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April 2018 Market Research Advisory Report

The Morphing of Supply Chain and Enterprise Business Planning: Process-People-Information Considerations

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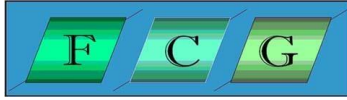
Introduction and Purpose

The objective and purpose of this research advisory is to update supply chain management, IT management and line-of-business readers on changes occurring in supply chain, business and enterprise planning and decision-making processes and how such processes are morphing into the need for a singular, integrated business planning process and decision-support capability.

This morphing is being accelerated by ongoing rapid business change occurring across multi-industry business and supply chain environments, along with changes that are occurring in the information technology, business application and supply chain management applications technology market.

Our objective in this two-part research advisory is to put into context the process, people and information implications in achieving an integrated business planning capability. We will address specific implications to end-to-end supply chain and integrated business planning information and decision-making needs including our view of the morphing of supply chain and sales and operations planning needs, and the implications for consideration and adoption of augmented technology support. The second part of this advisory will have special emphasis on business systems technology implementation considerations with a special emphasis for SAP environments.

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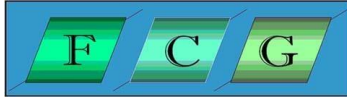
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Integrated Business Planning Objectives

Process advisory firm Oliver Wight defines ***Integrated Business Planning (IBP)*** as a best practice business process model that extends the principles of *sales and operations planning (S&OP)* throughout the supply chain, product and customer portfolios, customer demand and strategic planning, to deliver one seamless management process. Led by senior management, it is described as a common-sense process for aligning the company plans every month, which will help to allocate the critical resources - people, equipment, inventory, materials, time, and money - to satisfy customers most effectively, in a profitable way.

An article published in the May/ June 2017 edition of *APICS Magazine*, *Five Success Factors for Integrated Business Planning*, authored by Ehap Sabri (1), indicated that large numbers of organizations are still struggling to properly execute a transformation to IBP. The five key factors for effective transformation were defined as:

1. Displaying unflinching executive commitment to an *IBP* process.
2. The leveraging of an *IBP*-enabled technology strategy that can free-up resources chasing and collecting data into higher-value analysis actions.
3. Articulating a business case for change to ensure alignment between all process stakeholders as to expected operational and financial outcomes brought forward in the process.
4. Employing a proven IBP transformational and structured methodology to lead the overall change management journey.
5. Having the right organizational talent, effective governance and incentive mechanisms to maintain momentum and sustain change.

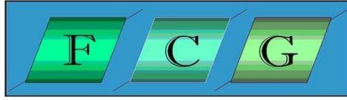
In this two-part market research advisory our focus will be concentrated on the leveraging of an IBP enabled technology strategy with important considerations for selection of the most appropriate and beneficial technology adoption strategies for teams to consider.

Supply Chain Planning Background

Over the past ten to fifteen years, the supply chain planning process and its associated technology support has undergone quite a lot of positive change.

Supply chains themselves were primarily internally focused as the notions of globalization were just getting started. Supply chain planning was a linear-based perspective primarily focused on a singular supply chain model. The impact of online commerce was a vision at this point, but some best-of-breed and enterprise software vendors were already messaging on the ultimate business benefits. Amazon, which is now a multifaceted online retail platform, was initially an online provider of book sales.

Planning methodologies once prescribed by supply chain academic and professional organizations outlined forms of sequential, time-phased product demand, supply planning and



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decision-making processes that were predicated via a prescribed planning timetable. The sheer volume of extracted planning data, coupled with the then existing bandwidth of data management and analysis systems caused supply chain planning, as well as business focused *sales and operations planning (S&OP)* processes, to span multiple weeks of analysis. The process was one of a monthly cycle, usually included the development of unconstrained and constrained (optimized) product forecasts and demand plans, followed by the need to balance available supply to support prioritized customer demand. Because of structured calendars, *S&OP* processes were typically not responsive enough to adequately respond to unplanned market opportunities or supply disruptions.

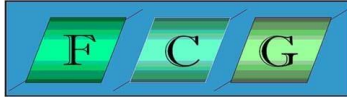
The process was one of plan, execute, and cycle through with additional rounds of data synthesis. The timeliness and context of the most important data relative to market trends and customer requirements would often be lost within the full cycle, or not able to be captured until a subsequent cycle. Market opportunities or important signs to supply chain risks and disruptions were only discovered days after initial occurrence. In short, overall supply chain planning cycle times were not responsive to needs for more timely planning and better insights

Most of the focus was on the tactical and near-term operational needs and the data utilized was mostly historically-based transactional data. Because of the high dependency on existing proliferation of *enterprise resource planning ERP*, resident legacy systems or *material requirements planning (MRP)* master data, supply chain planning was often supplemented by the use of spreadsheets as a means for planners to rationalize or translate data and information to support specific decision-making needs related to products, markets, customers or other factors.

Early Phases of Supply Chain Planning Software

The early introductions of supply chain planning and optimization software, as it was initially termed, stemmed from what technology providers were initially offering to the market: Highly sophisticated software anchored in linear programming and optimization methodologies. The approach was one of a mathematically based toolset that could be tailored for industry-specific supply chain planning needs. The key to successful planning was often related to both the specific planning model to be supported and the overall ease-of-use of the application. Supply chain strategy and planning models varied from one of market response to constant market changes or business uncertainties, or one that focused on maximum efficiencies applied to rather defined market segment.

Best-of-breed providers, at the time, quickly learned that their perceived “*black boxes*” of advanced forecasting, optimization and heuristic-based planning functionality were better than those being offered by prominent *ERP* providers. Yet, supply chain planning teams did not well understand them, hence the ease-of-use factor. The market needed a literally



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packaged software approach to be layered on top of a singular data model and advanced supply chain optimization technology.

Branded names such as i2 Technologies, Manugistics and others came to the forefront, each focused on their individual industry-specific strengths in understanding and planning an industry-unique supply chain. Their initial market success was a means to supplement existing *ERP* business applications that lacked required robust supply chain planning optimization, simulation or other advanced decision-making capabilities.

That period led to what we as analysts described as the “*best-of-breed software advantage*” in the supply chain planning area, and it literally took some years of dedicated efforts from *ERP* technology providers themselves to close some of the gaps. But alas, the gaps of innovation and for ease-of-use remain.

While all of this was occurring, multi-industry business changes and consequent impacts on supply chains and lines of business also exploded.

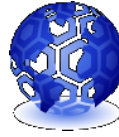
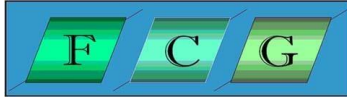
Today’s Multi-Industry Supply Chain Environments

Today, because of the constant need for growth in revenues and profits with lower costs, industry supply chains are far more globally extended. On the demand side, access to broader global markets provides added revenue and profitability opportunities. On the supply side, the quest for lower costs has led to global-wide sourcing. The result is a complexity of needs that include global component sourcing, finished goods manufacturing and customer fulfillment process and decision-making. All of this comes with added complexity and added risks. Because of needs for more diverse products catering to specific market channels, organizations actively pursued supply chain segmentation strategies, creating the need to plan and manage multiple supply chains based on different business outcome needs.

Amazon as the online book seller is now a multi-industry juggernaut, disrupting quite a number of *B2C* and *B2B* customer fulfillment processes. Multiple industries are being disrupted by new, more innovative digitally based business models that emphasize differentiation in services and in products.

Technology applied to multi-industry business segments itself has undergone explosive change and has fostered a lot of consequent individual industry disruption. Online commerce and social media have opened new unstructured information sources as to customer intelligence, customer buying intentions and market forces.

The result has been an exponential growth in data and information, both structured transactional and unstructured enterprise data related to communications, markets, business and industry developments. At the same time, supply chain and *S&OP* processes themselves have become bogged down in needs for added speed and more integrated overall business planning. Too much data still resides in various functional business siloes, and in many cases,



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too much of the wrong data is being collected, causing added inefficiencies and inhibiting needs toward more integrated planning and decision-making. Many supply chain and *S&OP* teams are literally drowning in data but lacking important insights. There is a need for a more focused, smarter data approach that aligns planning with specific business outcome needs, whether that be service level, financial or cost-based outcome in context.

Recent surveys among multi-industry planners indicate a need to move beyond a focus of precision in process and in a single agreed planning number to one of “*orchestration*” of the best options in required decisions performed in a far more timely manner. They now view predictive analytics, data science, simulation and forecasting of the *S&OP* process itself.

Information Technology Convergence

Accurate and more predictive supply chain and integrated business planning is no longer solely based on historic transactional-based customer fulfillment data, or an elusive more accurate product forecast, but rather the ability to leverage and utilize today’s more cost-effective advanced technologies at a more affordable cost and quicker learning curve.

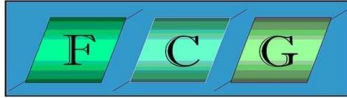
Game-changing advances within in-memory database and with a highly scalable *Online Analytical Processing (OLAP)* can support data and information more aligned to business constraints, insights and decision-making support. This fosters the ability of organizations, small or large in size, to be able to leverage more complex mathematical modeling and to uncover more insights among granular, as well as aggregated, structured and unstructured data. Planning can now be supported in the context of advanced analytics-based business modeling, simulation, optimization and what-if decision-making.

Tailored application of artificial intelligence (AI) and machine-learning capabilities are now available to be applied to planning and decision-making processes. Continued advances in data analysis and visualization technologies can now be applied to all forms of planning, customer and product fulfillment data, allowing planners and decision-makers a more timely response to unplanned changes in product demand or supply.

The advent of more affordable, less disruptive, and more flexible *Cloud* software deployment models is further being applied to supply chain and integrated business planning environments.

The Morphing of Supply Chain and Business Planning

With the overall cadence of business dramatically increased in today’s always-on economy, line-of-business, *S&OP* and supply chain planning teams can no longer solely rely on sequential planning and decision-making processes. The “*new normal*” is one of constant round-the-clock based business activities.



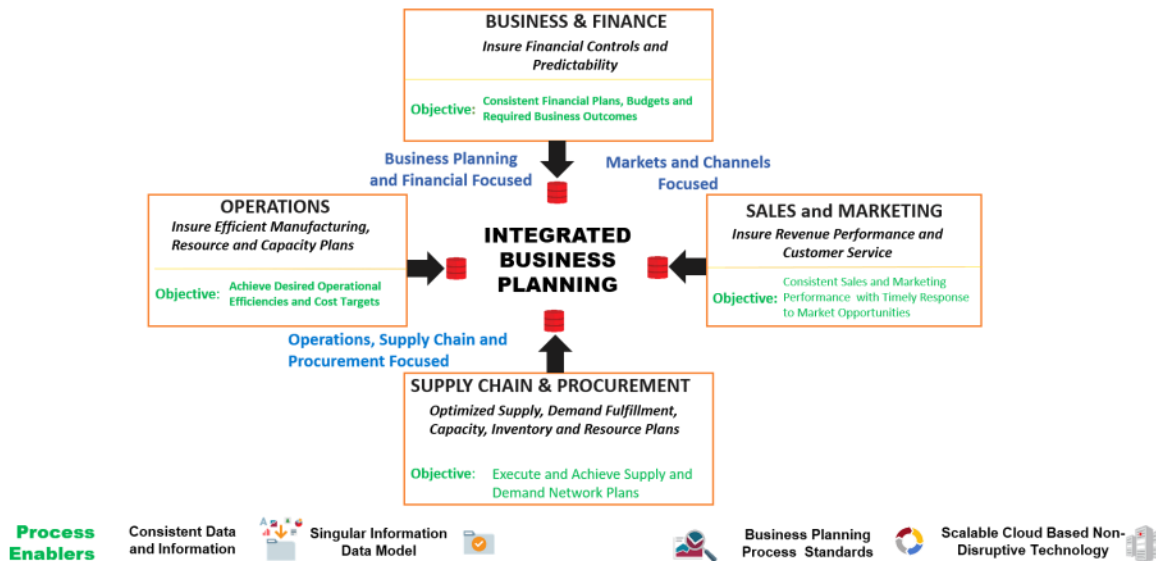
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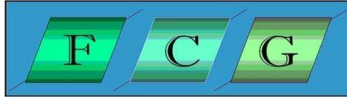
Planning is not viewed as a sequential functional or line-of-business process but rather a continuous stream of product demand, capacity, customer fulfillment and overall resource conditions placed in the most knowledgeable context. This in-turn has amplified the challenge to be able to identify or anticipate a problem in a far more timely manner and to be able to adequately address problems with proper context as to implications.

The goal is best accomplished by leveraging a singular data model of streaming data and information related to planning, products, customer fulfillment, markets, supply chain and procurement. Figure 1 (below) references a conceptual representation of the *Integrated Business Planning Operating Model*.

Figure 1- Integrated Business Planning Operating Model

Integrated Business Planning Operating Model





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Linear-based cause and effect forms of planning (historic or forecast based) are moving more rapidly towards probabilistic and simulative planning focused on specific fulfillment channels and tied to most desired or most feasible plan to consume needed or available resources. Decisions are now continuous and must be predicated on the best available information placed in proper context related to working capital, product margin and profitability impact. Planning and customer fulfillment information together must now serve as the basis of a continuous set of resource decisions based on ever-changing market, available supply and customer fulfillment needs pegged to a range of possible business focused outcomes. Planning is indeed moving towards needs for combining advanced analytics with the constant mining of insights related to products and market segments.

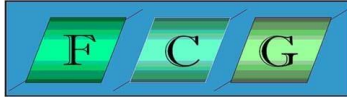
Our view is that supply chain planning is morphing with enterprise business planning into an integrative business planning environment that can better leverage today's more advanced and more cost-effective technologies that apply in-memory data analysis, plan simulation, focused artificial intelligence and augmented advanced analytics to integrated business planning needs.

People, Business Process and Information Implications

The need for more integrated business planning which brings together product management, sales, marketing, finance and supply chain fulfillment considerations is becoming more acute among today's dynamic business environments. While the term integrated business planning is sometimes depicted as a specific technology or application, it is more about the need for enterprise functions of a firm to be aligned towards a single set of financial, line-of-business, product and operational outcomes. Such alignment implies a common base of information and decision-making support capabilities, orchestrated and managed by planners possessing somewhat different skills.

The *S&OP* process is often the most likely mechanism for consideration of enterprise-wide integrated business planning because it consists of multi-functional representation and supports executive-level decision-support. Where the *S&OP* or integrated business planning processes can often stumble, especially with today's faster cycles of business decisions, is when a lack of enterprise-level information integration, such as financial and product planning data occurs or when support teams constantly struggle to gather, classify and continually align such information. Frustrations expressed by many further relate to alignment of goals and outcomes that span or transcend beyond individual functional metrics and incentives. (Figure 1)

Integrated business planning must transcend functional and organizational barriers and information sources. The process must be supplemented with abilities to synthesize existing business, supply chain and operational planning, customer fulfillment and market information on a far more timely basis supplemented with capabilities to drill-down on specific product, market or channel-based market information. Thus, the process needs to be supported by a



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consistent set of decision-making capabilities predicated on a singular data and information architecture, and on combined abilities to be able to model, simulate and prescribe important, as well as critical decisions. Advanced data visualization, simulation, and combinations of descriptive and prescriptive analytics capabilities are an important and essential consideration to help overcome any functional or individual organizational biases. The lens of the integrated business planning process is a consensus toward a set of expected business outcomes.

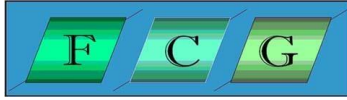
Business Systems Implementation Implications

The *S&OP* process has essentially evolved from the foundations of manufacturing and end-to-end supply chain planning. Many *ERP* and best-of-breed supply chain planning providers are marketing their software capabilities to support both *S&OP* and integrated business planning needs. However, manufacturers and business enterprises need to be able to understand and differentiate the various people, process and information management capabilities prescribed by such approaches.

In enterprises where the majority of business applications reside on a dominant *ERP* systems provider, the notions of integrated business planning tend to stem from force-fitting existing business systems, separate information warehouse, database management, advanced analytics or business intelligence applications into a combined integrated business planning capability. This is a rather challenging exercise. As an example, there are applications that support advanced supply chain planning, enterprise business planning and budgeting as well as operational planning. This process, depending on *ERP* provider, can involve an elongated business systems integration effort supported by a partnered or independent systems integrator, or a prescribed product roadmap that promises such comprehensive capability at some future date.

For businesses with resident *ERP* business applications, achieving support for integrated business planning is also highly dependent on whether *ERP* applications have been upgraded to new releases or more advanced technology. Because of the inherent disruption and expense to the business, many *ERP* systems instead remain in a legacy state with the average *ERP* system being 10-15 years old. They pre-date today's new normal of business complexity and constant change.

Approaches from certain best of breed systems providers provide an alternative, namely providing a less-disruptive, *Cloud* based packaged application capability. Such approaches combine inherent leading-edge enterprise planning, budgeting, supply chain and operational planning functionality support, augmented by pre-integrated advanced analytics, simulation and what-if planning capabilities, to serve as what is more often defined as a "*system of innovation*" or augmentation to an existing systems landscape. This approach provides enterprises an option of quicker time-to-value, less complexity in systems integration and overall cost, and in many cases, a much more user-friendly systems experience.



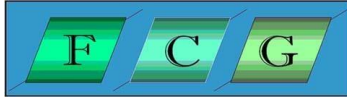
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Actions to Consider

The transition to integrated business planning has the same **People-Process-Information** implications as other major business wide transformational and change-management initiatives. Industry supply chain and line-of-business teams will need to invest now in the following competencies and capabilities in order to achieve the benefits:

- **Improved People Skills:** Individuals will need to improve both their broad business knowledge, analytical and team relationship skills because most industry environments are moving rather quickly towards the need for timely, analytics-driven decision-making needs. This includes the need to be able to formulate more cross-functional or cross-business approaches to business-wide decision-making needs that support specific business goals with cross-functional objectives and resource needs. Organizations are already defining emerging roles such as network planner and supply chain or business planning specialist. These roles are less to do with chasing and resolving day-to-day problems or culling through volumes of planning alerts and reports. They are more focused on broader business and process knowledge, the ability to interact and leverage advanced technologies for more informed decision making. The role of planners, in essence, turns toward team interaction and leadership, assessing and addressing early-warning indicators, and arming senior management with contextual information to be able to make more informed decisions.
- **Enhanced Leadership Skills:** Executives need to advocate and actively support not only the active sharing of data, information and knowledge, but more prototyping approaches in prescriptive based decision-making that focuses on what is likely to occur given a current situation. For example, a decision to relocate limited inventory or capacity to fulfill an unexpected order from a long-standing key customer may have other cascading implications in meeting specific revenue, service or profitability goals either short or longer-term. Executives who seek and utilize such information have a more meaningful ways to weight various decisions and gain needed consensus to desired business outcomes.
- **Include All Business Silos:** Decision-making processes need to move their context and information sharing beyond a singular function such as sales, marketing, supply chain or finance, and instead include the impact of each. Often, existing challenges and limitations related to existing resident business applications hampers that effort or frustrates teams. That includes consideration of whether an augmented process and new system risks a major disruption to ongoing business. With today's availability of less disruptive *Cloud*-based applications, teams can consider the adoption of a "*system of innovation*" approach to augment or work around existing challenges in aggregating information and applying more advanced decision-making capabilities.

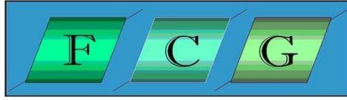


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- **Expand the Horizons of IT:** Line-of-business, functional and *S&OP* teams turn to resident or external support IT teams to help navigate a major technology support transition to a more integrated business planning model. Clinging to a biased or uneducated belief that support for an integrated business planning system is far too disruptive or unproven in the market is a disservice to today's realities. Similarly, clinging to the belief that such a capability can be accomplished in the long-term roadmap of the resident ERP backbone provider is a disservice without investigating all other options, including available best-of-breed *Cloud*-based systems of innovation.

Summary Takeaways

- Industry supply chains are today more globally extended resulting in far greater complexity with added risks to disruption in either product-related demand, available supply or unplanned disruptive events. Supply chain and *S&OP* processes themselves have become bogged down in needs for added speed and more integrated overall business planning. Too much data still resides in various functional business siloes, and in many cases, too much of the wrong data is being collected, causing added inefficiencies and inhibiting more integrated planning and decision-making. Many supply chain and *S&OP* teams are literally drowning in data but lacking timely insights for needed decision-making.
- The clock of speed of business has indeed dramatically increased and line-of-business, *S&OP* and supply chain planning teams can no longer solely rely on sequential planning and decision-making processes. The “*new normal*” is one of constant round-the-clock based business activities. Planning is not viewed as a single snapshot in time but rather a continuous picture of product demand, capacity, customer fulfillment and overall resource conditions that can be accessed with far more sophisticated, more prescriptive decision-making support capabilities.
- Supply chain planning is morphing with enterprise business planning into an integrative business planning environment that can better leverage today's more advanced and more cost-effective technologies that apply in-memory data analysis, plan simulation, focused artificial intelligence and augmented advanced analytics to integrated business planning needs. Emerging and mature businesses alike need the ability to leverage integrated business planning capabilities to manage their businesses more effectively and to proactively respond to either market opportunities or unplanned disruptions.
- An integrated business planning operating model should be an alignment of goals and objectives placed in the context of consequent business, customer service and financial outcomes. The process should be enabled by consistent data and information reflected in a singular information architecture model supported by consistent advanced analytics and simulation capabilities.



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Call to Action

We urge readers to download the second of this two-part market research advisory series, ***The Morphing of Supply Chain and Integrated Business Planning- Technology System Deployment Considerations with Special Consideration for SAP Customers***, where we delve deeper into considerations for integrated business system technology deployment considerations when weighting ERP vs. Best-of-Breed technology approaches.

Readers can [access an information overview of Vanguard's Demand Planning-Forecasting Application](#), or [request an actual software demonstration](#).

Reference

- (1) *Five Success Factors for Integrated Business Planning*, Ehap Sabri, May/June 2017, APICS Magazine.

About the Author

Bob Ferrari is the Managing Director of The Ferrari Consulting and Research Group LLC, a global supply chain consulting and research firm providing insight and strategic assistance in supply chain business processes and information technology strategies and programs. Bob is also the Founder and Executive Editor of the Supply Chain Matters Internet blog and is a highly recognized thought leader in global supply chain business process and information technology. His background includes over 30 years' experience across multiple dimensions of supply chain functional and information systems management.

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