



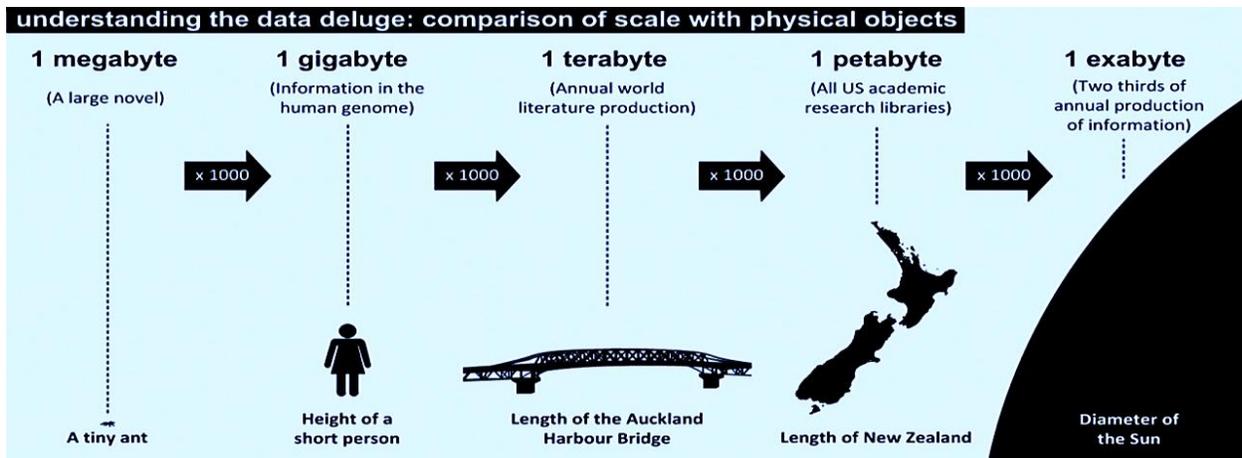
Data Operations Development

By: Nevin "Mustang" Taylor

The information revolution is in full swing, transitioning the world rapidly into the age of knowledge. A plethora of terms from Artificial Intelligence, Machine Learning, and Analytics has awakened the need to leverage technological tools to facilitate making the right decisions with higher fidelity than previously thought possible. With an ever-increasing demand signal for data to inform decisions, the need to establish a platform, like a library to store, structure, and sustain the demand signal for data, is a critical capability for making informed decisions. Likewise, a pipeline that provides a timely relational context for the flow of information is an essential component in the maturation of knowledge that feeds the cognitive process critical to making wise choices.

As we appreciate the causal relationship between actions and anticipated outcomes, we understand the interdependent factors that drive the motivation to achieve them. It is through the wisdom to acknowledge the potential of outcomes predicated on current circumstances that the benefits of actualizing data as a vital strategic asset for the organization's propensity for success are realized. It is thus critical to have the correct information at the right place and time to achieve a competitive advantage in today's interconnected world.

Data serve as the foundation of facts upon which decisions are made. Thus, unencumbered access is imperative if reliable choices are to be made, given the available options to capitalize on evolving opportunities. Like the books in a library that provide historical context for the knowledge of the ages, we must collectively store and structure data so that it is visible, accessible, and understandable. Therefore, a mechanism to ensure it is fit for purpose and operationally relevant will provide reliable and timely information upon which to mature knowledge that can potentially surpass understanding. It is through this elementary process that a standard reference is established upon which to contextualize and mature knowledge that affords the means to evolve the cognitive process to make enlightened decisions.



Given the growing demand signal, data is being produced at an alarming rate. However, as John Naisbitt identified, “we are drowning in information but starved for knowledge.” Given the complexity, which is a direct result of a lack of structure, we are inundated with vast amounts of data that exceed our current capacity to manage effectively. This onslaught of information continues to grow, as does the insatiable quest for knowledge. The results is an unsupportable desire to make informed decisions given the lack of current structure to provide sufficient references to past actions and outcomes. This, coupled with growing perturbations from analysis paralysis, feeds society’s risk aversion to the consequences of making mistakes.

Therefore, a formal process must be established, with standards for assessing and characterizing this environment, to enlighten and empower decision makers to evolve iteratively (ACE). Through this approach, the ability to effectively **collect** and **catalog** data will enable it to be registered and defined, ensuring it is discoverable. Secondly, by providing structure, it will allow searching a vast array of data, similar to the Dewey Decimal System in place in most libraries. Third, the need to **correlate the resulting facts into a query will assure contextual** understanding.

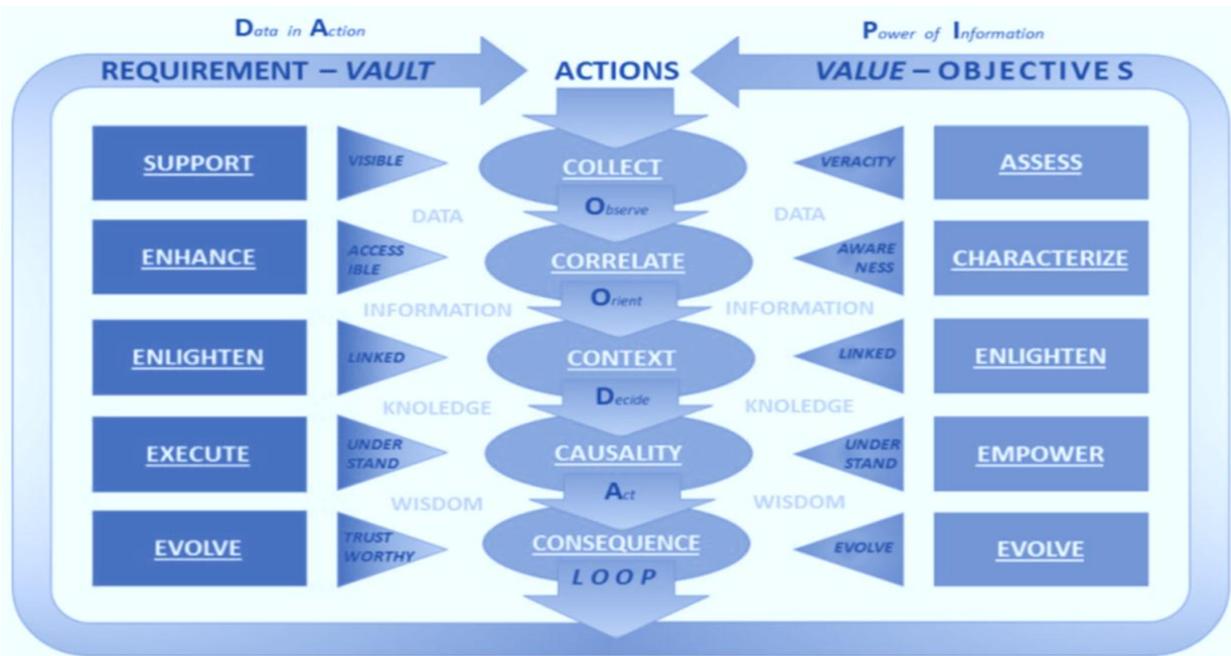
Recent progress in machine-to-machine processing and autonomous transactions within this system provides the means to digest and contextualize analytical information using artificial intelligence. The need to ascertain the **Cost/Benefit** analysis to inform our ability to understand dependencies and thereby characterize the cause and effect or causality of actions taken, measured against results to be achieved, is the key factor in predicting potential **consequences**. Through this iterative approach to learn and evolving, we must remain focused on actualizing opportunities through a **coordinated** process that **communicates** and synchronizes progress in a collaborative endeavor. It is through this process that we can achieve synergistic engagement in our ongoing efforts to achieve organizational objectives.

The ten steps (collect, catalogue, correlate, contextualize, cost/benefit, coordinate, communicate, causality, and consequence) are referred to as 10C and illustrated below to outline the evolving nature of this integrative process. It provides a functional framework for building a data architecture that ensures data is fit for purpose, operationally relevant, and leveraged to fulfill organizational objectives. To achieve these objectives, it is necessary to establish a foundational platform and production capability to leverage data as a strategic asset. It is through the maturation of this formalized endeavor that contextual knowledge will inform and evolve understanding.

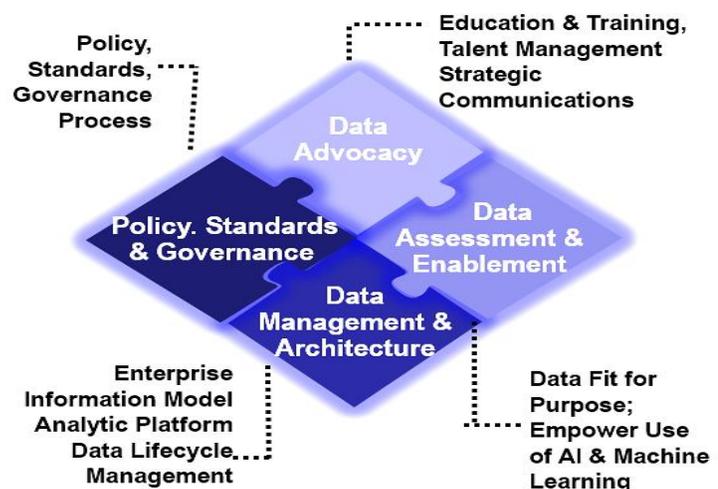
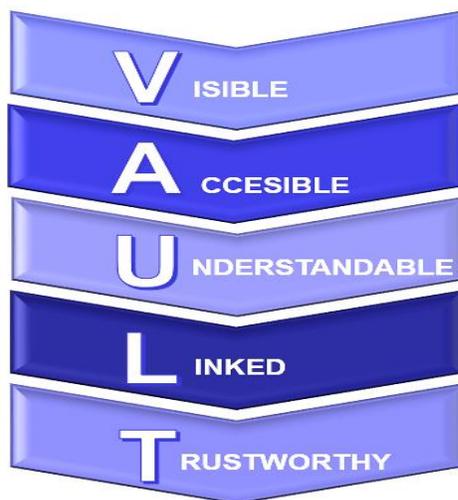
| | | | |
|--------------------------------------|----------------------------|-------------------|------------------|
| OBSERVE | PROBABILITY | SCIENCE | OBJECTIVE |
| 1C. Collect 2C. Catalogue | Store Structure | DATA INFO | WHAT WHERE |
| OREINT | PERSPECTIVE | ART | OBJECTIVE |
| 3C. Correlate 4C. Context | Relate Understand | FOR SA | HOW WHEN |
| DECIDE | POTENTIAL | THINK | OBJECTIVE |
| 5C. Cost/Benefit 6C. Characterize | Assess Know | ST KO | WHY |
| ACT | PERFORM | ENGAGE | OBJECTIVE |
| 7C. Coordinate 8C. Communicate | Synchronize Disseminate | C2 CTO | WHO |
| LOOP | PERPETUATE | EFFECT | OBJECTIVE |
| 9C. Causality 10C. Consequence | Dependencies Results | Feedback Trend | LEARN |

To operationalize this effort, it is essential to create a data platform that registers and deconflicts authoritative data sources. The result of this mechanism is a dictionary that serves as an authoritative source, identifies standard references to ensure everyone is on the same page, and facilitates collaboration through an enterprise data dictionary (EDD). At the second stage of the process, the information is structured to provide a catalog that identifies where it is and how to access it through an information asset catalog (IAC). The EDD and IAC serve as the foundation upon which data can be made visible, so that it can be discovered and information accessible, allowing it to be searched. The result is well-organized and structured data that can be easily shared across the enterprise.

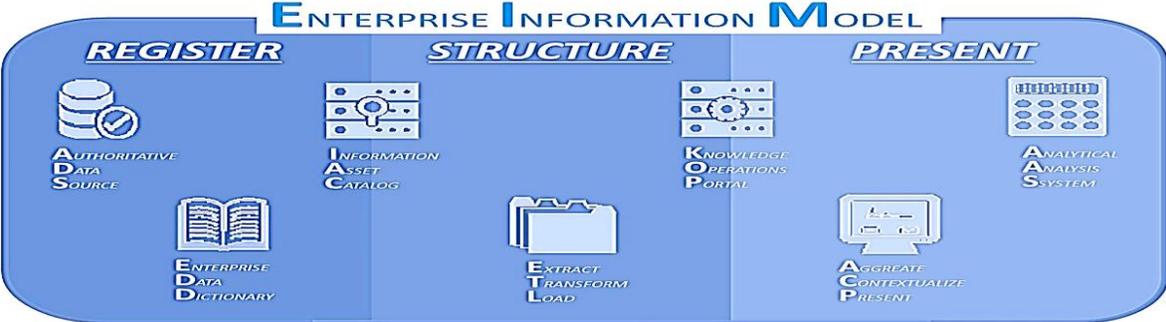
As the demand for timely information continues to expand, the volume of data and associated complexities is growing exponentially. Therefore, measures must be established to assess the quality of data and the level of confidence that can be placed in the relationships essential to operationalize and harvest its inherent value. Thus, an enterprise information model is foundational to effectively operationalizing data through the aforementioned 10C process. This three-step approach of registering collected data into an enterprise data dictionary and structuring it into an information asset catalog provides an integrated, contextual picture that enables leveraging operational options that capitalize on organizational opportunities.



The following process of making data visible, information accessible, knowledge understandable, and linking them in a way that enlightens, empowers, and expands awareness provides a propensity to make wise choices. Over time, the veracity of the data and the confidence in the relationships will establish the trustworthiness of the facts and dependencies within the cognitive process (VAULT). The resulting iterative, three-step approach to leverage this VAULT framework will enable the organization to move beyond traditional data resource management and operationalize it in a way that garners the means to harvest the inherent VALUE of information. The resulting policies will establish the requisite standards and processes to enable collaboration in leveraging data as a strategic asset.

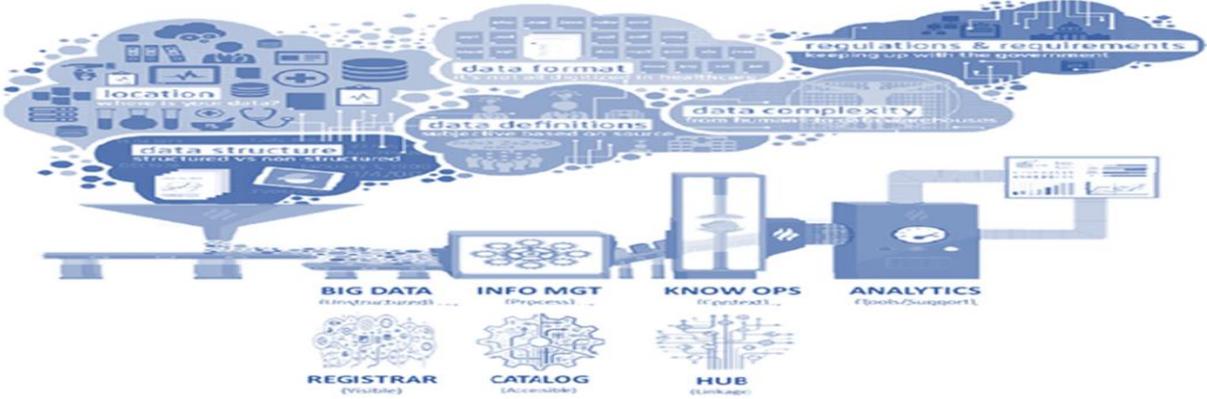


To achieve this, it is necessary to establish an enterprise information model (EIM) to formalize a data architecture to ensure collaboration across the enterprise. This strategic framework is the blueprint for building a platform to ensure data availability across the organization. It serves as the foundation for establishing a data-driven organization. It is the source of knowledge and is the reference upon which operational decisions are made. Ultimately, this platform provides the vehicle to disseminate knowledge, empower decision-making, and evolve through a progressive approach to learning in today's interconnected work environment.

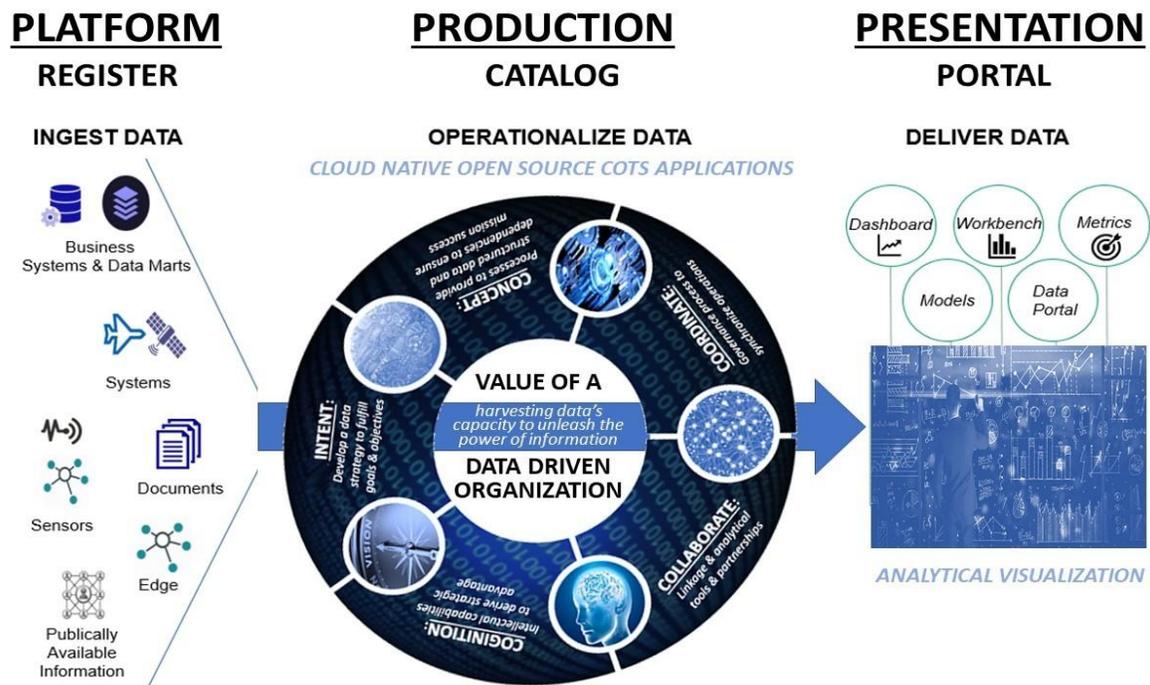


The following cloud-based system offers a framework to ensure the enterprise's access to data. This is essential to their ability to **access** veracity, **characterize** relationships, **enlighten** dependencies, and **empower** actions that **evolve** (ACE) opportunities to provide quintessential analytics analysis necessary to support the cognitive process. It is through this endeavor that we can expand the Art of the Possible with the current confines of the Science of the Probable.

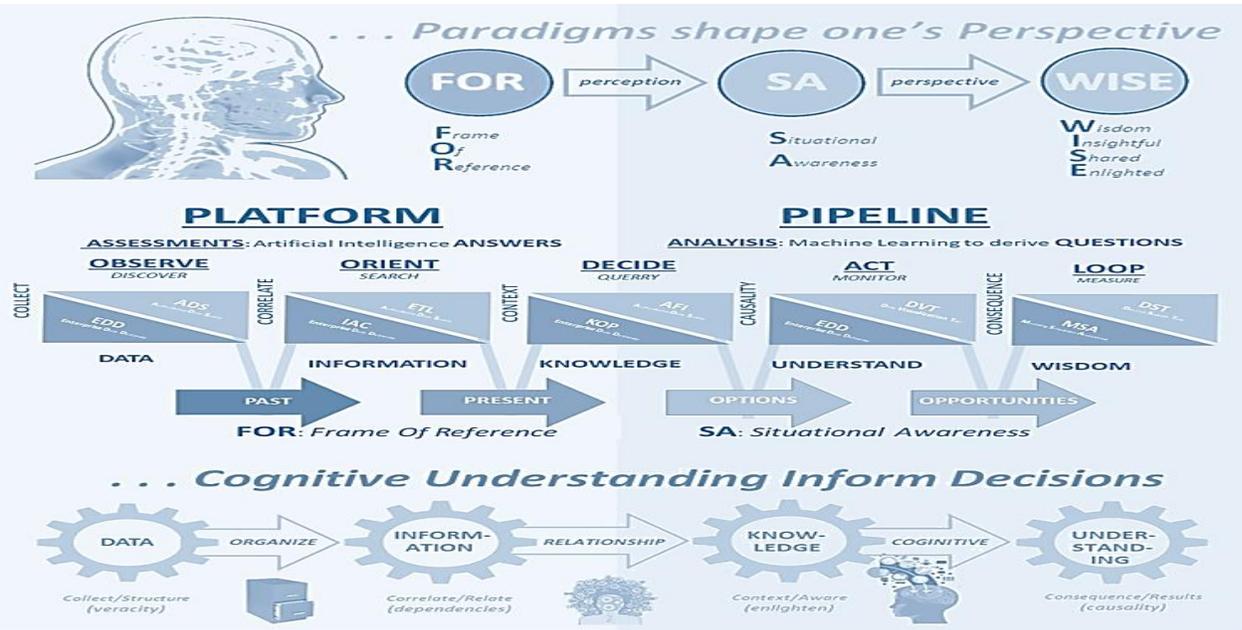
With the assistance of technology, we are now able to consistently matrix and measure the maturation of data from ingestion through all phases of operations to inform and evolve situational awareness. It is this process that affords the means of validation through prescriptive modeling and heightened awareness derived from predictive modeling to manage expectation. New to the system is the advent of potentiality modeling to manage consequence management of probable and possible outcomes.



Assessing past performance and characterizing the current state offers the opportunity to ascertain options and potential opportunities in the future state. It is through this process that a data driven organization leverages data as a strategic asset to harvest the potential to make informed decision given current circumstances. To achieve this, a strong foundation upon which the initial operational capabilities (IOC) derive the aforementioned 10C step process is necessary to manage and mature data. Once the platform is built the process of operationalizing data to enlighten, empower and evolve (E3) the organization is accomplished through harvest value throughout the production phase of registering, cataloging and presenting data.



Building a data-driven organization is like building a house, you must identify those capabilities/functions you need and create an architecture that provides those specific services. Once complete, a foundational platform will be developed to support those functions that are necessary to achieve organizational objectives. Once in place, a the production facility provides for the requisite functionality to enhance mission effectiveness. A feedback loop measures progress toward organizational objectives that serve overarching goals. Through this iterative process of transformation, the necessary growth, adaptation, and progress is achieved to support, enhance, and evolve (SEE) mission success.



The aforementioned chart outlines the process for establishing the platform and pipeline required for a data-driven organization. It illustrates the steps and the maturation process for evolving knowledge that surpasses understanding. By leveraging the capabilities and functionality of both the platform and the production plant, the ability to unlock the VAULT of understanding and derive VALUE will respectively enable informed, wise choices. Through a proactive, iterative approach to learning, the potential to achieve objectives that fulfill organizational goals can be assured. The ascribed approach to illustrate the options identified by a data-driven organization will illuminate the opportunities to capitalize on a fact-based approach to inform a cognitive approach that leverages data as a vital organizational strategic asset.



