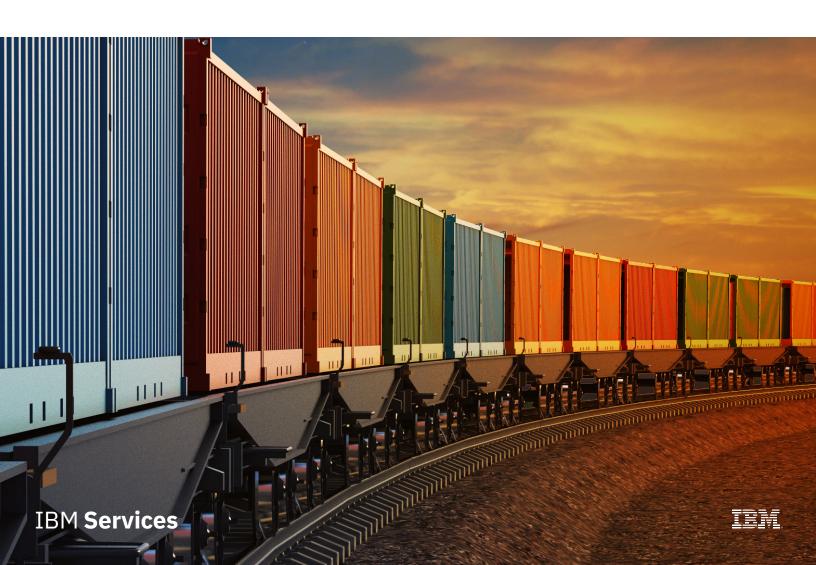IBM

The changing face of sourcing freight in a cognitive computing world

Gain valuable insights, improve
operations and reduce costs
by harvesting value from your data

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Breakthrough freight sourcing and optimization using today's tech trends

In today's world, shippers are challenged in sourcing and optimizing their freight, becoming overwhelmed by the permanent evolution of this industry, changing markets, enterprise transformation and by an increasing amount and variety of data. This white paper discusses the numerous challenges faced by shippers to adapt to the fast-changing environment in freight management and explores the vast opportunities artificial intelligence (AI) and cognitive computing provide to become more efficient, responsive and cost effective.

Harness the volumes of data your business generates everyday

Businesses are questioning the potential effects of artificial intelligence (AI), the Internet of Things (IoT) and machine learning. These trends are described in reports of growth for these areas, and particularly what it all means for businesses now and in the future.

All these cognitive computing trends are essentially the simulation of human thoughts through processes in a computerized model. They involve self-learning systems that lean on data analytics, pattern recognition and natural-language processing to mimic how the human brain thinks and works. Without cognitive computing, AI and robotics-related technologies wouldn't exist.

According to a report from IBM Marketing Cloud, "10 Key Marketing Trends For 2017," 90 percent of the data in the world today has been created in the last two years alone[1]. Yet today, just one per cent of business data has been analyzed and used to deliver outcomes[2].

Many companies find it difficult to harness the volume of information their businesses generate every day. And this issue is especially true for large freight shippers struggling to handle, integrate, model and construct data collected from different sources to get valuable insights to improve operations and save costs on their freight. This quandary is where AI comes in.

Identify freight challenges to find solutions

Freight is a data-intensive procurement category with multiple attributes. Attributes include:

– Cost, shipment characteristics, such as weight, volume and product type
– Service level, such as delivery time conformity and physical conformity
– Type of equipment; and origin and destination pairs

These attributes make cost management a challenge for various reasons.

Data cleansing is cumbersome due to disparate formats, taxonomy and vendor or location names spelled differently or incorrectly across information systems. The data itemization level varies across databases.

Freight analytics require the user to combine and understand data from multiple internal and external databases. Examples include an internal enterprise resource planning (ERP) system, a transport management system (TMS), an external freight bill audit tool, carrier reports and external benchmark databases. Some organizations combine in-house and outsourced logistics models, pulling information from internal and external transport management systems. An example of this process is companies that outsource international control towers to freight forwarders while running surface moves with their companies' freight control towers. For the performance of its sourcing and category management processes, the user must spend a substantial time to streamline, cleanse and populate those data manually to create and maintain the freight trade route profile document that will support most of its sourcing effort. Maintaining the trade route profile by freight mode is only possible through automation and is a necessary step to prepare data to be interfaced to business intelligence databases.

The broad range of available freight data makes it difficult to determine the key metrics to focus on for efficient cost management. Automated, on-going reactiveness to the changing world is a must-have as certain freight markets— such as ocean freight—can be extremely volatile. There's a need for information to anticipate and adapt.

The combination of realized and forecasted data is cumbersome and the enterprise landscape changes regularly with spin-off, acquisition, changed internal requirements and revamped distribution channels. These changes are especially significant for companies with a large reliance on the business-to-consumer (B2C) channel. The efficiency of the network must be rethought constantly according to the evolution of internal and external requirements.

Running a manual rate benchmarking on a given freight mode for a midsized company can take days due to the amount of data and the time required for data sanitation and requirements adjustments. Besides, pulling freight metrics, identifying "root causes" of spend inefficiencies and appropriate resolutions can be difficult. A corrective plan can be as vast as changing TMS engine rules, rate renegotiation, redesigning packaging, reconsidering planning rules, enhancing consolidation, increasing minimum order quantities and so on.

Overcome freight challenges through the power of AI

AI can address these challenges in several ways. For one, it can populate and sanitize data. And combined with machine learning, AI can ingest data and identify sourcing insights and freight cost reduction opportunities while leveraging an end-to-end, holistic view of freight spend across multiple databases and types of data.

The first objective of using cognitive computing is to convert raw client shipment data for each freight mode and from multi-source data into a trade route profile. This process is conducted using a specific protocol developed by IBM freight specialists and refreshing data on a weekly basis. The trade route profile is the spine document for sourcing that supports baseline definition, Request for "X" (RFX), category management and format data to prepare their interaction with business intelligence data.

Using a solid diagnostic process and strict benchmark methodology, AI can also pull out cost-cutting opportunities and rank savings opportunities by stake and implementation complexity. Shippers can identify targeted opportunities (for example, to help ensure competitive pricing and optimal planning rules) and identify "cost leakage" in the overall process (for example, non-compliant carriers that create added costs).

Cognitive applications shouldn't be considered as superseding existing freight optimization technology, such as TMS, but as complimentary and synergistic technology. TMS is focused on optimizing key performance indicators (KPIs) and shipments for each day based on manually created rules, while AI looks at end-to-end shipping and across time for spend inefficiencies and savings opportunities. This process enables the automated creation of optimized rules for TMS and other areas.

Results can be either displayed on the front end using a natural language or a specific portal supported by push messages. It's recommended to develop this type of application by transportation modes because each mode has its own market and salient characteristics.

Unlock the potential of AI in your sourcing organization

Cognitive applications and advanced analytics are considered by chief procurement officers (CPOs) as a new, leading way to transform procurement, improving sourcing through intelligent pricing and contracts, and operations by leveraging robotics and real-time automation. In addition, using AI for procurement is considered by HR and CPOs as one of the best ways to attract, match and recruit talent. Cognitive application is designed to support and alleviate the most cumbersome part of the sourcing process, helping freight category managers to focus on value-added tasks.

CPOs require benchmarks for all type of transportation modes, either on rates or against general industry metrics. The challenge is to have those benchmarks perform on a strict like-for-like basis for a credible negotiation and use the most accurate matching method between internal and external data. Most manual benchmark analytics are labor-intensive and run periodically or as requested with a shortage of comparison accuracy. Cognitive and robotics enable benchmarking to permanently match the organization against the leading practices or metrics defined, rank priorities and drive corrective action plans accordingly.

Benchmark results can be complemented with bargaining power dashboards for origin-destination (OD) pairs showing savings. This process is accomplished by pulling a series of highlighted opportunities for the category manager to drive negotiation toward an incumbent and match the least-cost price. For example, in ocean freight, the application can evaluate the number of shipping lines serving a route to estimate the level of competitiveness or the month-to-month evolution of the business. This method contrasts forecasts that give more ammunition to category managers to address negotiations with incumbents.

AI can also drive shipping recommendations to shippers' legacy systems. Imagine, for example, an AI application to revamp TMS engine rules used in the spot market when a seasonal opportunity arises. Ocean or surface OD pairs are sometimes subject to a high seasonality factor, driving capacity. If the cognitive application detects an excess of capacity on a lane with spot rates lower then contracted rates, the apps can likely reroute those shipments to the spot market rather than to contracted carriers.

Cognitive applications can be developed and adapted to a shipper's maturity and technology legacy to speed up its transformation journey. In addition, cognitive applications and advanced analytics allow holistic cost management, analyzing potential cost optimization, inefficiencies and costs leakages with recommendations and resolution plans. AI-based outcomes generally work in push models. The system provides insights and drives alerts and associated recommendations.

Predictive solutions are used to assess and anticipate virtually all types of risks that can create disruptions along the supply chain. Risks assessed along the supply chain include strikes, port congestion, regulations, hurricanes, the shipping lines' financial health, capacity issues and so on. These disruptions can be extremely costly and can lead to production shutdowns or missed deliveries. Cognitive applications anticipate those risks based on historical data and social media news and recommend actions. If a supply chain risk is identified, the application provides contingency plan recommendations, analyzing the cost and transit impact versus regular routes.

The focus of cognitive applications isn't only to save money, but to prevent losing money along the supply chain. Numerous clients are facing multiple cost leakages in their freight organizations and don't have the appropriate tools to diagnose, evaluate and resolve those leeways. Sometimes there's more to save in correcting actual inefficiencies than in optimizing freight shipping.

Most shippers have service-level KPIs expressed as a percentage against target but never really convert those KPI gaps in dollar amount impact. Cognitive allows the identification of cost leaks related to maverick spend on carriers and focuses efforts on the most-costly deviations. Using cognitive applications can also improve the performance of category management and get to carrier business reviews with a solid set of KPIs and fact-proof data. Automation facilitates the detection of poor-performing carriers and related excess costs.

Cognitive applications capture data from multiple systems, providing an end-to-end view of costs. Most supply chain managers ask themselves: What's the cost of managing a carrier? A poor-performing carrier can create multiple cost excesses along the supply chain. Excesses can include customer penalties if deliveries aren't made on time, excess shipping costs if they refuse loads tendered and large reliance on exception management if they don't follow TMS automation guidelines. Other processes that can also contribute to cost excesses include troubleshooting the accounts payable process, and so forth. There's multiple systems and databases connected with these operational processes. Cognitive applications centralize that data and estimate the cost of poor-performing carriers in the end-to-end process.

For more information
To learn more about how IBM can help your freight organization get to the next level using AI and cognitive computing, please contact your IBM representative or IBM Business Partner, or visit **ibm.com**/services/procurement

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1,2   IBM Marketing Cloud, Ten Key Marketing Trends for 2017: https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=WRL12345USEN

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