Designing elegant metadata

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Abstract The advancement of digital asset management technologies, the need for integrated content systems and the huge proliferation of digital assets require equal advancements in the design and use of metadata to manage those assets. Alongside this, the importance of metadata within businesses is now being recognised as equal to content. To leverage their metadata, organisations must ensure the data are well organised, well managed, adopted and owned. Finding the perfect middle ground between simple systems and basic tags, through to complex multifunctional and multidimensional metadata management is challenging. The many difficulties can result in metadata being neglected and end users becoming disengaged. Creating elegant metadata means designing solutions that balance complex needs in a simple yet powerful way, thus making them more effective. This paper will discuss the ways in which metadata can be made elegant, and in turn become a valuable tool for users and business. To support the adoption and use of metadata, the paper also discusses how to avoid common pitfalls associated with the creation of metadata.

KEYWORDS: metadata design, metadata modelling, metadata management, taxonomy, user experience, system interoperability, change management

INTRODUCTION

Asset management runs on metadata. In the transition to omnichannel targeted content, metadata and taxonomies are driving publishing and insights. User expectations for easy search and findability are higher

than ever, supported by new metadata-powered technologies and services. Digital asset management (DAM) technologies have evolved from rudimentary picture libraries to modern data-driven, integrated systems for storing complex asset types to be used by a much broader scope of cross-functional users.

With metadata playing a stronger role in the content pipeline than ever, the onus is now on DAM implementers and managers to take the sting out of metadata entry and focus on streamlining the experience for creators. Many organisations are now or will soon be in a position to upgrade to a second or even third generation of DAM system, providing an excellent opportunity to re-evaluate metadata strategy. The existing schema might not be robust enough to support digital transformation efforts. Conversely, it might be an over-architected mess, including too many fields that nobody ever understood, were never filled in correctly, and thus were never leveraged. Building a 'just right' schema is more than making a list of fields to put in the asset profile: it is about using metadata to make the system feel both powerful and easy to use.

Metadata design is both an art and a science, requiring attention to use cases and system interoperability, but also context and usability to ensure that the metadata will support all business objectives. This paper will help readers understand what goes into making metadata elegant and highlight some of the typical challenges and common mistakes made in DAM metadata modelling. The paper will cover some key design principles to consider and discuss the often overlooked technical and change management elements that support user metadata adoption.

ELEGANCE DEFINED

What does it mean for metadata to be elegant? The concept evokes graceful style, refinement and simplicity. An elegant solution to a problem is ingenious and perfectly fit for purpose. In metadata modelling, the goal is to design schemas that are not only powerful and effective but also that feel pleasingly simple for end users. An elegant metadata schema balances complex requirements with streamlined design principles and does not sacrifice usability for usefulness.

A joke among information management professionals is 'I never met-a-data I didn't like', which may well be true for specialists but is quite the opposite of how many users feel. Those people tasked with uploading content to DAM systems often express frustration at the amount of metadata they have to enter and take shortcuts where they can to save the time and effort. This is why many DAM systems suffer from poor findability: contributors often avoid tagging anything beyond the minimum and come up with tricks to fill in fields quickly, thus diminishing the quality of the metadata. Paradoxically, those same users rely on good metadata to find and reuse those assets.

In fairness, user frustration is often warranted: many metadata schemas are indeed poorly designed. They are often built by vendors who do not understand the business, or non-expert staff who do not understand metadata best practices. They can be over-complicated and their value tends not to have been sufficiently demonstrated to users to justify the time and effort to fill them in. DAM deployments generally do not devote enough time and effort to metadata modelling and implementation. Metadata design should be a key activity that is intertwined with user scenario development, functional requirements gathering, user experience (UX) design and technical integration planning. To have a fighting chance of becoming elegant, the metadata schema must be conceptualised as the foundation of the system's user experience rather than just a project line item.

How does one know if an existing metadata schema is elegant? A metadata

audit on an existing DAM system ahead of a platform upgrade can unveil key problems such as poor data quality and underused fields. Data quality issues indicate that metadata fields might be hard to understand and difficult to fill in correctly, default values have been overused, or that users are not getting much value out of them (so have low incentive to tag correctly). Underused fields similarly indicate low value or gaps in tagging processes. These can all lead to complaints in search quality, reporting and low adoption rates.

Having diagnosed any problems with the existing DAM metadata, the next step is to work on the shift towards elegant metadata. As discussed below, elegant metadata will benefit from being:

- economical;
- cross-functional and extensible;
- structured but flexible;
- interoperable; and
- usable.

ECONOMICAL

Being economical entails providing good value in relation to the amount of time or effort spent entering metadata. An economical schema is ruthlessly focused on being fit for purpose: every field has a clear and prioritised use, and there is no scope for 'just in case' data. It is easier to scale up and add a field to a schema if a user's need is proven over time than to have many edge case fields that clutter the user interface (UI) and are generally left empty or filled with low-quality data.

There are no hard and fast rules on the right number of metadata fields. In the early days of information architecture (IA) and user experience (UX) design, a rule of thumb emerged that three to five metadata fields was the most that users would be prepared to complete. While this ensured low overhead for content creators, it also resulted in simplistic DAM systems that had poor searchability and relied on deep folder hierarchies to pick up the slack for a sparse schema. Users have since become more accustomed to modern data-rich search and content experiences in both their personal and work lives. Today's content creator is much more willing to accommodate some complexity in exchange for value, but will not tolerate seemingly incidental or unclear metadata. DAM schemas can easily have dozens of fields, but to remain elegant at this scale, each field must be purposeful and data entry must generally be more distributed and automated to avoid undue burden on the user.

Valuable metadata will tie directly to a prioritised use case. To be included in a schema, a field should fall into one of three functional categories: findability, administration or business operations:

- *findability:* supports a user's ability to navigate, search, group assets (eg collections) and find related content;
- *administration and control:* supports the management of the asset through its life cycle, administer access or intellectual property rights; and
- *business operations:* supports the fulfilment of a business process, including through workflows and system integrations.

This is similar to the classic metadata categories that are taught in library school, namely descriptive, structural and administrative.[1] However, this classification focuses on typology of the metadata rather than positioning the metadata in regards to usefulness for the business. A piece of technical or structural metadata is not inherently useful if it does not support findability, asset administration or business operations. Many metadata fields come 'for free' with asset creation and capture technologies. Cameras create a lot of default technical metadata, as do creative applications, but not all of these fields are intrinsically useful and deserve display or priority in the schema.

To combat mismatch between user needs and schema design there must be a direct linkage between metadata and user scenarios, both for business processes and for search. Most DAM projects include a phase for gathering business requirements, but they do not always include the development of user scenarios for business processes or search. Creating search scenarios is especially useful for triaging metadata requirements and helping with UI design. A search scenario identifies the most common types of searches different types of users will perform in the system, including the most useful filter actions that might be taken after the main search, and the expected results. For example, to find assets related to a brand or sub-brand:

- *Sample search(es):*
  - brand X;
  - brand Y;
  - regional brand name Z.
- *Personas:*
  - brand/campaign manager;
  - franchise owner.
- *Expected results:*
  - approved master brand visuals prioritised;
  - current brand campaign assets prioritised.
- *Follow-up actions/additional specifications:*
  - narrow to a product variant;
  - narrow to a package size or type (eg 150 ml, 2 l, etc);
  - narrow to a campaign;
  - narrow to regionally-appropriate assets.

This process helps determine which metadata truly support findability needs and avoids the 'just in case someone might want to search on this' mentality. As with functional requirements, some metadata will be 'must have' while some only 'nice to have', so it is essential to bear in mind that for every field there is a cost and a return on investment. Prioritised user scenarios will help guide the metadata development process and keep the schema focused on value. They can also help with user acceptance testing, acting as a test script for search.

CROSS-FUNCTIONAL AND EXTENSIBLE

Most of the sprawl in size of metadata schemas is due to accommodations for specialised use cases. These are often necessary if the DAM system is supporting many different teams and business units. When building a cross-functional DAM system, one generally creates a base schema that applies to all assets, providing a layer of institutional consistency and shared design elements across contexts.

Most DAM systems provide mechanisms to specify different asset profiles by type or by context and help shield users from unnecessary noise. Extensions can then be added to that base to support special applications or business needs.[2] For example, a packaging design team will require some very specialised fields to capture packaging facings, package sizes, pack types, etc. These are core elements for that team's business process even though they may not rise to the level of common use case. However, such specialised metadata can be ignored for other asset types and teams so as to not clutter the UI.

Core metadata elements may also need to be extensible to cover more specific contexts. For example, 'creator' is a very general field that is common across all assets. However, the meaning of 'creator' can differ depending on the context. For example, for the video team, it could refer to the videographer or the director. In some cases, it makes sense to use a single field to cover multiple bases that are contextualised by the asset type or collection (ie put all types of creators in a single field). In other cases, it is better to keep use cases and the meaning of the field pure to avoid muddying the waters for workflow, analytics or findability (ie create a separate videographer field and clarify in the guidelines that creator refers to the director).

Generally, it is best to strive for commonality but not force the issue if the use case warrants special treatment.

STRUCTURED BUT FLEXIBLE

A key struggle in metadata design is knowing when to use controlled vocabularies and when to use free-text values. Controlled vocabularies provide structure and normalisation that help with machine-driven functionalities such as workflow and integration. But that restriction can also lead to a lack of precision, and controlled fields can require more time to complete if users have to consider which values fit each asset. Free-text fields provide maximum flexibility, precision and can be quick to fill in. However, humans tend to be inconsistent in language and granularity, and these fields generally cannot be used to drive system functionality.

Elegant metadata will include free-text entry when the following criteria are met:

- assets require a very specific description;
- there is an overly large or volatile set of possible options; and
- the text is informational and does not need to support a specific system functionality.

Controlled fields tend to be more popular in DAM schemas, especially with the transition away from folders to more faceted search and filtering capabilities for findability. Free-text fields generally cannot be exposed for filtering or sorting, or used for dynamic collection aggregations. Most interesting DAM functionalities around search and navigation, permissions, workflow and rights management are dependent on structured metadata. This underscores the importance of designing the metadata in lock step with the functional and UX design.

Taxonomy best practices should be followed to reduce the cognitive load of filling in controlled metadata. Taxonomies must use terminology familiar to the users and avoid overly technical language or jargon from a different context. Lists must be a reasonable length and include choices that are largely mutually exclusive (ie no overlap) so that choices are easy to make quickly. For example, putting 'sales tools' and 'marketing collateral' as two options in an asset type list will likely cause confusion as those two categories can have a lot of overlap. Taxonomies must also contain an option for all known cases (ie be exhaustive) if they are required fields. Avoid having 'other' or 'miscellaneous' as taxonomy values.

Another element that can lead to user frustration is an overabundance of required fields. It is tempting to enforce metadata entry to enhance data quality and system performance, but this can lead to user shortcuts in filling in metadata (eg always picking the first item from a pick-list) that can end up harming quality and lowering system adoption. As discussed previously, in a cross-functional DAM system that supports multiple use cases and asset types, only a minimal core of metadata should be mandatory. The information architect must give users as much flexibility as possible within each context and use other mechanisms to support the metadata entry process, such as asset type-specific metadata profiles, defaults and automation (both discussed later).

INTEROPERABLE

A DAM system is rarely an island. Most often it is a node in a larger ecosystem of marketing technology (martech) within the organisation, which itself exists in a larger context of IT and data management. There are often existing metadata standards and reference data (including controlled vocabularies) in the organisation that can be leveraged, or other tools in the martech stack that have existing schemas. Despite this, it is not uncommon for DAM design and configuration to be

treated as a standalone project, forgetting the connections that will inevitably exist between the DAM system and the rest of the tools along the content pipeline or the need for harmonised business intelligence data across platforms.

Elegant metadata schemas privilege the reuse of existing data where possible and are designed in harmony with other tools in the content operations workflow. A critical step in metadata modelling is auditing the schemas of existing systems to which the DAM system will potentially need to connect or share content, such as content management systems, customer relationship managers, enterprise resource planning (ERP) and more.

Product reference data, for example, is often sourced from upstream systems. There is little need to develop new product attributes when key data are already available from a product information management system (PIM) or an ERP. Brand and product hierarchies as well as other descriptive metadata are critical for product asset findability and there is generally no need to develop DAM-specific options. Other metadata that are often sourced from other systems include customer or account information (industries, demographics), marketing campaign information, metadata from workflow tools, and rights and approvals data from legal or regulatory tools.

In cases where multiple platforms are being implemented in succession, metadata and vocabularies should be designed cross-functionally so as to create a common information architecture across the whole pipeline. DAM and workflow or DAM and PIM are examples of systems that are frequently deployed in concert.

While it is generally preferable to reuse master/reference data, each system lives in a specific semantic context that is often not shared. Upstream data and vocabularies such as finance or research and development/product life-cycle management can employ naming conventions and a level of granularity or structure that does not resonate with the DAM system's core audience. For example, an ERP will often have a strict and deep hierarchy of products based on financial reporting that does not match the marketing structure for those product lines, which can lead to problems in the DAM context. Reuse of more technical (vs business) metadata in its original format is often not possible, as it is not suitable for business people. Most metadata will require some form of transformation to be usable and match the needs and point of view of the specific DAM users.

Other considerations when 'borrowing' metadata from other systems include managing updates to external sources of truth and avoiding unnecessary data duplication. When integrating master data from other systems, it is important to account for changes over time and prevent edits inside the DAM system. Metadata updates must be synchronised in a timely manner to avoid inconsistencies, which, depending on the velocity of change, may be via real-time or batch edits. This process and timing must be taken into consideration in asset management, as assets may sometimes precede the availability of data. Master data management processes must also be respected by DAM owners in the case of data errors impacting DAM processes, which may feel cumbersome to stakeholders who are used to the fast pace in marketing.

It is also recommended to avoid ingesting too many fields into the DAM system from adjacent systems. It can be tempting to provide a 'one-stop shop' for assets and extend the scope of the DAM system. For example, a DAM system can ingest product attributes from a PIM or a product life-cycle management system to use on product assets. However, if one ingests the full set of product specifications 'just in case', the result will be an enormous amount of metadata cluttering both the UI, the majority of which is not relevant to any use case. The search quality

can also be negatively impacted as the metadata will become a source of potential noise in search results. The goal is not to recreate a 'light' version of the PIM inside the DAM; rather, it is to reuse metadata that will enrich assets and directly support key use cases. Here, it is worth recalling the first principle of elegant metadata design: an economical schema includes fields that are fit for DAM purposes — nothing extraneous is allowed.

USABLE

As metadata and taxonomies form the basis for search and navigation, and many other system functionalities, it is critical that they be usable for intended audiences — which may include both internal and external users. To understand whether they have found the right asset and can use it, users must be able to quickly and correctly interpret the signals provided by the metadata. Usable metadata will be clear, meaningful and well organised.

Clarity is achieved through the definition of fields and careful selection of labels in consultation with a representative set of users. They must be able to understand the intent and scope of the field at a glance, or be able to gain that understanding via system helpers like tooltips. It can be tempting to create field labels that are simple and catchy, like 'location' or 'product', but often this only serves to create ambiguity. Is that the location the asset was created or the location represented? Is that a product category or a specific product instance? Clear and precise labels will help users quickly navigate and interpret a set of search results or the applicability of a specific asset.

Meaningful metadata will employ the language of its users. As discussed in the context of controlled vocabularies, it is important to use terminology that resonates with the business users and avoids jargon that is out of context, especially important when data are being borrowed from other systems. Many newer DAM systems do make it possible to manage synonyms alongside the taxonomy, which augments the search engine's ability to bridge gaps between the metadata and typical user variations in language.

The final and possibly most important element of metadata usability is organisation. As metadata schemas have grown in size and complexity alongside DAM functionality, how metadata are presented directly affects how well users can absorb and apply the information to their task. Most DAM systems provide different options to group and label metadata fields that are thematically or functionally linked, either using different tabs or panels within the metadata viewing pane. Core metadata — metadata that are relevant to nearly everyone in any use case — should be prioritised and ordered at the top of the asset profile. Other operationally linked fields can be grouped together and labelled as such. For example, fields related to product information or rights metadata can be grouped. This allows users to jump through sections and ascertain quickly whether the information is useful to them.

Although metadata design can be relatively system-agnostic, the schema itself must eventually be converted to fit the technical and UX architecture of the chosen DAM platform. Given the strong role of metadata in DAM functionality and user interface design, the metadata modeller's role can naturally extend to guiding the configuration of metadata in the user interface. This can include the order of search facets, which fields are visible in the search result listing, which fields are included in advanced search, and the order of fields inside each metadata tab. The metadata designer should thus consider and include this level of detail during the modelling process, working with users to understand the priority of key metadata fields and their link to the core system use cases so that they can influence the system's design.

Usability is the easiest criteria to test: there are multiple usability testing methodologies that can be done 'on paper' or in the DAM system itself before launch. The schema can be validated with users in very low-tech ways, such as providing a portion of the schema in a spreadsheet along with a test set of assets and asking users to fill in the profile for the test set. There are applications to test the usability of vocabularies, such as Treejack (by Optimal Workshop) which makes it possible to set tasks for users to find specific items in a hierarchical taxonomy. This is an excellent way to validate key vocabularies such as asset types that have been developed specifically for the DAM system. System wireframes or mockups of the asset detail pages or the search interface can also be tested ahead of development.

AUTOMATED

The notion of distributing and automating metadata application has already come up multiple times but bears repeating as it can affect schema design. Knowing a field has an automated and trusted source of data can alleviate concerns about schema size or burden on the user. The metadata model should indicate whether fields are either system-generated (ie outputs of technical processes or extraction from embedded metadata, like file size or geo-location data), manually entered, or automated based on some other mechanism. The distinction between sources contributes to the calculation of whether a field is economical: a user-generated field 'costs' more than an automated field, although both must first pass the test of usefulness.

While metadata functionality mileage may vary, depending on the DAM solution vendor, automation mechanisms can include default values, entity, user or folder-based metadata inheritance, integrations with other systems, asset type templates, workflow and, more recently, artificial intelligence (AI). However, it is important to be careful with the automation of metadata because it can introduce bulk error. For example, default values may save time but they are rarely ever edited by users even if they are incorrect. AI-generated keywords save a lot of time in generating visual subjects but they can also introduce a lot of noise that affects search results. Automation is a key way to preserve the perception of a schema's efficiency and elegance while not sacrificing scope, but it is a tool to be used mindfully.

DAM TECHNOLOGY AND METADATA

As discussed, DAM platforms have evolved significantly in their approach to metadata management, presentation and use. As data are recognised as a valuable asset in their own right, companies want to capture, share and analyse more data across the whole content supply chain. More functionality is being requested to reduce the overhead in tagging and make metadata more powerful. DAM vendors are attempting to meet these requirements by adding in more sophisticated metadata management architectures, workflow tools, business unit tailored metadata templates, more extraction of embedded metadata and the use of AI.

Metadata management architecture

One of the biggest changes in metadata management in DAM systems is the move towards entity-based metadata. Instead of capturing all metadata at the asset level, some systems make it possible to create different entities — products, campaigns, locations — and manage metadata for each instance of those entities. An asset can inherit the entity's metadata by a single metadata line. For example, linking an asset to a product entity can inherit the stock keeping unit, colour, brand name and more attributes and make them searchable without having to tag the individual asset. This is a huge time-saver and also reduces errors in metadata entry. Some DAM vendors have also increased their capabilities around taxonomy

management, allowing for hierarchical vocabularies, synonyms and other metadata to help control terminology.

Workflows and templates

Workflows are a good way to move and deliver assets throughout the business and to gain approvals or feedback. Each time a user touches an asset is a chance to add metadata in a simplified and more curated way. This information can be entered either automatically or manually, usually by a simple form requesting context-specific information from a user. For example, the packaging team will know more about a product pack-shot which will then be used by the e-commerce team, so it makes sense for them to fill in that specialised information at their stage of the workflow.

The system is also capturing automatic information about who interacted with the asset, who entered the data, how long it took from one stage of a workflow to the next, and the reuse of components. This information may seem surplus, but is actually hugely valuable to companies who are now adding key performance indicators (KPIs) to their systems around asset usage. In the past it was about volume: how many assets, how many users. Now companies are smarter: they care about speed to market, how long it takes to produce assets, reuse versus recreation of assets, even the accuracy of metadata entered. With this kind of data it is possible to set KPIs and measure the success of a DAM system, justifying the cost and future development of a system.

Artificial intelligence

AI for tagging is a major selling point for companies that want a DAM system but do not want to expend too much effort on metadata. AI is often sold as a magic bullet — something to excite the end users or stakeholders attending initial vendor demos. While there are certainly benefits, the time and effort that go into having an AI tagging solution that is tailored to one specific company are not always clear. Effective AI requires a lot of training to ensure it understands and knows the assets with which it will be working; to recognise a brand logo, the AI must have many training assets already tagged with that logo before it can learn to recognise it. This is even more difficult with product recognition — show an AI a jar of coffee and it may well tag it as a can of beer.

Out-of-the-box AI is better with some images and attributes than others. Recognising people and animals is well tested; however, what AI does not do is give context on the image. Give the AI a picture of a person crying, it will assume that they are sad and tag as such. However, that person may be crying with happiness. Descriptive AI tagging can seem quite arbitrary and can depend on who trained the machine in the first place.

Extraction from files

One area of DAM technology that has certainly improved over the years is the leveraging of embedded metadata in files. Born-digital assets have always had information within them; historically, however, this was mostly mined only by archive and preservation activities, looking at who had access, the origin of files and checksums to ensure the integrity of files, especially in migration activities.[3]

Since then, agencies have entered more metadata into asset profiles, leveraging standard fields from Dublin Core, IPTC and Adobe XMP. Initially, such metadata sat within the files, and users had to transpose the information manually into corresponding fields in the DAM system. Now, the system can automatically mine a huge amount of embedded metadata from a digital asset and automatically transpose it into the right field. In addition, more DAM systems are making this a two-way conversation: a custom field in the DAM system can also be embedded

into the asset so it can be seen by an end user or mined by another system outside of the DAM environment. This use of embedded metadata is useful for the shared-load approach in entering data: agencies and other partners along the content pipeline can contribute to the metadata. However, users are at the mercy of the data entered at the source. Some of this will be machine-written, such as geolocation, camera data, time and data or capture, but some will be human written, such as description, creator and rights management, so any mistake in the source will be replicated in any systems leveraging that information. It can also be difficult to get third-party agencies to fill in data that comply with one's own business requirements (eg using controlled vocabularies). For any information being extracted from a source file, it is best practice to perform quality checks on random assets on a regular basis; even outside of checking mined data it is best practice to have scheduled quality checks on asset tagging, and this should be a KPI of any DAM system.

CHANGE MANAGEMENT

In a 2020 Gartner survey of marketing leaders who had deployed a DAM system, only 26 per cent of respondents stated they had high utilisation of their solution, following the well-known adage that access does not equal adoption when it comes to new technology.[4] Part of this is often due to overloading end users with IT systems, but much of it stems from a lack of proper change management in many areas of DAM deployment. There may be a focused team working on the technology rollout and some business process improvement, but more often than not there is no champion or long-term management role dedicated to the taxonomy and metadata.

One of the biggest risks to a DAM project is the resistance of end users to adopting new ways of working that add to their daily tasks — even more so if that new work includes metadata entry they feel they are not responsible for or will benefit them. Common feedback from end users is around the lack of resources, lack of understanding of the topic, not seeing 'what's in it for them', and the business not focusing on accessible training and resources to help answer these questions.

If time and effort have been spent creating elegant metadata, then equal time and effort must be allocated to educating users on how to use and benefit from said metadata. For this to be successful there are four areas to focus on:

- communication;
- establishing champions; and
- education and training.

Communication

For people to change their way of working, they must believe in the benefits, and this begins with setting up a clear two-way communication path. In a survey conducted by PricewaterhouseCoopers, 90 per cent of C-suite executives believed that their company paid attention to people's needs when introducing new technology, yet only about half (53 per cent) of staff said the same.[5] The executive team may well have communicated from the top down the importance of metadata and the technology for leveraging this information; however, there is often no way for those doing the day-to-day work to communicate back to senior management about the challenges they face. This two-way communication pathway (Figure 1) should include a central conduit to triage and track user feedback, allowing users to understand the strategic vision as well as to feel heard.

Establishing champions

Users are most likely to trust and want to hear lessons learned from their colleagues

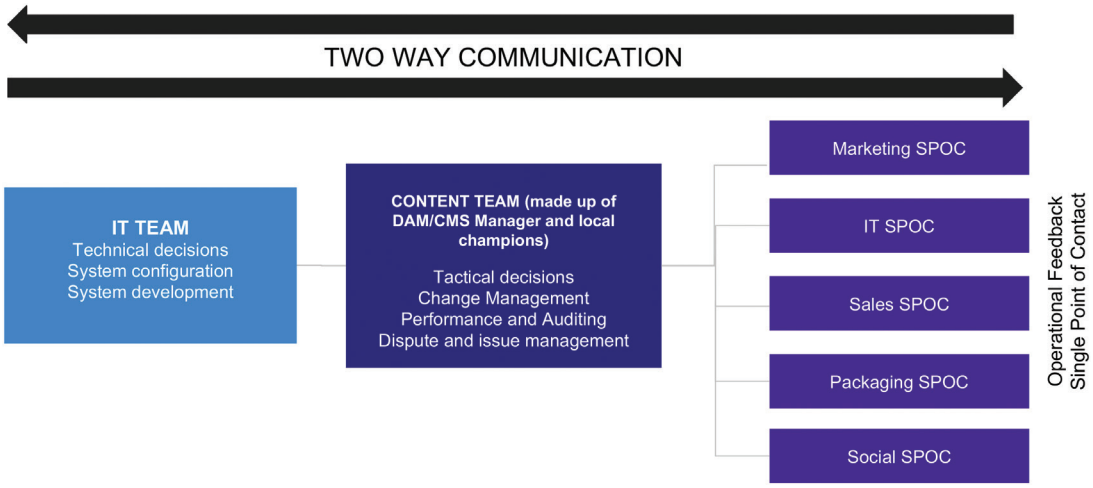

Figure 1 Two-way communication pathway

when it comes to adopting new ways of working or technologies. Trusted and knowledgeable champions can help onboard and win over users within departments because they understand the work, the processes and touch points, and where the use of metadata can both benefit and impact their role. These champions provide a key support role that can help with communication, managing feedback, establishing focus groups and other change management activities.

Education and training

Education is different from training: training is usually tactical, focusing on 'how' to enter metadata, whereas education helps users understand and buy into the 'what', 'who' and especially 'why' of metadata. Despite the widespread use of metadata, to many business users this is still a new concept, using terms and methodology they may not be familiar with. Educating users on what metadata is, who will enter it, why it is used, and how it is used to drive business value for them and the organisation will help break down the barriers and help them understand what is in it for them. Understanding more specifically who benefits, why they benefit and how, translates into a more compelling argument for the end users to embrace metadata and strive for quality.

Training is focused on teaching and improving the actual physical metadata entry. It includes system training, clear definition of fields, guidelines on how to tag, and more. However, training should not happen just once. The initial training given to users during deployment is often lost in the chaos of deployment and daily work after a period of time. Offering frequent refresher training, access to easy how-to guides, tools such as a wiki or list of frequently asked questions, and of course champion support, will ensure that users do not feel daunted by tagging and metadata management. Investing time and effort to ensure training is accessible and user-friendly will help overcome the operational obstacles that come with the deployment of a DAM system and metadata.

CONCLUSION

The importance and impacts of careful metadata design at the beginning of a new DAM implementation and throughout the system and content's life cycle are hopefully clear. The more effort is invested up front to ensure an elegant schema, the more it pays dividends in content operations. To ensure programme success, metadata modelling

and maintenance should be treated as a core project and DAM governance activity and provided with adequate resourcing.

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