Inventory Management
A major task of logistics

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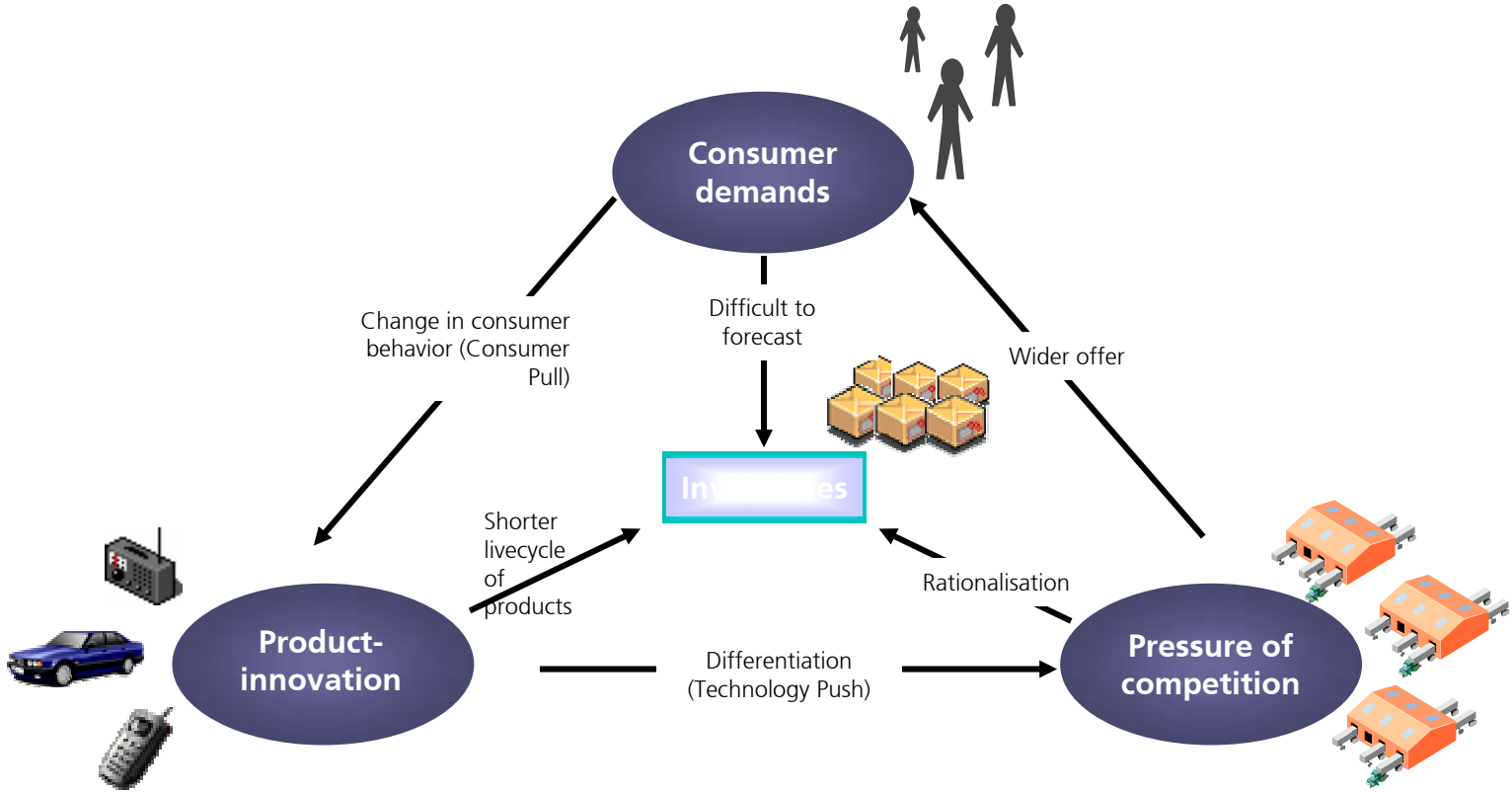
Agenda:

- Trends of logistics
- Facts and figures about logistics and its market
- Major task of logistics: Inventory Management
- Procedure in Inventory Management
- Importance of Inventory Management

European Market developed from push to pull market

Starting position: Saturation of market



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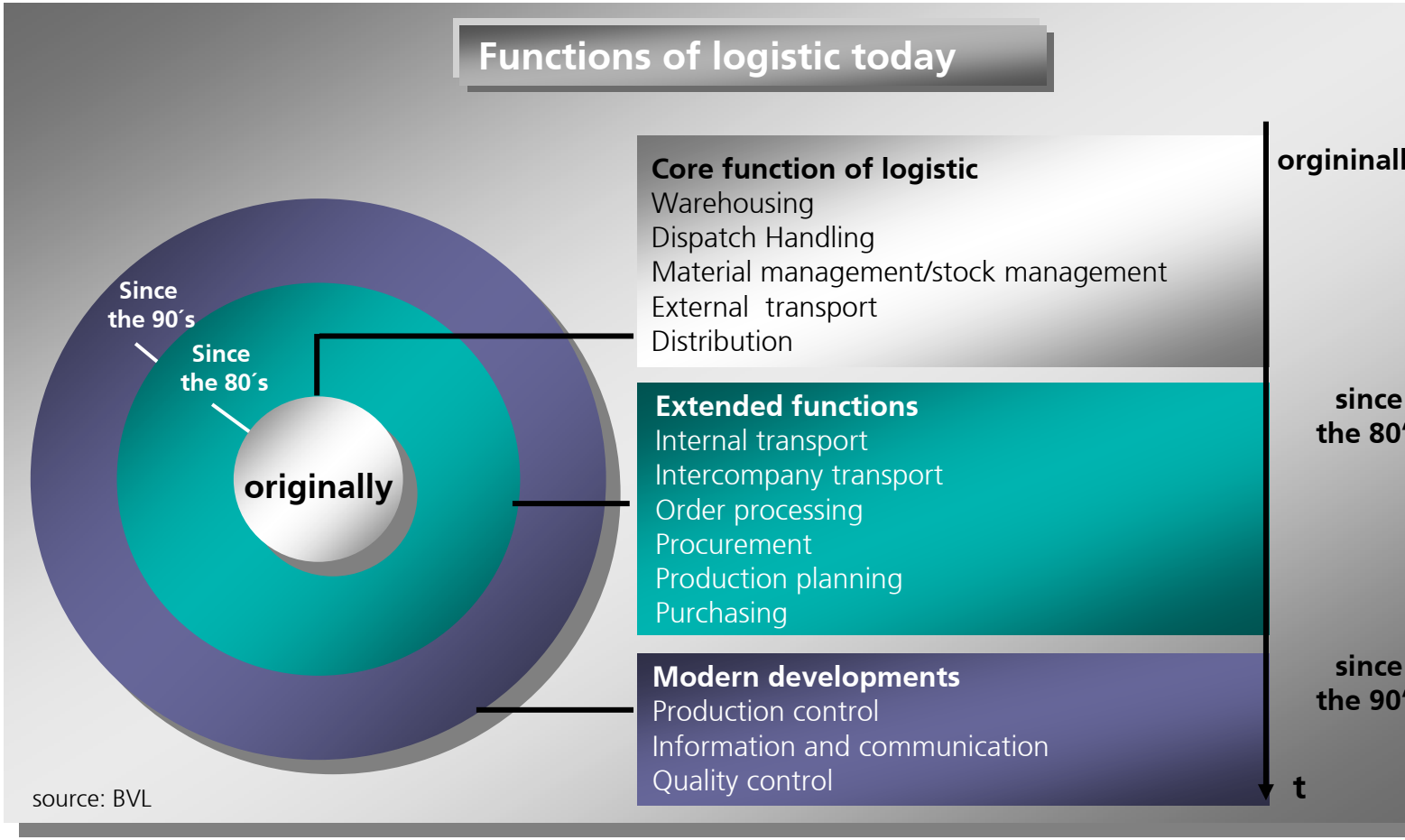
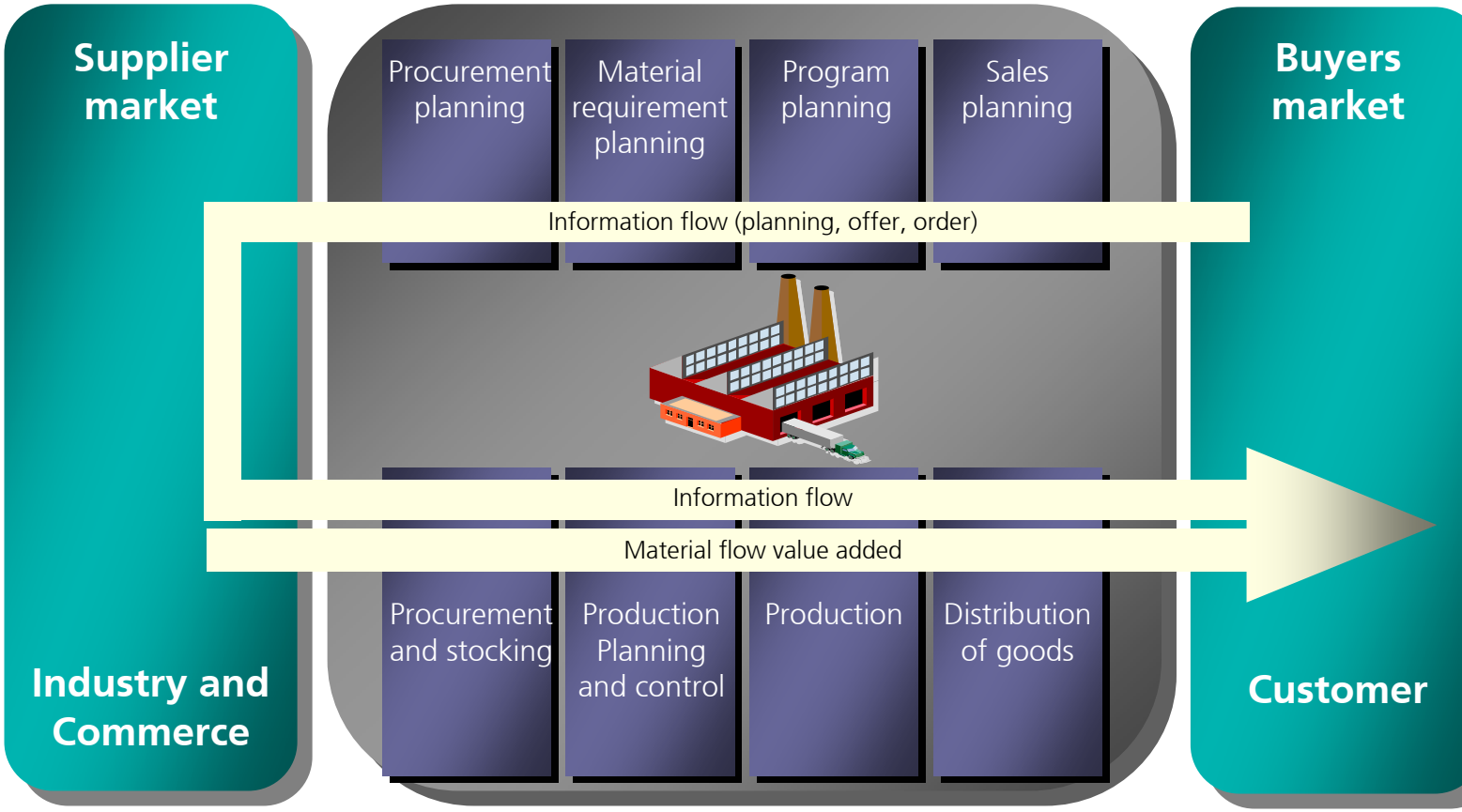
Logistic becomes more important

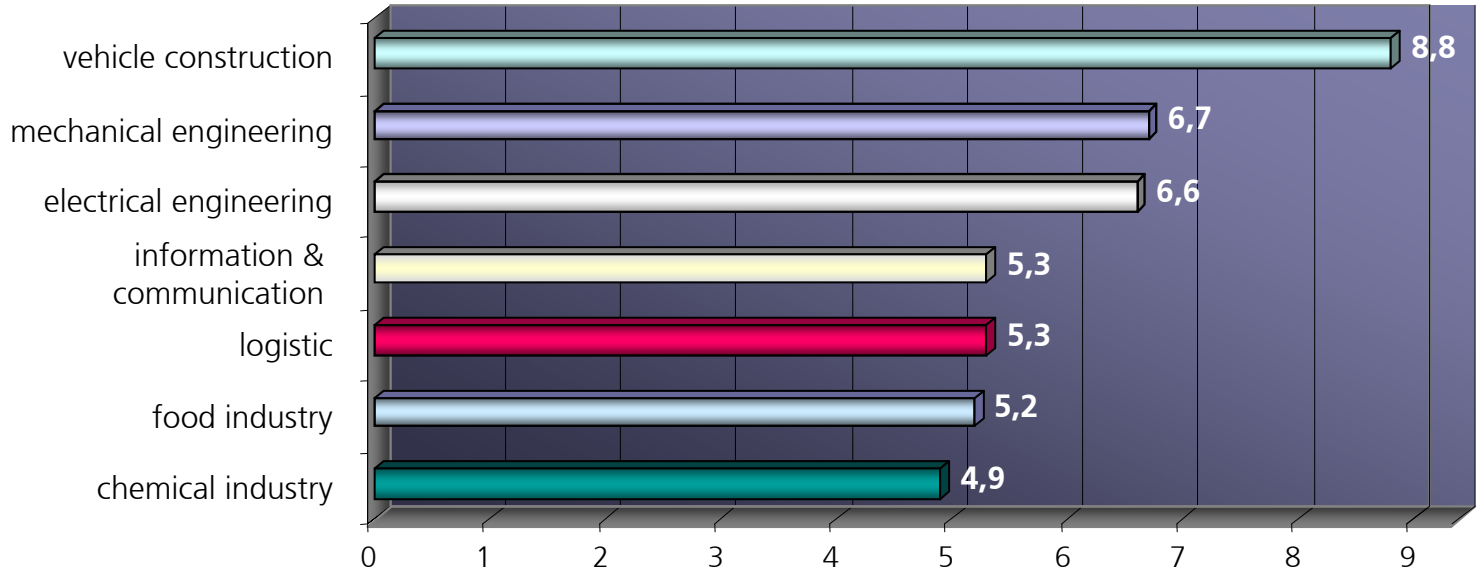


The typical supply chain today



Economic frame data

Germany: Share of sales of different industries in gross domestic product in percent



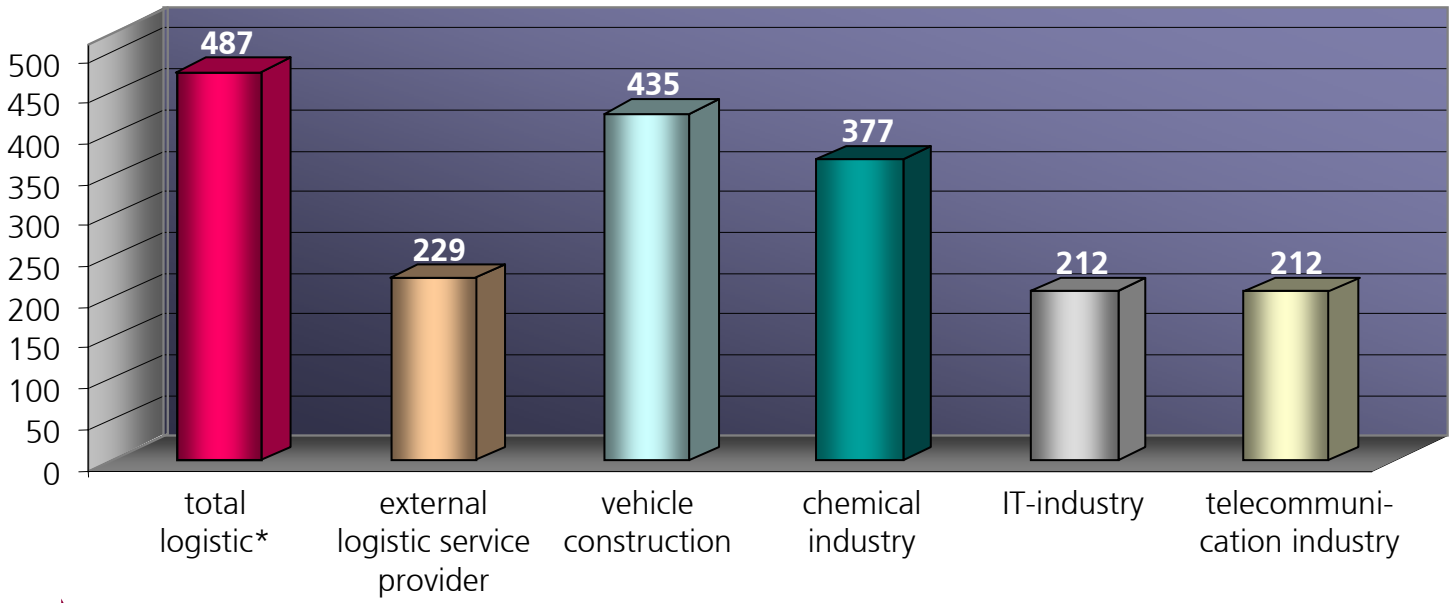
Within the economy in Germany the logistics sector gains in importance

source: VDMA/BITKOM/Statistisches Bundesamt/Infratest Burke (own calculation)

Economic frame data

Volume of sales of selected industries in **western europe** in billion €

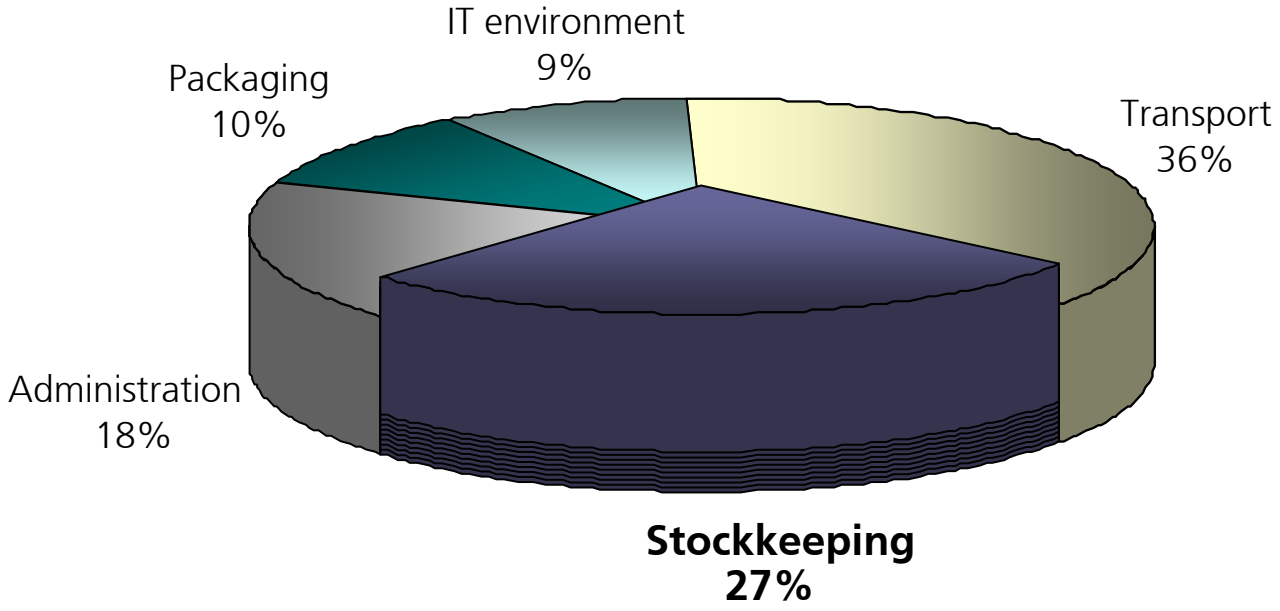
* covers the external generated logistic services as well as the internal logistic services



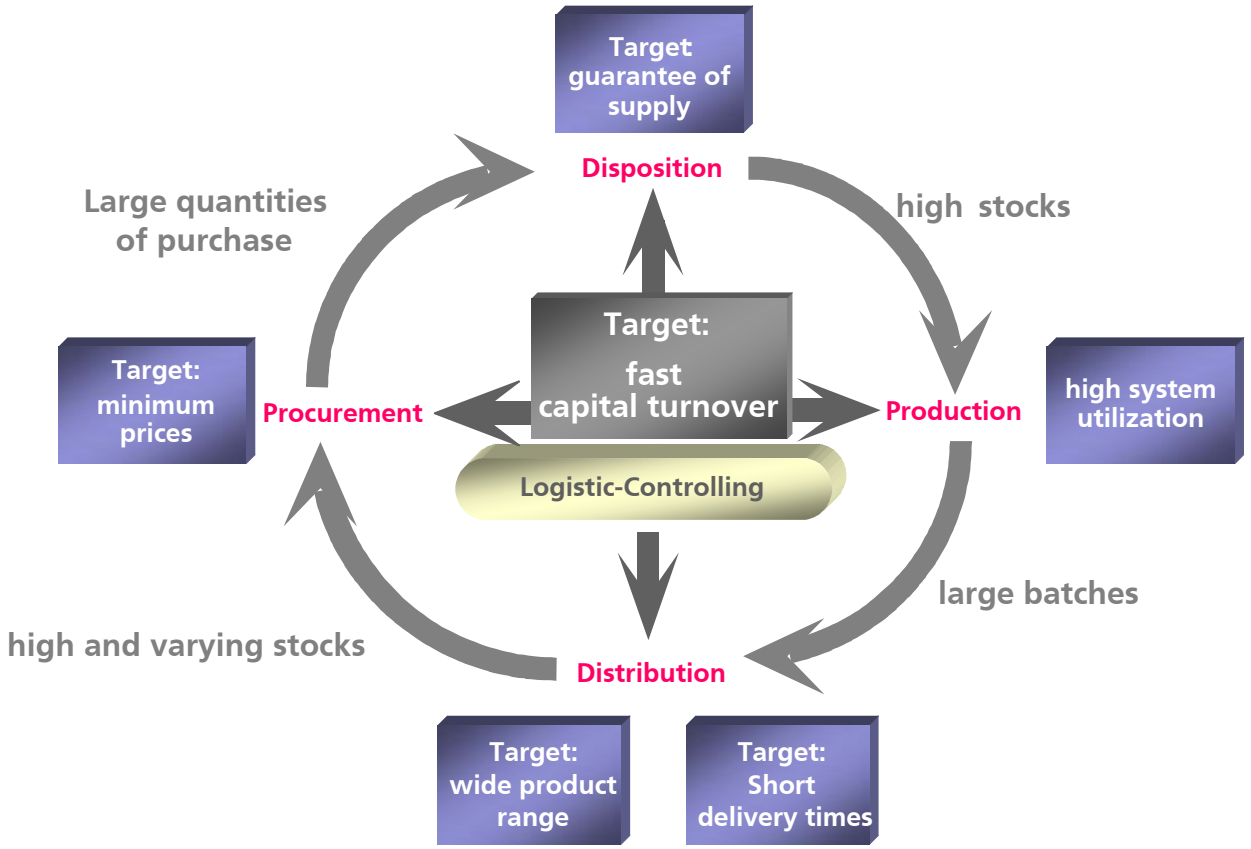
Economically the logistic sector plays a leading role. Sales were already up to nearly 230 billion € and outperformed the IT- and telecommunication industries

Economic frame data

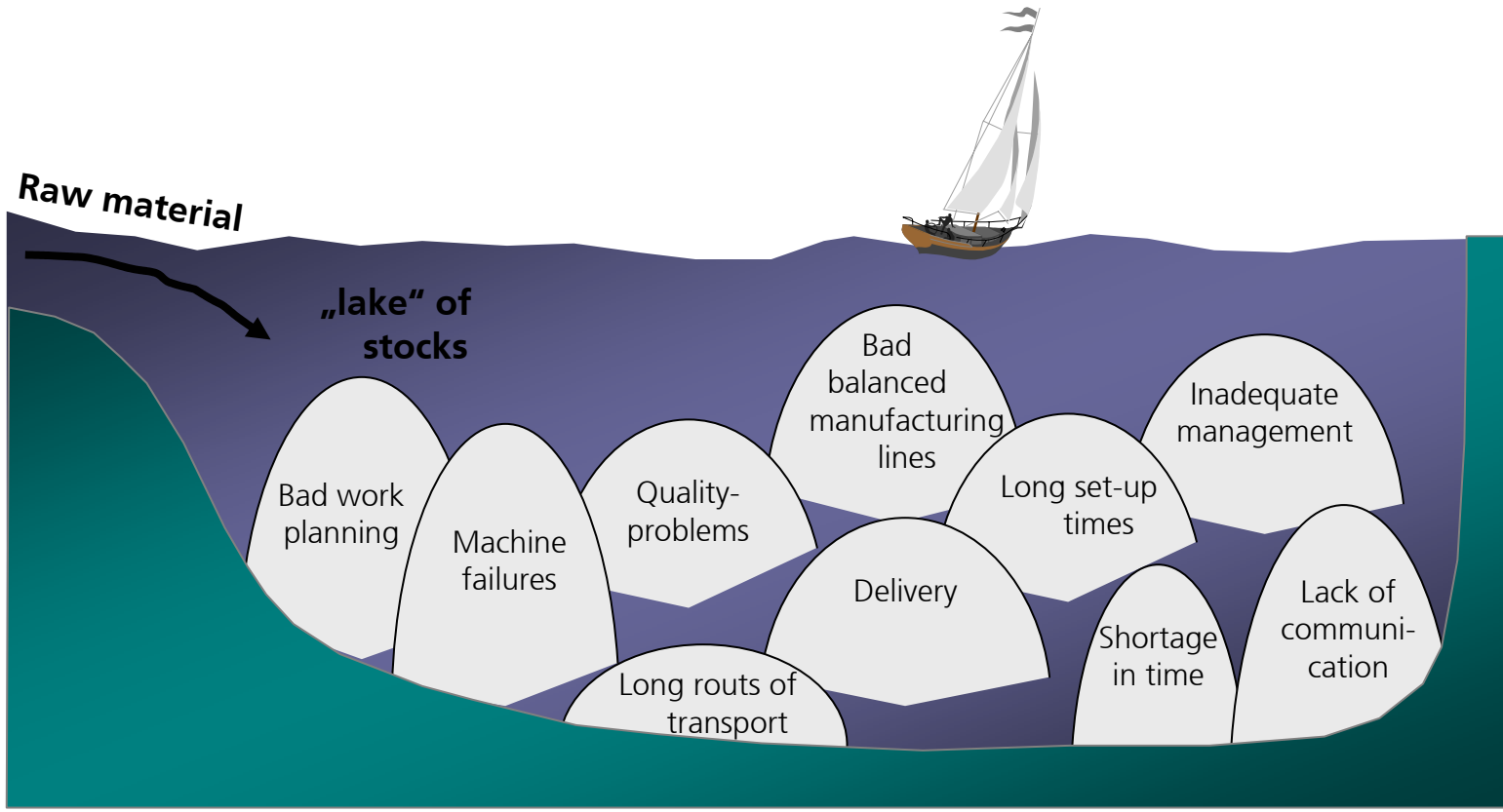
Average composition of logistics costs



Divergent targets of functional areas cause the accumulation of stocks



Stocks cover problems



Benefit of inventory reduction (Real example of chemical industry)**:**

		[Mio $]	
level of inventory		**$1.000**	
Reduction of fixed capital by		**- 10%**	
Reduction of fixed capital absolute		**= $100**	Fixed capital
Interest of fixed Capital	**7%**	**$ 7**	**Costs of Fixed Capital**
+ Costs of warehousing (warehouse, workers, administration)	min. 3 %	**$ 3**	**Further costs**
+ Costs of inflexibility			
		$ 10	**Saved costs in total**

Benefit of inventory reduction (Real example of chemical industry)**:**

result of the group	**$133**
Improvemnet of result of the group absolute	**$143**
Improvemnet of result of the group in %	**+ 7,5%**

Reduction of inventory level by *only* **10%**
caused an
improvement of the corporate result by **7,5%.**

Inventory management still has a big laverage in cost reduction

4 steps to inventory-management

1. Analysis of current inventory

- Work out the present-situation of your inventory by certain methods and calculate the resulting costs.

2. Estimation of an ideal inventory

- Estimation of the ideal, that means the particular selling conditions (recovery-time, lot size) adjusted inventory and show potentials.

3. Measures

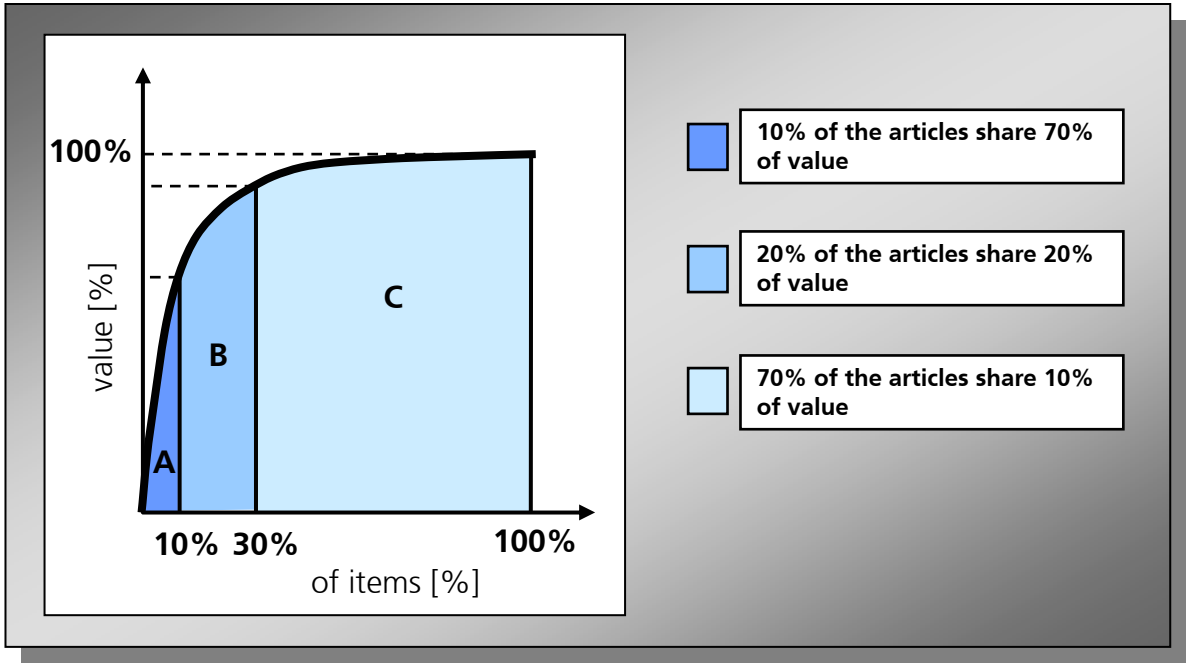
- Suggest measures to reach the ideal inventory (per item).

4. Methods of inventory-management

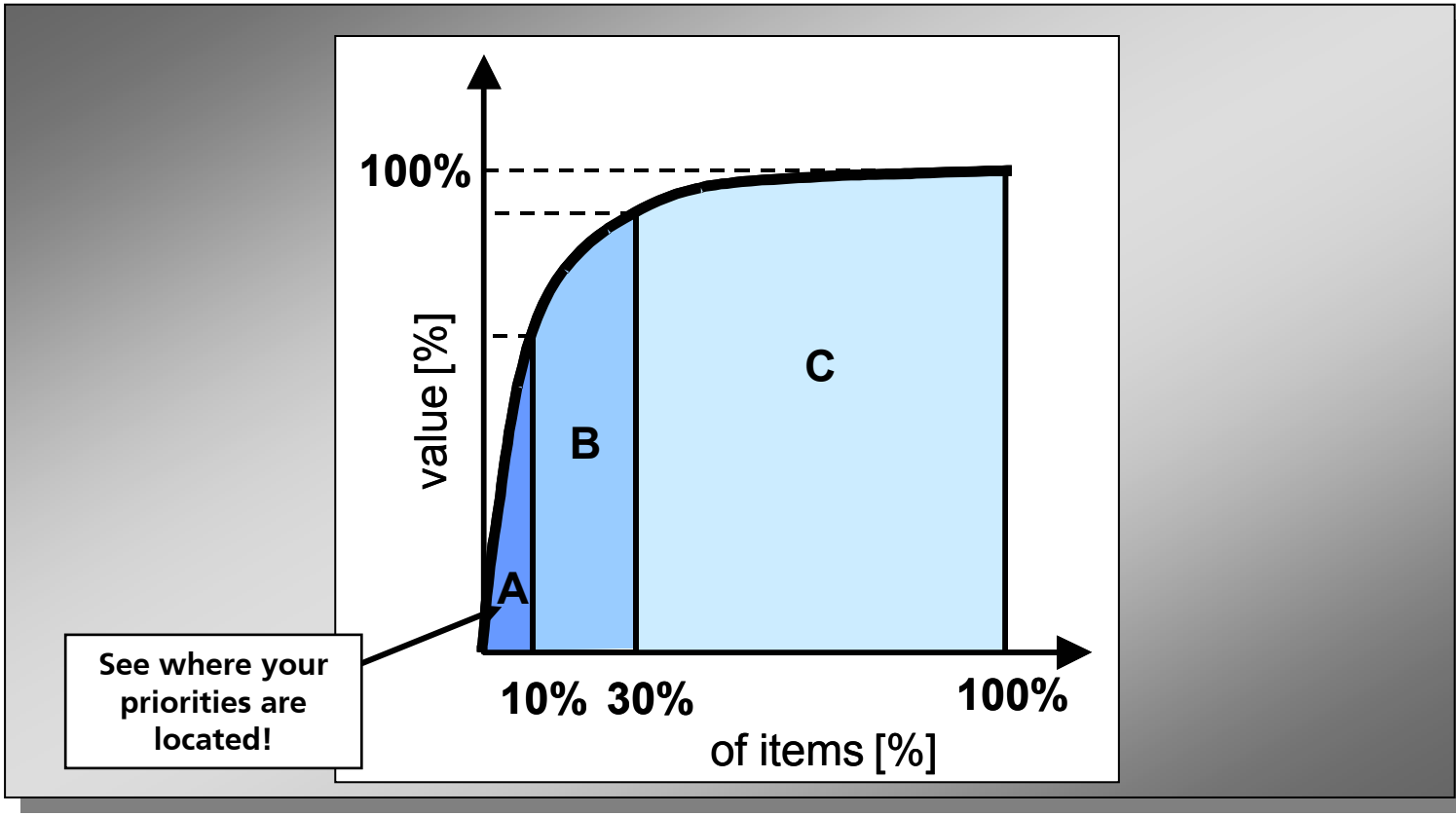
- Establish an inventory management to sustain reductions.

ABC-Analysis

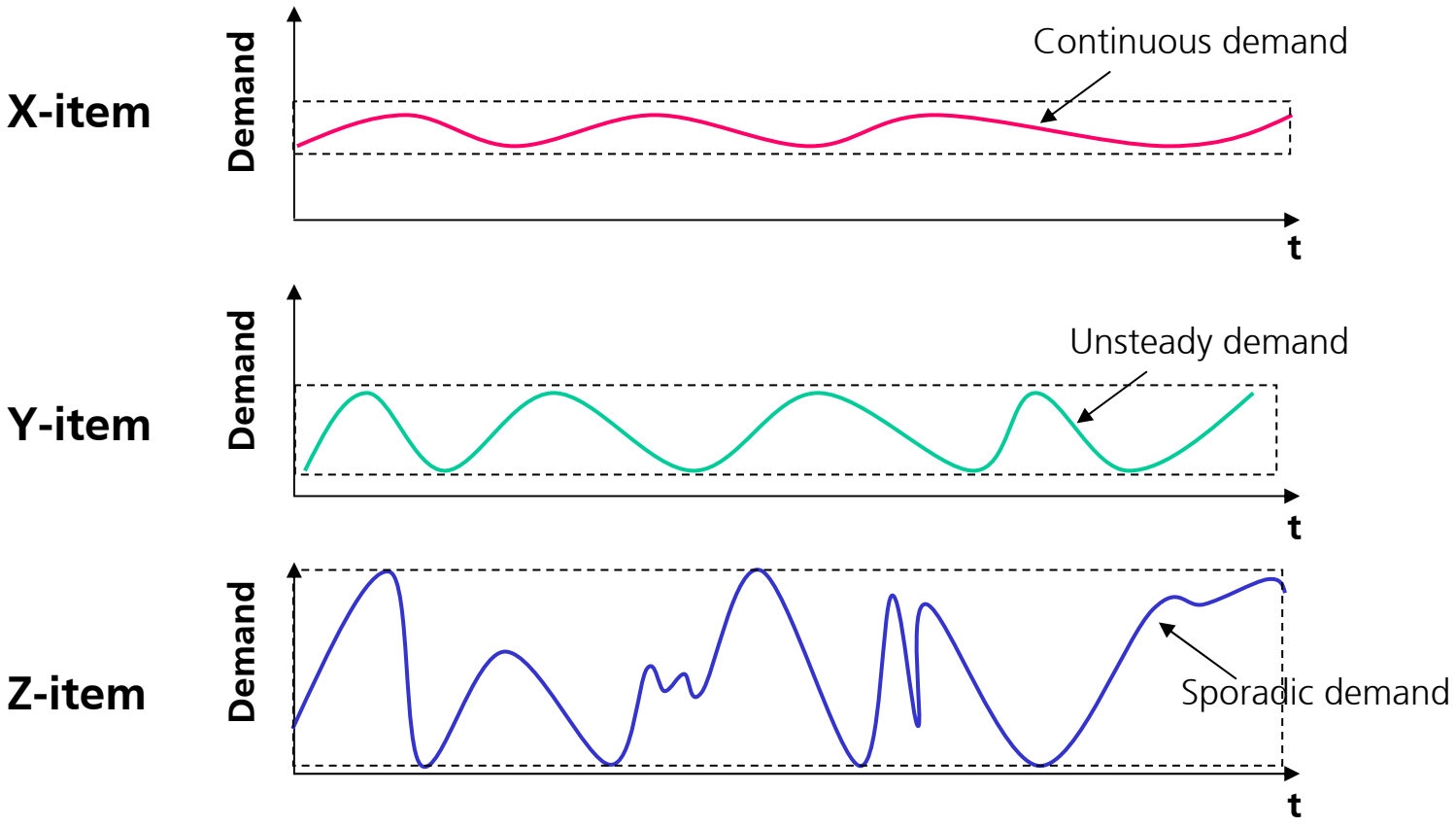
Determination of significant articles and benchmarks → **Sorting of items according to declining importance** → **Accumulation of particular item-terms** → **Graphical demonstration of A-, B- and C-items**



The ABC-analysis determines the percental share of items on value of inventory

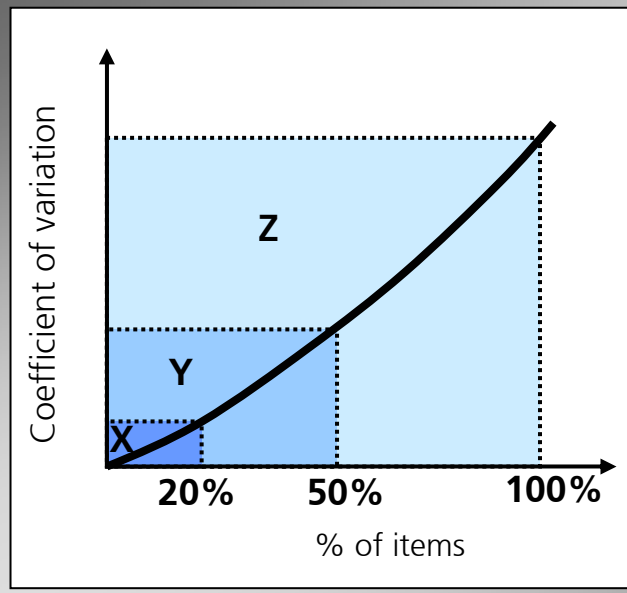


Classificate items by behavior of demand:



XYZ-analysis (Determine the ability to forecast the demand per item)

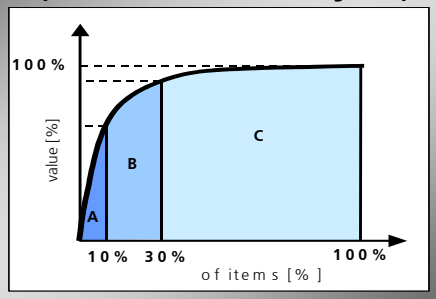
List of products → Determination of the coefficient of variation for each individual product → Sorting products according to rising variation coefficients → Graphical illustration, divided into X-,Y- and Z-areas



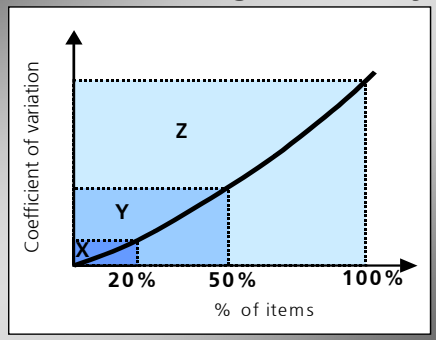
- 20% of the products (X) have continuous demand
- 30% of the products (Y) have a varying demand
- 50% of the products (Z) have only a sporadic demand

Example of realization of an ABC/XYZ-analysis

ABC-analysis (article-value-analysis)



XYZ-analysis (article-use-divergence-analysis)



ABC/XYZ matrix (value/use-divergence-connection)

Coefficient of variation

value-classification	X	Y	Z
C	14%	21%	35%
B	4%	6%	10%
A	2%	3%	5%

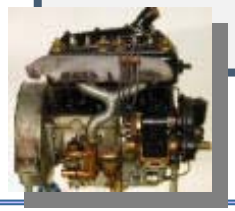
% of items

Measures: Certain treatments for the ABC/XYZ-items

(Example items of automotive industry)

Implemantation of automatic procurement systems

- High potential by low stock level
- Implemantation of automatic procurement systems
- ....



Variation of demand

Value of items

	X	Y	Z
C			
B			
A			

Make shure that savety stock is not to high

- High risk by raising inventory level
- Check for non- or slow-movers
- ...

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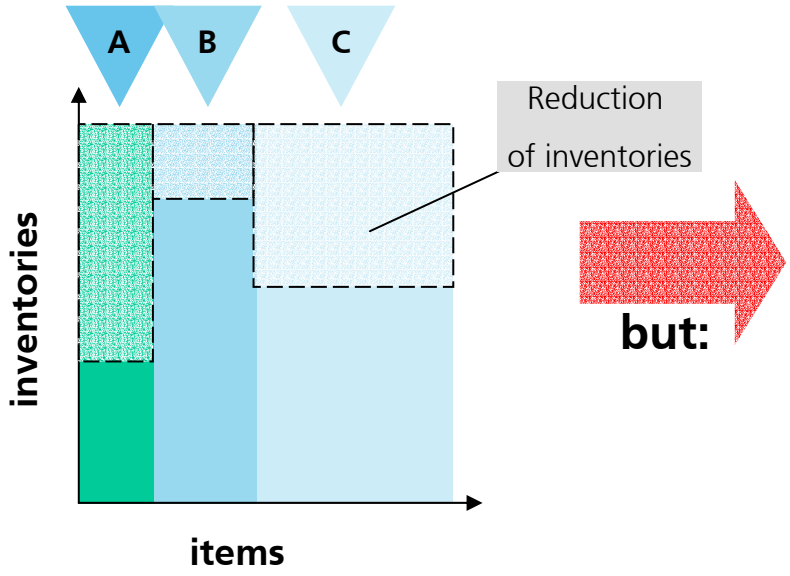
The realization of reduction potentials to reduce inventories depends on restrictions

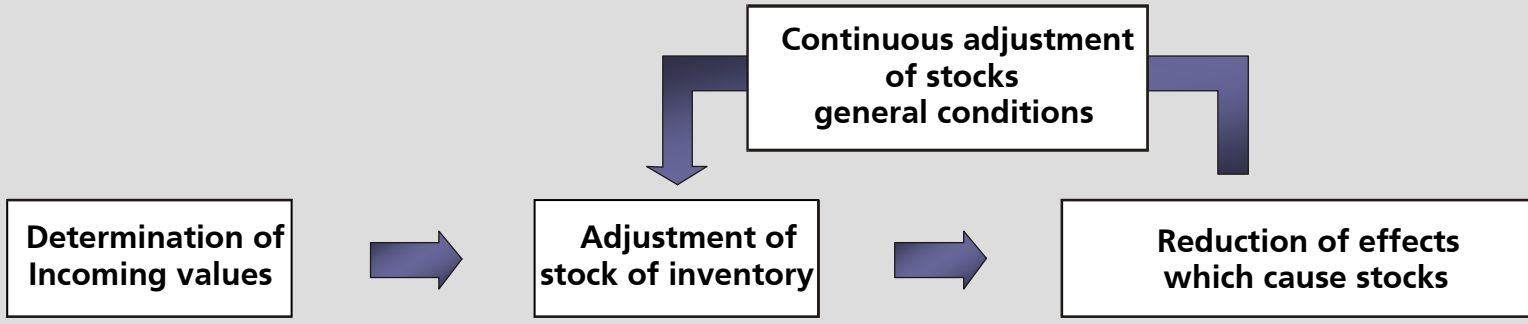
Analysis of data:



Reduction is not operable without takin the restrictions into account:

- Production procedures (shut down)
- Restrictions of lot sizes
- Market restrictions
- Product life cycle
- Strategy (campaigns)
- Regulatory restrictions
- Process-related restrictions
- ...

Control loop for a sustained stock reduction



Necessary measures for the establishment of a controlling in the warehouse

Structural Measures	Operative measures
• ABC-classification of items • Determination of target values • Calculation of safety stock for A-items • Maximum storage time for C-items • Systems concerning technical data • Systematical recording of stock movements • Recording of target-quantities and dates of demand	• Monitoring of key figures • Monthly determination of central key figures • Controlling of key figures • Monthly comparison of actual key figures with target key figures • Derivation of necessary measures • Determination of target stock values for the following month

Conclusion:

1. **Logistic becomes a core competence**
2. **Inventories fix capital**
3. **Inventory Management holds high potentials**
4. **Inventory reduction increases the liquidity**
5. **Optimal stocks**
   - **...are a sign for well organized companies**
   - **...improve the capital turnover simply**
   - **...give you the flexibility for new challenges**

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