

# In God We Trust, All Others Use Data

Aiding better decision making by commanders

by CWO4 Robert J. Toole

**T**he title of this article pays homage to W. Edwards Deming, the famous engineer and management consultant who is credited with the quote, “In God We Trust, All Must Others Bring Data.”<sup>1</sup> Deming was concerned with achieving quality and precision, and he knew that data could be leveraged to help achieve those things. Data can certainly be leveraged to help achieve quality, precision, and new insights, but that only happens if the organization is willing to invest in data discovery, analysis, and visualization techniques alongside foundational master data management (MDM).

Why should the Marine Corps be concerned with leveraging data through MDM? The answer is simple: we don’t know our people and gear accurately enough and, therefore, can’t communicate readiness status fast enough throughout the Marine Corps. Commanders don’t have the time to use that information to make better decisions. Sun Tzu reminds us that, to have a thousand victories in a thousand battles, we must know ourselves as well as our enemies. As Marines, we must know ourselves by understanding and better leveraging our data. In the Marine Corps, as in business, this translates to knowing one’s organization completely—its representative industry, product lines, people, suppliers, and customers, all of which produce data. Leaders must also know their competitors and enemies as well as external market forces and disruptors, all of which produce additional data. Moreover, leaders must be capable of analyzing all of that historical data (descriptive analytics), be able to anticipate its effects in the future (predictive analytics), and for-

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ulate strategic plans to eliminate the weaknesses and exploit opportunities (prescriptive analytics). Executive leadership cannot plan forward if it’s not aware of its current strengths, weaknesses, opportunities, and threats—it is impossible to develop a precise strategic plan without knowing all of the integrated factors that only accurate, comprehensive master data can provide through appropriate data discovery, data analytics, and visualization techniques.

There are a number of accepted definitions of MDM. Any MDM program

will consist of people, processes, and technology to induct data from identified sources—followed by cleaning, validating, storing, and ensuring data accuracy—so it may be utilized confidently by people, applications, and systems. In the data-centric world in which we now live, MDM must be a prime component of decision making at the command level. Lacking a disciplined MDM process, decisions are made reliant on inaccurate data or worse—subjectivity, gut feelings, and knee-jerk reactions. The difference between organizations that have achieved MDM and those that haven’t is similar to the difference between navigating by landmarks and memory versus relying on a map and compass in the field. Without MDM, an organization might know where it is and where it’s going,



**There is a requirement to manage inventories in order to assist leaders making decisions.**  
(Photo by LCpl Anthony Brosilow.)

but the journey will be more uncertain and haphazard with only a possibility of arriving at the desired end state, as opposed to the efficient, decisive path to success and expected results with MDM.

When an organization masters its data intake mechanisms, data storage applications, and data representation standards while eliminating its data silos, it then has accurate, timely, and complete control over its data, which is the foundation of MDM. An MDM-enabled organization is able to leverage many areas of the entire business in a standard and consistent way. This unified and contextualized view enables the organization to gain both tactical and strategic insights, ultimately leading to faster and better decisions at all levels. The result is speed to field and opportunity exploitation across all capabilities as well as lowered costs and significantly reduced risk. Operations officers make decisions utilizing many planning factors applied to historical and realtime data. The quality, speed, and agility of that decision-making process is now multiplied with MDM in place. To illustrate, Wal-Mart makes strategic and tactical vendor managed inventory decisions every day, across all of their stores. They understand when item inventories are low or are at risk of becoming excessive and can re-supply or re-route as necessary long before a shortage or over-supply occurs. They understand seasonality and weather patterns and how those patterns affect the buying habits of their customers from coast to coast (predictive analytics). Wal-Mart is able to capture, evaluate, and select strong predictor variables in order to develop accurate predictive models. Wal-Mart is able to do this because it has MDM, a reliable item master data repository providing a single version of the truth, allowing it to profit in the short term by making smart, fast, tactical decisions, and increase revenue in the long term by making strategic decisions based on what the data reveals through analytics.

In the big data analytics and strategic data management world that is upon us, there are two types of organizations—the quick and the dead. Organizations that fail to achieve MDM



**In the near future, units down to the company level will be able to conduct management analysis.** (Photo by LCpl Anthony Brosilow.)

and the understanding to leverage it will be left behind, possibly for good. Those that do succeed in attaining MDM will only continue to get better and more powerful, enabling predictive analytics at the tactical and strategic level. The top-tier organizations that achieve MDM will be differentiated by the new perspectives and insights

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gained from descriptive, predictive, and prescriptive analytics, which in turn will fuel automation, initially of functional imperatives. Automation, predicated on data derived from MDM-based analytics will free up resources and talent to focus on new core competencies and ultimately, competitive advantages. The processes and decisions supporting core competencies will be next in line for automation, followed by business intelligence and decision support system automation that will run certain aspects

of the supply and logistics chain. Many examples of business process automation can be found today, such as investment firms using algorithmic trading where millions of input variables are evaluated in seconds and a trade decision is made instantaneously. This seems almost unfair, but it's just a competitive advantage made possible by MDM, predictive analytics, and process automation. The same is true of the best and brightest companies in the gaming industry, where millions of input variables are analyzed in seconds and predictions are made regarding which slot machine players will continue to play if offered a coupon at a specific moment during their game.

Much of the data utilized for analytics will be data that has passed through detailed extract-transform-load procedures internal to the organization, essentially transforming the data from unstructured formats to structured so that the data may be better utilized. Increasingly, unstructured data from external sources will provide new insight and context. Sources, such as email, social and digital media feeds, sensors, the Internet-of-things, and consumer feedback from cloud-based interaction with games, surveys, and commerce, will eventually become just as valuable as the clean, codified, and structured

data internal to the organization. Why? Because time will be an even more critical factor than it is now, as will data volume, variety, and veracity. There will need to be methods and applications in place to quickly process and make sense of the deluge of available, relevant and unstructured data from multiple sources, without sending it through layers of time consuming extract-transform-load procedures. This is still MDM, just a faster iteration of it. The next step in this scenario is to pursue acting on the unstructured data in the cloud to gain the golden insights that even the best analytical enterprises have yet to achieve. Those that accomplish data management in the cloud will realize exponential insights and productivity because these organizations will be positioned to focus on quickly exposing the golden needles in millions of unstructured data haystacks.

For the Marine Corps, which is now only on the precipice of what is possible

regarding data discovery, analysis, visualization, and the creation of insights, there are immediate opportunities to democratize existing authoritative organizational data of almost all our communities and allow units down to the company level to engage in its analysis. While the accuracy of that analysis will ultimately depend on the work we put into achieving MDM, correlations between variables can nonetheless be discovered now, utilizing basic statistical techniques by non-data scientists in the using units. Key performance indicators can be formulated from newly discovered correlations in the data and presented to commanders and senior leaders in modern interactive dashboard formats instead of PowerPoint. These activities are already taking place throughout the Marine Corps, just not in a standardized, concerted way. Individual Marines with an understanding of the data that describes their people and gear, who also have an aptitude and

interest in analytics, are turning out descriptive and predictive products, largely through existing programs like Access and Excel. Unfortunately, not until the democratization of relevant community data, combined with MDM and standardized data discovery, analysis, and visualization practices, will commanders at all levels have the benefit of their own real-time strategic and tactical insights for the purpose of aiding in making better decisions.

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#### Notes

1. "W. Edwards Deming," (Undated), available at <http://www.goodreads.com/quotes>.

