



# RELEVANCE OF INTEGRATED BUSINESS PLANNING IN A PANDEMIC-STRICKEN WORLD

## Abstract

Businesses often lack the discipline of collaborative planning across all their departments. Integrated Business Planning (IBP) brings together the entire organization and ensures visibility and efficiency across all departments. IBP today is being increasingly adopted by enterprises large and small, creating a well-oiled supply chain from the start of production to the last mile delivery.

However, since SARS COV-2 disrupted demand and supply cycles across the world, the value of IBP is being questioned. The pandemic and the associated lockdowns raised unprecedented challenges in the market and broke down the best planned and executed supply chains. This, unfortunately, is being seen as a breakdown of IBP itself.

In this whitepaper, Infosys explains the role of IBP in today's world, offers certain corrective measures needed to make it more efficient, and shows how IBP is relevant even in these times and beyond.

# The Evolution of Integrated Business Planning (IBP)

Integrated Business Planning (IBP) is an approach that factors in all key aspects of demand, supply, and financial analysis in the mid-term planning and decision-making process. To understand IBP, it is important to know its history and evolution.

Planning was originally focused around production, but in the 1980s industries realized the need to account for inventory and also balance demand with supply. This was the start of S&OP (Sales and Operations Planning). Later, organizations understood that they need to shift focus on how and when to launch new products. A decade later,

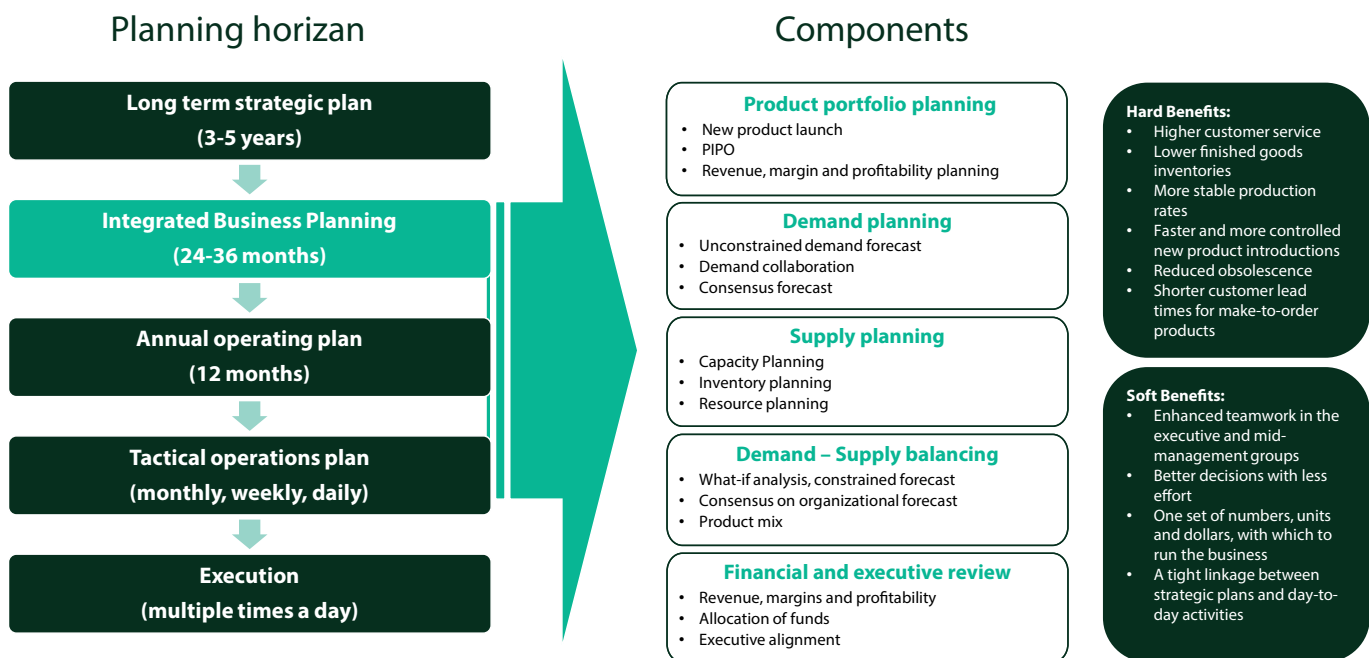
in the 1990s, this view expanded the scope of S&OP to integrate product and portfolio. Around the same time, businesses felt the need to be more flexible and plan for various scenarios. This gave birth to what-if scenario-based planning in S&OP. This helped leaderships understand and analyze the implications of decisions before they were made. All this was taking place while it was still a supply chain focused initiative.

At the turn of this century, it was becoming evident that S&OP was missing the most critical aspect of business – profitability understanding. In addition, there was no

clear focus on execution (See section on S&OE for execution process). Towards the late 1990s to the early 2000s, tools started focusing on Integrated Business Planning (IBP) to help understand the financial impact of decisions and connect strategy to execution. This makes IBP uniquely cross-functional and multi-dimensional as well as inherently better suited to help realize an organization's business goals and strategy. Integrated Business Planning today combines strategic and functional plans into a single actionable plan for the organization and leads to better execution.

## An Overview of IBP

IBP planning typically covers the medium-term planning horizon which is neither addressed by annual operating planning process nor the long-term strategic plan. Various planning processes, their horizons and key components of the IBP process are shown in the adjoining diagram.



IBP is a decision-making process that considers medium term strategy, financial plans, scenario evaluation and portfolio management along with demand and supply dynamics. The process is characterized by a culture of trust, cross-functional collaboration and teamwork, working on a minimum time horizon of 18-24 months.

IBP has gained much relevance over the past few years due to the shortcomings of traditional S&OP. IBP provides the

ability for practitioners to gain good visibility into the financial aspect of decisions being made during the planning process, which in turn could lead to actions being taken contrary to the strategic direction that the organization has set for itself. For example, based on demand signals, the supply department could choose to contract manufacture an item when the demand exceeds in-house production capacity. They often make this choice instead of adjusting the forecast

numbers, even in a scenario where it could lead to lower margins for sourced products.

IBP ensures that this kind of analysis is an integral aspect of the planning process and decisions are taken with a complete view of the financials by all key stakeholders. It is not to say that this analysis was not done earlier or could not be done outside of IBP. However, IBP truly ensures that this analysis is integrated into the overall planning process, and the decisions made have a much more informed sign-off from all stakeholders.

## An Overview of S&OE

S&OE is a 3-month (13 weeks) short-term operations and execution-focused process whose purpose is to deliver the outcome of the IBP plan. It is a weekly process while IBP is a monthly process. Demand and supply teams meet regularly during the week to validate demand and supply details in the short-term horizon. Proactive and reactive actions are taken to mitigate any short-term issues with demand and supply. The process also provides feedback into IBP in case of serious challenges that can scale up to become long-term issues.

## Differences Between S&OE and IBP

S&OE	IBP
<ul style="list-style-type: none"><li>• Weekly process, focused on short term time horizon (i.e., 0-13 weeks)</li><li>• Update “Short Term Demand Plan” weekly based on inputs from sales and marketing, and analysis of actuals (i.e., orders/ shipments, promotions, NPI launches)</li><li>• Update “Supply Plans” based on the demand plan and “huddles” with the factories and deployment teams</li><li>• Review key metrics and performance issues and identify solutions</li><li>• Review demand and supply plan disconnects and identify solutions</li><li>• Integrate with order fulfillment/management and IBP activities</li></ul>	<ul style="list-style-type: none"><li>• Monthly process, focused on the medium-term time horizon (i.e., 4-18 months), using the S&amp;OE demand and supply plans for 0-13 weeks</li><li>• Review key metrics and performance issues and identify solutions</li><li>• Review demand and supply plan disconnects and identify solutions</li><li>• Develop recommendations and scenarios to changes in demand/supply plans</li><li>• Integrate with S&amp;OE and business planning activities</li></ul>

## Relevance of IBP in Today's Volatile Market

The pandemic has highlighted the risks of global supply chain inter-dependencies, elevated demand and supply imbalance, exposed vulnerabilities in supply strategies, and showed lack of process and system maturity within organizations to manage through global disruptions. Adapting to this environment requires organizations to ensure a resilient supply chain and strategic agility. This is the new normal.

The main agenda for IBP is to balance demand and supply to meet customer expectations while maximizing profits for the business. The pandemic has shaken the market. Disruption in shipping logistics, along with unprecedented demand volatility is resulting in deviations as high as 50% in forecast accuracy, making planning and modelling the supply chain increasingly difficult and unpredictable.

While IBP is meant to define organizational plans, strategic focus, and executional priorities, we learn from our clients that there is a need to adjust the traditional IBP process to effectively deal with such pandemic-like situations.

To understand the context, we interviewed clients and analyzed the challenges they faced during the pandemic. We heard similar stories and challenges across different organizations. While most organizations were unprepared for this sudden change in the demand and supply equation, those with weaker or Excel-based S&OP and IBP processes struggled even more. These companies could not analyze the magnitude of the demand and supply imbalance. They simply overproduced and distributed across warehouses just as they did earlier.

However, organizations with mature IBP processes and data fared better. They were able to understand the supply

and distribution needs. For such mature organizations, IBP helped with a better and more iterative understanding of the forecast. While they were still limited by slow execution of rigid supply strategies, they were able to articulate internal gaps and work on mitigation plans. Data latency was another challenge. Data sets were point-in-time snapshots and not real-time. Consequently reactions were also delayed. Companies tried to apply offline models to forecast real-time needs.

## IBP is More Relevant Today than Ever Before

As we did a deeper analysis it became evident that effective system-based IBP implementation was the key focus area. The pandemic and all the supply chain problems it laid bare proves that the IBP framework is not irrelevant. On the contrary, there is a need to accelerate the automation of IBP with clear guidelines on KPIs and governance.

## Challenges Laid Bare by the Pandemic

As we interviewed people with different organizations, several common threads of challenges emerged. We collated these challenges and summarized our suggestions to overcome each challenge.

Challenge	Our suggestions
History not a good indicator of demand. Forecasts are wildly inaccurate	<ul style="list-style-type: none"> <li>Increase weightage of demand planner 'gut feel' view</li> <li>Build predictive AI in your models</li> <li>Have distinct processes for short term and medium-term forecasts</li> </ul>
Plans are outdated the moment we make them	<ul style="list-style-type: none"> <li>Make conservative plans knowing they may become invalid</li> <li>Give more authority to executioners of the plan</li> <li>Develop capabilities to be more responsive in execution</li> <li>Integrate data for real-time insights; shift from data models to real-time insights</li> </ul>
Supplier commitments have become unreliable	<ul style="list-style-type: none"> <li>Re-evaluate sourcing strategies</li> <li>Analyze beyond Tier-1 suppliers to know and align on values and commitments</li> <li>Build a heat-map for which geo locations will hurt suppliers</li> <li>Maintain partnerships with back-up suppliers</li> <li>Enhance supply chain risk management capabilities</li> <li>Build inventory around your (or key customers') stores to reduce impact</li> </ul>
Major disruptions in supply chain	<ul style="list-style-type: none"> <li>Diversify sourcing and production geographically</li> <li>Invest in safety stock that can ride through next global disruption</li> <li>Use AI tools to predict and manage geopolitical or environmental threats</li> <li>Invest in gaining insights from social media which can forewarn of peaking demand and upcoming shortages</li> </ul>
Transportation delays	<ul style="list-style-type: none"> <li>Partner with freight providers to gather data on a regular basis to predict timing delays by zones</li> <li>Include these increased transit times in your forecast</li> </ul>
External cost variations make it hard for profitability-based planning	<ul style="list-style-type: none"> <li>Factor in additional costs such as higher number of returns, non-delivery, and increased freight charges</li> </ul>

Our analysis revealed that none of these issues were new. All issues seen in the post-COVID world were present even before the pandemic. Earlier these issues impacted a few companies at a time or a sector or industry. The virus changed all that and wreaked widespread havoc leading to a global disruption in scale and severity.

The speed, magnitude, and global impact shook all the models that were in place in various organizations. Many organizations

were ill-prepared to account for the speed of changes, some could not scale up or scale down to meeting the dynamic requirements, and most did not have any alternative strategies or plans to source or produce differently. The cost control based models along with rigid sourcing and supply strategies were not resilient enough to respond to global disruptions and rapidly changing consumer needs.

Most of these challenges are external factors outside the control of organizations.

The IBP process is designed to manage factors from all functional areas, but organizations assumed that external factors are stable and excluded them in their planning. As long as external factors are ignored, no process will be able to give us the required results.

Instead of reinventing the wheel, it is better to recognize the shortcomings of the current process and enhance IBP to mitigate these issues. In addition, we need to take long-term steps to build supply chain resilience.

## Opportunities for Improving the IBP Process

As with other models across the industry, IBP needs to be examined at regular intervals and adapted to suit changing market dynamics.

### 1. Strengthening risk management

IBP ensures that supply chain risks at all steps are mitigated by involving the right stakeholders throughout the process. But this is not enough. There is lot of work needed to improve the company's risk management framework. In addition, this framework needs to be tightly integrated into the IBP process.

Surprisingly, risk management is often not a fully mature process even in large companies. Most of the risk management framework is implemented in silos – supplier risk management, safety stock planning and so on. However, there is a need to implement strong risk management framework identification, assessment, treatment, and monitoring of supply chain risks across vendors, transportation providers, and stock positions. A good risk management framework should have processes and tools to measure and track metrics like time to recover and risk score along with a way to measure resilience.

### 2. Shortening the IBP Calendar

A typical IBP calendar completes in 4 or 5 weeks and then repeats the next cycle. Given the scale of change in today's market, a monthly process may be far too long a timeline. Is it time to change to micro-reviews and weekly IBP cycles?

Infosys recommends that we retain the monthly IBP calendar and ensure that the S&OE (Sales and Operational Execution) phase deals with volatility and other issues in the shorter horizon.

Let us look at the IBP process time horizons. IBP is a mid to long range plan anywhere from the 3rd month to the next

18 or 24 months (in some cases companies only plan ahead for about a year). The first 3 months (or 13 weeks) is the S&OE phase and the 4th month onward is the IBP phase. In the S&OE phase it is understood that changing supply is possible to a limited extent. Things like increasing supply by replenishing through the mother warehouses is possible but procuring material and planning a disruptive production run may not always be feasible. Instead it helps shape the demand by using price, promotion, or other strategies. Typically, detailed planning is done for the S&OE phase and plans are frozen or in a slushy zone. The 4 to 24 months horizon is mostly liquid and it is in this time zone that production or procurement plans can be changed easily. For some companies these horizons may be 2 to 24 months or even 9 to 24 months on a higher end. Thus for rapidly changing situations S&OE is the correct forum to mitigate near-term issues, and since it is a weekly process issues can be dealt with on a shorter time scale.

Next 3 months

Difficult to change supply.

Rather shape demand

4 to 24 months

Limited visibility into long term events causing the forecast to be inaccurate. Flexibility to change supply.

### 3. Providing financial projections

A key aspect that differentiates IBP from S&OP is that unlike the latter, which is focused mainly on supply and demand balancing, IBP enables a more holistic view of the business with a strong focus on the financials and the organization's overall strategy.

These times have seen unprecedented volatility in demand. Forecasts have always been inaccurate. Forecast errors of 50 to

100 % are not uncommon now. How can we provide a stable financial outlook to stakeholders in such cases? What is the point of providing inaccurate financial projections?

In our experience, it is always advisable to provide a financial projection. The report should be broken down into worst (lower) and optimistic (higher) number projections. Senior leadership can plan according to the conservative numbers which would include increased costs for the need to expedite shipments and other issues caused by higher volatility. The bands of worst case and optimistic scenario have widened, but giving that picture is absolutely essential.

### 4. Using a combination of AI/ML and field experience for better forecasting

Today, artificial intelligence (AI) and machine learning (ML) provide great tools for businesses to predict market patterns. Sophisticated algorithms are able to study historical data and predict patterns thereby averting losses worth millions of dollars.

However, the fact is that today's ML-based algorithms and old-fashioned statistical algorithms rely on past data and assume that the patterns will repeat but with differing magnitudes.

The market dynamics in recent months have shown that no such stable patterns exist. With the 2nd and 3rd set of lockdowns being announced, much of the volatility and shifts in patterns are being attributed to government policies and measures to curb the pandemic. Planners and field sales executives are closer to the customers and are able to make a "gut-feel" forecast.

Therefore, it is best to adopt a blended approach - using AI/ML for long-term forecasting and the expertise of field sales to adjust the forecast based on ground experience.



## 5. Upgrading the technology landscape for better IBP planning

Companies with a modern technology landscape have fared better in the current environment. Technology provided them with an edge to adapt quickly to the demanding situations of changing business models even if the model is relevant only in the short term.

Adopting new technologies should go hand-in-glove with clear business goals. Recognizing key business problems and addressing them with the right technology is the strategy to adopt. We have outlined below some common problems and the thought process required for technology upgrades to work well with IBP.

### i. Data

Companies have traditionally used static data to prepare for IBP meetings. This requires manual data consolidation from different sources. MS-Excel is usually the tool to help make critical decisions. The challenge is that this data is constantly changing and prevents organizations from reacting to new insights.

Organizations should invest in data platforms that can read and aggregate data close to real-time, or implement advanced planning tools that can easily collect and analyze these data points at any time to support scenario-based planning.

### ii. Dashboards/KPI

Making sense of data using traditional tools has been challenging. Businesses need experts who understand data so they can clearly visualize for better decision-making. They should look for ways to directly build dashboards and KPIs in their connected planning tools or on top of their data platforms. Further, they must ensure that KPIs and dashboards can be rendered on mobile

devices for collaboration and decisions especially if they have a sizeable mobile workforce.

### iii. Scenario planning in IBP

Organizations must expect that situations will keep changing. Therefore, scenario-based planning capability is a must-have requirement. It is nearly impossible to simulate worst case, optimistic case, and other such use cases using MS-Excel spreadsheets. Most commercial off-the-shelf (COTS) providers such as SAP, Oracle, and others have sophisticated simulation and what-if capabilities.

### iv. Direct-to-customer

Many companies have felt that a big part of their lost sales could have been avoided if they had a direct-to-customer strategy. This was no secret before the pandemic, but this economic crisis has elevated the importance of this channel. However last-mile delivery is easier said than done and companies need to gear up their technology landscape.

### v. A solid inventory optimization solution

Many good COTS software (cloud-based as well) are available that can do multi-echelon inventory optimization which ensures that the right inventory is placed at the right location at the right time. Infosys has developed an AI-based On Time In Full (OTIF) prediction tool that looks at past trends and inventory levels and predicts the OTIF. Machine learning is used to generate insights based on historical trends and identify possibilities of quantity deviations (order fulfillment) and schedule deviations (late/ early deliveries) and the root cause of the same. The solution offers real-time recommendations to resolve issues such as change plant or expedite shipment.

OTIF compliments the inventory optimization tool. While the inventory optimization tool does a stochastic derivation of the inventory, the OTIF tool looks at the data and tries to derive correlation and predict the OTIF.

### vi. Demand sensing

This is no longer a new technology but adoption has been lagging, in our experience. Again, many good COTS solutions are available. The important point here is the availability of quality data that matters for demand sensing – sell-through data, POS data, customer's inventory visibility, and data regarding other patterns as per industry requirements.

### vii. Supplier geo-mapping and impact tool

Supply chains have been hit hard and previously reliable suppliers are no longer as dependable. The lack of reliability is more due to systemic issues than the individual supplier capability. Companies need to use technology to map suppliers to geography with the ability to attribute risks and manage them (for instance, by placing orders earlier than needed).

### viii. Next level collaboration with suppliers

Considerable bandwidth is expended by planners to share the company's production plan with suppliers – with a copacker for example. Simple things like primary and secondary packaging material require a lot of collaboration. Companies do not have an effective tool to track the design, approval, outsourcing, and introduction of a new packaging material. There are multiple tools available to track orders and shipments but hardly any to collaborate and manage the lifecycle of indirect materials.

## ix. Inventory visibility outside of the organization and POS data

A critical reason why companies were unable to do a good job of forecasting when the pandemic hit was because they lacked clear visibility of the stocks in the market. Beyond the direct customers, companies only had an estimate of how much market inventory was present and this led to stockouts when panic buying started. There are many ways to get POS data. Infosys Trade Edge is an

effective solution to address this need. Companies need to gear up their landscape for proper utilization of POS signals on sales and inventory.

## x. Connecting systems to ensure better reporting during IBP meetings

Typically, IBP meetings are led with glitzy presentations prepared using various tools in the market. But using such a disconnected tool takes away the value of real-time

data. IBP meetings will be more meaningful if technology is used to connect systems together and provide real-time visibility into all processes from product marketing and sales to finance, supply and more. Technology should provide pre-configured dashboards to collate all the data needed for such meetings, rather than having people manually gather data and spend hours putting it together in a consumable format.

## Conclusion

Although this article is about the role of IBP in an organization's overall business strategy, it is important to note that enterprises need to evaluate their supply strategy. To be prepared for the next global disruption, businesses need a resilient supply chain combined with effective IBP.

A global pandemic of this scale was unprecedented and therefore consumers were forgiving. However, large scale global disruptions can happen again due to any reason, and consumers may not be as tolerant the next time. Businesses that are not merely resilient but also geared up to predict, react, and respond will emerge as the winners.

With this understanding, learned the hard way from the pandemic, it is obvious that IBP is not just relevant, but critical going forward. Implementing a robust IBP framework supported by the required technology infrastructure will be key to handling market uncertainties in the future. Markets will continue to be volatile, and plans will have to change at the last minute. But organizational silos will impede rapid redirection. A solid IBP process will ensure that all parts of the organization are synchronized, and changing direction to meet requirements will be faster and more efficient.



## About the Authors



**Dhananjay Prakash Godse**  
Industry Principal, Infosys

Dhananjay Godse has more than 20 years of experience in supply chain planning with focus on business process and technology. He has led several business transformation and innovation programs that has unlocked value levers for clients. His area of expertise is in Demand Planning, S&OP, Inventory Optimization, and tactical supply planning.



**Manu Chandra**  
Senior Principal – Business Consulting, Infosys

Manu has a strong functional and leadership experience in business and technology for over 20 years. He is a technology and business leader, who has led business transformation, innovation, and large integrations. His area of expertise is in supply chain management, commercial and strategic planning to use technology with a focus on delivering business value.



**Sandeep Kumar**  
Partner – Business Consulting, Infosys

Sandeep is a Partner with Infosys Consulting and leads the ERP practice for Consumer Goods, Retail and Logistics industry group. He has 20+ years of experience with leading CPG companies and Consulting firms where he had led large business transformation programs. His area of expertise includes strategy definition, supply chain management, value realization and leveraging technology to accelerate business value realization.

## References

1. Consumers identify supply chain pain points | CSCMP's Supply Chain Quarterly
2. DMi-Integrated-Business-Planning-Evolution.pdf (dmintegration.co.uk)
3. Infosys Trade Edge Solution
4. Infosys OTIF prediction tool

For more information, contact [askus@infosys.com](mailto:askus@infosys.com)



© 2021 Infosys Limited, Bengaluru, India. All Rights Reserved. Infosys believes the information in this document is accurate as of its publication date; such information is subject to change without notice. Infosys acknowledges the proprietary rights of other companies to the trademarks, product names and such other intellectual property rights mentioned in this document. Except as expressly permitted, neither this documentation nor any part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, printing, photocopying, recording or otherwise, without the prior permission of Infosys Limited and/ or any named intellectual property rights holders under this document.