MARGIN MANAGEMENT IN THE OIL & GAS INDUSTRY

Infosys®
Navigate your next

Margin management and optimization lay at the intersection of refining production, marketing, crude and product supply, and trading and primary distribution. Successful margin management needs the coordination of several processes of multiple organizational units, along with synchronization and discipline. The difficulty involved in achieving it makes it all the more valuable, providing a significant advantage to oil and gas companies that are successful in margin management.

Evolving business context drives fundamental changes

Disruptive technologies and changing market dynamics are creating opportunities for early adopters while they threaten the existence of others. The value chain is digitized at a faster pace than ever with almost every process having a digital twin to predict behaviors and model scenarios to future-proof an enterprise.

The inability of an enterprise to conduct best-in-class planning and margin management can lead to disruptions in product availability, revenue loss, and lower profitability while increasing working capital. The success of the supply and trading unit of an oil and gas company is highly dependent on the right input data at the right time, and the appropriate set of tools.

The coordination required for efficient optimization involves many parties, and poor execution can lead to loss of business opportunities.

The infographic below illustrates some hurdles to manage the supply chain for margin optimization. Planned or unplanned shutdowns can disrupt the supply chain, limiting the options to respond to market changes. Lack of real-time inventory view prohibits effective planning and the ability to monetize opportunities. Studies have shown that by having a real-time view of stock in third-party depots and controlling allocation can add up to US$ 0.2c per litre on the margin of fuel shipped.
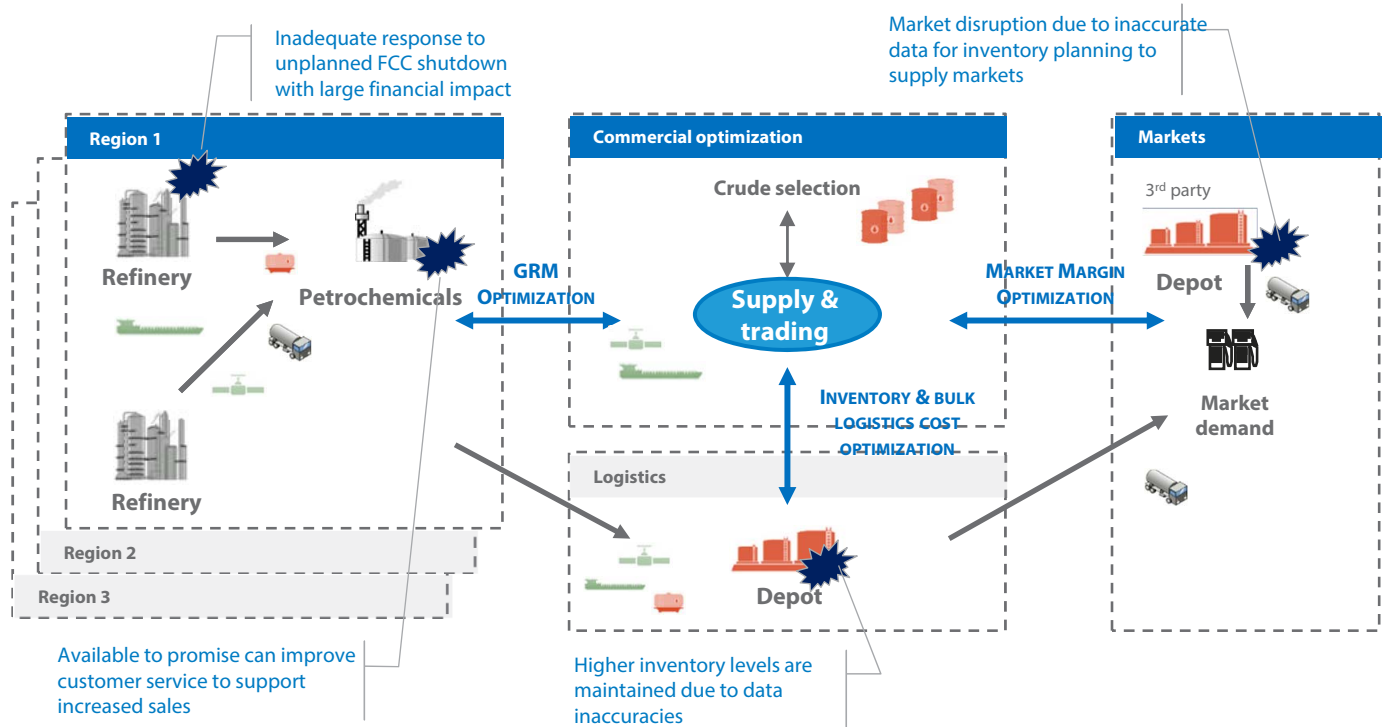
Figure 1: Visualization of overall margin management

These symptoms are the result of four main causes:

- Inadequate tools for planning, execution, and reporting.

- Data management and availability

- Loose application integration and lack of automation.

- Planning process maturity and rigor

1. Inadequate tools: It is very common to have spreadsheet-based tools with manual input data collection, leading to associated inefficiencies. Collection of data is an onerous process where any small change in the data and structure of the spreadsheets can break the whole planning process resulting in additional effort in data validation and correction. Consequently, this process is confined to monthly and extra-ordinary runs only due to its laborious nature.

2. Data management: Managing the data across systems and reporting with consistency is often impeded by the lack of a master data management (MDM) data governance process and an efficient publishing mechanism to align data. It affects the ability to report consistently as data hierarchies are not aligned.

3. Application integration: Margin management is typically executed with the support of supplementary dashboards. The dashboards rely on a large number of Excel spreadsheet integrations, making the reporting database unstable and fragile with a direct impact on visualization. It is not possible to create integrated data models at the granular level required to ensure alignment

4. Planning process rigor: Overall process capability is not flexible enough to be executed more frequently which hinders the ability to capture market changes and respond.

Digitize your margin management process

Digitization can enable 'intelligent' margin management. Margin management assumes decision making with information collated from various sources and business functions. Refining (assets) focusing on market (prices, demand) response will optimize production commercially, but will ignore opportunities in the wider hydrocarbon value chain. Similarly,

if refining is focusing only on the hydrocarbon value chain without taking market conditions into account, it will optimize production without necessarily making the right decisions. Likewise, if the hydrocarbon value chain focuses only on satisfying market demands, the probability of refining running sub-optimally is high. Coordinating between these assets requires the necessary application landscape and processes to be in place.

The infographic below illustrates the complexity of margin management which effectively requires the coordination of multiple parties, each one potentially looking for a different solution. For effective margin management, it is critical to create an environment where profits from the optimization are attributed to the appropriate party.
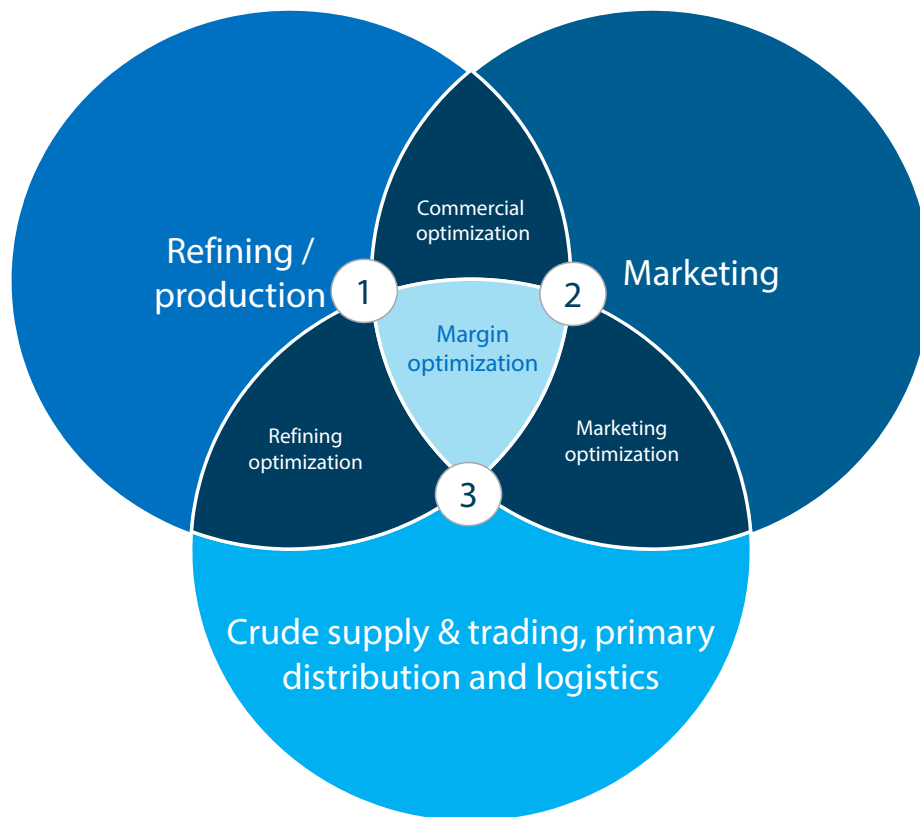

Figure 2: Margin optimization is an extremely complex process to coordinate

Margin management is a prime example of an integrated business planning process where data from multiple sources over various timescales needs to be harvested, homogenized, and consumed as part of a well-defined decision making process.

Organizations that have achieved some degree of success have undergone a

business and IT transformation journey to ensure that processes are suitable and are supported by the right technology.

We have seen that successful transformations start by evaluating the current state, understanding the maturity, and benchmarking against the competition to define the target state. Once the target

operating business model and application road map have been defined and agreed to be the vision, it is time to establish the right processes. Infosys recommends an approach based on agile software delivery to deliver the best possible user experience and allow adapting to dynamic market conditions while simultaneously delivering immediate value to the organization.
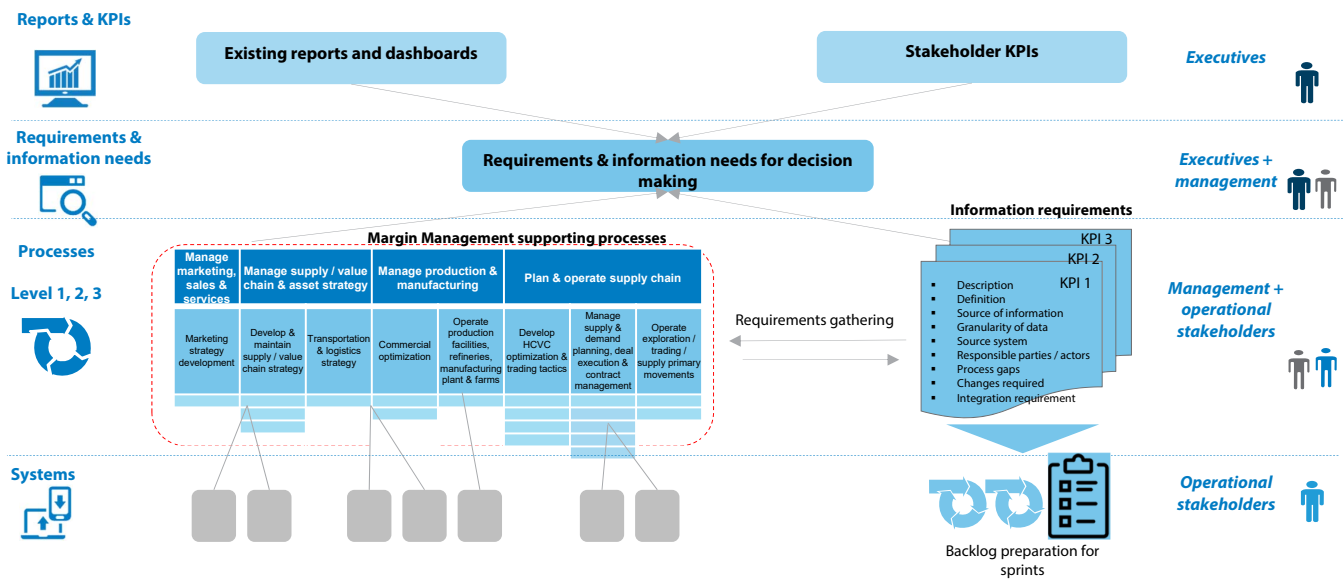
Figure 3: An approach to create an effective margin management process supported by suitable systems

Our approach involves a thorough review of both processes and systems. Margin management is a decision making process based on a number of reports and dashboards. The information collated in these reports is the output of planning, scheduling, and execution processes with timescales ranging from minutes to months. Each report and key performance indicator (KPI) is analyzed to define the building components, which in turn are assessed. A component can be a process, a system, or a combination of the two. The enhancements required are logged within the product backlog for delivery by the respective team as part of their sprint planning, assuming that an agile delivery methodology has been chosen.

We based our approach on these key principles:

Fact-based: Business decisions to be driven by fact, as also the as-is analysis and the to-be design.

360° view: Covering organization, process, technology, and data dimensions.

Implementation driven by business value and risk: Business release and implementation waves defined to maximize value while reducing risks.

Driven design by business decisions: Business decisions to be driven by fact, as also the as-is analysis and to-be design.

Combining waterfall and agile approaches: New ways of working go with the support of other workstreams' DevOps.

Leveraging expertise and accelerators: Reference models, best practices, and templates all along the project phases and reliance on the supply chain and industry expertise of our network.

Key considerations and moving forward

A successful margin management program will entail not only successful implementation but also appropriate change management and benefits realization. Key KPIs will need to be established and monitored. The key elements that need to be tracked and monitored are:

Higher margin will be realised through a number of levers across the organisation which will be identified using Infosys' Value Realisation Methodology.
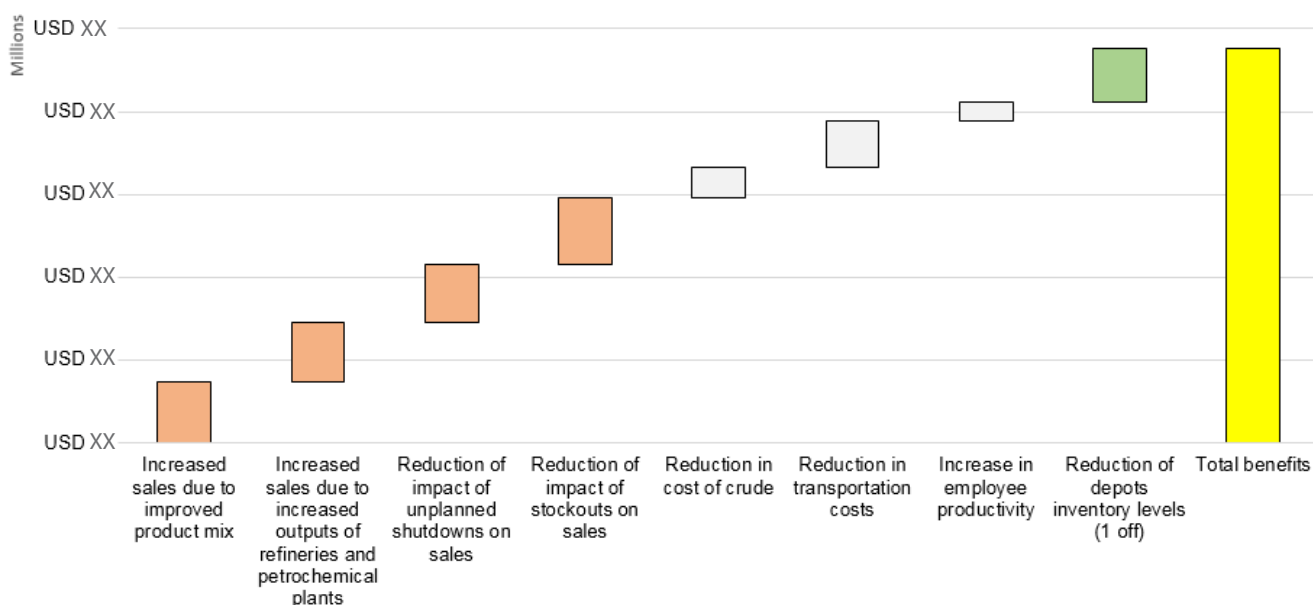
Margin improvement breakdown to value levers

1. Measure of process cycle: Demand forecasting measures the typical forecast cycle (from source to consolidation of forecast).

2. Number of reports: Measure the number of reports, users, frequency.

3. Monitoring planning or scheduling adherence: For example, do you hit your production schedules within your threshold?

4. Performance of planning process: How often is the supply chain disturbed due to unforeseen circumstances?

It is important to ensure that the processes, data, and technology that support margin management are reviewed and aligned while the base technology is standardized. We believe that addressing the pain points - and any new ones revealed by further analysis - while at the same time implementing the program in an agile manner to adapt to ongoing changes, will provide leading capabilities in margin management.

Key success factors for implementation are the ability to use data from multiple sources within a common framework while managing the application landscape in an automated manner, synchronizing master and transactional data. Recent technology trends suggest a complete re-think of architecture with the introduction of a micro-services environment enabled by big data, analytics, and AI. Digestion of unstructured data and transformation to meaningful reports using machine learning will be the new state.

Author Profile

Panagiotis Tsiakis (PhD) is a Senior Principal at Infosys Consulting, and an expert in oil & gas value chain management. With over 17 years of consulting experience, he has delivered strategic and operational projects within chemicals & petroleum, pharmaceuticals, consumer goods and manufacturing while in parallel focusing on research and business development in the areas of process planning and scheduling, multi-site production and distribution and supply chain optimization.

Thomas Anastaselos is Associate Director, Business Development and Digital Strategy at Infosys' Energy (Oil & Gas) sector. Has 8+ years of experience in the areas of energy and digital technologies, helping companies develop their strategy and enhance their operations. Areas of interest include: digital strategy, industrial automation and digitization, data analysis, product management, product design. He is coming from an Electrical and Computer Engineering background from the University of Patras and has received his MBA from HEC Paris.

Suraj Ramaprasad is Partner with Infosys Consulting and has been instrumental in setting up the energy, utilities and commodities, trading & risk management practices in Europe and currently handles some of our major clients in this sector. His industry focus is oil and gas predominately and areas of expertise include digital transformation, supply chain and TOM/IT Strategy.

For more information, contact askus@infosys.com

Infosys
Navigate your next

Infosys.com | NYSE: INFY

Stay Connected   SlideShare