

The Future of the Supply Chain 2020+

Scenarios and Requirements for the Process Industry

Acknowledgments

On behalf of the initiators of this study I would like to thank the supply chain team at the msg group of companies and the employees of the Institute for Future Studies and Knowledge Management (IFK) at EBS for their active participation and support. This study would not have been possible without them. We would like to specifically thank Sonja Kaempf and Peter Kohl for their support. In addition, we would also like to thank the supply chain decision makers who discussed the future of supply chains with us through relevant social networks, workshops and interviews.

Stephan E. Willigens
Vice President Supply Chain
msg systems ag

Company Information

© msg systems ag, Ismaning/Munich, 2013

All rights, including translation into foreign languages, reserved. No parts of this work may be reproduced in any way, shape or form without the express written consent of the publisher, nor may any parts hereof be processed, reproduced or shared in electronic form.

Published by: msg systems ag

Authors: Stephan E. Willigens, Heiko von der Gracht

Research partners: EBS Universität für Wirtschaft und Recht gGmbH, EBS Business School

Design, layout and graphics: msg systems ag

Editing: msg systems ag

Scenario illustrations: Heyko Stöber | gestoeber@gmx.de



Preface

Prof. Dr. Hannes Utikal

„The future interests me far more than the past, as I intend living in it“ - it was with these words that Albert Einstein explained his interest in future developments. A quick look at the „doers“ in companies one could even add, „The future interests me far more than the past, as I intend to shape it.“ Yet, managers face considerable challenges: how can companies make a name for themselves in global competition? How can they take advantage of the opportunities mega trends offer? How can innovative force be maintained despite demographic developments, especially in aging companies? And how can a culture of innovation and cooperation be created that is not confined to the limits of a company?

These questions plague companies, even in the design of their supply chain. Especially since the design of the supply chain not only optimizes the course of the physical flow of goods „from the cradle to the grave“, but also influences the innovation network. And it is here that the greatest challenges are seen: many innovations arise at the interface between different technologies and industries; designing these interfaces so they are productive is a key management task. Ideally, industry, specialized service providers and cooperating research and educational institutions would all work together to find a solution. Because sustainable competitive advantages can only be created when these different actors come together in collaboration. The competitive advantage is found in the network.

Yet, what should companies focus on in preparation for the future? How should they structure their networks? Scenarios that illuminate possible future developments and summarize them graphically help answer these questions. The scenarios presented in this work were developed by experts from the worlds of science and praxis. Not only do they describe alternative future developments, they also discuss possible courses of action. It is precisely in this interaction between theory and practice that most „visionary concepts with practical application“ are born - and these scenarios are a good starting point for individual readers. They can use the information to draft a differentiated image of the future for their own company and to develop their own action strategies.

I hope you enjoy the lessons this study provides and wish you all the best developing your own, individualistic strategy for the future!

Prof. Dr. Hannes Utikal

Vice President of Academic Development
and Corporate Cooperations
Provadis School of International Management
and Technology AG

provadis
Hochschule

Table of Contents

| | |
|----|---|
| 6 | Summary |
| 6 | Introduction |
| 7 | Basis of the Study Justification of the Method Selection Approaches and Methodology Data Basis |
| 11 | Scenarios of the Future of the Supply Chain 2020+ Scenario I: World of Regional Networks Scenario II: World of Digital Networking Scenario III: World of Local Individualists Scenario IV: World of Specialized Innovators |
| 20 | Possible Courses of Action Strategic Course of Action Options in Connection with the Scenarios |
| 24 | Summary |
| 25 | Research Partners |
| 26 | References |



Preface

The Future of the Supply Chain 2020+

The study at hand contains a structured presentation of future scenarios. It aims to support those in charge of supply chains in their transition from the supply chains of today to those of the future. In doing so, the focus is intentionally placed on the company and on the company's own overall focus for the future, since although the supply chain is a key aspect in the realization of the vision and of the company's focus, it is only one of many aspects. To ensure the reader attains a direct benefit, each chapter presents the decisions and criteria that are necessary and that many companies face on an everyday basis.

This study did center around the process industry. This industry is the third most important industry in the world after engineering business, which encompasses automotive, mechanical engineering, etc. and the utilities and raw materials sector. Furthermore, it is an industry shaped by special requirements and regulations, since the fields of pharmaceuticals, chemistry, foodstuffs, etc. have a substantial relevance for humans.

The four future scenarios from which the recommended courses of action are derived, are based on the planning and controlling challenges specific to the supply chain, as well as on the management of the flow of goods and value creation: one example is that the borders between suppliers, customers, service providers and cooperation and innovation partners will be much more fluid in the future. In addition, the dynamics of markets and demand will increase, which will increase customer expectations in regard to reaction time and service, finally resulting in an increased complexity in the flow of goods.

All scenarios were analyzed using the same criteria, in order to identify their significance and meaning for the respective scenario and illustrate the recommended courses of action and paths. This should give the reader a practical document that can be used to support them in their own decision-making process.

I hope you come to many interesting realizations and discoveries that enrich your decision-making horizon for questions related to the future positioning of your supply chain and your company.

Stephan E. Willigens
Vice President Supply Chain
msg systems ag

Summary

This study is based on four central scenarios for the „Future of the Supply Chain 2020+“. They were developed pursuant to the dimensions of „Degree of Integration of the Supply Chain“ and „Regional Scope“. These scenarios thus cover:

- Hohe Integrationstiefe und regionale Ausrichtung
- High degree of integration and regional focus
- High degree of integration and global focus
- Low degree of integration and regional focus
- Low degree of integration and global focus

The analysis of the scenarios results in both scenario-specific and generally applicable recommendations on courses of action, especially in regard to the supply chain strategy, which is naturally of utmost importance. They concern innovation capacity, HR management and information security: these three aspects will require even greater attention in the future and how they are handled will determine the extent of a company's success. Companies need to make themselves aware of their importance today, since the gap between globalization/regionalization and higher/lower degrees of integration will only continue to widen in the years to come. Only companies with a clear focus in these areas and who act accordingly will be able to use these developments to their advantage and survive the competition of the future.

Introduction

There is no way around it: the competence profiles in supply chain management are changing. The demands on managers and employees are already increasing exponentially. In the years to come, supply chain managers will have to deal with more and more strategic questions and master strategic challenges. In four words: they need future competence.

Such competence barely exists in current day business. This has less to do with expertise and more to do with the lack of a well-formed awareness about the future: too often, everyday work continues to focus on operations over strategy. This worked out reasonably well in stationary and regional markets. However, in the turbulent and international markets of modern globalization, this type of „dictated by urgency“ constitutes a strategic downfall. This is exactly why the study at hand spans a horizon through 2020+, i.e. an event horizon that is relevant for strategically-minded managers. Comprehensive, full risk management plays a key role here. To ensure the targeted application thereof, clear compliance and risk management guidelines will be a critical success factor - especially given the complexity of managerial tasks.

Due to its critical role in business, the supply chain strategy should be coordinated directly with the overall strategy of the company. Thus, it must be analyzed in regard to its alignment with the company strategy as well; any gaps or contradictions between the two must be immediately addressed and resolved.

Justification of the Method Selection

The uncertainty a decision-maker feels is determined by the degree of complexity and dynamics (Duncan, 1972). Both have increased over the years as a result of globalization, international division of work and technological advances in the field of supply chain management, and further escalation can be expected. New, innovative planning tools are necessary, as forecasts and projections are reaching their limits in turbulent environments.

To meet the challenges of the future and to use them to one's own advantage, the challenges must be recognized and competently assessed in terms of the significance for the future. Those wishing to actively shape the future of their supply chain will need robust tools and methods. This also means: forecasting, i.e. the mere extrapolation of historic data has long ceased to suffice in the management of rapidly increasing complexity, especially in the field of supply chains.

Today's planners and strategists can draw from a rich set of future tools in order to anticipate developments and trends and even to prepare for the future. All in all, there are approximately 30 tools available (Glenn & Gordan) that, based on their possible uses and scalability, could be considered powerful tools in scenario planning. They intentionally include uncertainty in the planning process, by acting not on the assumption of a single future, but on employing different „futures“. This expands the planning basis for decision-makers. Different approaches and schools of thought exist and, depending on the purpose and focus, allow users to develop either more quantitative or more qualitative scenarios (see Bradfield et al., 2005). Future competence is the keyword and future competence needs scenarios. That is why this study focuses on scenario methodology.

Approaches and Methodology

Qualitative, meaning narrative, scenarios were created for the study at hand using the scenario axes logic (van 't Klooster & van Asselt, 2006). This method has proven to be especially valid in the business environment, since it develops scenarios using a systematic, transparent and practical approach.

To show that certain aspects of the content are applicable even beyond the selected horizon, the horizon was defined as 2020+. In doing so, it enables a consideration of very long-term developments, as well as current events and trends that are relevant today.

The scenarios and analyses in the study at hand are the result of numerous expert workshops and interviews. The specific process steps include:

1. Definition of scenario topics, from scope and scenario horizon
2. Identification and analysis of available future studies with a supply chain context
3. Identification of relevant drivers, trends and future factors
4. Selection of two drivers for the creation of the scenario axes
5. Definition of two extreme poles per axis
6. Definition of the scenario story dimensions and their content, enhanced by desk research
7. Formulation of a scenario title
8. Development of scenario paths
9. Development of strategic course of action options and analysis thereof for each scenario

Basis of the Study

When creating the scenarios, special emphasis was placed on the use of established processes and quality criteria (see Chermack, 2011: Schnaars & Ziamou, 2001). Consistency and plausibility were key aspects during multiple revision loops.

Using this methodology, the study established four central scenarios for the „Future of the Supply Chain 2020+“. They were developed pursuant to the two future-driving dimensions of „Degree of Integration of the Supply Chain“ and „Regional Scope“. These two dimensions reflect two of the main challenges of the future: globalization vs. regionalization and integration vs. cooperation. Application of the scenario axis logic to the supply chain context, specifically in regard to possible expressions of the **regional scope** and the **degree of integration**, produced four different scenarios for the period of now until 2020 and beyond:

Each scenario is a retrospective from the future and all use the same seven dimensions, which enables a direct comparison of the scenarios. In addition to the consistency of the content, the plausibility is also a central quality criterion in the scenarios. To that end, additional courses and possible developments throughout the course of the respective scenario were described. The drafted scenarios help decision makers simulate different developments, trends and trend gaps, thereby expanding their own planning basis. They can be directly aligned with the strategic planning, as well as the risk and innovation management.

The study at hand gives each of these four „scenario heroes“ strategic recommendations for courses of action that can be taken to actively, effectively, strategically and most importantly, successfully structure their supply chain in a manner that secures the future of the supply chain. Within that context, possible decision options and criteria associated with them are also addressed throughout the course of the study.

1

The work of regional networks where the „Regional Ruler“ is at the center

2

The work of digital networking where the „Information Leader“ is at the center

3

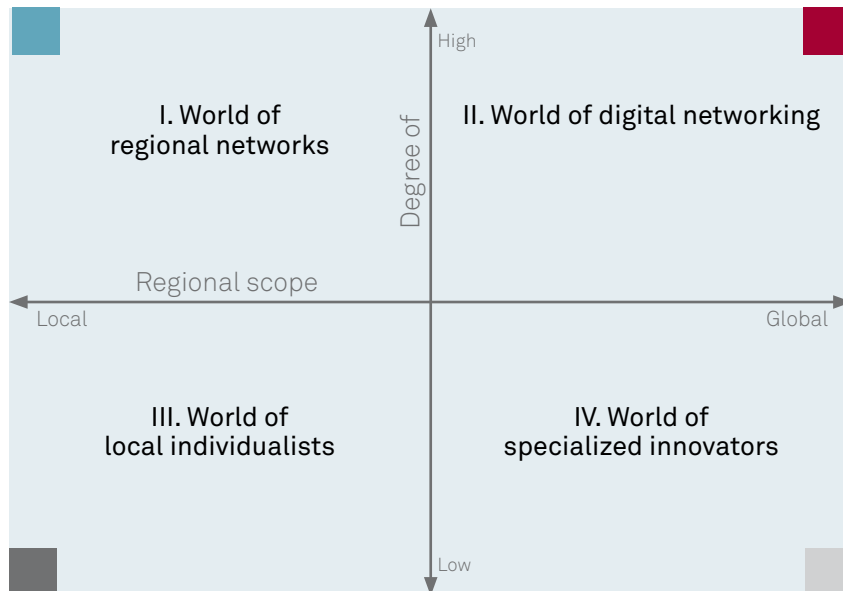
The work of local individualists where the „Survival Artist“ is at the center

4

The work of specialized innovators where the „King of the Niche Market“ is at the center

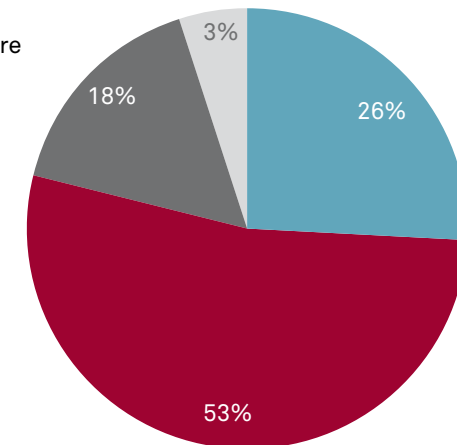
Data Basis

In order to ensure a direct relevance for practical business, supply chain decision-makers in an international environment were asked how relevant they considered the four scenarios to be for the future. Current expectations as to how the trend toward globalization will continue further underscore the results. The results also show that focusing on regionally-limited activities also offers opportunities to establish oneself in a special niche market.



Relevance of the Four Scenarios in the Future

©Copyright msg systems ag
(Online Survey of Supply Chain
Decision Markers in Social
Networks)



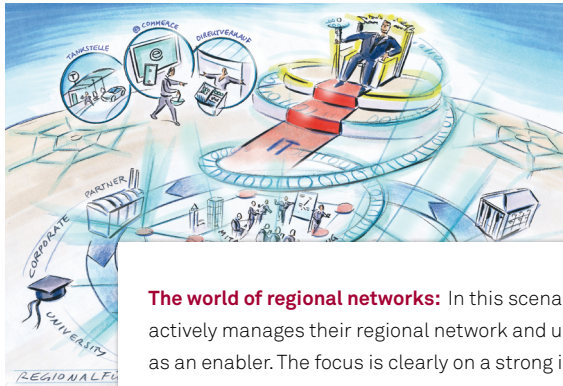
- Scenario I:
High supply chain integration and regional action radius
- Scenario II:
High supply chain integration and global action radius
- Scenario III:
Low supply chain integration and regional action radius
- Scenario IV:
Low supply chain integration and global action radius

Basis of the Study

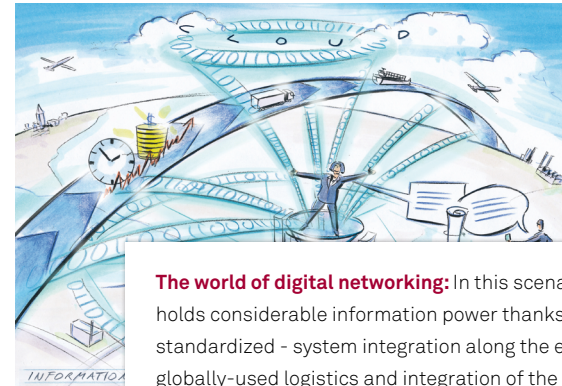
| KPI | | Today | I. World of regional networks | II. World of digital networking | III. World of local individualists | IV. World of specialized innovators |
|--|-----------------------------|--|-------------------------------|---------------------------------|------------------------------------|-------------------------------------|
| Volume of the German logistics market by business field 2011 in % (Kille & Schwemmer, 2012) | Transport | 44.0 | 41.0 | 46.0 | 33.0 | 38.0 |
| | Warehouse / turnover | 26.0 | 31.0 | 24.0 | 31.0 | 29.0 |
| | Stock | 20.0 | 19.0 | 14.0 | 21.0 | 21.0 |
| | Order processing | 6.0 | 7.0 | 10.0 | 13.0 | 8.0 |
| | Logistics planning | 4.0 | 2.0 | 6.0 | 2.0 | 4.0 |
| Emergence of good in Germany 2011 in millions of tons (Kille & Schwemmer, 2012) | Road | 3,195.0 | 3,370 | 3,727 | 3,204 | 3,250 |
| | Rail | 304.0 | 322.0 | 402.0 | 285.0 | 304.0 |
| | Inland waterway transport | 102.0 | 107.0 | 282.0 | 136.0 | 102.0 |
| | Pipeline | 87.0 | 90.0 | 92.0 | 87.0 | 87.0 |
| | Maritime shipping | 112.0 | 144.0 | 185.0 | 99.0 | 112.0 |
| | Air freight | 2.0 | 3.0 | 4.0 | 1.0 | 2.0 |
| Outsourcing rate in Germany in 2011 in units of billion € (Kille & Schwemmer, 2012) | Transport | 71.4 | +11% | +13% | +15% | +13% |
| | Stock management / turnover | 24.0 | +9% | +9% | +10% | +9% |
| | Order processing / planning | 14.0 | +16% | +25% | +2% | +18% |
| | Stock | 0.5 | +8% | +11% | +5% | +12% |
| Top logistics markets in EU-29 in 2011 in units of billion € (Kille & Schwemmer, 2012) | Total for all of Europe | 950.0 | 1,460 | 1,510 | 1,010 | 1,270 |
| | Germany | 223.0 | +32% | +35% | +38% | +37% |
| | France | 131.0 | +19% | +21% | +19% | +19% |
| | Great Britain | 93.0 | +12% | +12% | +16% | +15% |
| | Italy | 83.7 | +12% | +13% | +8% | +10% |
| | Spain | 76.2 | +13% | +13% | +11% | +9% |
| | The Netherlands | 56.8 | +11% | +9% | +11% | +10% |
| EBIT margin as %, overall German logistics market (Kille & Schwemmer, 2013) | | 2011: 3.2 (2010: 3.2; 2009: 2.3) | 2.5 | 3.6 | 1.8 | 3.5 |
| Growth of the overall German logistics market as % (Kille & Schwemmer, 2013) | 2014 | 2013: +3 (Best case) 2012: +2 2011: +6 2010: +6 2009: -9 | +3% | +3% | +1.5% | +3% |
| | 2015 | | +4% | +5% | +0.5% | +2.5% |
| | 2016 | | +5% | +6% | +0.5% | +2% |
| | 2017 | | +4% | +5.5% | +0.5% | +2% |
| | 2018 | | +3.5% | +5.5% | +/-0% | +2% |
| | 2019 | | +3.5% | +4% | +/-0% | +2.5% |
| | 2020 | | +3.5% | +4% | +/-0% | +2.5% |
| Components of Total Logistics Costs for German Manufacturing Firms in % 2011 (Handfield et al., 2013) | Transportation cost | 29.5 | 31 | 35 | 20 | 30 |
| | Packaging | 16.3 | 20 | 25 | 25 | 22 |
| | Warehousing cost | 13.2 | 12 | 9 | 14 | 13 |
| | Inventory cost | 9.2 | 8 | 6 | 11 | 10 |
| | Admin / management cost | 7.6 | 9 | 11 | 7 | 9 |
| | Cost of VAS | 7.6 | 11 | 9 | 15 | 14 |
| | Others | 16.4 | 9 | 5 | 8 | 2 |

Overview

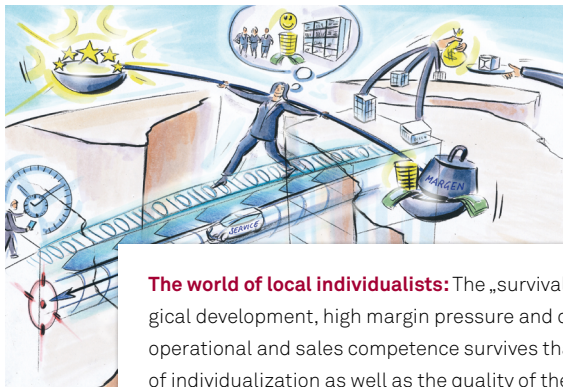
Scenarios of the Future of the Supply Chain 2020+



The world of regional networks: In this scenario, the „Regional Ruler“ actively manages their regional network and uses information technology as an enabler. The focus is clearly on a strong integration of their partners into the network. This ensures regional orientation and alignment.



The world of digital networking: In this scenario, the „Information Leader“ holds considerable information power thanks to a high degree of - and standardized - system integration along the entire supply chain, including globally-used logistics and integration of the „Internet of Things“. This allows them to quickly react to changes in the market, as well as the demands of the market.



The world of local individualists: The „survival artist“ with less technological development, high margin pressure and considerable procurement, operational and sales competence survives thanks to their high level of individualization as well as the quality of their products and services - for which their customers are more than happy to accept longer handling times.



The world of specialized innovators: The „King of the Niche Market“ has a lesser degree of integration, but a global scope thanks to their strong brand, exclusivity and above all, their considerable innovative strength - meaning, the ability to acquire and process data and information, even including big data, and to turn it into innovation solutions is their main competitive advantage.

Scenario I

World of Regional Networks

Scenario Description from a 2020 Perspective

Customers want ... products with a regional connection and from a secure and high-quality environment. They appreciate proximity and association with the region and actively demand corresponding proof in the products they purchase.

The flow of materials & goods is ... strongly integrated and organized into supply chain networks. The transportation routes are short and the individual sections thereof are extremely interdependent. Management and control of the networks lies mainly in the hands of the individual partners. Continuous insourcing has been seen in recent years.

Information is ... readily available in the supply chain networks, since they are required for effective management. Compliance and data security play a secondary role; simple, quick access to information is the most important aspect. Technological development in the networks is marginal. Questions can be quickly resolved on-site between partners.

Competences in the SC are ... intentionally region-driven by the partners. Internal corporate

academies form the basis for competence development among employees. Top themes of the qualifications include integration, leadership and management.

Supply chain risks are ... manageable, since the flow of goods is tailored to the region. However, this does mean the reliability of the delivery network is heavily dependent on a small number of locally available partners, with whom risk prevention is actively performed.

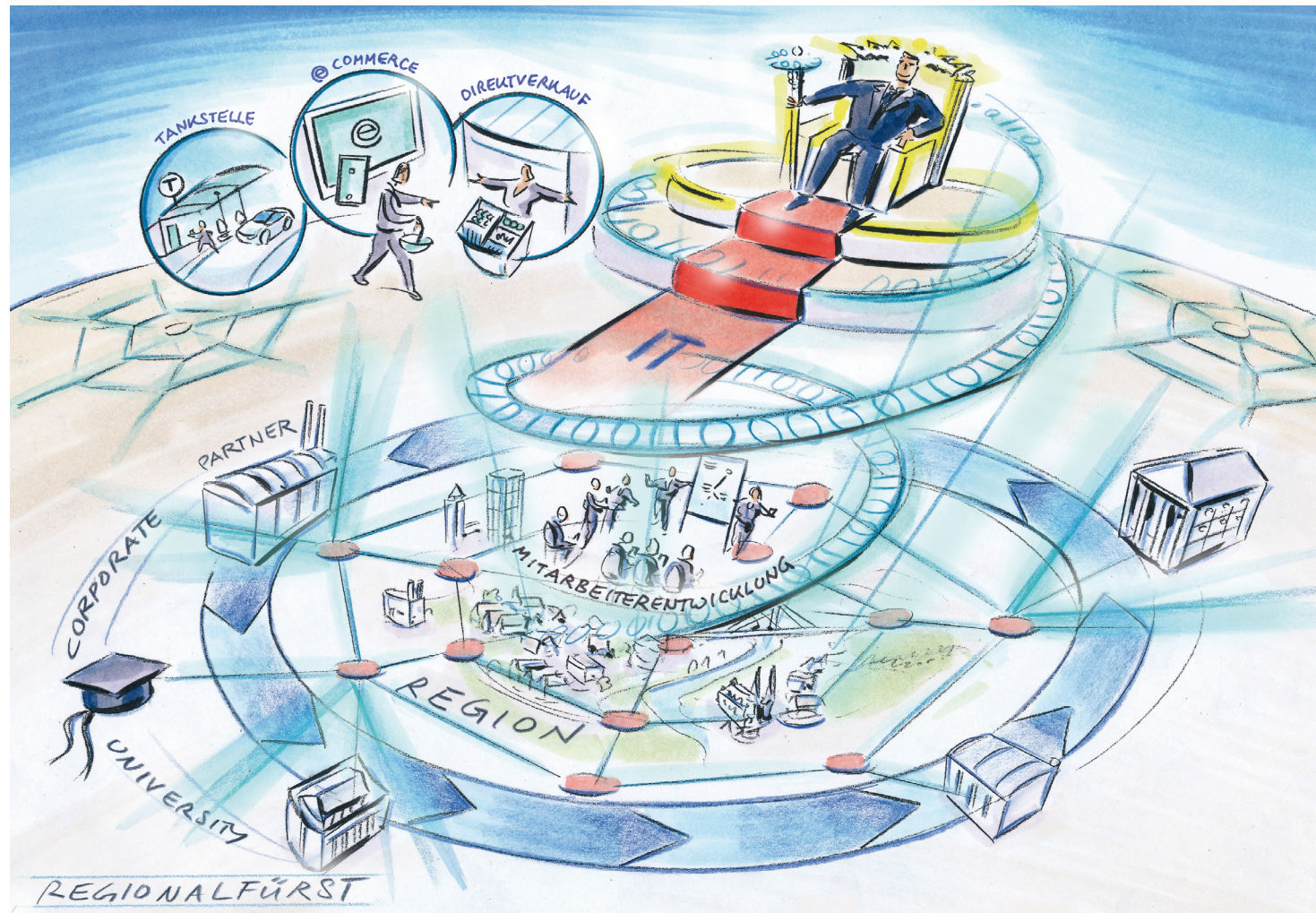
Sustainability plays ... a paramount role in the network. International division of labor or production in other countries has assumed a negative connotation and is rejected by most of the population. The leading supply chain partners are intensively involved in the region, set and interpret the benchmarks for the company's sense of social responsibility in the region.

The formal frameworks are ... based on trust and candor, and have a long-term focus. Partnerships that are mutually beneficial have developed over the course of many years under the leadership of individual partners.

Course of the Scenario in the „World of Regional Networks“



Companies wanting to position themselves within the framework of regional networks in the future, must invest in their regional and local networking early on and establish a corresponding network, or at least join such a network. In doing so, integration initially plays a secondary role, although its importance will successively increase in coming years and thus contribute to the differentiation between the regional ruler and the survival artist. Employee loyalty also assumes a material role: regional rulers are in a „war of talents“ with globally-active companies. They must use general conditions and local strengths to set themselves apart from those companies in order to win employees. Information and data management must be developed and enhanced on a continuous basis. The individual needs of the customer must be identified and continuously reviewed and those needs must be developed into services and products that reflect them. The opportunities this scenario can offer are especially pertinent in the foodstuffs industry.



Scenario II

World of Digital Networking

Scenario Description from a 2020 Perspective

Customers want ... globally available products that provide the same qualifications and specifications everywhere. The brand plays a key role in product selection in this case.

The flow of material and goods is ... actively steered by individual partners and globally optimized based on efficiency aspects. Value creation is mainly realized in sales markets under the control and management of the leading partners.

Information is ... fully available on the cloud and seamlessly linked to goods in the „Internet of Things“. Technological development is very high, while a standardized global exchange occurs within the networks.

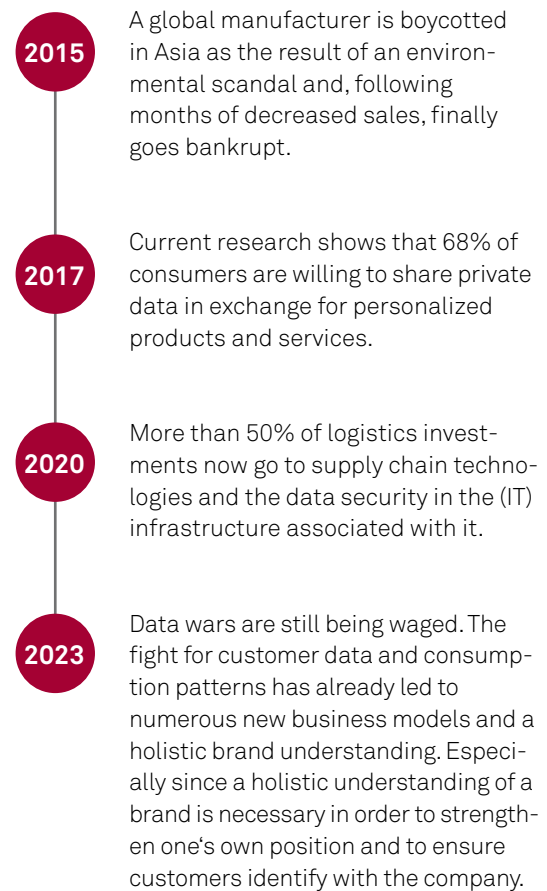
Competences in the SC are ... identified and used in a global structure. High mobility among employees is necessary and their training and education must have an international focus. Employees must be able to understand, analyze and manage complex systems. This means, system and technological competence is essential.

Supply chain risks are ... low for the leading supply chain actors, but their partners are exposed to significant dependencies. They exercise their market power and strength to optimize their joint capital and incurred charges on a global scale. Market volatility is cushioned by central risk management within the global network.

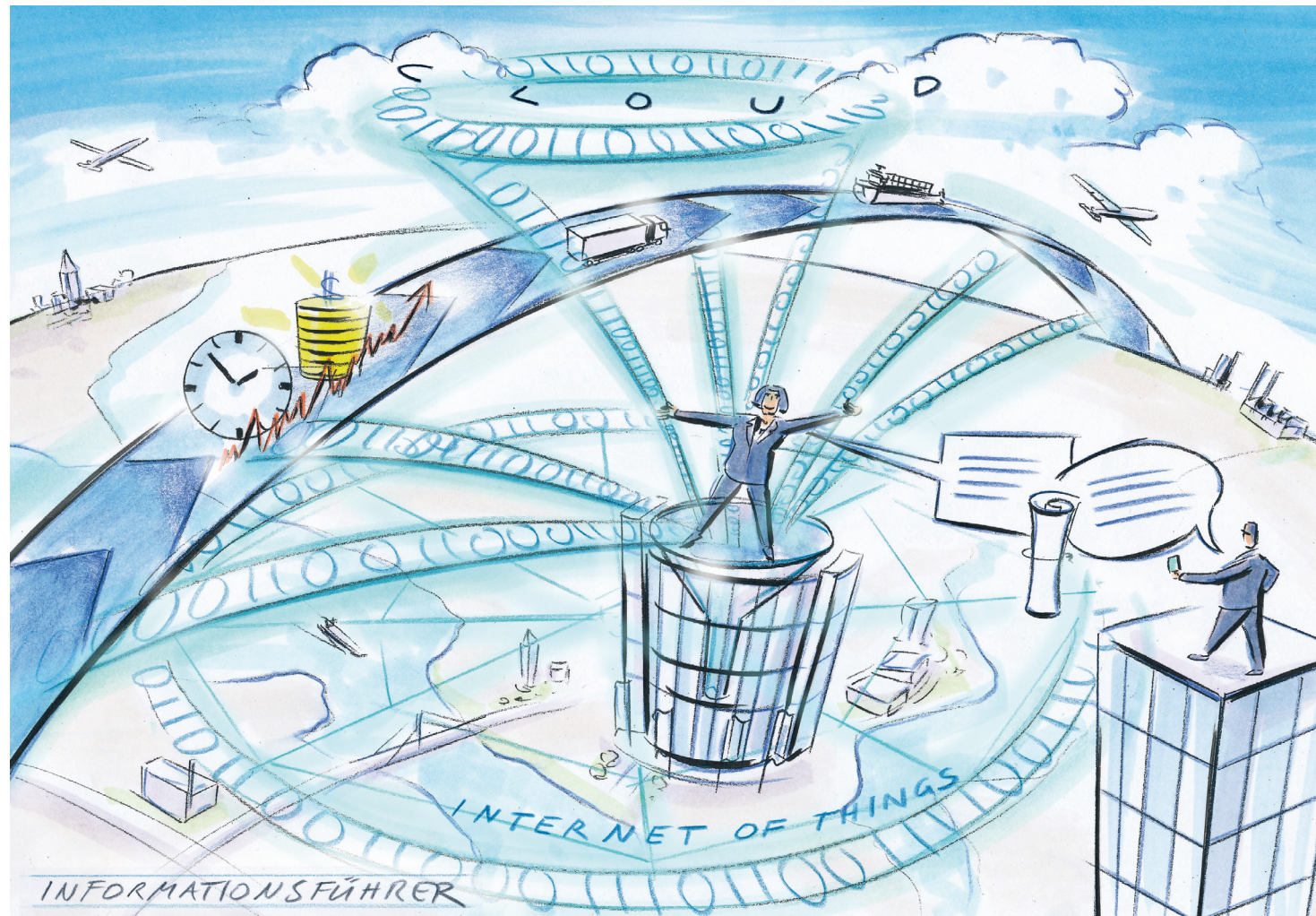
Sustainability plays ... a secondary role due to their market and information power. Corporate Social Responsibility (CSR) is based on local values and the respective culture.

The formal frameworks are ... defined by the leading supply chain actors, who also determine the content. There is a traditional customer/supplier relationship, price pressure and competitive pressure along the value chain are high among the remaining partners.

Course of the Scenario in the „World of Digital Networking“



Companies wishing to establish themselves as information leaders in the future should invest in secure data and information systems early on and expand them on a global scale. In doing so, it is essential to establish them in the supply chain network beyond the mere limits of the company. The next phase then is to establish the principles (compliance / CSR rules) in the network in order to enable the realization of a global management that includes local requirements. Finally, lasting optimization and continuous review of the structures, processes and services - of the network and divisions of the company - as well as the adaptation thereof to changing conditions are all decisive success factors. This scenario is especially suitable for globally active pharmaceutical companies and enables a healthy balance between adequate risk management in a highly-regulated environment and the exhaustion of the potential global markets and product rights hold.



Scenario III

World of Local Individualists

Scenario Description from a 2020 Perspective

Customers want ... products and services that are highly customized and high-quality and are willing to accept longer delivery times in exchange. Customers are mainly from the region and award their orders based on positive recommendations and personal experiences.

The flow of materials and goods is ... dependent upon the individual order situation and mainly involve smaller quantities. The own value creation is marginal - components and modules are supplied locally, ad hoc and by many different suppliers.

Information is ... extensively available, but isolated within a delimited system landscape, on a private cloud for example. Technological development in the supply chain is low and data and information is only exchanged as they pertain to a specific order.

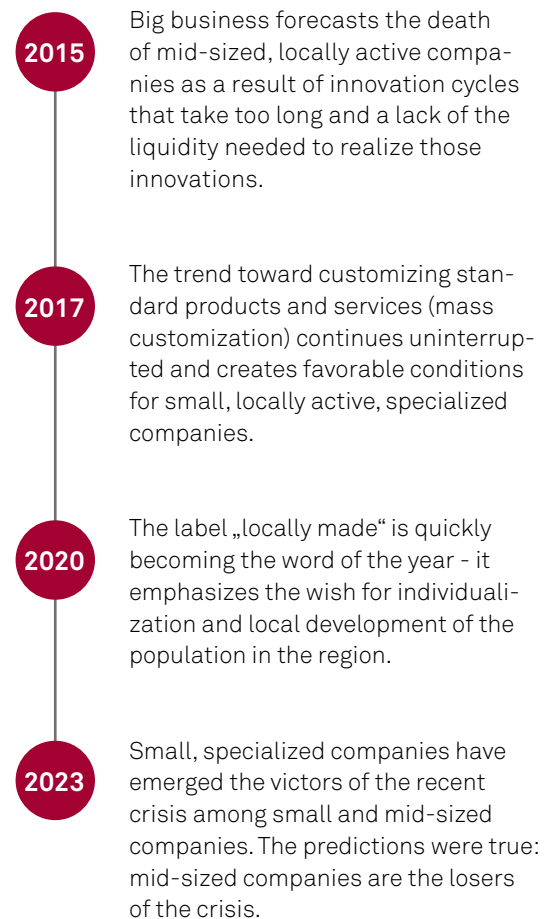
Competences in the SC are ... mainly considered to be tasks of the procurement and logistics areas. Business has a strong operational and sales focus. As a result, holistic, strategic considerations play a secondary role. Qualification programs are mainly limited to eLearning and self-studies.

Supply chain risks are ... high due to margin pressures, a high division of labor and dependencies. Opportunities for risk compensation are limited since poor planning and miscalculations can quickly pose a threat to the company's existence.

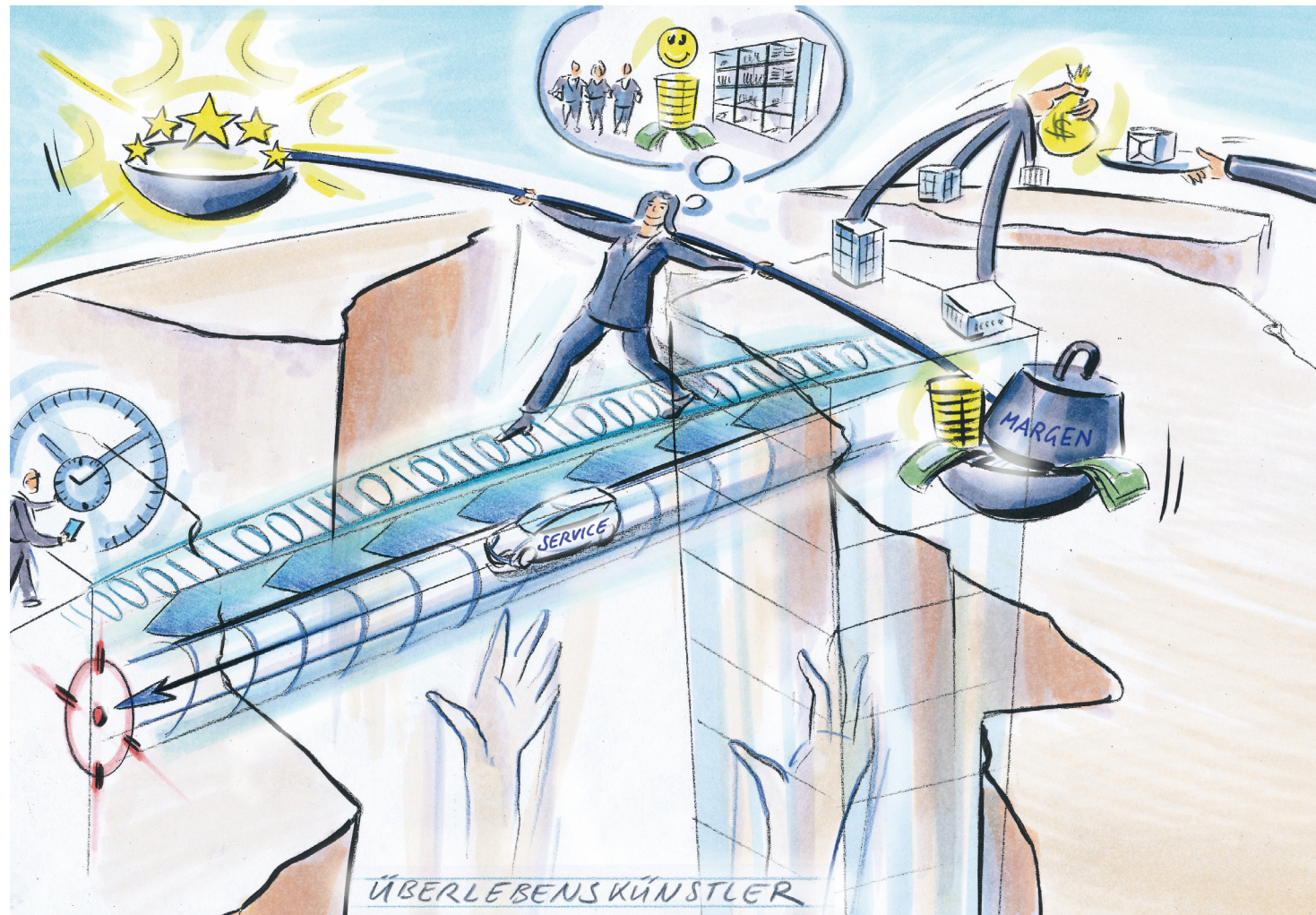
Sustainability plays ... a considerable role in regard to the social and economic dimension, while the ecological dimension is secondary to both of them. Decisions are mostly short-term or mid-term and are driven by the customer.

The formal frameworks are ... flexible and need-based. Long-term master agreements are rare and vendor relationships change often.

Course of the Scenario in the „World of Local Individualists“



The fixation on local products and services will continue to grow among some parts of the population and will go hand-in-hand with a higher demand for individualization. Companies wishing to participate in this trend will have to make an assertive effort to ensure local sustainability and networking. In doing so, the company strategy and communication must be clearly aligned with the objective of ensuring the company is clearly „recognized“ as an important local player. This also includes a sustainable HR policy that includes economic, ecological and social aspects. Companies must make the right decisions in the next few years in order to ensure their long-term „recognition“ as a local player in a difficult market environment. This scenario is particularly relevant for organic products in an upmarket target group.



Scenario IV

World of Specialized Innovators

Scenario Description from a 2020 Perspective

Customers want ... innovative solutions to current problems. They specifically decide based on brand and the reputation of the brand. This exclusivity has its price, but customers are willing to pay it.

The flow of materials and goods is ... globally organized and the flow of goods is managed by the individual supply chain partners. Global networking is closed by brand service providers, from whom services related to aspects such as data, transport, finances, etc. are purchased. Time-to-market is the success factor. There is a shortage of supply, one that is even produced artificially at times.

Information is ... extremely sensitive, especially from a competition perspective when it comes to new trends and the translation thereof. Adequate interpretation of big data and the effective, successful translation of the analyses into innovative solutions and business models are considered, from a value proposition vantage point, a competitive advantage. Modular supply chain solutions play a key role in that process.

Competences in SC are ... continuously developed along a global value chain of knowledge

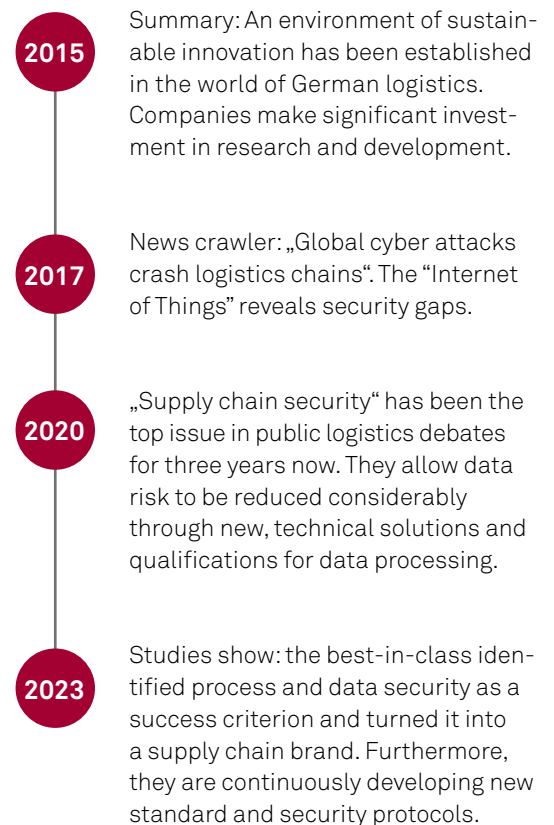
that includes research, application and qualification. Innovation management, creativity, strategy and an ability to execute are among the strategic development fields for employees.

Supply chain risks are ... moderate over the short term and possible impacts to the detriment of partners and customers are taken in stride. Over the long term, however, protecting intellectual property (IP), innovative capability and shorter time-to-markets play a critical and material role.

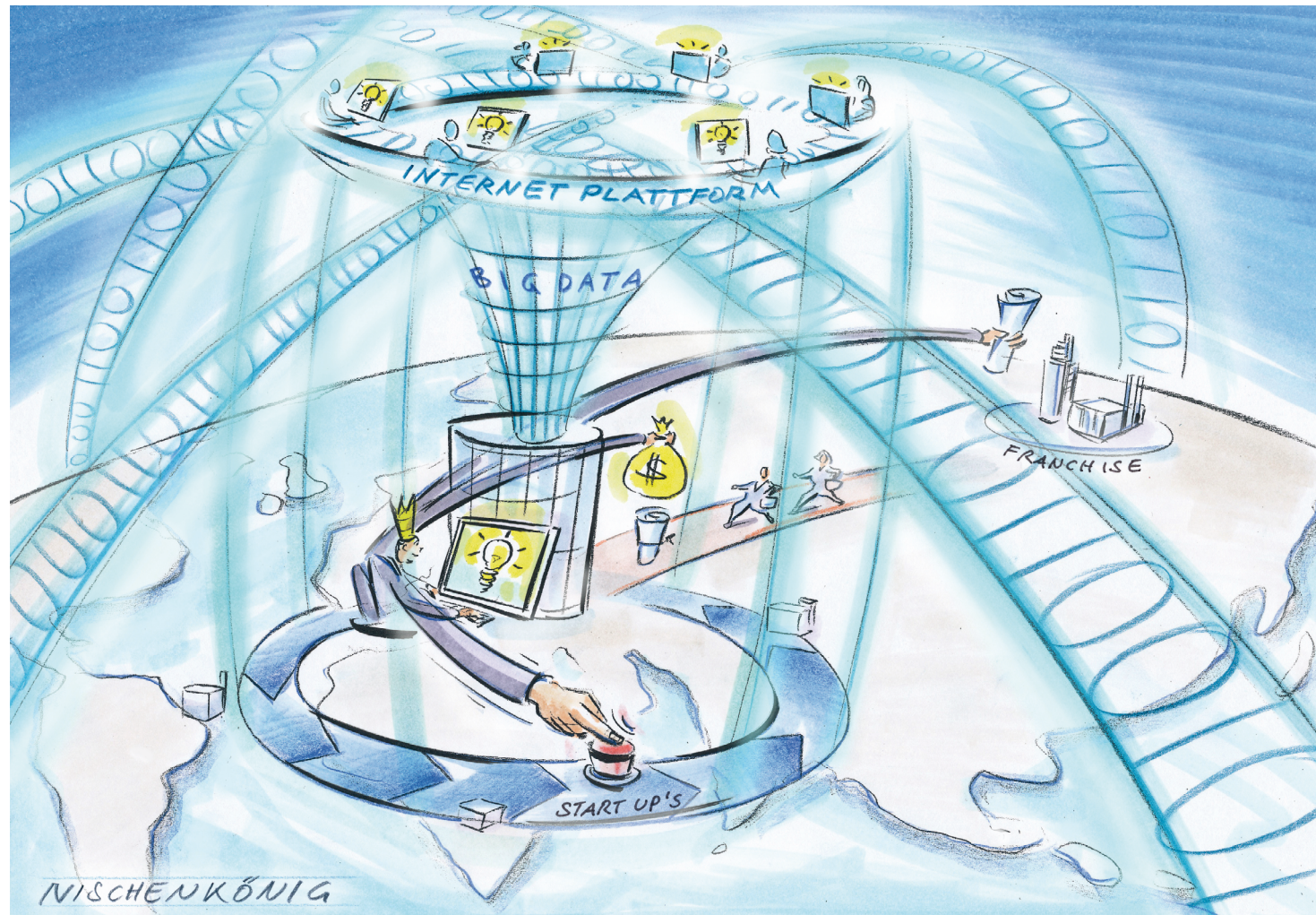
Sustainability plays ... a central role, especially in public image and is thus associated directly with brand. This is a global requirement among innovation leaders and is ensured locally. Sustainability is an essential decision-making factor when selecting a supply chain partner.

The formal frameworks are ... focused on protecting intellectual property (IP) and are based on long-term global partnerships, such as those affiliated with licenses, strategic alliances, joint ventures, etc. Each supply chain partner is responsible for ensuring compliance with strict security requirements within their own supply chain.

Course of the Scenario in the „World of Specialized Innovators“



The key success factors of specialized innovators are their ability to quickly identify trends, the global network required to translate those trends and a strong - possible even regionally differentiated - brand that allows customers to identify with the products and services. Shared values and focus (vision) are essential in managing a global network if the company does not have the option of integrating networks into their own structure (see Scenario II). As a result, the critical success factors for companies today are defining, living and establishing a value and compliance (CSR) committee in an innovation-driving work environment. In doing so, companies and cooperation partners should establish a common basis for employee development in the Western world and on employee loyalty in Asia. This scenario is suitable for innovation-intense companies that organize and build their own network, while maintaining their flexibility and independence. This scenario is especially relevant for highly innovative companies.



Possible Courses of Action

Strategic Course of Action Options

Managers should invest one third of their time in the development of future scenarios, while two thirds of that time should be dedicated to transferring and applying the results. The scenario transfer in particular tends to be a challenge for many companies. The study at hand makes an initial contribution to the transfer process, which it does through the development of strategic course of action options and the evaluation of them pursuant to the four scenarios. Nine generic options are evaluated in the respective scenarios using the scoring model shown in the following diagram.

The evaluation is performed by means of a panel survey. The evaluation reveals that strategic course of action options „employee development / recruiting“ and „cost reduction“ achieve the highest scores across the board, i.e. independent of the scenario. Thus, they are considered future-proof strategies, ones that are likely to be beneficial in all scenarios and thus should be employed or intensified in the short term if not immediately - in order to ensure the company's success in the future.

In addition to the future-proofness of the individual options in all scenarios, decision-makers can also identify the most effective options for an individual scenario and apply a well-focused strategy to one or two scenarios. For example, „employee development / recruiting“ and „expansion of the distribution channels“ might be a promising selection for the „World of Regional Networks“, while „development of new markets“ and „investment in R&D“ may be more beneficial for the „World of Specialized Innovators“. This does assume that companies already have a clearly-defined focus and positioning for the future in place (global vs. regional / integration vs. cooperation), meaning one of the two axes should be defined as material to the company's strategic focus.

The options presented here are generalized and will need to be revised in accordance with a company's specific information; these options are merely the first step in developing scenario-based supply chain strategies. Decision-makers can perform SWOT analyses for each scenario as well, in order to analyze the strengths, weaknesses, opportunities and risks of specific products, solutions, segments, etc. Exactly how the future will unfold cannot be predicted, which makes it even more important to have clear, strategic action alternatives for managing the supply chain or the company.

Course of Action Options for the Scenarios

| Strategic Course of Action Options | I. World of Regional Networks | II. World of Digital Networking | III. World of Local Individualists | IV. World of Specialized Innovators |
|--------------------------------------|--|---|--|--|
| Development of new markets | ↗ E.g. start-up, strategic alliance | → E.g. joint venture, M&A | ↘ E.g. cooperation | ↑ E.g. start up, franchise / licensing business, M&A |
| Employee development / recruiting | ↑ E.g. train-the-trainer, corporate academy, talent management / acquisition | ↗ E.g. corporate academy, global recruiting, active know-how transfer | → E.g. basic technical training, mentoring program, government subsidies | ↑ E.g. high-potential program, internal academies, head-hunting, acquisition, high-variable remuneration |
| Investment in research & development | ↗ E.g. collaborations with higher-education institutes, product innovation, sustainability | ↗ E.g. technologies, system integration, big data innovation | ↘ E.g. internal process | ↑ E.g. product & service innovation, open innovation |
| Cost reduction | → E.g. vendor integration, re-negotiation / RfPs | ↑ E.g. process and service optimization, renegotiation / RfPs, economies of scale | ↑ E.g. purchasing optimization & cooperation, inventory management, HR cost management | → E.g. promotion of open book, vendor integration, reduction of innovation cycles |
| Reaction to the competition | ↘ E.g. Me2, wait-and-see & maintaining flexibility, control of local supply | ↗ E.g. hostile takeover, lobbying, employee poaching, legal dispute | → E.g. Me2, divestiture, opting out, price reduction | ↗ E.g. IP management, legal dispute, employee poaching, fusion |
| Sales measure | → E.g. expansion of presence, increase customer service | ↗ E.g. sales promotions, increase sales team | ↑ E.g. personal contact, success stories, increase customer service, commissions | ↘ E.g. shortage & exclusivity, product placement and sponsorships |
| Investment in PR / advertising | → E.g. radio, corporate TV, employer branding, personal networks | ↗ E.g. campaigns, trade fairs, social networks, sponsorships | ↗ E.g. regional events, social & personal networks Online marketplaces | ↗ E.g. trade fairs, showrooms, corporate TV, lead user |
| Expansion of distribution channels | ↑ E.g. direct sales, convenience shops, eCommerce | ↘ E.g. cross-selling, eCommerce | ↗ E.g. independent sales partners, eCommerce, reference base | ↗ E.g. social media, m-commerce, f-commerce |
| Development of new business fields | ↓ E.g. variant management, horizontal integration | ↗ E.g. diversification of the product portfolio, vertical integration | ↑ E.g. continuous penetration of new business fields, complementary services | ↗ E.g. diversification of the product portfolio, complementary services |

Relevance: ↑ High ↗ Middle → Neutral ↘ Negligible ↓ None

Possible Courses of Action

Course of Action Options in Connection with the Scenarios

Specific Recommendations by „Ruler Type“

The best way for the regional ruler to reinforce their regional power is by:

- Focusing on purposeful and systematic employee development within their region, thereby strengthening the emotional connection to the company. This creates a sense of employee loyalty through increased competence, for example through train-the-trainer programs or corporate university approaches in cooperation with partners from the supply chain or other companies. The goal of such actions is not merely to keep know-how in the company, but to expand it as well.
- Systematically expanding their distribution channels, e.g. expanding them to include direct sales, convenience shops (kiosks, gas stations), eCommerce and by ensuring a high degree of customization (order quantity: 1).
- Ensuring an adequate product portfolio and by selecting their partners based on whether the partner can optimally support the strategic and regional positioning, as well as reinforce the local connection and acceptance.

Key decision factors for the regional ruler are the maintenance and expansion of their local network and their positioning, as well as selecting the appropriate sales channels.

The information leader expands their market power by:

- Focusing on process, resource and service optimization, thereby attaining cost advantages.
- Continuously collecting new RfP and performing new negotiations, thereby using their scaling advantages and degree of integration against the competition.
- Reviewing partnerships based on benefit factors and using their (market) power to enforce global (or even political) changes.
- Key decision factors for the information leader are the integration and leadership capabilities of the various divisions of the company.

Survival artists ensure their survival by:

- Focusing on the local involvement and services of their company, e.g. in the form of a local purchasing association for regional products and solutions and by optimizing their inventory and HR cost management.
- By strengthening their chances of survival through smart sales measures, such as target group-specific enhancement of customer service or product customization (order size: 1), as well as through systematically collected references, success stories or through the development of complementary services such as the penetration of new business fields.

Key decision factors for this ruler are a close linkage to regional conditions and developments, as well as the ability to quickly anticipate service solutions and products.

The king of niche markets protects their domain by:

- Using their strong brand name to develop new markets, such as start-ups or franchising, and controlling them with an innovation-driving risk management approach.
- By establishing employee loyalty among critical employees through development programs, e.g. through high-potential programs and ensuring an innovative working environment in a global structure.
- By purposefully instilling a sense of loyalty to themselves and their company in innovators and high performers.
- By investing in research and development and specifically focusing on open innovation, a concept that allows every partner in the supply chain, including the customer, to participate in innovations via an Internet platform.
- Key decision factors are innovation and technology leaps that are immediately integrated into products and services.

Common Recommendations for All Four „Rulers“

In addition to the specific course of action options for the individual scenario participants, there are also recommendations that apply equally to all four „rulers“. They concern innovative ability, personnel development and management, as well as data security in all communication channels:

- That the innovative capability of companies and networks must be ensured and advanced is almost universally applicable. The frameworks required for such must also be in place, despite increasingly strict regulations in the process industry.
- Employee selection, personnel development and management development are the key success factors for supply chain management in the future. Given the shortage of expertise and executives in the Western world, the lack of a sense of loyalty to companies among experts and managers in Asia and the continuously growing demand for management and employees, the following will be even truer in the future than it is today: it's a people's business!
- Data security and the careful use of data is not merely a success factor for the future, it is increasingly becoming a risk factor. Data protection gaps that can be traced back to companies or networks in regulated areas can pose a threat to a company's entire existence in the future.

This means, the balance between processes and standards on the one hand, and the development and structural framework for individuals on the other, will shift toward a direct responsibility by the individual in years to come. This requires new managerial tools in organizations and companies.

Summary

Scenarios Are the Golden Ticket to the Future

Scenarios are the golden ticket to the future or, to use another metaphor: the philosopher's stone of the future. And similar to the proverbial philosopher's stone, only very few managers to date are familiar with this stone that bears wisdom for the future. Scenarios are not yet as widely used as they should be given the urgent challenges the future is already presenting. That is why the study at hand employed the scenario methodology. The extent to which a person firmly rooted in business practices can or will apply the strategic recommendations in this study in their own company or managerial scope will also depend on the culture prevalent within their company as well as that company's willingness to take risks.

A culture of wait-and-see always gives companies a certain security and stability in the short term. Yet, it is certainly not the culture that gives the best chances for the future and for survival. Even the wording of this study is suggestive of this idea: after all, said „courses of action“ imply action and not just waiting. Of course: active action requires courage and a certain willingness to take risks, also referred to in layman's terms as „entrepreneurship“. Meaning: the future in 2020 and beyond belongs to those who are brave and take entrepreneurial action.

We can expect the gap between globalization and regionalization, as well as full integration and intense collaborations to widen even more, thereby forcing companies to choose a direction. The decision can be made actively or reactively, depending on the company culture. However, the decision itself will be determined by the risks on the one side and the opportunities on the other. Yet even within the increasingly volatile environment, there are a few constants companies can use for orientation. These include the two, almost universally-applicable course of action alternatives: **employee development / recruiting** and **cost reduction**.

Furthermore, it is recommended that networks be created independent of the degree of integration in the future. This raises the first of two decisive questions - the question of positioning a company as a global or regional

player. This question should, if not yet answered, be answered quickly, since the two poles and thus the target groups will only continue to diverge. The decision on degree of integration can be stretched out over the next few years, even from a risk perspective.

Another criterion is employee development and loyalty. Depending on the nature and regional significance of the company, different focal points may exist in regard to the competences and skills of the employees of the supply chain. Current developments already show signs of a coming crisis and the development of a „war of talents“ in the Western world. This means, fast action is essential. In addition, the economic developments in Asia and in China in particular show the importance of capable and reliable employees. At the same time, Asia should no longer be treated as a „low-wage“ country - or as an extended workbench. Instead, it should be understood and treated as a business and production market. This applies to both employee remuneration, as well as the social frameworks and development options that they can be offered. The transition toward growing prosperity will be seen in Asia as well, although the local culture, specifically in regard to the general willingness to change employers, cannot be changed and instead must be integrated into the company's focus to render it advantageous.

Innovative capability is another key component for success in the future, regardless of a company's focus. It is important to develop integrated models to that end and to actively integrate customers and employees in those models.

The high degree of complexity involved in the challenge of „the future“ cannot be mastered single-handedly. Cross-industry and cross-divisional expertise for developing new concepts for employee qualification and loyalty, as well as in regard to innovation and managing networks, is essential. Sound, strategic decisions cannot be made until comprehensive knowledge of all options is available.

Research Partners



msg is an independent, international group of companies with more than 4,500 employees around the world. The group of companies offers a holistic service spectrum of creative, strategic consulting and intelligent, sustainable and value-added IT solutions for the following industries: automotive, financial services, food, insurance, life science & healthcare, public sector, telecommunications & media, travel & logistics as well as utilities and has acquired an excellent reputation as an industry specialist during its more than 30 years in business.

Within the group, independent companies cover the wide variety of industry and issue-based competence: msg systems ag forms the core of the company group and works in close cooperation with the subsidiaries, both on a business and organizational level. This allows the competence, experience and know-how of all the members to be bundled into a holistic solution portfolio with measurable added value for its customers.

msg holds seventh place in the ranking of IT consulting and system integration companies in Germany.



EBS Universität für Wirtschaft und Recht is a leading private business university in Germany with locations in Wiesbaden and Oestrich-Winkel. EBS Universität currently has over 1,500 students.

In their research, the university uses an applied approach to business. Furthermore, EBS Universität also supports experts and managers from the industry by offering continuing education programs. The EBS Business School, a pioneer among Germany business schools, has been training future managerial figures with an international perspective since 1971 and has one of the most highly recognized business management faculties in Germany.

Literatur

- acatech (2012) Moving people and goods. Integrative development of mobility and logistics for better quality of life and prosperity. [Original title: Menschen und Güter bewegen. Integrative Entwicklung von Mobilität und Logistik für mehr Lebensqualität und Wohlstand] (acatech POSITION), Springer Publisher: Heidelberg et al., http://www.acatech.de/fileadmin/user_upload/Baumstruktur_nach_Website/Acatech/root/de/Publikationen/Stellungnahmen/acatech_POSITION_Mobilitaet_und_Logistik_WEB.pdf
- BME (2011) BME survey on the transport market in 2012 [Original title: "Transportmarkt 2012"], BME: Berlin / Frankfurt, http://www.bme.de/fileadmin/bilder/Logistik/Auswertung_BME-Umfrage_2011_Final_und_Druckfreigabe.pdf
- Bradfield, R. / Wright, G. / Cairns, G. & Van Der Heijden, K. (2005) The origins and evolution of scenario techniques in long range business planning. In: Futures, Vol. 37, Issue 8, P. 795-812.
- Capgemini Consulting et al. (2012) 2013 Third-Party Logistics Study - The State of Logistics Outsourcing, Results and Findings of the 17th Annual Study, http://www.capgemini.com/sites/default/files/resource/pdf/2013_Third-Party_Logistics_Study.pdf
- Capgemini Consulting (2010) Customer back on top of the supply chain agenda in 2010, http://www.capgemini.com/sites/default/files/resource/pdf/tl_Supply_Chain_Agenda_2010.pdf
- Chermack, T.J. (2011) Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios, Berrett-Koehler Publishers: San Francisco.
- Deutsche Post AG (2012) Delivering Tomorrow – Logistics 20150: A Scenario Study [Original title Delivering Tomorrow – Logistik 2050: Eine Szenariostudie], Deutsche Post AG: Bonn, http://www.dp-dhl.com/content/dam/logistik_populaer/Studie2050/szenariostudie-logistik-2050-de.pdf
- Duncan, R.B. (1972) Characteristics of Organizational Environments and Perceived Environmental Uncertainty. In: Administrative Science Quarterly, Vol. 17, Issue 3, P. 313-327.
- EBS Business School / P&G (2011) Availability of Goods 2.0 - Scenarios for Consumer Industries 2030 [Original title: Warenverfügbarkeit 2.0 – Szenarien für die Konsumgüterbranche 2030], EBS: Wiesbaden.
- EBS Business School / Lünendonk (2010) Living and breathing supply chains. How well is Germany's upper-middle class prepared for volatile markets? [Original title: Atmende Supply Chains. Wie gut ist Deutschlands gehobener Mittelstand auf volatile Märkte vorbereitet?] BrainNet Science Edition, St. Gallen.
- EBS Business School / Logica Business Consulting (2011) Excellence in Supply Chain Sustainability, EBS: Wiesbaden.
- EBS Business School, ISCM / TU Dresden (2012) Supply chain agility. Strategic adaptability in supply chain management [Original title: Supply Chain Agility. Strategische Anpassungsfähigkeit im Supply Chain Management], BVL / BME: Bremen / Frankfurt, https://www.google.de/url?q=http://www.bvl.de/misc/filePush.php%3Fid%3D18099%26name%3DBVL12_BME_Studie_Supply_Chain_Agility.pdf&sa=U&ei=14LBUnFLs31sgbEqIDwDg&ved=0CCUQFjAA&sig2=-j6AdX8HdWO3u3cQ-Qs0D5Q&usg=AFQjCNGeH_gc7v4Oo2KgtjCEIAONogfjKg
- Glenn, J. / Gordon, T.J. (2009) Futures Research Methodology Vol. 3, Millennium Project: Washington.
- Handfield, R. / Straube, F. / Pfohl, H.-C. / Wieland, A. (2013) Trends and Strategies in Logistics and Supply Chain Management. Embracing Global Logistics Complexity to Drive Market Advantage, DVV Media Group: Hamburg, www.bvl.de/misc/filePush.php?id=21777&name=BVL_TrendsandStrategies_SCM_Logistics_2013.pdf

- Kille, Ch./ Schwemmer, M. (2012) The top 100 in logistics 2012/2013 [Original title: Die Top 100 der Logistik 2012/2013], DVV Media Group: Hamburg, <http://www.scs.fraunhofer.de/content/dam/scs/de/dokumente/studien/Top%20100%202012-2013%20Executive%20Summary.pdf>
- Kille, Ch./ Schwemmer, M. (2013) Challenges 2013, DVV Media Group: Hamburg, http://www.scs.fraunhofer.de/content/dam/scs/de/dokumente/studien/Challenges_2013_Exec.pdf
- PRTM (2010) 2010-2012 Global Supply Chain Trends, <http://supply-chain.org/f/1-Hoole-Ready%20for%20Recovery.pdf>
- PwC (2012) Next-generation supply chains: Efficient, fast and tailored, <http://www.pwc.com/GlobalSupplyChainSurvey2013>
- PwC / EBS Business School (2011) Transportation & Logistics 2030 – Volume 4: Securing the Supply Chain. PricewaterhouseCoopers, Düsseldorf, <http://www.pwc.com/tl2030>
- PwC / EBS Business School (2012) Transportation & Logistics 2030 – Volume 5: Winning the talent race. PricewaterhouseCoopers, Düsseldorf, <http://www.pwc.com/tl2030>
- Schnaars, S. / Ziamou, P. (2001) The Essentials of Scenario Writing. In: Business Horizons, Vol. 44, Issue 4, P. 25-31
- Statista (2012) Statistics dossier: logistics company, www.statistita.com
- van 't Klooster, S.A., van Asselt, M.B.A. (2006) Practicing the scenario-axes technique. In: Futures, Vol. 38, Issue 1, P. 15-30.
- VDI (2012) Production and logistics in German 2025 - Trends, tendencies, conclusions [Original title: Produktion und Logistik in Deutschland 2025 - Trends, Tendenzen, Schlussfolgerungen], VDI-Gesellschaft Produktion und Logistik: Düsseldorf, http://www.vdi.de/uploads/media/GPL-Studie_Produktion_und_Logistik_in_Deutschland_2025.pdf
- WEF (2009) The Future of the Global Financial System - A Near-Term Outlook and Long-Term Scenarios. WEF: Geneva, http://www3.weforum.org/docs/WEF_Scenario_FutureGlobalFinancialSystem_Report_2010.pdf
- WEF (2013) Connected World: Transforming Travel, Transportation and Supply Chains, World Economic Forum: Geneva, http://www3.weforum.org/docs/WEF_MO_Connected-World_Report_2013.pdf
- World Energy Council (2007) Energy Policy Scenarios to 2050. World Energy Council: London.

msg systems ag

Robert-Buerkle-Strasse 1 | 85737 Ismaning/Munich
Telephone: +49 89 96101-0 | Fax: +49 89 96101-1113
www.msg-systems.com | info@msg-systems.com

.consulting .solutions .partnership