Innovations in the supply chain

A combination of great vision and small steps

Jort Meijer and Daniëlle Koopmans

A flexible and responsive supply chain is a precondition of success in the current competitive business landscape. The complexity and the speed of the world are unprecedented. Fortunately, the possibilities of tools and innovative concepts to capitalize on this situation are also unparalleled. Nevertheless, many parties have difficulty with renewing their supply chain in an appropriate way, and thus do not anticipate correctly what new business reality actually requires of them. This is because they do not have the underlying data properly organized and because they do not have a clear picture of what their strategy means with regard to the demands on their supply chain. It is also due to too much reliance on pure technology when they initiate innovation. This article provides an analysis of what is going wrong and how improvement can best be implemented.

W.J. Meijer
is a senior manager at KPMG Advisory N.V.
meijer.jort@kpmg.nl

D.P.M.J. Koopmans
is an advisor at KPMG Advisory N.V.
koopmans.danielle@kpmg.nl

A challenging workfield in which there is much to play for

Faster, more complex, and with consistently intensive mutual dependence: these are the core concepts of current business reality for internationally operating organizations. Their world is becoming smaller, yet more complex at the same time. An occurrence on one continent can have enormous consequences for operations on a different continent within a single day – or even sooner. Organizations are thus faced with the challenge of organizing their supply chain in such a way that they can adequately respond to, and effectively capitalize on, rapidly changing circumstances. This is a major challenge to the supply chain function. At any given moment, organizations must be able to come up with the best possible answer to an (unexpected) occurrence in all facets of the supply chain: source, manufacture and delivery.

The criteria are becoming increasingly demanding in terms of delivery reliability, flexibility and cost-efficiency. Expectations are high in many corners – control, sales, quality and marketing departments. In addition, the workfield of the supply chain function is constantly expanding. Themes such as tax efficiency, sustainability, security or

supply and risk management can no longer be omitted from the supply chain function agenda. The supply chain manager must operate as a spider in the web, and have the correct up-to-date decisive information at his/her disposal. There is a great deal at stake: after all, such matters concern the very core of the company, and a good supply chain structure is becoming increasingly crucial to success.

The world is now vastly different from the world of ten years ago. Whereas it used to be quite possible to formulate prognoses in a systematic way and to take decisions on these prognoses, there are now scarcely any certainties or fixed values. The evolution that the supply chain function must go through is easy to sketch: from forecast & plan to sense & response.

Modern-day practice

The sky is the limit

The good news: to meet such challenges, organizations can fall back on a multitude of new concepts and technologies. As a result, they are able to gain sharp insight into the chain, its dependences, and the risks involved with delivery security. With this, it also becomes more possible to look forward instead of acting on the basis of historical information. A wealth of insight into the supply chain can be acquired and this can form an important weapon to enhance responsiveness. Insights ought to be gained for the purpose of taking rapid decisions, instead of placing the emphasis primarily on accountability in retrospect. The sky is the limit when it involves innovation in the supply chain, with concepts varying from virtual warehousing and outsourcing of logistics and production to software tools for scheduling, e-procurement and shared services for the processing of client orders, for example.

The sobering reality

Unfortunately, real-life practice shows that the potential of these (innovative) concepts is insufficiently realized. There is mention of a shortage of competencies, and people are scarcely capable of coming up with good information. There is widespread awareness that innovations in the supply chain function are genuinely needed, but nevertheless, this has still not led to large-scale changes in the right direction. In many organizations, the value that is potentially available in the supply chain is not realized due to unclear and contradictory strategy, complex data structures and systems, fuzzy governance, and various conflicting KPIs. Two factors play a role in this matter.

First, innovation in the supply chain function is often strongly driven by a technology push: professionals who work in this function discover a tool, become enthusiastic about it and wish to deploy the possibilities of the tool in their own organization. Regardless of how valuable and necessary the technology push may be (think of disruptive technologies), there is a real danger that this course of action will lead to implementations that are insufficiently aligned to the general strategy and are not – or not adequately – attuned to the available technological platforms.

The second point concerns the way in which people view the business case when innovations are introduced into the supply chain. In many cases, there is mention of a burning platform as a direct cause: the competitive pressure and great and compels organizations to go searching for more cost-efficient ways of operating. There is nothing wrong with this. But here too, the question remains as to whether projects are perhaps being initiated in a way that is not well aligned to general strategy.

The ideal world

In the ideal world, an organization has formulated sharp, strategic points of departure and has translated these into the required capabilities, the operating model, and also the strategy with regard to the data landscape. However, the reality is that many organizations are not quite capable of this and do not advance further than formulating financial and developmental objectives, a limited market analysis, and (financial) group targets. Technology and innovation may offer a solution here. But how? Where should we begin? What are the most valuable projects? And how can we convince the management? These are all questions that play a role in the implementation of innovative solutions aimed at creating a more effective supply chain.

The sky is the limit when it involves innovation in the supply chain

An integral model for translating strategy to supply chain

In many companies, the formulation of the strategy is driven by financial and developmental objectives. Among stock-market-listed enterprises, pressure from the stock market also plays a role that influences the operational results quarter by quarter, so that organizations are inclined to focus on the short term and on clearing minor bottlenecks. In a workshop given by an international operating organization, the entire management of a business unit turned out to be incapable of generating a decent strategy, let alone a concrete supply chain strategy.

For this translation from strategy to supply chain, organizations can apply a number of resources that can steer the implementation of strategy and are supported by games. The core of this method consists of the elaboration of the 'nine levers of value' (see Figure 1).

The elaboration of this model begins with a view of the financial parameters, investments and capital, and the effect of these on the business model. The business model consists of markets, clients, distribution channels, propositions and brands. The business model gives direction to the 'what': what do we want to achieve and what are the most important drivers for the clients, but also what products and what margins. In practice, a growth strategy often consists of a computation of potential clients and products in certain markets. But more is needed in order to realize growth and to enable supply chain perspective. For example, it is advisable to indicate whether the growth will be realized by means of excellent delivery (delivery reliability, speed), innovative products (R&D), or cost & price leadership (operational excellence). All these aspects have an influence on the structure of the supply chain and are often forgotten when prioritizing supply chain aims.

In order to embed this supply chain strategy in the organization effectively, KPMG makes use of the above-presented models, while games are also used to give all involved parties (managements, departments of finance, marketing and sales, the supply chain and production) a common experience that helps them make widely supported choices. These games provide insight into the effects of operational choices on the total performance of an organization.

In the formulation of the supply chain strategy, organizations should examine the most important drivers: costs, quality, leadtime and flexibility (see Figure 2). Depending

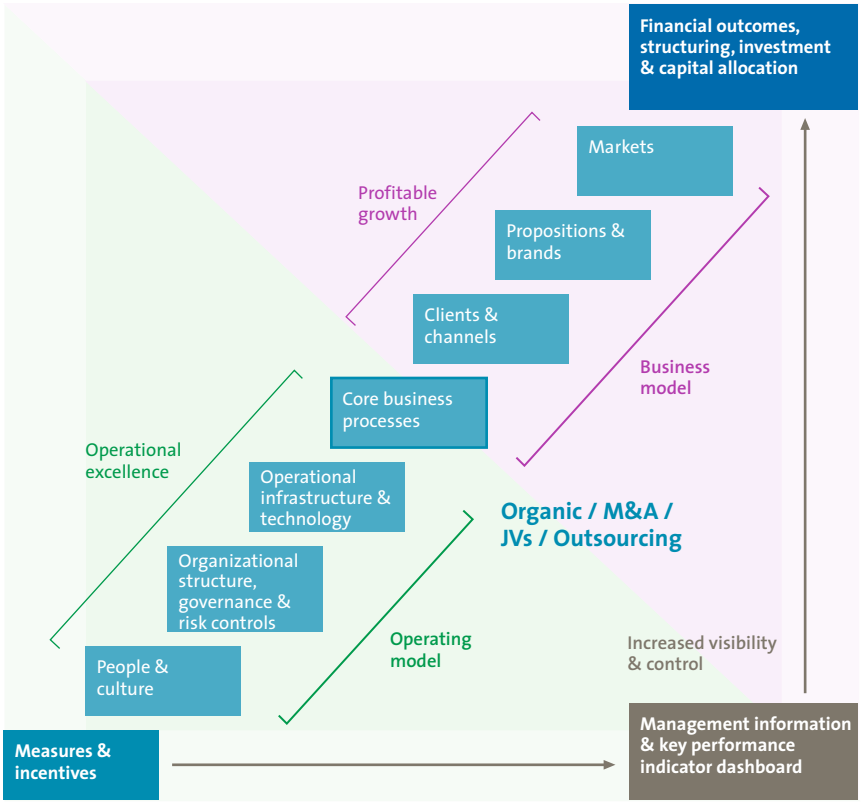

Figure 1. **Nine levers of value.**

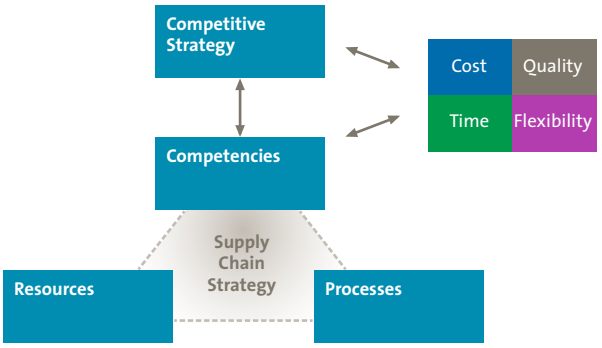

Figure 2. **Coherence between business and supply chain strategy.**

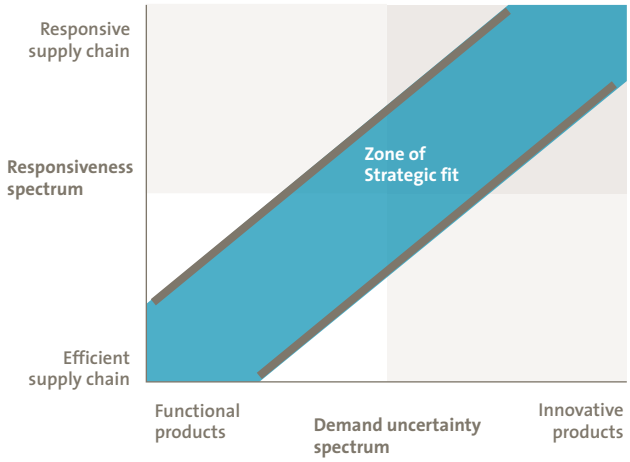

Figure 3. **Strategic fit for supply chain.**

on various product-market combinations, it has become possible to choose a differentiated supply chain strategy (see Figure 3). This again has consequences for the structure of systems and organization.

However, we must observe that this working method is not applied in many real-life situations: the supply chain organization seeks a technology push to do the work more efficiently, and thus unwittingly eludes the strategic intentions.

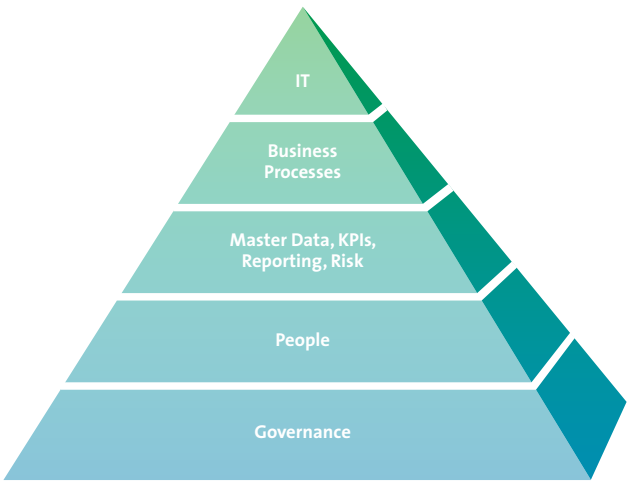

Figure 4. **Information pyramid.**

Vision forming with the aid of the information pyramid

In one of the organizations in which KPMG was involved, we consistently took the information pyramid (see Figure 4) as our starting point after forming our vision. This course of action is not new, but it is crucial. In this framework, the processes are first centrally formulated, the maturity of the participating business units are charted, and an integral implementation plan (roadmap) is formulated for the implementation of the business process, the master data, KPIs, reporting, risks, people and governance, before IT tools are selected and implemented. The most important dilemma in this approach is the practical testing of the processes, as the implementation still seems rather remote.

The choice in favor of a single platform, a differentiated but harmonized process, and the determination and measurement of lucid KPIs helps steer the business components. Reuse of knowledge and the centralization of support ensure stability in the execution.

Of course it is evident that there are no longer simple blueprints for strategy in this current world. It is not without reason that we claim that the complexity and speed of change have become too large to allow this. But this does not change the fact that (the bosses of) organizations ought to be capable of presenting clear pictures of the way in which their organization makes a difference and 'why it exists at all'. These pictures should be directional for all other decisions, including those related to innovation in the supply chain function.

It's all about the data

The use of data is a central issue in setting up and renewing a good supply chain. After all, data are increasingly at the core of almost every organization, and organizations that wish to improve their performance must be able to depend upon the consistency and reliability of their own data, and must also be able to combine these with external resources that provide insight into trends and developments, events and risks.

In this context, we distinguish three sorts of data sources: master data, transactional data and external data. In his book entitled *Competing on Analytics*, Thomas Davenport

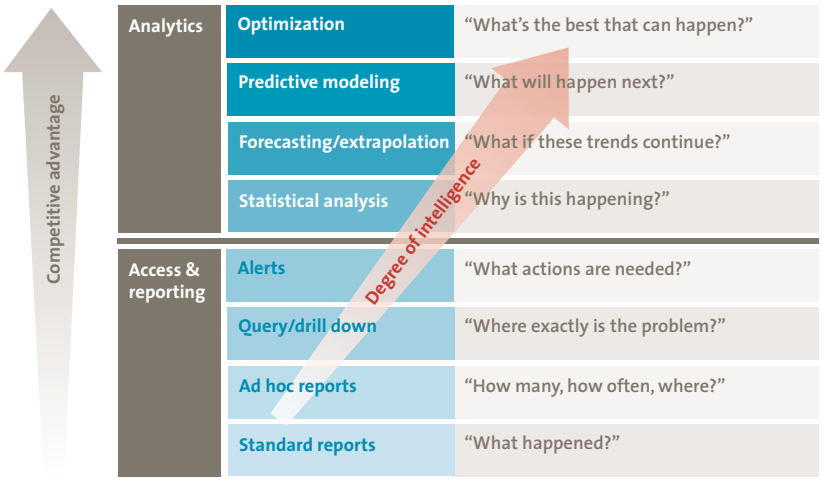

Figure 5. **Development of data as a catalyst for competitive advantage** (source: Thomas H. Davenport, *Competing on Analytics: The New Science of Winning*).

argues that the use of predictive models and simulation tools can make an important contribution to company value (see Figure 5). Recently we have seen that, in real-life practice, the application of simulation software and the deployment of planning tools and data analytics on an organization's own data and external sources can indeed make a significant contribution to the development of company value (see the real-life practical cases).

The availability of straightforward definitions and KPIs and a clear and consistent structure of master data form an important precondition for applying this analysis in an orderly and purposeful way.

The goal of having more consistent master data is to be able to provide a working execution and to obtain more insight and, on this basis, take better decisions. With reference to the above-mentioned information pyramid, master data often turn out to be a stumbling block in the organization. The complexity originates from a number of constituents:

1. legacy processes and systems
2. KPI definitions
3. ownership
4. transparency

Legacy processes and systems

Use is made of existing systems and processes within the supply chain organization. Experience often shows that various departments and people make use of the same (transactional) data. However, the consequence is that the various data objects (such as materials, clients and machines) can be used, interpreted or even modified in consistently different ways. If an integral solution is chosen, in which various departments and functions cooperate with one another, it appears that the different departments regularly give substance to this cooperation in a different way. In order to be able to steer the operation with the newly chosen solution or analytics, this is often connected to the operational planning system (such as an ERP system for example). Clear agreements must be formulated here too, in view of the fact that real orders or production plans will be made, involving real financial consequences.

KPI definitions

The definitions of KPIs can differ quite considerably from one department to another. Such KPIs are often calculated on the basis of existing master data. When definitions in the various departments or functional areas differ, this must be taken into account during the rollout of a supporting application. For instance, it may be the case that the 'blocked stock' may be calculated by one organizational section by adding up all produced items, although some may be unavailable. Another section may calculate the amount by simply examining the stock that is under quality inspection, for example.

Ownership

Due to the fact that master data often do not have a clearly demonstrable owner within organizations, no one in the organization feels (sufficiently) responsible for the intrinsic quality of the organization. As a consequence, often only the fields that are affected by the current (legacy) policy are in good order. The introduction of a new process, with corresponding new tooling, frequently exposes a number of areas that were not clearly visible before. Before the new supply chain process can be used in an optimum way, these data must also be cleaned up and streamlined.

Transparency

As described above, master data are generally not an issue or a problem. The result is that there is scarcely any transparency with regard to the current quality of the master data. Often an external supplier will bring specific tooling with him to deal with this situation. If this step is not taken, the first outcomes in the new supply chain process may be rather disappointing. On the other hand, the application of specific tooling ensures that the master data challenge is directly visible, and makes the situation more transparent than it was previously.

As stated earlier, it is not only one's own data that are involved in performance improvement or the seizure of new opportunities. The promise of Big Data is also enormous with regard to the supply chain. A new world is being created at a rapid rate, in which everything is meas-

The promise of Big Data is enormous, also with regard to the supply chain

urable and in which people and almost all conceivable devices are mutually connected via internet, 24/7. That network of connections and sensors produces a phenomenal amount of data and offers fascinating new opportunities that are often categorized under the term 'Big Data'. One of the new challenges here is to make combinations of insights from different sources – also from beyond one's own organization – and thus make the necessary difference. This offers much potential for innovation in the supply chain and, with this, for the creation of advantage over the competitors.

How should we proceed?

Analysis and practical cases again demonstrate that the application of technology provides major opportunities to improve business results. The challenge to many organizations concerns the appropriate link between vision and strategy, and the way in which technology can help realize this strategy.

The coherence between forecast & plan and sense & response governs the way in which the supply chain is managed and the way in which the available technology can be used.

The companies that are most capable of introducing new technology to improve quality, delivery reliability, lead time, flexibility, costs and risk management will have a greater chance of survival in the new world.

On the basis of the cases described and the theory, we mention three developmental areas that require attention:

Interview with Jochem Pasman, manager at KPMG Advisory N.V.

'The Oil & Gas client case'

What was the core issue of the project?

The issue involved the new capabilities needed in the operating model in order to realize an enduring reduction of costs in the distribution chain with the focus on waste in the chain, regardless of the procurement tenders.

What was your approach as KPMG team?

We first performed a scan with the aid of hypotheses in which the spending basis was dissected in order to gain an understanding of the logistics expenditure of the Chemicals division, in both America and Europe. In this spending analysis, we examined the largest buckets, and various hypotheses were applied in an attempt to reduce these buckets. On this basis, workflows and projects were identified in order to research the hypotheses thoroughly and to realize savings.

What is the innovative character of this assignment?

This concerns the way in which we went to work in a number of workflows rather than in the preliminary stages. In the Demand Planning, we examined the entire supply chain. In doing so, we sought two transporters who carry products for our client, and we plunged into the cost structure of the transporters and the inefficiencies in their cost basis that were caused by the behavior of our client. One of the most important points was the volatility in the patterns of demand imposed upon the transporter and, by providing this insight, our client could recognize where he could save expenses in his relation to the transporter. But he was also curious about the root cause of the volatility in the demand. Which of our client's customers were causing this? Ultimately, our client's customers will have to adjust their behavior so that the transporters can work as efficiently as possible. To analyze the root cause, we first sought out which clients felt the greatest impact by listening to feedback from the transporters. A tool was built to extract client inefficiencies on the basis of all kinds of data from SAP. We then mirrored the results for every client by engaging in a discussion with the client, in order to find out why the client approached his transporters in that particular way. This is innovative because insight is thus created on both sides of the supply chain. You can then present this to three parties to communicate the impact in the supply chain.

One could go one step further in the chain by investigating the clients' customers and by determining the impact their behavior has upon the chain or the security of supply. Better insight into the chain also produces better leadtimes (capitalizing on unpredictable demand) or higher On-time-in-full (OTIF) delivery.

What are the trends within the chemicals sector with regard to the supply chain?

Supply chains are becoming more international. All the chemicals that our client sells in Europe can now be made in Europe. Demand is shifting to Asia, representing a global shift between continents. Up until now, much was produced on the same continent as it was sold. The impact of this shift is that clients of chemicals firms are consistently faced with an unpredictable demand. In addition, there is a trend that has its roots in the economic crisis. Buffers in working capital have been minimized, so that companies active in the chemicals sector are no longer capable of accommodating volatility and are consequently having problems with their own suppliers. In order to enable this system to work, an extremely high form of coordination in the chain is needed, because there is a greater chance that you will not receive your supplies on time and your factory will

1. A sharp vision, translated into starting points for the structure of the supply chain, is needed. The approach described, with the 'nine levers of value' and the theoretical models for strategic supply chain choices, can be of use here.
2. The house should be in order. As described, ownership, processes, straightforward KPIs and transparency throughout the chain are important points of attention.
3. A vision of the evolving possibilities that help embed technological innovations firmly in the organization in the new information society should be developed. It should provide a top-down framework for bottom-up innovation and initiatives, and stimulate these. Initiatives should be assessed according to their potential company value and according to the opportunities these innovations offer to shift upward in Davenport's layer model.

The combination of forecast & plan (a sharp vision, house in order) and sense & response (simultaneous stimulation of new initiatives and following and evaluating these in a structured way) appears to be the best way for the supply chain function to take on the challenge of the coming years.

On the basis of two interviews about recent projects, we show the challenges that face our clients when designing and implementing innovative technology in the supply chain, the way in which we have helped these clients, and the lessons that can be learned by organizations that are considering using technology to gain improved insight and to introduce more quality into the production chain.

therefore grind to a halt. As a result, you have an increasing risk because you no longer have adequate buffers and no one is prepared to build up these buffers.

How innovative is the client's supply chain when you look at comparable parties in the market?

The client's Chemicals division scores relatively low, it is relatively immature. The order-handling process is 75% automated, but if you examine the client's Demand Planning department and Sales & Operations Planning (S&OP) section, and the higher-level coordination with its customers, it is actually still in its infancy. There has been no necessity to build this up because the business positively thrived in the past and enjoyed good margins with a good profit contribution for downstream. The focus now lies to a much greater extent on making optimum use of production, because this largely determines the price. The chemicals market is not growing extremely quickly, especially not in Europe, so more emphasis must be placed on matters such as Operational Excellence. Now that the necessity for innovation is more urgent, the client will have to focus more seriously on this matter. If he does not do so, he will have much less differentiated capital in comparison to the competitors.

In order to retain the same contracts, the client must be able to give his customers something extra, such as shorter response times, lower costs to serve, higher security of supply. More than your product, it is this that makes you, as a chemicals company, more distinctive than your competitors. I foresee that this course of action will take off in Europe and in the chemicals sector in general.

Which innovative technology has the client implemented and/or wishes to implement?

The client is considering SAP APO, Advanced Planning and Optimization, as a support tool for its S&OP. This is not super-innovative, but it is a common step after Excel. The client is also looking at tools such as AIMMS in order to be able to build an increasing number of scenarios and to calculate optimizations. In view of the fact that the Chemicals division is still busy with the basics, such as improving the S&OP package, innovative ideas such as the use of Big Data to optimize the supply chain are still a bridge too far.

Which challenges are facing the client when implementing innovative technology in the supply chain?

In the Chemicals division, the staff are strongly oriented to the production line. There are various regions and they have different production lines in operation, so that there is a matrix of many different flavors. As soon as you wish to organize the supply chain in a global way, a substantial degree of standardization is needed in the processes. This is a major challenge to the Chemicals division because not every product-market combination has the same dynamics and/or the same maturity, and this causes extensive differences. In addition, there is constant pressure on the number of FTEs, so the involvement of the business itself to deliver good input with regard to the way in which the tool ought to be structured is quite a challenge. Third, there is mention of 'organizational forgetting' as a consequence of moving members of staff to a new position within the organization. Knowledge is thus lost, meaning that the

It is extremely important, especially in Europe, to devote more effort to innovation because the volumes are reducing in size

By providing insight into the value chain, we are capable of realizing change in our clients' organization

department is continually faced with having to invent the wheel time and again. Finally there is the cultural barrier that makes implementing an innovative tool quite a challenge. After all, this type of tool requires a new way of thinking, acting and cooperation across the different departments.

It is difficult to integrate with external clients if you cannot reach internal agreement in your own organization. Besides departments such as Commercial, Supply and Manufacturing, you also have the bloodgroups of the various production lines. People must work in unison in order to generate a good story to tell your clients, suppliers and transporters. This can be pretty complex. A trajectory of change should really take place internally before you begin seriously on innovation.

How did the client react to KMPG's innovative ideas?

Exceptionally positively. The client found the insights that we uncovered on the basis of simple technology, such as Excel for example, very valuable and, despite the fact that the business case was very thin, there was an organization-wide feeling and belief that this would deliver much value. We do not yet know precisely where that will be, but it opens new discussions in the company that will encourage action.

What could give the decisive impulse for the client to implement a new tool in the future?

This could happen as soon as a certain in-depth insight is needed, or when the current tooling no longer meets the requirements of the business. As soon as there is a rise in the frequency and complexity of the improvements the client wishes to realize, tooling such as Excel becomes untenable and more innovative tooling is required. Comprehensive optimizations are still dreams for the future, in view of the fact that improvement of the basics is top priority.

What are the lessons learned by the client?

If you wish to make changes throughout a chain, you often begin in a corner. Ultimately this means that you begin to pull strings in another corner of the supply chain in order to finally realize the changes there. In other words, if you wish the transporters to work more efficiently you should not only examine your own behavior but also that of your clients and probably also of their customers in order to ensure change. It may be the case that your original goal – saving logistics costs, for example – may take on a whole new twist to ensure that the other side of the chain is also set in motion. The most important question that you should consistently ask yourself is: What's in it for them?

This is different from what you can change within an organization where you make use of management forces to realize change. This does not apply to chain partners. It is important to find out who is the leading partner in this type of chain, who takes the first step, which effect does this have, which dependences are crucial. As an independent third party, KPMG can function as a kind of cement between the building blocks in the supply chain and can work as a catalyst in the cooperative process between partners in the chain. By bringing them together and by means of innovative tooling, KPMG can make the effects within a supply chain more transparent.

Interview with Haijo Kampinga, director of KPMG Management Consulting N.V.

What was the client's question in the project?

Our client wished to standardize processes and use technology to obtain more insight into and control of the supply chain processes.

What was the approach taken by the KPMG / client team?

A vision of the supply chain was developed and an examination made of where the business groups could create most value through the introduction of new innovative concepts, and how this could contribute to improvement of the bottom-line performance of the relevant client components. A road map was subsequently formulated for each process (S&OP, Demand Planning, Supply Planning and Scheduling), in good collaboration with a central development team and local implementation teams. Priorities were determined for the development and implementation of an improvement program that formulated responses to all aspects of the planned innovations: IT, governance, process, organization, data, KPIs, reporting and management. Processes and development programs were then drawn up to give the business units the opportunity to advance along a preconceived growth route to maturity, with the aim of making structural contributions to an enhancement of the results.

What was the innovative character of this assignment?

The integral approach, with scope for business-specific substantiation, the development of modular standard processes, and the implementation of progressive technology that offers better insight and management possibilities in the field of S&OP, Demand Planning & Forecasting, Supply Network Planning, and Factory Scheduling. By opting for standard technology (OMP) for the IT, by starting with a growth model for process development, and by central regulation of IT tools, a platform has been created on which business units can continue to develop for a number of years and can realize improvements in supply chain performance step by step. Insight into future stocks and the possibility of intervening quickly and effectively offer the organization a valuable tool for performance improvement.

By combining this with point solutions (AIMMS) for simulation, the

KPMG has assisted us in acquiring sharp insight into the necessary structures and development of the IBP/S&OP process

client generates an insight into the supply chain that was not possible with the current systems, and which could lead to possible margin improvement of 5-10%. Particularly the speed with which AIMMS provides insight into predictive models gave the organization superior insight into the possibilities for improvement that led directly to the implementation of new supply scenarios.

When we combine this with a clear vision of the supply chain strategy and an innovative S&OP process in the near future, this will lead to more balanced and enhanced governance of the supply chain across the entire breadth.

How innovative is the client's supply chain in comparison to that of similar parties in the market?

The client does not have the most innovative supply chain in the market, although he does follow the trend of differentiation and globalization. With the implemented tools and the focus of top management on a structured and mature S&OP process, the client will make a giant leap forward in terms of the speed with which he can anticipate developments in the market and the flexibility of the supply chain. But this is not the terminus. The process demands structural attention to process, data quality, organization and governance, alignment of strategy and tactical choices, training and IT development. Innovation in the supply chain, as well as in product development and customer service, is becoming increasingly crucial to survival, and our client will not be able to avoid making ongoing investments in new technology, process improvement and data analytics in order to meet these requirements.

What are the lessons learned by the client?

The impact of changes to the supply chain is often underestimated because many internal stakeholders are busy with only a section of the supply chain. As a result, they miss the helicopter view that can provide a good overview of the strings one ought to pull in order to realize the correct changes. The future development of the stock is a good example of this, where you should not only look at your own situation but also at that of your clients and probably also that of their customers, if you wish to obtain a good overall view of the chain. You should also look at your own extended supply chain: your suppliers, your distribution network. All scenarios and developments must be able to be translated into measurable financial parameters.

It begins with strategy and leadership. Without leadership there can be no improvement, without a clear supply chain strategy there is no focus on those things that are genuinely important. This can lead to suboptimum and contradictory governance of the organization.

Data quality (master data) is vital to successful improvement. Complexity in the structure of an ERP leads to obscure processes and management of data and, with this, to suboptimum system support. This is a business responsibility and deserves time and attention, which are often not readily available.

A limited set of clear and straightforward KPIs does help provide guidance in what the organization wishes to achieve. Knowledge of the organization with regard to process and data is essential here. Without a profound understanding of the processes and supporting IT tools, it is almost impossible to realize improvement. In that case, dependence upon consultants after the implementation is a real danger.

At tactical and strategic level, too, the use of innovative technology can help improve our chain supply performance

About the authors

W.J. Meijer is a senior manager at KPMG Management Consulting and has gained more than twenty years' experience in supervising projects and programs aimed at improving results in operations and supply chain management through the application of technology and innovation. He works mainly in the consumer goods industry. He is passionate about creating durable company value in an open relationship with his clients.

D.P.M.J. Koopmans is an advisor at KPMG Management Consulting, Operations Strategy Group, specializing in supply chain management and post-merger integrations. She has supervised and supported several (deal-related) transformations and projects with respect to program management and process optimization.