed to drive a data strategy in this area. This means that having a SAM solution that pulls data from multiple sources and delivers high quality data is a foundational requirement for your success.

As our estates become more complex and multi-faceted, with more parties being trusted to carry out key functions on our behalf, it is vital that we have the data we need to govern it. By ensuring that rich reliable data is made available to all authorized stakeholders, in the context that applies to their requirements, we raise the bar for IT governance across the organization.

About USU

As the leading provider of software and services for IT and customer service management, USU solutions empower companies to meet the demands of today's digital world. Global companies use our solutions to cut costs, drive agility, and reduce risk – with smarter services, streamlined workflows, and improved collaboration. With over 40 years of experience and locations worldwide, the USU team helps customers move into the future. Smart solutions for a better service world.

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