CONCEPT 2015

Changing the Intelligence & Information Paradigm

Edward L. Haugland

The purpose of this paper is to put forth a new concept relative to how we use information and provide intelligence. The objective is to aid the development of a mission architecture by engaging all the key elements in defining and adopting a true collaborative and information sharing process.

This paper begins with a discussion of how our current intelligence processes falsely segment information into bins or buckets, which may be useful in helping us to focus our efforts, but actually results in removing much of the inherent value of the information we collect. It discusses the impacts of such segmentation on the use of advanced technology to reinforce stove-piped processes and hinder any real innovation in our fundamental tradecraft and processes. The paper discusses information, its flow across the varied networks (e.g., human, social, military, academic, technical, etc.), and some common foundation elements (i.e., time, geography, function, and forms or modes of communication) to all information. A paradigm is put forth on how we must better study and understand the flow of information and the varied networks if we are to maintain an intelligence and information advantage over our adversaries. The final section of the paper discusses how we can use this common foundation to develop and change the paradigm of information and intelligence in a very brief description of one possible approach referred to as *Concept 2015*.

The Intelligence & Information Paradigm

How we approach, use and communicate information directly affects our value in the national security realm. It is well known that today's collection and analytical efforts segment information (into buckets) aligned to a stove-piped array of systems, functional areas, management and oversight. We in fact segment information in a manner useful to our tasks, but in a manner that places false constraints on that information. Because information has inherent ties to multiple other sets of information, by segmenting the information we remove many of these natural links from the information.

The False Segmentation of Information

For example, using a general analogy, if we pursued a generic transnational threat, we would possibly find links to some financial or economic activities used to fund the effort. In-turn, we may also identify links to specific items being constructed or built that support the threat, linking to one or more technologies, and supported by one or more individuals. The individuals have further links to local social and community networks, etc… When we place that information into a functional area – or a bucket – it usually becomes aligned to a single stove-piped process. The remaining links are likely lost because the majority of our current processes provide no common foundation for capturing, establishing, or rebuilding such links. Adding classification levels to that information we purposefully, and sometimes inadvertently, constrict its flow by limiting access to the bucket in which it is contained. As these general processes continue, we move towards and end result were we've taken information out of its original

environment, removed most links to other potential networks, and most likely captured only a subset of the information relative foundation in time, geography, functional relevance, or mode/type of communications. The author's contention is that this falsely segments the information.

Current practices try to recreate some of these linkages through the use of search tools, link analysis, and other methods. While some success is likely, attempts to restore the information's original character and value is highly dependent upon the tools, allocated time, and experience or expertise of the user. The potential of one or more users to develop a common view however is most unlikely given the lack of a common foundation and set of processes. A generalization, possibly, but the point is that current core mission processes (analysis, production, collection, dissemination) preclude or hinder our ability to use and/or realize the full potential of the information we collect as efficiently or effectively as possible.

A simple analogy may help. If we take some water out of a stream, we can gleam something from it (e.g., properties), ingest it, integrate it with other materials, etc... But, unless we establish some foundation relative to where the water came from we may no longer be able to understand or identify a variety of other related and potentially useful information. We may not be able to determine which stream it was extracted from, its relation to the local environment, identify other rivers it feeds, or know of if it serves as a source for a hydroelectric station down stream. If we identify the source of the water- as we do so with intelligence information - we usually only capture a subset of the data

relevant to its environment. If we wished to recreate some inherent linkages to support an assessment or broader understanding of that specific water or its source – the task would be very difficult because if a common foundation or processes were not previously established. In this example, because most of our bins or buckets of information do not necessarily use a common foundation to populate its stores, we may have to revisit the area, review, reconstruct, recompile other legacy information relative to the time desired, functional area being addressed, etc... The impacts can be extensive and preclude or hinder reaching the desired outcome.

Advancing Technology – Limiting Innovation

Our approach to most intelligence gathering over the last fifty-years is based on the processes established at that time, and the limitations of the technology used to support those processes. Along the way, instead of revisiting the fundamental processes used to collect, store, produce, and communicate the information in order to identify more efficient and effective process(es) of collection and intended communication, we've remained focused almost solely on the application of technology as the solution. Our focus on technology may have unintentionally solidified the various stovepipes and related internal processes, and fostered the budget battles and race to develop many of the same basic communication tools (e.g., search, production, infrastructures, storage). By focusing on technology, we've not leveraged the inherent synergies between the stovepipes, useful competition in development of tools, or directed and prioritized our advances to ensure the greatest potential impact. Our tendency to focus on technology as "the" solution actually strengthened the current stovepipes.

The results, except in small parts of the community, is a community that has ceased to innovate. Tradecraft hasn't significantly changed over the last twenty-plus years. Sure, there are some examples, and technology has provided some new alternatives and advantages, but one could probably argue most advances occur in a very focused area and are not part of any mainstream solution.

Only recently have we revived efforts to look at the fundamental way we use information, the technologies involved, etc... Why? The obvious answer is the impact of 9-11. The not so obvious answer, but a critically important one, is the rampant pace of information technology, increased speed of communication, and rabid growth of new networks (human, social, technical, etc...) has threatened to remove the critical advantage – a shorter information and decision loop – we have over our adversaries relative to the use of information and providing intelligence. If we are to ensure the value of intelligence for the future, we must begin to address information from a new paradigm.

We are not able to take full advantage of the information we collect because we capture only pieces of its original foundation. Our processes quickly relegate vast amounts of information into legacy bins. We stamp it with our classification level – and by doing so further remove any natural links to outside networks (social, economic, other technical, etc.) while limiting its links to our own technical and information networks. Because our processes focus on the use of classified data in our bins or buckets, our analysts tend to avoid the most abundant of resources – open source. Although the eighty-five percent solution may be available in seconds or minutes via use of open source, our processes are

not currently aligned, integrated, or taught in a manner that allows the analyst to fulfill such a prophecy. Current processes avoid using data stores that do not support the retention of one our preordained technical collection means – or stovepipes. The current process removed much of our potential to provide timely, actionable, and specific intelligence.

Understanding the Flow of Information - the Lifeblood of Democracy

As noted above, information flows via a variety of human, social, political, military, community, and other networks. The networks change dynamically but maintain some relation to a common foundation of function, geography, time, and mode/type of communication. To retain an advantage in intelligence we must begin to increase our understanding of the varied networks and flows of information.

The flow of information has grown dramatically as society progressed from an agrarian, to industrial, then technology, into the information age. Like and infant growing to an adult, the networks (or veins) of information have grown with time. In those places where the information was constricted or controlled, the societal growth factor regressed, in places where it grew, society advanced and totalitarian regimes fell. While this may be an overgeneralization, the flow of information serves as the lifeblood for democracy and the archenemy of dictatorships. The control of its flow, content, and meaning separate those who desire peace from those who wish to lead a jihad. While it is the author's contention that the study of information and its flow can be used to proactively assess and determine the potential actions, politics, solutions and develop strategies for addressing

such areas by affecting the flow of information – that is another concept and theory for discussion that goes beyond the scope of this paper. However, understanding the potential is key to the concept put forth in these pages.

If we are to proactively interdict, plan, prevent, or address threats we need to understand what veins and networks of information are helping, and which are hindering our progress. We need to understand, when and where we can enter the flow to extract, affect, change, or stop. And we need to understand when and where we need to create new veins of information to assist the flow and use of information to support our national security goals. We must begin to treat information in a way akin to how the surgeons and specialists look at the flow of blood and oxygen in the human body. Intelligence must use, study, and understand information as it crosses the world. Information is the lifeblood of all societies – used for both good (truthful and purposeful) and bad (faulty and limited) purposes.

For intelligence to remain as a viable tip of the spear, serving the forward edge of democracy, our national security requires a renewed focus and study on how we can take full advantage of information for intelligence purposes. We must revisit the fundamental processes and change the paradigm of how it is collected, used and communicated.

If we limit our collection and analysis to a subset of the available networks (i.e., human, social, academic, military, etc…), and continue to falsely segment intelligence, we will reinforce and expand our current limitations. These limitations impact information

sharing, use of timely intelligence, and require bigger and more powerful tools to discern relationships that were evident from the start – but are not mapped using on a common foundation, based on agreed upon standards or tools, or relayed and communicated via similar protocols of communication and/or processes. Unless we alter our current path, we will continue spend more and more time collecting legacy data, analyzing that legacy data, while the information flow and decision loops of our adversaries continue on past us. We will self-inflict a fatal blow to our ability to proactively identify, deter or act. In doing, we will lessen our value to national security. We will be treating the symptoms of the cancers in the world, rather then preventing them.

Realizing the Dynamics of Open Source Information

A quick example may help to highlight of how our current approach to information and intelligence is leading to such an outcome. The advent of 24-hour news was a realization by the commercial sector of the ever changing dynamic of information, human communication, and continued growth in the variety of networks (again, social, human, technical) available as sources. It is an attempt to keep up with the information age. The intelligence community, rather then learning from this effort, tried to mirror the structure in our production. We failed. We failed because we tried to own and operate, vice leverage and exploit, the varied networks of information. Whether a power black out, or explosion half way around the world, it will be hard to beat the 24-hour news cycle in reporting because they have more nodes, tied into more of the varied networks, then we can every imagine.

For the purposes of our present situation, we can begin to understand the relation of information flow across the varied networks and start using a common foundation by which we identify, leverage and exploit these resources. More so, we can begin to look at methodologies and develop processes to help us better understand, map, track and react to the varied flow and types of information across these networks so when a crisis occurs, we can use that understanding to affect a positive and timely response, preventive action, or prevent unwanted outcomes.

The 24-hour news reporting is based on multiple open sources. The use of open sources is not very well integrated into most of our current intelligence processes. So while our analyst's segment the information into our bins, they turn on a 24-hour news station to see what's happening in the real world. How ironic it would be if those providing the latest and greatest intelligence (dealing with a legacy approach to using information while preparing intelligence) view breaking news on the television in front of them that obliterates the value, timeliness or betters the content of their efforts. The premise of the argument is real and has probably occurred. However, we can lessen the chances of such an occurrence by beginning to change the information and intelligence paradigm.

Communication remains key!

To change the paradigm of intelligence and information, the community and greater national security framework (NSF)[1] must return to some simple basics – and figure out how we wish to communicate with one another, our allies and partners, and our

---

[1] Key security instruments (i.e., diplomatic, political, military, academia, industrial base, etc... of this country) working together in an integrated manner in support of national security.

adversaries. The old saying "the hurrier we go, the behinder we get" may be aptly applied to our efforts to define an information-sharing environment. As information has a common foundation in time, geography, and functional area or topic— the networks in which it exists also has a common foundation. That foundation is referred to as communication. Communication in its simplest form occurs via a set of inputs and outputs. These inputs and outputs are a process. A standard process or set of processes, well defined and understood facilitates their use by others – enabling the expansion of communication. If we are to advance within the information age, we must find ways to ensure we retain any advantages in our decision and information loops over that of our adversaries. Ensuring we can communicate effectively – however simple that may seem – is a complicated, thankless, and hard process that revolves around policy, people and protocols. After we've figured that out, technology can be very useful.

Simplifying Communication – What's the Protocol?

In simple good old-fashioned communication, a process or set of processes is involved. In determining how the community will collaborate and share – it appears we've sort of bypassed review of this fundamental understanding. So, let's take a step back and look to the mission managers (leaders of collection, analysis, etc.) to initiate efforts to clearly detail, define, and implement a set of collaborative and information sharing processes (through policy and guidelines) to help us communicate across the IC, federal, state, local and tribal levels. I specifically mention policy and guidelines, for as technology and the varied nature of networks change, we must change with them and not glue ourselves into another set of stovepipes.

The processes must allow for a variety of inputs/outputs into/from other networks (human, technical, government, academia and other). It's high time we've moved the problem away from the realm of information technology, to the place it belongs – those who are doing the communicating. Once they define the processes for communication – then technology can be applied to simplify, speed-up, create efficiencies, and drive effectiveness. Until then, throwing more tools and technology only seems to further hinder our ability to determine how we wish to communicate by driving stove-piped efforts or turf battles over which tool is best.

What are some basic traits of this communication protocol? The process needs to ensure we do not overly or inadvertently falsely segment the information. We must ensure processes developed are the basis for requirements use in developing options and strategies for the application of technology. We must strive to develop an approach and process that leverages information in support of our functional needs. We must ensure the information is understood relative to its geographic relations. We must ensure that any time stamps are used in a manner driving actionable, proactive, responses or for thoughtful analysis of strategic trends over time. Such effort should provide for linkages across time, function, geography, and communication mode/node to maintain the full relevance and utility of the information. And finally, the process needs to ensure the safety of the information, assist in highlighting gaps, and provide a common picture for the same question. This is possible. It has been for some time. So, let's take a look at one possible solution.

Having set the stage for changing the paradigm of information and intelligence, the remainder of this paper provides some insights into one possible way forward. The following description of *Concept 2015* establishes a possible view of tomorrow, suggests use of a common foundation in approaching the use of information, and then attempts to walk through a set of graphics and explanations that provide a general overview on how the process would work. The intent is not to dictate a solution, but rather offer one option, that can serve as a point of departure for future discussion as we move toward implementing a new paradigm.

Concept 2015 – Implementing the Information and Intelligence Paradigm

Developing and implementing a process that has a common functional foundation requires us to understand where we are today, and what where we need to be tomorrow. The table below provides a one-for-one view of today's venue and a desired outcome for tomorrow.

Establishing a Common Foundation for Collaboration & Sharing

To develop a useful process, we must set a foundation that is simple, logical and adaptable. The information and data should be captured and tied to a common foundation as described previously in this paper. Our approach to production, analysis

Today	Tomorrow
Falsely segmented, organized into stove-pipes	Common foundation used to ensure full utility of data (i.e., geographic, functional, time and mode/node of communication) stores
SCI dominant – limited use of open source	Unclass and collateral dominate information holdings, SCI provides the crown jewel
Stove-piped, duplicative, and slow –Quick answer in hours –Detailed answer in months	Validation and verification to identify sources and confidence level (new profession -- info hunters) - 80% solution in seconds (Unclass and collateral), - 95% plus solution in minutes (SCI unique/final validation)
Collection quagmire	Defined business processes delivers comprehensive analysis, limited production, and refined collection aligned to top priorities - Gaps readily identifiable
Multiple tools and infrastructures and lots of dollars	Prioritized, synergistic, and purposefully redundant tools and infrastructure - Processes are clearly defined and standardized
Multiple security issues –Limited means to I.D. insider threat	Enhanced security control, monitoring, and impact - Profiling to threat

and collection must be logical and methodical while using standards to ensure retain the inherent value and linkage of the information, provide for easy interpretation and access, and integrate intelligence efforts using the common foundation. The process requires us to define our data and information stores, and based on prioritization of issues and ensuring efficient use of analytic resources, delegate production of information and analysis to fill those defined stores. The process must allow for competing views, and provide a means to capture the variances in view of the same information.

As we fill our bins, we will avoid falsely segmenting the data and retain a greater percentage of full value and inherent relations of the information based on using a common foundation in our collection and retention processes. The metrics of the process

will provide continued feedback to refine, transform, innovate and ensure the efficiency and effectiveness of the processes involved.

Consciousness, Understanding, Knowledge and Intelligence

The three graphics depict how this process would unfold. Assuming an agreement on some basic communication and collaboration processes, the intelligence effort begins by filling our traditional bins. But in this case the bins are being filled using a common foundation, via an agreed set of processes for communication and collaboration, thereby retaining a greater share of the value of the information.

Graphic #1 below depicts the selection of one notional spot on the earth. At that one location, we decide to establish three information bins (military, bio-tech, and economics). The premise of this concept is that for any one spot on the earth, only so much information exists about those three specific functional areas, and at a specific time. The first step in the process is to begin filling each of the bins selected (i.e., selection of the bins and locations can easily be based on use of the national priorities framework). As we fill each bin, we tag the information with relevant time, geospatial, and functional tags. We also identify the source(s) and/or modes/nodes of communication by which it was obtained. As we look at the information across the varied networks we use to fill the bins, we begin to gain a conscious understanding of each bin. Because of the inherent links between the networks and common foundation related to the information, we can also begin to establish relations and links to the other functional areas (bins) at that specific location.
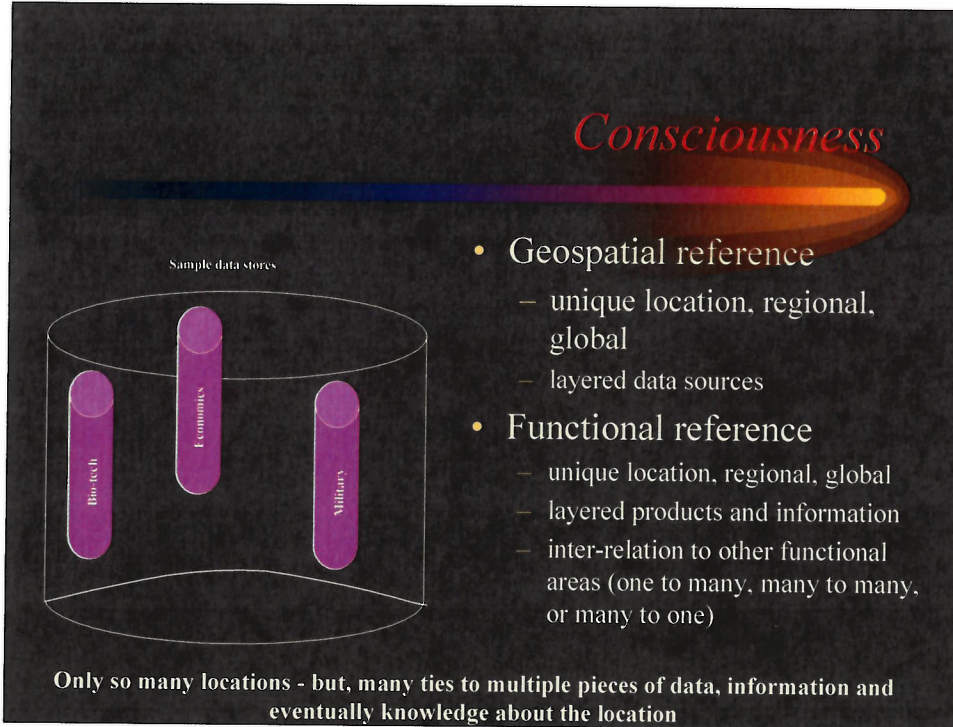
Graphic 1: Developing a conscious view of the information.

This initial step provides a simple level of consciousness regarding our functional areas. To facilitate population of such bins, we can use readily accessible sources (open source – 85% solution in seconds/minutes). In our processes, we can ensure a validation process that defines the quality of the information source(s). The parallel efforts used today will add various classified source information in much the same way.

To ensure we can share the information more readily, we can also build into the process a means to denote the quality and/or reliability of the information that is detached from the source.

As we fill such bins of information, over a varied set of geographic locations (Graphic 2), we begin to gain a true understanding of relationships, activity, links, etc… relative to each functional area.   We also gain a great deal of insight into the relations between functional areas. Because we've used a common foundation for our information, we can significantly broaden our view of what is occurring in the bins, at what time, relative to a specific location.   This process continues across multiple functional and geographic areas using the common foundation, communication and collaborative processes.
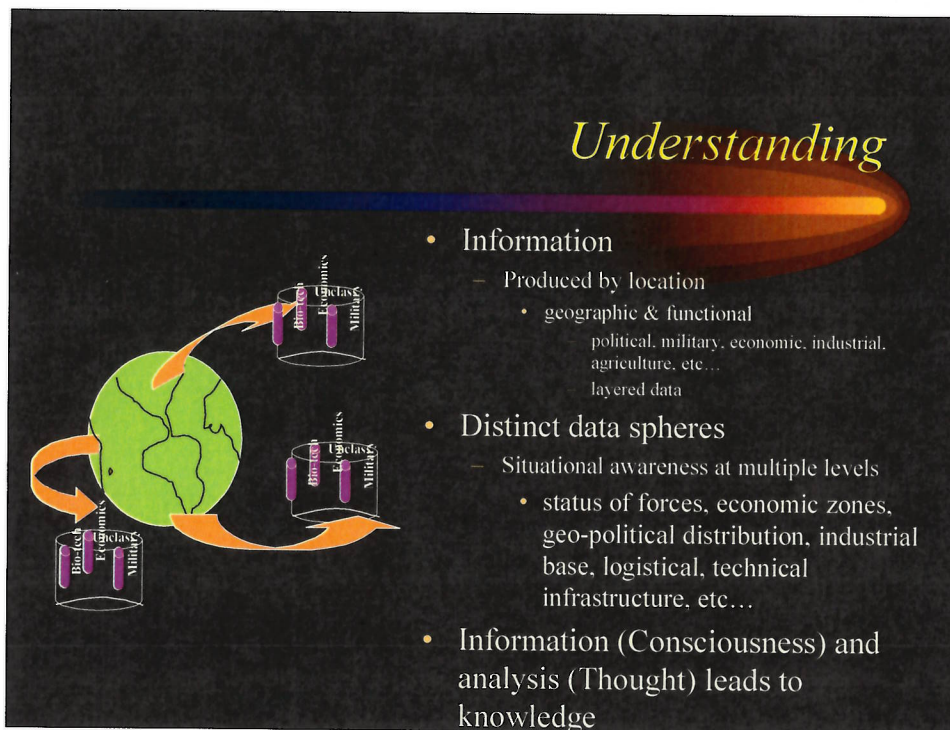
Graphic 2: Developing an understanding of the information.

The inherent linkages that begin to develop between, across, and among groups of like bins of information (e.g., biotechnology, military, industry) provide us with a fuller understanding of the information, relations, flow and sources.

The process continues develop in real-time (Graphic 3) allowing those who gather, access or use the information to begin to discern patterns, intent, relations, etc… leading to key knowledge. The knowledge when applied becomes actionable intelligence.
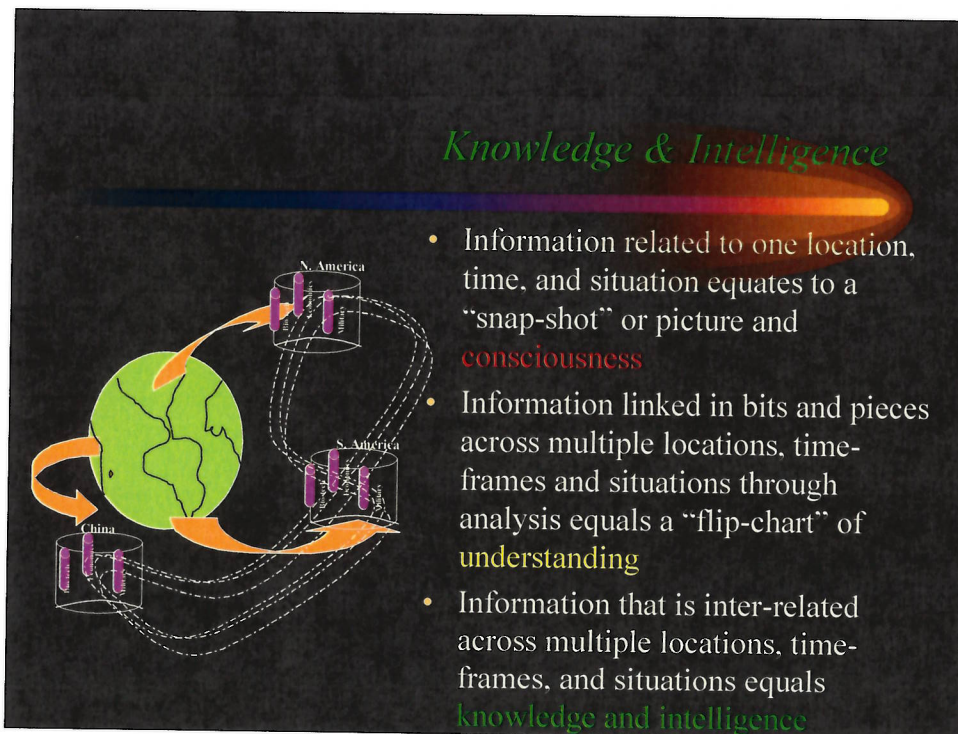
Graphic 3: Developing knowledge and intelligence.

Overtime, the process supports both near-term and strategic analysis of trends, relations, and developments. But, the common foundation allows those using the information to quickly move from the simple bins (false segmentation) to understand the full cycle of the information, its flows, the various networks involved and the various functional or topical areas it touches. In this manner a more complete picture is obtainable. More so, as we fill the bins, and the sources are tagged, time is stamped, etc… against a common foundation we allow for access of that information expeditiously and in a manner that is

linked to the individual's role and position. As the information is based on a common foundation, communication and collaborative set of processes, we can begin to control the display of that information in a manner not only suitable to the user, but also suitable to meet the need for actionable intelligence while protecting our crown jewels. Profiles can be established for users, analysts, etc… We move from a state of consciousness, to understanding, to knowledge and useful intelligence via such a process. Graphic 4 below provides a simplistic view of the end result.
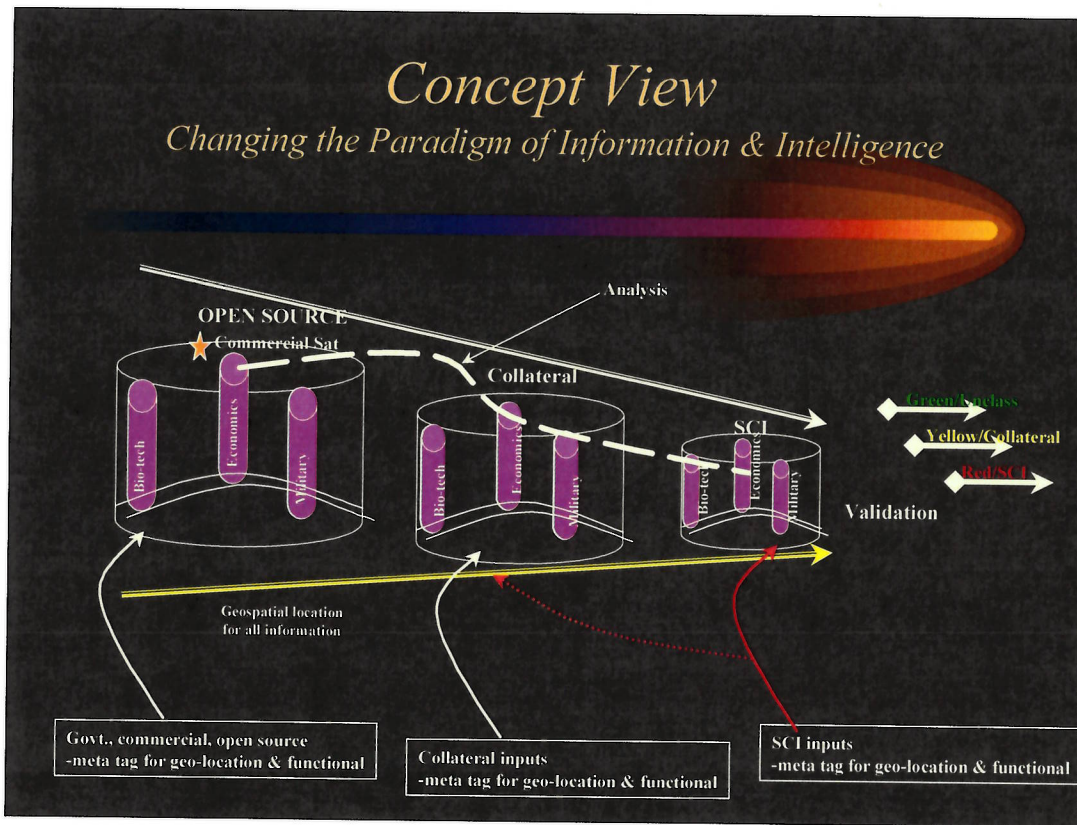
As we begin to utilize the process fully – in a distinct manner that ensures it is not hindered by ties to legacy elements, processes, or systems – we drive a paradigm shift in how we use information and intelligence.

The graphic above depicts large open source stores with smaller specialized intelligence stores. It reflects the reality of the information environment. The common foundation we used to fill the bins helps us to maintain most of its original value of the information and its relationships (e.g., links, relations, ties to other networks). As time moves forward, the bins may change, but the relations remain. The issue of legacy data, becomes in itself a legacy problem – if we have agreed on the standards, protocols, etc…

And notionally, if the Secretary of Defense, a soldier in the field, or an analyst at some center all ask the same question – they will be getting back the same answer. How we chose to display the information, details of content, etc… is a matter of deciding on protocols and then applying technology. The display (information content, level of information and detail, etc.) can be based on their role and position. The potential benefits of such a process are multifold. A short list is provided below.

Potential Benefits

- On-demand **common** "view" to multiple levels of decision makers at various security levels (**80-90% solution in shorter time**)
- Cost avoidance
  - Infrastructure common and fused (**80-90% COTS more likely**)
  - Refined business processes eliminates duplication
  - Fused data, information, knowledge stores
  - Technology updates & insertion enhanced
  - Data, tools, commercial imagery, security
- Refined collection from greater number of sources
  - Increased use of open commercial sources
- Mission focus -- vice infrastructure & tools
  - Refine focus on numbers and types of collection assets to specific mission benefit - brunt of tasks collected commercial, tactical, theater
- Enhanced security & detection
  - First time audit across data domains
  - Better control of data and access across functional areas
- Increased
  - Use of unclassified and collateral with SCI exception
  - Collaboration set in specific security domains

- o National Security through a common picture to decision makers at multiple levels (e.g., tactical to national)
- o Retention and utility of analysts and technical personnel
- o IT competency, senior analysts more focused
- o Outsourcing as required/on demand
- o IT, Analysis, production, etc.
- o Analysis quality and timeliness via better processes
- o Collection efficiency and effectiveness
- Decreased
  - o Conflicting "views" to decision makers
  - o Production time (e.g., get answer and/or common "view")
  - o Number and type of products
  - o Infrastructure
  - o Redundant technology efforts
  - o Dependencies
  - o Turn-over

Conclusion

This concept offers one potential road map to better intelligence, information sharing, and collaboration across the NSF. We must think and view information in a different light, if we are to take full advantage of it. And, we must begin by understanding how we can tie into these varied networks (human and other) and how we wish to communicate.

While *Concept 2015* offers one viable path to changing our intelligence paradigm, it is intended more as a point of departure, and use as a possible guide, for discussions. Communication is one of the most difficult challenges we face on a daily basis. It's critical to our success. The information we relay can mean the difference between life and death of an individual or our democracy, we must ensure it is actionable, timely, and specific. Information *is* the lifeblood of our survival and democracy. We can ill afford to find the processes we're using to communicate critical information, and coordinate or take action, are different then those used by the intended recipient. Changing a legacy culture of fifty-plus years raised, trained and rewarded based on protecting and expanding the current stovepipes will be hard, but not impossible.