AnalyticsWeek article — Better than Master Data Management: Building the Ultimate Customer 360 with Artificial Intelligence

One of the most arduous challenges in implementing a customer domain **Master Data Management solution** is coping with the array of silos in which such data is held. Attempting to trace each point of interaction between a customer at various stages in his or her journey with an organization can become burdensome for even the most comprehensive MDM platforms.

Instead, what's needed is a way to link those repositories (thereby effectively de-siloing them) with standardized modeling, taxonomies, vocabularies and classifications so that, according to **Franz** CEO Jans Aasman: "You integrate data from all your silos about customers and put it all in one place in such a way that it's very easy to get all the data about one customer available."

Moreover, by augmenting this linked data with contemporary developments in Artificial Intelligence, organizations can learn how to satisfy their customer base, increase revenues, and decrease instances of churn.

Singular View
Successfully integrating all databases containing customer information—across business units, transactional systems, and internal IT resources—into a holistic knowledge graph is possible with smart data **techniques focused on data modeling** and classifications. The former enables data of any variety, source system, or structure to be readily represented

in a standardized fashion on a semantic graph, while the latter ensures a consistency of the terminology central to what that data means. Models evolve to accommodate variations in business requirements or sources, reducing data engineering work and time to value. The linked data approach even enables such a graph to be joined to others focused on operations or other business domains. Hence, connecting data from different sources provides the ability to "know everything about your customer," Aasman said. "The old-fashioned term would be the 360 view."

Machine Intelligence
The use cases for a customer knowledge graph are endless, especially when involving the many manifestations of machine learning *that are part of Artificial Intelligence*. According to Aasman, the potential for customer insight of such solutions is two-fold. They provide historic information about customer interactions which is valuable, but they can also yield future information about customer behavior that's truly advantageous. "That is boring to just get all the data about the customer; what's interesting is what you can learn about your customer," Aasman noted. By applying various facets of machine learning analytics on exhaustive, enterprise-wide customer data, organizations can make any number of intelligent inferences. Aasman revealed, "You can use machine learning and old-fashioned simple reasoning to actually learn whether a particular customer is going to pay his telephone bill, or develop diabetes, or whether this person is going to search for something or buy something."

Deep Learning
The aspects of machine learning that are useful for exploiting comprehensive customer data are vast. *Advanced deep learning techniques*, for example, are instrumental in categorizing customers and determining relevant features related to their information and a particular business problem. According to *Razorthink* CEO Jack Porter, "We use deep learning to do

micro-segmenting. In a bank, for every customer they have, they've got a very detailed profile of demographic data. But in addition to that they have an activity feed of every single transaction that a customer is doing. We're inside that activity feed looking at patterns." With advanced deep learning techniques responsible for the feature detection that reveals the most salient aspects of customer behavior—again, in the context of a particular business problem—organizations can identify behaviors that contribute to phenomenon such as upselling opportunities, churn, and product development. In this respect, deep learning is excellent at what Porter called "very advanced pattern detection and using that pattern detection to make predictions" that are influential in determining interactions with customers. In the instance of churn, organizations can simply analyze customer data retrospectively, identify the behaviors that took place before a customer churned, then address them going forward to help reduce this occurrence.

Master Data Management
Organizations can use aspects of deep learning in combination with other machine learning techniques to add to the learning propensity of their master customer data. "You have the plain data and you have inferences," Aasman acknowledged. "The inferences can be according to rules and it can be according to machine learning. That way you can have layers of learning on top of your customer 360." Rules engines represent some of the basic qualities of what Porter termed algorithmic AI in which "the intelligence is actually a human creating a rule and the system is firing those rules" for a particular application.

Regardless of which aspects of AI are employed, it's imperative for organizations to harmonize their master customer data, determine notable relationships between them, and exploit them for propitious customer interactions. Both traditional and advanced machine learning are instrumental in

analyzing customer datasets, which companies can then use to effect competitive advantage. Thus, they can maximize the utility of what Aasman referred to as "a knowledge graph about everything they know about their customers."