



KNOWLEDGE IN ACTION

EXPECT MORE FROM YOUR REPORTS

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THIS IS THE FOURTH IN A SERIES OF ARTICLES BY CAMBRICA DETAILING HOW ARTIFICIAL INTELLIGENCE CAN PLAY A PIVOTAL ROLE IN PLANT OPERATIONS.

In this segment we want to focus your attention on how the business information ecosystem is moving from isolated business applications to information nodes. We will explore the opportunity to enrich data with knowledge graphs to provide greater contextual information to queries. And, we will provide a migration path from “lagger” reports to delivering actionable “lead” reports and meaningful business analysis.

The Importance of Context

What executive or department head has not experienced the frustration of looking at business reports only to get the feeling that something important is missing? Chances are what is missing is context in which the data is presented.

The root of this calamity is based in how our ERP systems are implemented. By design, records require one or many categorizations. These records are generated either

through a transaction or come from other sources, i.e. measurements from instruments, manual input, or from imported data sources with manual or automatic categorization. In all cases, these categories are static and might not be current. They are based on the implementation team or business analyst who defined the business process years ago. But business changes, markets change, so do people and technology. Who could have imagined the meteoric rise of on-line business, or the adaptation rate of digital print and the effect it would have on the corrugated packaging industry just a few years ago? For example, if you look at your RMA (Returns Merchandise Authorization) data you only see one side of the story. The other side of the story can be found in customer comments received by email, social media, websites that talk about quality performance, or association data. Would you consider this data valuable? Of course! Enter the realm of tagging. For those readers not familiar with tagging, it is a classification aid that is linked to a knowledge model, which is created by Subject Matter Experts and is represented in a knowledge graph.

Now, when a business executive or a department head runs a report, the data is enriched with tags coming from outside your ERP according to the subject matter interest the report is supposed to shed light on. In other words, the data is presented



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contextually. The other benefit is speed. For those of you familiar with the time it takes to run ERP reports based on complex BOMs, routings – essentially anything with n:n (multiple:multiple) relationships – knowledge graphs will reduce the time it takes to run queries to a fraction with increased actionable information.

Consequently, the reporting strategy should be designed to show everyone what they need to know and fast. The reports must be organized to tell the whole story, for example if the business objective is to reduce the RMA value by 10% over the next six months. Logically, you must have several strategies that combined will result in this reduction. Each approach

will have its own tracking KPI and its individual trend KPIs. These, in turn, will have reports, represented in Dashboards and Listings, that allow immediate corrective actions.

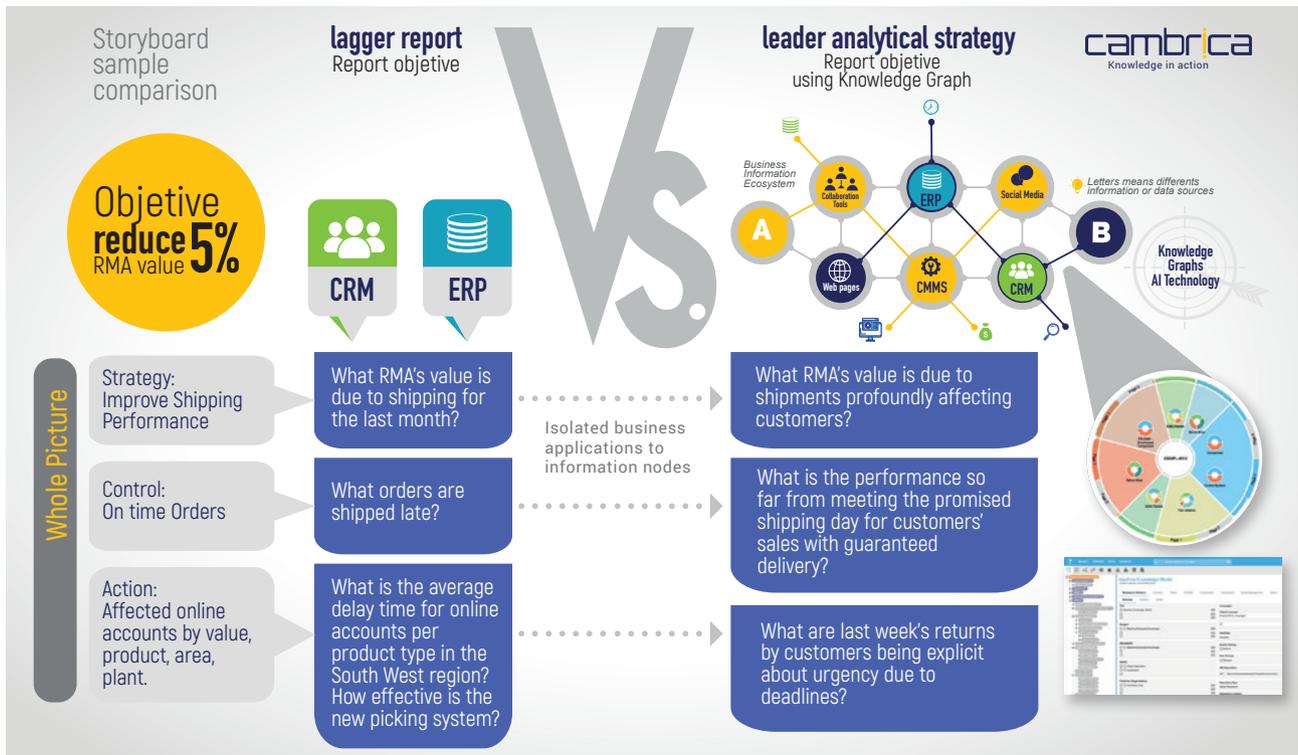
Note that specific reports will be closer and closer to the front lines of the business, where complexity increases, and the time to act decreases.

A New Information Ecosystem

We then see that the implementation of an actionable analytics strategy depends on data, relationships, and speed, delivering information to everyone when needed. And vice versa. When you increase your data or have more connections across the

information ecosystem, then analysis strategies can be innovated to reach the company’s goals much sooner.

Abandon the idea that data, relationships, and speed are intrinsic to your information systems. Connecting nodes naturally expand data, expand relationships, and increase the speed of information access. It’s these new relations that present opportunities. Knowledge Graphs are used to model knowledge. By combining knowledge from the perspective of different roles, relationships can be established which can be applied to relate data from various sources. These relationships enable integration between data in a federated way, which means that the data is not duplicated but pointed to.

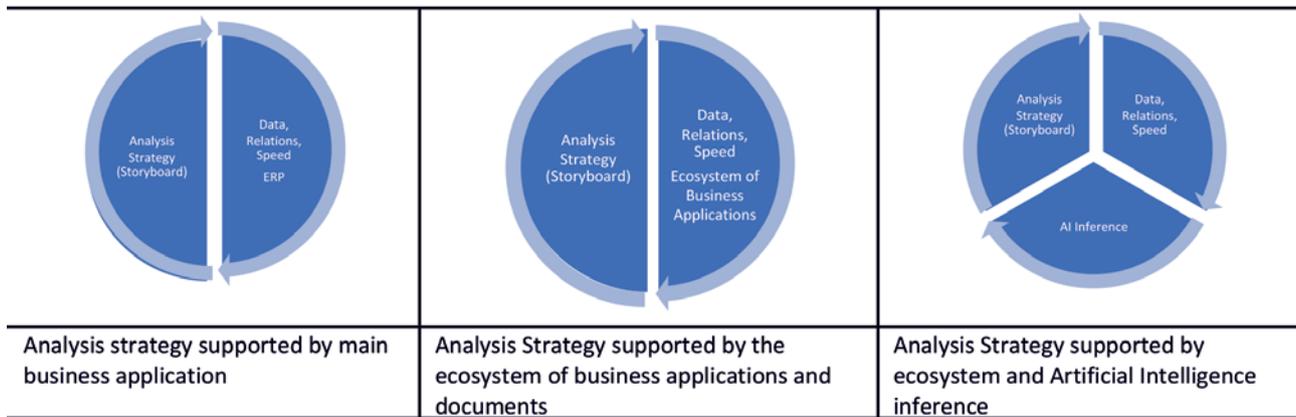


This technology is allowing companies to move from a strategy less based on “lagger” reports and more to “lead” reports to reveal the facts. The first step is implementing Knowledge Graphs to better contextualize your current reports. To get pertinent answers for which you did not ask the question, technologies such as Artificial Intelligence can be added, where deep learning and quantum computers are playing a pivotal role. A three-stage road map can look like this:

implementations and are considered static information. We humans are notoriously bad at using somebody else’s abstractions. A category obeys somebody else’s understanding of the buckets in which information is essential. But business changes, context changes and analytics approach changes. Unfortunately for many applications, one field wants to capture too much – have you seen select lists with 30 options or more, serving different departments? Or,

Voice or video recordings are good options for some scenarios, in the service department for example.

The enterprise adoption of Knowledge Graphs is converging rapidly. Knowledge Graphs can help you establish a unified view where all your company facets can be represented and then reused to make better sense of your data. They are must-haves for Business Analysts and Subject Matter Experts with whom the knowledge of the company resides.



Data Challenges

In an ideal scenario, data will have a maximum score in relevance, pertinence, accuracy, accessibility, completeness, usefulness, trustworthiness, and timeliness. It will serve the stakeholder with immediate needs as well as the ones managing with trends and the ones responsible for achieving business goals.

Let’s inspect the raw data generated at the business front line, commonly known as “transaction,” a digital form. Most of the fields will express numbers or dates, others categorize the transaction. Those categorizations, such as department, issue type, customer type, priority, or expense type, serve as buckets for analytics, signals for notifications, or parameters for business rules.

There are two situations here; categorization usually happens at the beginning of business systems’

additional fields are created adding work. All because of analytical needs determined years ago. In today’s world, knowledge graphs are a must to address this scenario by allowing some automatic reasoning from other data. This greatly benefits the accuracy of reporting by complementing the datasets with the current business context.

Some Final Recommendations

Monitor the quality of your data. If your software allows it, validate at registration. Some modern systems will enable the application of Business Rules for records. If possible, use notifications to alert you when data is not reliable. For example, when the run speed of the machine is indicated at twice its maximum! Use other data sources to validate user input. Reevaluate the procedure for entering information.

To learn more about Knowledge Graphs technologies, visit us at www.cambrica.com/KnowledgeTips



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