

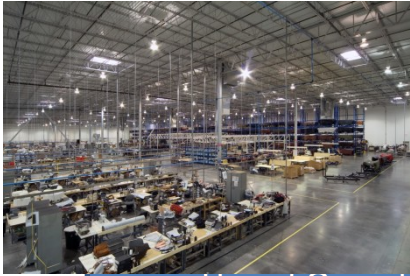
Operation Management (OM) Introduction

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Coordinates

- **Lecturer** : Ing.Jaromír Skorkovský, CSc.
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- **Study material** : will be updated regularly (is.muni.cz)
- **Attendance** : seminar and lectures are obligatory – see subject specification (is.muni.cz) – first important condition to be admitted to exam)
- **Excuses** : if serious reason emerges- only written from is accepted
- **Seminar work** : will assigned after some theory will be presented. Accepted seminar work is the second condition to be admitted to exam)
- **Tuition plan** : at the **end** of this slide show

What is going on ?

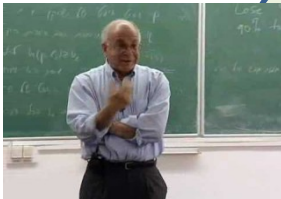
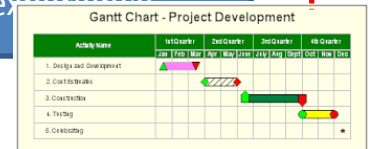


Use of Operations Management (OM) in external environment
(main target)



General knowledge of OM methods acquired at university and long-standing experiences

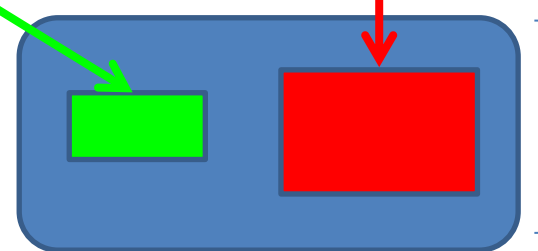
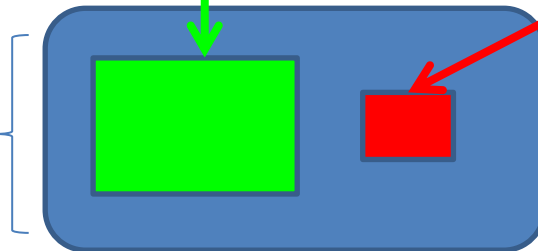
$$= \frac{\sum_{x_1} f_1(x_1) f_2(x_2, x_1)}{\sum_{x_1} f_1(x_1) \sum_{x_2} f_2(x_2, x_1)}$$



Knowledge of methods and experience from research and literature - **teachers**



Knowledge of methods and experience from outside world – **consultants, managers, ...**



Extent of knowledge

Extent of knowledge



Synergy and put OM into practice

OM all around us

OM is the management of all processes used to design, supply, produce, and deliver valuable goods and services to customers



IN

Processing-transformation

Out

TQM = Total Quality Management

ERP: Logistics, Transportation

MRP, JIT, APS, Lean Manufacturing, Little's law

ERP: Marketing, Selling, Invoicing, Payment,....

Some OM methods

- Theory of Constraints
- Balanced Scorecard
- Project Management methods (Critical Chain, SCRUM,...)
- Material Requirement Planning and Just-in-Time
- Advanced Planning and Scheduling
- Six Sigma – quality management
- Boston, SWOT and Magic Quadrant Matrices
- Little 's Law (relations between WIP, Throughput and Cycle time)
- Linear programming (cutting, blending,..)
- Yield Management
- Kepner-Tregoe (support of decision making)

Some tools

CRONUS International Ltd. - Microsoft Dynamics NAV Classic

File Edit View Tools Window Help

Financial Management

- General Ledger
 - Chart of Accounts
 - Budgets
 - General Journals
 - Analysis & Reporting
 - Intercompany Postings
 - Reports
 - History
 - Periodic Activities
 - Cash Management
 - Receivables
 - Payables
 - Fixed
 - Invent
 - Setup
- Sales & Marketing
- Purchase
- Warehouse
- Manufacturing
- Jobs
- Resource Planning
- Service
- Human Resources
- Administration
- Shortcuts

Chart of Accounts

| No. | Name | Income/Balance | Account Type | Totaling | G... G... G... | Net Change | Balance |
|-------------|--------------------------------------|------------------|--------------|------------|----------------|---------------|--------------|
| 6620 | Job Sales | Income Statement | Posting | | | | |
| 6695 | Total Sales of Jobs | Income Statement | End-Total | 6605..6695 | | | |
| 6710 | Consulting Fees - Dom. | Income Statement | Posting | | S.. N.. S.. | -235 592,91 | -235 592,91 |
| 6810 | Fees and Charges Rec. - Dom. | Income Statement | Posting | | S.. N.. M.. | -961,03 | -961,03 |
| 6910 | Discount Granted | Income Statement | Posting | | | 36 610,08 | 36 610,08 |
| 6950 | Sales of Service Contracts | Income Statement | Begin-Total | | | | |
| 6955 | Service Contract Sale | Income Statement | Posting | | S.. N.. S.. | | |
| 6959 | Total Sale of Serv. Contracts | Income Statement | End-Total | 6950..6959 | | | |
| 6995 | Total Revenue | Income Statement | End-Total | 6100..6995 | | -7 401 205,36 | 7 401 205,36 |
| 7100 | Cost | Income Statement | Begin-Total | | | | |

6110 Sales, Retail - Dom. - General Ledger Entries

| Posting Date | Document Type | Document No. | G/L Account No. | Description | Department Code | G... G... G... T... P... P... Amount | Bal. A... Bal. T... Account No. | Entry No. |
|--------------|---------------|--------------|-----------------|--------------------|-----------------|--------------------------------------|---------------------------------|-----------|
| 15.01.12 | Credit Memo | 104001 | 6110 | Credit Memo 104001 | SALES | S.. N.. R... 246,60 G... | | 2590 |
| 16.01.12 | Invoice | | | | | | | 2771 |
| 17.01.12 | Invoice | | | | | | | 2617 |
| 17.01.12 | Credit Memo | | | | | | | 2622 |
| 18.01.12 | Invoice | | | | | | | 2762 |
| 20.01.12 | Credit Memo | | | | | | | 2656 |

103018 The Cannon Group PLC - Posted Sales Invoice

General Invoicing Shipping Foreign Trade BizTalk

No. 103018 Posting Date 18.01.12

Sell-to Customer No. 10000 Document Date 18.01.12

Sell-to Contact No. CT000001 Quote No.

Sell-to Customer Name The Cannon Group PLC Order No. 6005

Sell-to Address 192 Market Square Pre-Assigned No.

Sell-to Address 2 External Document No.

Sell-to Post Code/City B27 4KT Birmingham Salesperson Code PS

Sell-to Contact Mr. Andy Teal Responsibility Center BIRMINGHAM

No. Printed 0

| T... No. | Description | Quantity | Unit of M... | Unit Price... | Line Amount E... | Line ... |
|-------------|-------------------------------|----------|--------------|---------------|------------------|----------|
| I... 1964-W | INNSBRUCK Storage Unit/G.Door | 10 | PCS | 292,00 | 2 920,00 | |
| I... 70011 | Glass Door | 5 | PCS | 72,30 | 361,50 | |

Invoice Line Functions Print... Navigate Help

Nav... [Icons]

MS Dynamics NAV 2009

Some basic processes controlled by ERP – I.

80103-T 19" M009 Monitor - Items by Location

Options

Show Items in Transit . . .

Show Column Name . . .

| No. | Description | BLUE | GREEN | RED | SILVER | WHITE | YELLOW |
|---------|--------------------------------|------|-------|-----|--------|-------|--------|
| 1908-S | LONDON Swivel Chair, blue | 237 | 57 | 14 | 0 | 0 | 0 |
| 1920-S | ANTWERP Conference Table | 31 | 65 | 10 | 0 | 7 | 0 |
| 1924-W | CHAMONIX Base Storage Unit | 1 | 8 | 2 | 0 | 0 | 15 |
| 1928-S | AMSTERDAM Lamp | 149 | -19 | 55 | 0 | 0 | 97 |
| 1928-W | ST.MORITZ Storage Unit/Drawers | 4 | 23 | -1 | 0 | 0 | 41 |
| 1936-S | BERLIN Guest Chair, yellow | 46 | 46 | 50 | 0 | 0 | 0 |
| 1952-W | OSLO Storage Unit/Shelf | 9 | -1 | 7 | 0 | 0 | 0 |
| 1960-S | ROME Guest Chair, green | 145 | 0 | 24 | 0 | 0 | 0 |
| 1964-S | TOKYO Guest Chair, blue | 58 | 60 | 29 | 0 | 0 | 0 |
| 1964-W | INNSBRUCK Storage Unit/G.Door | 14 | 27 | -2 | 0 | 0 | 8 |
| 1968-S | MEXICO Swivel Chair, black | 233 | 14 | 17 | 0 | 0 | 0 |
| 1968-W | GRENOBLE Whiteboard, red | 10 | 4 | 4 | 0 | 0 | 10 |
| 1972-S | MUNICH Swivel Chair, yellow | 35 | -1 | -4 | 0 | 0 | 90 |
| 1972-W | SAPPORO Whiteboard, black | 3 | 2 | 5 | 0 | 0 | 0 |
| 1976-W | INNSBRUCK Storage Unit/W.Door | 3 | -2 | -3 | 0 | 0 | 3 |
| 1980-S | MOSCOW Swivel Chair, red | 53 | 14 | 21 | 0 | 0 | 0 |
| 1984-W | SARAJEVO Whiteboard, blue | 3 | 3 | 4 | 0 | 0 | 0 |
| 1988-S | SEOUL Guest Chair, red | 41 | 83 | 0 | 0 | 0 | 43 |
| 1988-W | CALGARY Whiteboard, yellow | 0 | 8 | 5 | 0 | 0 | 13 |
| 1992-W | ALBERTVILLE Whiteboard, green | 6 | 5 | -1 | 0 | 0 | 0 |
| 1996-S | ATLANTA Whiteboard, base | 44 | -1 | 22 | 0 | 0 | 116 |
| 2000-S | SYDNEY Swivel Chair, green | 134 | 17 | 12 | 0 | 0 | 0 |
| 766BC-A | CONTOSO Conference System | 0 | 0 | 0 | 0 | 0 | 0 |
| 766BC-B | CONTOSO Office System | 3 | 0 | 1 | 0 | 0 | 1 |
| 766BC-C | CONTOSO Storage System | 2 | -1 | 1 | 0 | 0 | 0 |
| 80102-T | 17" M780 Monitor | 5 | 0 | 0 | 0 | 0 | 0 |
| 80103-T | 19" M009 Monitor | 0 | 0 | 0 | 0 | 0 | 0 |

Item Help

Used abbreviations : **EOQ** – Economic Order Quantity; **ROP** – Reorder Point; **MRP** –Material Requirement Planning; **COGS** – Cost of Good Sold

Some basic processes controlled by ERP –II.

CONTRIB - DEFAULT - Acc. Schedule Overview

General | Dimension Filters | Options

Account Schedule Name : CONTRIB Date Filter : 01.01.15..31.12.15
 Column Layout Name : DEFAULT Budget Filter :

| Row No. | Description | Net Change Debit | Net Change Credit | Balance at Date Debit | Balance at Date Credit |
|---------|------------------------------|------------------|-------------------|-----------------------|------------------------|
| | Contribution margin analysis | | | | |
| RM | Raw Materials | | 13,44 | 577 719,32 | |
| RC | Direct Cost Applied, Cap. | | 1 824,00 | | 2 846,80 |
| OVC | Overhead Applied, Cap. | | 380,00 | | 491,10 |
| R | Sales, Retail - Dom. | | 2 700,00 | | 1 132 035,33 |
| TC | Total direct costs | | 1 837,44 | 574 872,52 | |
| ▶ KP | Contribution margin | 862,56 | | 1 706 907,85 | |
| AM | Margin | 482,56 | | 1 706 416,75 | |
| AM% | Margin in % | 68,05 | | | 50,78 |

1 7 31 3 12 Functions Help

Some basic processes controlled by ERP –III.

The screenshot shows a software window titled "1000 Bicycle - Production BOM". The "General" tab is active, displaying several input fields: "No." (1000), "Search Name" (BICYCLE), "Description" (Bicycle), "Unit of Measure Code" (PCS), "Status" (Certified), "Version Nos.", "Active Version.", and "Last Date Modified" (11.12.10). Below these fields is a table with columns: Type, No., Description, Quantity, Unit of Measu..., Scrap..., and Routing Li... The table lists components for a bicycle, with the first row highlighted.

| Type | No. | Description | Quantity | Unit of Measu... | Scrap... | Routing Li... |
|------|------|----------------|----------|------------------|----------|---------------|
| Item | 1100 | Front Wheel | 1 | PCS | 0 | |
| Item | 1200 | Back Wheel | 1 | PCS | 0 | |
| Item | 1300 | Chain Assy | 1 | PCS | 0 | |
| Item | 1400 | Mudguard front | 1 | PCS | 0 | |
| Item | 1450 | Mudguard back | 1 | PCS | 0 | |
| Item | 1500 | Lamp | 1 | PCS | 0 | |
| Item | 1600 | Bell | 1 | PCS | 0 | |
| Item | 1700 | Brake | 1 | PCS | 0 | |
| Item | 1800 | Handlebars | 1 | PCS | 0 | |
| Item | 1850 | Saddle | 1 | PCS | 0 | |
| Item | 1900 | Frame | 1 | PCS | 0 | |

At the bottom of the window, there are four buttons: "Prod. BOM", "Component", "Functions", and "Help".

Some basic processes controlled by ERP –IV.

OP100016 Assembling furniture - Opportunity Card

General

No. OP100016 Campaign No.

Description Assembling furniture Priority Normal

Contact No. CT000002 Sales Cycle Code EX-SMALL

Contact Name. Selangorian Ltd. Status Won

Contact Company Name. Selangorian Ltd. Closed

Salesperson Code PS Creation Date. 04.01.12

Sales Document Type Date Closed. 21.01.12

Sales Document No.

| Active | Action Taken | Sales Cycle Stage | Date of Change | Estimated Close Date | Estimated Value (LCY) | Calcd. Current Value (LCY) | Completed % | Chances of Success % | Probability % |
|-------------------------------------|--------------|-------------------|----------------|----------------------|-----------------------|----------------------------|-------------|----------------------|---------------|
| <input checked="" type="checkbox"/> | Won | 0 | 21.01.12 | 21.01.12 | 5 500,00 | 5 500,00 | 100 | 100 | 100 |
| <input type="checkbox"/> | Next | 4 | 17.01.12 | 21.01.12 | 5 500,00 | 5 087,50 | 95 | 90 | 93 |
| <input type="checkbox"/> | Next | 3 | 12.01.12 | 21.01.12 | 5 500,00 | 3 987,50 | 80 | 65 | 73 |
| <input type="checkbox"/> | Next | 2 | 08.01.12 | 21.01.12 | 5 500,00 | 2 337,50 | 50 | 35 | 43 |
| <input type="checkbox"/> | | 1 | 06.01.12 | 21.01.12 | 5 000,00 | 550,00 | 2 | 20 | 11 |
| <input type="checkbox"/> | | | | | | | | | |
| <input type="checkbox"/> | | | | | | | | | |
| <input type="checkbox"/> | | | | | | | | | |
| <input type="checkbox"/> | | | | | | | | | |
| <input type="checkbox"/> | | | | | | | | | |
| <input type="checkbox"/> | | | | | | | | | |
| <input type="checkbox"/> | | | | | | | | | |

Opportunity Functions Create Oppo... Help

Some basic processes controlled by ERP –V.

2009 Deerfield Graphics Company - Sales Order

General Invoicing Shipping Foreign Trade E-Commerce Prepayment

No. 2009

Sell-to Customer No. 40000

Sell-to Contact No. CT000004

Sell-to Customer Name Deerfield Graphics Company

Sell-to Address 10 Deerfield Road

Sell-to Address 2

Sell-to Post Code/City GL1 9HM Gloucester

Sell-to Contact Mr. Kevin Wright

No. of Archived Versions.

Posting Date 18.01.12

Order Date 18.01.12

Document Date 18.01.12

Requested Delivery Date

Promised Delivery Date .

Quote No.

External Document No. .

Salesperson Code PS

Campaign No.

Opportunity No.

Responsibility Center . .

Assigned User ID

Status Released

| Type | No. | Description | Location Code | Reserved Quantity | Unit of Measu... | S... P... Excl. VAT | Unit Price | Line Amount Excl. VAT | Line Disco... | Appl.-to Item Entry |
|--------|---------|----------------------------|---------------|-------------------|------------------|---------------------|------------|-----------------------|---------------|---------------------|
| ▶ Item | LS-10PC | Loudspeakers, White for PC | WHITE | 12 | BOX | 59,00 | 708,00 | | | |
| Item | LS-150 | Loudspeaker, Cherry, 150W | WHITE | 8 | PCS | 129,00 | 1 032,00 | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Customer Information

Sell-to Customer

- Ship-to Addresses (0)
- Contacts (1)
- Sales History

Bill-to Customer

- Avail. Credit 0

Item Information

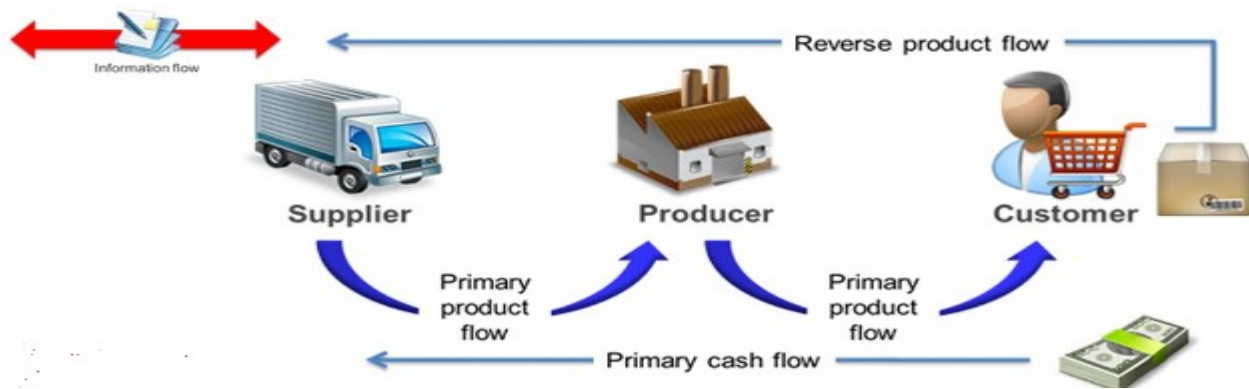
- Item Card
- Availability (-46)
- Substitutions (0)
- Sales Prices (0)
- Sales Line Di... (0)

Order Line Functions Posting Print Help

Used abbreviations : ATP|CTP– Available to Promise | Capable to Promise

Controlling processes in Supply Chain Management (SCM)

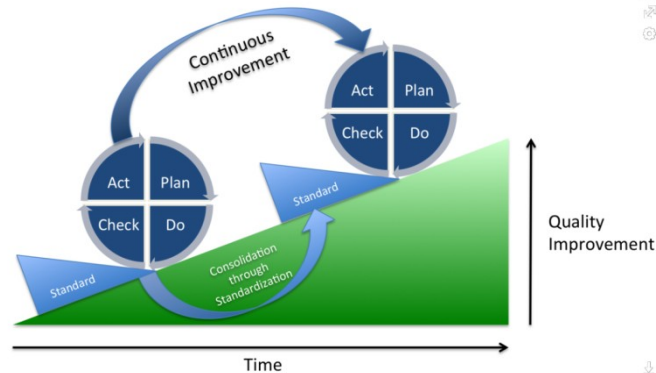
| | | Supply | Production | Orders (Demands) | |
|----------------------|-------------|--|--------------------------|----------------------------|-----------------|
| Planning levels { | Strategic | ← Operation Strategies and Innovations , R&D → | | | Demand Planning |
| | Tactical | Forecasts, Blank Orders | Long term planning | Marketing | |
| | Operational | Logistic operations | Routing control, TQM | Packaging , Transportation | |
| | Operational | MRP, Replenishment | MRP_II ; JIT, Capacities | Cash flow | |



Used abbreviations : R&D –Research and Development; TQM-Total Quality Management; JIT- Just –In-Time; MRP_II-Manufacturing and Resource Planning

Used abbreviations (slide number 3) : ERP - Enterprise Resource Planning ; APS – Advanced Planning and Scheduling

Deming cycle (based on periodicity)



Plan: Define the problem to be addressed, collect relevant data, and ascertain the **problem's root cause** (e.g. by use of TOC=Theory of Constraints)

Do: Develop and implement a solution; decide upon a measurement to gauge its effectiveness.

Check: Confirm the results through before-and-after data comparison.

Act: Document the results, inform others about process changes, and make recommendations for the problem to be addressed in the next PDCA cycle.

Simple example of Deming cycle **(home study)**

Plan: Excessively high value of the stock, which is one of the reasons of low liquidity of our company (converting assets to cash)= **problem's root cause** detected by use of TOC=Theory of Constraints and Current Reality Tree (will be presented)

Do: Implement algorithm controlling stock replenishment based on MRP principle and ROP and Safety Stock level setup. Metrix for effectiveness will be **inventory dollar days (IDD)** - which is one of TOC metrics (will be mentioned during the course)

Check: ERP inventory costing routines before and after implementation of stage **Do** application

Act: Document the results, inform others about process changes, and recommend how to continue in inventory management routines (e.g. use of EAN readers or calculation of **inventory service level** in order to speed up inventory procedures such as put-away and pick or optimize inventory level differently) in the next PDCA cycle.

Used abbreviations : **MRP** – Material Requirement Planning – will be presented; **ROP** – Reorder Point –see next slide); **ERP**- see slide number 12

IDD definition : <https://elischragenheim.com/2016/05/23/throughput-dollar-days-tdd-and-inventory-dollar-days-idd-the-value-and-limitations/>

Explanation of some terms used in PDCA Deming Cycle simple example (**home study**) I.

- **Service level** : represents the expected probability of not hitting a **stock-out**. This percentage is required to compute the safety stock.

Intuitively, the service level represents a trade-off (compromise) between the cost of inventory and the cost of stock-outs (which incur missed sales, lost opportunities and client frustration among others).

$$p = \Phi \left(\sqrt{2 \ln \left(\frac{1}{\sqrt{2\pi}} \frac{M}{H} \right)} \right)$$

M - stock-out cost (often 3 time the gross margin)

H - carrying cost per unit for the duration of the lead time

1litr milk pack -> 1.50€ selling price, 10% margin -> =0,15 €. Lead time = 4 days.

The annual carrying cost is 1.50 € (the value is high because milk is a highly perishable product).

Stock-out cost ->3 time the gross margin, that is to say->M= 0.45€.

$H=(4/365) \times 1.5 \approx 0.0055$ $H \approx 0.0055$. So $p=98,5\%$

Explanation of some terms used in PDCA Deming Cycle simple example (**home study**) II.

The screenshot shows the SAP Item Card for '1952-W OSLO Storage Unit/Shelf' in the 'Planning' tab. The 'Reorder Point' field is highlighted with a red box and contains the value 30. Other fields include Reorder Cycle, Safety Lead Time, Safety Stock Quantity (10), Reorder Quantity (20), Maximum Inventory (0), Minimum Order Quantity (5), and Order Multiple (0). The 'Include Inventory' checkbox is checked, and the 'Reserve' is set to 'Optional'. The 'Order Tracking Policy' is set to 'None'. The 'Stockkeeping Unit Exists' and 'Critical' checkboxes are unchecked.

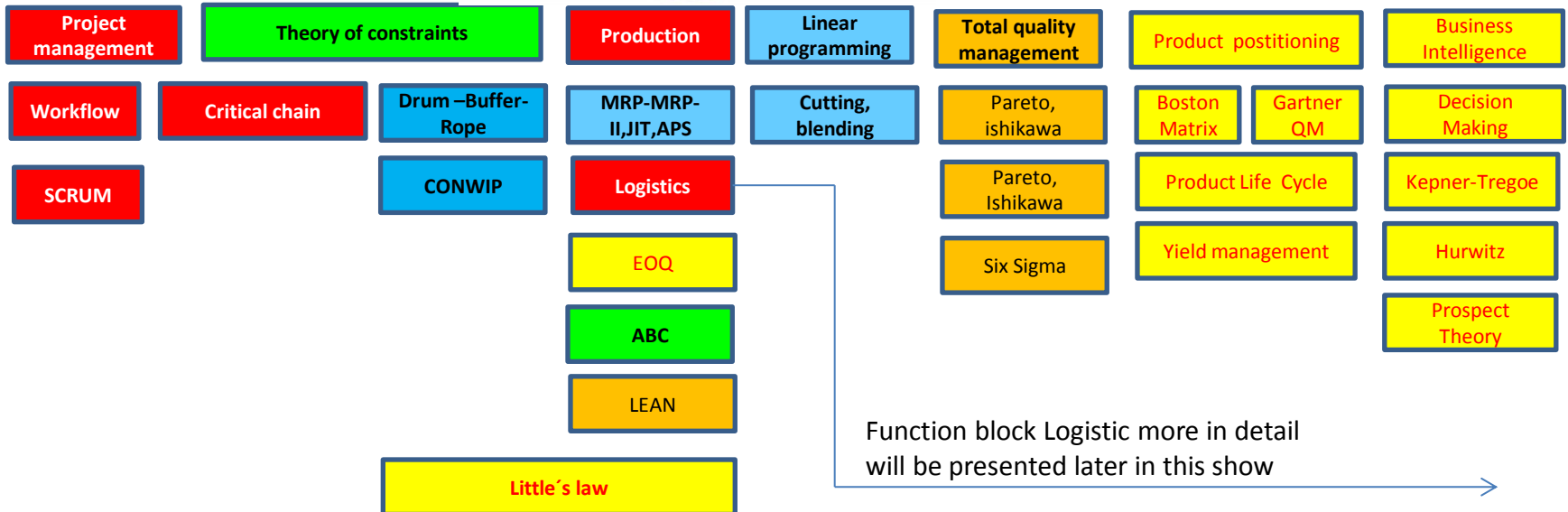
| Field | Value |
|--------------------------|-------------------------------------|
| Reordering Policy | Fixed Reorde... |
| Include Inventory | <input checked="" type="checkbox"/> |
| Reserve | Optional |
| Order Tracking Policy | None |
| Stockkeeping Unit Exists | <input type="checkbox"/> |
| Critical | <input type="checkbox"/> |
| Reorder Cycle | |
| Safety Lead Time | |
| Safety Stock Quantity | 10 |
| Reorder Point | 30 |
| Reorder Quantity | 20 |
| Maximum Inventory | 0 |
| Minimum Order Quantity | 5 |
| Maximum Order Quantity | 0 |
| Order Multiple | 0 |

Used abbreviations : EOQ – Economic Order Quantity – will be explained during this course

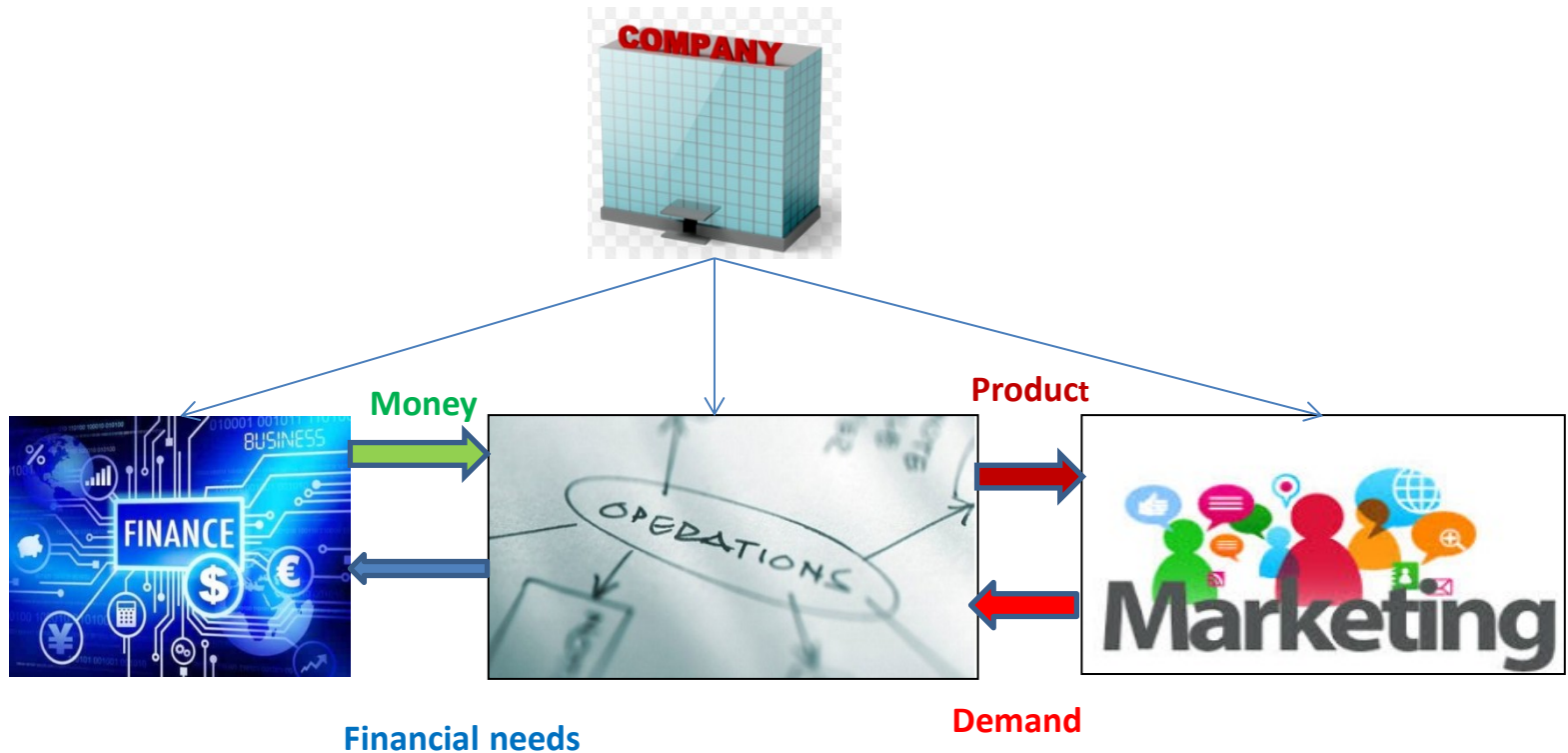
Another point of view



This will be modified in following **South African** project show (example of Balanced Score Card use)

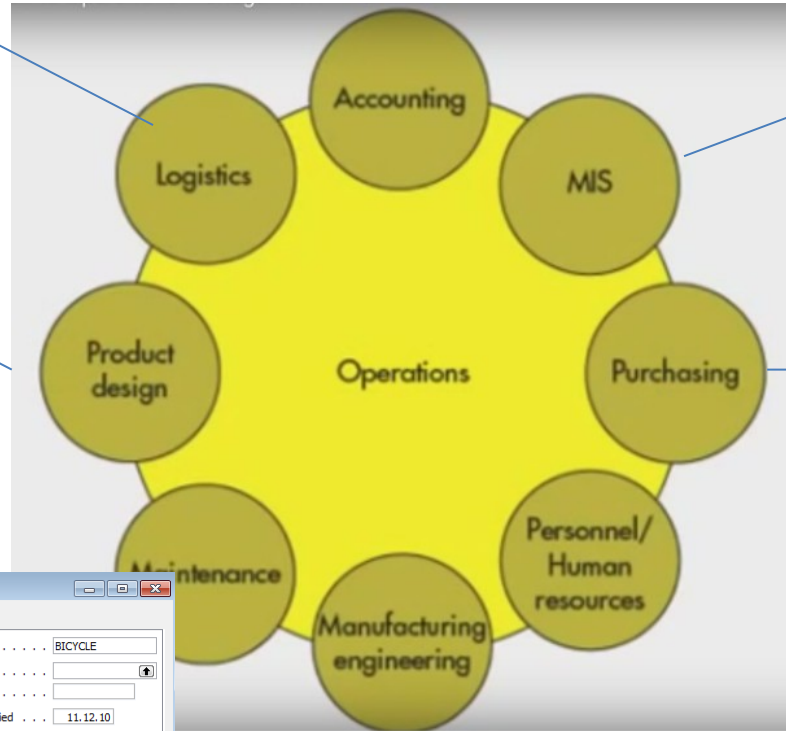


Another point of view



Operations

See next slide



Manufacturing

- Product Design
 - Items
 - Production BOM
 - Routings
 - Families
 - Exchange Production BOM Item
 - Delete Expired Components
 - Calculate Low-Level Code
- Reports
- Capacities
- Planning
- Execution
- Costing

1000 Bicycle - Production BOM

General

No. 1000 Search Name BICYCLE

Description Bicycle Version No.

Unit of Measure Code PCS Active Version

Status Certified Last Date Modified 11.12.10

| Type | No. | Description | Quantity | Unit of Measu... | Scrap... | Routing Li... |
|------|------|----------------|----------|------------------|----------|---------------|
| Item | 1000 | Front Wheel | 1 | PCS | 0 | |
| Item | 1200 | Back Wheel | 1 | PCS | 0 | |
| Item | 1300 | Chain Assy | 1 | PCS | 0 | |
| Item | 1400 | Mudguard front | 1 | PCS | 0 | |
| Item | 1450 | Mudguard back | 1 | PCS | 0 | |
| Item | 1500 | Lamp | 1 | PCS | 0 | |
| Item | 1600 | Bell | 1 | PCS | 0 | |
| Item | 1700 | Brake | 1 | PCS | 0 | |
| Item | 1800 | Handlebars | 1 | PCS | 0 | |
| Item | 1850 | Saddle | 1 | PCS | 0 | |
| Item | 1900 | Frame | 1 | PCS | 0 | |

Prod. BOM Component Functions Help

Bill of material

Microsoft Dynamics NAV 2009 R2

Version W1 6.0 R2 (6.00.32012)

Copyright (C) 2010 Microsoft. All rights reserved.

This product is licensed to:

4805500

NAVERTICA a.s.

Sumavska 15

Brno 602 00

[Check your license information](#)

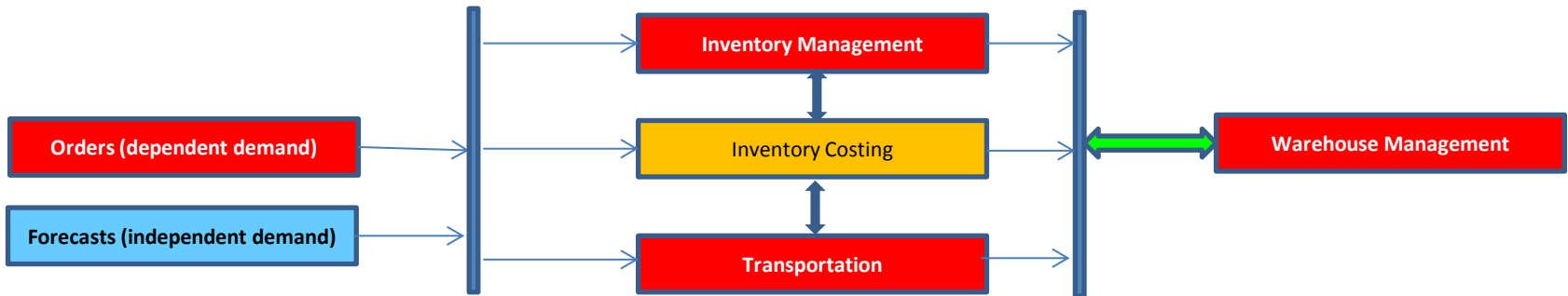
Warning: This computer program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.

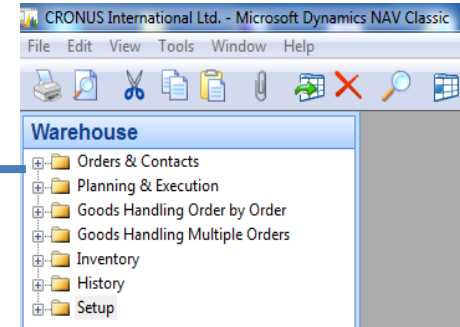
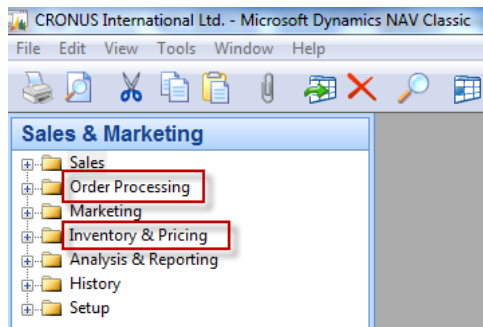
Purchase

- Planning
 - Items
 - Vendors
 - Requisition Worksheets
 - Recurring Req. Worksheet
 - Order Planning
 - Production Forecasts
 - Purchase Orders
 - Sales Orders
 - Blanket Sales Orders
 - Planned Production Orders
 - Firm Planned Prod. Orders
 - Transfer Orders
- Reports
- Documents
- Setup
- Order Processing
- Inventory & Costing
- Analysis & Reporting
- History
- Setup

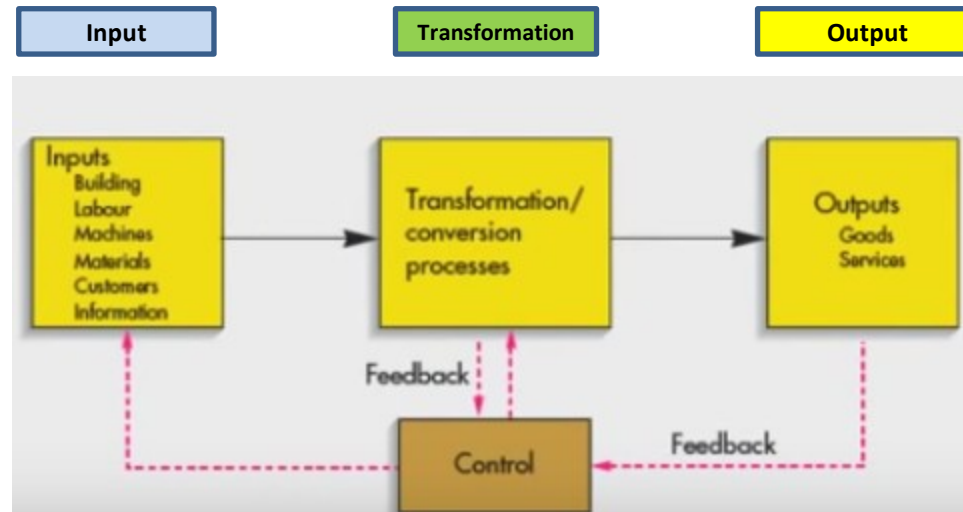
Function block Logistic-simplified



Will be part of our course regarding ERP system MS Dynamics NAV



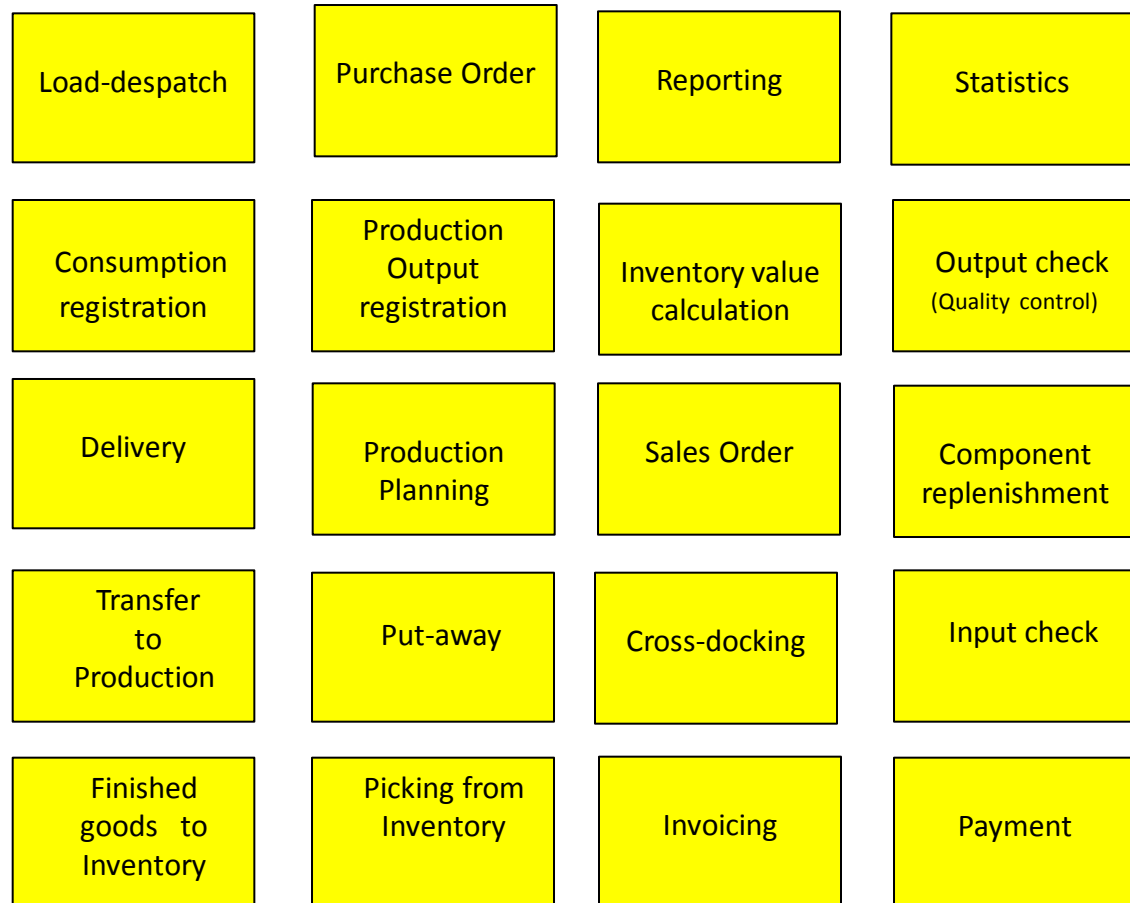
Procedures-simplified (feedback)



} Color agenda used later

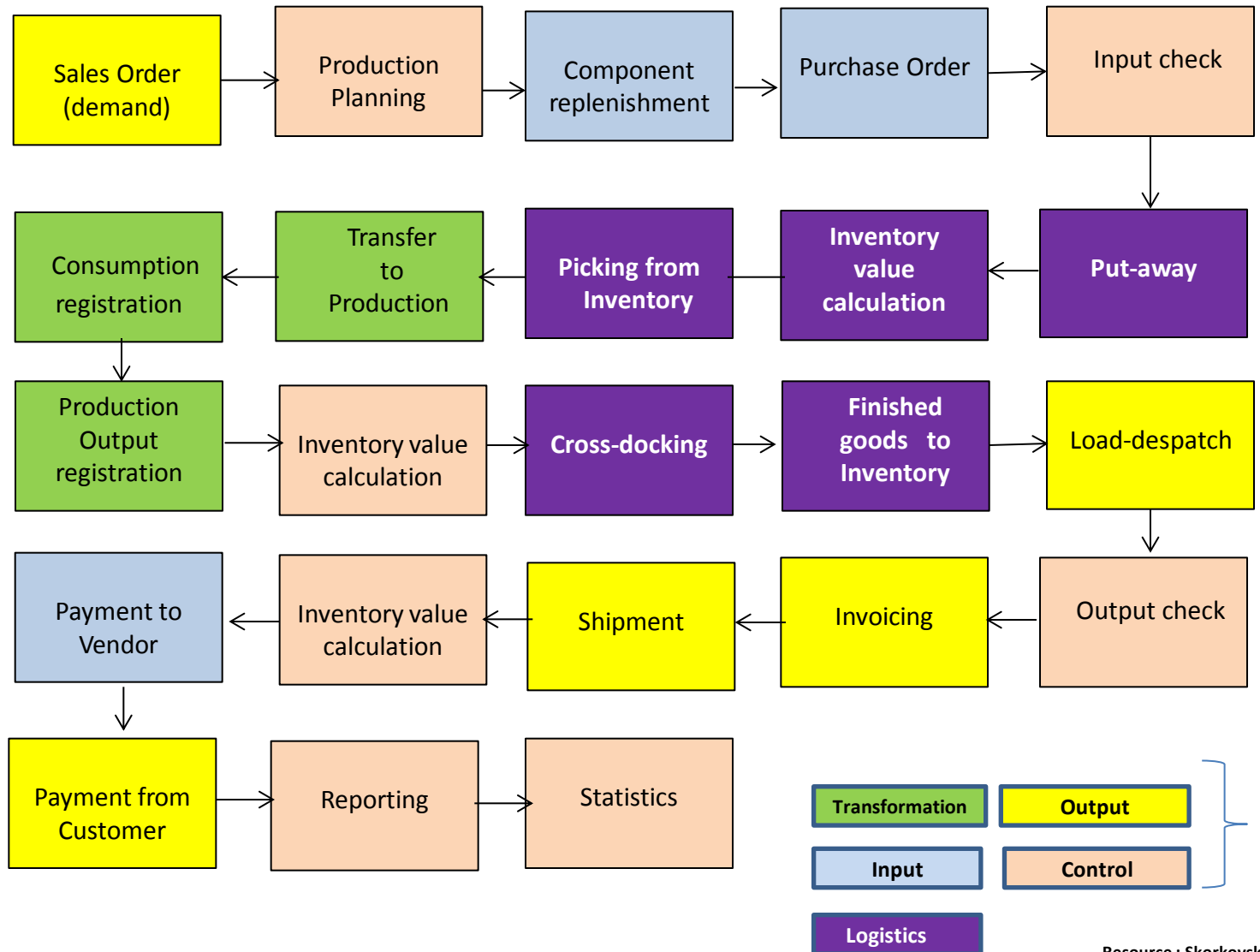
Processing

(not organised set of processes, will be presented also as a introduction to project management PWP presentation later)

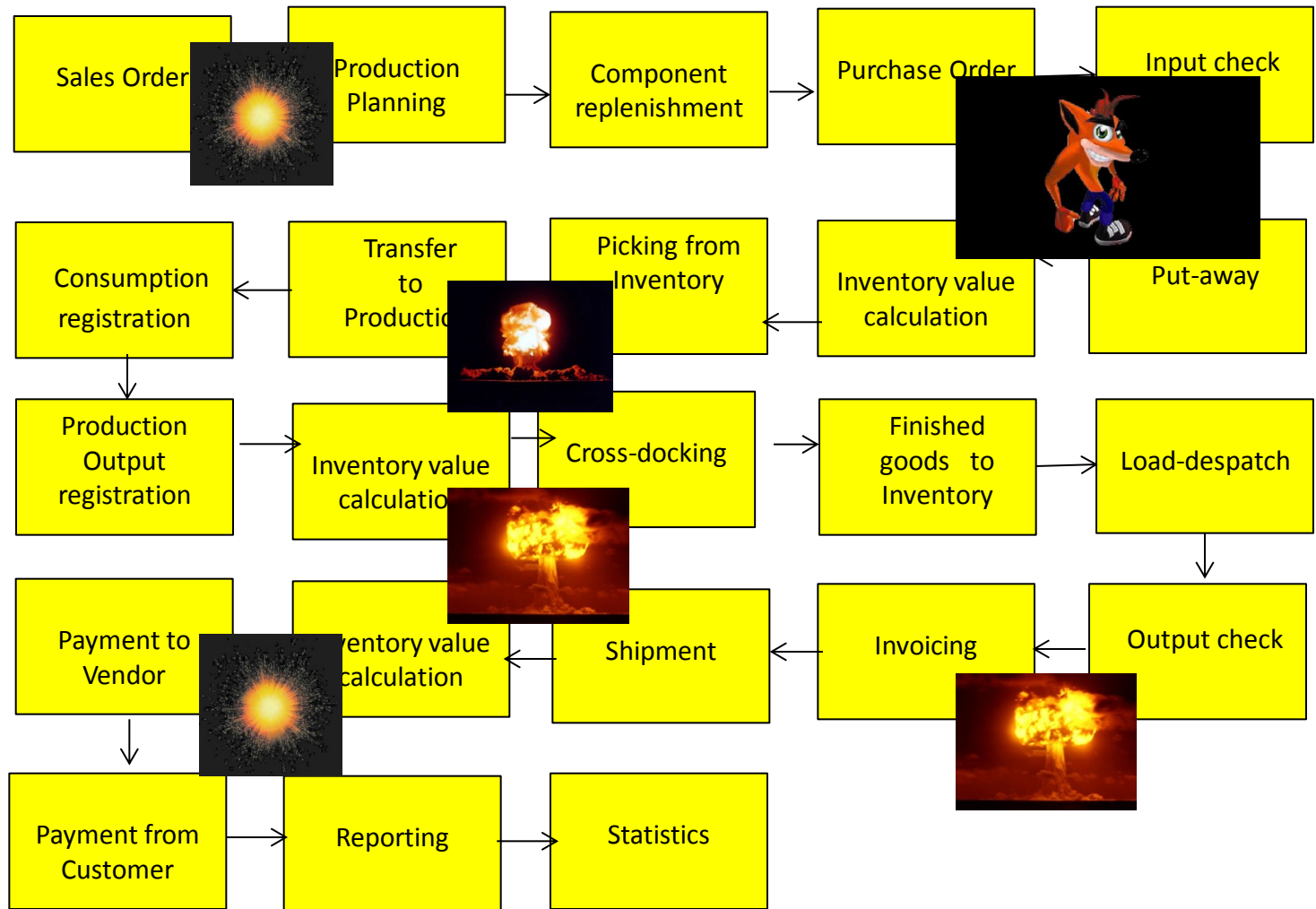


Your main task

(to organize processes based on business logic)



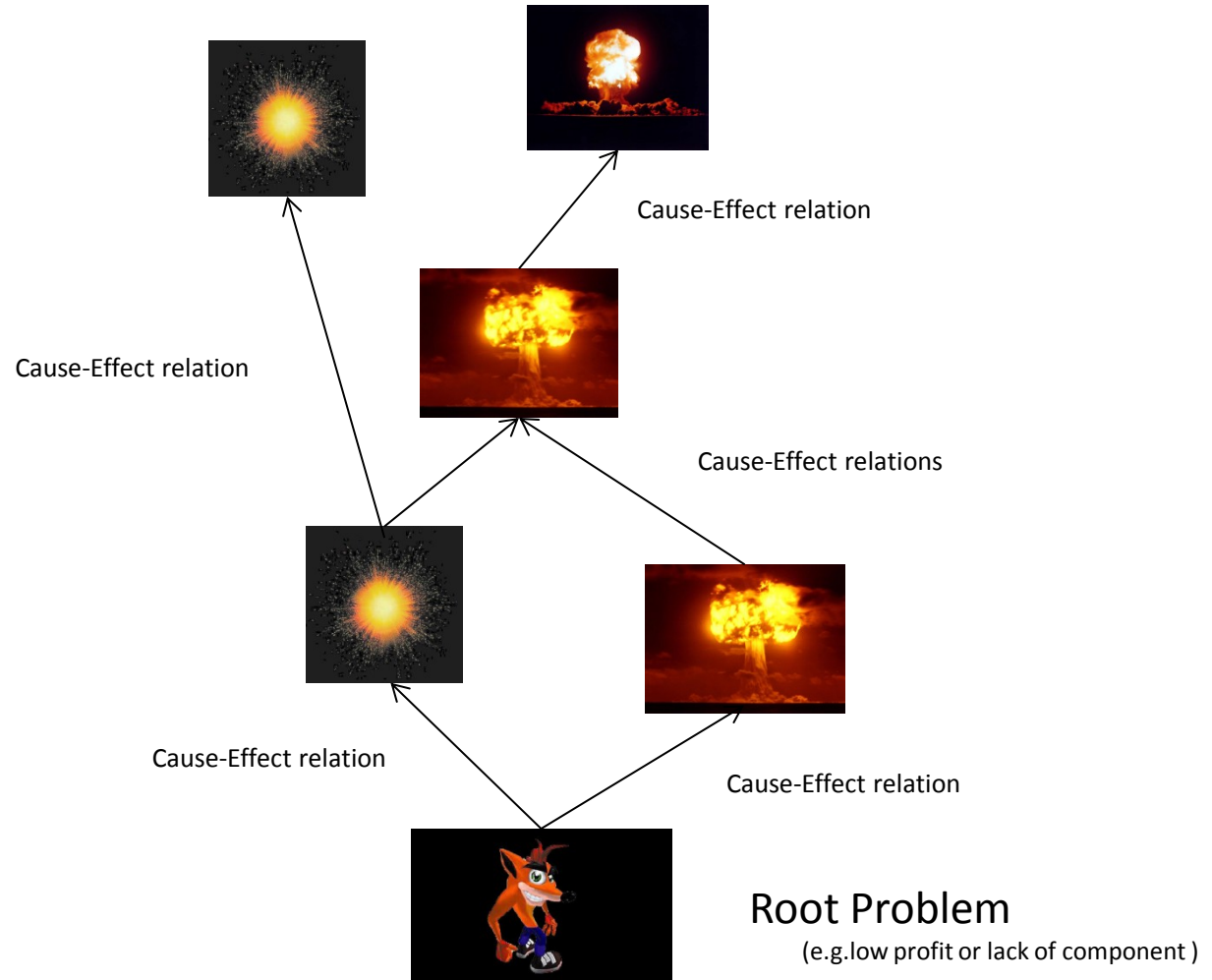
Your main task (possible problems, bottlenecks, undesirable effects..)



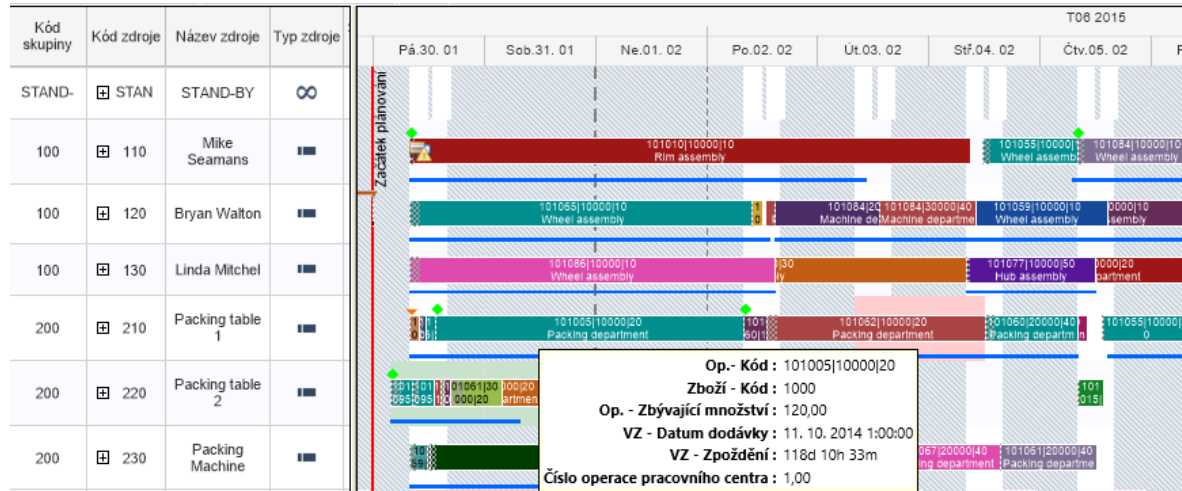
Application of TOC ->thinking tools->Current Reality Tree – first stage

Your main task

(Search - **HOW** ??? Measure impacts -**HOW** ??? and Destroy - **HOW** ???)



Basic problem I. (availability of components solved by product PlannerOne application)



Prod. Order Routing ▾

Type to filter (F3) Prod. Order No. ▾

Filter: Firm Planned • 101005 • 10000 • 10

| Operati... No. | Type | No. | Description | Starting Date-Time | Ending Date-Time | Setup Time | Run Time | Material Fixed Date |
|----------------|-------------|-----|---------------------|--------------------|------------------|------------|----------|---------------------|
| 10 | Work Center | 100 | Wheel assembly | 18. 8. 2014 14:41 | 22. 8. 2014 8:31 | 110 | 12 | 23. 8. 2014 0:00 |
| 20 | Work Center | 200 | Packing department | 27. 8. 2014 8:31 | 1. 9. 2014 14:46 | 15 | 15 | 10. 9. 2014 0:00 |
| 30 | Work Center | 300 | Painting department | 1. 9. 2014 14:46 | 4. 9. 2014 10:46 | 10 | 20 | |
| 40 | Work Center | 400 | Machine department | 4. 9. 2014 11:11 | 5. 9. 2014 12:21 | 10 | 8 | |

APS result ->18.8.->23.8. a 27.8.->10.9

Basic problem II-I. (over budget)

2012 - Budget

General Filters Options

Budget Name 2012 ↑

Show as Lines G/L Account ↑

Show as Columns Period ↑

| Code | Name | Budgeted Amount | 26.03.12 | 02.04.12 |
|-------------|--------------------------------------|-----------------|-----------------|----------|
| 8100 | Building Maintenance Expenses | | | |
| ▶ 8110 | Cleaning | 1 160,00 | 1 000,00 | |
| 8120 | Electricity and Heating | 1 120,00 | 1 000,00 | |
| 8130 | Repairs and Maintenance | 1 160,00 | 1 000,00 | |
| 8190 | Total Bldg. Maint. Expenses | 3 440,00 | 3 000,00 | |
| 8200 | Administrative Expenses | | | |
| 8210 | Office Supplies | 510,00 | 500,00 | |
| 8230 | Phone and Fax | 800,00 | 800,00 | |
| 8240 | Postage | 1 390,00 | 1 200,00 | |
| 8290 | Total Administrative Expenses | 2 700,00 | 2 500,00 | |
| 8300 | Computer Expenses | | | |
| 8310 | Software | 1 000,00 | 1 000,00 | |

1 7 31 3 12 ⋮ ⏪ ⏩ Balance Functions Help



Basic problem II-II. (over budget)

1015 London Postmaster - Purchase Invoice

General Invoicing Shipping Foreign Trade E-Commerce

No. 1015

Posting Date 26.03.12

Buy-from Vendor No. 10000

Document Date 26.03.12

Buy-from Contact No. CT000066

Vendor Invoice No. Miki-0983

Buy-from Vendor Name London Postmaster

Order Address Code.

Buy-from Address 10 North Lake Avenue

Purchaser Code RL

Buy-from Address 2

Campaign No.

Buy-from Post Code/City N12 5XY London

Responsibility Center LONDON

Buy-from Contact Mrs. Carol Philips

Assigned User ID

Status Open

| Type | No. | Description | Location Code | Quantity | Unit of Measure ... | Direct Unit Cost Excl... | Line Amount Excl. VAT | Line Disco... | Qty. to Assign |
|-------------|------|-------------------------|---------------|----------|---------------------|--------------------------|-----------------------|---------------|----------------|
| G/L Ac... | 8110 | Cleaning | | 10 | HOUR | 100,00 | 1 000,00 | | |
| G/L Ac... | 8120 | Electricity and Heating | | 20 | HOUR | 200,00 | 4 000,00 | | |
| G/L Ac... | 8130 | Repairs and Maintenance | | 30 | HOUR | 300,00 | 9 000,00 | | |
| G/L Ac... | 8210 | Office Supplies | | 10 | HOUR | 100,00 | 1 000,00 | | |
| G/L Ac... | 8230 | Phone and Fax | | 20 | HOUR | 200,00 | 4 000,00 | | |
| ▶ G/L Ac... | 8240 | Postage | | 30 | HOUR | 300,00 | 9 000,00 | | |

Invoice Line Functions Posting Help

* Basic problem II-III. (over budget)

G/L Balance/Budget

Options

Date Filter 01.03.12..31.03.12 Budget Filter 2012

Department Filter Closing Entries Include

Project Filter

| No. | Name | I... Debit Amount | Credit Amount | Balance/Budget (%) | Budgeted Debit Amount | Budgeted Credit Amount | Budgeted Amount |
|-------------|--------------------------------------|-----------------------|---------------|--------------------|-----------------------|------------------------|-----------------|
| 8100 | Building Maintenance Expenses | L... | | | | | |
| ▶ 8110 | Cleaning | I... 1 000,00 | | 100,0 | 1 000,00 | | 1 000,00 |
| 8120 | Electricity and Heating | I... 4 000,00 | | 400,0 | 1 000,00 | | 1 000,00 |
| 8130 | Repairs and Maintenance | I... 9 000,00 | | 900,0 | 1 000,00 | | 1 000,00 |
| 8190 | Total Bldg. Maint. Expenses | L... 14 000,00 | | 466,7 | 3 000,00 | | 3 000,00 |
| 8200 | Administrative Expenses | L... | | | | | |
| 8210 | Office Supplies | I... 1 000,00 | | 200,0 | 500,00 | | 500,00 |
| 8230 | Phone and Fax | I... 4 000,00 | | 500,0 | 800,00 | | 800,00 |
| 8240 | Postage | I... 9 000,00 | | 750,0 | 1 200,00 | | 1 200,00 |
| 8290 | Total Administrative Expenses | L... 14 000,00 | | 560,0 | 2 500,00 | | 2 500,00 |
| 8300 | Computer Expenses | L... | | | | | |
| 8310 | Software | I... | | | 1 000,00 | | 1 000,00 |

1 7 31 3 12 Account Functions Help

Other problems (examples which could be solved are mentioned in PWP Project activities (Činnosti spojené s projektem))

Tuition –plan-theory

- OM-intro – done (this slide show)
- Real project-South African client (wholesale)
- Theory of constraints
- Critical chain and project management
- Quality management I. (Pareto+ Ishikawa)
- Quality management II. (Six Sigma, Kaizen, Poka Yoke)
- Business metrics (use of matrices – Boston, Gartner MQ)
- Balanced Score Card
- DBR , CONWIP
- Decision making (Kepner-Tregoe methodology,..)
- P&Q analysis (mix of products)
- Business Intelligence – intro and concept
- Little´s law
- Yield management – intro to concept
- Linear programming – concept and use
- Business Intelligence
- Decision trees

Tuition –plan-ERP used in OM

- ERP basics (principles) and ERP handling and installation
- Purchase – basic parameters and impacts of parameter setting (Stock, General Ledger)
- Sale - basic parameters and impacts of parameter setting (Stock, General Ledger, Discounts)
- Inventory – basics
- Transfers of items
- Banking operations (posting and payments)
- Customer Relationship Management
- Basic tools used for analysis of created transactions