

Why Enterprise Knowledge Graphs are Gaining Popularity in AI Analytics CoEs

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Seventy five percent of the Analytics Centers of Excellence (CoE) that we design and build, are purposed **to enable enterprises to iterate faster on innovations that strategically make sense for their roadmap.** When assessing an organization's AI readiness, where we examine their data and infrastructure, we often find that a good portion of the game-changing innovations they have in mind are business problems that are not readily solvable given traditional data and infrastructure.

With AI and analytics often as the means to innovate, there is also the added question as to whether the present talent pool is sufficient to build, implement and support innovations down the road. That said, the common theme in the remaining 25 percent of such Analytics CoEs is **enterprise-wide upskilling.** In other words, it's all about talent upgrade to ensure that the organization has the right talent base to maximize AI adoption and fuel innovations for years to come.



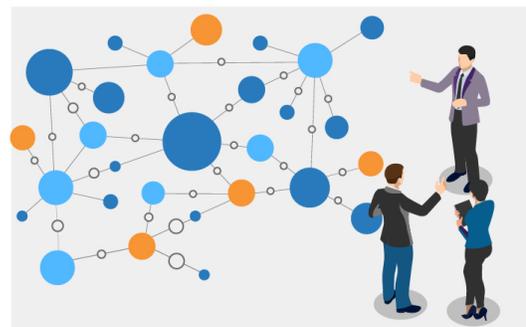
Yet the differentiator in these Analytics CoEs is neither having all the data nor the know-how; it's in how the data points are mapped and contextualized so that innovations can be pursued even when data is not complete, and not perfect. This is where Knowledge Graph comes in, and why it is fast becoming the model infrastructure for the innovation revolution that confronts many organizations today. Thanks to the instant gratification “know me” culture among today's consumers, the need for quick, instinctive business

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decisioning off of bigger and bigger data has never been more urgent.

What is a knowledge graph?



A knowledge graph is a network representation of how different data are linked together semantically. In other words, it's a visual representation of how the human mind conceptualizes something, where relationships are drawn as semantic linkages between data points. This offers a significant advantage to enterprises who need to mine wide and deep data sets, and return answers to the inquirer quickly, because it can accommodate a rich repertoire of natural language understanding methodologies (NLUs) to work on multiple domains or dimensions of data pretty much instantaneously.

In a consumer goods company's recommender system, for example, a knowledge graph learns conceptually

what items tend to go together, further enriching its schema as it continually learns from actual data points. Thus, it spots what's mainstream as well as catches new trends faster and more accurately. Recommendation-wise, not only are answers discovered faster, there is more room for hyper-personalization, giving the consumer the sense of having a smarter personal assistant when interacting with the brand, therefore enriching customer experience in manifold.

What are the benefits of knowledge graphs?

The hyper-personalization and spotting of unique or outlying events and patterns are the common benefits of knowledge graphs across industries and organizational functions. They are valuable in AML and credit risk mitigation in banking, as well as in helping one's sales organization optimize their sequence of client touchpoints, offers and pricing to the best outcome scenario. They optimize load capacities and service excellence metrics because of their ability to run through multiple scenarios quickly. This quick scenario iteration is what enables their end users faster decisioning, which are helpful in resolving business situations as (or even before) they arise. It is no wonder that enterprise knowledge graphs support many business continuance plans, making resource planning and deployment from COVID19 contact tracing more insightful and actionable.

There are four additional important benefits of having a knowledge graph-based infrastructure:

- **Ease of update** With ontologies as the smallest meaningful units of a knowledge graph, localized updates can happen over time, making the knowledge graph smarter in the relationships they discover and contextualize holistically
- **Richer context early in the data collection.**The ability to put context in data early so that minimum viable data are identified for faster analytics and innovations
- **Significant cost savings** in the long term by not needing to perform major overhauls in one's database infrastructure because of a graph's dynamically learning design
- The **deeper network** of data in graphs presents rich linkages that enable sharper entity resolution. The better the entity is matched, the more accurate the analytics

Why is a graph-based Analytics CoE better?

From the perspective of an enterprise standing up an Analytics CoE, faster innovations mean faster results. Faster results mean faster learnings, therefore, being more competitive. In our Analytics CoE design, we have satellites of innovations, and within each satellite are tactical pods that are goaled on specific milestones for the satellite where they belong. The pods contain a hybrid of talent from MIT and the client, allowing for practical upskilling in the organization while getting things done. When these satellites and pods are viewed collectively, it usually becomes apparent that they touch all significant aspects of the business: Prospecting, CRM, risk mitigation, revenue generation, operations excellence, etc. They have to be in sync with one another. When the underlying database infrastructure is in linkable graphs, a fuller view of the enterprise emerges.

A graph-based Analytics CoE affords governance on all innovations, making sure they fit together in solving business needs near and longer term, but also that they are all contributing towards the company's North Star. A very rich enterprise knowledge graph underneath such a CoE affords highly powerful simulation tools that allow the business to see hidden relationships not only across data variables, but also across the past, present and future contexts of the business. The predictions off of minimum viable data that can be made off of such a graph can more quickly shed light into different scenarios in a customer journey.



For any Analytics CoE that exists today, with everyone's customers having just spent most of 2020 at home, to say that the year has been disruptive to Customer Experience (CX) is an understatement. When shopping behavior, shipping, supply chain, credit risk, product usage, consumer attitudinal landscape, etc., have changed, a CoE should be able to also adjust accordingly. Predictive models should change. Metrics and reporting should change. Forecasts should

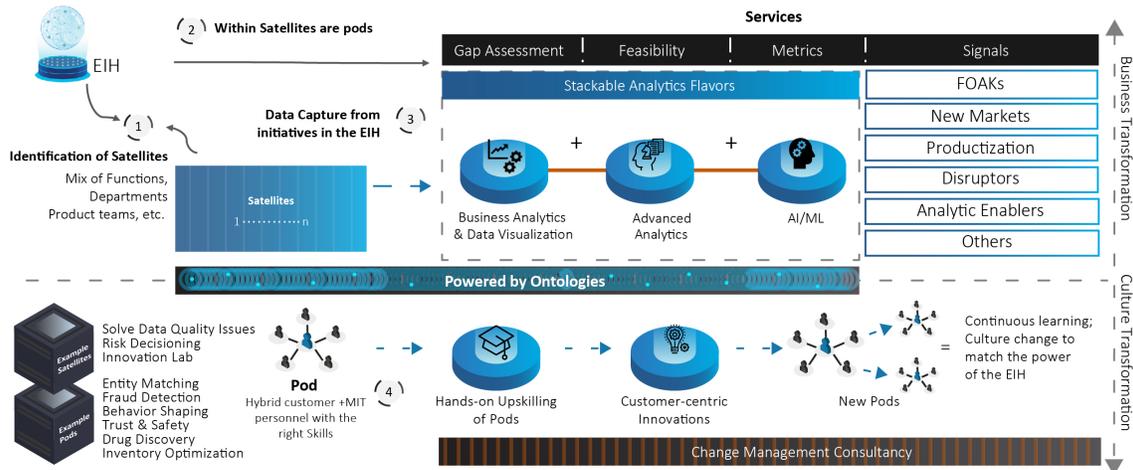
definitely change. They can change only if what the data says also changed. This means looking for alternative data, ways to get latent insights from existing data, or completely changing the way the enterprise looks at things. Knowledge graphs facilitate all of this.

With its bundle of challenges, 2020 has become

the proving ground for both Knowledge Graphs and Analytics CoEs. They are closest to the fundamentals of how a business can transform so that it can compete in the future. We see the significance of this call for change, and that is why we are devoting a 5-part series on what makes Knowledge Graphs indispensable as an organization sets off to the future. Stay tuned.

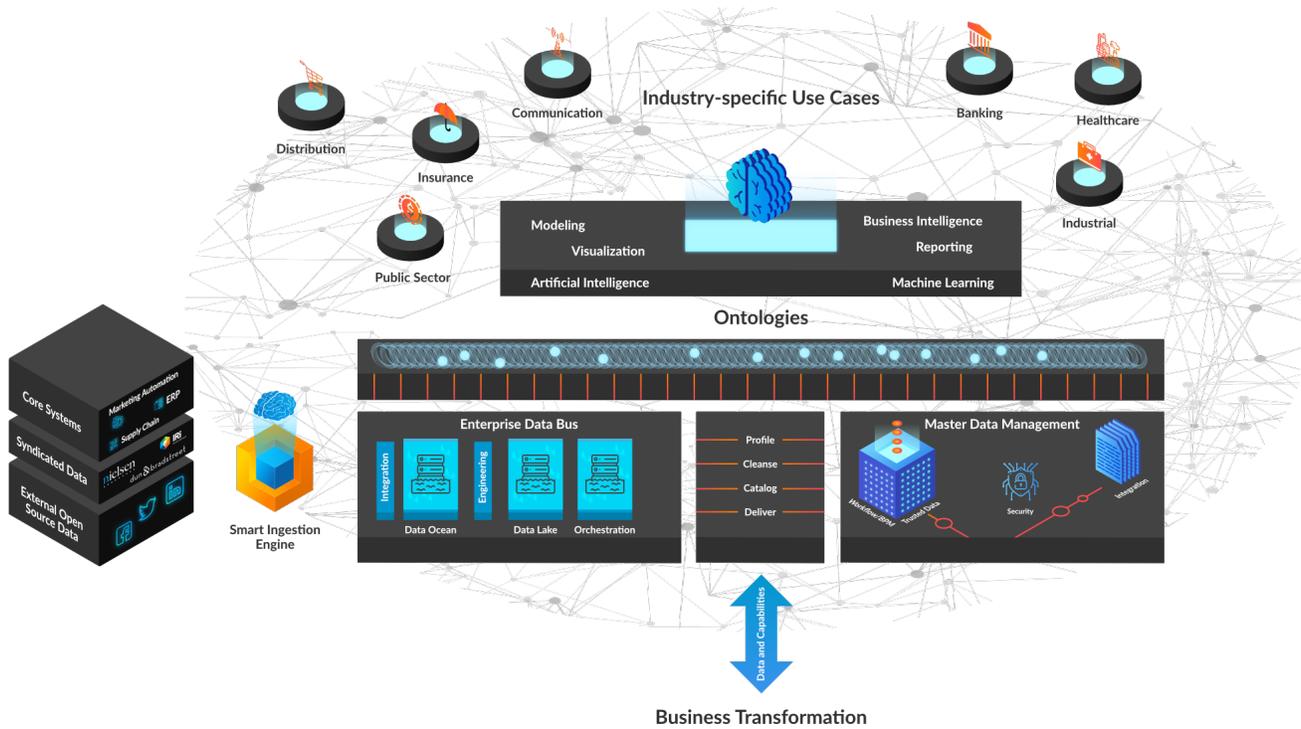
Mastech InfoTrellis Data Science Practice and Analytics Center of Excellence

Our team of data scientists hails academically and professionally from diverse backgrounds, allowing them to derive best practices across domains and design the Analytics Center of Excellence (ACE) that best fits specific client requirements.



We Architect Enterprise Intelligence

At Mastech InfoTrellis we work to expose the entire corpus of enterprise data and leverage it with state of the art techniques from Decision & Data Science to accelerate enterprise learning. We would love to talk with you about it.



Author

Maria brings 20+ years of experience as a technical and business leader of analytics-driven Centers of Excellence (CoE) for clients aiming to be strategic and culture-conscious in their digital transformation. In her past roles as Leader of Innovation Analytics at Dun & Bradstreet, CEO of twoMS.co, and Chief Science Officer at Genpact, Maria established CoEs that helped companies realize value in their data, and reimagine their risk decisioning and sales and marketing analytics. She is also the founder of multiple startups in analytics and retail, where she leverages AI/ML to create economic opportunities for disadvantaged women and benefit disabled children. In her spare time, Maria teaches AI strategy and metrics for organizations to gauge and forecast their AI adoption at Rutgers Business School for Executive Education. Her human performance-centric approach to AI readiness and transformation is rooted in her Ph.D. in Cognitive Science (UC Irvine), and bachelor's degree in Psychology (University of Southern California).

About

Mastech InfoTrellis partners with enterprises to help them achieve their business objectives by leveraging the power of data to derive deep, analytical insights about their business and its operations. We accelerate business velocity, minimize costs, and drastically improve corporate resiliency through personalized, process-oriented programs, consisting of strategy, data management (including master data management), business intelligence and reporting, data engineering, predictive analytics, and advanced analytics. Part of the NYSE-listed, \$193.6M, digital transformation IT services company, Mastech Digital; we drive businesses forward around the world, with offices spread across the US, Canada, India, Singapore, UK, and Ireland.