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Value Based Sourcing in Complex Direct Supply Chains

Today's supply chains are not only global, they are complex. American companies source from Brazil subsidiaries of Chinese companies that import components and raw materials from China, India, Korea, and Malaysia and other countries. These component suppliers will often themselves source from suppliers in other countries, and the supply chains get longer and more intricate every day.

As a result, the complexity not only causes costs to increase, but risks to increase more, and the time required to source each category increases by the day, despite the plethora of e-Supply Management tools that have come onto the marketplace over the past fifteen years. As a result, extracting value from the supply chain is becoming harder and harder for the average company. But an innovative supply chain can not only decrease costs, risks and sourcing time but use the complexity as an opportunity to identify additional value to extract from the supply chain.

In this paper, we will discuss the complexities in modern global supply chains, the types of value that can be extracted with the right platform and process, and discuss some of the core features that a modern platform for complex direct supply chains is required to have to extract value from today's supply chains.

Sourcing Complexity in the Modern Supply Chain

A recent paper by Mr. Peter Smith on [What Defines Complex Sourcing - And Why Does it Matter](#) defines nine factors and models that define a RFX as complex. Before we discuss value-based sourcing, we are going to review these factors because they help to clarify how difficult it is to extract value from modern supply chains and why a new platform, and process, is needed.

Internal Complexity Factors

Breadth and Diversity of Stakeholders

The breadth and diversity of stakeholders who need to be consulted in your average direct sourcing project makes sourcing complex not just because of the data collection effort involved, as theoretically any good RFI survey tool could collect the stakeholders' input, but also because many of the requirements that will be collected will conflict. If the tool cannot help the analyst weigh the importance of the input from the different stakeholders and resolve goal conflicts, the specification phase of the project can drag out for weeks or months, delaying not only sourcing but new product launches.

Breadth and Diversity of Requirements

Not only will the breadth and diversity of the stakeholders bring different, sometimes conflicting, goals but the detailed requirements that will shake out are also likely to conflict. Furthermore, even if the requirements don't conflict, it will be impossible to satisfy all of the requirements with the time, money, and resources available and tough decisions will need to be made.

Number of line items in the bill of materials

In indirect sourcing, there might be 50 lines in the office supplies lot. But when sourcing for a transmission, custom motherboard, or a new pharmaceutical product, there could be hundreds of line items in the bill of materials required for production.

External Complexity Factors

Supplier Population

Now, a hundred suppliers alone does not make an event complex if they all offer roughly the same product (or production capability), all cost about the same, and are all located in the same geographic region. However, these days your (potential) supply base is scattered across the globe, each supplier has different costs and value levers, and each supplier will offer different capabilities that can allow for faster production, production variations, and quality control that may or may not be of relevance to the organization.

Alternative Market Solutions

Not only do different suppliers bring different capabilities to the table, but they also bring different alternatives. You might think you need a custom designed motherboard, but maybe you just need a new model FPGA (Field Programmable Gate Array) with more memory and more logic controllers (and some expert programming help) that one of your suppliers just started offering on the market.

Capacity Constraints

Each supplier will have different production capabilities and different throughput rates. This needs to be taken into account when making an award decision.

Commercial Complexity Factors

Supply Chain Options

Not only are there supplier options, but there are transportation options, intermediate and near-customer inventory options, channel options, and so forth. No supply chain is ever as simple as it appears.

Pricing Models

If all the sourcing event requires is a single bid per item or lot, then the tender is not very complex. However, if the bid requires not only individual bids on over one hundred items in a bill of materials, but cost breakdown bids as well, the pricing model can get very complex very fast.

Options for Conditionality **as**

When multiple bids per line item per bill of materials is required, the model gets quite complex quite fast, but as soon offerings from multiple suppliers need to be considered (for each line item), the model can quickly spiral out of control. Unless, of course, the organization has a platform that can handle the complexity and allow products from each supplier to be analyzed.

Category Management - The Source of Value in the Modern Supply Chain

In this paper, we are going to discuss six sources of value in the modern supply chain, all of which are enabled by end-to-end category management. The ability to manage the entire lifecycle of related products across the supply chain is what breathes new value into Sourcing and Procurement.

End-to-end category management brings value because every product in a category shares similar characteristics that can be managed similarly, and the ability to manage these products using common strategies and decision criteria to the extent possible brings even greater value, much more than is obvious at a first glance.

Value Lever 1: Cost Transparency

The ability to build detailed cost model templates at a category level, replicate them across each product, tweak them as necessary, and collect detailed, accurate costs gives an unprecedented level of cost transparency. This allows an organization to build detailed should-cost models and understand what a product really costs to build, why, and where the focus should be in an effort to lower costs.

Value is generated from this Market-Informed Sourcing (MIS), which includes the ability to monitor and refresh prices in real-time, use those prices to update (should) cost models, and compare those models to supplier provided cost models. Unless the organization knows the current lowest price being offered, and the lowest possible price that can be obtained (through lean process improvements), the organization will never know if it's getting a good deal, or a bad deal.

Value Lever 2: Up-Front Risk Analysis

Modern supply chains are filled with risks. Economic, environmental, geopolitical, societal, regulatory, technological, and infrastructural risks abound in today's global supply chains. But most of these risks are never seen until they rear their ugly heads, and cause one or more major disruptions in the supply chain. Moreover, external supply chain monitoring through systems that monitor news can only detect some of these risks, and only after they have come to pass. Similarly, supply chain continuity planning service firms that look at the physical chain, identify likely risks, and create mitigation plans to deal with those risks can only identify the risks that correspond to the current physical supply chain, not one that might result from a new award that would alter the current physical chain.

In order to make a good decision, the organization has to select a low-risk alternative. It has to identify, and analyze, the relevant risks with respect to the award it is considering before the award

is made, not after. Continuity planning service firms and monitoring solutions focus on pre-award analytics, as continuity planning firms look at the chain you built from previous awards and semantic monitoring searches for events that appear to be correlated to your active physical supply chain.

With detailed product and supply chain models, an organization can identify the raw materials in short supply that put the supply chain at risk, the strategic suppliers the organization is depending on, and which geographies it is ultimately dependent on. An American organization that believes it is primarily sourcing from, and dependent on suppliers in Mexico and Brazil might discover that the majority of raw materials in its bill of materials are still coming from China and India and it is, in fact, more dependent on Chinese suppliers than it was when it was sourcing directly from China.

Value Lever 3: Quality and Performance Analysis

Sometimes the largest costs in the supply chain are the hidden costs. For example, much can be saved on the front end by way of a properly conducted strategic sourcing event, but if the organization pays twice as much on the back end in warranty costs, it didn't save anything at all. The ability to do a detailed quality analysis on all products already sourced will inform the organization just how well each supplier is doing, the results of any inspections on sample products, and whether or not any extra cost on the front end to improve quality will pay off on the back end. While most organizations focus on TCO (Total Cost of Ownership), leading organizations focus on TVO (Total Value Optimization) which minimizes costs across the category lifecycle, not just pre-acquisition costs.

Value Lever 4: Collaboration

The saying goes that the whole is always greater than the part. This is also true in the supply chain world, but in the supply chain world, the whole is created only when multiple parties come together and collaborate to come up with new designs, new cost savings opportunities, new value-add offerings, and so on.

The collaboration value lever increases the efficiency and effectiveness of your supply chain. Collaboration makes the supply chain more efficient as data can be collected and validated faster, disputes can be resolved faster, and problems can be identified and addressed faster when multiple parties are able to monitor the situation. Collaboration makes the supply chain more effective as complete data allows for more in-depth analysis and fast dispute resolution allows for faster joint creation of development and improvement plans.

Value Lever 5: Compliance

When regulations change, seemingly overnight, an organization can be left holding the bag with a hundred million of unsalable inventory, such as happened to Sony in 2001 when Dutch authorities halted a shipment of 1.3M Sony PlayStations due to illegally high cadmium levels. Regulations like REACH and RoHS don't pop up overnight. They are proposed, analyzed, voted on, and then scheduled to come into effect. Proper monitoring allows an organization to be on top of upcoming regulation, and a proper platform that tracks each product down to the bill of materials allows an organization to determine which products would be affected by a proposed legislation that Risk Management just made Procurement aware of. This allows Procurement to work with R&D and/or Engineering to proactively determine if there are alternative market offerings that are not affected or if there are options for product redesign and reformulation, possibly joint with a strategic supplier in a collaboration effort. This not only prevents possible disruptions but allows the organization to be ahead of its competition.

Value Lever 6: Project Based Procurement

The ability to manage the entire lifecycle of a category allows Procurement to manage Sourcing as a proper project with the full lifecycle of the product in mind, instead of just a point-based sourcing project that starts with a requisition and ends with the signing of a contract. Savings and value are never realized if Procurement simply hands the category off to the primary stakeholder as soon as the contract is signed. Value is only realized with proper execution throughout the category lifecycle, which continues not only until the last item is ordered, but until the last item is returned or goes out of warranty.

Project-based Procurement is also the lynchpin that ties the relevant processes in the sourcing and procurement lifecycle together. Sourcing decisions are impacted by a number of internal and external factors, and unless an integrated process is followed, some of these factors can be missed. In order to make the right decisions, Procurement needs supplier insight, market insight, sustainability data, performance data, and insight into development and innovation opportunities. The category analysis and strategy, supplier analysis and strategy, risk and sustainability analysis, award and contract, quality and supplier monitoring, supplier development, and on-going performance analysis all need to be linked in a synchronized workflow that collects all of the relevant data and centralizes it in a centralized data store for ubiquitous access and monitoring.

Finally, without project-based procurement, it's easy for Procurement to be trapped in "short-termism", a classic DMAIC (Define, Measure, Analyze, Improve, and Control) pitfall where the buyer becomes overly focussed on what is valid and working today. The reality is that Procurement exists in an ever-changing world and what is valid and working today may not be valid tomorrow. Project-based Procurement monitors the market, and effectiveness, of the initial plan over time and if conditions change, they are immediately detected and acted upon.

In Summary ...

Should be black and bold ...

While many platforms, and the vendors that supply them, start and stop with cost (as their focus is on TCO), the best platforms, and the vendors that provide them, also focus on risk and performance as these factors often have a much bigger impact on total value than price. As has been said before, there's no point saving 10% on the front end if the impact on quality increases warranty costs 20% on the back-end.

The reality is that the key source of value is different for each category, sometimes risk trumps, sometimes performance trumps, and sometimes cost still trumps - and without a category analysis, the key source of value will never become clear.

Key Features of a Platform for Complex Direct Procurement

There is a lot of value to be extracted from complex direct supply chains with the right platform and process, but the reality is that most sourcing platforms are not the right platform. The right platform needs to include, at a minimum, the following capabilities:

- Complex BoM and Category Support
as the platform must allow for the definition of categories as well as bill of materials that can be decomposed into their respective categories.
- Detailed Cost Models
that not only allow component-cost breakdowns but also allow these breakdowns to be defined on formulas, market data, and historical cost averages and trends.

- **Physical Supply Chain Modeling**
that allows the supply chain to be mapped so that the full range of internal and external risks can be identified.
- **Quality and Performance Tracking**
that tracks quality ratings and reliability data and that allows an organization to create a clear picture of product and overall supplier quality.
- **Collaboration Tools**
that allow buyers and suppliers to collaborate through integrated messaging such as in-line e-mails, real-time messaging in e-Auctions, and document sharing (with versioning) and through additional tools like screen sharing and joint document creation that are appropriate to the need and situation at hand.
- **Project Management Workflows**
that allow organizations to create sourcing and procurement project plans that not only take the project from initial need identification to contract signing, but from contract signing to last order delivery, and allow data to be tracked, and even analyzed and managed, beyond that point.

When it comes to the requirements list for a modern direct sourcing platform, this is just the tip of the iceberg, but even this list goes well beyond what the average first generation sourcing suite offers. There is a lot of value to be extracted from a modern complex supply chain, and all you need is a platform that will help you look for it.

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