Cycle Time

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INCIDENT SINGULARITIES CREATE DEMAND FOR DIGITAL ASSETS

In this column, we will examine the application of digital asset management (DAM) to national intelligence agencies (eg MI6 and CIA), Departments of Defense, and emergency responders (eg MI5 or Homeland Security). Our examination will highlight a new facet of DAM: digital supply chains and the transformation of digital assets in finalized end-use packages. In particular, we will draw upon insights from a new report that my company just completed, “Digital Supply Chain Strategies for Multisensor Intelligence — How automated signal acquisition, format standardization, and content analyses can speed the on-demand delivery of multisensor intelligence packages to battlespace commanders, homeland first responders, and strategic decision makers.” We will make it free to all readers upon request.

Let’s start with the basic idea of *digital multisensor assets*. Myriad satellites, unmanned air vehicles, tank-mounted cameras and remote sensing devices monitor large areas of the earth, creating all types of digital files. With a digital

supply chain in place, these sensor-data files can become multisensor intelligence “packages” that provide valuable, if not mission-critical, insight for battlespace commanders, homeland first responders, and strategic decision makers. A multisensor intelligence package typically contains one or more multimedia images or sequences, as well as vetted situation analyses (the result of collaboration among globally dispersed analytic teams) and descriptive terms for subsequent retrieval from a digital repository. In a commercial context, these packages could represent a Podcast video or Flash movie delivered to a smart phone or PDA.

Figure 1 depicts a multisensor intelligence supply chain and how sensor data, once ingested and standardized, become Class One digital assets — raw, high-resolution source asset files housed within a digital asset repository. The lower portion of the figure depicts the types of digital multisensor intelligence assets that intelligence planners consider essential objects of a multisensor intelligence repository. This includes interesting asset classes such as:

- high-resolution photographic assets of

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Figure 1: A multisensor intelligence supply chain

human faces, biometrics, fingerprints and DNA sequences;

- scanned or digitized magazine articles, business documents, technical schematics and drawings, especially those items from non-English sources and for which multiple interpretations may prove valuable.

Our key lesson here entails thinking ahead: new types of asset classes will become available, placing a tremendous emphasis on an agile ingestion process and technologies.

Class Two multisensor assets acquire the bulk of their metadata, making them well-lit and easily retrievable at a moment's notice. Please note that in the multisensor intelligence supply chain, a small set of unique identifiers form the basic set of metadata. Often intelligence planners create "empty" digital asset records, prepopulating their DAM with metadata containers. This enables the automated ingestion process to flow format-standardized and metatagged

assets into the repository. It's a very slick way to get the job done.

Descriptive metadata and a particular class of metadata referred to in the figure as *unique identifiers* play a critical role in the automated transformation of raw sensor data into finalized intelligence packages. With information such as date and time created, file names, versioning and source (tasking assignment), planners rely on geospatial data to identify precise locations from which a particular photograph, video or recording of mobile phone call originated.

Also depicted in Figure 1, Class Three assets result from collaborative analysis, emphasizing a workflow among many analysis and spanning many different assets and formats. Finally, with the analysis completed and final recommended actions defined, the intelligence team can pass the Class Four asset, a finished multisensor intelligence package, to its intended users.

Figure 2 depicts a number of user and

Figure 2: A number of user and use-case scenarios

use-case scenarios, speeding the delivery of the

- right intelligence package, to the
- right user, at the
- right time, on the
- right device with the
- right quality-improvement feedback.

These five rights of multisensor intelligence call attention to a demand continuum across a progression of temporal states or use cases, ranging from anticipatory or before-the-fact analyses to historical way-after-the-fact analyses. This continuum also suggests several types of activities that span from scenario planning and threat assessment to forensic analysis and war-games

modeling. A digital multisensor asset repository provisions assets to satisfy each of these time-sensitive, need-to-know situations.

Incidents that demand the highest quality and most timely retrieval of multisensor intelligence assets include the following:

- Threat assessments include identification of possible terrorist activities and suspicious objects.
- Strategic force-structure deployments represent an ideal alignment of physical assets and personnel by battlespace commanders.
- Emergency response incidents relate to the need for first responders to avoid unnecessary dangers.

- Tactical maneuvers often mean recommendations to “go up the left side in taking that hill.”

Incident singularities define any number of high-priority, need-to-know situations by any high-priority user. The term *singularity*, borrowed from astrophysics, connotes a significant dimple or break in the space-time continuum. As we apply this notion to the cosmology of “cyberspace,” incident singularity connotes a sudden demand for intelligence and the tremendous compression of content and collaboration needed to transform raw sensor data into insight and informed action.

Items of interest describe any object within raw signal data or processed digital content that analysts and planners consider important to understand and clarify. Items of interest may include any of the following: bridges, buildings, cars and civilian homes, as well as faces, human figures, tattoos, fingerprints and other biometric data.

Derived insights suggest many types of descriptive metadata that analytic teams add to the asset. Over time, these derived assets become artifacts of institutional knowledge and a way to propagate collective lessons from past mistakes and successes.

Key lessons to apply:

- (DAM) now supports the execution of a digital supply chain strategy.
- Digital supply chains not only reduce cycle time and error rates; these chains create new and power competitive advantages.
- The digital asset repository has evolved in the “gastrointestinal” tract of the digital supply chain.
- The ingestion processes starts with raw sensor data and produces format-standardized digital files ready to place into a digital asset repository
- Placement of files in the prebuilt metadata containers automates much of the critical metatagging work.
- Once placed in the repository, editor and analyst can find each asset, using a predefined set of metadata identifiers.
- Finalized and ready for transport, the repository can provision a finalized package to a variety of users and devices.

In this column we have introduced the idea of digital supply chains and the role that DAM will continue to play well into the future. We emphasized the ingestion phase, calling attention to the need for prebuilt asset containers and a well-developed metadata model with unique identifiers. In the future, we will follow the chain through the distribution end, examining new technologies for assuring the delivery of every bit of an asset, the first time.