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JIT, agile & Demand-Driven

Demand-Driven is the logical reply to the questions of modern supply chain management. Camelot ITLab's Frank Arnold, Christian Kroschl and Patrick Wolf (left to right) are pioneering the high art of Demand-Driven SCM for SAP.

JIT, agile & Demand-Driven

SAP partner Camelot is committed to the high disciplines of flexibility, transparency and customer orientation. Demand-Driven is the logical and contemporary approach to supply chain management (SCM). As a pioneer for Demand-Driven SCM, Camelot has decisively advanced the concept as well as SAP-based solutions. How? Peter M. Färbinger, E-3 Magazine, spoke to Christian Kroschl, Frank Arnold and Patrick Wolf (from left to right).

SCM, like many other corporate functions, should not be an end in itself. Why has it only now become clear that supply chain management has to be Demand-Driven? "The main motivating impulse for the development of the Demand-Driven SCM concept is a simple but far-reaching realization: Our legacy SCM approaches – in principle central planning methods from the 1960s – no longer meet the requirements of today's business conditions in terms of complexity, volatility and uncertainty," explains Patrick Wolf, partner at Camelot, at the beginning of the discussion. He further explains, "Almost all ERP or SCM/APS systems in the industry today are still essentially equipped with the MRP processing logic from the 1960s. That only works with very accurate demand forecasts, which is simply impossible in today's business world. Instead of constantly trying to improve demand forecasts, the Demand-Driven SCM (DDSCM) concept therefore first addresses the cause of the problems in the supply chain - namely the way we process and pass on the variability and volatility in the ERP/APS systems. DDSCM with its core - the Demand-Driven Material Requirements Planning (DDMRP) - is a new approach to better master the variability in today's digital supply chains".

Necessary degree of maturity

The development of Demand-Driven SCM is comparable to machine learning: the idea and concept of neural networks has existed for many decades, but only current computer technology makes applications feasible and possible in reality and not only on paper. Demand-Driven SCM also lacked suitable software solutions for a long time. Camelot's work is a pioneering achievement that now enables the practical application of theoretical knowledge. Agile action involves not only understanding, analyzing and forecasting, but also consciously controlling the supply chain according to actual customer requirements. The success of Demand-Driven SCM is achieved by clearly turning away from the attempt to control fluctuations in the supply chain through improved demand forecasts. The conscious installation of "shock absorbers" in the form of stock buffers at defined decoupling points in the supply chain ensures that fluctuations in customer requirements are no longer passed on and – what is worse – amplified along the entire supply chain.

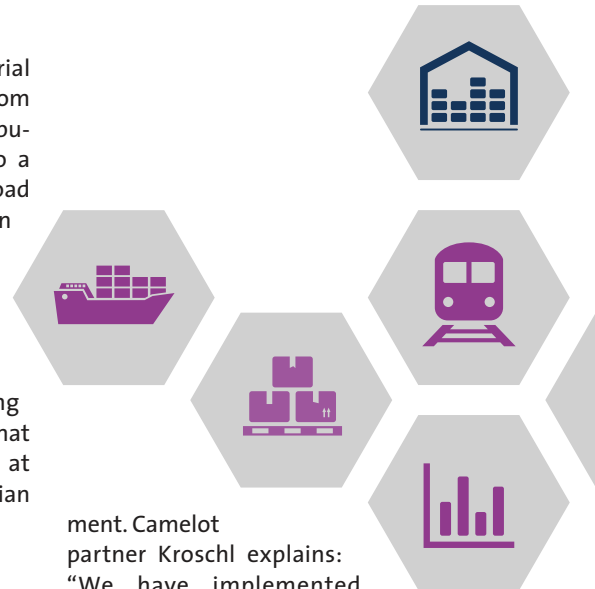"Demand-Driven enables the supply chain to be synchronized according to customer requirements. The result is an opti-mal flow of information and material across all stages of the supply chain, from purchasing to production and distribution," explains Christian Kroschl, also a Camelot partner. SCM can cover a broad horizon in terms of time, organization and also physically. How do you synchronize an SCM across many stations, even heterogeneous ones, so that the supply chain is Demand-Driven? "We ensure synchronization by the intelligent definition of decoupling points and an innovative approach that helps us control the inventory level at these decoupling points," says Christian Kroschl.

SCM paradigm

Everything flows, everything is in balance - this is the perfect condition for Demand-Driven SCM in theory. How can companies achieve this flow and balance technically and organizationally? "Demand-Driven is a new paradigm in supply chain management. It is therefore important to first anchor the ‚thoughtware', i.e. the theoretical concepts and philosophy in the company and the organization," knows Patrick Wolf based on his professional experience. "So what is at stake here is, above all, a business transformation, for which effective change management is required. In our projects, we additionally support change management with training conducted by our certified Demand-Driven coaches". Camelot also knows that thoughtware is useless if it cannot be implemented with appropriate IT solutions. Hence, Wolf emphasizes: "What is needed are integrated enhancement solutions that reflect the Demand-Driven SCM principles – something that did not exist for a long time. As a pioneer in SAP-based Demand-Driven SCM solutions, Camelot has been instrumental in making these enhancements available for all SAP platforms today".

End-to-End

E2E is the new hype in ERP and CRM. Camelot now brings the E2E idea to SCM. "Supply chains and their management are by definition always E2E", Christian Kroschl describes the Camelot approach. "However, our experience has shown that, in practice, supply chains are often controlled in individual silos due to their complexity, variability and historical organizational development." Camelot recognized early on that approaches and solutions are needed to help companies implement integrated supply chain manage-ment. Camelot partner Kroschl explains: "We have implemented these concepts in real supply chain integration projects. The approaches and project experience have – already some years ago – led to the development of the Demand-Driven lean supply chain concept". For Camelot, the central elements for reducing complexity and variability are the tactical configuration, the active use of inventories in planning and the E2E synchronization of the supply chain. Kroschl adds from his experience: "It was clear to us that forecasts, i.e. predictions of customer requirements, should form the basis for the supply chain configuration, but should not control execution. Because of the convergence of these concepts, we are now working very closely with the Demand Driven Institute, the global authority on Demand-Driven MRP."

Demand-Driven & SAP

"The currently available solutions can be easily integrated into any SAP system as an add-in", Frank Arnold, Vice President at Camelot, describes the operational approach. "Whether it is ERP/ECC 6.0, SAP SCM or S/4 Hana is irrelevant. Camelot has also developed a Demand-Driven MRP solution for the modern SAP Integrated Business Platform as a co-innovation with SAP". But what do existing SAP customers say about Demand-Driven SCM? "Demand-Driven SCM is a central topic for many of our customers, " Frank Arnold knows from his conversations with SAP customers. Many companies have recognized that the complexity and variability of today's global supply chains cannot be managed with the old MRP approaches. Arnold knows that customers have tried to remedy the situation with tools they have developed themselves but have not gotten far with. "Accordingly, a new concept with corresponding IT solutions is being sought that can be flex-
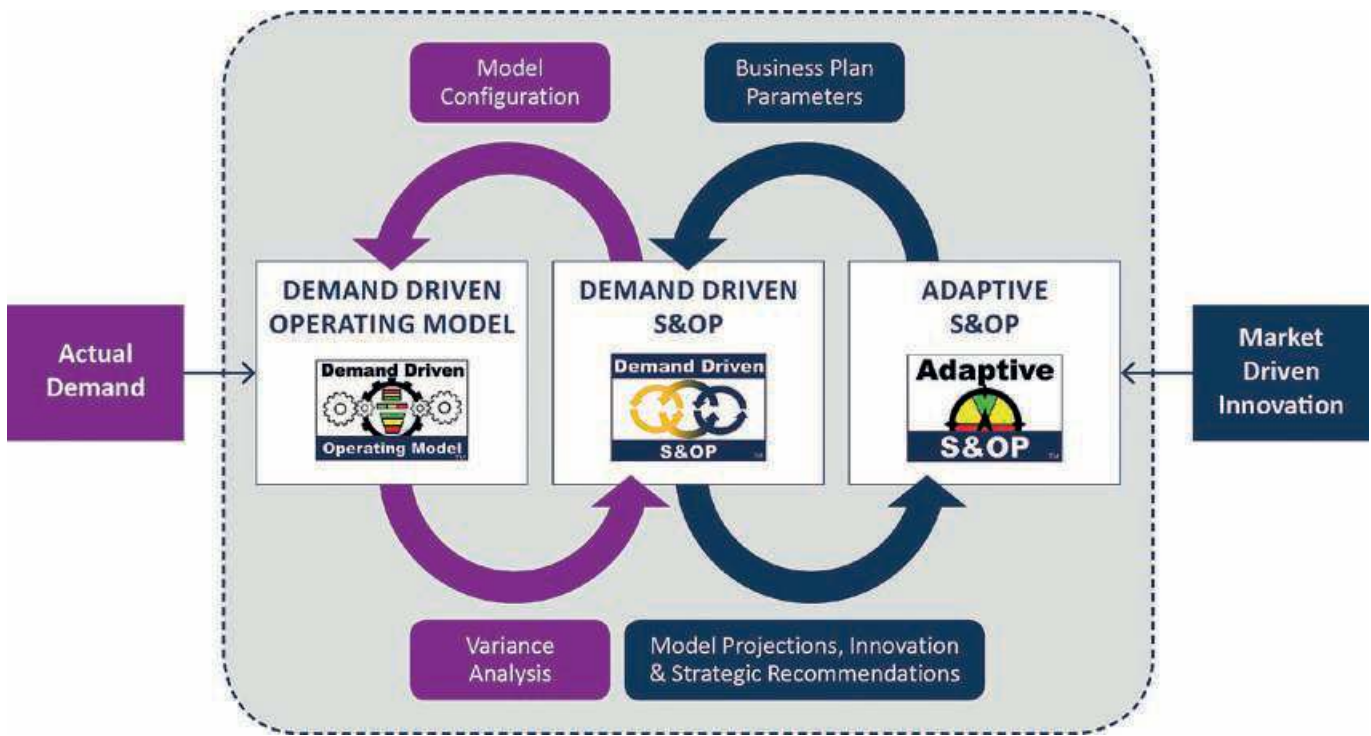
The Demand-Driven Adaptive Enterprise Model, which completes the Demand-Driven concept, covers all levels of the company - from strategy to operational implementation.

ibly adapted to the respective customer situation", Vice President Arnold defines the current situation.

Which SAP architecture and components are required in detail to implement Demand-Driven SCM for an existing SAP customer? Frank Arnold explains that Camelot's understanding of a holistic SCM solution includes the following: In addition to the main components – Demand-Driven MRP and Demand-Driven Rhythm Wheel Planning (an approach for smooth production planning, also called production leveling) – there have to be extensions for Demand-Driven sales and operations planning (S&OP), strategic AI-based segmentation and configuration, and machine learning algorithms in production leveling. "In terms of SAP solutions, Demand-Driven MRP is now avail-

able on the platforms SAP S/4 Hana, SAP SCM and SAP Integrated Business Planning through standard solutions or enhancements from SAP and Camelot. Production leveling is exclusively available from Camelot as enhancement for SAP APO PP/DS and S/4 Hana Advanced Planning", says Arnold. Camelot is developing these extensions on the SAP Cloud Platform (SCP) and SAP Leonardo.

Economic value

"DDSCM is the enabler for getting a grip on the variability that causes excessive stocks and long delivery times," explains Patrick Wolf in the E-3 interview. The control of variability in turn leads to immense economic and financial advantages. For companies that have implemented Demand-Driven SCM, Camelot has achieved performance improvements – across industries – of 31 percent less inventory on average, 22 percent shorter delivery times, significant service level improvements and double-digit percentage increases in efficiency.

Is there a connection between Demand-Driven MRP and Demand-Driven SCM? "Demand-Driven MRP is an approach specific to material requirements planning and the core of De-

mand-Driven SCM. From Camelot's point of view, Demand-Driven Supply Chain Management also needs to include corresponding concepts for production planning, Demand-Driven Rhythm Wheel Planning, as well as additional extensions, especially for sales and operations planning," adds Patrick Wolf. Put together, these interlinked concepts form the Demand-Driven Adaptive Enterprise Model (DDAE), which aims at bringing together strategic, tactical and operational tasks of companies operating under the Demand-Driven paradigm. DDAE combines market demand with market-driven innovations to create an enterprise that is able to continuously and successfully adapt to the complex and volatile supply chains we see today. A model like this does not only focus on generating ROI through a one-off investment in Demand-Driven SCM technology but aims to incrementally transform organizations for continuous ROI-generation and -improvement.

At this year's Sapphire, SAP CEO Bill McDermott presented the new CRM product C/4 Hana. In this CRM initiative, SAP speaks of E2E and sees CRM as the starting point and ERP as the end point. Where do you find Demand-Driven SCM and MRP in that context? Christian Kroschl: "In this definition, CRM is used synonymously for the demand generation and ERP for fulfillment and execution. Demand-Driven SCM is therefore to be understood as a link that takes up the demand and transfers realis-

Frank Arnold (Head of Sales DDSCM), Patrick Wolf (Partner) and Christian Kroschl (Partner) have advanced Demand-Driven SCM at Camelot, partly together with SAP. Today, Camelot is a leader in the SAP community with its new SCM concept.

tic, demand-based planning to the ERP system for execution. Of course, a seamless real-time comparison between the systems is the foundation for optimal planning and execution. With its highly integrated solution portfolio, SAP is ideally positioned here, of course." And to what extent does Camelot work with SAP on Demand-Driven SCM? "As a pioneer in SAP-based Demand-Driven SCM solutions, Camelot works very closely with SAP in this area. One example of this cooperation is the co-innovation of Demand-Driven MRP for SAP Integrated Business Planning, the first enhancement solution for SAP Integrated Business Planning ever," confirms Frank Arnold.

Everything Demand-Driven

Will a "DD" be set for Demand-Driven before every SAP three-letter term in the future? "In theory, yes," says Frank Arnold in the interview with E-3 editor-in-chief Peter Färbinger and specifies: "However, the Demand-Driven concept was explicitly created to express the shift away from forecast-based planning of value creation in favor of an absolute orientation towards tangible customer and market requirements. This implies a paradigm shift in SCM that we do not see in the areas of CRM or marketing. Here the customer and the demand generation are in the foreground by definition." Since ERP systems

have developed from the classic, MRP-based PPS systems and the MRP planning approach still is the foundation of every ERP system today, the term Demand-Driven ERP or DDERP could of course also be coined here, says Arnold. "An example of this would be S/4 Hana with Demand-Driven MRP functionality. But we believe that the number of new abbreviations will cause enough confusion," he admits to a linguistic challenge in the new SCM world.

Stability and efficiency

Where did the highest ROI result in the operational implementation? "It always depends on the client's situation to what extent – and in what timeframe – a return on the investment is achieved," explains Christian Kroschl: "Our experience is that in all organizations, the ROI is achieved in less than two years!" What are most noticeable changes for SAP users? "The tension in the entire system is almost completely gone. All variability in the supply chain is managed efficiently. The most significant change is the effect on the everyday work of planners," says Patrick Wolf, who is aware of many satisfied customer statements. Instead of "firefighting missions" and the permanent rescheduling of orders, existing SAP customers can now focus on their actual task of planning exceptions and difficult products. "In addition to the 'hard facts' in the form of

business and financial benefits already described, customers are also feeling the following additional positive changes: simplified business processes, fewer target conflicts and friction losses within the company and, of course, more satisfied customers," Wolf explains and adds: "We have experienced that all divisions involved in Demand-Driven SCM projects, including the CFO, are enthusiastic about this intuitive and easy to grasp concept. (pmf)
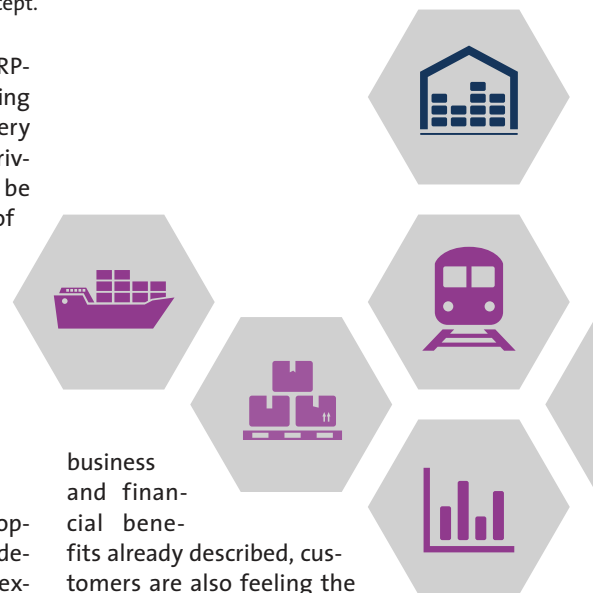
www.camelot-itlab.com

DDMRP and DDSCM

Revolution after 60 years

Is Demand-Driven really an innovation or just old wine in new bottles? What is Demand-Driven MRP & SCM all about and why should the SAP community deal with this topic right now?

by Josef Packowski and Patrick Wolf, Camelot

Demand-Driven Supply Chain Management (DDSCM) and its core, Demand-Driven Material Requirements Planning (DDMRP), are considered a revolution and paradigm shift in supply chain management.

The fact that SAP increasingly provides DDMRP functionalities in its products shows that this is a serious trend with great future potential. For many SAP users, this topic is still new. What does the magic word "Demand-Driven" actually mean?

Demand-Driven versus demand-driven

Demand-driven, wich means demand-oriented, supply chain management has always been the norm. So what's new?

Traditional supply chain planning approaches use forecasts of future customer demand to specify what is to be delivered, produced and moved, when and how – both for suppliers and factories. A forecast-based system only works well if the demand forecasts meet the actual customer requirements very accurately. However, given the complexity and volatility of today's markets, a steadily increasing number of products for sale and ever shorter product lifecycles, it is simply no longer possible to come up with accurate demand forecasts.

In fact, practice has shown that the predictions for most products are over 40 percent off the mark; either too high or too low. The consequence: the wrong quantities are procured, produced and sent to the wrong places at the wrong time.

As a result, inventories are either too high or too low, production capacities are underutilized or overutilized, and delivery promises to the customer cannot be kept. The core of the problem is that today's supply chains are controlled by methods that date back to the 1960s – a time when supply chains looked completely different and were much simpler.

Dr. Josef Packowski is Founder and CEO of Camelot Consulting Group.

Patrick Wolf is Partner at Camelot.

Modern requirements - traditional methods

Material Requirements Planning (MRP) is the most widespread planning procedure in all industries. Today, every ERP and SCM/APS system is subject to the more than half a century old MRP processing logic. As a result, we are still linking end-to-end supply chains across all disposition nodes with "zero netting" of demand and supply, thereby unconsciously, but inevitably, extending the overall lead times.

If the increasing variability in demand now is a key input for a multi-level planning chain that is linked to a "zero netting logic", the variability subsequently increases with every layer of the planning chain. Companies enter a vicious cycle because we usually counter this effect – almost instinctively – with even larger inventory-, time- and capacity buffers instead of going after the root of the problem – the active reduction and management of variability in supply chain planning.

Variability and volatility

The Demand-Driven SCM concept first of all deals with the root of the problems in the supply chain – namely the way we process and pass on the variability and volatility in the ERP/APS systems. Demand-Driven SCM with its heart, Demand-Driven MRP, is a new, innovative

approach to better master the variability in today's digital supply chains. Demand-Driven MRP uses strategically placed decoupling points, which are used as "shock absorbers" along the entire supply chain. These shock absorbers serve the sole purpose of minimizing volatility at the respective distribution- or production stage. DDMRP ensures that only what is currently in demand or ready to be sold is actually entering production – in contrast to the traditional approach, in which companies produce or procure what was planned using incorrect forecasts.

If the variability in the supply chain is reduced, the corresponding key performance indicators are also influenced automatically in a positive way. As a result, companies can de facto achieve disruptive results: a reduction of inventories by up to 60 percent, up to 85 percent short-er throughput times, decreasing production costs by "calming down" production (leveling effect) while at the same time constantly reaching the targeted customer service level. A leveled end-to-end supply chain with smaller "buffers" favors product flow and consequently results in a better return on investment in the value chain.

Thoughtware and software

Even the most brilliant concepts are useless however, if they cannot be put to work in a real-world solution, i.e. the corresponding software is also required for the thoughtware DDSCM and DDMRP. SAP partner Camelot, which specializes in digital value chain management, started to implement Demand-Driven concepts in SAP software early and de-veloped an SAP-based software suite for Demand-Driven SCM (the Demand-Driven Lean Planning Suite) already several years ago. Together with SAP, Camelot developed the DDMRP enhancement solution for SAP Integrated Business Planning (IBP) – the first enhancement solution for SAP IBP ever. This makes Camelot one of the worldwide pioneers in SAP-based DDSCM solutions. Today, the company also officially has the largest number of certified consultants and trainers for Demand-Driven Supply Chain Management.

Demand-Driven has now arrived in the SAP world. DDMRP functionalities are currently available in SAP S/4 Hana, SAP IBP, SAP SCM and SAP ECC. There is no reason for companies today not to embark on the Demand-Driven journey - and thus turn their supply chain into a real competitive advantage.

Interview with Ulrich Wetterauer

What are the benefits of Demand-Driven MRP?

Mr. Wetterauer, what makes Demand-Driven MRP worthwhile for companies?
Ulrich Wetterauer: Demand-Driven MRP is primarily about mastering the variability and complexity of today's global supply chains. And this leads to improvements that amount to a quantum leap.

What does that mean in more tangible terms?
Wetterauer: Companies that already use DDMRP were able to reduce their inventory by an average of 31 percent – across all industries! They were also able to significantly reduce expenses for material handling, storage costs and depreciation. In addition, significant improvements in service levels led to competitive advantages and increased sales. DDMRP compensates for fluctuations in demand and thus stabilizes production. As a result, capital-intensive production and storage capacities that are no longer required can be released, overall plant efficiency increases, and production costs go down.

These are results that are inconceivable with traditional approaches.
Wetterauer: Exactly. This is demonstrated both by actual customer projects and the extensive simulations we have carried out on the basis of representative supply chains. Traditional, purely forecast-based supply chain planning approaches can definitely no longer keep up here. The future belongs to Demand-Driven Supply Chain Management and the companies that consistently implement this innovation.
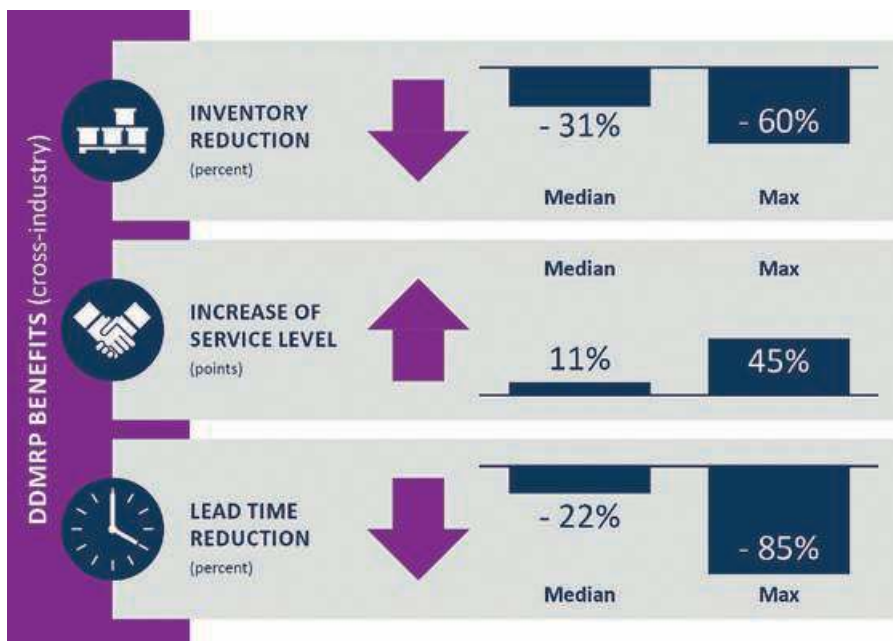
Dr. Ulrich Wetterauer, Head of Competence Center Value Chain Design & Configuration, Camelot.
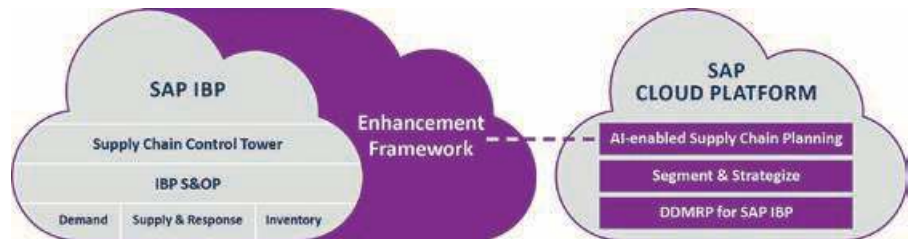
Enhancements

Thinking beyond the SAP standard

How to go from DDMRP to Demand-Driven Supply Chain Management with SAP-based enhancement solutions.

by Marco Klein, Camelot

Marco Klein, **Demand-Driven Adaptive Enterprise Architect at Camelot.**

The Enhancement Framework for SAP IBP.

Demand-Driven MRP (DDMRP) as a concept for effective and Demand-Driven supply chain planning has finally found a way into the SAP world and is here to stay. Today, appropriate solutions are available for all relevant SAP platforms (SAP ECC, SAP SCM, SAP S/4 Hana, SAP Integrated Business Planning). SAP Integrated Business Planning (SAP IBP) is a particularly suitable platform for the DDMRP concept, as it is very easy to map the entire production and distribution network – an important prerequisite for the systematic definition and monitoring of strategic decoupling points as required in the DDMRP concept. The DDMRP solution for SAP IBP, jointly developed by Camelot ITLab and SAP, builds on this strong foundation by enhancing existing standards instead of replacing them. Thus, it is easy for existing SAP IBP customers to implement the concept.

Enhancement framework

Custom developments are not possible within the SAP IBP system. The standard is extended by using an enhancement framework with corresponding interfaces. DDMRP for SAP IBP is just one solution that uses this function, other applications can also supplement the SAP IBP standard. In order to fully implement the core principles of the concept, more advanced functionalities are often required in the context of Demand-Driven SCM, especially for complex environments and extensive global supply chains. For example, the principle of a parameter-controlled supply chain in complex and heterogeneous environments requires systematic segmentation and parameterization, which however can only be implemented to a limited extent with out-of-the-box functionality. Another application case is the use of AI algorithms for the optimization of planning parameters such as inventory level (Camelot AI-enabled Supply Chain Planning). In these scenarios, the SAP Cloud Platform is used to operate the enhancements. This is in line with SAP's strategic direction, which already supports and uses its Cloud Platform for extension with other cloud products. Such extensions for standard software and its processes such as S/4 Hana, SAP IBP, SAP SCM are called microservices. Their task is to improve existing – or introduce new – process steps within a business process. Such a microservice has to implement data extraction and processing as well as the transfer of then determined results. Camelot uses the Camelot Intelligence Engine, developed on the SAP Cloud Platform, to map this process. The Intelligence Engine is also able to repeat the execution of the process with jobs that can be scheduled. The cloud product Camelot Segment & Strategize then uses this foundation for data segmentation. Segment & Strategize enables the systematic segmentation of products, customers, suppliers and other (planning) relevant entities and a derived parameterization of supply chain planning. The result is a constantly updating and differentiated parameterization of the supply chain and thus an important cornerstone of Demand-Driven SCM.
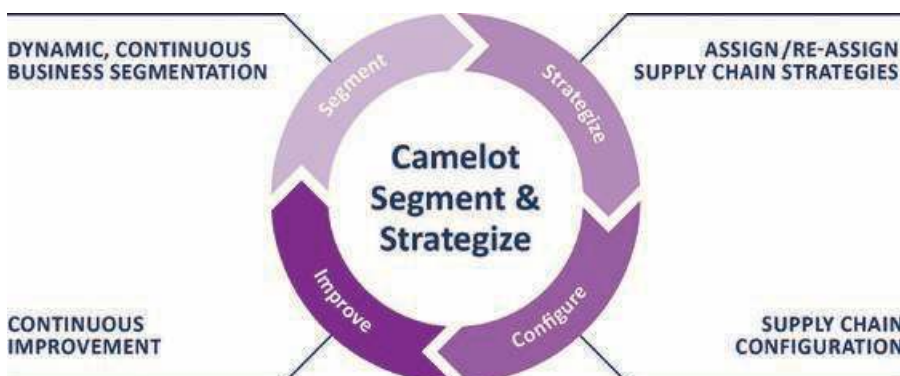
The Camelot Segment & Strategize process.

Demand-Driven Material Requirements Planning (DDMRP)

Agile Supply Chain

An enhancement solution co-developed by Camelot ITLab and SAP enables Demand-Driven MRP to be implemented in SAP's latest planning technology.

by Florian Sämann, Camelot

SAP Integrated Business Planning (SAP IBP) is SAP's cloud solution for real-time supply chain planning. Camelot Innovative Technologies Lab (Camelot ITLab) and SAP have developed the "DDMRP for SAP IBP" add-on solution as the first enhancement for SAP Integrated Business Planning as part of a co-innovation project. Companies can now also benefit from using the Demand-Driven MRP concept (DDMRP) in the SAP IBP platform. DDMRP for SAP IBP supports all five steps of the DDMRP concept. The solution was confirmed to be "DDMRP compliant" by the Demand Driven Institute (DDI), the global authority for Demand-Driven concepts. It is regarded as a central milestone in SAP's strategy to provide an open and expandable infrastructure for a rapidly growing, modern supply chain planning platform. DDMRP for SAP IBP consists of two components: the enhancement module implemented in the SAP Cloud Platform and the configuration module, which is based entirely on SAP IBP standard functions.

Florian Sämann
is Head of Competence Center Integrated Business Planning at Camelot.

Enhancement Modules

The DDMRP for SAP IBP Enhancement Module includes those functionalities that cannot be implemented with standard IBP functions. These comprise, for example, the strategic placement of decoupling points or the dynamic calculation of decoupled lead times in the first two steps of the DDMRP concept.

Configuration Modules

The actual planning and control takes place via preconfigured planning views in MS Excel using the SAP IBP Excel add-in and via dashboards and alerts in the SAP IBP Web Interface. Since SAP IBP is a cloud-based solution, integration with existing on-premise ERP and planning systems through SAP Cloud Platform Integration for Data Services (HCI-DS) is a central component and easily possible. The "DDMRP for SAP IBP Configuration" solution is offered as a Rapid Deployment Solution (RDS), which enables companies to implement a pilot project in very short time.

The DDMRP concept is already in use at internationally operating companies from a wide variety of industries. By introducing and using the "DDMRP for SAP IBP" enhancement solution, they have reduced the variability and stabilized the material flow in their supply chain. Customers benefit from improved service quality and increased agility in the supply chain.
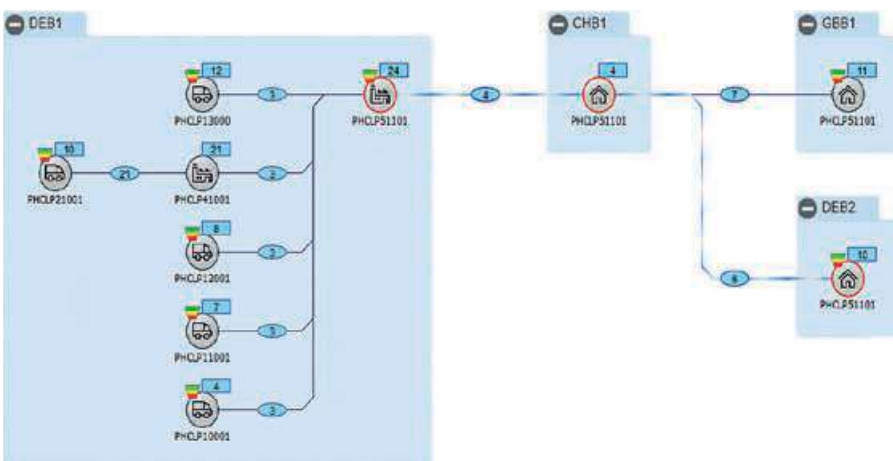
Left: Visualization of the supply chain network provided to the supply chain planner in DDMRP for SAP IBP. The planner can interactively read all relevant network information and set or remove decoupling points.
Simulations and decisions can be incorporated into the active planning process. This functionality supports Strategic Decoupling in particular – the first step of the DDMRP concept.

Demand-Driven SCM in the process industry

Shortening the process

Camelot Demand-Driven Lean Planning Suite is an integrated software suite based on SAP for the implementation of Demand-Driven Supply Chain Management concepts in chemical, life science and consumer goods industries.

by Christian Kroschl, Camelot

Many companies in the process industry are already convinced of the benefits of Demand-Driven Supply Chain Management. However, when it comes to implementation, they often face the challenge of applying theory to the practical complexity of their supply chain. Typically, there exist numerous limitations and challenges that need to be taken into account when attempting to increase plant availability and improving overall plant efficiency. If anything, most companies hence only start with small DDMRP pilot projects in distribution. Since usually no support system is available, complex Excel tools are used. This in turn makes it difficult or even impossible to transfer the advantages achieved in these small pilots to the entire organization. The scalability of these homegrown add-ons is therefore questionable at best.

Lean planning

The SAP-based Camelot Demand-Driven Lean Planning Suite (CLS) is a completely integrated solution that supports companies in the process industry in meeting these challenges. The Camelot De-

Christian Kroschl
is Partner at Camelot.

mand-Driven Lean Planning Suite is available on SAP S/4 Hana, SAP Integrated Business Planning (SAP IBP) and SAP SCM. In addition to Demand-Driven MRP

(DDMRP), the software suite also includes Demand-Driven Rhythm Wheel Planning (DDRWP), a concept for smooth production planning that is highly regarded as a best practice in the process industry today. DDMRP (available on SAP S/4 Hana, SAP IBP, and SAP SCM) reduces the variability of supply and demand by using the inventory in the system as a buffer and replenishing it based on actual consumption rather than forecasted demand.

Production then follows the DDRWP's repetitive cyclical production approach (available on SAP S/4 Hana and SAP SCM). In this way, production is leveled over time, demand fluctuations on the upstream stage (for required components) are reduced and the visibility and reliability of relevant signals in the supply chain is increased. Production requirements such as batch sizes, campaigns and optimal sequences are taken into account. With the Demand-Driven Lean Planning Suite, Camelot offers a holistic and integrated solution package – particularly for the process industry – and thus supports the introduction of a Demand-Driven operating model. The suite is also available as a cloud solution.

Shortages

The integration of DDMRP and DDRWP in the Camelot Demand-Driven Lean Planning Suite has the following advantages: DDRWP parameters such as cycle times, production quantities and campaign frequency are used in design and parameterization to automatically determine the level of DDMRP inventory buffers and to align them with production requirements and lead times. During production planning, the projected inventory buffers are calculated based on the current demand situation and can be taken into account to set alerts and/or prioritize for automatic intervention when bottlenecks occur.

RECIPE FOR SUCCESS FOR PROCESS INDUSTRIES

PP CAPACITY BUFFERS (leveled)   TIME BUFFERS   MRP INVENTORY BUFFERS
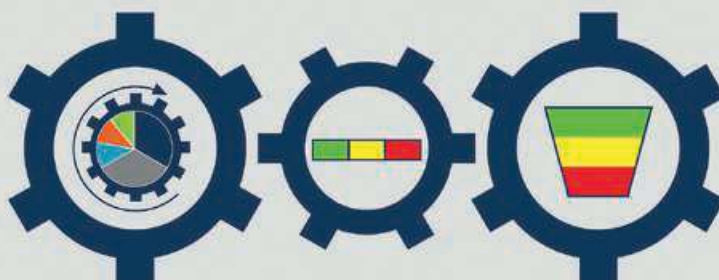
All SCM parameters now with real shock absorber effect

Use case: Pharmaceutical industry

Camelot developed a four-step approach for a leading pharmaceutical enterprise, which was used to establish an integrated supply chain operating model within the framework of Demand-Driven SCM. To overcome the challenge of fragmented supply chain processes and limited responsibilities and to ensure transparency and visibility in the pharmaceutical manufacturer's supply chain, global corporate priorities had to be determined as a necessary first step. It was essential to establish a global end-to-end supply chain planning process involving all relevant parties. Within the process, globally defined goals, such as alignment with actual customer requirements, needed to become the controlling factor along the entire supply chain.

The next step encompassed creating end-to-end visibility and transparency within the supply chain. With the intro-duction of SAP SCM, the globally defined planning process could be mapped in the IT infrastructure. The solution thus became an important piece to the puzzle as a central and consistent planning platform.

Since SAP SCM is an established standard software for supply chain planning, additional intelligent planning methods were introduced to achieve complete Demand-Driven supply chain planning, in particular the SAP-based Camelot Demand-Driven Lean Planning Suite (CLS).

With CLS's DDMRP module, the pharmaceutical manufacturer has finally optimized inventories worldwide, which led to a reduction potential of 240 million US dollars. A feasible, reliable and optimized production plan was achieved with the help of the CLS production module, Demand-Driven Rhythm Wheel Planning (DDRWP), which level variability in production. In this way, additional sales potential of USD 100 million could be generated in a single production plant alone. In tablet production, variability was reduced by 60 percent. For the future, the company is evaluating the implementation of DDMRP and DDRWP based on SAP S/4 Hana and SAP Integrated Business Planning.

Lastly, a key aspect for the success of the project was embedding the Demand-Driven mindset in the company through new roles that have both the capacity and the authority to implement the transition from reactive to proactive supply chain planning.

Benefits in practice

- Integrated, Demand-Driven supply chain;
- 240 million USD in potential from reduced inventory;
- 60 percent less variability in tablet production;
- Additional potential of 100 million USD in revenue.

Use case: Consumer goods industry

Reducing the inventory of finished goods by 30 to 60 percent: a remarkable result for a leading company in the consumer goods industry, where supply chain optimization has been at the top of the agenda for 15 years and which has already almost halved its inventories in the same period.
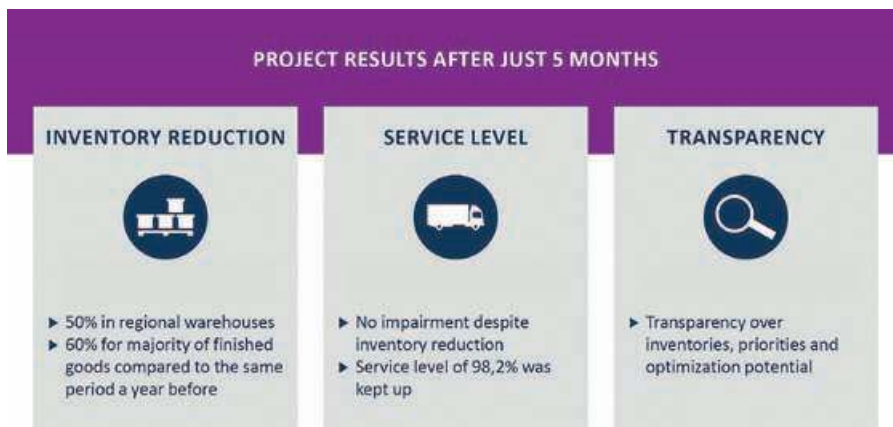
In recent years, however, further improvements have only been possible to a limited extent. The reason: an increasingly complex supply chain and increasingly difficult demand planning. It was thus about time to put the previous opti-mization approaches to the test and to consistently align the supply chain to the new challenges of an increasingly uncertain and volatile environment. The new strategy focused on customer requirements and the ability to react flexibly and quickly to changes in demand. Demand-Driven supply chain planning is an essential component of the strategy.

At the beginning of this year, DDSCM based on the Demand-Driven MRP concept was first introduced in a distribution subdivision. After five months, the results are more than positive. "Our expectations were fully met," is the conclusion of the SCM manager responsible for the project. Inventories in the regional warehouses were reduced by almost 50 percent without any loss in delivery capacity. After five months, inventory size for majority of finished products was down between 30 to 60 percent in comparison to the same period of the previous year. At the same time, transparency regarding inventories, priorities and optimization potential has improved. The key to rapid implementation and acceptance among supply chain planners was that the new concept could be fully implemented in the existing and globally used SAP SCM system using the Demand-Driven Lean Planning Suite enhancement solution by Camelot ITLab.

As an SAP APO user from the very beginning, integration into the existing SAP planning system was a central requirement for the consumer goods manufacturer. However, the greatest challenges of the project were not in technology, but in the minds of the employees. DDMRP is a paradigm shift in supply chain management and requires a new way of thinking in the company. Change management will therefore play a greater role in the rollout of the new supply chain planning concept, that has already been accepted by management.

PROJECT RESULTS AFTER JUST 5 MONTHS

INVENTORY REDUCTION
- 50% in regional warehouses
- 60% for majority of finished goods compared to the same period a year before

SERVICE LEVEL
- No impairment despite inventory reduction
- Service level of 98,2% was kept up

TRANSPARENCY
- Transparency over inventories, priorities and optimization potential

An important piece to the puzzle

Flow Metrics

To efficiently meet customer requirements, Demand-Driven Supply Chain Management must be designed to ensure that materials are delivered to the right place at the right time and that relevant information is available for planning and implementation. This is where conventional KPIs fail.

by Markus Kuhl, Camelot

You can find the typical conflict of interest between OEE maximization vs. inventory reduction vs. service level optimization in almost every supply chain. Individual, mostly cost-based targets of independent functional departments lead to silo-like optimization and mutual interference within the organization due to contradictory and misleading target values for KPIs. The reason for this is usually a lack of understanding that the criteria for what makes information relevant, differs in the operative, tactical and strategic planning area. Forecasts, for example, are required for long-term planning, but actual customer demands are decisive in the short term. The consideration of fixed costs, for example via key performance indicators such as OEE, is also relevant in strategic planning, but leads to sub-optimal decisions in the operational counterpart. Optimal control of the supply chain therefore requires conflict-free key performance indicators that are tailored to the respective decision-making process.

Variability and silo-optimization

In DDMRP, all decisions at the operational level are made in a way that enables them to promote the flow of relevant information and materials. Flow was recognized as the most important and highest goal that is conflict-free. In turn, flow neither promotes variability nor silo optimization. Therefore, Flow Metrics are key performance indicators that consistently support the flow of relevant information and materials. For this purpose, only information relevant to the respective decision-making process is included and conflicts of interest are consistently eliminated. Flow Metrics take into account, for example, that neither revenues nor full costs are relevant in day-to-day operations, but rather the throughput – especially in the case of bottlenecks in the supply chain.

Eliminating conflict

The transition to flow-based performance management does not necessarily dictate that all previous KPIs need to be replaced. However, potential conflicts must be eliminated, and the availability of relevant information ensured at all stages of the decision-making process. Camelot has established a structured approach and, based on the experience from various projects, put together a set of established Flow Metrics. These are also an integral part of all SAP-based Camelot solutions for Demand-Driven Ssupply Chain Management, where they optimally support decisions through intuitive and target-oriented visualizations.

Markus Kuhl
is Flow Metrics Lead at Camelot.
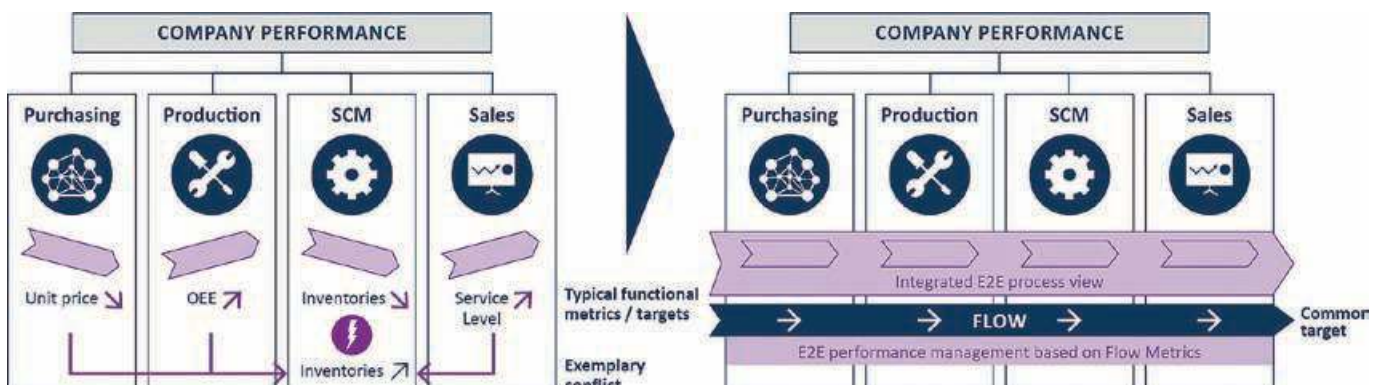
DDMRP is just the beginning

Driving into the future

In this exclusive E-3 interview, Christophe Hudelmaier and Ludmilla Kemling from Camelot give an outlook on where DDMRP is headed in the coming years and what steps companies can take to gain competitive advantages.

A company has introduced DDMRP – now all's well that ends well?

Christophe Hudelmaier: Companies introducing DDMRP benefit from quantum-leap-like performance improvements. They have already achieved a great deal. Although, this is just the beginning of the journey.

How does the journey continue?

Hudelmaier: DDMRP literally is the machine that enables Demand-Driven supply chain planning with the corresponding significant improvements at the operational level. The benefits that can be achieved are much greater if the orientation towards customer requirements does not stop with the operational model. To be fully Demand-Driven, the principles of orientation towards customer requirements must also continue on to the tactical and strategic level, namely in the form of Demand-Driven Sales and Operations Planning and Adaptive Sales and Operations planning.

When these three levels are established in a company, controlled by appropriate key performance indicators and closely linked to one another, the highest form of Demand-Driven is achieved: the Demand-Driven Adaptive Enterprise (DDAE).

What are the benefits for companies?

Hudelmaier: In addition to improvements to the operational performance, there are far-reaching leaps in sales, growth and increases in efficiency that can be achieved. The further a company is on the path to becoming a Demand-Driven Adaptive Enterprise, the more comprehensive and strategic will the benefits be that can be achieved at every step of the way.

How do companies get there?

Ludmilla Kemling: Of course, companies cannot turn into a DDAE overnight. This requires a step-by-step transformation that anchors the Demand-Driven mindset in the company and at the same time ensures the necessary system support.

Christophe Hudelmaier, DDSCM Program Manager at Camelot.

Ludmilla Kemling, DDSCM Transformation & Organization Lead at Camelot

How does the transformation succeed?

Kemling: The concept of being Demand-Driven questions some of the immovable truths in a company, that have been taken for granted for years. The focus of many roles in the company will change completely. The introduction of Demand-Driven Supply Chain Management (DDSCM) is therefore above all a business transformation that must be strategically planned and implemented. Through years of experience in IT projects and business transformations, Camelot has developed an approach to successfully master the special challenge of DDSCM implementation in the company.

What exactly does that look like?

Kemling: Envisioning Sessions inform top management about the impending change and prepare them for their role in the project through continuous coaching. In its role model function, top management should also drive the necessary cultural changes towards an agile, Demand-Driven company. Through playful simulations and awareness sessions, all stakeholders are gradually introduced to the core changes that the introduction of DDSCM will bring about. Together we work out the special features of the implementation for the company as well as the

advantages for the integrated functional areas. Bootcamps provide supply chain planning managers with early training on concepts and processes. Then there are simulations and certifications that prepare them for the new working methods. In addition, our experts accompany the implementation through clear and timely communication on project progress, possible new challenges and realized business benefits.

Finally, the question of what the future holds in relation to DDSCM system support: What can SAP users expect?

Hudelmaier: As thought leader for Demand-Driven concepts and pioneer when it comes to SAP-based Demand-Driven solutions, Camelot fully supports companies on their way to becoming a Demand-Driven Adaptive Enterprise. These include solutions for DDMRP as the heart of the DDAE as well as for Demand-Driven S&OP and Adaptive S&OP, especially based on SAP Integrated Business Planning. The Camelot experts are constantly developing the related IT solutions with the support of the latest technologies. An example is the implementation of AI-supported parameter updates in Demand-Driven S&OP. We are all only at the beginning of the Demand-Driven journey.