ERP Project Activities
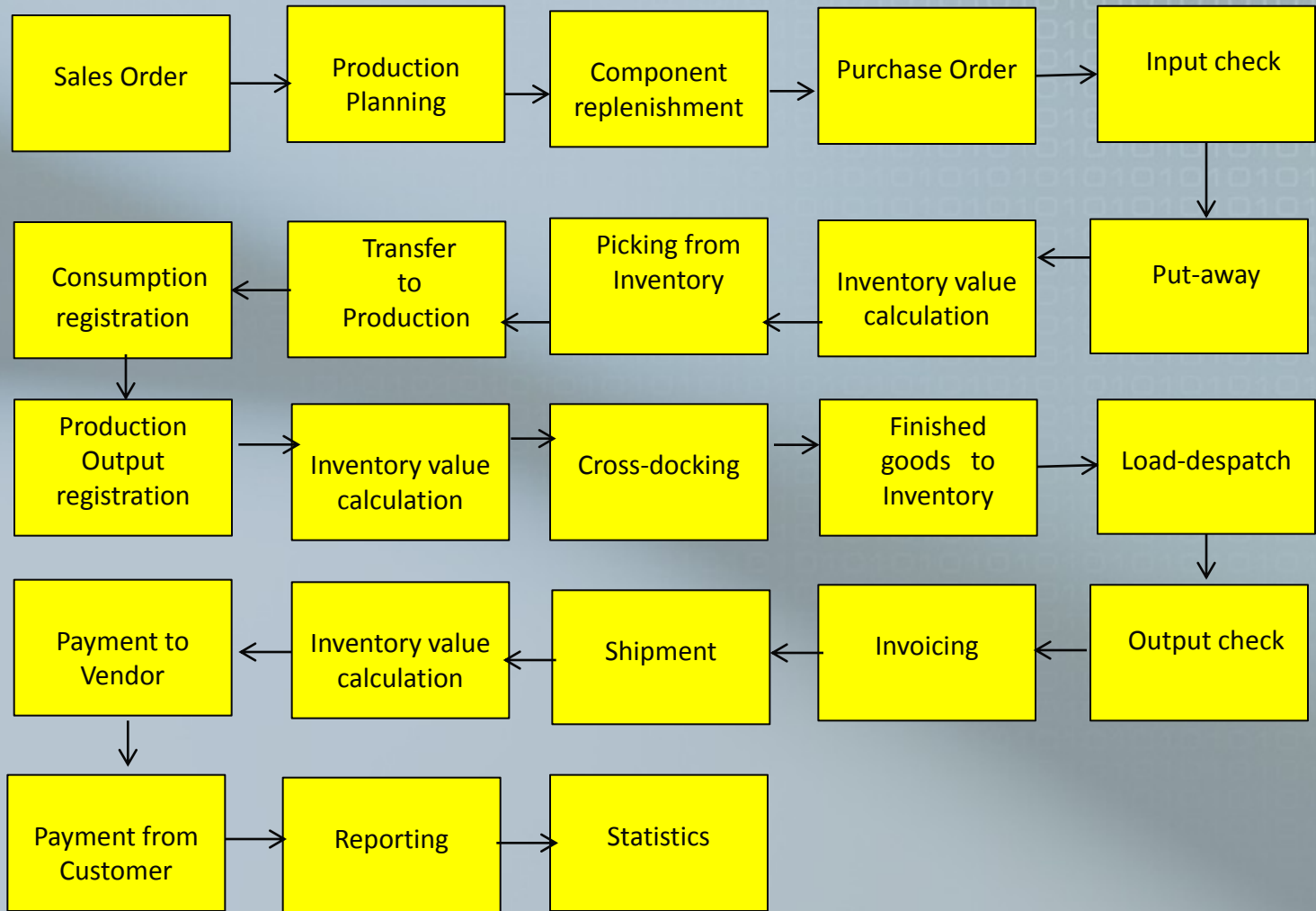
Skorkovský, ESF MU, Department of Business Economics , version 20120919

Your main task (not organised set of processes)
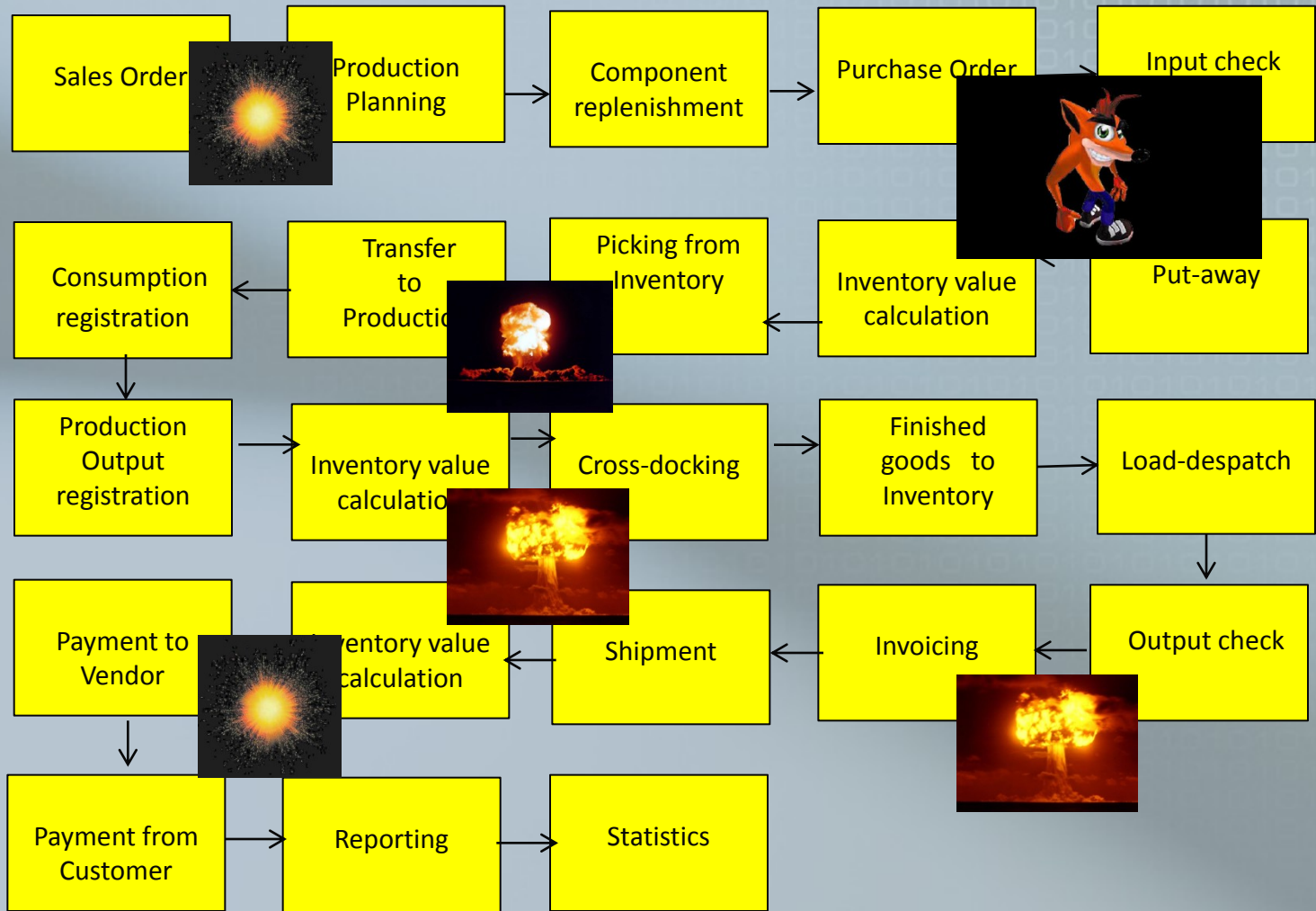
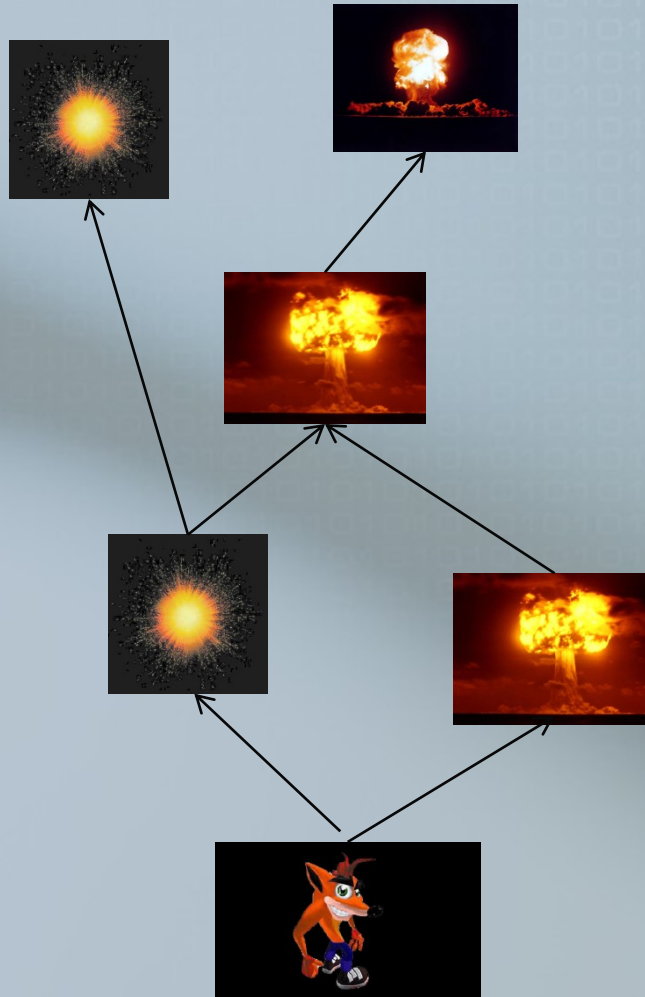|			
Load-despatch	Purchase Order	Reporting	Statistics
Consumption registration	Production Output registration	Inventory value calculation	Output check
Delivery	Production Planning	Sales Order	Component replenishment
Transfer to Production	Put-away	Cross-docking	Input check
Finished goods to Inventory	Picking from Inventory	Invoicing	Payment

Your main task (organised set of processes)

Sales Order →	Production Planning →	Component replenishment →	Purchase Order →	Input check ↓
Consumption registration ←	Transfer to Production ←	Picking from Inventory ←	Inventory value calculation ←	Put-away
Production Output registration →	Inventory value calculation →	Cross-docking →	Finished goods to Inventory →	Load-despatch ↓
Payment to Vendor ←	Inventory value calculation ←	Shipment ←	Invoicing ←	Output check
Payment from Customer →	Reporting →	Statistics		

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

Your main task

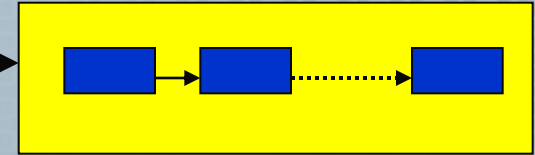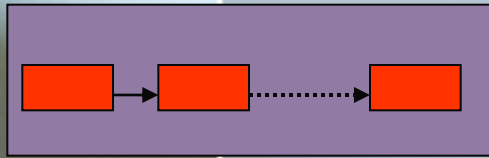# Methods (not sorted so far)

- Theory of Constraints
- Critical Chain
- Ishikawa Fishbone Diagram (Quality management)
- Pareto Analysis (ABC and stock)
- OLAP (On-Line Analytic Processing)
- Kepner –Tregoe method
- MaxMax and MaxMin (Hurwitz)
- SWOT
- ERP Statistics and reporting
- Little´s law
- Balanced Scorecard
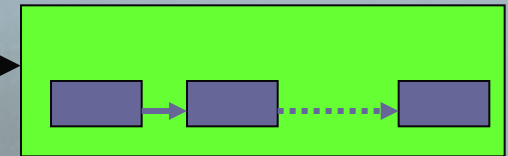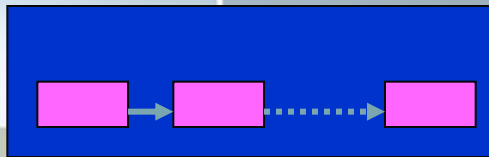- And many, many more…..

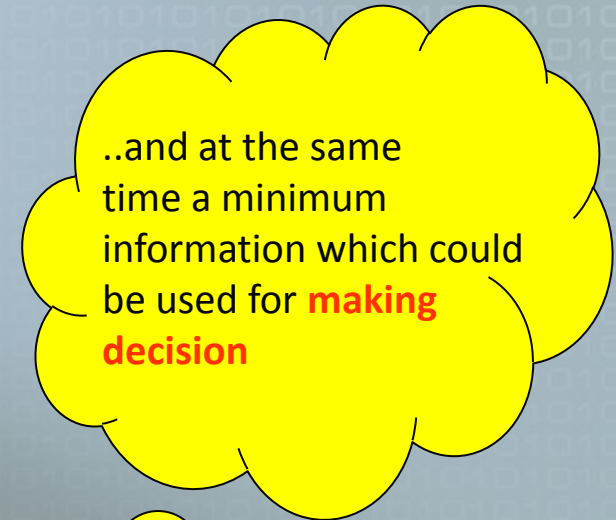# Simplified diagram of ERP usage
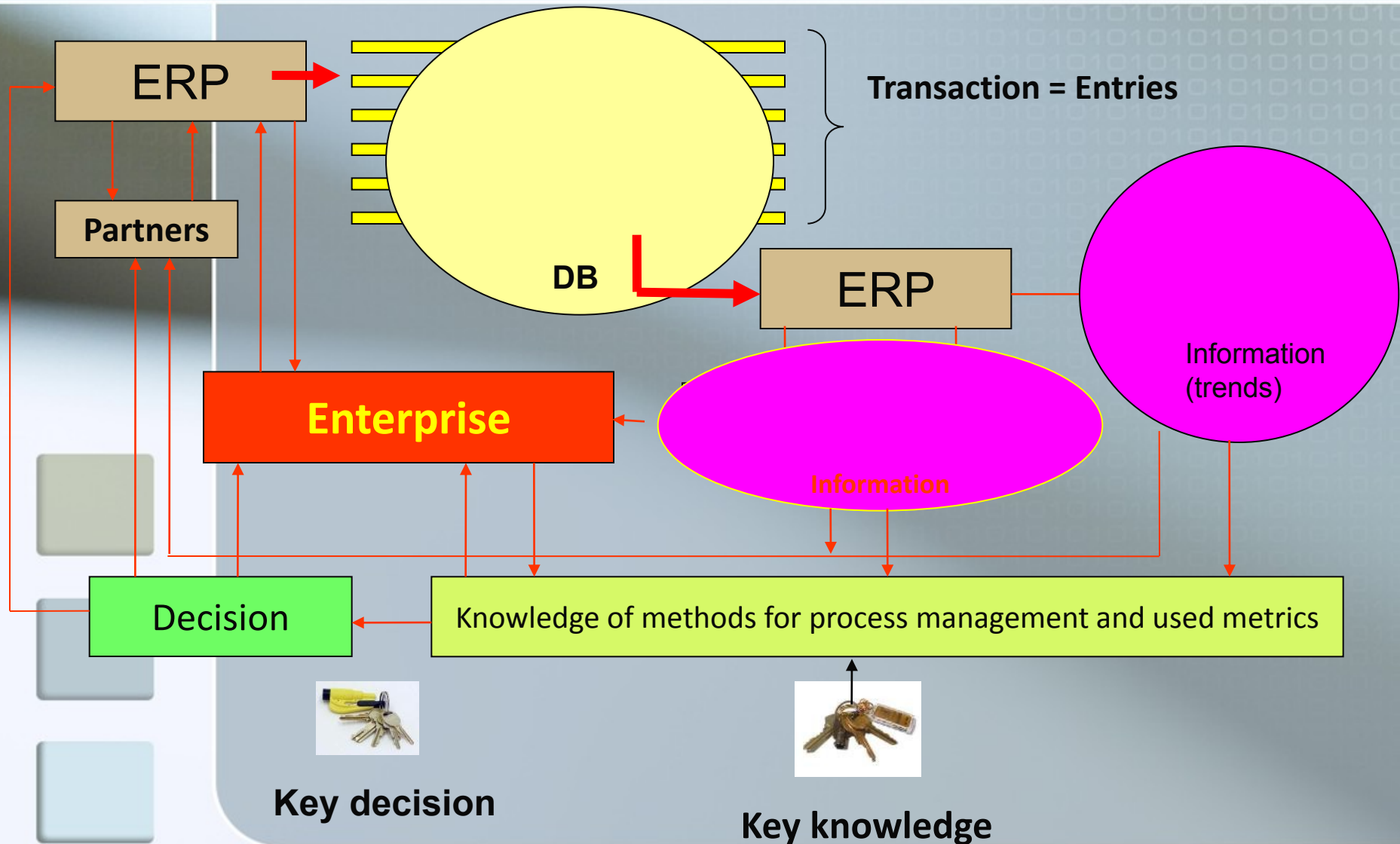
Purchase

Sales

Processes

Quotes->Net change calculation->
->Order->Vendor batch tracking e->
->Input Quality check->Receive, Put-away->
->Invoicing

Orders->Sub-Load and Load->
->Batch tracking
->Output Quality check->Picking ->Shipment
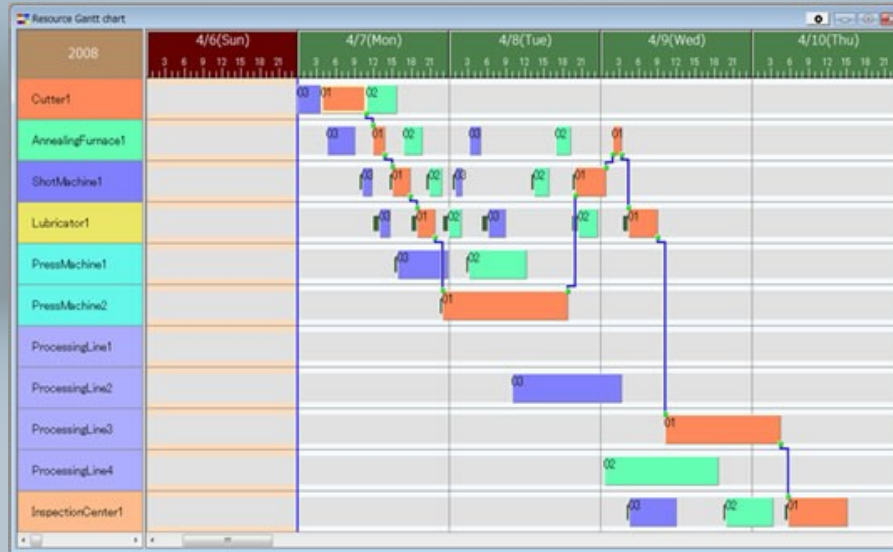-> Invoicing -> Applying payments

ERP

Main problem (one of many)
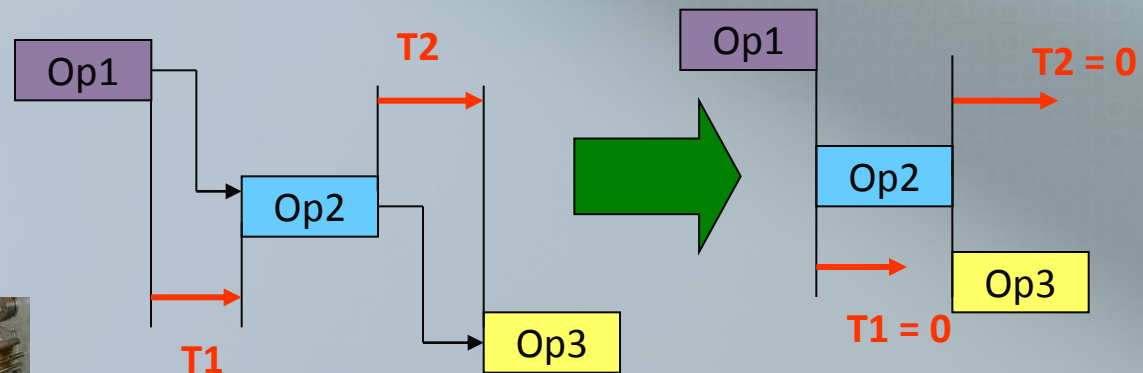
Main problem II (need of reliable data)
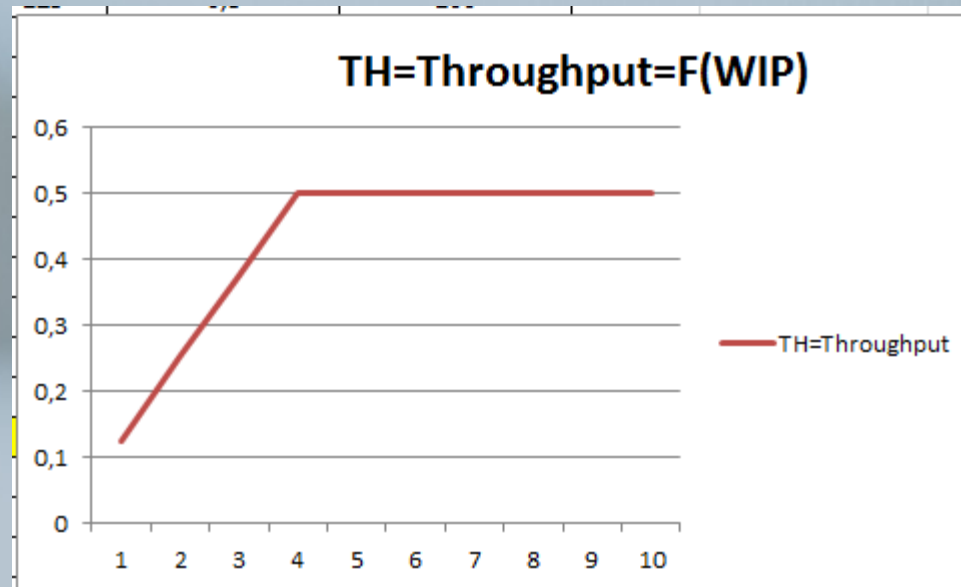
Wee need finite capacity scheduling (APS)

$$T1+T2=X$$

$$Opt=Min(X)$$

Basic problem II.

Basic problem IV.
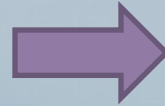
(Black ->White, Setup time=60 minut)
(White->Black, Setup time = 20 minut)

Basic problem (availability of components) V.

Op1 → 20 pcs A7 and 20 pcs A8

Op2 → 10 pcs A4 adn 10 pcs A5
(will be delivered in T1+X time)

→ Op3

T0 Lead time A6

T1

Op1

X= slack

T1 → Op2

T1+X → Op3

A0
A1   A2
A3
A4   A5
A6
A7   A8

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

Why we cannot manage it ?

Unclear priorities, bad = SOP ,…

(SOP = Standard Operation Procedures)

Level production
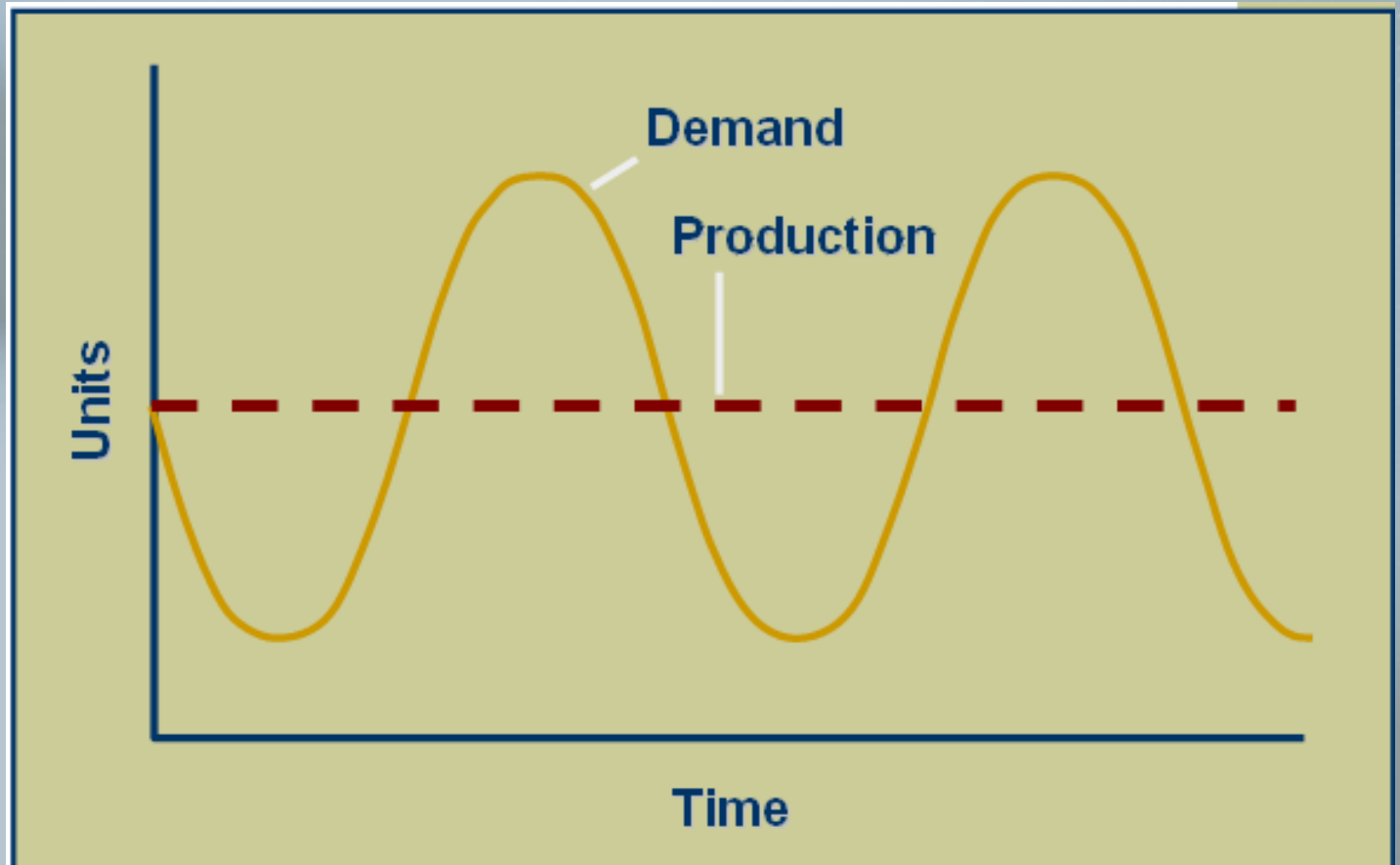
Level production strategy

Period	Sales Forecast (kg)	Production plan (kg)	Inventory (kg)
Spring	80 000,00	100 000,00	20 000,00
Summer	50 000,00	100 000,00	100 000+20 000-50 000=70 000,00
Fall	120 000,00	100 000,00	100 000+70 000- 120 000=50 000,00
Winter	150 000,00	100 000,00	100 000 +50 000+150 000 =00
		400 000,00	140 000,00

Hiring cost/worker	100,00
Firing cost/worker	500,00
Production cost/kg	2,00
Inventory carrying cost /kg	0,50
Production cost/kg/worker/quarter Production capapcity of one worker	1000,00
Beginning work force (workers)	100,00

Russell & Taylor
Operations Management
Sixth Edition , p.586-595

Cost of Level Production Strategy
(400,000 X $2.00) + (140,00 X $.50) = $870,000

Chase demand
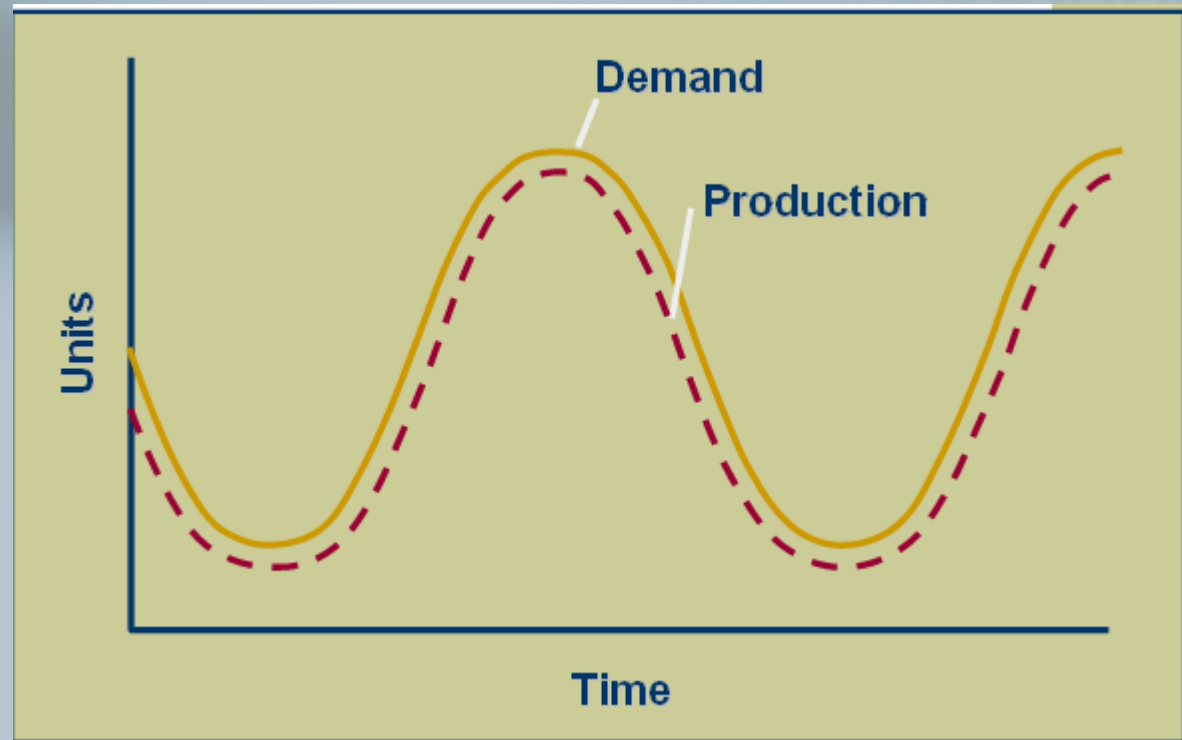
Chase demand strategy

Period	Sales Forecast (kg)	Workers needed	Workers hired	Workers fired
Spring	80 000,00	80,00	0,00	20
Summer	50 000,00	50,00	0,00	30
Fall	120 000,00	120,00	70,00	0
Winter	150 000,00	150,00	30,00	
			100,00	**50,00**

Cost of Chase Demand Strategy

(400,000 X $2.00) + (100 x $100) + (50 x $500) = $835,000

Hired

Fired

A simple business case....(example)

- Printing Company in Upper Lower Corner village somewhere in backwoods has a small problem :

- They use for managing printing procedures :

  - a very basic economic system **Sunshine** written by Six grade student (a son of the owner) – written in Pascal

  - another different systems for quotes calculation, logistics, production planning and control written in :

    - v obsolete FOX PRO

    - by 3 different programmers from 3 different companies
    - MS Office

Solution fully integrated to standard ERP package

**Accounting
Controlling
Logistic
Purchase
Sales**

One

database

Actual situation (example)

PRINTVIS

Applications

Databases

Supplier
John Brown
Software

Accounting

Supplier
Chinese
SW Kings

Business

ESKIMO
Virtual
Manufacturing

Production

FoxBASE+

Informix

PROGRESS SOFTWARE

causes what ????
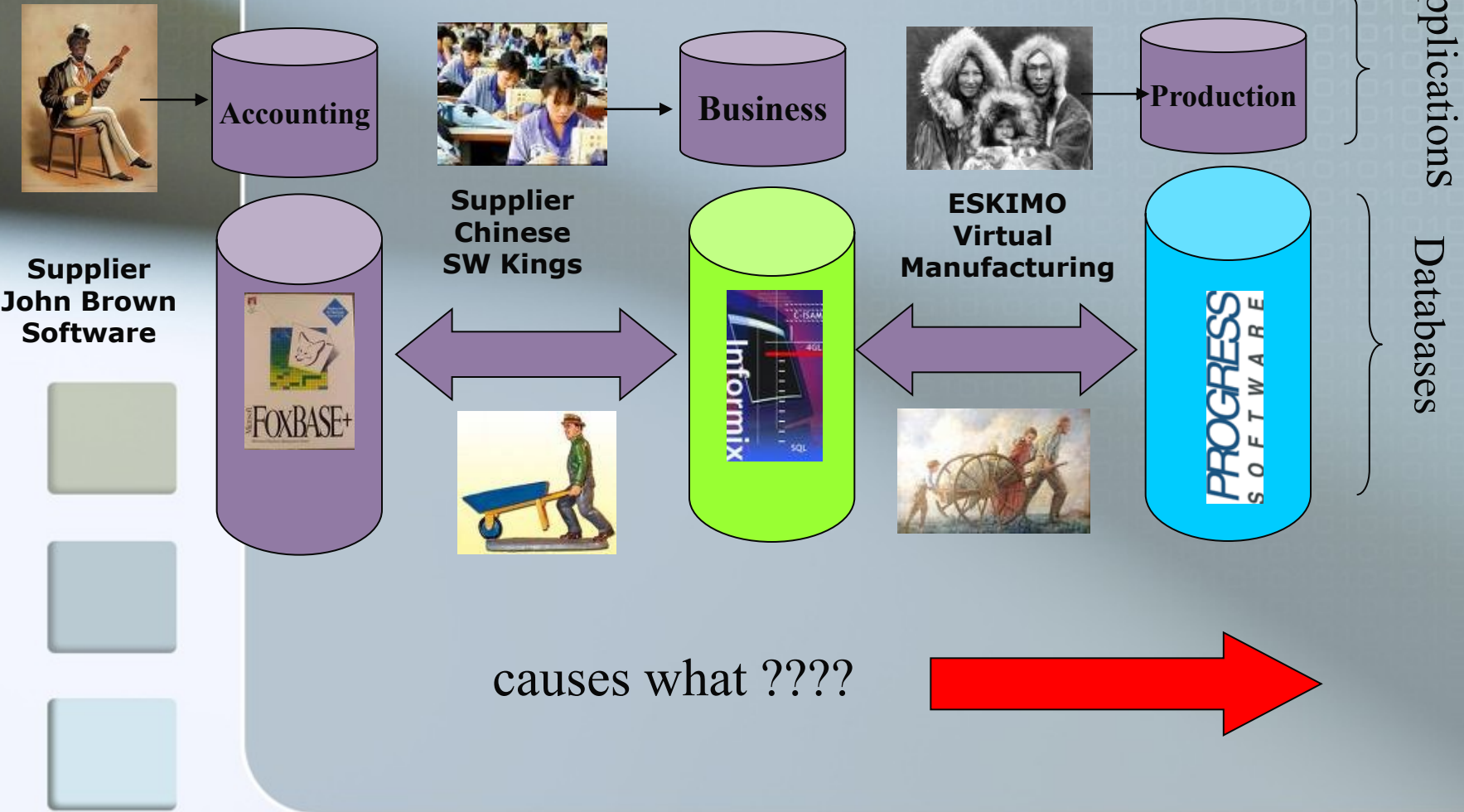
Effects

- difficult upgrades of applications
- difficult communication between different applications
- reduplicated data (redundant)
- non actual data->bad decisions
- etc.

A simple business case (printing industry)….example

- **Competitive market could requires for instance :**
  - **fast reaction** to quotes
  - variable quotes and their immediate costing (calculation)
  - shortening of delivery times
  - shortening lead times and cycle times
  - reduction of inventory values (paper, colors)->higher liquidity
  - quality improvement ->**8D reports should be used**
  - processes driven by flexible **workflow**
  - exact evaluation of finished jobs (production orders) in order to know real costs
  - feed backs to external and internal signals such as :
    - reasons of quotes dismissals (why ???????)
    - reason of unexpected costs

PrintVis Workflow (in order to find easily e.g. Flexo order)

Estimator	Requesting Johny	Salesman Mbeki	Planner Paul	Production manager Jim
Case card	Case card	Case card	Case card	Case card
Quote	Request	Order	Plan	Production
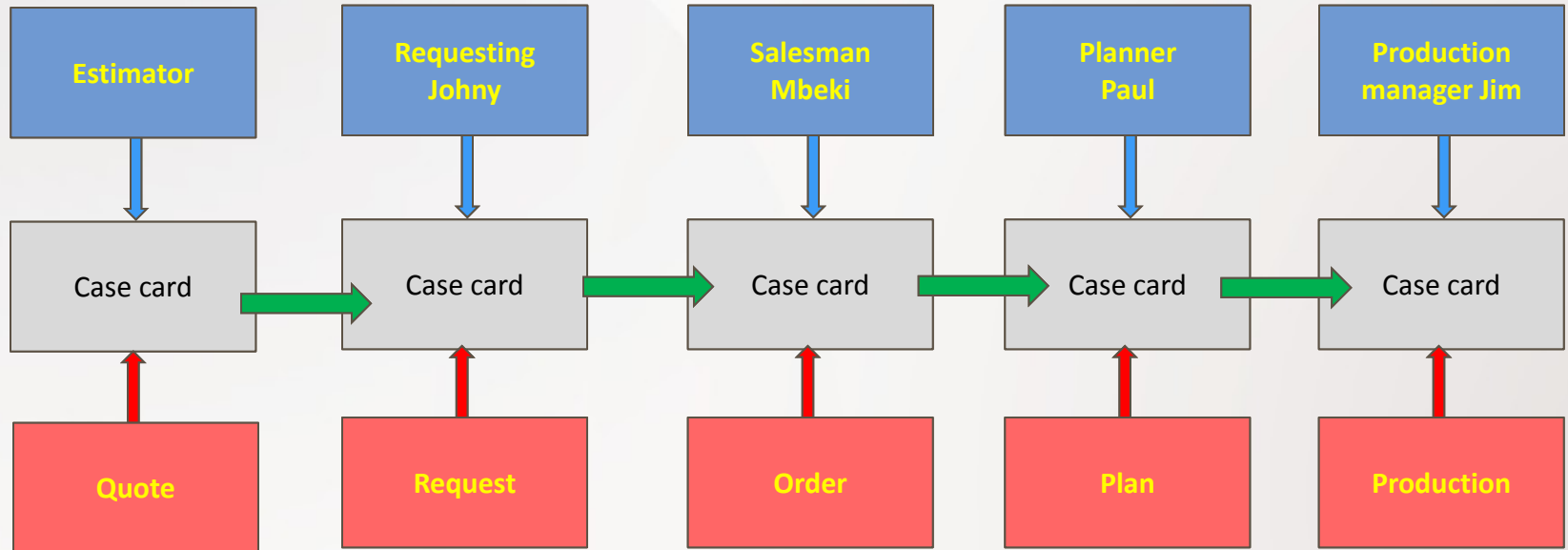
A simple business case….

- Competitive market also requires :

  - Modern and efficient SW tools to control these processes :
    - **prepress:** desktop publishing, computer to plate, …
    - purchase of material (paper, colors,..)
    - imposition (how to put locate texts on the paper)
    - printing using different technologies (sheets, rotary press,..)
    - production planning and shop floor control
    - finishing operations such as
      - cutting
      - gathering   special printing operations
      - stitching
    - flexible invoicing
    - on-line accounting and so on and so on

Printing machine

A simple business case….

- Bottlenecks (TOC) – Threats (SWOT) :
  - obsolete information system, which requires all time some changes, patches,…
  - all parts of information system form an heterogeneous is IT tools heterogeneous hydra :finance management, costing, production, inventory, HR,… ,which **never provides user with real picture of the business**
  - inaccurate data from one application is inherited by another one, so the picture of the business always late
  - Costing depends on human failing factors
  - one author of every single subsystem
  - these authors **never meet each other** to coordinate their efforts…

A simple business case….

- **Bottlenecks (TOC) – Threats (SWOT) :**
  - internet auctions favour competitors , which are cheaper and faster

  - the size of paper and colour purchase orders are based on inexact assessment of purchasers (if we have a lot of orders, types of papers, various machines and so on, the optimum assignment of the purchase batches sizes is beyond ability of human being with paper and pencil)

Gaza gate

A simple business case….

- Messiah arrives and says : " I have for you this :"
  - modern and flexible and **standard** ERP system
  - background of IT company with tradition and experience
  - background of global IT vendor
- On the other hand an arriving messiah *did not offer*:
  - the knowledge of printing industry !!!!
  - printing application fully integrated with **standard** ERP
- Arriving applicant must :
  - understand processes in printing industry **(or any other base on chosen branch)**
  - be able to write printing application using development tools (languages) of standard ERP system
  - implement the solution
  - **OR** instead of **these three blue marked points** to find already existing vertical solution for printing industry, which is used all over the globe
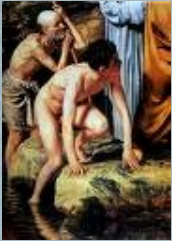
A simple business case….

- **Finding a vertical is right !**
  - Let say, that we have found a foreign company with **Print** SOLUTION ,which was implemented 100-times and in different languages

One database only

Accounting
Logistics
Purchase and Payables
Sales and Receivables
Standard production
CRM

Other standard
ERP modules :
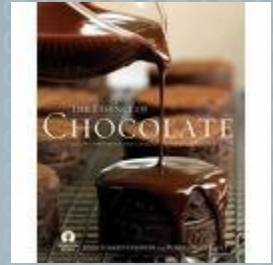Service Management
Human Resources
Business Analytics..

A simple business case….project management – intro

- **Live Meeting:**
  - application setup
  - basic functions and a „sweet points"
  - business case workflow (all the stages)
- Customer is happy and awaits consequential actions
- Vendor signs a contract about localisation and selling in pre-determined geographical area

Another form of printing application **PRINT** integrated to ERP Navision (imposition and colours)

A simple business case….

- Some reasons which persuaded ERP vendor to sign a contract with vendor of vertical solution PRINT:

  - local market analysis (SWOT, GAP Analysis,BPM,BSC, Pareto, Ishikawa Fish Bone diagram, TOC, CC….)
  - expectation of repetitive sales – promising market segment ->CRM application (pains and benefits)
  - analysis of the competitors-> CRM
  - possible co-operation with other PRINT experts abroad (sales of services)

Project entries..

- **Activities**
    - acquire necessary printing industry knowledge
    - introduction training provided by supplier of PRINT application (vertical solution)
    - team building
    - budget (costs „business plan"- revenues)
    - language localization ENG->CZE (18 000 text strings)
    - modification ERP and a **Print** for Czech conditions (market specifications and legislation)
    - cope with inner application

Project entries..

- Activities
  - translation of marketing material (fact sheet) and its printing in compliance with predefined templates
  - creation of PWP presentation for selling
  - prospect prediction – segments of market
  - naming of benefits „selling against"
  - presentation to chosen prospects and reaction to questions- use of feedbacks to improve knowledge of printing industry
  - **Print** price list generation

Project entries..

- **Activities – project started**
  - „Kick-Off" meeting
    - when, who, what and why (Kick
    - PWP presentation
    - invitation, graphic design
    - selling invitation and follow-up
    - Kick-Off
    - mapping of interests, business strategy modification and resource planning

Project entries...(will be part of **Critical Chain** theory, which will

be show to students later)

■ ## Gantt

Project entries…

- **Activities**
  - contract signature with pilot customer
  - System implementation (only some important activities are mentioned here..)
    - feasibility study, analysis, target solution draft ……
    - introduction training
    - system customization
    - tests of introduced modifications
    - data transfers and setup of technological „master data"
    - generation and selling licences and HW tools such as servers, …
    - change management

Project entries…

- ## Activities

  ### System implementation (only some important activities are mentioned here..)
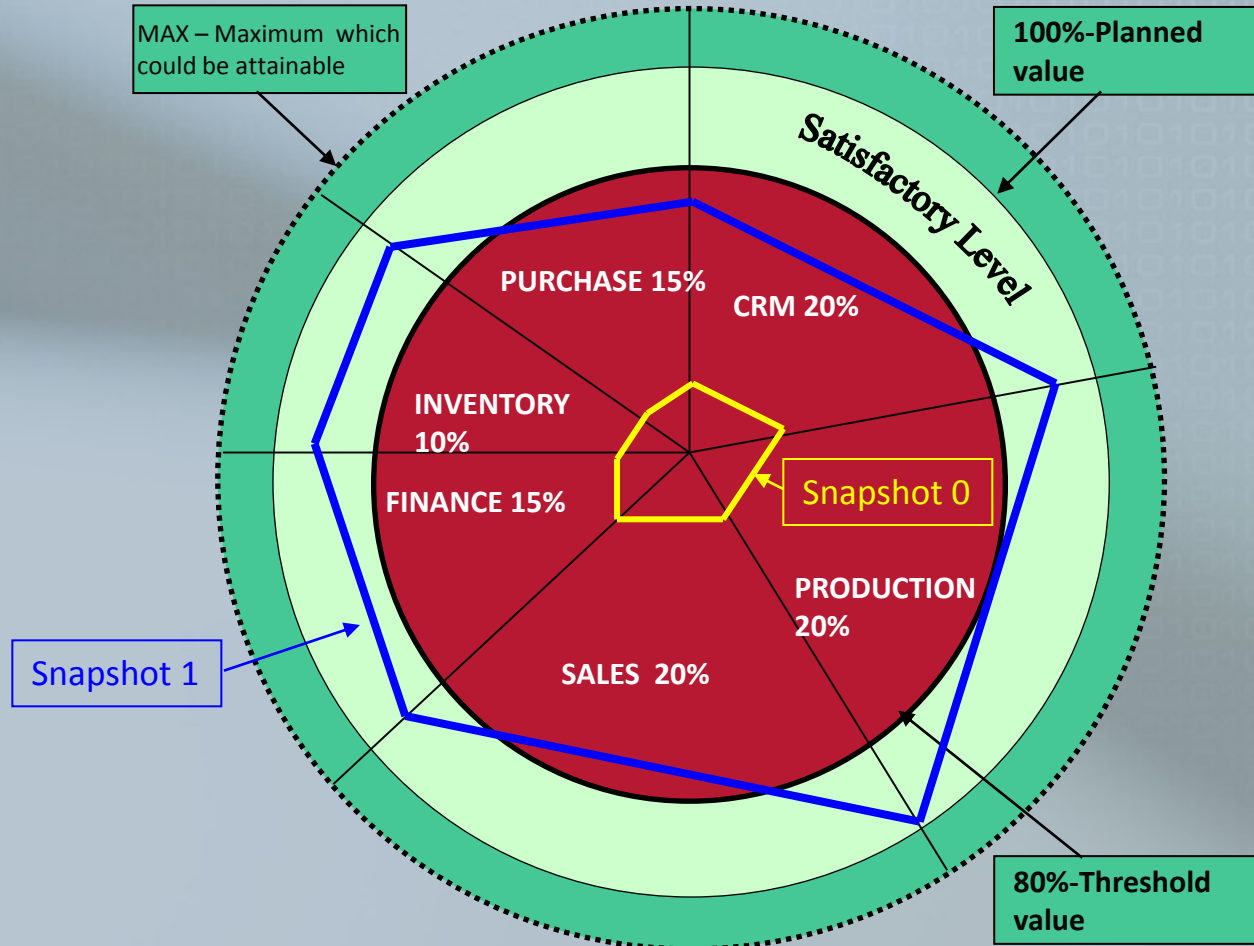
    - training with real data in the ERP system
    - stock taking and transfer of balances on accounts
    - sharp start
    - support and surveillance
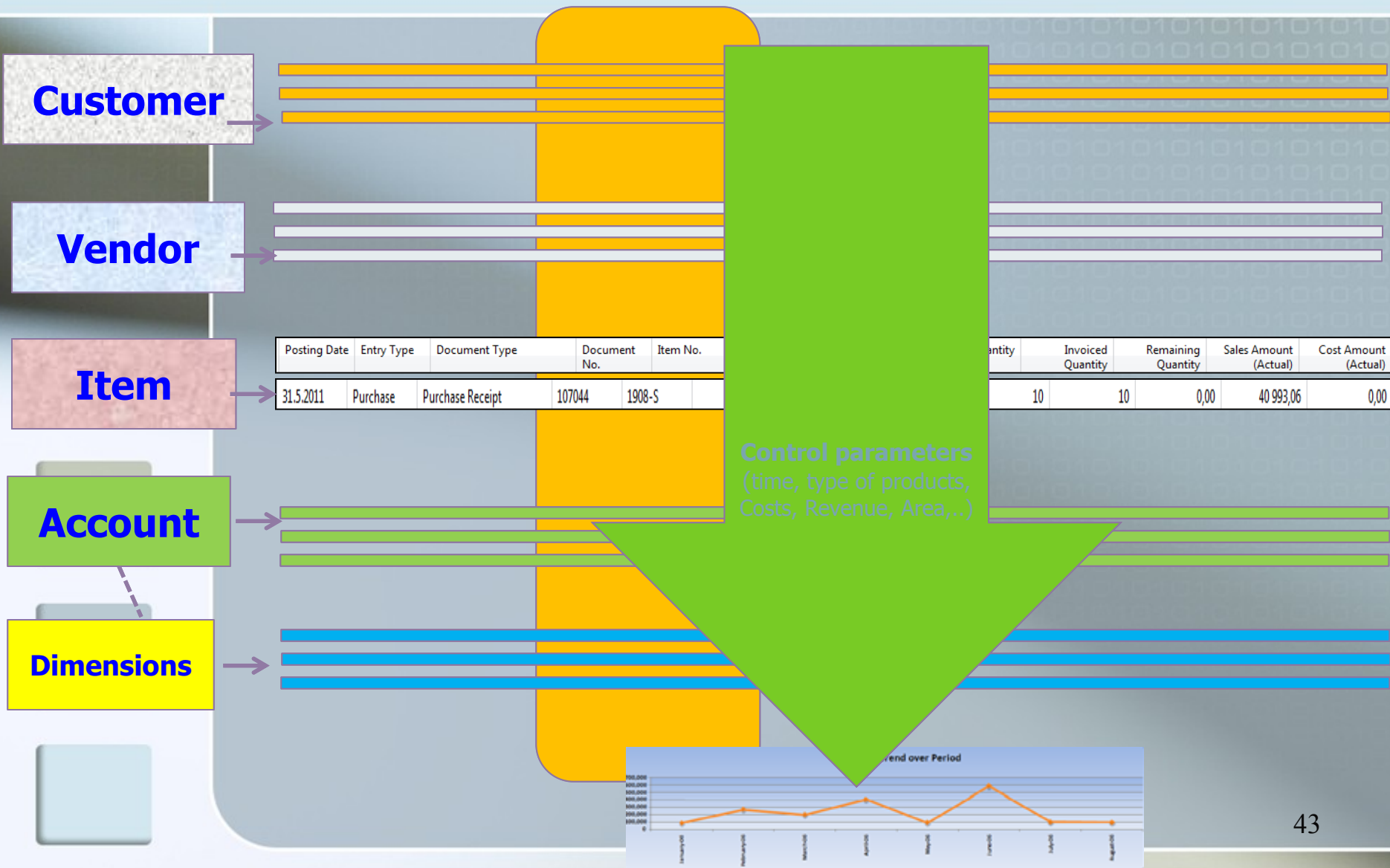
  Necessary knowledge for project management

Project successful ? (from Snapshot **0** ->Snapshot **1**)

Reporting (NAV tools or JETs)

Main principles (source tables and their entries)

Customer

Vendor

Item

Account

Dimensions

Control parameters
(time, type of products,
Costs, Revenue, Area,...)

Posting Date	Entry Type	Document Type	Document No.	Item No.		antity	Invoiced Quantity	Remaining Quantity	Sales Amount (Actual)	Cost Amount (Actual)
31.5.2011	Purchase	Purchase Receipt	107044	1908-S			10	10	0,00	40 993,06	0,00

Trend over Period

43

Some chosen analysis

Working capital – setup of the accounting schedule from NAV

Číslo řady	Popis	Typ s...	Součet	Typ řady	T...	Z...	Tučně	Nová strana
		Účty		Pohyb	Č..	A..		
	Working Capital Analysis	Účty		Pohyb	Č..	A..	✔	
1	Goods all	Součty	139995	Pohyb	Č..	A..		
2	Receivables	Součty	315995	Pohyb	Č..	A..		
3	Cash total	Součty	211995	Pohyb	Č..	A..		
4	Banks all	Součty	221995	Pohyb	Č..	A..		
TR	Receivables	Vzorec	1+2+3+4+5	Pohyb	Č..	A..	✔	
		Účty		Pohyb	Č..	A..		
5	Short bank credits	Účty	231000	Pohyb	Č..	A..		
6	Splatné závazky, celkem	Součty	321995	Pohyb	Č..	A..		
7	Prepayments	Účty	324100	Pohyb	Č..	A..		
8	Associate liabilities	Součty	368995	Pohyb	Č..	A..		
TP	Payables	Vzorec	5+6+7+8	Pohyb	Č..	A..	✔	
		Účty		Pohyb	Č..	A..		
	Working capital	Vzorec	TR|TP	Pohyb	Č..	A..	✔	

WC Working Capital Analysis - Účetní schéma

Název . . . . WC

Účetní sc...   Funkce   Tisk   Nápověda

44

Some chosen analysis
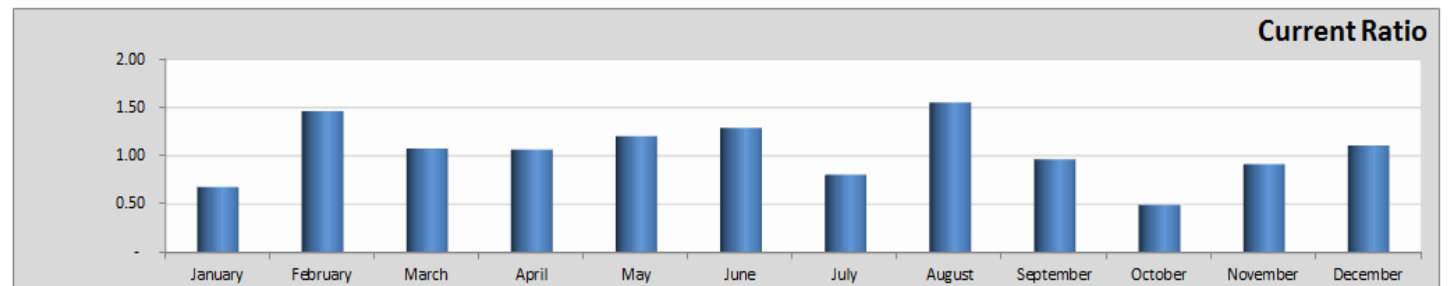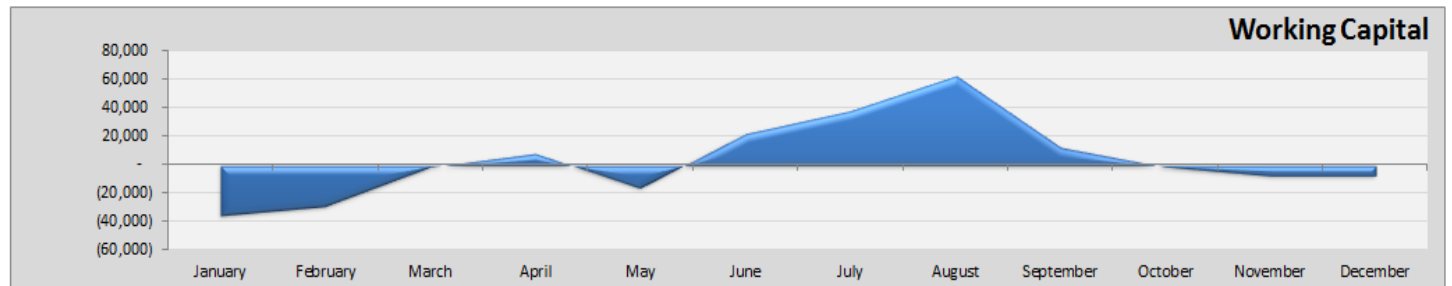
Working capital – Show of the results from NAV

Some chosen analysis

Working capital – Show of the results from JETs

Working Capital & Current Ratio

Report Date 8/23/2011

	January	February	March	April	May	June	July	August	September	October	November	December
2011												
Current Assets	74,405	(90,939)	(16,110)	136,096	(92,528)	101,144	(155,777)	174,615	(363,170)	1,015	72,525	(72,789)
Current Liabilities	109,902	(62,118)	(14,989)	127,587	(76,890)	78,566	(193,757)	112,467	(376,168)	2,070	79,494	(65,841)
Working Capital	(35,497)	(28,821)	(1,121)	8,508	(15,638)	22,579	37,980	62,148	12,998	(1,055)	(6,969)	(6,948)
Current Ratio	0.68	1.46	1.07	1.07	1.20	1.29	0.80	1.55	0.97	0.49	0.91	1.11

Working Capital

Current Ratio

Some chosen analysis

Another possible project.

- Hotel chain Rocco Forte * * * * *

- **Where?** (Great Britain 2x, Scotland 1x, Germany 2x, Prague 1x, Rome, Florence, CH, Russia ….)

- SW choice (chosen company for delivery standard accounting package of ERP and cooperation with author of hotel vertical solution : Serenissima Informatica, Padova)

- Choice of local partner (CZ MS Dynamics NAV partner X : requirements -> stability, knowledge of international business, languages, references- testimonial abroad, ..)

- Milano (server farm for all hotels)

- All hotels using same chart of account (USoA=Uniform System of Accounts) – simple consolidation (IFRS)
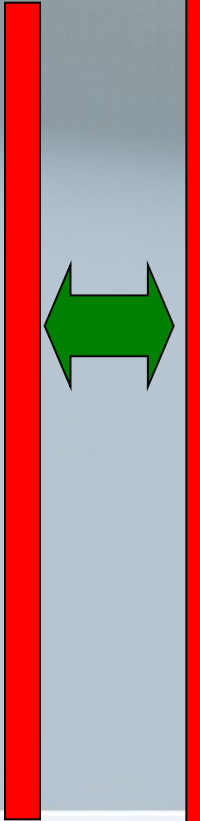
- Choice of hotel SW and accounting SW

Another possible project…

Another possible project
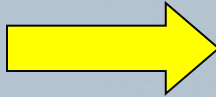
Basic Concept (survey)
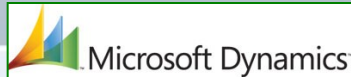

protel hotelsoftware®

General Ledger
- Chart of Accounts
- Bank Accounts
- Budgets
- Account Schedules
- Analysis by Dimensions
- Payment Order
- Bank Statement
- Payment Journals
- General Journals
- Cash Register Documents
- Intercompany Postings
- Reports
- VAT Return
- Issued Payment order
- Issued Bank Statement

General Ledger	
Fixed Assets	
Sales & Receivables	
Relationship Management	
Service Management	
Purchases & Payables	
Inventory	
Warehouse Management	
Manufacturing	
Capacity Requirements Planning	
Resources	
Jobs	
Human Resources	
Commerce Portal	
SERENISSIMA	

Microsoft Dynamics

PŘIZNÁNÍ **VAT report**
k dani z přidané hodnoty

847
Czech strings

Dataport

847 Czech strings

	B	C	D	E
745	57002	Option String	Period,Fiscal Year	Období,Fiskální rok
746	57002	Field Name	Accrued/Deferred Amount Type	Typ částky na časovém rozlišení
747	57002	Option String	,Accrued Income,Accrued Charge,Deferred Charge,Deferred Revenue	,Příjmy příštích období,Výdaje příštích období,Náklady příštích období,Výnosy příštích období
748	57002	Field Name	Changed Original Data	Původní data změněna
749	57002	Field Name	Journal Template Name	Název šablony deníku
750	57002	Field Name	Document Type	Typ dokladu
751	57002	Option String	,Order,Invoice,Credit Memo	,Objednávka,Faktura,Dobropis
752	57002	Field Name	Journal Batch Name	Název listu deníku
753	57002	Field Name	Line No.	Číslo řádku
754	57002	Field Name	G/L Entry No.	Číslo věcné položky
755	57002	Field Name	Processed Flag	Číslo věcné položky
756	57002	Field Name	Deferred Posting	Odložené zaúčtování
757	57002	Field Name	To be Deferred	Zahrnout do příštích období
758	57002	Field Name	Document No.	Čís.dokladu
759	57002	Field Name	Line No.	Číslo řádku
760	57002	Field Name	Account No.	Číslo účtu
761	57002	Field Name	Account Description	Název účtu
762	57002	Field Name	Balance Account No.	Název rozvahového účtu
763	57002	Field Name	Balance Account Description	Rozvahový účet - popis
764	57002	Field Name	Amount	Částka
765	57002	Table	Accr/Def Amount Journal Header	Hlavička deníku pro částky na časovém rozlišení
766	57002	Text Constant	No journal line data found !	V řádku deníku nebyla nalezena žádná data !
767	57002	Text Constant	Date in Closed Period	Datum v uzavřeném období
768	57002	Text Constant	Initial Date not in Actual Fiscal Year	Počáteční datum nespadá do stávajícího fiskálního roku
769	57002	Text Constant	Final Data < Initial Data	Konečné datum < Počáteční datum
770	57002	Text Constant	Journal Amount Missing	V deníku chybí částka
771	57002	Text Constant	Type Not allowed with Def. Amount Delayed Posting	Tento typ není povolený pro opožděné zaúčtování Odložené částky
772	57002	Text Constant	Def.Posting not allowed with Journaling Period = Period	Zaúčtování Odložené částky na časové rpzlišení není povoleno pokud se perioda zápisu = Období
773	57002	Text Constant	Account Type %1 not valid for Deferred	Typ účtu %1 není platný účtování Odložené částky na časové rozlišení
774	57003	Field Name	Section Type	Typ sekce
775	57003	Option String	,Sale,Purchase,G/L Ledger	,Prodej,Nákup,Hlavní kniha

Balance sheet (generation using accounting schemes –

will be introduced to students)

Uniform System of Accounts

No.	Name	Income/Balance	Account Type	Mapping	Account synte	Analytic	Czech description
0273500	Pension Fund	Balance Sheet	Posting		379	120	Závazky z pojištění
0047500	Other Debtors - Insurance Advances Premium Payment	Balance Sheet	Posting		381	100	Náklady příštích období - pojištění zaměstnanců
0067700	Prepaid rent	Balance Sheet	Posting		381	200	Náklady příštích období - nájemné
0069000	Prepaid Insurance	Balance Sheet	Posting		381	300	Náklady příštích období - pojištění budovy a odpovědnosti
0069500	Prepaid Licences & Permits	Balance Sheet	Posting		381	310	Náklady příštích období - licence a povolení
0070000	Prepaid Maintenance Contracts	Balance Sheet	Posting		381	400	Náklady příštích období - provozní náklady
0070300	Prepaid Sales & Marketing	Balance Sheet	Posting		381	500	Náklady příštích období - Sales & Marketing
0070350	Prepaid - Property taxes	Balance Sheet	Posting		381	600	Náklady příštích období - daň z nemovitosti
0141000	Financing Costs	Balance Sheet	Posting		381	700	Náklady příštích období - náklady na financování
0141100	Brand	Balance Sheet	Posting		381	800	Náklady příštích období - rebranding
0155000	Pre Opening Cost	Balance Sheet	Posting		381	900	Náklady na zprovoznění hotelu
0250010	GRNI - Stores	Balance Sheet	Posting		383	100	Výdaje příštích období - stock
0250050	GRNI Non Stores	Balance Sheet	Posting		383	200	Výdaje příštích období - non-stock
0249000	Deferred Income	Balance Sheet	Posting		384	100	Výnosy příštích období
0249100	Deferred Income Other	Balance Sheet	Posting		384	200	Výnosy příštích období - jiné
0249500	Deferred Income - Subscription	Balance Sheet	Posting		384	300	Výnosy příštích období
0021000	Guestledger (Accrued Income)	Balance Sheet	Posting		385	100	Příjmy příštích období - nevyfakturované tržby
0048500	Accrued Income - other	Balance Sheet	Posting		385	200	Příjmy příštích období - ostatní

Accrued Revenues (revenues generated in the future periods)

Income (still not created)

General Ledger ← Customer

Accrued and Deferrals

,
For **Deferred Costs** it mean s when You receive an Invoice for Service;
Service provided partially in one Fiscal Year, and Partially for the following Fiscal Year.
Ex. : In November You receive an Invoice for IT Service provided from November 2007
until June 2008.
You have to charge 2 Months for 2007 and 6 Months for 2008 Fiscal Year.
In other words Deferred Costs happens when You receive in advance an Invoice for Services
provided in the future. It's possible to have the same also for **Revenues**

The opposite is called **Accrued** .
Ex. : In May 2008 You receive an invoice for Services provided from November 2007 until May 2008.
Normally You have to charge in advance, Cost for Services for November and December 2007
 without any Invoice, and You balance this Cost with special Accounts.
This happens very often in Hotel management because, for management control,
they have to produce every month Profit & Loss report. It's more or less like a Year close done
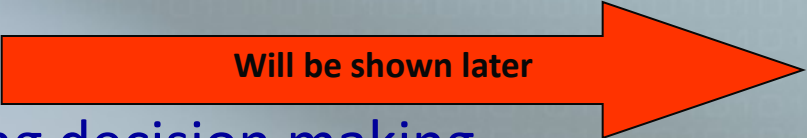on every Month.
In other words   **Accrued Costs** happens when You receive an Invoice for Services after
 the Service was provided. The same can happens also for revenues.
 .

Knowledge of methods, which are necessary for project management and process management

- **Theory of Constraint** (will be introduced-72 slides)-**seminar work!!!!**
  - Critical chain methodology
  - Thinking tools
  - Throughput Accounting ->go to wikipedia
- Balanced Scorecard (will be introduced)
- SWOT a Gap Analysis
- MS Office (Word, Power Point a Excel)
- ERP system and its logic (will be introduced- 28 hours)
- Logistics
- Finance Management and Controlling
- Production Management (MRP, MRP-II, JIT and DBR)
- Market Analysis

Knowledge of methods, which are necessary for project management and process management

- Legal aspects of contracts
- Cost management
- Foreign languages
- Basic knowledge of IT architecture will be introduced
- Methods used for project management
- Business Analytics **Will be shown later**
- Methods supporting decision making
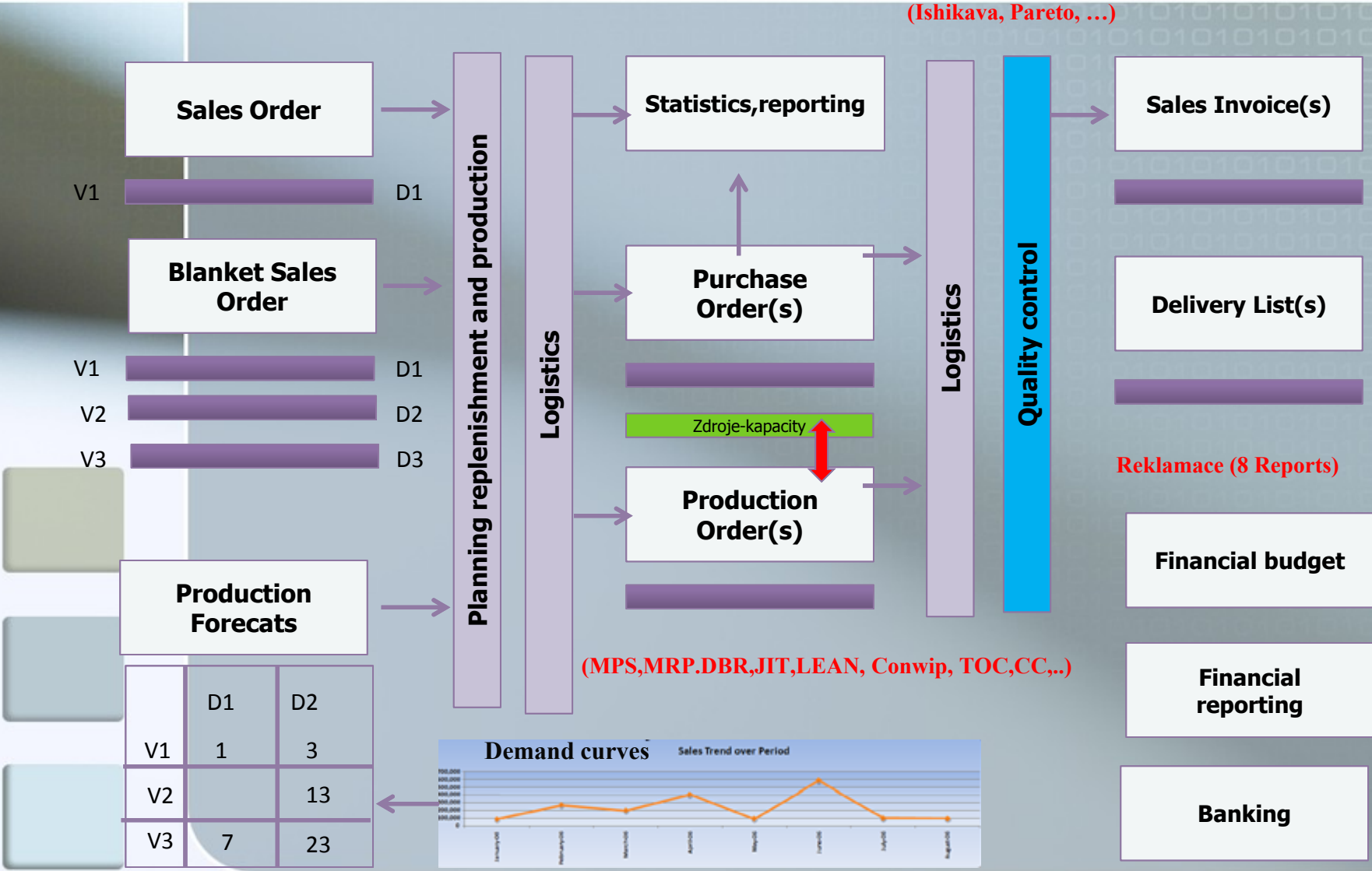- Risk management
- Basics of marketing

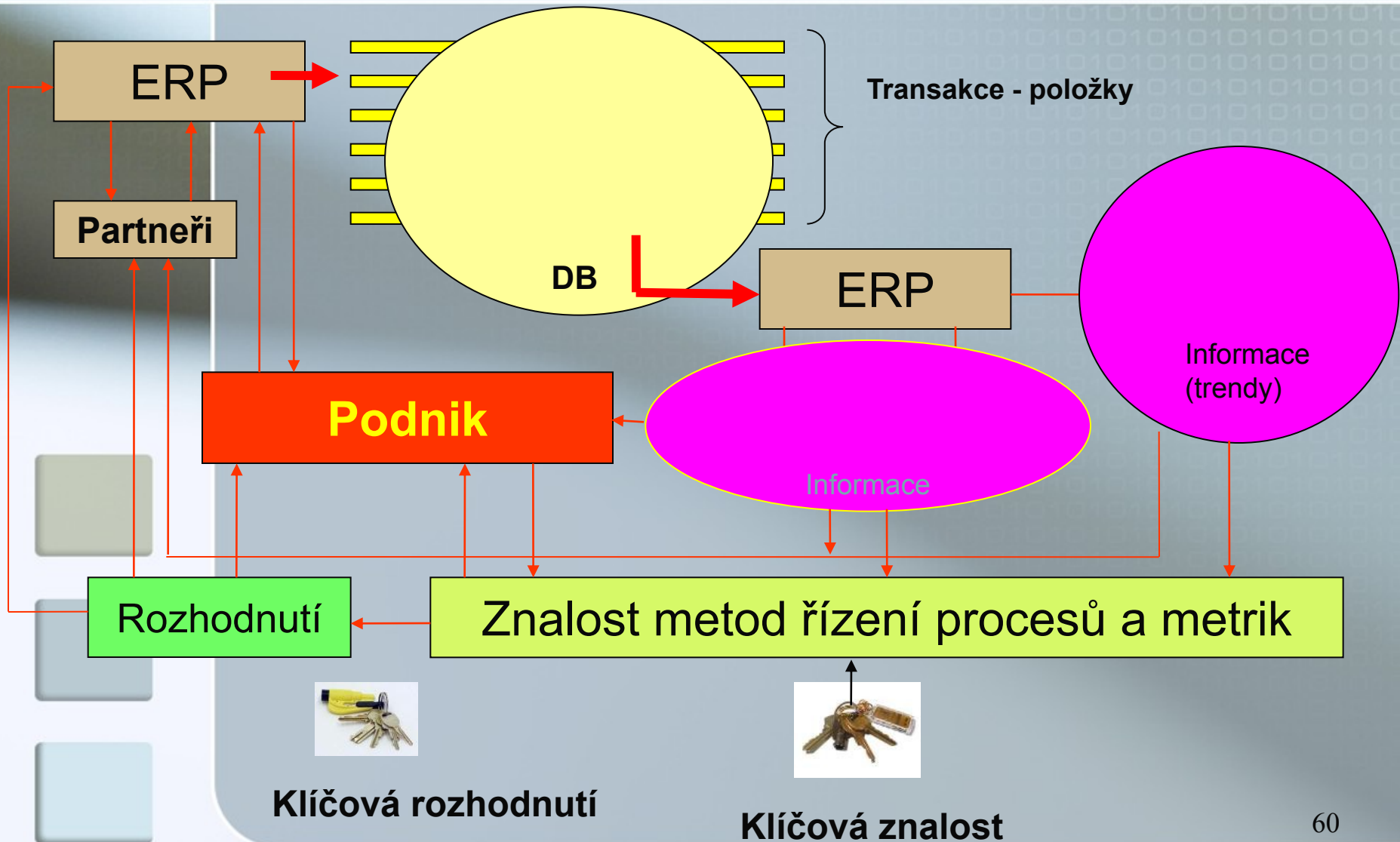# Business Analytics – some reason why to discuss
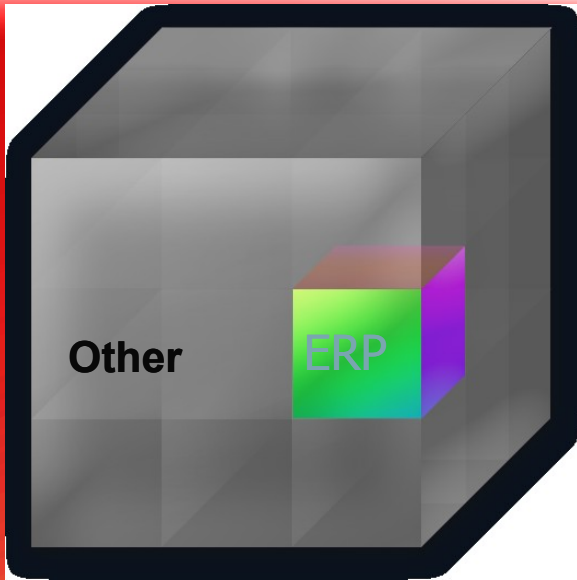
- The data is not all in the ERP
- The tools are rigid and hard to learn
- The tools don't reflect how we work today
- They don't span the continuum of needs

Other ERP

Financial management

Balance Scorecard, ERP, Business Intelligence (OLAP),...-

(Ishikava, Pareto, …)

Sales Order → **Planning replenishment and production** → **Statistics,reporting** → **Sales Invoice(s)**

V1 — D1

Blanket Sales Order

V1 — D1
V2 — D2
V3 — D3

Logistics

Purchase Order(s)

Zdroje-kapacity

Production Order(s)

Logistics

Quality control

Delivery List(s)

Reklamace (8 Reports)

Financial budget

Production Forecats

(MPS,MRP.DBR,JIT,LEAN, Conwip, TOC,CC,..)

Financial reporting

	D1	D2
V1	1	3
V2		13
V3	7	23

Banking

Demand curves   Sales Trend over Period

Zjednodušené schéma využívání ERP

Transakce - položky

ERP

Partneři

DB

ERP

Podnik

Informace (trendy)

Informace

Rozhodnutí

Znalost metod řízení procesů a metrik

Klíčová rozhodnutí

Klíčová znalost

60

What Users Need
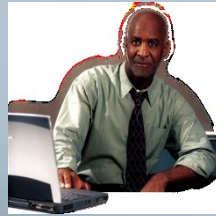
CEO

"I need to know that the people in my organization have the right goals in place to understand and execute on the strategic initiatives of the company."

VP, Operations

"I need better visibility into my cost of operations so I can target specific cost reduction opportunities that won't have a negative impact."

VP, Sales and Marketing

"I need better visibility into our pipeline performance so I can focus on deals that help me grow business with my most profitable customers."

CFO

"I need to improve our analytics capabilities so we can understand our current business performance and do a better job of planning for the future."

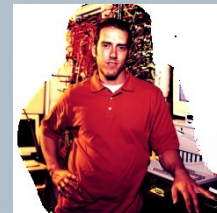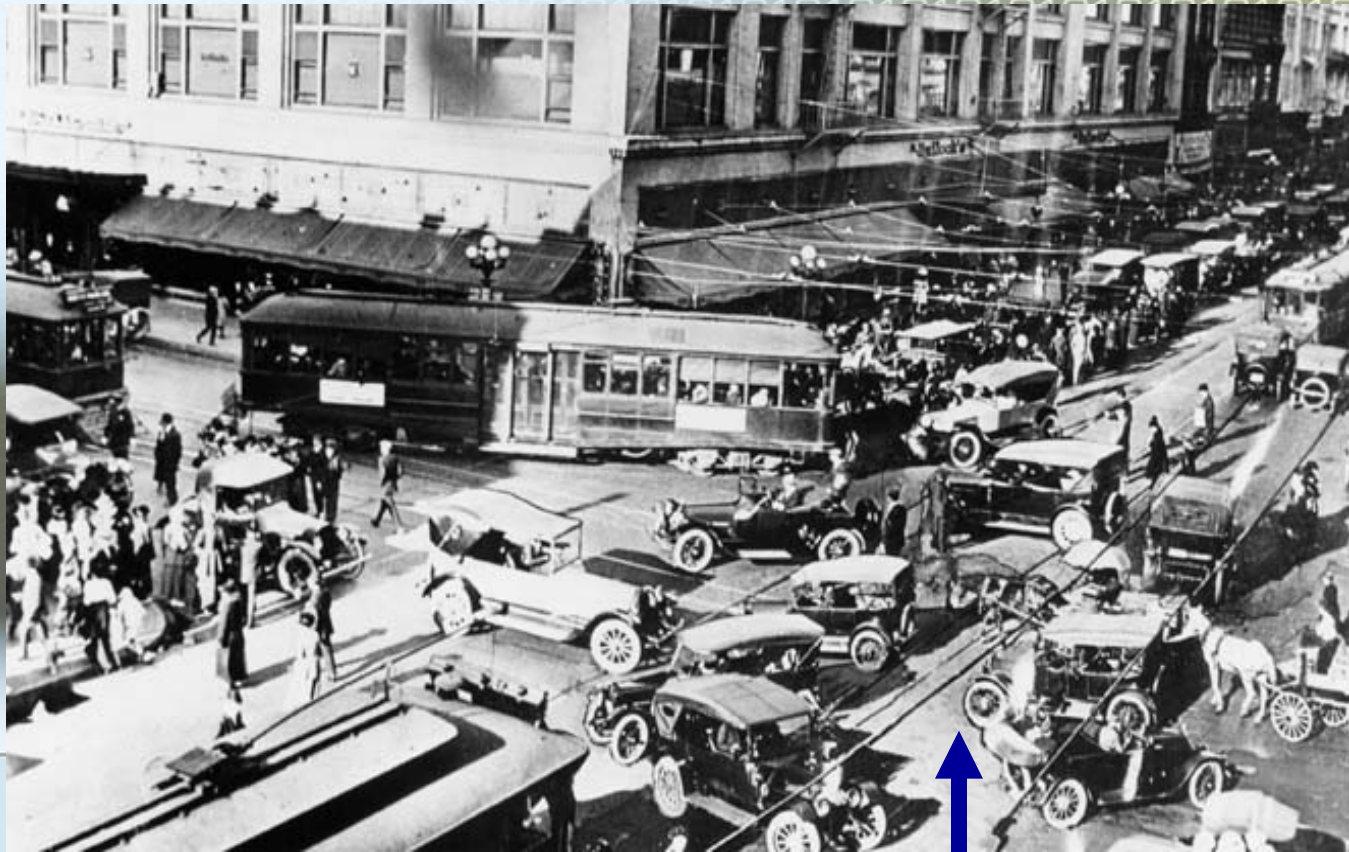**Sales Rep**

"I need to have the right demographic information so I can better target my opportunity prospecting."

Customer Support Rep

"I need better access to information to make better decisions on cross-sell and up-sell opportunities."

Thanks for Your Attention

Will be placed on IS.MUNI.CZ in
the study materials

If everyone pulls at
the different end of the rope,
than your project results
will be a mess…
(see rule 99 %)