
Visually speaking: An expanded role for digital media management

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Abstract In nearly all types of business endeavour, visual media objects have quietly moved far beyond their traditional role as marketing tools to become first-class documents. At the same time, the complexity of visual media objects is rapidly expanding, and now incorporates dimensionality, data and linkage as essential components. As institutions grapple with the increasing requirements for the use of visual media objects, the digital asset management (DAM) stack — staff, software, expertise — can play a central role. This paper calls for the scope of the DAM mission to be widened and for DAM tools to meet those requirements. This paper is adapted from the first chapter of 'The DAM Book 3.0, Digital Asset Management for Photography' (DAM Useful, 2018, <http://www.thedambook.com>).

KEYWORDS: photography, visual asset management, rich media, connectivity, mobile, language

INTRODUCTION

Visual communication has entered a new era. The smartphone has enabled photographic communication on every level — personal, professional and institutional. This has had a profound impact on all aspects of image creation and management — how people collect images, who use them, and how they are deployed. By understanding photography as a language, one can make sense of these changes more organically. This paper will take a moment to analyse why and how this is happening, and where this path is leading.

The rise of smartphone-based photographic communication does not diminish the traditional role of digital asset management (DAM). As more people learn

to speak the language of photography, that language becomes more useful and important. What is more, the skills that digital asset managers bring to the table only increase in value when that change is embraced.

Think of how the development of the printing press made books so much more ubiquitous. It allowed more people to join in the creation, wresting control away from those few people who had mastered the old skills. But rather than diminishing the value of books, this popularisation led to an increase in reading and the sharing of knowledge. It opened the conversation to all. As more people were capable of publishing, new voices emerged.

The new vernacular in visual speech does not wipe away the old roles — it builds on

them instead. As more people try speaking the language, they develop a better appreciation for those who have mastered photographic fluency.

NATIVE SPEAKERS

Visual asset managers, as native speakers, have an advantage in a world of photographic communication. Those who have been managing images professionally have come to understand the techniques of visual storytelling. They understand how to leverage the power of imagery to communicate ideas. Additionally, they have a good understanding of the technical landscape of imaging: object handling, colour management, usage of metadata and curation tools. There is still a need to employ traditional DAM capabilities. In fact, the need keeps increasing.

The proliferation of photography as language puts an ever-increasing premium on the ability to save, find and share photographic images. People rely on these photos for both memory and communication. Losing one's images means lose part of one's vocabulary — as if the phrases disappear forever. In many cases, it is not possible to paraphrase or rewrite — it is essential to have the image in hand in order to use it. The explosion in the number of images — and in the ways to deploy them — has increased the need for effective management.

As the importance and complexity of visual communication increases, it may be useful to consider a re-weighting of terminology. As a descriptor, 'digital' is probably less important than 'visual', at least in the context of this paper. Information management is nearly always digital, but only sometimes visual. For those focused on visual media, it may be best to highlight that component.

Once just for asset managers, now for everyone

The problems that confronted marketing professionals at the start of the digital age

are now spreading to the entire institution. In a corporate environment, photographs are essential to expressing the brand, its history, its products and the people behind the institution. Photographic images have also become essential as business documents. They can serve as record-keeping, and they document liability or protect from liability.

Photos are replacing written observation at an astounding pace. Every department of every institution is using images as part of their daily function: not just the marketing department, but human resources, facilities, IT, operations, research and management are all using photographic communication in many different forms.

In most cases, however, the tools and practices to work with photos are lagging behind the actual needs. Instead, people are managing visual imagery in fragile silos — e-mail strings, text strings, Slack channels, consumer photo apps on their PCs, smartphone apps, file-sharing services or folders. All of these 'management' methods create risk and lead to confusion.

Sometimes, even by the person who stored the images can no longer find them. In other cases, the storage location may only be accessible by the device owner. Phones and computers can get lost or stolen, or may be the personal property of someone who eventually leaves the company. To further compound matters, when computers are company property, they are often wiped clean when someone moves on.

Of course, all this should look pretty familiar to experienced DAM professionals, as centralising the storage and access to media objects has always been one of the most important functions of the trade.

MOBILE > DIGITAL

When the digital revolution hit the practice of photography in the early 2000s, it seemed like the world had been turned upside down.

Cameras looked the same from the front, but everything about shooting, processing and delivering photos changed. The mobile revolution has made that look like a small speed bump compared with the seismic changes now happening. Consider the following:

- *Mobile makes everyone a photographer.* Digital photography took film out of the equation, but cameras were still expensive and digital workflow was hard. Mobile photography is now ever-present, with cameras in nearly everyone's pocket and sharing services a click away. With mobile, photographs are cheap, plentiful, easy to make and easy to share.
- *People consume photos differently.* People are now more likely to read a web page on a mobile device than on a computer. Furthermore, each of these is more likely than reading a print copy of a publication. The small screen encourages the use of images instead of text because images are much more efficient for communication and engagement.
- *The mobile ecosystem creates and leverages data richness.* Now that we are creating and reading on mobile, it is easier to attach information to photos and to make use of that information. This encourages visual communication that includes a data component, further accelerating the evolution of our photographic language. (More on that later.)
- *Mobile removes latency.* Because mobile photos are 'born connected', the time between shooting and sharing has been reduced to a matter of seconds. This has increased engagement, now that photos can be shared in real time. Meanwhile, image processing apps have reduced the latency between shooting a photo and interpreting it in a personalised or artistic fashion, allowing for a more organic connection between shooting and processing.

An efficient way to encode and transmit information

Written language is an abstraction. The words 'red ball' have no universal inherent meaning. We are taught that words can be decoded into the ideas of *red* and *ball*. Seeing a red ball, however, entirely bypasses the translation process, and lets us know an object is both red and a ball. To be sure, shooting a photo of a ball instead of writing a description does not save a lot of space or time, but that changes when the information to communicate is more complex.

The brain is largely a visual computer, with about 30 per cent of its volume dedicated to the visual cortex. People are very good at parsing visual information for facts, context and meaning. With a quick glance, one can determine colour, size, shape, position, motion, age, sex, environment and more. Adding in learned and cultural knowledge, it is also possible to make assumptions about culture, socio-economic status, past, future, good, evil and storyline — and all of this can be packed into a tiny rectangle of 5×7 cm.

Not only is the photographic image more space-efficient in conveying information, it can also be a whole lot quicker to create. In the few seconds it takes to turn on the camera and compose, and a few more to wait for the right action, it is possible to save oneself from a lot of typing.

More importantly, the experience of viewing a picture of something typically feels more 'real' than reading about it. This is just the way the brain is built.

Not just understood, but also widely spoken

Since at least the age of magazines, we, as a culture, have become good 'readers' of images. We have come to understand the meaning of images in a certain way because photographic artists, photojournalists and editors have developed the tropes of

visual storytelling. In the film era, this was particularly hard to accomplish, as each frame of film cost money to purchase and process. Moreover, knowing the story had been adequately captured when the film was still unprocessed was a hard-won skill unto itself.

In the mobile era, the incremental cost of taking a photo is basically zero. In addition, the instant feedback that reveals success or failure can take the guesswork out of shooting. In the mobile era, taking a competent picture with proper focus and exposure is within reach of nearly everyone, for free, with equipment that is typically close at hand.

The photo creation genie is out of the bottle, and it is not going back. As the friction to take and use photos is reduced, the practice expands.

A mix of imagery, text, illustration, motion and data

Mobile photography is increasingly blurring the lines between images, video, text and data. While one can certainly find purist enclaves in mobile communities, the trend is heading inexorably to images as multimedia objects. These can include text overlays, stickers, geodata, audio, image sequences, depth information, augmented reality elements and more. The smartphone provides an inherently data-rich environment, and all that extra stuff adds to the ability to communicate.

This is perhaps most evident in Snapchat, which seamlessly allows a user to tell stories using a mix of all these media elements. Location and event databases are automatically accessed in the background and are used to add text and graphics to the image. Video and still images are treated identically, with a timeline component added to still images. Furthermore, with nearly 200 million people using these tools daily, asynchronous time-based storytelling is becoming an increasingly unremarkable method of communication.

The convergence of cameras, computers and smart display devices has created the ideal environment for imagery and data to combine and recombine organically.

Key to engagement

One of the great commercial battles of our time is the fight for user attention on mobile devices. If a company can make a compelling app, it is possible to grow unimaginably wealthy in a very short period of time. One key to success is user engagement: attracting and retaining users, and making a compelling experience that keeps them opening and using the app. Nearly every successful billion-dollar service has a very strong photographic component. Furthermore, a high proportion of these apps are *primarily* photo-driven.

Photos are an important tool for app developers because they offer important capabilities. Photos are quick and easy to 'read', even when very small, and they provide a rich amount of information. Users can easily create and share photos via apps, increasing the user's feeling of connection. In addition, if a person has photos stored in an app, they are less likely to leave it for fear of losing the photos.

Because photos play such a vital role in user engagement, there will continue to be plenty of photo development and innovation on mobile apps. This means that mobile apps are likely to be driving the photo experience for the foreseeable future. Although this does not mean traditional cameras and computers will not be part of the picture, it does highlight the importance of paying attention to the innovation that will be happening in the universe of mobile applications.

Pics or it didn't happen

Because camera phones are everywhere, people have come to expect nearly every event to be photographed. Indeed, people have become accustomed to seeing photos of anything notable that happens. This has

created an expectation that *all* notable events will be photographed. When no photo exists, people doubt the existence of an event. An entire generation of adults now express doubt with the phrase, ‘pics or it didn’t happen’.

As ever more human experience is photographed, shared and catalogued, it will become even more important to have a photograph to describe or prove the existence of an event. As people increasingly use visual methods to describe, having access to the images becomes more important.

This reliance on images as ‘proof’ of an event has a downside in the age of convincing visual forgeries. The traditional world of ‘Photoshopped’ images is moving into a world of convincing video fakes. This will make the provenance of media objects even more important, from a standpoint of trust. This is another reason to keep copies of original media files.

Transcultural, but not acultural

One advantage of photographic communication is that it can transcend the need for a shared oral or written vocabulary to interpret. An image of love, joy or danger can often be understood even when the people pictured are from a deeply foreign culture. Photography as a shared language can allow for effective communication worldwide; however, interpretation of the content in a picture may be very different between those with differing cultural perspectives. Clothing, ethnicity, the role of authority figures, and even the meaning of landscape can sharply differ across cultures. One culture’s family beach scene may look like pornography to another. Now that photographs have the ability to travel worldwide in an instant, people attempting to communicate across cultures will want to understand how these cultural differences may create alternative meanings to images. This is of particular importance for corporate and institutional entities.

SPEAKING THE LANGUAGE

Unlike other languages, photography is one that *must* be spoken with the aid of machines. Machines are necessary to capture, craft and read the language. To be sure, a machine is not necessary to view a photo that has been printed on paper, but it takes a connected device to realise the full potential of that image.

Spoken with objects

The most important feature of the language of photography is that it is spoken by using media objects. The corollaries to this are as follows:

- *Accessible storage:* You must have access to the photo in order to use it. A photo cannot be paraphrased: you either have it or you do not. It is therefore essential to have a robust, accessible and searchable repository for one’s images.
- *Centralisation of images:* One of the primary challenges for the institutional use of images is the collection and centralisation of the objects. This has been a challenge to implement for official marketing materials, but it is going to be even more difficult as the need to gather images expands.
- *Controlled access for others:* Once again, the challenges of controlling access to official marketing images is one thing, but making programmatic access control for stakeholder-sourced images will be harder and require new methodologies.
- *Tag, search and filter capabilities:* With the massive multiplication of images, it is essential to find the right one among the many stored photos. This will require deployment of artificial intelligence (AI) and machine-learning (ML) tools that are currently immature. Creating programmatic understanding of stakeholder-sourced images seems to be outside the scope of most current AI/ML ventures.

- *Rights and permission management*: The legal landscape around photos is much more complicated than with textual speech. Each image may have copyright restrictions, and people or property appearing in photos may be subject to rights limitations. While social media services have been able to bulldoze through these, the landscape will be very different for institutions that wish to make maximum use of the visual media pool.
- *Image quality and transcoding*: Textual speech is very resilient. As long as you have a copy of the words in some form, it is possible to deploy the speech in its highest quality. By contrast, once an image file has been mishandled and the quality degraded, there may be no way to recover it. Resizing, reformatting, changing colour or sending through multiple devices or software packages can all really harm an image when done incorrectly.
- *Preserving embedded and attached data*: As the value of an image increasingly resides in the metadata, so the collection, preservation and deployment of that information faces new hurdles. The vast majority of media management systems are simply not designed to do this on an institutional scale.

All of the challenges listed above are the same challenges that asset managers have traditionally focused on. As the remit of visual asset management expands into crowdsourced images, these challenges are multiplied.

Your vocabulary

In the world of photos-as-speech, your vocabulary is not made of what you know, but what you have access to. Sometimes, this is simply the scene in front of you. Take a photo, send it, and you are done. But you will often want to reference a photo that has been taken at some point in the past. We have all had the experience of spending way too much time searching for an image on their phone in order to show or send it.

Sometimes, of course, this photo will have been taken by someone else. This presents a much more complicated problem to solve. Not only is there a question of access, but there is also one of permission.

Fragility

The knowledge and the culture that is embodied in photographic speech is a fragile construct. Text is quite resilient — it can be preserved in many ways, including in human memory. Not so with photos. Furthermore, the meaning, context and even existence of photographic speech are often tied to devices, services and software that may be difficult to preserve. For example:

- *Ephemeral environments*: Sometimes the whole point of an app is to be ephemeral. Snapchat was a perfectly reasonable reaction to the notion that ‘everything you do on the internet is recorded permanently’. Sometimes you want your ‘statement’ to disappear after it has been communicated. Nevertheless, as Snapchat — and now Facebook — and Instagram Stories — has gamified the use of photos, lots of things are posted to the service that may have more lasting value.
- *Proprietary environments*: The use of proprietary environments for the creation, storing and sharing of images can also lead to loss of the photos. Web services may shut down or make a drastic pivot in their business plan.

The importance of keeping access to the media object, along with the many possible reasons for loss, strongly argue for the creation of a centralised media library under your own control, as independent as possible from software dependencies.

RIGHTS AND PERMISSIONS

People who work with DAM systems are highly attuned to usage and model rights. While this thorny issue is difficult to

administer in the world of marketing, it is likely to get more complicated as the use cases for images expand. Most importantly, there will need to be systems that can make workflow for rights programmatic.

Creators' rights

In the late 20th century — the last age of film — the copyright of images (at least in the USA) was relatively straightforward. The photographer owned the copyright at the time of capture, unless it was done under an employee agreement or work-for-hire contract. Copyright registration could be done quarterly, and this provided protection against unauthorised publication of an image. This arrangement was appropriate for an age when image reproduction was expensive and time-consuming. It allowed photographers and publishers to profit from their work and provided methods to enforce that right through lawsuit.

As institutional media libraries include more crowdsourced images, the tools in DAM systems need to accommodate new needs. The treatment of employee-created photos (probably wholly owned by the institution) and those created by customers or other stakeholders must be different.

Models' rights

There is also a body of law that protects the rights of people appearing in visual media. These laws are usually written to protect privacy or to protect one's right to make profit from one's own likeness. While these laws do not typically apply to newsworthy uses of images, they do control how a person's face may be used in advertisements. Like creators' rights, these rights were written in an age when advertising reproduction was expensive, and when people clearly understood what was meant by advertising.

Today, the tools for managing creators' rights and models' rights are sorely lacking.

Changes brought by mobile

The foundational realities that underpin the rights of creators and models have changed in the mobile age, and the laws have not caught up. Here are four specific changes that undermine the current concepts:

- *Images are being created too quickly for traditional copyright.* The pace of creation of visual media means that images are being created too quickly for the existing infrastructure. In addition, the immediacy of sharing and publication also outpaces the traditional copyright process.
- *What constitutes advertising is unclear.* In the old days, it used to be clear what constituted an advert. There were a handful of avenues, including print adverts, television adverts, brochures, and direct mail. This was a well understood and stable system for many decades. The current use of social media for promotion removes that clarity. Advertisers can use images to promote a brand on social media by re-sharing photos, or placing ads adjacent to photos they do not own or have not paid for.
- *Most visual media objects are not created with the intention of copyright protection.* There have always been non-professionals taking photos with no intention of profiting from them. But in the past, these images were usually only accessible in the photographer's house. Now these images can be (and are being) published worldwide. This means that the vast majority of images in social media channels are shared with little or no restriction. The impact of copy protection for images is diluted when photos are seamlessly integrated with a larger number of unprotected images.
- *Terms of service assert broad rights and indemnification.* Social media services have written their terms of service in very broad ways that typically prevent the creator from exerting control through copyright enforcement. These same terms

also assert a broad right to the model's rights, and require the photographer to indemnify the service and its customers against any legal action. The net effect is that the vast majority of images uploaded to social media services are free from any creator or model rights restriction as used by the service or their clients.

The issues above do not invalidate the existing body of laws protecting creators and those pictured, but as a practical matter, they make restriction largely unenforceable in many cases. This, in turn, has the practical effect of making copyright mostly irrelevant for the vast majority of images that are taken and shared.

Rights and liabilities still exist

If one accepts the premise that photography is fast becoming its own language, then one can look to textual speech to understand how things may progress. The vast majority of written or spoken words are totally free from any practical copyright protection. You *could* register copyright for every tweet you make, but this would be a fool's errand. The very nature of Twitter exists to share, copy and modify speech.

In the world of textual speech, however, copyright still exists among professionals and publishers, and they take it seriously. This is still the case for many professional photographers and also for institutions. So, while copyright is not dead, the balance of its use has been dramatically altered.

Models' rights also exist, and they may prove to be a little more tricky to navigate. One could say 'walking to work today, some psycho jerk tried to murder me with his car' and it would not create any liability. Nevertheless, were one to publish a picture of someone with the same caption, this identifies a particular person, and they may have the right to take legal action.

Institutions will need assistance navigating the waters of image rights, and this will

extend beyond simple policies decreed by the legal team. The policies will need to be informed by what is possible, what can be managed programmatically and what will still require custom contracts and oversight.

BEYOND THE RECTANGLE

As important as the visual content of imagery might be, another component is becoming even more transformative. The data that live inside an image file or are associated with an image provide a treasure trove of meaning and context. It is impossible to overstate how important this is in the language of photography. This connectivity is essential to speaking the language because it is often the paper on which the language is written. Yet, the connected data are also integral to understanding the meaning of an image. Making use of the connectivity that surrounds an image will be an essential part of leveraging images.

Images can do more than provide some kind of remote viewing. The data richness and connectivity they offer allow them to jump off the page and do something, or to create a channel of communication, or even help to foster community.

Data-rich objects

Various kinds of information may be embedded in an image or connected to it somehow; for example:

- *Embedded date and location:* Images created with a smartphone will typically include the time of capture and the GPS coordinates of the camera. This can become the key to all kinds of other data.
- *Embedded device (and therefore photographer) identifiers:* Most images will contain an identifier for the digital camera that made the picture. It is a pretty easy step to correlate the device serial number with the person who owns the device (who is typically the photographer).

- *History of posting to social media:* As a person begins to do something with the photo, additional data are created. The act of selecting and posting to social media services is both an act of curation (eg ‘I want to share this picture’) and an expression of some kind of intent (eg ‘The person in this picture is my friend’).
- *User-created text and tags:* The text that accompanies a posting or share of an image provides even more information about the subject of the photo and the intent of the photographer.
- *AI-created tags:* It is increasingly common for images to be processed at some point by AI services. This may be internal to a social media or DAM service, or it may be user-initiated. This information will continue to increase as new services reprocess old images.
- *Graph:* A set of internet relationships can be illustrated by a set of lines that show connectivity. While people tend to think of internet graphs to describe relationships between people, graphs can also describe images as they are seen, liked, commented on and shared.
- *Linked data:* All of the above information can also link out to other information (eg date and location might pinpoint a known event like a football game). This linkage can come in many forms, including some that may be invisible. This linkage will likely increase as time moves on, as more linkage comes online for people, places, events and media objects.

Photo as platform for information or commerce

As connected images become more essential for communication and engagement, image hosting creates a new opportunity to gather and disseminate information. A traditional web page uses images packaged up as JPEGs and sent out as freestanding files; however, images can also be displayed using embedding techniques. Embedded images (like

embedded videos) reside on a third-party server and are displayed in a frame or window on a web page. Such embedded objects are more complicated than freestanding images.

A YouTube video embedded on a web page is an example of an embedded object. The web page draws a box and asks the YouTube media server to fill that box with a video stream. There is a live link which runs through the webpage, between the viewer’s device and the YouTube server. Because there is a link between YouTube and the viewer, there is a two-way flow of data back and forth. This allows YouTube to gather all kinds of information, and it also allows YouTube to push out customised information through the window.

The two-way relationship provided by embedded objects creates an important set of capabilities. The media server has the opportunity to gather and use all kinds of valuable information. The media server can know who sees an image, how they got there, what they are interested in, who they interact with, what other sites they go to, what they search on and more.

The media server can also present customised information to the end viewers based on what it knows about them. These windows are basically open pipelines that serve up media on demand.

Once only for video, now also for still images

Of course, the practice outlined above has been part of the business model for video services for a long time. Videos on web pages have historically been hosted by third-party servers, and users have been accustomed to YouTube ads for more than a decade. It is, however, relatively new for still images, which could always be easily and cheaply added to web pages as JPEGs. The most significant marker for change was the introduction of free embedding by Getty Images. When the stock photography giant decided to make vast numbers of images available for

free embedding, it signalled that embedded objects were going to be an important part of its strategy moving forward. Getty has opened up millions of individual pipelines through blogs and other web pages, with the ability to collect and serve information in service of new business strategies.

The use case for images as platforms for two-way communication should be favourable moving forward. Mobile devices increasingly rely on photos instead of text headlines, and methods for connectivity are improving. In the last few years, several companies have built their business models on embedded image objects. At this writing, Getty has enjoyed the most traction with such a service, but others are trying. Retailers are using embedded images to bring buyers in, and mission-driven organisations can use them to spread their messages in a viral manner.

WHERE IS THIS HEADED FOR DAM STAFF AND VENDORS?

Thirty-five years ago, the personal computer revolution democratised the use of spreadsheets and word processors. Previously, these expensive and hard-to-use tools were only in the hands of specialists. Within a decade or so, most office workers had access to a computer. Work was transformed because it was more efficient.

New systems and expertise were required at nearly every company. Meanwhile, the people and vendors who could not cope with change were swept away. We are in the middle of a transformation in the nature and use of visual media.

There are several takeaways from this paper that DAM professionals should carefully consider and continuously re-evaluate. The new use of visual media is not a fad or a blip, but a fundamental change in

the way people communicate. Furthermore, all parts of the DAM ecosystem must expand their scope in order to address the challenges and remain relevant.

As visual media becomes ever more important for a growing number of purposes, DAM expertise will be useful in new ways within an institution. Someone is going to help guide institutions towards best practices and to develop new systems that serve the needs of media storage, classification and deployment. The DAM team has a leg up here and should be actively addressing these issues.

The changing nature of visual media itself will bring its own challenges, regardless of the departments served. The next billion iPhones will be shooting 3D images saved in new formats that are poorly supported by current DAM systems. Furthermore, managing media as data-rich connected objects is very different from freestanding images and videos. It calls for methods to add, preserve and make use of external data and connectivity.

DAM systems will also have to go through some important self-reinvention. As an established industry serving an existing purpose and clientele, the industry risks being responsive instead of being proactive. The challenges of institution-wide media object management are very different from those associated with marketing materials and broadcast/publishing alone.

The changes in the use of visual media are going to touch institution at every level. Managing this change will require coordination across nearly all departments because the uses and the implications are so broad, bridging legal, HR, IT, communications and more. Fortunately, bridging departments and priorities is a familiar process for successful DAM teams.

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