

# Operation Management (OM)

## Introduction

Ing.J.Skorkovský, CSc,  
Department of Corporate Economy  
FACULTY OF ECONOMICS AND ADMINISTRATION  
Masaryk University Brno  
Czech Republic

# Coordinates

- **Lecturer** : Ing.Jaromír Skorkovský, CSc.
  - Department of Corporate Economy (5th floor)
  - [miki@econ.muni.cz](mailto:miki@econ.muni.cz)
  - +420 731113517
- **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

# Studijní materiály

Adresa v ISU: [Smazat](#) /rel/1456/jaro2017/MPH\_RIOP/ Použit

Jiný předmět z **podzim 2015**: [BPH\\_PIS2](#), [MPH\\_AOMA](#), [MPH\\_AOMA](#), [MPH\\_AOPR](#); **jaro 2016**: [BKH\\_TEBP](#), [BPH\\_EPS1](#), [BPH\\_EPS1](#), [BPH\\_PIS1](#), [BPH\\_TEBP](#), [MKH\\_RIOP](#), [MPH\\_EKIS](#), [MPH\\_RIOP](#), [MPH\\_RIOP](#), [MPH\\_TEDP](#); **podzim 2016**: [BKH\\_TEBP](#), [BPH\\_PIS2](#), [BPH\\_TEBP](#), [MKH\\_TEDP](#), [MPH\\_AOMA](#), [MPH\\_AOMA](#), [MPH\\_TEDP](#); **jaro 2017**: [BPH\\_EPS1](#), [BPH\\_EPS1](#), [BPH\\_PIS1](#), [BPH\\_TEBP](#), [MKH\\_RIOP](#), [MKH\\_TEDP](#), [MPH\\_EKIS](#), [MPH\\_RIOP](#), [MPH\\_RIOP](#), [MPH\\_TEDP](#)

## ESF:MPH\_RIOP Řízení operací (jaro 2017)

V jiném semestru: [jaro 2017](#), [jaro 2016](#), [jaro 2015](#), [jaro 2014](#), [jaro 2013](#), [jaro 2012](#), [jaro 2011](#), [jaro 2010](#)

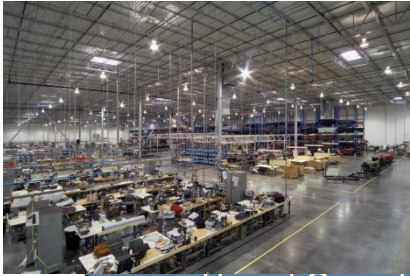
Operace

Složka či soubor	Vložil/a	Vloženo
Studijní materiály předmětu ESF:MPH_RIOP /MPH_RIOP/		18. 4. 2016
/10 MPH_RIOP_2017_Učební materiály /um/	Skorkovský, J.	20. 2. 2017
/1 Odpovědníky /odp/		25. 4. 2015
/0 Odevzdávány /odel/		25. 4. 2015
/1 Organizační pokyny /opl/		25. 4. 2015
Balanced Scorecard nově doplněno 2.5.2016 Balanced_S...50612.pptx	Skorkovský, J.	2. 5. 2016
Basic ERP architecture Basic_ERP_architecture_20160211.ppt	Skorkovský, J.	22. 2. 2016
Boston matrix calculation Boston_matrix_calculation_20160429.xlsx	Skorkovský, J.	2. 5. 2016
Boston matrix Boston_matrix_UK_20140402.ppt	Skorkovský, J.	2. 5. 2016
Business Intelligence for ESF_MU Business_I...160506.ppt	Skorkovský, J.	6. 5. 2016
Cinnosti spojene_s projektem Cinnosti_spojene_s_projektem_20160226.ppt	Skorkovský, J.	29. 2. 2016
Dimensions_simplified Dimensions_simplified_2015.ppt	Skorkovský, J.	6. 5. 2016
Drum_Buffer_Rope Drum_Buffer_Rope_ENG_20160506.ppt	Skorkovský, J.	6. 5. 2016
Functional keys MS Dynamics NAC 2009 Classic 20160310 Functional...60310.pptx	Skorkovský, J.	10. 3. 2016
Gartner Magic Quadrant Tool Gartner_Magic_Quadrant_Tool_20130418.pptx	Skorkovský, J.	2. 5. 2016

# Nahráná videa

- Business Intelligence (OLAP)
- Drum-Buffer-Rope (řízení s pomocí úzkého místa a zpětné vazby)
- Balance Scorecard (využití v praxi)
- Metoda Kepner –Tregoe (detekce problému a rozhodování)
- P&Q mix dvou produktů z průtokového pohledu (aplikace TOC principů)

# What is going on ?

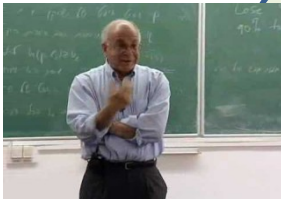
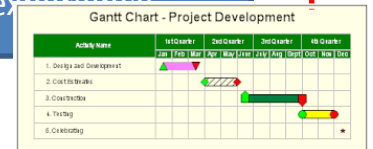


Use of Operations Management (OM) in external environment  
**(main target)**



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

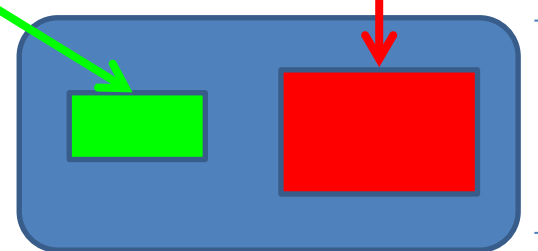
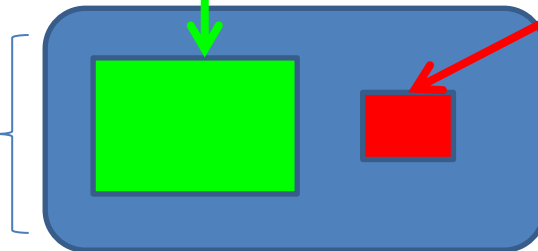
$$= \frac{\sum_{x_1} f_1(x_1) f_2(x_2, x_1)}{\sum_{x_1} f_1(x_1) \sum_{x_2} f_2(x_2, x_1)}$$



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

The screenshot displays the Microsoft Dynamics NAV 2009 interface. The main window is titled "CRONUS International Ltd. - Microsoft Dynamics NAV Classic". The left-hand navigation pane shows the "Financial Management" menu, which includes options like "General Ledger", "Chart of Accounts", "Budgets", "General Journals", "Analysis & Reporting", "Intercompany Postings", "Reports", "History", "Periodic Activities", "Cash Management", "Receivables", "Payables", "Fixed", "Inventory", and "Setup".

The central window displays the "Chart of Accounts" table. The table has columns for "No.", "Name", "Income/Balance", "Account Type", "Totaling", "G... G... G... Net Change", and "Balance". The data includes entries for "Job Sales", "Total Sales of Jobs", "Consulting Fees - Dom.", "Fees and Charges Rec. - Dom.", "Discount Granted", "Sales of Service Contracts", "Service Contract Sale", "Total Sale of Serv. Contracts", "Total Revenue", and "Cost".

Overlaid on the interface is a large red 3D-style text that reads "MS Dynamics NAV 2009".

Below the main window, there is a smaller window titled "6110 Sales, Retail - Dom. - General Ledger Entries" showing a list of transactions with columns for "Posting Date", "Document Type", "Document No.", "G/L Account No.", "Description", "Department Code", "G... G... G... Amount", "Bal. A... Bal. T... Account No.", and "Entry No.". The entries include "Credit Memo", "Invoice", and "Credit Memo" for various dates in 2012.

Overlaid on the bottom right is a "103018 The Cannon Group PLC - Posted Sales Invoice" form. The form has tabs for "General", "Invoicing", "Shipping", "Foreign Trade", and "BizTalk". The "General" tab is active, showing fields for "No." (103018), "Posting Date" (18.01.12), "Document Date" (18.01.12), "Sell-to Customer No." (10000), "Sell-to Contact No." (CT000001), "Sell-to Customer Name" (The Cannon Group PLC), "Sell-to Address" (192 Market Square), "Sell-to Post Code/City" (B27 4KT, Birmingham), "Sell-to Contact" (Mr. Andy Teal), "Order No." (6005), "Salesperson Code" (PS), and "Responsibility Center" (BIRMINGHAM). At the bottom, there is a table of line items:

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	

Buttons at the bottom of the invoice form include "Invoice", "Line", "Functions", "Print...", "Navigate", and "Help".



# Some basic processes controlled by ERP – I.

102032 · Autohaus Mielberg KG

49633663 · Autohaus Mielberg KG

Obecné

Číslo: 49633663 ...

Název: Autohaus Mielberg KG

Registovaný název:

Adresa: Porschestraße 911

Adresa 2:

PSČ: DE-22417

Město: Hamburk 36

Kód země/oblasti: DE

Telefonní číslo:

Č. primárního kontaktu:

Kontakt:

Vyhledávací název: AUTOHAUS MIELBERG KG

Saldo (LM): 6 754 876,68

Maximální úvěr (LM): 0,00

Saldo (LM) jako dodavatel: 0,00

Splatné saldo (LM): 6 754 876,68

Zálohy (LM): 0,00

Kód prodejce: JM

Centrum odpovědnosti:

Kód zóny servisu: X

Uzavřeno:

Změněno dne: 2.12.2016

Typ	Číslo	Popis	Kód lokace	Množství	Kód měrné jednotky	Fakturované množství	Plánované datum d...	Plánované datum o...	Datum odeslání
Zboží	1896-S	Stůl ATÉNY	ČERVENÝ	6	KS		24.1.2016	24.1.2016	24.1.2016
Zboží	1906-S	Mobilní podstavec ATÉNY	ČERVENÝ	6	KS		24.1.2016	24.1.2016	24.1.2016

Filtr: 1906-S · ČERVENÝ

Zúčt... datum	Typ polož...	Typ dokladu	Číslo dokladu	Číslo zboží	Popis	Kód lokace	Množství	Fakturované množství
16.1.2016	Prodej	Prodejní dodávka	102021	1906-S		ČERVENÝ	-1	-1
24.1.2016	Prodej	Prodejní dodávka	102032	1906-S		ČERVENÝ	-6	0
31.12.2015	Příjem		POČÁTEK	1906-S		ČERVENÝ	63	63

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.

Úpravy - Statistika výrobní zakázky - 1011004 · Bicykl

DOMOVSKÁ STRÁNKA

CRONUS CZ s.r.o.

Pohled Úpravy Aktualizovat Vymazat filtr

Spravovat Stránka

→ Přejít na  
← Předchozí  
▶ Další

1011004 · Bicykl

Obecné

	Pevná pořizovací cena	Očekávané náklady	Skutečné náklady	Odch.%	Odchylka
Náklady na materiál:	3 229,95	3 229,95	0,00	-100	-3 229,95
Náklady na kapacitu:	276,00	276,00	0,00	-100	-276,00
Náklady subdodavatele:	0,00	0,00	0,00	0	0,00
Kapacitní rež.nákl.:	0,00	0,00	0,00	0	0,00
Výrobní rež.nákl.:	0,00	0,00	0,00	0	0,00
Náklady celkem:	3 505,95	3 505,95	0,00	-100	-3 505,95
Potřebná kapacita:	MINUTY	695	0	-100	

Ok

Prod. BOM Component Functions 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"/>									

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

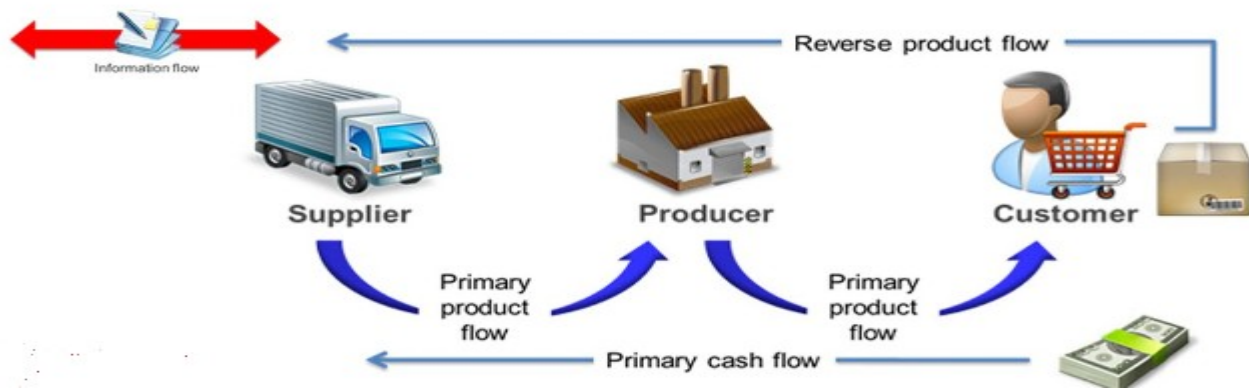
- Item Card
- Availability (-46)
- Substitutions (0)
- Sales Prices (0)
- Sales Line Di... (0)

Order Line Functions Posting Print Help

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

# Controlling processes in Supply Chain Management (SCM)

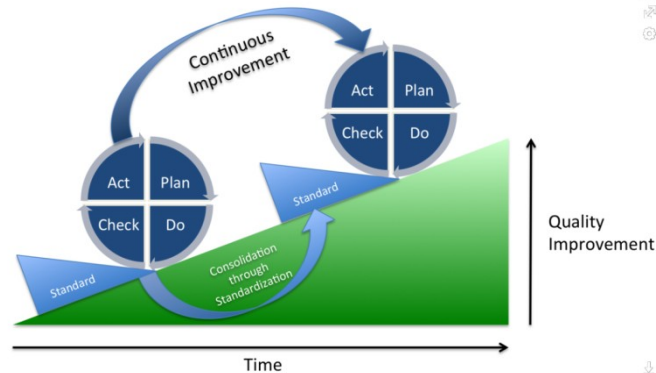
		Supply	Production	Orders (Demands)	
Planning levels { Strategic Tactical Operational Operational	Strategic	← Operation Strategies and Innovations , R&D →			Demand Planning
	Tactical	Forecasts, Blank Orders	Long term planning	Marketing	
	Operational	Logistic operations	Routing control, TQM	Packaging , 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

**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 'Reserve' is set to 'Optional'.

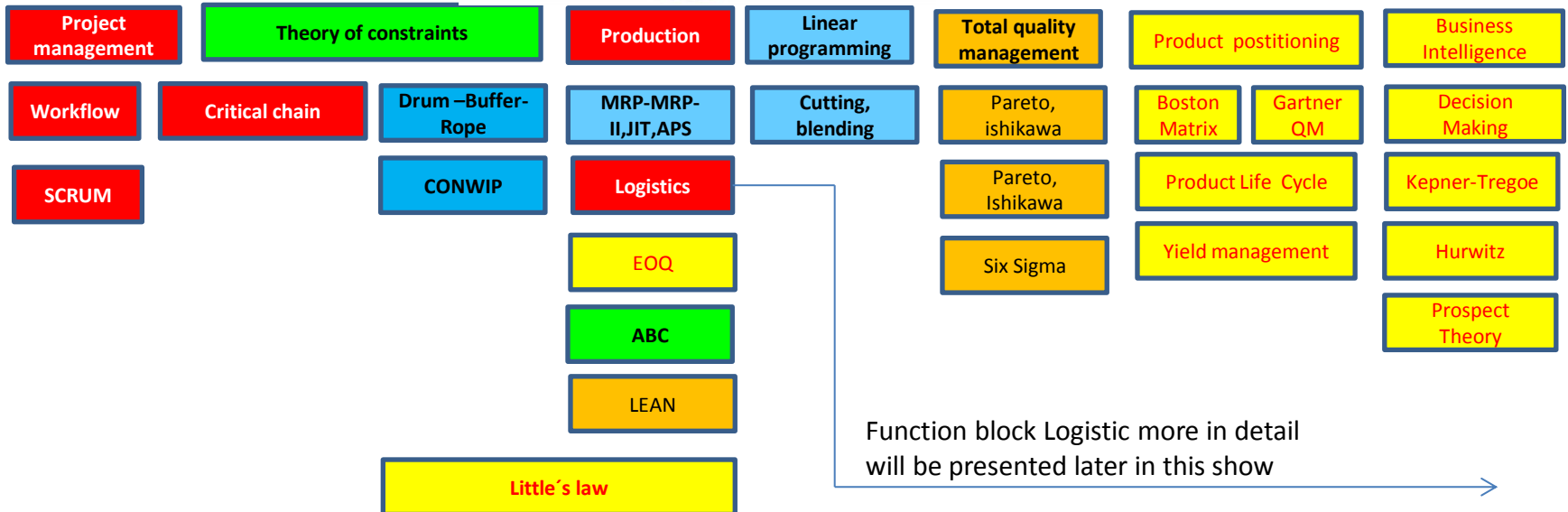
Field	Value
Reordering Policy	Fixed Reorde...
Include Inventory	<input checked="" type="checkbox"/>
Reserve	Optional
Order Tracking Policy	None
Stockkeeping Unit Exists	<input type="checkbox"/>
Critical	<input type="checkbox"/>
Reorder Cycle	
Safety Lead Time	
Safety Stock Quantity	10
Reorder Point	30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

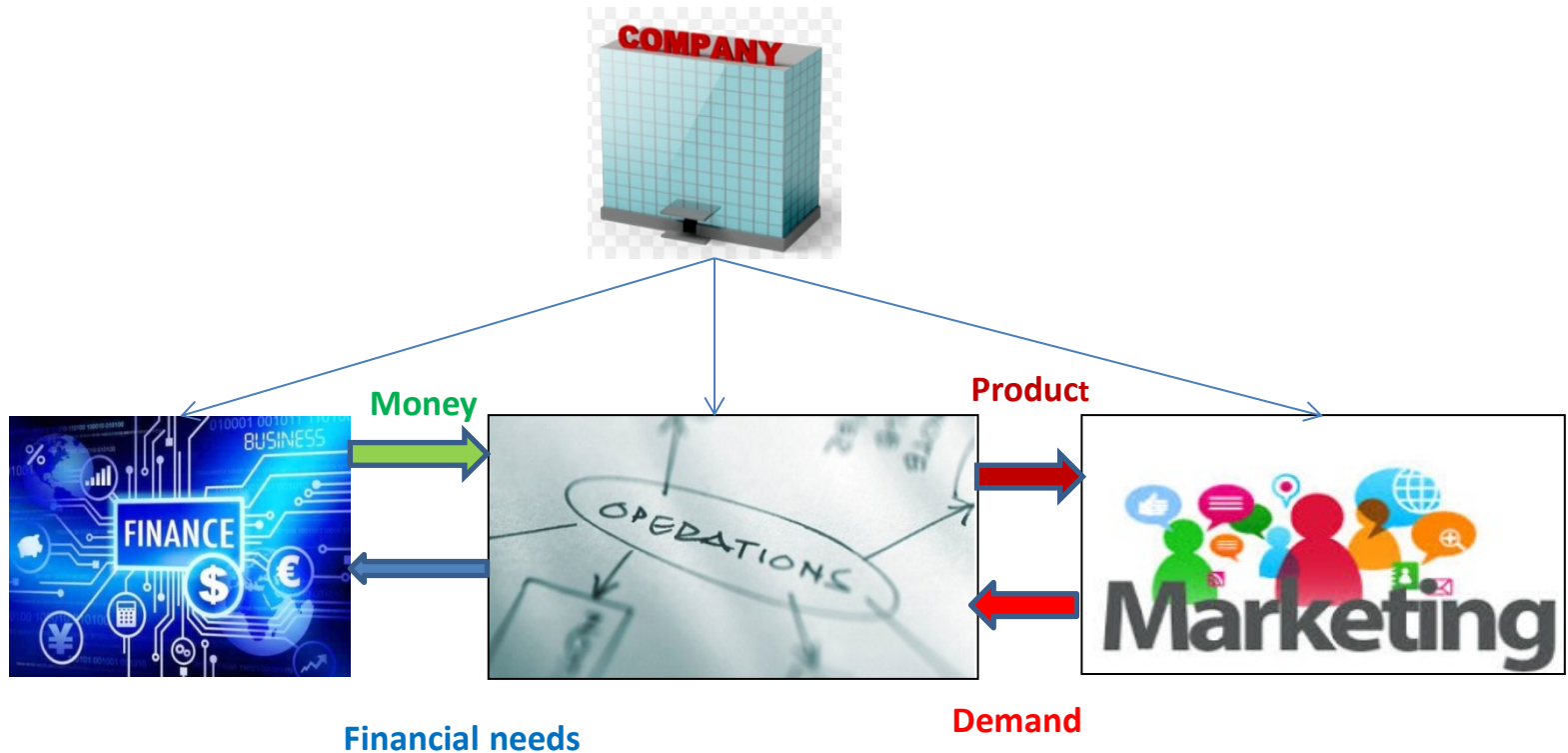
# Another point of view



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

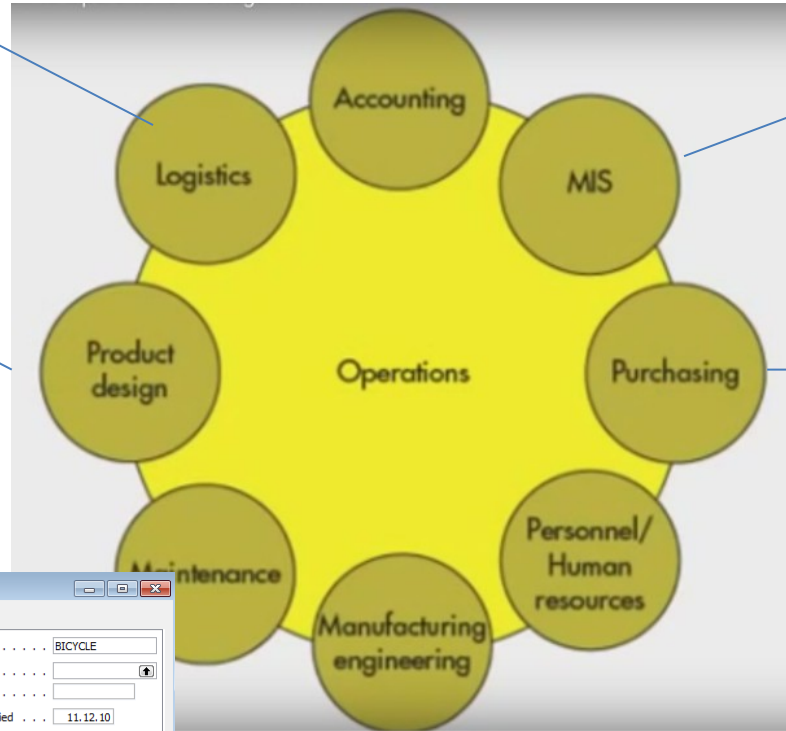


# Another point of view



# 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](#)

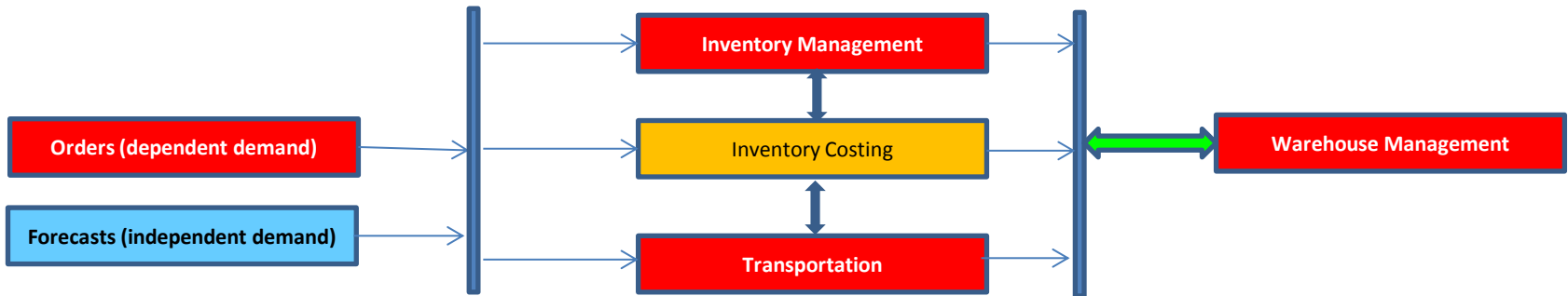
Warning: This computer program is protected by copyright law and international treaties.

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.

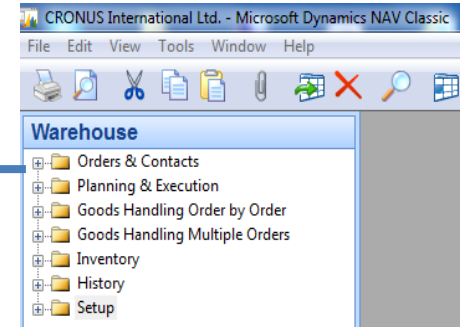
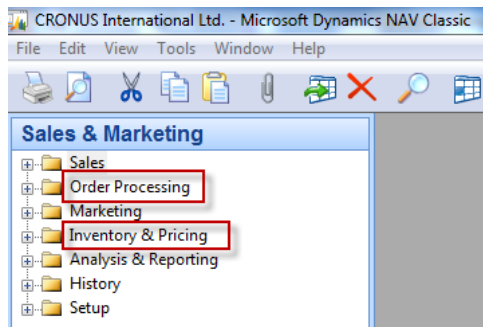
**Purchase**

- 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

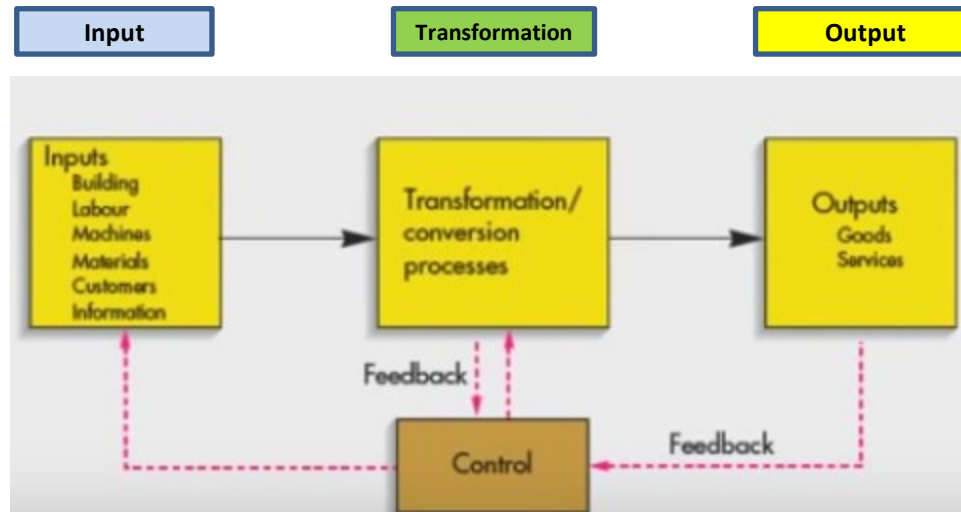
# Function block Logistic-simplified



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



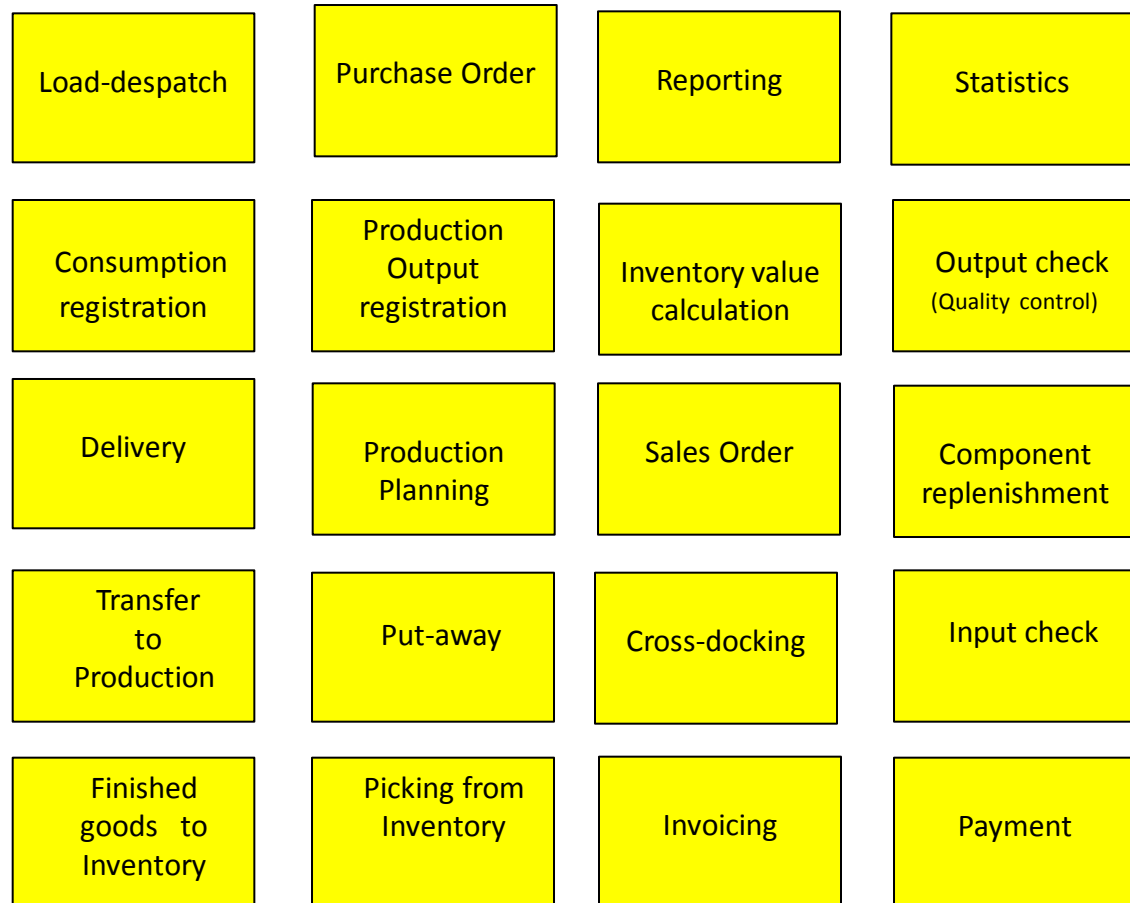
# Procedures-simplified



} Color agenda used later

# Processing

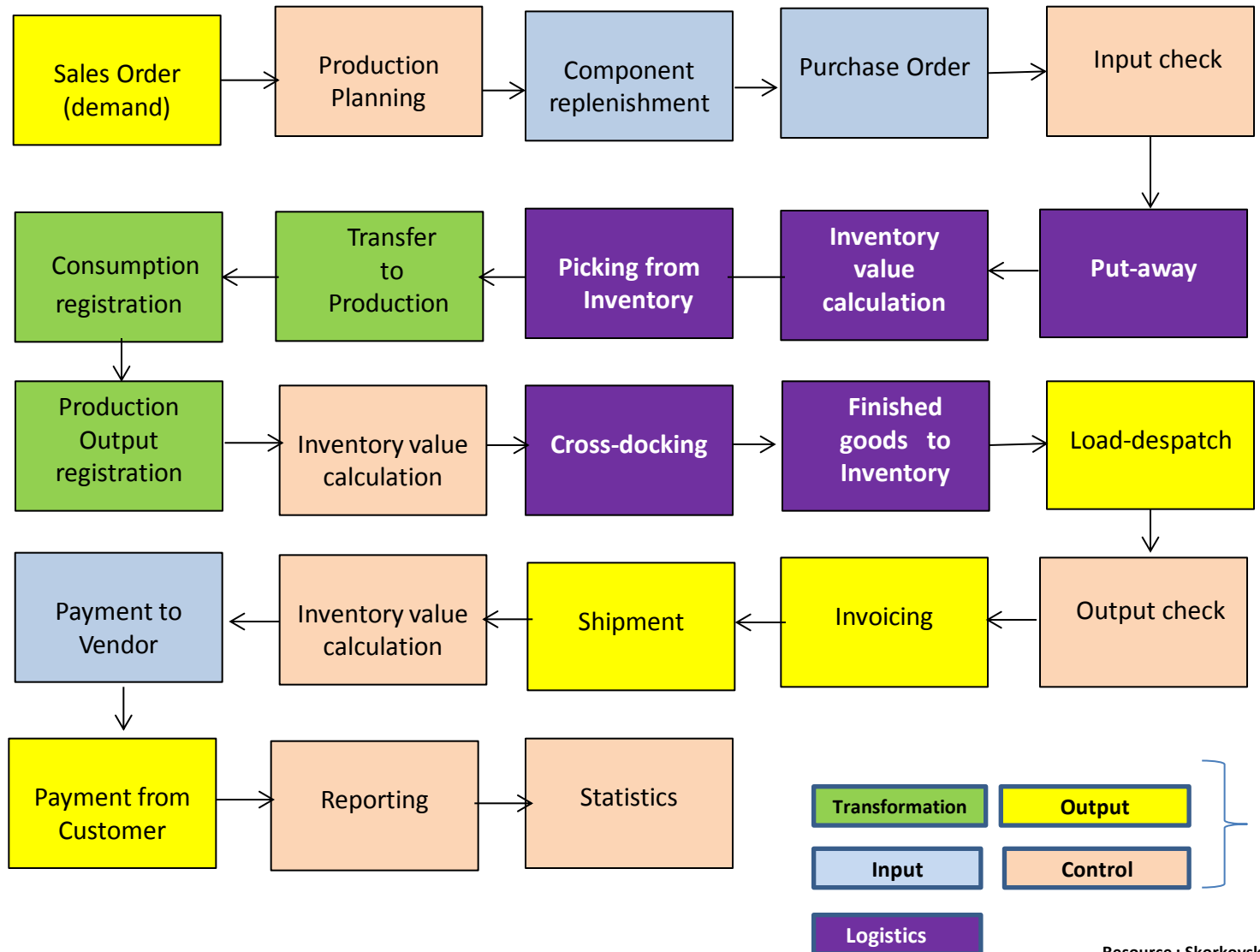
(not organised set of processes, will be presented also as a introduction to project management PWP presentation later)



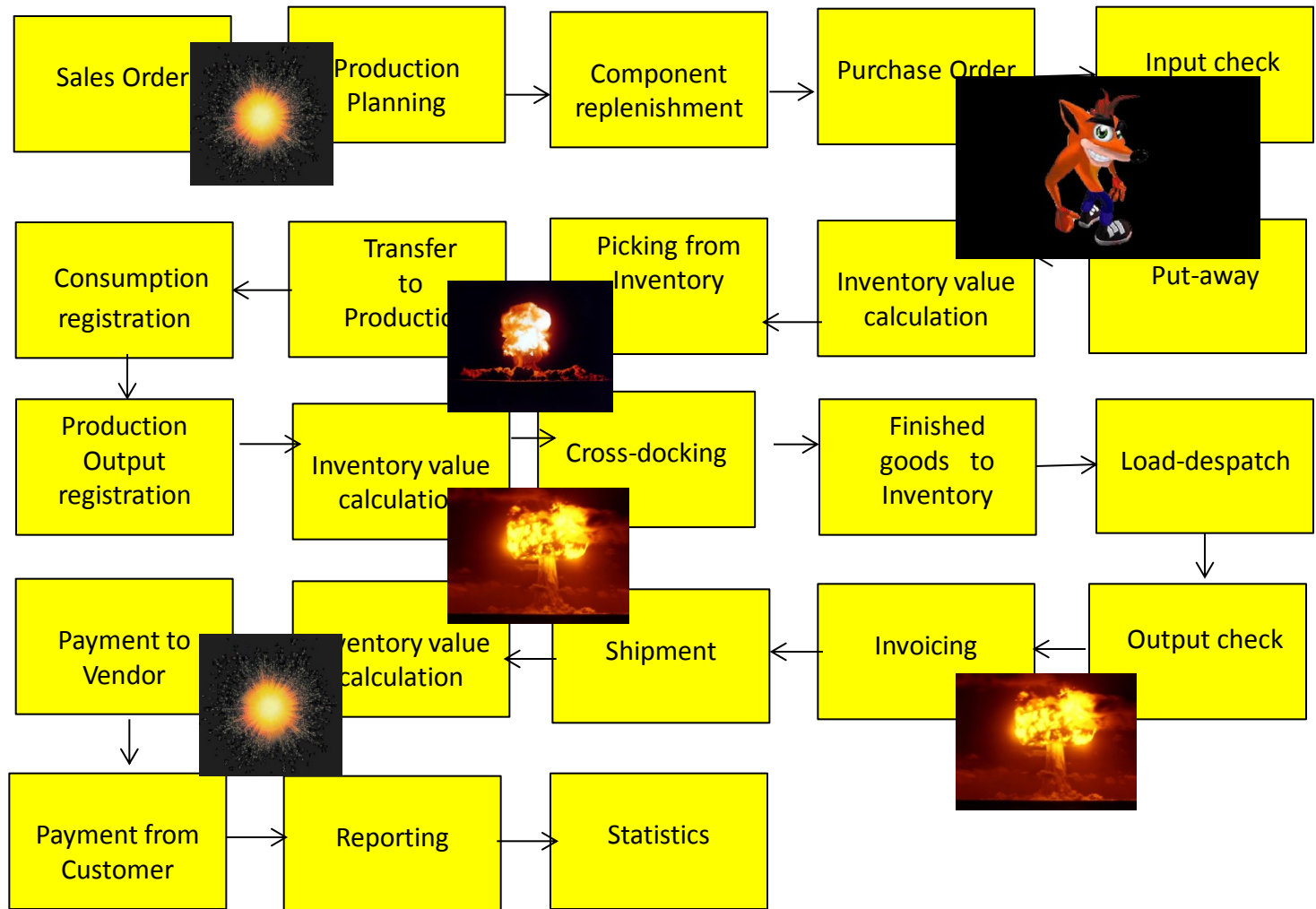


# Your main task

(to organize processes based on business logic)



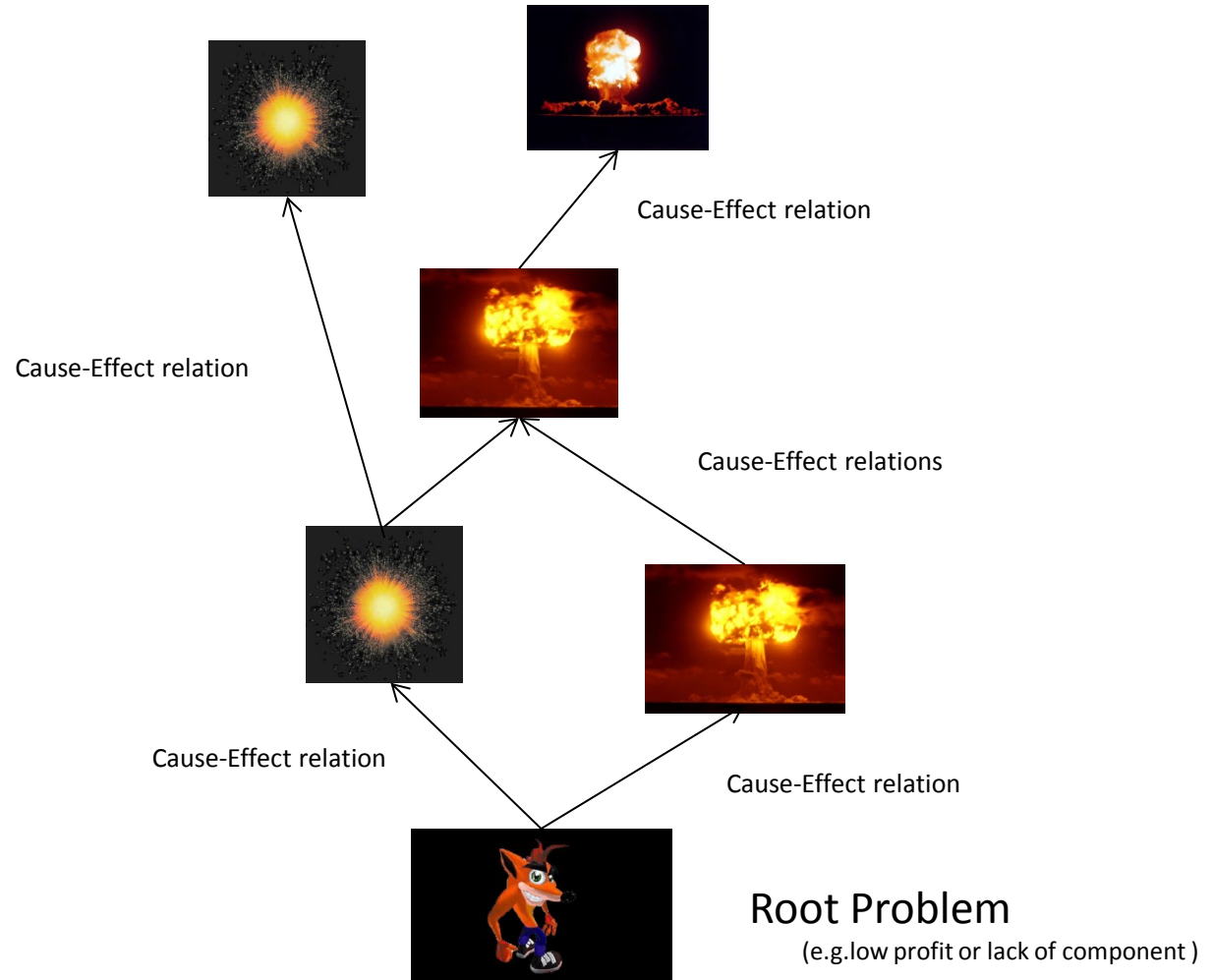
# Your main task (possible problems, bottlenecks, undesirable effects..)



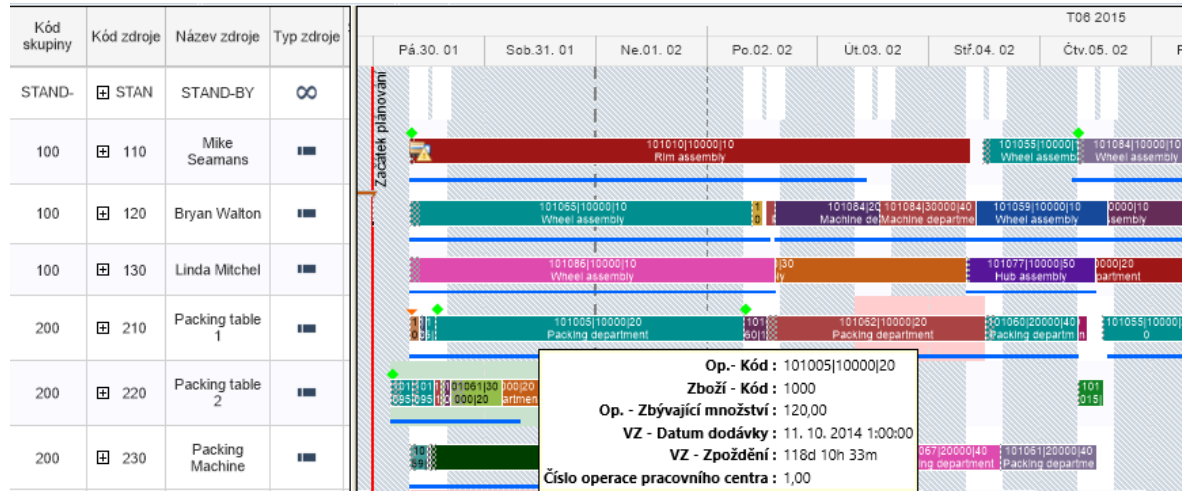
Application of TOC ->thinking tools->Current Reality Tree – first stage

# 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
<b>8100</b>	<b>Building Maintenance Expenses</b>			
▶ 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	
<b>8190</b>	<b>Total Bldg. Maint. Expenses</b>	<b>3 440,00</b>	<b>3 000,00</b>	
<b>8200</b>	<b>Administrative Expenses</b>			
8210	Office Supplies	510,00	500,00	
8230	Phone and Fax	800,00	800,00	
8240	Postage	1 390,00	1 200,00	
<b>8290</b>	<b>Total Administrative Expenses</b>	<b>2 700,00</b>	<b>2 500,00</b>	
<b>8300</b>	<b>Computer Expenses</b>			
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		

**Generation or the real costs**

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
<b>8100</b>	<b>Building Maintenance Expenses</b>	<b>L...</b>						
▶ 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
<b>8190</b>	<b>Total Bldg. Maint. Expenses</b>	<b>L...</b>	<b>14 000,00</b>		<b>466,7</b>	<b>3 000,00</b>		<b>3 000,00</b>
<b>8200</b>	<b>Administrative Expenses</b>	<b>L...</b>						
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
<b>8290</b>	<b>Total Administrative Expenses</b>	<b>L...</b>	<b>14 000,00</b>		<b>560,0</b>	<b>2 500,00</b>		<b>2 500,00</b>
<b>8300</b>	<b>Computer Expenses</b>	<b>L...</b>						
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
-



# Tuition –plan-ERP used in OM (not for MKH\_RIOP)

- 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