

Lean Order Management

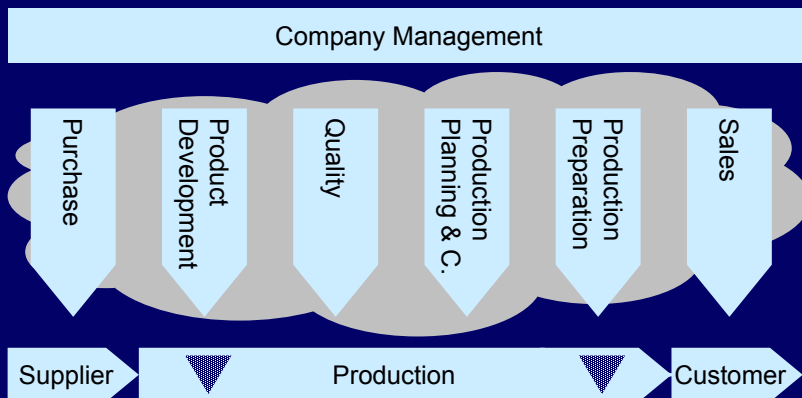
- Purpose
- Background
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- Activity Chain Model
- SME case study

Purpose of Order Management

- To ensure or create coherence between
 - tasks
 - organisational functions and
 - information systems (manual/electronic)
 in the customer order flow
- To ensure or create awareness of
 - time consumption
 - bottlenecks
 - changes of responsibility and
 - costs
 in the administration and at the shop floor
- To remove
 - non value-adding activities and information
 by reorganising tasks and systems towards flow principles

Background - functional view

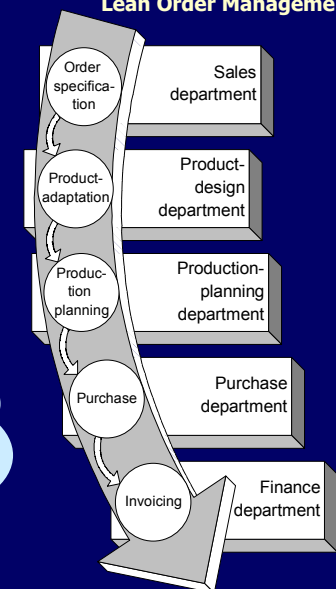
Most departments work individually, but they are all involved in the customer order process due to the change towards customer specific production



Background - flow view

By managing the order process as *a chain of activities through the individual departments* it is possible to increase the resource utilisation and reduce the leadtime

In many companies more time (manhours & leadtime) are spent on order processing than on production !!!



Analysis

Analysis of leadtime and bottlenecks

- Does the overall schedule include production, purchase and customer specific design activities ?
- Does the order often change responsibility during processing?
- Where are the orders waiting? Why?
- Does the organisational structure support the business processes?
- Which departments are (or have become) bottlenecks?
- Are orders delivered on time ? (without further negotiations)

Analysis of decisionmaking

- Who are responsible for on-time delivery ? Sales dep. ? Production planning ? Shop floor ?
- Are the orders prioritized identically in all departments ?

Analysis

Analysis of informationflow based on available paper forms and selected (central) computer screen-forms:

- Information received ? From whom ?
- Information used ?
- Information unused ? Is the sender* aware of this ?
- Tools used in information processing
- Information passed on ? To whom* ?
- Is receiver* satisfied with the information ?
- Which information, tools or procedures could improve the work carried on ?

How much time is used on non-value adding activities such as

- copying, filing, seeking and transferring information
- calling customers and suppliers to collect missing information

*) Sender & receiver might be hard to answer for computerised informationflow

Activity Chain Model

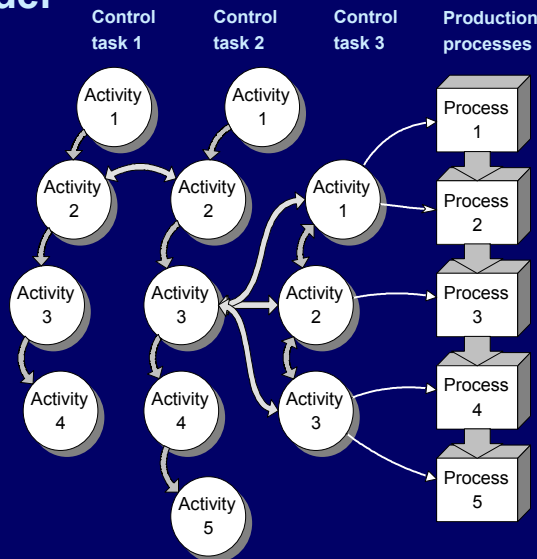
Focus on:

- forward flows
- major tasks (chains)
- simple to use
- separate development and daily operations

Aiming to

- reduce changes of responsibility
- reduce resource utilisation in the administration

Each chain symbolize a well-defined task (e.g. order processing)

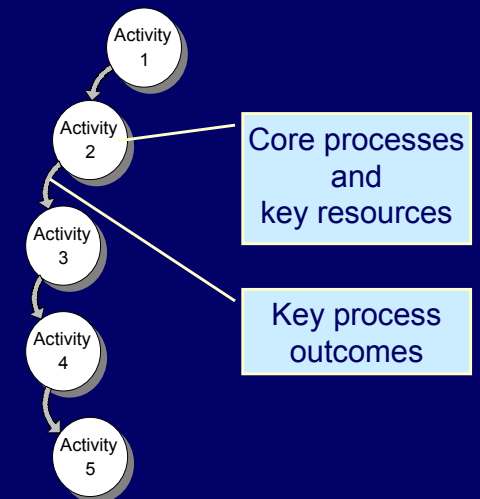


Activity Chain Model

The model is one-level, as it only contains the most vital activities and connections (unlike e.g. dataflow and idf diagrams).

Do get a more detailed view we recommend that the following are described for every activity:

- core processes
- key resources
- process outcomes



SME case study

75 employees

- 30 in the administration
- 45 in the production

Turnover: 12 million Euro

150 orders pr. year (1 every 1,5 day)

- Denmark: 22 variants
- Germany: 22+13 variants

All facets of manufacturing (production, sales, product-development, customer specific adaptations, finance)



SME case study

Problem areas

- Lack of information in spite of increased paper flow
- Administration costs increased 10 times
- Drawings and product specifications are often late
- Order specifications are often insufficient
- Much overtime work
- Too much transfer of responsibility
- Many rush jobs caused by customer order changes
- A lot of manual paper work
- Double filing

SME case study

Analysis of the paper forms in the information system

All forms:

- Less than half of the completed forms in the order process was used elsewhere in the company
- consequence: huge waste of time to fill out unused forms

Most critical form: Orderspecification:

- Out of 84 available fields 81 fields were used elsewhere in the order process
- Out of 10 forms only 52 of the 84 fields were filled out on all forms!
- consequence: information seeking and extra resource load

SME case study

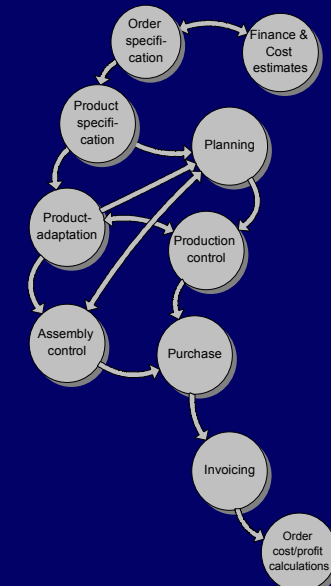
Activity Chain Model:

- Customer order "chain"
- Too many backward loops

Next step:

Based on the customer order chain (network) it was decided to analyse

- the number of persons involved in the single activities and
- the value adding versus the non-value adding activities (based on self-assessment)



SME case study

Activities:	Resources (Hours/Week)	Involved persons*	Involved departments	Value added time (%)**
Order specification	132,0	8	2	98 !
External Relations	23,5	7	4	91
Product specification	154,5	18	6	58
Production planning	19,5	3	3	100
Product adaptation	186,0	10	4	76
Assembly control	157,0	7	2	92
Production control	10,0	2	2	63
Purchase	81,5	9	3	98 !
Invoicing	45,5	7	3	93
Order cost/profit calc.	21,0	4	4	95
Total	830,5	-	-	-
Average	75,5	7	3	88

*) Out of the 30 employees in total in the administration

**) Based on a self assessment analysis

SME case study

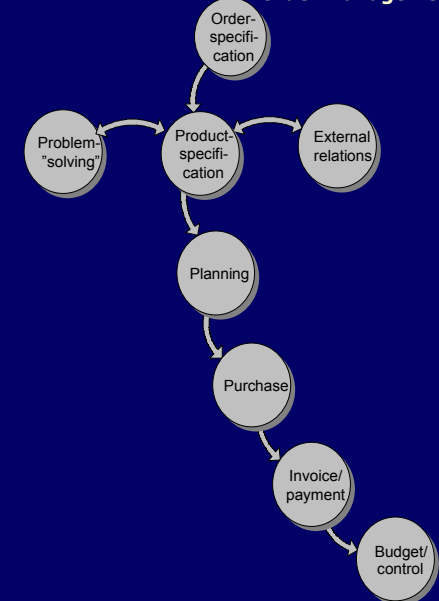
Improved order chain

External related subtasks united in one activity

Problem-solving "task force" to maintain high efficiency for all standard tasks

Most non-value adding tasks removed

Few changes of responsibility



SME case study

Time consumption was reduced 23% by reorganising the tasks and adapting the organisation

Subtasks		Pur- chase	Plan- ning	Invoi- cing	Sales	Probl. Solving	P.spec. Ext.rel.	Total
Current tasks	Value adding	61	12	48	11	-	80	212
	Non value adding	41	8	28	10	-	80	167
	Total	102	20	76	21	-	160	379
Future tasks	Value adding	59	12	46	11	8	74	210
	Non value adding	12	0	15	2	0	37	66
	Total	71	12	61	13	8	111	276

In addition:

- the general view was improved
- the number of self-created errors was reduced
- the workload in the design department was reduced

SME case study

Conclusions

Activity Chains are helpfull to improve the order process and adapt the organisation

Activity chains are more usable on the management level in industry than e.g. IDEF and Dataflow diagrams

A large number of case studies has shown a high potential of improvements in SMEs

Internal improvements are necessary before moving on to Supply Chain improvements