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Inside Business Process Management

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Business Process Management at Knorr-Bremse AG

Preparation – Implementation – Optimization – Self-assessment

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Foreword

Over the past few years, it has become clear both in manufacturing industry and in the service sector that the control of business processes is probably the most important factor in the success of a company. This report outlines the various key aspects.

In Part I, you will find a description of the concept of business process management (BPM) and a variety of practical examples and suggestions.

The methods and role descriptions in Part II are designed to assist with the implementation and development of a business process management system.

Part III presents the results of a market survey which indicates the current status of business process management in Germany.

Part IV, "Reports from companies", illustrates the way in which different companies have shaped their business process management systems.

Using the market survey, the reports and a self-assessment questionnaire included in this report, you can identify the action needed within your own company. You can also determine your own position with reference to the state of the art and best-practice solutions.

This entire publication is intended to improve the competitiveness of as many companies as possible and, indeed, of Germany as a site for industrial operations.

Note to the reader

The special feature of this report is that it describes three business process management systems within one group of companies: the system of Knorr-Bremse Rail Vehicle Systems (RAIL), the system of Knorr-Bremse Commercial Vehicle Systems (TRUCK) and the Corporate Excellence System of Knorr-Bremse AG, the parent company.

The report attempts to make general statements which apply to all three systems, at the same time as outlining the differences between them. The fact that there are three different systems is highlighted as a strong point. The systems reinforce the performance of the divisions, which are involved in entirely different types of operations (project business and mass production) and also support internal competition.

Statements by managers within the Group on striving for business excellence and its benefits for the Group introduce an element of variety into the report.

At Knorr-Bremse, international directives and instructions such as process definitions are issued in English and then translated into national languages as necessary. This approach is also reflected in this report.

This report was written by its authors in accordance with a pre-defined structure and then signed off with the editor and the publishers. The notes in italics which appear in the text are those of the editor.

The authors and the editor

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1   The Knorr-Bremse Group

The Knorr-Bremse Group is the world's leading manufacturer of braking systems for rail and commercial vehicles. For more than 100 years now the company has pioneered the development, production and marketing of state-of-the-art braking systems. Knorr-Bremse therefore plays a key role in ensuring the safety of road traffic and rail systems. Other lines of business include automated door systems and air conditioning systems for rail vehicles, and torsional vibration dampers.

In the 2005 financial year, Knorr-Bremse recorded global sales of EUR 2.7 billion with a workforce of almost 12.119 people around the world. Optimum market-focus and a high degree of flexibility are key factors in the Group's success with customers. Transparent, decentralized corporate structures, an integrated international development and production system and a global service network ensure that these objectives are met. Knorr-Bremse is an independent organization, managed by its shareholder

Fig. 1: Worldwide presence of Knorr-Bremse

The Knorr-Bremse Group has a divisional and regional structure. The parent company, Knorr-Bremse AG, forms an umbrella for regional companies in the Americas, Europe and the Asia-Pacific Region. The two divisions "Rail Vehicle Systems" (RAIL) and "Commercial Vehicle Systems" (TRUCK) are clearly separated across the regions, a basic prerequisite for the efficiency and flexibility needed for global success.
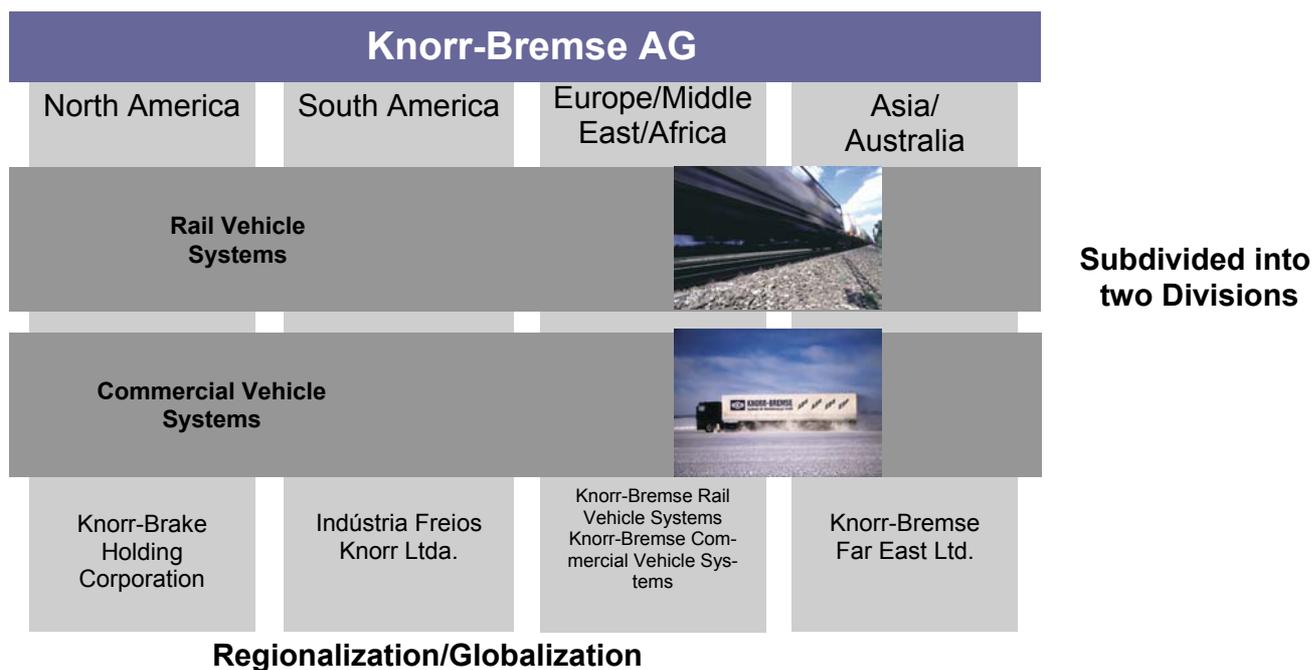
Knorr-Bremse AG			
North America	South America	Europe/Middle East/Africa	Asia/ Australia
Rail Vehicle Systems			Subdivided into two Divisions
Commercial Vehicle Systems			
Knorr-Brake Holding Corporation	Indústria Freios Knorr Ltda.	Knorr-Bremse Rail Vehicle Systems Knorr-Bremse Commercial Vehicle Systems	Knorr-Bremse Far East Ltd.

Regionalization/Globalization

Fig. 2: Organizational structure of the Group

Over the past few years, Knorr-Bremse has experienced strong organic and external growth and has been a driving force for consolidation within the industry. Some key figures are given below:

	1999	2000	2001	2002	2003	2004	2005
Sales (Mio. Euro)	1.281	1.494	1.653	2.118	2.206	2.423	2.7
Net income (Mio. Euro)	51	59	59	69	108	130	154
Employees	8.090	9.638	9.215	10.959	10.763	11.143	12.119

Fig. 3: Key figures of Knorr-Bremse Group

The two divisions share a strategic focus on braking systems and safety-critical products. As a result, quality and quality assurance have always been top priorities within the Group. On the other hand, the business activities of the two divisions are very different, which is why their operations are clearly separated.

While the OEM business of Commercial Vehicle Systems is characterized by high-volume production of identical systems over long periods, Rail Vehicle Systems mainly handles major projects involving low unit output. Consequently, there are many differences between the business processes of the two divisions and these are reflected in their different process management systems.

2   Initialization

*This Section explains how the business process management systems developed. Was the
need for action just sufficiently urgent or the perceived problems sufficiently severe? Were
suggestions received from outside the Group? Or was the time just ripe for business process
management?*

In keeping with its activities and the requirements it faces, Knorr-Bremse has three business
process management systems, one for each of the divisions and one for the parent com-
pany. These systems were not introduced simultaneously but in succession in an iterative
process in which each stage of a management system incorporated and developed elements
that had already proved successful in the other systems.

2.1   Knorr-Bremse Commercial Vehicle Systems (TRUCK)

Commercial Vehicle Systems was the first division to introduce a process management sys-
tem. The main reason was a focus on total quality management from 1994 onwards and cer-
tification to ISO 9001, which had also been requested by customers. These developments
were in line with the safety-critical nature of the products and the quality requirements faced
on the one hand and the resultant obligation to maintain comprehensive documentation on
the other. All of the division's European production facilities were certified. This first quality
management system, based on quality elements, was continually developed in accordance
with EFQM criteria, in line with QS-9000 and taking account of ISO/TSD 16949, which of
necessity made it a process-oriented system. At the same time, the different processes used
at the division's various sites were standardized and improved. Comprehensive improvement
and training programs were also implemented in the production and administration depart-
ments. An environmental management system in accordance with ISO 14001 was later inte-
grated into this quality management system. Through the integration of corporate perform-
ance data and the take-up of the same processes in the management systems of the parent
company, this system developed into the current business model or business process man-
agement system TMS ("TRUCK Management System"). The focus on business excellence
was driven and reinforced by annual competitions between the division's various sites, de-
signed to boost process orientation and process improvement

The diagram below shows the path to business excellence adopted by the TRUCK division:

Year	Step	Management system
1995	Start of TQM project and orientation towards business excellence model	Element-oriented quality man-agement system to ISO 9001 since 1994
1996	Self-assessment workshops based on business excellence criteria	
1997	Introduction of KNORR-BREMSE Business Excellence Award	
1998	Definition of PIQS processes based on criteria of EFQM model; Knorr-Bremse Kecskemét wins the Hungarian Quality Award (EFQM criteria)	Process-integrated quality man-agement system (PIQS) to QS-9000 since 1998, upgraded to ISO/TS 16949 in 1999
1999	PIQS certification to QS-9000 and definition of our strategies in STRAP	
2000	Introduction of process implementation assessment with the RA-DAR system of the EFQM model. Criteria of Knorr-Bremse Busi-ness Excellence Award based on EFQM model	
2001	Knorr-Bremse Kecskemét enters for the European Quality Award. Introduction of assessment for internal business processes. First site visit by EFQM assessors. Group certification to ISO 14001	Process-integrated quality and environmental management sys-tem (PIQS & PIES = PIMS)
2002	First entry of Knorr-Bremse Commercial Vehicle Systems for the European Quality Award. Result: "Recognized for Excellence". Start of internal EFQM self-assessment.	

2003	Second entry of Knorr-Bremse Commercial Vehicle Systems for the European Quality Award. Result: "Recognized for Excellence". Group certification to ISO/TS 16949:2002	Continuation of PIMS and links to business model
2004	Finalist for European Quality Award	Changeover to TMS with new process and documentation structure and links to corporate excellence model
2005	Price Winner European Quality Award	REX and TMS

Fig. 4: Development of TRUCK division management system

2.2 Knorr–Bremse Rail Vehicle Systems (RAIL)

Developments in the Rail Vehicle Systems division were similar. The recognized benefits of the TRUCK management system included process orientation, the standardization of processes, the simplification of structures and the avoidance of friction losses, as well as the implementation of continuous improvement. These advantages led the Rail Vehicle Systems division to introduce its own management system in 1999. In 1997, the two divisions had already changed their global organizations over from a functional to a matrix structure. This was already based to a large extent on processes and can be considered both as the reason for and the result of process orientation. Development, purchasing and production activities were grouped together in centers of competence and sales processes were bundled.

When introducing its process management system, RAIL benefited from experience already obtained by TRUCK. Initially, RAIL drew up a process model based on the TRUCK model with nine main processes. However, as a result of differences between the business activities of the two divisions, it was soon found that this model did not adequately reflect the requirements of the division. For this reason, RAIL developed and defined an entirely new business process model, "RAIL Excellence" or "REX" between November 2001 and April 2002. This model, has since been revised several times and has proved itself in practice. The improvements embodied in this new management systems were also taken up and driven forward by TRUCK. In its turn, the parent company then benefited from the experience and knowledge developed within its two divisions.

Both divisions experienced a transition from an ISO system based on audits and documentation to sustained process orientation, implementation and organization. In this process, the certified quality management manuals, which had previously been different for each site, were developed into a comprehensive, uniform process environment (see diagram). In the RAIL division, the trend towards process orientation and standardization was further intensified by the introduction of SAP software
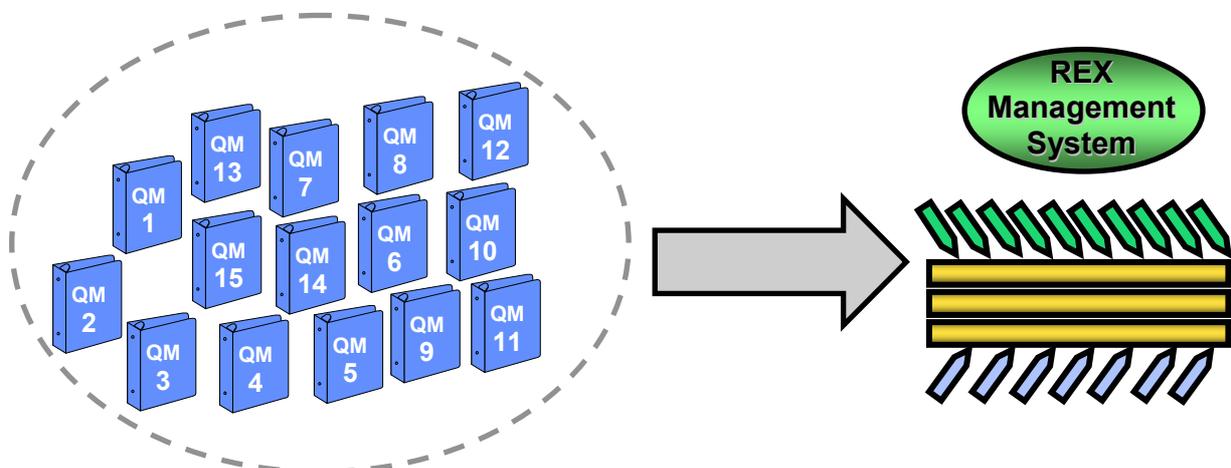

Fig. 5: Development of site-specific quality systems into REX

Rollout of the two divisional management systems has now been completed at all European sites. By the end of 2006, the systems will have been implemented at virtually all the Group's global sites (i.e. including the Americas and Asia).

2.3   Knorr–Bremse AG (parent company)

Some processes adopted by the divisions are taken up by Knorr-Bremse AG (the parent company), just as some activities of the parent company initiate processes within the divisions. These interfaces, relationships and responsibilities had in some cases not been defined with sufficient clarity, a deficiency that was identified by external assessments in the divisions. As a result, the Corporate Excellence (CE) project was launched in 2002, with a view to improving the performance of Knorr-Bremse AG by adopting consistent new definitions. This project led to the introduction of a process management system at the parent company. The project was implemented by a team consisting of members responsible for process management/IT, financial controlling and personnel development. The divisions were also involved and support was provided by an external consultant. Within about eighteen months, most of the processes had been defined, the interfaces to the divisions had been clarified and a consistent indicator system had been established. Now, CE has been introduced throughout the Group.

Knorr-Bremse is one of very few companies to have adopted different process management systems in line with the different business requirements of its divisions and to have integrated these systems into a single Group system at the level of the parent company.

The CE system takes up the processes from the divisional systems and vice versa. It also forms a common umbrella for the two independent divisions. This explains why binding global guidelines, principles and values (see Section 3) were defined in addition to the processes themselves. Apart from achieving the targets set, the process management systems also function as repositories of knowledge, ensuring a smooth transition in the event of the replacement of key personnel. It is important to remember that successful processes may have developed historically, on the basis of the experience of specific individuals.

The process management system is also a driving force for the continuous improvement of processes and a tool for managing the strong growth of the Group. As the key processes are rapidly integrated into newly acquired units, these units also become integrated into the Group itself.

2.4   Process Orientation

Why is process orientation essential for Knorr-Bremse? The management of a large number of international sites, a worldwide development, purchasing and production network, maintaining international customer satisfaction, the highest possible quality requirements, and transparent controlling all call for networked processes which are binding throughout the world, as well as a secure, high-performance IT network. For a company which has always aimed and still aims for outstanding performance, we must set our sights on excellence if we are to remain outstanding in the future. This is the only way to ensure continuous improvement both in processes and in results.
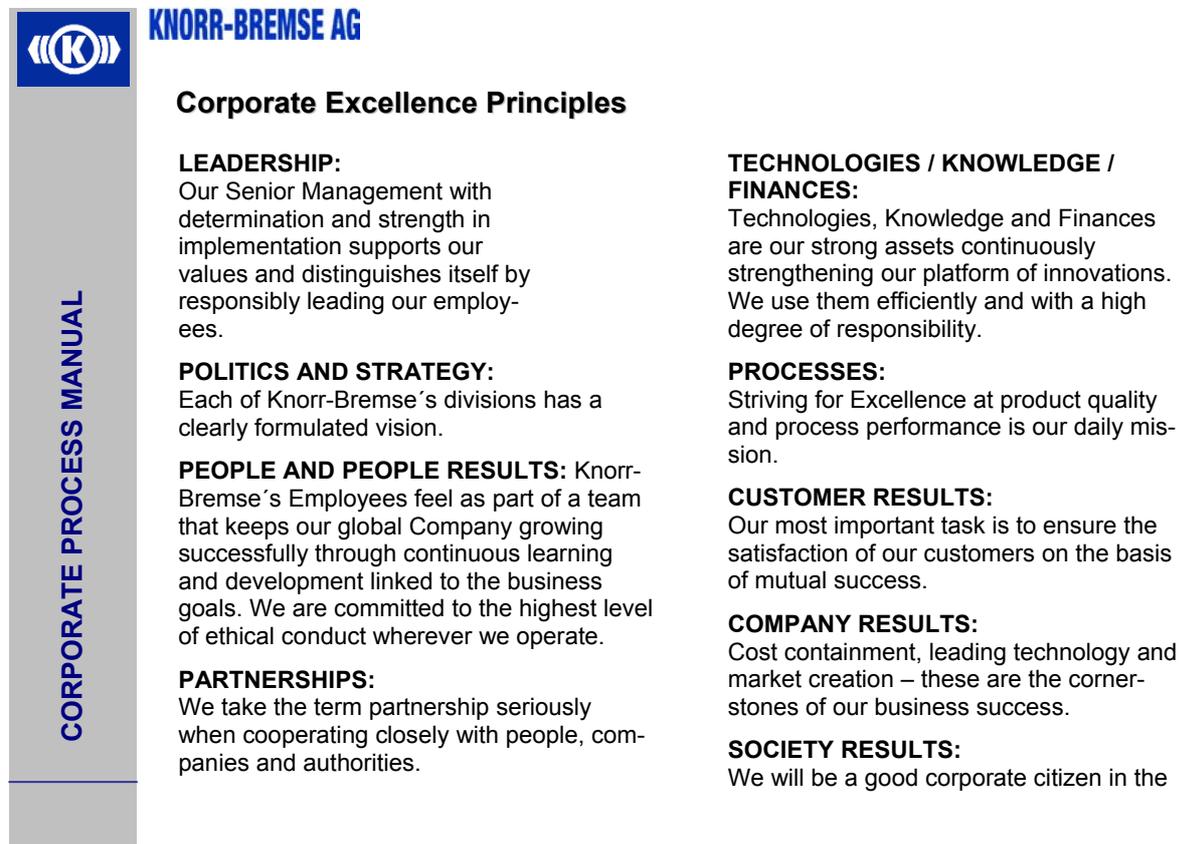
3 Principles

This section outlines the basis for developing the business process management systems. the basis may be a process model, excellence models, corporate guidelines, a vision, organizational principles, a communications concept, a project management system, etc.

Internal principles (defining objectives or behavior, see Sections 3.1 and 3.2) for the development of the management systems already existed in some cases, either explicitly or implicitly; others were developed and documented in the course of the implementation projects. These were the first cornerstone. The second was the EFQM model and its principles, which were integrated into the Corporate Process Manual (see Section 4.3) and apply to all process models. The idea is that the organization should always be moving in the direction indicated by these principles. The third cornerstone of Knorr-Bremse Excellence, which is just as important, is formed by our existing business operations and the exemplary structures and processes which have developed historically.

3.1 Excellence principles and visions

In view of decentralized responsibilities and the differences between their business operations, Knorr-Bremse decided to leave the formulation of visions to each of the divisions and not to formulate a common vision for the Group as a whole. After all, each individual employee can only pursue one vision. At the same time, the history and current business operations of the Group imply a direction in which the Group as a whole can and should move. Instead of an overall vision, the Group formulated Excellence Principles which apply to all companies and employees under the Knorr-Bremse umbrella and define fundamental objectives in core areas for the Group. The processes and management systems must also be based on these principles, which are shown in Fig. 6 below:

KNORR-BREMSE AG

CORPORATE PROCESS MANUAL

Corporate Excellence Principles

LEADERSHIP:
Our Senior Management with determination and strength in implementation supports our values and distinguishes itself by responsibly leading our employees.

POLITICS AND STRATEGY:
Each of Knorr-Bremse´s divisions has a clearly formulated vision.

PEOPLE AND PEOPLE RESULTS: Knorr-Bremse´s Employees feel as part of a team that keeps our global Company growing successfully through continuous learning and development linked to the business goals. We are committed to the highest level of ethical conduct wherever we operate.

PARTNERSHIPS:
We take the term partnership seriously when cooperating closely with people, companies and authorities.

TECHNOLOGIES / KNOWLEDGE / FINANCES:
Technologies, Knowledge and Finances are our strong assets continuously strengthening our platform of innovations. We use them efficiently and with a high degree of responsibility.

PROCESSES:
Striving for Excellence at product quality and process performance is our daily mission.

CUSTOMER RESULTS:
Our most important task is to ensure the satisfaction of our customers on the basis of mutual success.

COMPANY RESULTS:
Cost containment, leading technology and market creation – these are the cornerstones of our business success.

SOCIETY RESULTS:
We will be a good corporate citizen in the

Fig. 6: The Knorr–Bremse Excellence Principles

In connection with orientation towards business excellence and the introduction of process management systems, the divisions have developed their own visions. The vision of TRUCK (which is supplemented by a mission) is as follows:

> ***We will become the leading worldwide supplier of active vehicle safety systems within the commercial vehicle industry.***

Fig. 7: The vision of the Commercial Vehicle Systems division (Truck)

For Rail vision follows:

> ***Our vision is to further develop and strengthen our worldwide system-partnership with the railway customers via economically balanced technical solutions, a strong commitment to innovation, a broad product range and superior services hand-in-handwith a best-in-class performance by an independent Knorr-Bremse Rail Vehicle Systems Group.***

Fig. 8: The vision of the Rail Vehicle Systems division (RAIL)

3.2   Corporate Values and Customer Principles

Apart from the orientation provided by a vision, a company needs "rules of engagement" to govern the behavior of its employees both within the company and towards third parties. This is why Knorr-Bremse has defined principles for behavior within the organization (Corporate Values) and outside the organization, towards customers (Customer Principles). These values and principles are based in each case on the Excellence Principles (q.v. "People and People Results" and "Customer Results") but are also closely connected with each other. The company does not adopt a different view of humanity or a different model of human interaction for relations between employees and with customers. Most of the Corporate Values therefore correspond to a Customer Principle (and vice versa). There is merely a shift in emphasis. Both the Corporate Values and the Customer Principles are now presented at induction seminars for new employees. The values and principles defined are intended to reinforce the importance of focusing on customers and colleagues.

The Corporate Values were drawn up in a multi-stage process including brainstorming sessions, workshops and electronic communications. All the Group's managers and employee representative bodies were involved, The process took into consideration the actual values lived out at the Group and those that have defined and shaped the Group, as well as any scope for improvement to be aimed for in the future. This was the only way to ensure that the key aspects of corporate culture could be both identified and shaped. The results of this process were approved by the Executive Board and are therefore binding throughout the Group.

Expressed in operational terms, the Corporate Values are reflected by Leadership Principles. These form the basis for action by and the assessment of management staff at the Group. The Corporate Values and Customer Principles are shown below. Each individual value or principle also has a precise definition

Respect for every individual
We are proud of our diverse
blend of cultures!
1

Reliability and honesty
We keep our promises!
2

Openness and Trust –
We consistently demon-
strate responsible behav-
iors!
6

Loyalty and mutual commitment
We make Knorr-Bremse's inter-
ests our own!
3

Responsibility and team-
spirit
together we will succeed!
4

Fig. 9: The Corporate Values of Knorr–Bremse

Customer Service

Fairness creates Trust

People are the Company

Customer Principles

Processes and Rules shape our Actions

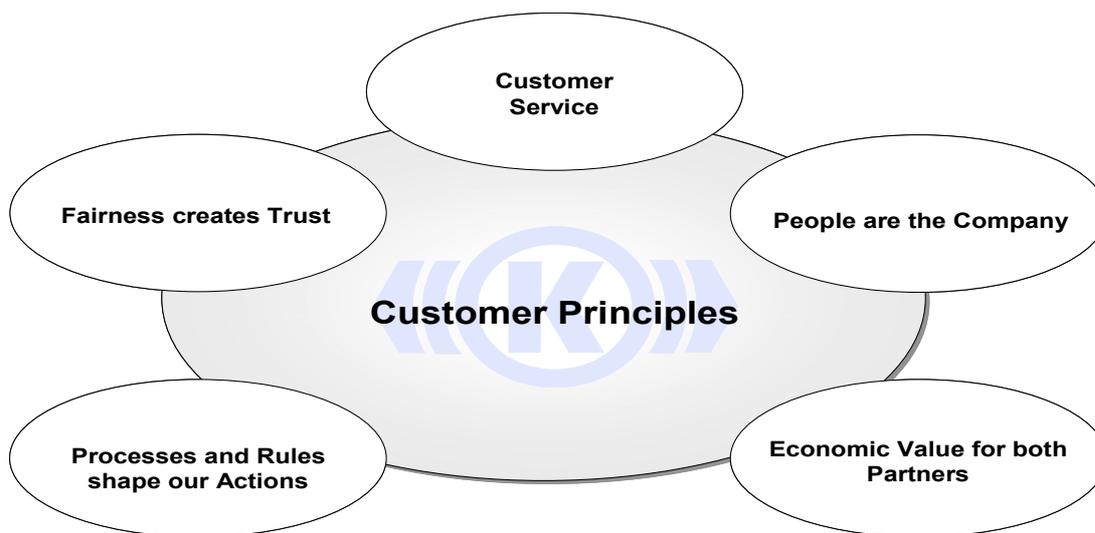**Economic Value for both Partners**

Fig. 10:   The Knorr–Bremse Customer Principles

Strategies and defined targets are essential for focused business process management. Unfortunately, the definition and application of ethical principles by all concerned is not always something that can be taken for granted. So it is interesting to note that a major international group assigns such importance to the creation of a system of values accepted by all employees, so that people from all the different cultures involved feel that they are part of the same body and are "all pulling in the same direction".

3.3   The three process models of Knorr-Bremse

The process models of Knorr-Bremse (one for the parent company, one for the TRUCK division and one for the RAIL division) are all structured in accordance with the EFQM system and include business processes ("enablers") and results.

The model applied by the parent company, the **Corporate Excellence model**, includes the following processes:
•   Leadership (Excellence Principles, Group Targets, Leader Empowerment)
•   Strategy (Strategic Planning, Organizational Development, Mergers & Acquisitions)
•   People Management
•   Financial Steering (Cash & Credit, Balance Sheet Management, Consolidation and Reporting)
•   Alignment (Information Technology, Management System, Post-Merger Integration, Internal Communication)
•   Controlling (Risk Management, Controlling)
•   Backing (Corporate Identity, Corporate Legal, Public Relations)

The four results blocks (shown on the right-hand side in Fig. 11) include the most important performance indicators that apply throughout the Group. These indicators are based on the balanced scorecard system. Apart from financial indicators, key figures related to customers, employees and social aspects are also included. Regular management reviews in the form of board and review meetings ensure that the system is given due attention by top management.

In the three diagrams of the BPM systems (Fig. 11, 12 and 13) below, by way of example, red ovals indicate a strategy and blue ovals the related IT processes.

The relevant tasks and interfaces are defined at these points. While the strategic process is driven by the parent company and taken up by the divisions, in the IT process, the required operations are performed in the divisions, with strategic aspects being defined by the parent company. So there is no redundancy between these processes in the management systems – instead the related processes are closely meshed.
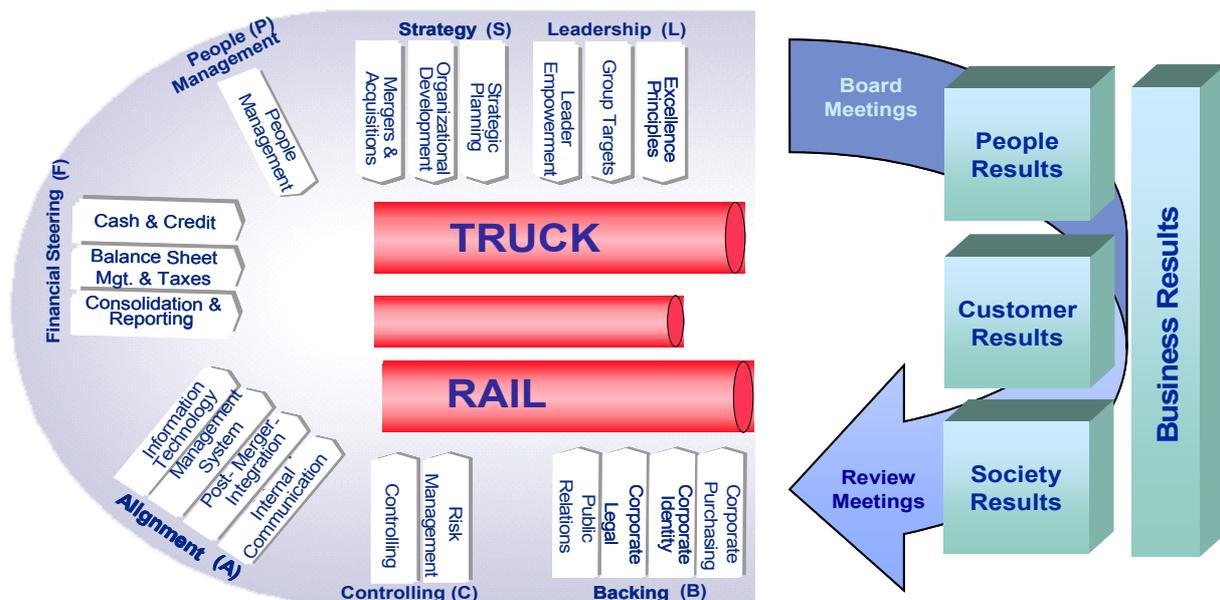

Fig. 11: The Corporate Excellence (CE) model of Knorr–Bremse

"TMS" and "REX" in Fig. 11 indicate the two divisional models, illustrating the leading, integrating function of the CE model.
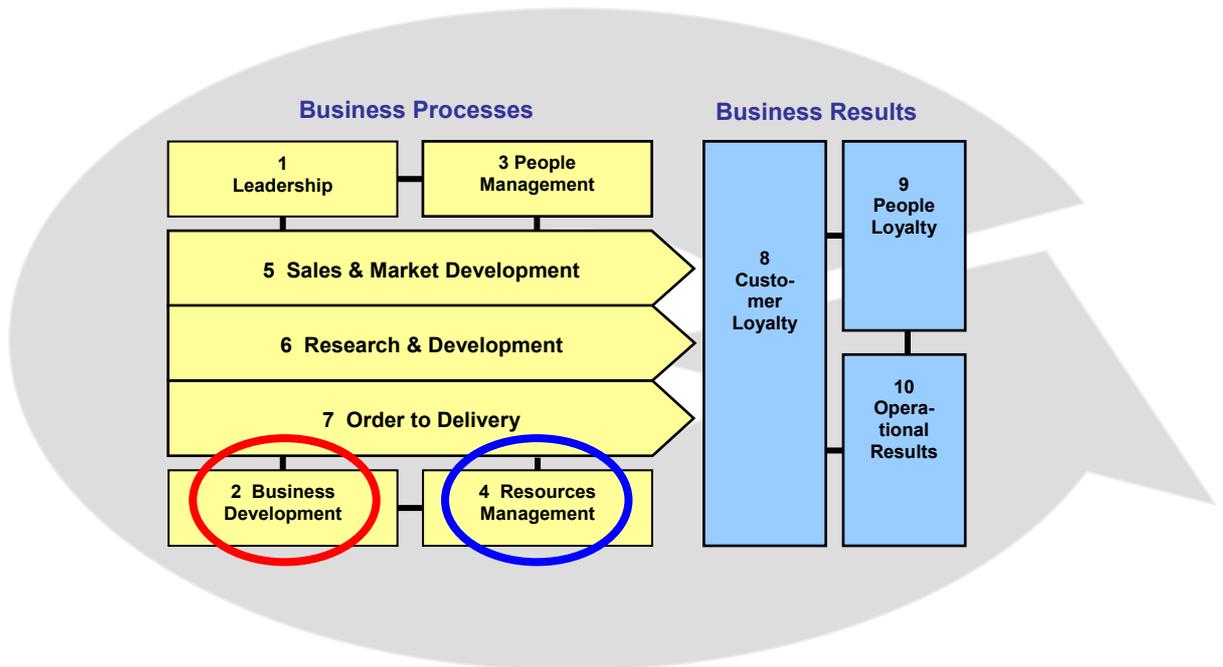

Fig. 12:   The TRUCK Management System (TMS)

The model of the TRUCK division includes business processes and results. The structure shows the direct effects of main business processes (items 5 to 7) on customer results (item 8) and the indirect effects on people results and operational results (items 9 and 10). The value chain processes are also affected by management and support processes (items 1-4). The RAIL Excellence Model (REX) also focuses on main business processes (M1-3): These are controlled by leadership processes (L1-10), while support processes (S1-7) ensure trouble-free operation of the main business processes:
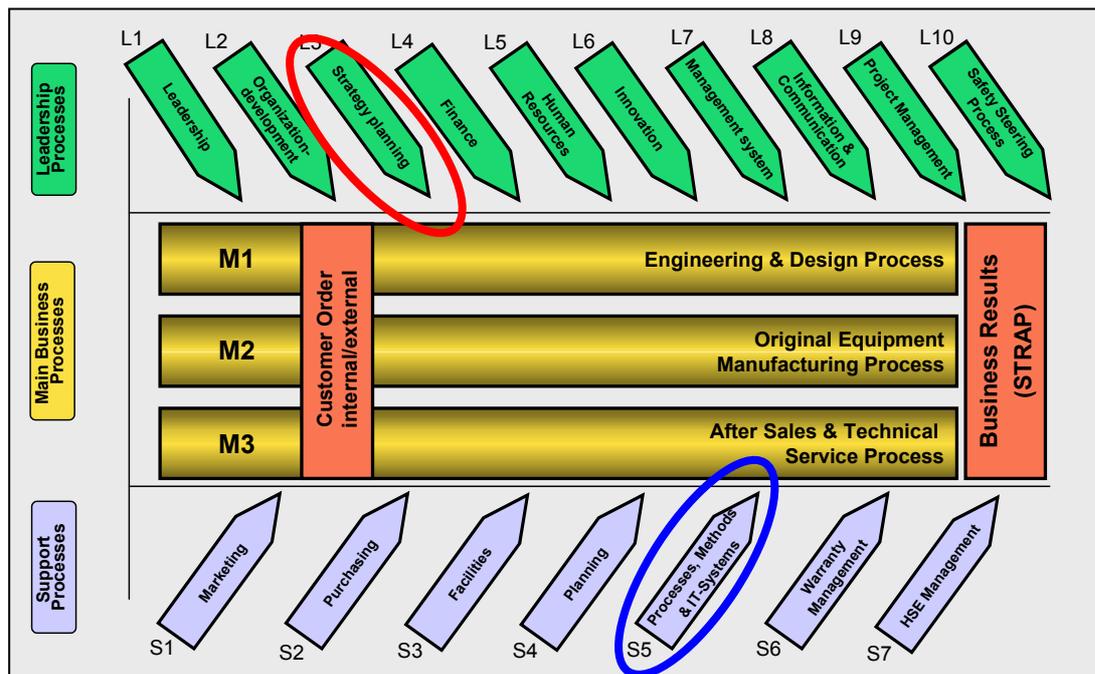

Fig. 13:   The RAIL EXcellence Modell (REX)

It is indeed unusual to have a separate process model for each division. Other companies such as Infineon or Vaillant (see Volume 1) show that this need not be the case. However, considering the fact that one division is shaped by project business while the other is engaged in mass production, it is easy to understand the decision in favor of two systems. In addition, competition between the divisions is welcomed. The independent model of the parent company thus simply provides the umbrella structure required to monitor and steer the operational systems.

Chief Information Officer;
responsible for processes and IT worldwide
Dr. Clemens Keil

Knorr-Bremse has three management systems for the control and optimization of its business processes. Why did you decide against a single system?

That was initially our intention, but when our RAIL division started work on the basis of the management system already introduced by TRUCK it soon emerged that their business processes needed to be designed in a different way and assigned different priorities because of differences between the markets, customers and business models of the two divisions (product business with the commercial vehicle industry versus project business with the rail vehicle industry). For example, while the "order to delivery" process is one of the key business processes in the TRUCK division it plays only a minor role in the RAIL division.

Do the three systems promote internal competition within the Group?

This is an intentional by-product of the three systems, which is also being encouraged in a targeted way, for example by taking the best-in-class elements in one management system as a benchmark for the other two systems.

Are there any plans to integrate the three systems?

The three-track approach has proved itself in practice. CE forms an umbrella under which the development of common orientation, objectives, principles, standards and methods can be driven forward to the extent that this is possible and feasible, without setting too many limits to the divisions' independence – which is essential for their business.

In your report, you say that a company that is active internationally can only be managed using networked processes. Why is that the case?

The main reason why we need process orientation is not so much the international nature of the Group as the fact that main value-added processes are distributed throughout the world. As sales, development and production activities take place at a large number of locations, all working on a common project or product, we need rules for cooperation that cannot be embodied in a conventional organizational structure of the functional type. The best type of organizational structure is a process organization. Processes function irrespective of boundaries between departments or facilities. If necessary, they can even incorporate business partners.

Your process drivers have functions both in the line organization and in the process organization. How do they manage these dual responsibilities? Are there problems with the assignment of authority to people with functional and process responsibilities?

In most cases, people are not assigned two tasks of a completely different nature. The two responsibilities normally overlap extensively. In the past, improvised liaison and coordination responsibilities were assigned ad hoc on an event-driven basis. Now, these responsibilities are normally pre-defined and it is only necessary to implement the process definitions. The most important thing is to make sure that the process drivers actually understand their tasks and responsibilities, assume them, and in doing so set an example to others. This is the real challenge.

In what direction is the matrix organization likely to develop?

If you are referring to the fact that some authors have predicted the replacement of functional organizations by a purely process-oriented form of organization, I'm afraid I must disappoint you. For legal reasons, an international group must operate independent companies reporting in accordance with national legislation in each of the countries where it is active. This already implies a functional form of organization. The process organization is determined by the degree of global cooperation required within the group. The two types of organization

must therefore coexist and the result is a matrix organization. It is a continuous challenge to adapt the organization to changing requirements. We have even set up a business (CE) process called "organizational development" which applies across the Group and is specifically designed to tackle these adaptations

4   Realization

This section describes the main process steps or building bricks in business process management.

4.1   How do strategies and targets affect business process management?

The business processes of Knorr-Bremse are not only oriented towards the Group's strategies and targets. Strategic planning itself is an integral component of the process environment. The CE process "excellence principles" sets out valid long-term guidelines for the Group. The long-term financial and content targets adopted by the Executive and Supervisory Boards (CE process "group targets") are based on this process. These group targets are defined more specifically in the course of the "strategic planning" process. This process is initiated at the level of the parent company (CE) and continued in the divisions
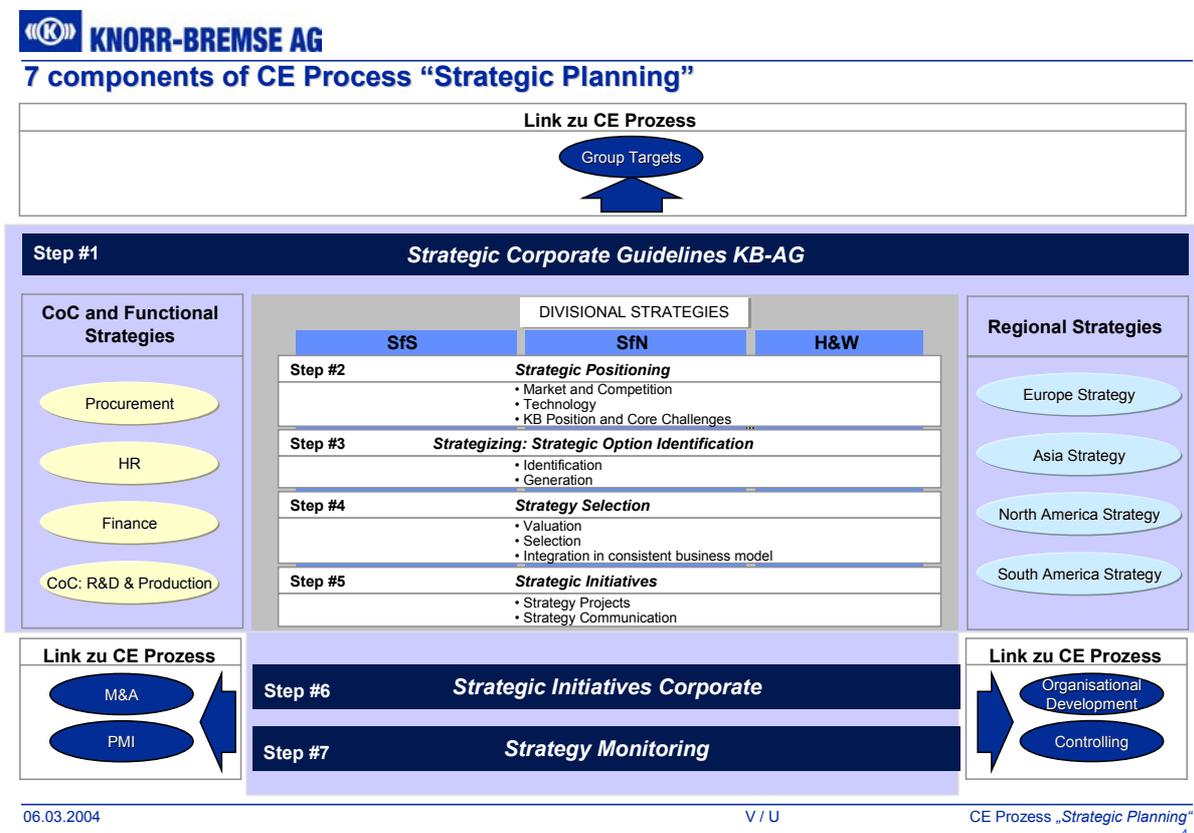

Fig. 14: Components and interfaces of the strategic planning process

In a closely meshed multi-stage process, the strategic course is set by Knorr-Bremse AG. Strategic planning then continues in the divisions, which decide on the procedures to be adopted for achieving these corporate targets. Within the individual companies, the process continues down to the level of the product departments and regions. Detailed medium-term plans and the budget for the following year are developed on the basis of this strategic plan.

As the process models of Knorr-Bremse reflect the main activities of the Group, including the parent company and the divisions, process targets can be derived directly from the strategic and medium-term plans. These include targets for the divisional R&D processes, sales processes or the M&A process. The targets are expressed in terms of indicators for the processes concerned. If the targets cannot be reached with the process in its current form, the process needs to be amended.

In the final stage, planning and process targets are translated into employee targets and appear in the annual target agreements for the employees concerned. Target fulfillment is measured and is ultimately a key factor in ensuring improvements in processes and results. In this way, continuity of targets is ensured from the level of general principles via the processes right through to the individual employee (the strategic planning process is outlined in Fig. 15 below). In order to provide further support for this process, a balanced scorecard system is currently being introduced.
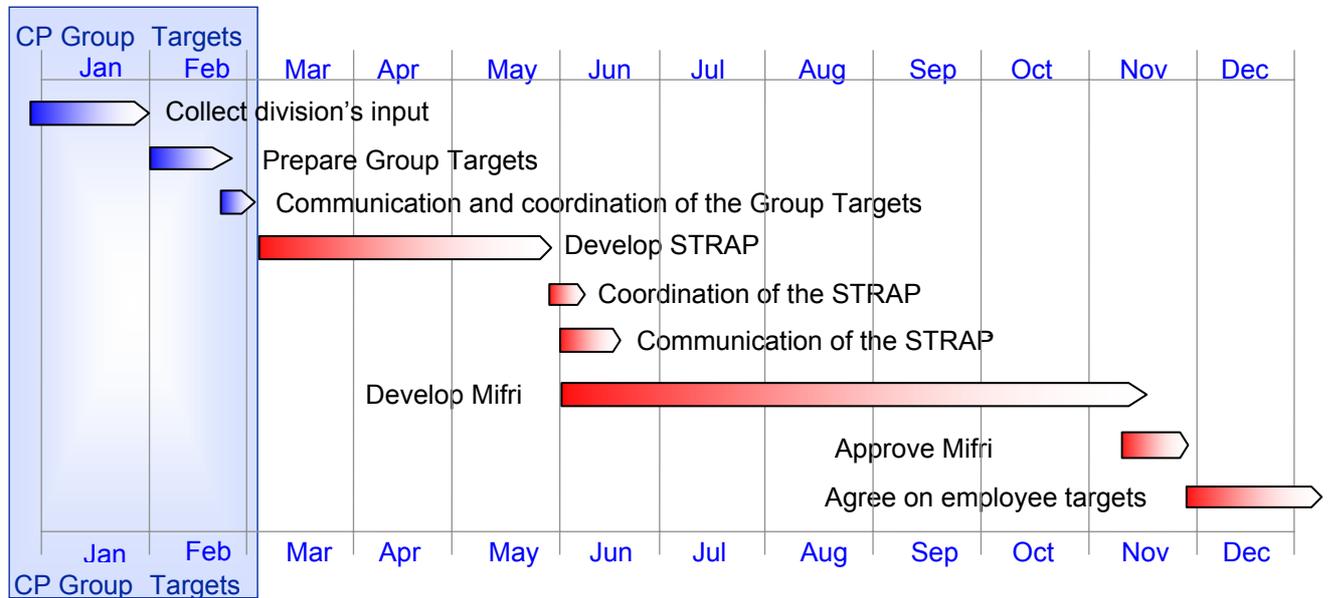

Fig. 15: Strategic development over the course of the year

4.2   What strategies and targets exists?

By way of illustration, the target system resulting from the "Group targets" process is shown below with the targets formulated and the relevant "levers":
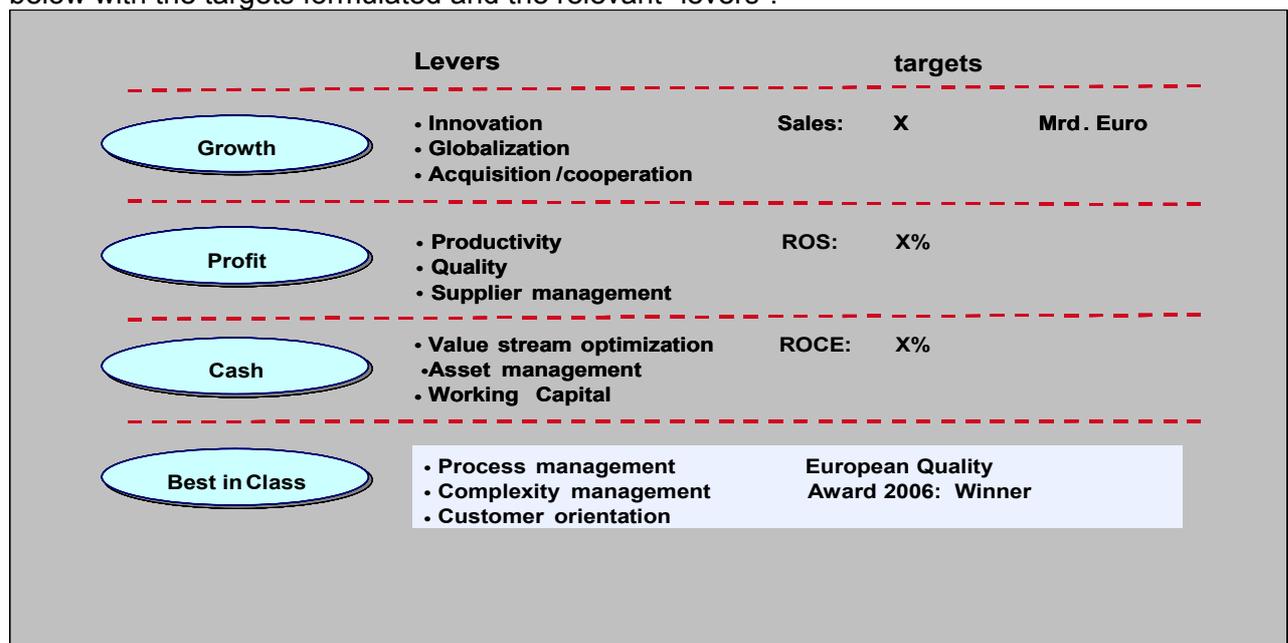

Fig. 16 : Long-term Group Targets

4.3 How are business processes defined?

The process environment was developed at workshops where an attempt was made to define our business, mainly in a top-down way. An interdisciplinary approach involving various management levels was adopted and considerable attention was paid to interfaces. The processes were developed by the people who would later have to apply them in practice. As with our Corporate Values, one of the cornerstones for process definition is formed by the processes which are already proving successful in practice. The other cornerstone is a wider view, intended to ensure that best-practice solutions are adopted. This is the only way to define "best-in-class" processes. At the definition stage, it was important to define processes across organizational boundaries and national borders. Nine rules of process definition were drawn up. These apply to all three management systems:

1 Every process has a customer who may be **internal** or **external**.

2 Every process has a process manager (**process driver**).

3 Processes must be **identified** and **broken down**.

4 Each process must be precisely **defined** and efficiently **structured**.

5 **Inputs** and **outputs** must be **agreed** with the suppliers and customers of each process.

6 Process performance must be **measured** against agreed **targets**.

7 Every process must be periodically **assessed** and continuously **improved**.

8 **Benchmarking** must be carried out regularly to identify best practice.

9 The process manager must ensure that all concerned are well **informed** and appropriately **trained**.

Companies often lack the knowledge required for the definition of business processes, Often, there are no rules for process definition because the people concerned are not aware that such rules exist (see basic report (Issue No. 1, Section 3)). However, it is crucially important to define processes properly. This means that processes must be defined in such a way (the terms "tailored" or "designed" would also be appropriate) that they can meet the requirements of business process management: performing services for customers in accordance with their requirements at the same time as using resources as sparingly as possible and meeting the targets of one's own company.

Most of the "rules" stated above in fact describe tasks. Only items 1 and 2 are in fact "rules". However, they provide little input for the definition of processes. It would be extremely important to specify a precise procedure here and to train the personnel concerned in the use of this procedure. Processes that have been tailored in an inappropriate or "ill-fitting" way cannot bring a company forward. At Knorr-Bremse, there must have been rules other than those stated above, because the resultant process design (Fig. 11-13) can be regarded as very successful.

*Efforts by quality managers to introduce business process management often suffer from the fact that they know relatively little about the **concept of business process management** described in Issue No.1. In addition, the methods involved in business process management (see Issue No. 2) are largely unknown.*

As a result, strategic business process management is only rarely practiced in Germany and thus virtually no use is made of the opportunities offered by the concept of business process management.

4.4 How are processes described?

Fig. 17 below shows the various levels of detailing in process description:
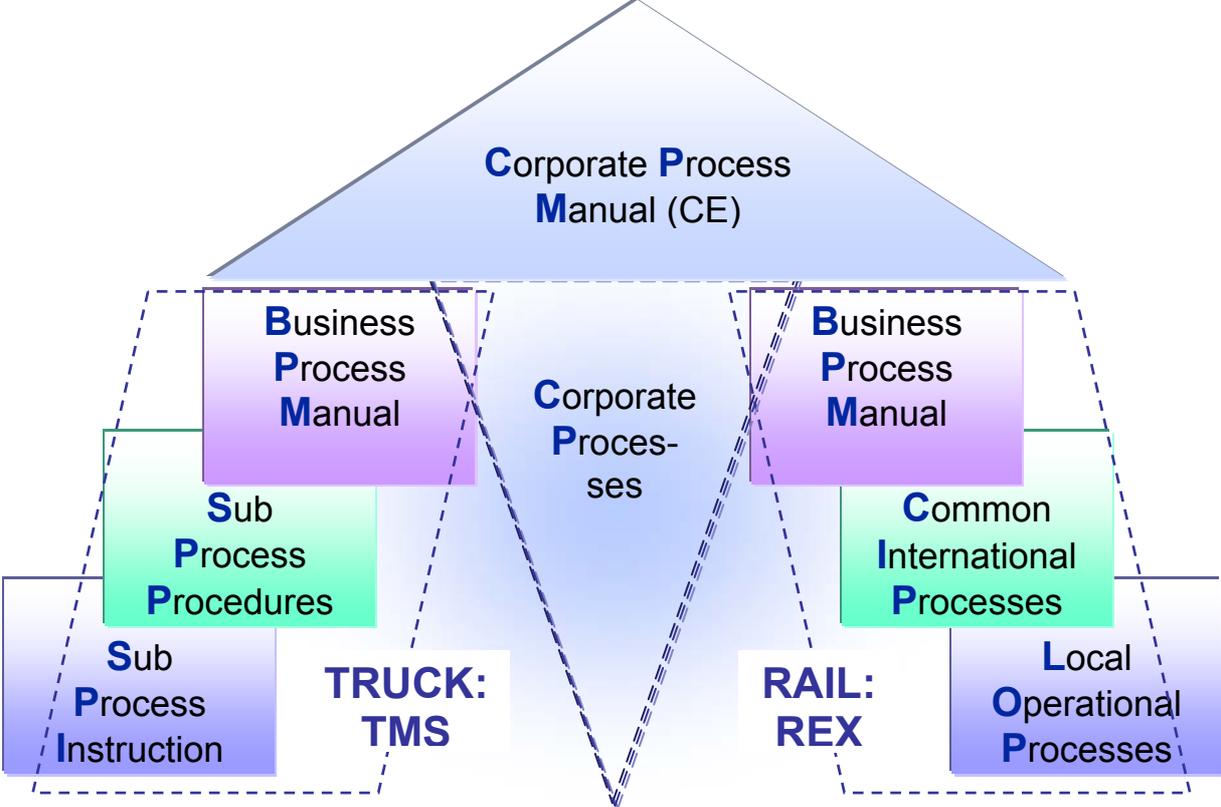

Fig. 17:   Documentation levels of the process management systems

The Corporate Process Manual is the umbrella for all business processes at Knorr-Bremse. This manual describes the objectives and purpose of the management system as a whole as well as the targets and structure of the individual CE processes. This manual for the corporate processes of Knorr-Bremse AG is supplemented by the Business Process Manuals of the two divisions, which also define the key elements, structure and objectives of the main processes. These main processes are divided into sub-processes. At the sub-process level of the system, the sub-processes with their objectives, indicators, interfaces, inputs and outputs are described and presented in the form of process flow diagrams.

As appropriate, processes may be presented in greater detail, on other hierarchical levels or in a local environment. Processes may also be supplemented by further documents and instructions such as applicable codes and standards issued by external bodies.

As regards the degree of detail required in process descriptions, it is important for the descriptions to be sufficiently detailed to ensure efficient cooperation and effective process implementation. However, the descriptions must not restrict the leeway available for entrepreneurial responsibility and independent planning and decision-making. This approach to process descriptions and the possibility of adopting more detailed local definitions where appropriate were among the key factors in ensuring the widespread acceptance of the management systems. The processes can be accessed by all employees via the Group intranet, although different platforms and formats are currently still used for the three systems. Users

can navigate through the documents using text links or the process map. Each process description includes:

1. Objective of the process

2. Inputs for the process

3. Outputs of the process

4. Process customers

5. Interfaces to other processes

6. Key performance indicators for measuring process performance

7. Notes

8. Process flow diagram

The Word and Visio software packages are used for modeling. This has the advantage that no tool specialists are required and that training can focus on process management content rather than software use.

Fig. 18: Excerpt from a sample process description

4.5 Were the standardized management systems integrated into the BPM systems?

The integrated business process management systems of the Knorr-Bremse Group also take into consideration the requirements of the applicable standards. For example, quality management and environmental management requirements are taken into consideration in the appropriate processes or incorporated as separate processes. Complex matrices are used to reconcile all the applicable standards with the processes and to ensure compliance with the

relevant requirements, This integration of the different management systems is one of the key benefits of a business process management system as it is no longer necessary to operate different systems in parallel, which aligns well with the objective of harmonized and integral management.

4.6 How has the functional organization changed?

The changeover from functional organization to process-oriented matrix organization at Knorr-Bremse started even before the business process management systems were introduced, when activities were grouped together in Centers of Competence. When these centers were introduced, interfaces were simplified, responsibilities were clarified and procedures were made more efficient. At the same time, the introduction of processes meant that non-hierarchical, decentralized responsibilities, which had only existed informally prior to this stage, were formally assigned to the process drivers. As a result, the process drivers were granted powers to issue instructions to process users with reference to their processes. This aspect is reflected in the organizational flowcharts of Knorr-Bremse, which show not only the functional organization but also who is responsible for which processes

The organizational flowchart in Fig. 19 below is an example showing how the responsibilities of process drivers are embedded in the organizational structure. The processes for which the persons concerned are process drivers are indicated by ovals in each case. For example, "Dr. XY" is the process driver for the processes "leadership" and "organizational development."

Group REX Processes

LP1:   Leadership
LP2:   Organizational Development
LP6:   Innovation
LP7:   Management System

MP2:   Original Equipment Manufacturing Process
SP2:   Purchasing
SP5:   Processes, Methods&IT-Systems
SP6:   Warranty Management
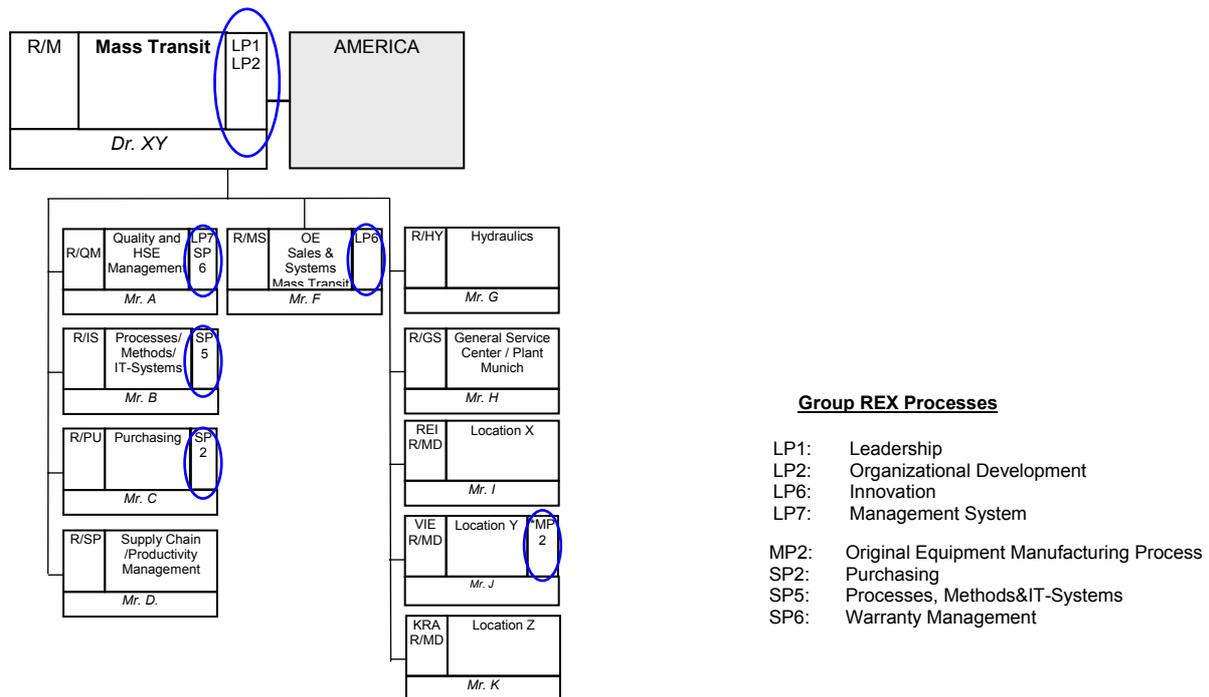
Fig. 19:   Integration of processes into the organizational structure

4.7 What are the tasks and powers of process drivers?

Each process has a process driver. Depending on the scope of the process, there may be Group, local or CoC process drivers. Business process drivers are members of the respective boards. At the various sites, they are the managing directors or plant managers. The tasks of the process drivers are defined in binding form in the Organizational Manual:

- Development/enhancement of processes and key performance indicators
- Ensuring awareness of the content of processes and compliance worldwide
- Supporting process drivers of other, related processes
- Knowledge of best-practice solutions
- Integration of key project results into processes
- Implementation of audit results and independently developed measures to improve key performance indicators and ensure continuous improvement
- Integration of process-oriented tasks into target agreements
- Performance of the tasks defined in the process description

4.8   How is management involved in BPM?

Firstly, either a managing director or a member of the Executive Board is directly responsible for the management systems and their enhancement. Secondly, managing directors and members of tier 1 management are often either process drivers or at least responsible for and involved in processes and their ongoing improvement. In the course of annual perform-ance appraisals, managers also lay down process-specific targets for their employees, con-tributing to the enhancement of the management systems. Meetings of process drivers are attended by managing directors or members of the Executive Board, who steer the ongoing improvement of the systems. Finally, there are regular management reviews of activities and the implementation of measures, internal competitions and applications for external awards which ensure that management pays due attention to the BPM systems.

Business Excellence Manager at Knorr-Bremse Commercial Vehicle Systems

Wolfram Alschner:

"Business Excellence Managers have 40 hours per week to think about business excel-lence and the EFQM model. Their "customers," including Executive Board Members, managing directors and plant managers, may only have one hour per month. But they do have 40 hours per week (and often more) to do excellent business. This insight helps both sides to understand business excellence in a more practical way."

Mr. Alschner was EFQM Business Excellence Manager 2004

5 Process control

This section describes how process performance is monitored and controlled.

5.1 How is process performance defined, reported and controlled?
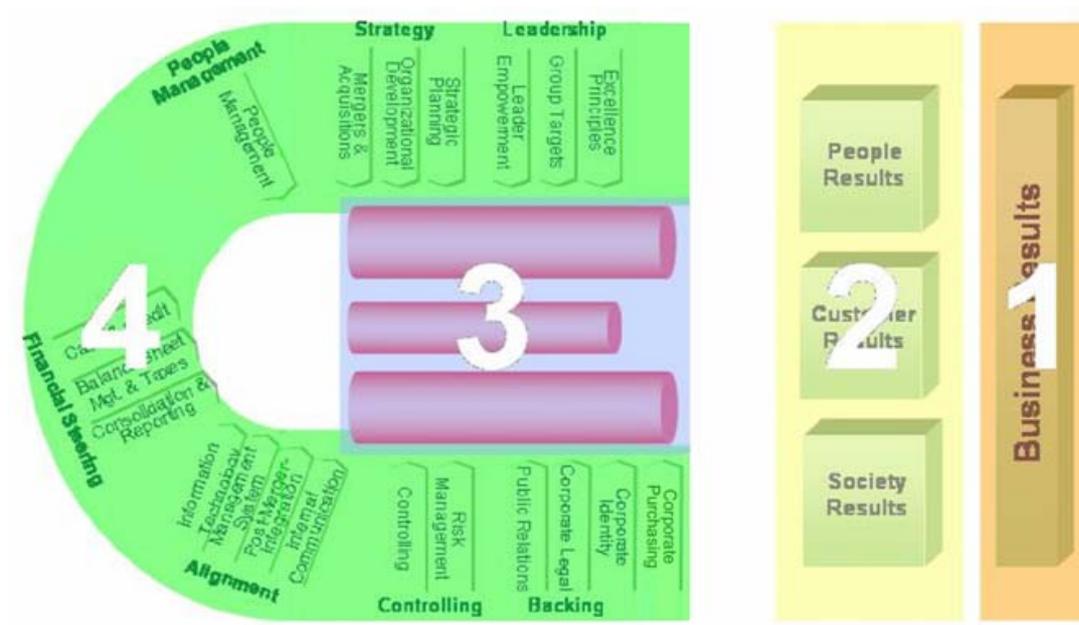
Fig. 20: Schematic diagram showing performance indicator system

As described above, the business model based on the EFQM model consists of business processes and results. Performance indicators have been defined which apply across the Group. These include both financial indicators (indicated by "1" in Fig. 20 below) and performance indicators from the areas of people results, customer results and society results (indicated by "2") that forge a link to sustainability. There are also performance indicators in the management systems of the divisions (TMS and REX = "3"); these are used for more detailed measurement of the performance of divisional processes and their contributions to business results.

CE processes are also assigned indicators ("4"); in this case, there is at least one performance indicator to measure the effectiveness and one to measure the efficiency of each process.

Ratio of SLAs

Target required?	Responsible person for this KPI
yes	C/I, R/IS, T/PI

Method of calculation and unit

Number of actual SLAs
Number of possible SLAs

Purpose

Percentage of agreed Service Level Agreements

Definition / Explanation

Service Level Agreements describe the performance (e.g. availability, response and reaction time) of specific hard- and software systems and the agreed target value to be reached. This indicator measures, how many SLAs are in place out of the total number possible. The target is 100%. Only with SLAs in place improvements can be initiated, measured and tracked.

Consolidated KPI

Number of actual SLAs

Number of possible SLAs

Consolidation method

Reporting level and frequency

Group	annually
Division	annually
Location	
Department	

Time basis for calculation

Year

Deadline to report the data

December

Reporting tool / document

Responsible persons for shared services

Point of measurement

Shared service assessment

Prepared by: Dr. Keil   Seite 0 von 1

Fig. 21 :   A typcial description of a performance indicator

Each performance indicator is precisely defined in a form which includes the following information:

- Processes affected

- Definition of performance indicator

- Integrated indicators

- Information on performance measurement

- Reporting frequencies and responsibilities

In future, all the performance indicators are to be published in an indicator cockpit as part of the reporting process. A cockpit system of this type has already been developed for the RAIL division (see Fig. 22 below). This shows the degree of implementation of all performance indicators in the form of traffic-lights (see bottom of screenshot in Fig. 22). If the user clicks on the traffic-light diagram, a window showing the actual value achieved, the target value, development in the indicator over time and benchmarking results is opened.

Performance indicators are also displayed on notice-boards in a number of operational departments.

Performance indicator cockpits (see Fig. 22 below) are key elements in the documentation of business process management as they ensure clarity. A cockpit of this type should be available for each performance indicator. Often, employees may not understand a performance indicator because neither a definition nor a formula is available. For example, what does the indicator "sales to new customers", which may seem quite clear, really mean? Which cus-

tomers are defined as new customers? Does the sales figure refer to the total sales of the company, to product sales or to sales regions? An indicator cockpit can provide the answers.
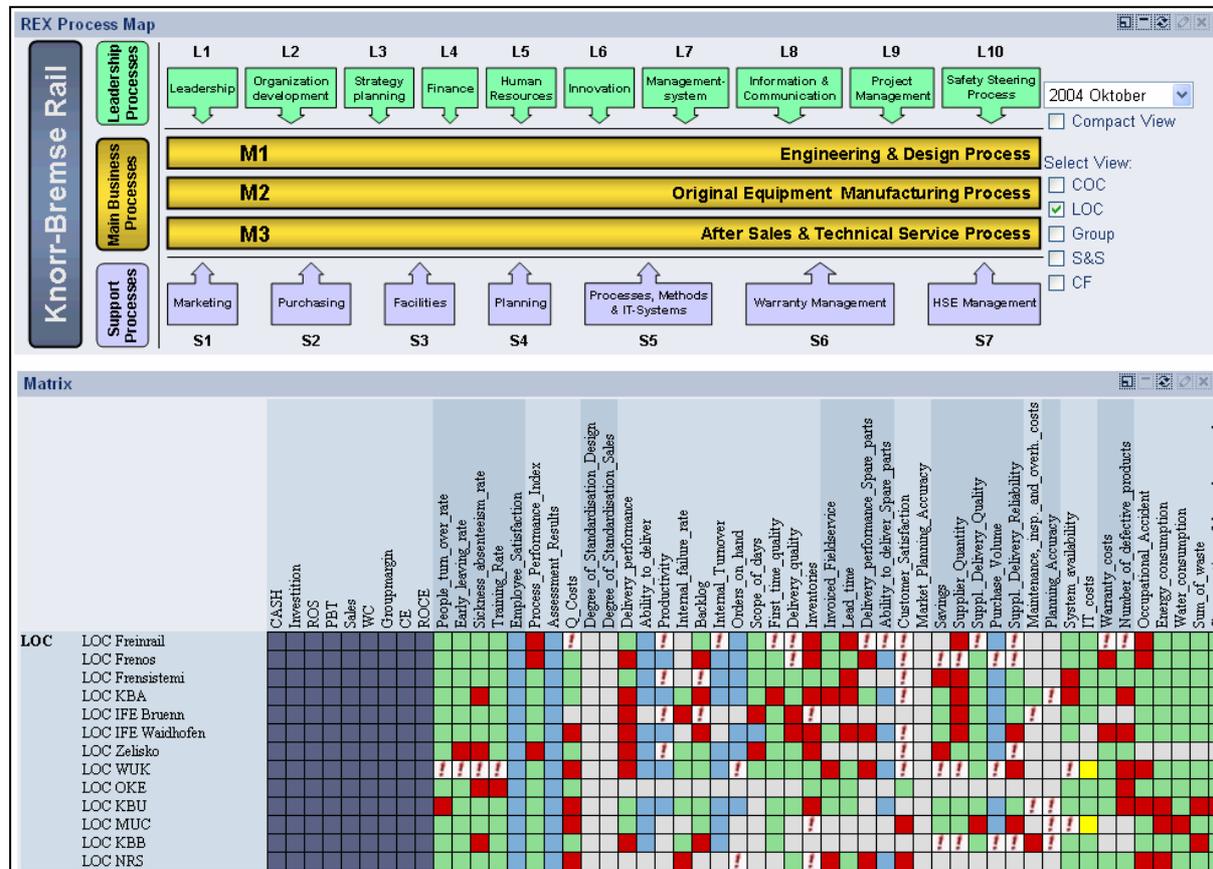
Fig. 22: Sample section of the indicator cockpit used by the RAIL devision

5.2   How is process maturity determined and monitored?

All processes are verified regularly and systematically in the course of process audits based on ISO 9001, ISO 14001 and VDA 6.3 or the systems of Knorr-Bremse customers. Audits are conducted by trained auditors employed by the company. The objective of audits is to document the degree of maturity attained by a process, to measure its strengths and to identify any potential for improvement.

The management systems as a whole are also subject to self-assessments and external EFQM assessments which investigate the degree of maturity of the entire system.

Applications for national and international awards (such as the Ludwig Erhard Prize or the European Quality Award) are another means of monitoring processes and provide valuable information on the degree of business excellence attained by the company compared with other companies, and indicate any potential for improvement.

PPI (%)

| Total Result 2002: 65% | Total Result 2003: 71% | Total Result 2004: 82% | Total Result 2005: 84% |
| Total Target 2002: 65% | Total Target 2003: 70% | Total Target 2004: 80% | Total Target 2005: 85% |
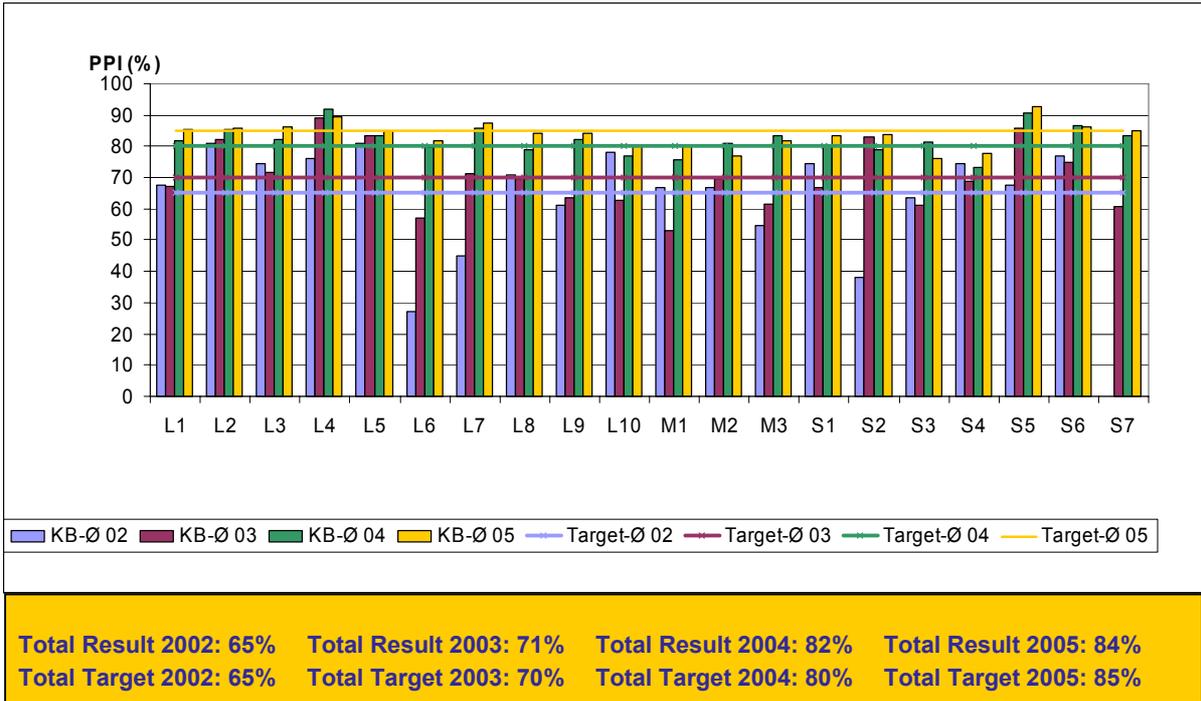
Fig. 23: Results of internal process audits within a division

In internal process audits, the areas of processes, results and interfaces are investigated (by analogy with the EFQM RADAR system). The average "mark" achieved indicates the quality of a process and the average of all these marks is a measure of the status of the overall system. This is, for example, one of the performance indicators which must be improved by the persons responsible for the management system, and which are included in their target agreements. This ensures the continuous improvement of the management systems.

In addition, the TRUCK division also assesses the relevance of processes to divisional results and the legal framework. This makes it possible to give priority to processes requiring especially intensive monitoring and to determine which processes require and merit more effort in order to ensure improvements.

A best practice award is presented in order to ensure a systematic interchange of best practice solutions. The winning site is chosen on the basis of its achievements with reference to selected performance indicators. The key criterion is not the absolute values achieved but the improvement reported over a five-year period.

6   Process optimization

This section shows how business processes are continuously improved.

At Knorr-Bremse, the process of continuous improvement includes all the measures required for improving processes and results and it is itself an integral part of every business process. As a result, every process driver is responsible for continuous improvement. This approach covers all the inputs for improvements: audits, assessments, employee and customer surveys, legal requirements, external or internal best practice solutions, interfaces, company suggestions schemes and all relevant ideas originating within or outside the company.

Performance indicators are the key drivers of improvement. Just as performance indicators (see Section 5.2) monitor the success of an implemented measure, any shortfalls in target achievement must automatically trigger process improvements. Examples include throughput times, delivery compliance, process costs, customer satisfaction and market shares

Necessity of KPIs

Identify potentials for improvements

propose measurements for improments

choose measurement for improvement

choose tools

apply tools

find solution

implement solution

live process xy

measure and track success

Prozess X.Y
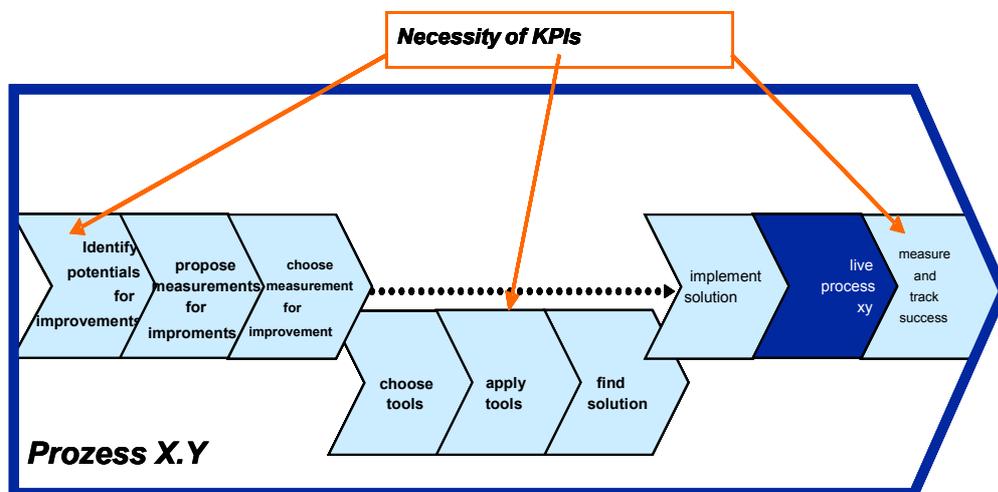
Fig. 24:   Continuous improvement as an integral part of all processes

If tools are used to identify a solution, these normally also use input from performance indicators. At Knorr-Bremse, tools are seen as part of the continuous improvement process. Many tools such as 5S; SMED, kanban or poka yoke are used in the production systems or across the organization as a whole (like Six Sigma).

Measures derived from audits must be implemented by the process drivers.
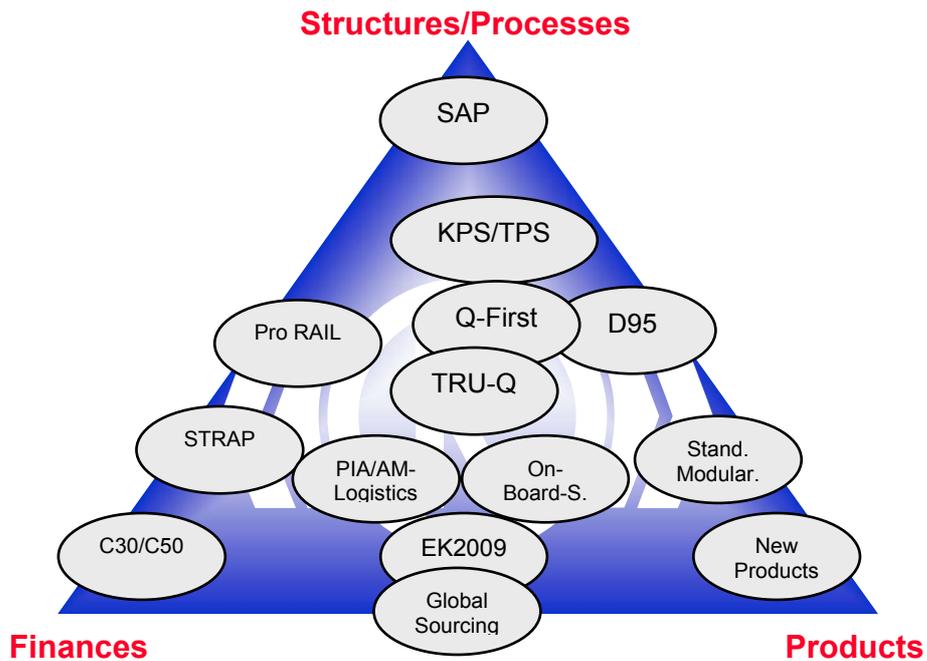
Fig. 25: Selection of projects for intensive improvement ("quantum leaps")

In some cases, continuous improvement is simply not enough. In such cases, special projects are launched to ensure intensive optimization of processes with a high improvement potential (referred to company results).

For example, risk management and the post-merger integration process are have been reviewed at the strategic level in 2005. At the operational level, projects for improving delivery compliance, aftermarket development as well as quality (see above) are also being implemented. The important thing is for the results of such projects to feed directly into the control of management systems.

7   Afterword

This section presents information on the resources required in terms of time, personnel and expenditure and the results achieved, to the extent that such information is available.

7.1   *How was BPM introduced*?

The business process management systems at Knorr-Bremse were introduced over a period of several years. They have developed successively and development is continuing steadily, in line with the principle of continuous improvement. As a result, it is hardly possible to estimate the cost of the project. As mentioned above, the systems were introduced by interdisciplinary teams with strong involvement on the part of management and the sites, and managed by business excellence experts with the support of external consultants. The systems were rolled out in stages, initially at pilot sites (normally in Germany) and then in Europe, followed by America and Asia.

Central bodies within the organization continue to work on the operation and enhancement of the process management systems. Four employees in each of the divisions and one employee at the parent company are involved in this work. At each site there is at least one employee responsible for coordinating business excellence on a full-time or part-time basis. In their everyday work, the process drivers are responsible for driving their process forward, and for process implementation and documentation. Additional work is required for audits and assessments. But in the final resort, it is the managers and employees whose efforts continually push the company towards greater business excellence. In this context, target agreements are important in generating binding commitments.

7.2   How were and are people trained?

Like the values described above, business excellence is part of induction training for all employees. The target agreements of managers and the examples they set by living out a culture of excellence must provide sustained orientation towards business excellence. Familiarization with documented processes is a key element in the induction training provided for people taking up new positions.
.
A wide range of training elements are available; depending on the job description, some elements are mandatory and some voluntary. All the training provided, whether it concerns social competence, excellence tools, specific aspects of production systems or software, has the objective of developing the skills employees need for success and making a good company excellent.

At Knorr-Bremse, personal development is an integral part of the annual target agreements between management and staff. The personal development required is determined by comparing the personal and professional skills of the employee with those required by his or her job description. The newly developed and during 2006 implemented integrated Personal Competency Management (iPCM) aligns the Skill-Set with the management system requirements and harmonizes the necessary skills and competencies worldwide. Training is the main tool for eliminating any deficits which may be identified.

7.3   What results have been achieved?

Knorr-Bremse has deliberately not set any quantitative links between excellence orientation and business indicators. Nevertheless, most of the company's indicators have continuously improved in a very successful way in the past few years. The development of indicators is one of the aspects which is viewed very positively by external assessors. This success has

certainly not been a product of chance, although it cannot be solely ascribed to business process management. The Group's market position, customer requirements and economic necessity would in any case have led to certain improvements.

Business process management systems should rather be seen as a continuous improvement process for the entire company and the success of these systems must be understood and explained in this context. In some sense, a business process management system is an umbrella for comprehensive improvement measures, fostering a process of cultural change, encouraging the exchange of experience and accelerating international integration. These are results which cannot always be expressed in terms of a figure but which have been key elements in the sustained success of Knorr-Bremse in the past and will remain crucial to its sustainable development in the future. This is why it is worthwhile introducing, operating and continuously improving systems of this type.

Over the past few years, Knorr-Bremse has received a number of awards for business excellence:

- In 2004, Knorr-Bremse Commercial Vehicles Systems was the first vehicle component manufacturer active throughout Europe to achieve "Finalist" status in the European Business Excellence Award with all its European sites.

- Knorr-Bremse Rail Vehicles Systems received the accolade "Recognized for Excellence" in the same contest, as well as in connection with the German Ludwig Erhard Prize (2003).

- Wolfram Alschner, Business Excellence Manager with Knorr-Bremse Commercial Vehicles Systems, received the Leadership Award for Business Excellence Manager of the Year 2004 from the European Foundation for Quality Management (EFQM).

- In 2005, Knorr-Bremse Commercial Vehicle Systems as well as Knorr-Bremse Rail Vehicle Systems were both awarded as "price winners" in the European Business Excellence Award.

- In addition, all necessary certifications were obtained.

7.4   Why are BPM systems as essential as ever for Knorr-Bremse?

- A worldwide business network of the type operated by Knorr-Bremse can only be managed on the basis of consistent processes implemented across all its sites. At the same time, processes must only define the essential elements and leave the leeway required for decentralized entrepreneurial action.

- Processes are not only needed for organization and management but as a platform for integration, knowledge transfer and cultural change.

- The process environment absorbs requirements and measures from a variety of areas and integrates them into a uniform management system as improvements (from customer requirements via environmental, health and safety inputs to measures resulting from employee surveys).

- Continuous improvement at the heart of business excellence creates an atmosphere that favors the necessary changes.
- Ambitious business targets and goals such as winning the European Quality Award ensure that the pace of change remains fast, an essential factor for survival in today's business environment.

INTERVIEW WITH JENS THEUERKORN

Executive Board Member Responsible for Controlling

Jens Theuerkorn

Our company is exceptionally successful. How has process-oriented management helped us be so successful? What contribution will it make to our future success?

Of course, it is clear that our success is primarily based on our market position, our customer focus and our technological leadership. However, if we are to sustain our internal and external growth, maintain our strong global orientation and meet stringent quality requirements at the same time as minimizing costs, we need to continuously improve our processes and ensure clear structures with defined responsibilities and high transparency. It is business process management that has laid the foundations for these developments. The introduction of business process management has served as an enabler for our worldwide network and thereby helped secure our future success.

Why does it pay to intensify the focus on business excellence in our business processes even if there are often no measurable benefits?

In my opinion, it simply would not make sense to try to establish a quantitative relationship between business excellence and business figures. However, there are a wide variety of measures and projects which aim for measurable improvements in business processes. Throughput times, delivery times, product and process quality, process costs, schedule and delivery compliance, customer satisfaction and current assets are only some of the parameters subject to continuous monitoring and improvement as part of business process management. Some of these projects were initiated as part of business process management and the results are fed straight back into the system. Our targets are high – business excellence, embodied in our binding Excellence Principles, sets the general direction.

The EFQM model forms the basis of all process models at Knorr-Bremse. Why is the EFQM model so important for our company?

The EFQM model precisely reflects our striving for:
- sustainability in the results and trends we have achieved,
- balanced results orientation that also looks beyond financial indicators,
- greater openness towards the outside and comparison with the best in the form of benchmarking and competitions (EQA, LEP,…),
- and ambitious targets.

How do you make sure that the defined processes, principles and guidelines are actually put into practice?

Firstly, each process driver is responsible for ensuring that his or her process is implemented. Secondly, we have a whole raft of communication and monitoring measures. That said, we are still working hard on two key questions:
- How can we implement these measures in our day-to-day business?
- How can we ensure the necessary change in our corporate culture?

Our answer is that top management must set an even better example in implementing processes, values and guidelines. We must insist on implementation and offer the necessary support. The benefits of process-oriented management as a way of ensuring business excellence must be made clearer to each individual member of our staff. We must explain in practical terms that this is the only way of becoming a truly outstanding company in every respect and ensuring that we are successful in the future.

What do you see as the next steps on the road to excellence? How do you define excellence for Knorr-Bremse?

For us, excellence means doing business outstandingly well with a view to achieving sustained superior success in the long term. This is clearly evident in our efforts to ensure:
- appropriate profitability,
- healthy, steady growth,
- outstanding financial strength,
- leadership in the sense of best in class in products, structures and processes.

We are committed to being perceived as an outstanding company, which is why we will continue to measure our performance against the external benchmark of the very best companies. To this end we are planning for the Knorr-Bremse Group as a whole to take part successfully in the 2006 European Quality Awards, including all our European branches. This will call for a large number of improvements within the company.

If you had to start from scratch and introduce process-oriented management systems at Knorr-Bremse again, is there anything you would do differently?

I am convinced that the course we have set is entirely appropriate for our corporate culture and our way of doing business. In retrospect, I would focus more intensively on securing the commitment of key stakeholders right from the outset. On the one hand, I would start by attuning top management to a culture of excellence. On the other hand I would also agree targets with all process owners and make them clearly responsible for reaching those targets from the start.

8   Outlook

This section describes planned extensions to business process management.

Most of the processes are now well documented, have been rolled out throughout the organization and have reached a high degree of maturity. With reference to these processes, the main focus in the future will be on ensuring that they are firmly established, applying them, and making sure that they are consistently put into practice. In this connection, one of the main activities will be the sustained implementation of a performance indicator system including reporting tools (KPI Cockpit) with a view to ensuring continuous improvement.

Activities planned for the near future include the completion of system rollout outside Europe and for the newly acquired companies. This will be a major step towards the international standardization and integration that is so essential in view of globalization.

In addition, work will be needed to improve the interfaces between the management systems, to make processes more consistent and to harmonize the different systems. The worldwide rollout of SAP will be a key factor in harmonization. This will be an essential prerequisite for success with the entry to be made by all the European companies of the Knorr-Bremse Group for the European Quality Award.

Further harmonization between the management systems of the divisions and the parent company will also save resources and facilitate the interchange of best-practice solutions.

An effective performance indicator system and a change in mentality will both need to be driven forward and corporate culture will need to be geared more actively towards the defined Corporate Values and Excellence Principles. To this end, leadership must be correctly understood and implemented. When this is the case, everyone will intuitively become a living and lasting example of business excellence.
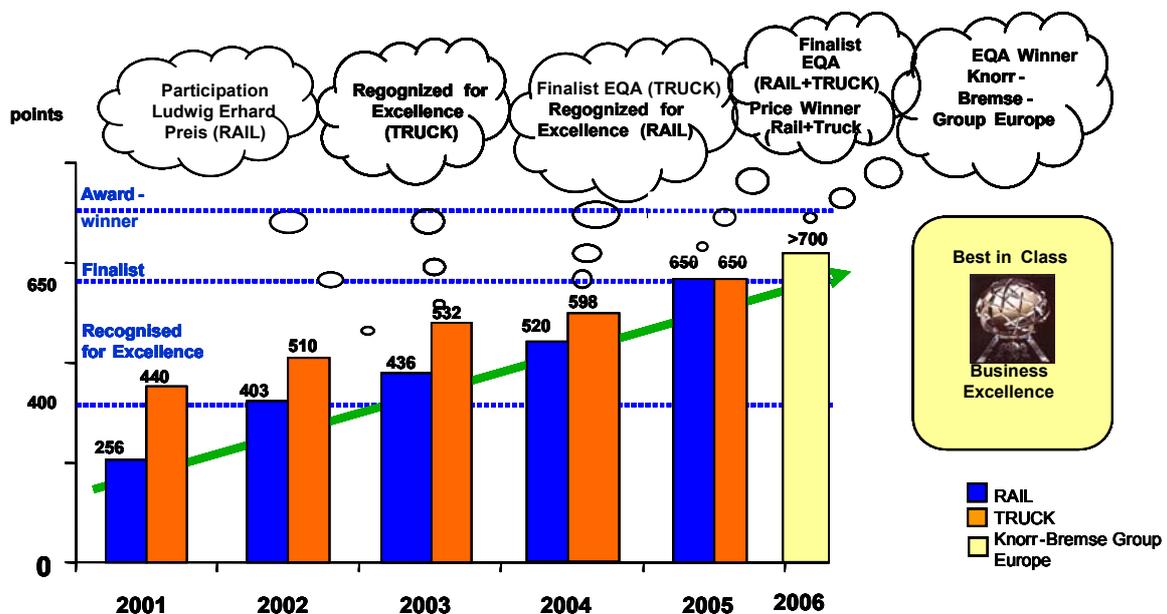
Fig. 26:   Our way to Business Excellence

Tabular summary

The table below is intended to give readers a rapid overview and to facilitate best practice benchmarking.

Strategies, objectives, measures	In addition to corporate strategies and objectives, Knorr-Bremse has defined Excellence Principles and Corporate Values. Under the umbrella of Knorr-Bremse AG, the two divisions (TRUCK and RAIL) have their own independent visions, strategies and objectives which are agreed with the parent company as part of the strategic planning process. Group objectives are sales growth, a rise in ROS, improvement in ROCE and best in class achievement in the European Quality Award. Strategies are the foundations for the objectives, detailed business plans and budgets of the divisions.
Business processes	The three process models of the Group are strategy-oriented and based on the EFQM system. For example, the TRUCK division's model has three core processes, two leadership processes, two support processes and three results processes. There are nine rules for the definition of processes. Processes are described in a Corporate Process Manual, a Business Process Manual and a Sub-Process Manual.
Software	Word and Visio are used.
Process performance and process controlling	Knorr-Bremse has a sophisticated performance indicator system. Performance indicators are described clearly and comprehensively in brochures. In indicator cockpits, process performance is indicated in a matrix (site, process, traffic-light color, target).
Audits	Processes are monitored by audits which are carried out in accordance with the applicable standards and by assessments based on the EFQM RADAR system.

Management systems	Quality management, environmental management and health and safety management systems are all integrated into the BMP systems.
Organization	Certain managers are designed as process drivers. Responsibilities of managers for processes are indicated in the organizational flowcharts.
Performance results	At Knorr-Bremse, business process management is seen as a cornerstone of the company's success. Between 1999 and 2003, the Group doubled its net income.
Process optimization	Well-known methods (kanban, kaizen, poka-yoke, Six Sigma, etc.) and targeted improvement projects are used for process optimization.

Glossary

Assessment	Assessments cover the process management system of the Group as a whole in accordance with defined standard criteria. The EFQM system is used as the main criterion. Assessments may either be internal ("self-assessment") or external (e.g. in connection with competitions, EQA). Special attention is paid to cause and effect relationships which have achieved sustained success (i.e. relationships between processes and results).
Audit	Audits investigate and determine the maturity of a process. Audit results include evaluations and recommendations for improvements.
CE	Corporate Excellence. The process management system of the parent company Knorr-Bremse AG (with impacts on TMS and REX).
CIP	Continuous improvement process: a combination of all the activities, large and small, for the improvement of performance in accordance with the principle that only steady development can maintain competitiveness. The knowledge of all employees and an approach which is appropriate for the problem in hand must be used for continuous improvement,
CoC	Centers of competence: Product-specific skills, including development, purchasing and production, are grouped together in centers of competence. The CoCs make products available at target costs within the overall system at their own responsibility. CoCs are distributed over a number of sites but are assigned to one division.
EFQM	The European Foundation for Quality Management: an organization established by leading European companies with a view to improving their quality (competitiveness). Its activities are based on the corporate model, the EFQM model, which it has developed. This model consists of enabler and results sections including all relevant areas and units of a company. Other key elements of the model include process management, excellence orientation and the continuous improvement that leads to excellence. The business process management systems of Knorr-Bremse are based on the EFQM model. Each year, the EFQM organizes the EQA.

EQA	European Quality Award: major annual competition organized by the EFQM to reward quality and orientation towards the EFQM model.
Excellence	Outstanding performance. General term for the striving for exemplary leadership, outstanding results and processes as a basis for long-term business success. Connected with process orientation.
Functional organization	An organization structured hierarchically in line with functions and regions.
Knorr-Bremse AG	The parent company of the Knorr-Bremse Group.
KPI	Key Performance Indicator: a performance indicator used to measure the performance and results of processes and organizations. A combination of different indicators forms the basis for decisions as well as triggering and serving as a control parameter for continuous improvement.
Management system	The way in which a company is managed; this includes procedures, functions, structure and behavior as well as the connections and interactions between these elements.
Matrix organization	An organization with at least two dimensions in which employees report along multiple reporting lines. A matrix organization usually combines at least the functional and the regional organizational structure. Organizational procedures form the third dimension of the structure.
Process	A process takes an input and converts it into an output while adding value. The input and output are measurable and the process is repeatable.
Process-based organization	An organization structured in line with its procedures (processes).
Process driver	A process driver (process owner) is the manager responsible for a process, who is authorized to issue instructions for persons using the process

	and obligated to ensure continuous improvement in the process by agreement with the company. This function is performed by a recognized specialist in the process who is well established within the organization.
Process management	The orientation of the company towards processes: organization and management in line with processes.
RAIL	The Rail Vehicle Systems division of the Knorr-Bremse Group.
REX	Rail EXcellence: The process management system of the Rail Vehicle Systems division.
Steering committee	A committee that takes key decisions in connection with projects or organizational forms outside the controlled structure of the company and monitors such decisions. Steering committees are established for a limited period of time and include decision-makers from the units affected.
Target agreement	An agreement reached annually between managers and employees laying down personal targets to be achieved, which should reflect not only the objectives of the company but also the personal development objectives of the employee concerned. Target agreements with process drivers also include process targets.
TMS	Truck Management System: the process management system of the Commercial Vehicle Systems division.
TRUCK	The Commercial Vehicle Systems division of Knorr-Bremse AG.

Self-assessment

You will find the results of the self-assessment carried out by **Knorr-Bremse AG** on the following pages. You can use the same questionnaire to assess your own business process management system and then compare the results with those of Knorr-Bremse and the market survey (Volume 1, Issue No. 5). By adopting this approach, you can determine the action required by comparison with best practice approaches and standard market solutions. If you have any questions concerning the action required, please refer to the basic principles (Issue No. 6) and the descriptions of roles and methods (Issue No. 7).

Initialization		
1. When did you start to introduce BPM?	From 1995	
2. When was introduction completed?	****	
3. Where did the impetus for BPM introduction initiate?	- from the outside X mixed - from the inside	
Preparation of project		
4. Were the following activities carried out in preparation for the project?	Yes	No
- Development of corporate guidelines and vision	X	
- EQA assessment (in accordance with EFQM system)		X
- Competitor analysis		X
- Assessment of corporate strengths and weaknesses	X	
- Definition of success factors	X	
- Customer requirements	X	
- Preparation of communications concept	X	
- Development of process model	X	
- Definition of organizational principles	X	
- BPM training/workshops	X	
5. We were supported by		
- Internal consultants		X
- External consultants	X	
6. The BPM manager was	- a specialist X a manager - an external consult- ant	
Strategies and objectives		
7. Were the following strategies defined and communicated?	Yes	No
- Business area strategy	X	
- Marketing strategy	X	
- Human resources development strategy	X	
- Production strategy	X	
- Financial strategy	X	
8. Were corporate objectives defined in writing and communi-cated?	X	

9.	Were performance indicators and process-related metrics assigned to all objectives?	In some cases	
10.	Was the balanced scorecard method used for the definition of corporate and process objectives?	In some cases	
	Other methods used for the definition of corporate and process objectives:		
11.	How often was success monitored during the project?	X monthly - quarterly	

Process definition

12.	Our business processes	- are defined in accordance with our departments X are defined across all departments - are defined for customer groups and with reference to customer requirements	
	Other solution:		
13.	We distinguish the following types of process	Yes	No
-	Management, leadership or steering processes	X	
-	Value-adding, core or primary business processes	X	
-	Support processes - Other processes	X	
14.	Priorities are assigned to processes on the basis of	Yes	No
-	Success factors	In part	
-	Other criteria		

Process description

15.	The number of business processes and sub-processes (in all three systems) is:	about 60 (business processes) about 150 (sub-processes)	
		Yes	No
16.	A process map is in place.	X	
17.	All processes are documented.	X	
18.	The interfaces between process steps are described.	X	
19.	Service agreements are in place at interfaces.		X

20.	Work instructions are in force for success-relevant process steps.	X	
21.	Process documentation is available on the intranet.	X	
Organization		Yes	No
22.	Process drivers have been appointed for all processes.	X	
23.	The duties and powers of process drivers have been de-fined in writing.	X	
24.	Process drivers have a seat and vote in the steering group.	X	
25.	Our organization has changed as follows as a result of the introduction of BMP:		
-	The functional organization was retained.		
-	There was a change to a mixed form of organization (proc-ess drivers and line managers).		X
-	We now have a purely process-oriented organization.		X
		Yes	No
26.	The change to a purely process-oriented organization was driven by our management.		X
27.	Teamwork has been introduced.	X	
28.	Standardized (quality and environmental) management systems have been integrated into our BPM system.	X	
Process controlling			
29	In our processes, we measure the following performance parameters (among others):	Yes	No
-	Throughput time	X	
-	Schedule compliance	X	
-	Process cost	X	
-	Process quality	X	
30.	The achievement of our objectives is monitored in a satis-factory way.	X	
31.	Process drivers verify the performance of their processes themselves.	X	
32.	The performance and maturity of our processes are veri-fied:		
-	In the course of ISO audits:	X	
-	In process assessments	X	
33.	Our process reports present all important measured values	X	

		Yes	No
	and contain information on deviations from targets.		
Process optimization			
		Yes	No
34.	We use the following methods of process optimization:		
-	Kaizen techniques	X	
-	Eliminating barriers (e.g. poor material flow or unclear objectives)	X	
-	Six Sigma	X	
-	Formal process design (reduction/elimination of process steps, etc.)	X	
-	Other methods/techniques: there is an extensive array of tools depending on the process.		
		Yes	No
35.	Process optimization teams are in place.	X	
36.	Management members take part in optimization meetings.	X	
Review			
37.	We use the following software for process modeling and documentation (ARIS, Visio, etc.)	VISIO, MS Office	
		Yes	No
38.	This software has proved itself in practice.	X	
39.	Our BPM system makes a measurable contribution to the success of the company.	To some extent	
40.	Our BPM system is likely to become more important:	X	
41.	Our BPM system is		
-	QM-oriented (ISO 9001/ISO16949)	X	
-	IT-oriented (process modeling software)		X
-	Strategy-oriented (process follows strategy)	X	
42.	We propose to develop our BPM system into a strategy-oriented BPM system.	X	