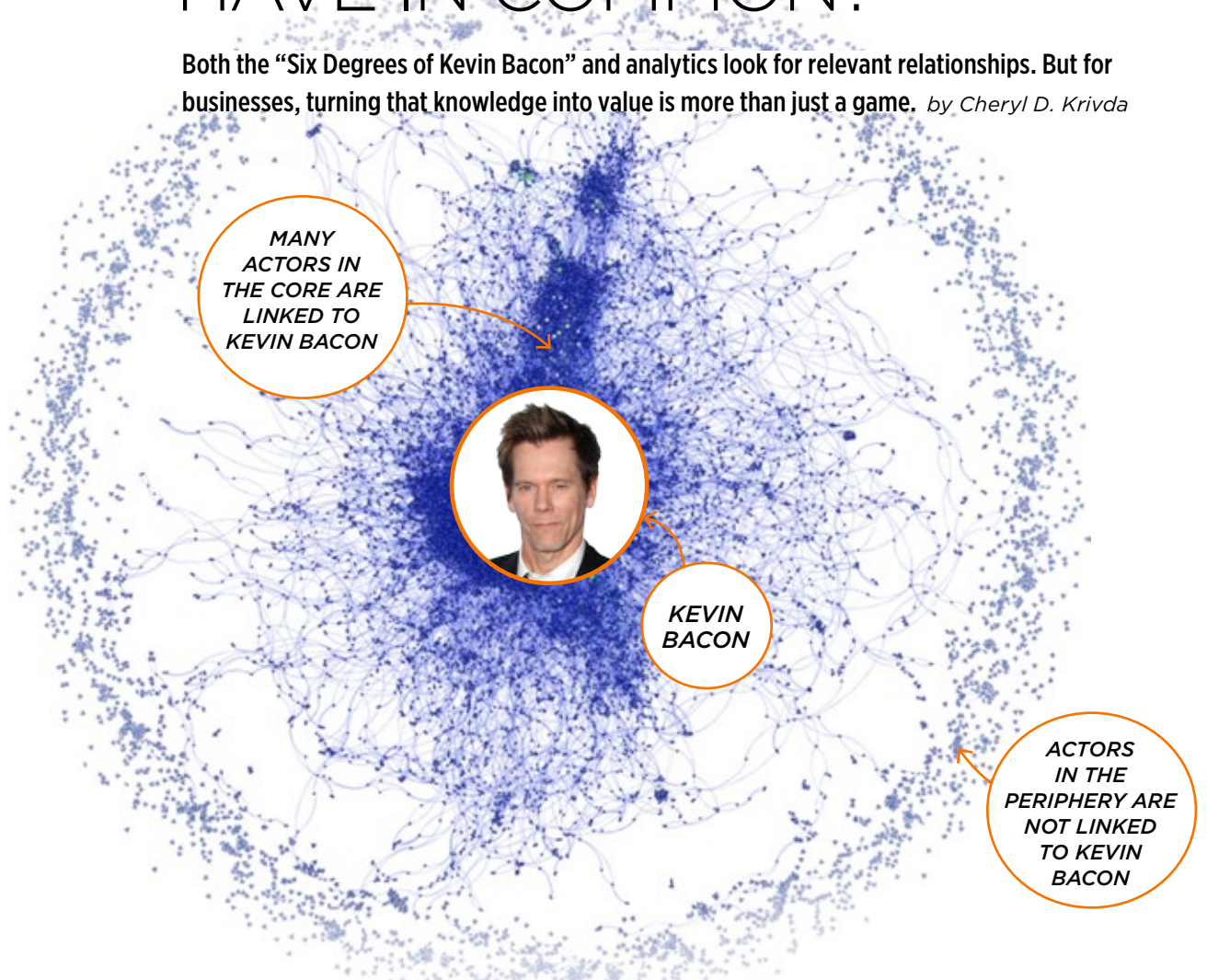


WHAT DO CONNECTION ANALYTICS AND *KEVIN BACON* HAVE IN COMMON?

Both the “Six Degrees of Kevin Bacon” and analytics look for relevant relationships. But for businesses, turning that knowledge into value is more than just a game. *by Cheryl D. Krivda*



VISUALIZE NETWORKS

This graph visualization shows Kevin Bacon at the center of a mass of connected dots representing actors. The outer ring is composed of tiny subgraphs representing stars who are disconnected from the giant component at the center, which means they are not linked to Kevin Bacon. The rest of the dots, representing 94% of the actors, are connected by six degrees of separation or less. Businesses can use this same process to see customer networks.

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REMEMBER THE NINETIES GAME “SIX DEGREES OF KEVIN BACON?” Competitors try to link celebrities to Kevin Bacon in six or fewer steps by finding movie relationships between various actors and the prolific “Footloose” star. For example, Elvis Presley can be linked to Kevin Bacon in just two steps: Presley worked with Ed Asner in the 1969 movie “Change of Habit,” and Asner and Bacon were both in the 1991 movie “JFK.”

This trivia game was just for fun, but the principles behind it can offer real value to businesses. Ordinary people are also linked through similar, often complex networks of family, friends, community members and colleagues. Some individuals in these networks exert tremendous influence over others. Similar associations exist for other real-life entities such as products, machines and business processes. Businesses that understand the associations can gain a real competitive advantage.

Connection analytics is the key to gaining comprehensive insights into relationships, intricate networks and influence to inform smarter decision making. Understanding the links between real-world networks, whether they’re comprised of people, products, machines or processes—and the sway exerted by different participants—can provide businesses with massive opportunities to:

- Boost customer retention as a result of understanding and addressing the causes of churn
- Increase revenues through more effective cross-sell and up-sell activities
- Detect and eliminate fraud
- Enhance marketing efforts with highly personalized recommendations and targeted campaigns
- Improve brand reputation by rewarding influencers
- Identify and reward valuable employees, reducing turnover
- Decrease risk with greater visibility into programs, events and offers

Link to Opportunities

Connection analytics combines statistics, machine learning and sentiment analysis with influencer insights powered by graph analysis. This helps

companies discover, model and analyze relationships. A September 22, 2014 report from Gartner entitled “IT Market Clock for Database Management Systems 2014” notes that, “Graph analysis is possibly the single most effective competitive differentiator for organizations pursuing data-driven operations and decisions after the design of data capture.” However, the skills of costly data scientists are often required.

By contrast, connection analytics powered by graph engines, pre-built algorithms and interactive data-aware visualizations provides an intuitive solution that allows analysts and even business users to see how relationships impact networks of people, products and processes. Users can also visualize a wide variety of issues such as consumer behaviors, traffic patterns and campaign progressions, and then predict outcomes based on interaction patterns. For example, the graph (opposite page) shows how relationships, in this case actors who are linked to Kevin Bacon, can be visualized.

The result of seeing networks can be unprecedented business insights. Imagine a company that is trying to boost employee retention. A few individuals in every organization seem to wield outsized influence over other employees through their personalities, communication styles or expertise. By using connection analytics, companies can pinpoint these specific individuals and take steps to ensure they remain satisfied with their jobs and working conditions. In doing so, employers indirectly influence others to stay with the organization, reducing turnover.

Look at Data Differently

What makes connection analytics unique?

The solution augments existing content-based

analysis—which considers information about entities such as a person, product or business process—with context about the relationships between them.

This context identifies key entities and the factors that contribute to the effect they have on others. Rather than considering individual entities in isolation, the context provided by the analytics more precisely reflects real-world conditions, which increases the prediction accuracy and decision-making effectiveness.

For example, when an influential subscriber changes telecommunications services, people linked to that individual are six times more likely to defect, too. Telco companies have long used traditional analytics to reduce customer churn. Yet connection analytics, by considering the context in which churn occurs, can offer more. By using the analytics to identify influential subscribers who are dissatisfied, telcos can deliver targeted promotions and offers to both those individuals and any related at-risk customers. As a result, customer churn is prevented throughout the influencer's network.

The power to consider both content and context also makes connection analytics advantageous for big data. Unlike traditional BI and analytics tools that can be overwhelmed by the complex web of relationships, these analytics solutions offer the compute power, specialized programming and scalability to search big data for interdependencies.

Actionable—and Profitable—Insights

The ability to gain network insights from big data is essential for customer-centric industries such as retail. Grocery chains can use connection analytics to expand existing market-basket analysis programs. For example, previous association analysis of store transactions revealed clusters of products that customers typically purchase together, such as wine and steaks or salads and sandwiches.

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By using connection analytics, retailers can identify “bridge” products that link diverse clusters. Bridge products commonly associated with both wine and steaks and salads and sandwiches are olives and cheese—customers who purchase salads buy olives or cheese leading them to buy wine or steaks. Using this information, retailers can offer better in-store product placement, locating the salads, sandwiches, olives and cheese near the steaks and the wine. As a result, a shop-

per who comes to a store to buy a \$5 salad may be enticed to buy a jar of olives and may eventually end up buying a \$50 bottle of wine, or wine and some expensive steaks. The result is increased sales, profit margins and profitability.

Over time, the analysis can become more granular and targeted. For instance, a relationship between salsa and chips is well established. But when the analysis includes additional demographic factors, such as consumer education and household income, the retailers may discover that shoppers with more education and higher income tend to buy guacamole with their chips and salsa, while less educated customers purchase beer. This insight allows the store to make more targeted offers to customers, which is expected to drive incremental sales.

High Value Connections

Deep, granular analysis is no longer a time-consuming, resource-intensive activity. With intuitive features and powerful performance, analytics solutions can be used daily to reveal networks and interdependencies, generating deep insights from big data. And unlike “Six Degrees of Kevin Bacon,” the value of these relationships is anything but trivial. **T**

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