

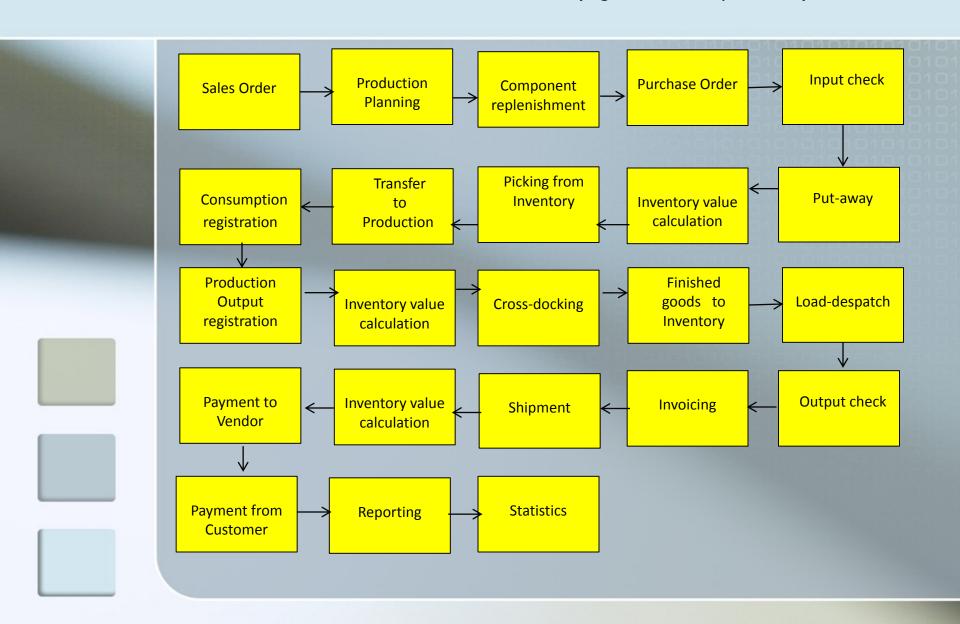
ERP Project Activities

Skorkovský, ESF MU, Department of Business Economics , version 20120919

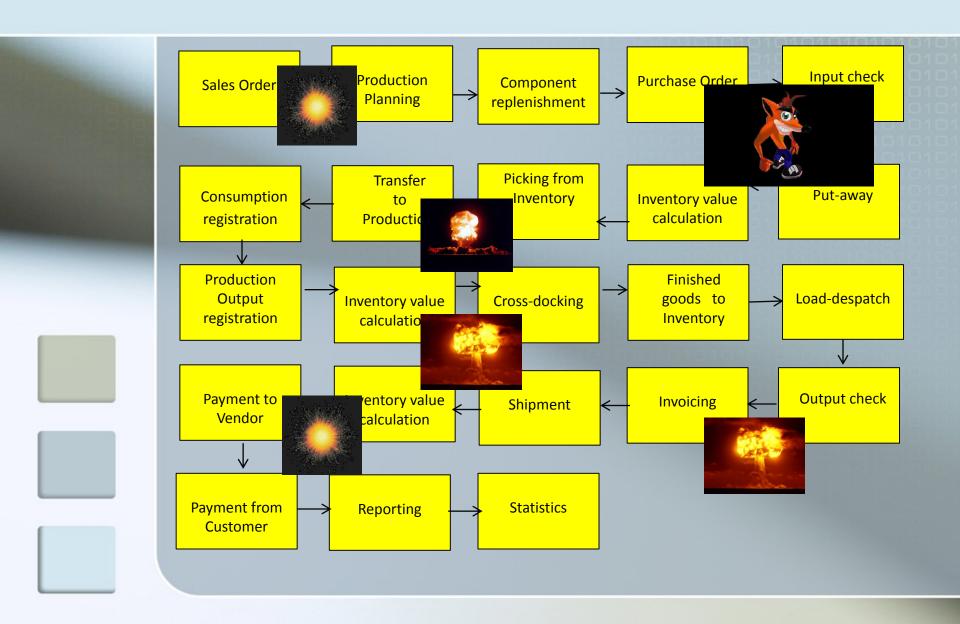
Your main task (not organised set of processes)

				10000	10101010101 10101010101 10101010101 10101010101	0101 0101 0101 0101
	Load-despatch	Purchase Order	Reporting	00000	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)

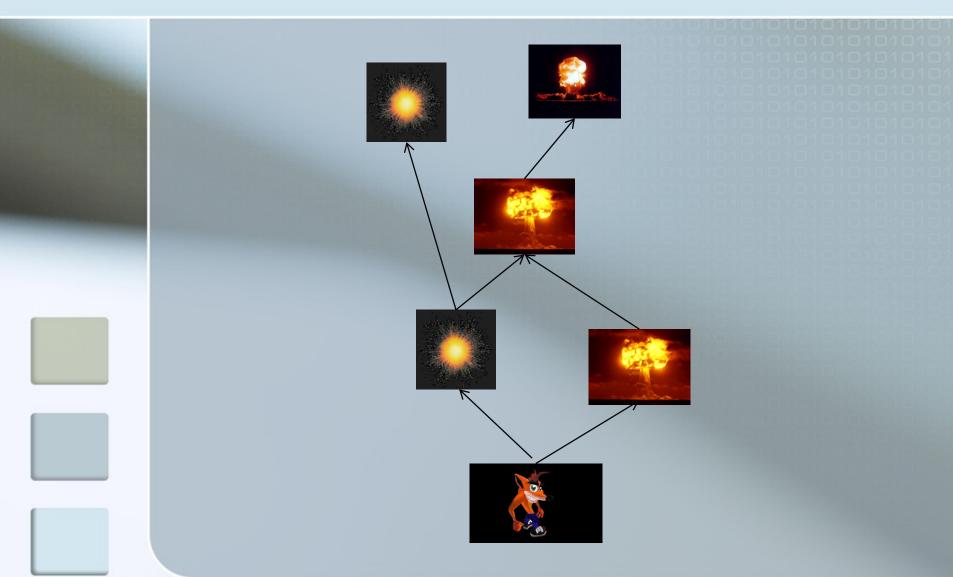


Your main task (possible problems, bottlenecks,..)



Your main task

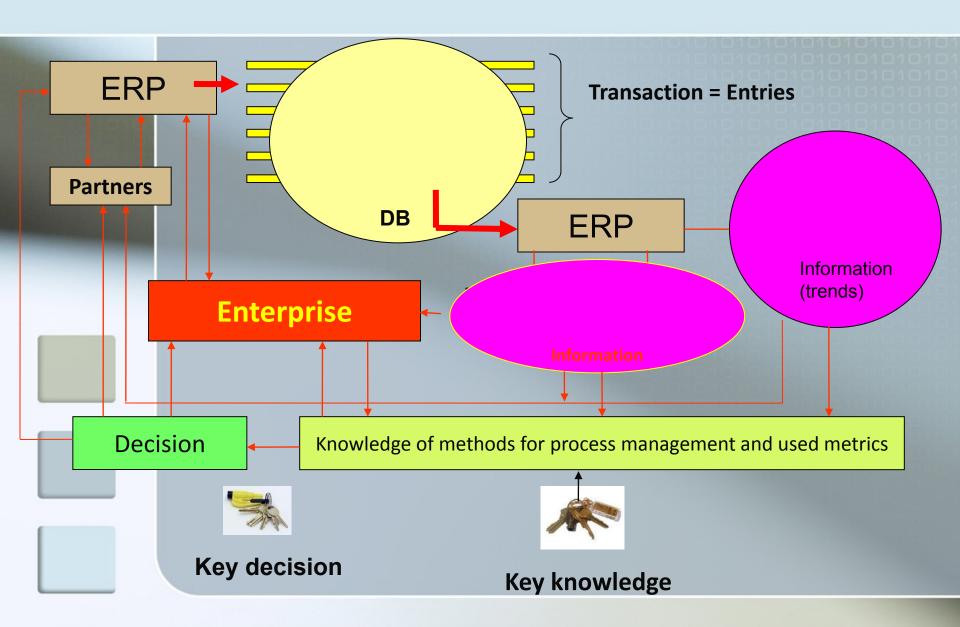
(Search - HOW ??? Measure impacts -HOW ??? and Destroy - HOW ???)



Methods (not sorted so far)

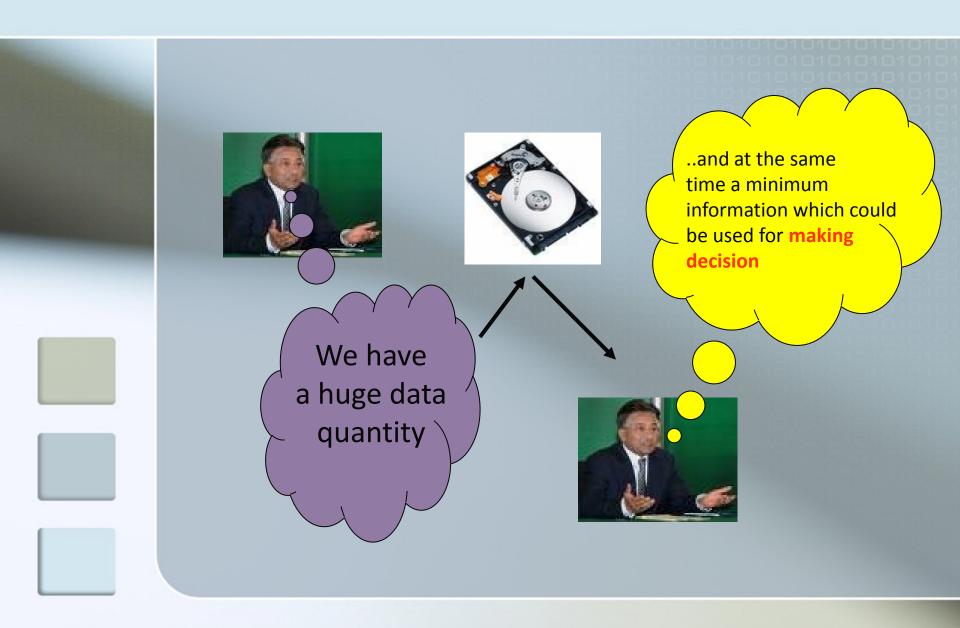
- Theory of Constraints
- Critical Chain
- Ishikawa Fishbone Diagram
- Pareto Analysis
- OLAP (On-Line Analytic Processing)
- Kepner –Tregoe method
- MaxMax and MaxMin (Hurwitz)
- SWOT
- ERP Statistics and reporting
- Balanced Scorecard
- And many, many more.....

Simplified diagram of ERP usage

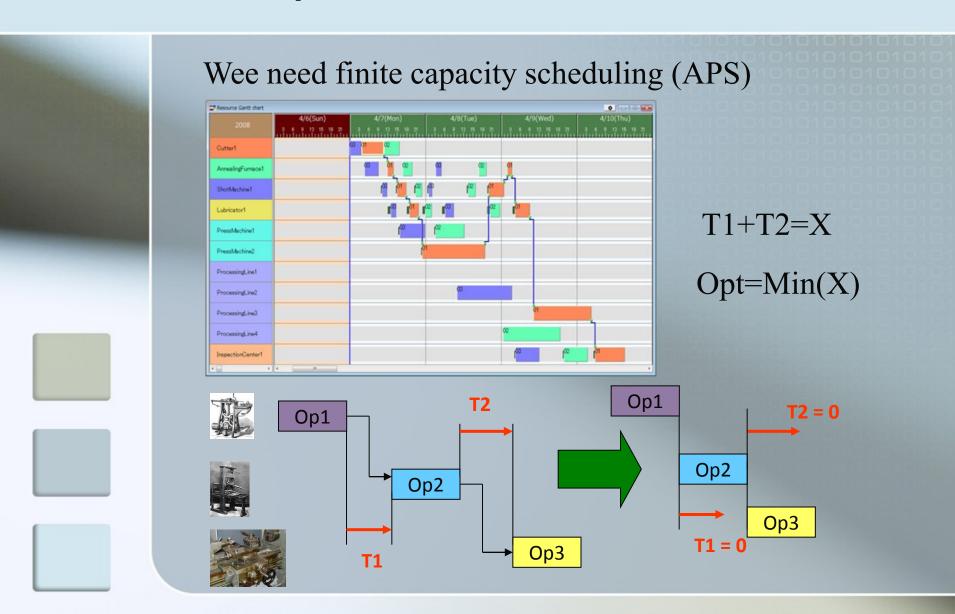


Purchase Sales **Processes** Orders->Sub-Load and Load-> Quotes->Net change calculation-> ->Batch tracking ->Order->Vendor batch tracking e-> ->Output Quality check->Picking ->Shipment ->Input Quality check->Receive, Put-away-> -> Invoicing -> Applying payments ->Invoicing **ERP**

Main problem (one of many)



Main problem II (need of reliable data)



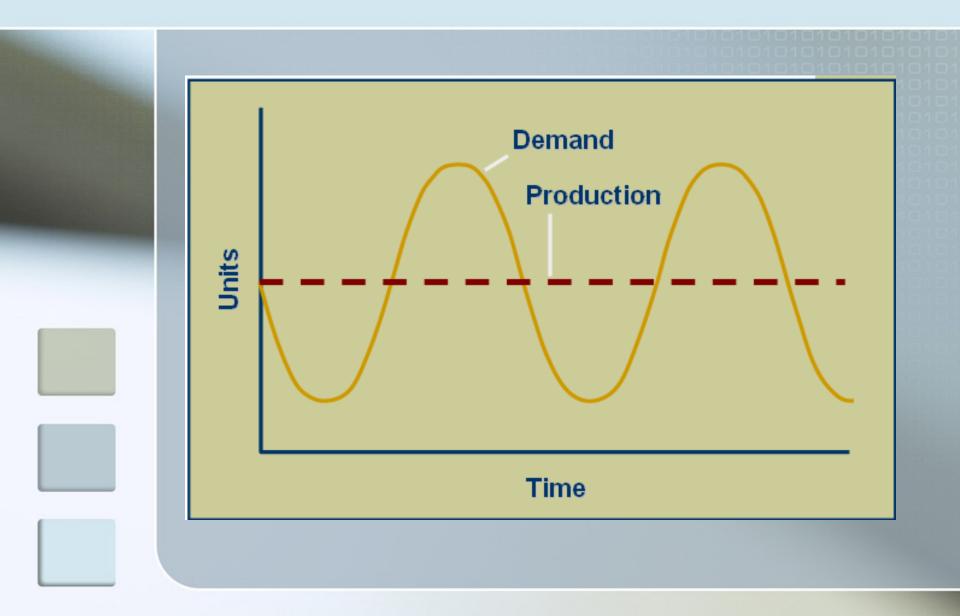
Why we cannot manage it?



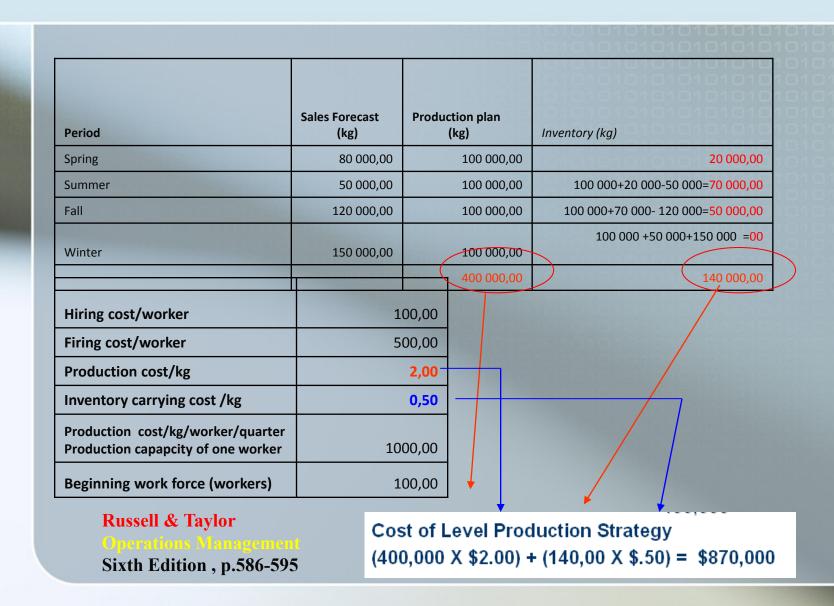
Unclear priorities, bad = SOP,....

(SOP = Standard Operation Procedures)

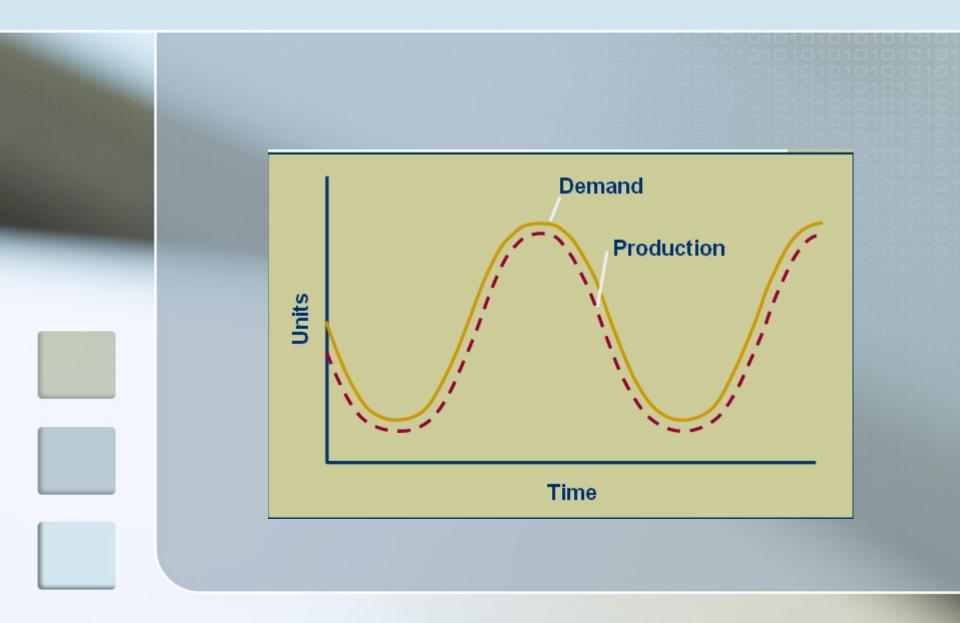
Level production



Level production strategy



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	1101010101
	Oxonomon o	01010101	100,00	50,00

Cost of Chase Demand Strategy (400,000 X \$2.00) + (100 x \$100) + (50 x \$500) = \$835,000

Chase demand without optimization

Only information

Chase demand				Cost	835000
Workers start	100				
Product/worker/Q	1 000	Production cost	2,00	Firing cost	500
Inventory start	0	Inventory cost	0,50	Hiring cost	100
Q	Demand	Production	Workers needed	Hired	Fired
Spring	80000,00	80000,00	80	0	20
Summer	50000,00	50000,00	50	0	30
Fall	120000,00	120000,00	120	70	0
Winter	150000,00	150000,00	150	30	0
Total	400000,00	400000,00		100,00	50,00

Chase demand with optimization (step one) Only information

						3301010	10404	0101	
	Page 594 Ruseel and Taylor								
	Chase demand								
_	Chase demand					Cost	0		
	Workers start	100							
	Product/worker/Q	1 000		Production cost	2,00	Firing cost	500		
	Inventory start	0		Inventory cost	0,50	Hiring cost	100		
				·					
Q	Demand (P)	Production (V)	Inventory(I)	Workerd needed (PD)	Hired (H)	Fired (F)	Demand constraints (OP)	Production constraints (OV)	Workforce constrtaints (OD)
1	80000,00	0,00	0,00	0	0	0	0	0	100
2	50000,00	0,00	0,00	0	0	0	0	0	0
3	120000,00	0,00	0,00	0	0	0	0	0	0
4	150000,00	0,00	0,00	0	0	0	0	0	0
Total	400000,00	0,00	0,00		0,00	0,00			
		1					1		
		Solver will put solution here					Thes cells constraint formulas: Example 14.3.		

Chase demand with optimization (step two) – constraints formulas

Only inform	ation	Demand	
Demand constraints	V1-I1	80000	
	I1+V2-I2	50000	
	I2+V3-I3	120000	
	I3+V4-I4	150000	
		Workers needed =PDi	
Production constraints	1000*PD1	1000* PD1	
	1000*PD2	1000* PD2	
	1000*PD3	1000* PD3	
	1000*PD4	1000* PD4	
		H=hired, F= fired	
Workforce constraints	100+H1-F1=PD1		
	PD1+H2-F2=PD2		
	PD2+H3-F3=PD3		
	PD3+H4-F4=PD4		

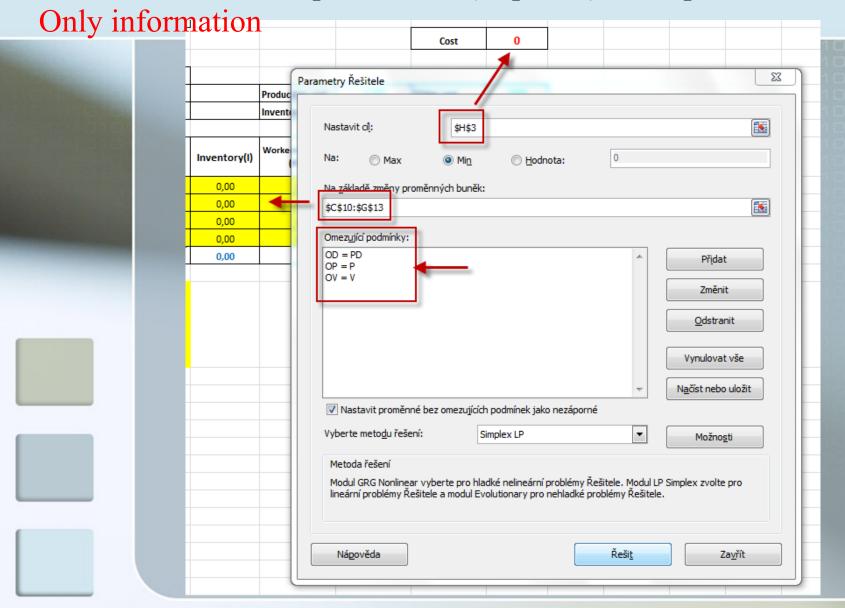
Chase demand with optimization (step three) – setup of the objective function Only information

Minimize: 100*(H1+H2+H3+H4) + 500 *(F1+F2+F3+F4) + 0,50* (I1+I2+I3+I4) + 2*(V1+V2+V3+V4)

This formula is necessary to put to excel (cell cost)

Nacist externi data		Pripojeni		Seradit a fi				
H3 ▼ (* f _* =H7*F14*			+H6*G14+F7*	*D14+F6*C14				
Α	В	(D	Е		G	Н
	Page 594 Ruseel and Taylor							
	Chase demand						Cost	0
	Workers start	10	00					
	Product/worker/Q	10	00		Production cost	2,00	Firing cost	500
	Inventory start	C)		Inventory cost	0,50	Hiring cost	100

Chase demand with optimization (step four) – setup of the solver



Chase demand with optimization (step five) – solution created by Solver

Only information

									0101
	Page 594 Ruseel and Taylor								
<u> </u>	Chase demand					Cost	832000		
	Workers start	100							
	Product/worker/Q	1 000		Production cost	2,00	Firing cost	500		
	Inventory start	0		Inventory cost	0,50	Hiring cost	100		
Q	Demand (P)	Production (V)	Inventory(I)	Workerd needed (PD)	Hired (H)	Fired (F)	Demand constraints (OP)	Production constraints (OV)	Workforce constrtaint (OD)
1	80000,00	80000,00	0,00	80	0	20	80000	80000	80
2	50000,00	80000,00	30000,00	80	0	0	50000	80000	80
3	120000,00	90000,00	0,00	90	10	0	120000	90000	90
4	150000,00	150000,00	0,00	150	60	0	150000	150000	150
Celkem	400000,00	400000,00	30000,00		70,00	20,00			
		Solver will put solution here					These cells contain constraint formulas : Example 14.3.		

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

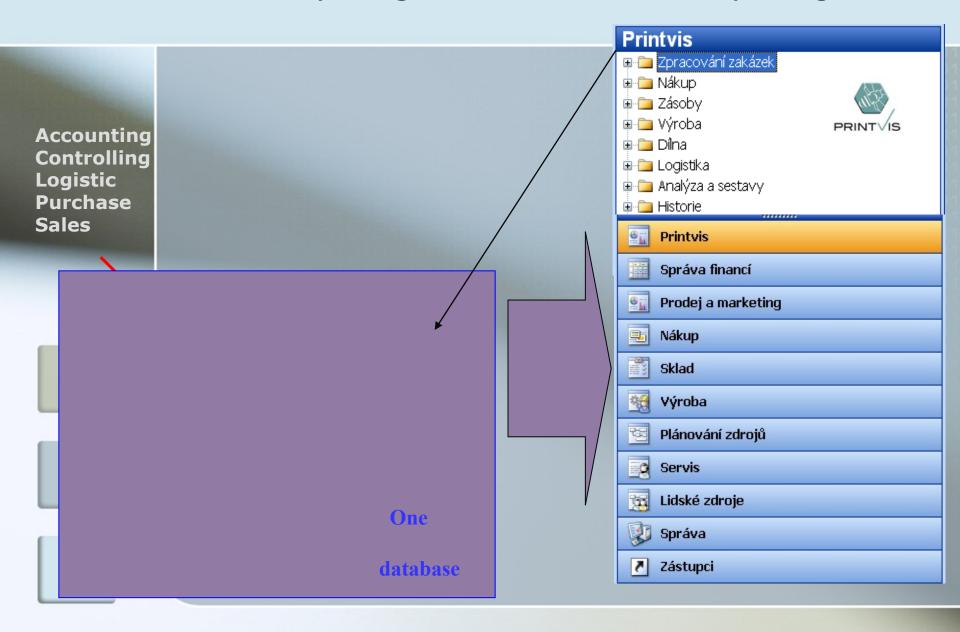




- by 3 different programmers from 3 different companies
- MS Office

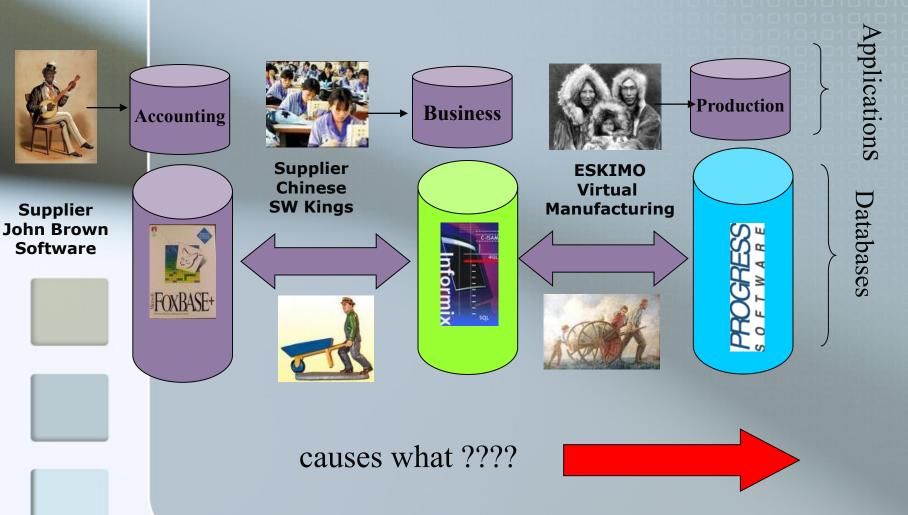


Solution fully integrated to standard ERP package



Actual situation (example)





Effects

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

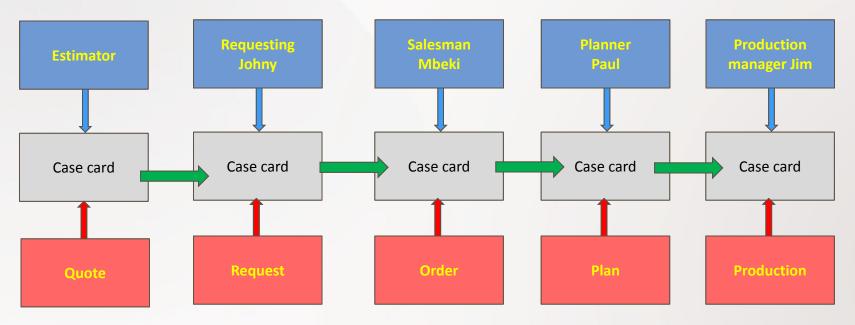
A simple business case (printing

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)



- 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
 - stitching

- special printing operations
- flexible invoicing
- on-line accounting and so on and so on

Printing machine



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...

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 ——

- 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

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

Other standard ERP modules:

Service Management Human Resources Business Analytics.. Accounting

Logistics

Purchase and Payables

Sales and Receivables

Standard production

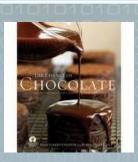
CRM

A simple business case....project management – intro

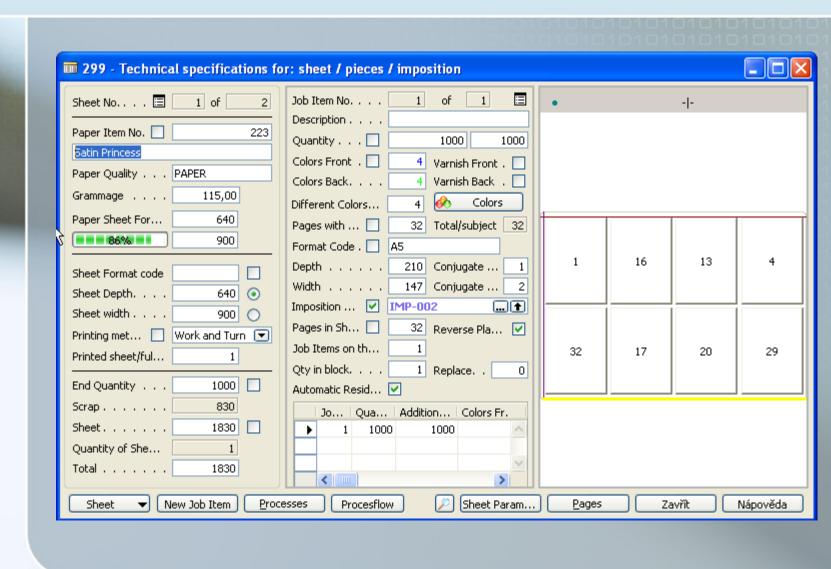
Live Meeting:

- 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)



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...

- 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
- modification ERP and a Print for Czech conditions (market specifications and legislation)
- cope with inner application

Project entries..

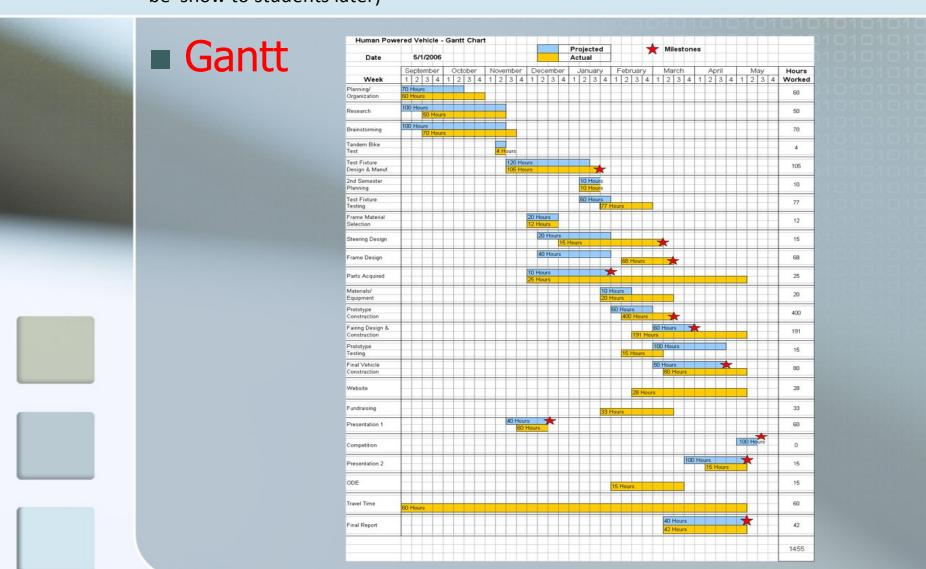
- translation of marketing material (fact sheet) and its printing in compliance with predefined templates
- creation of PWP presentation for selling
- prospect prediction segments of market
- naming of benefits "selling against"
- presentation to chosen prospects and reaction to questions- use of feedbacks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

Project entries..

- "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)



Project entries...

- 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...

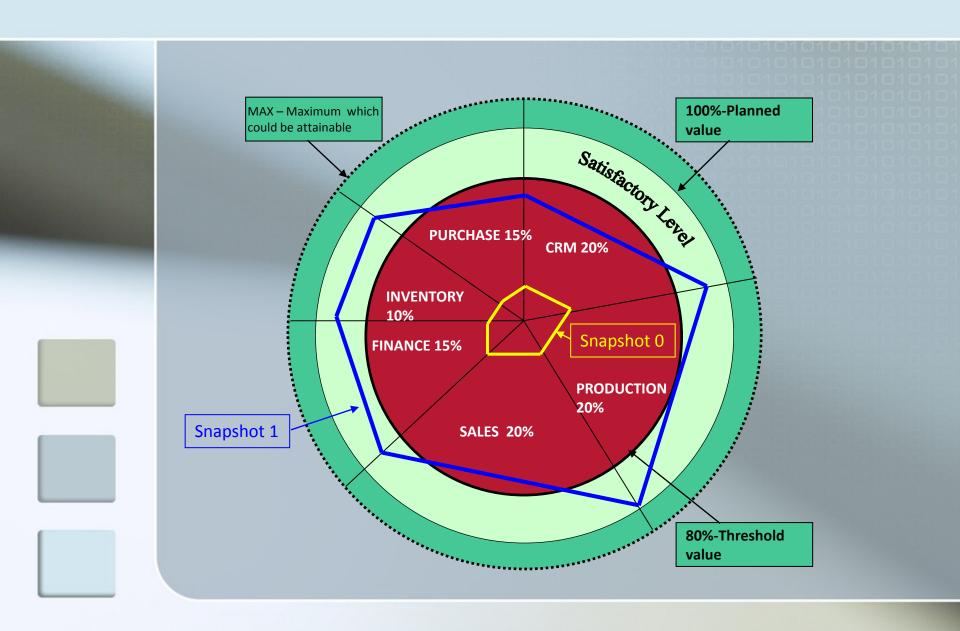
Activities

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)



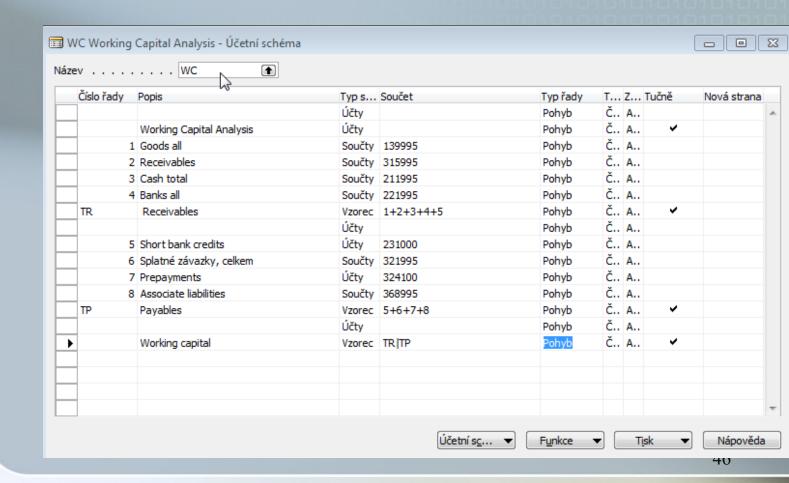
Reporting (NAV tools or JETs)



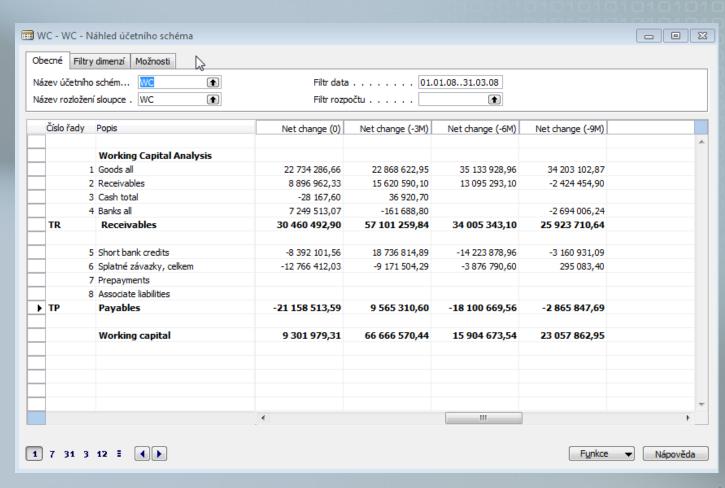
Main principles (source tables and their entries)



Working capital – setup of the accounting schedule from NAV



Working capital – Show of the results from NAV

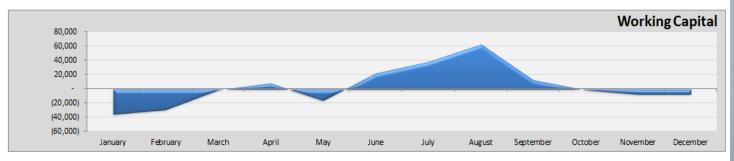


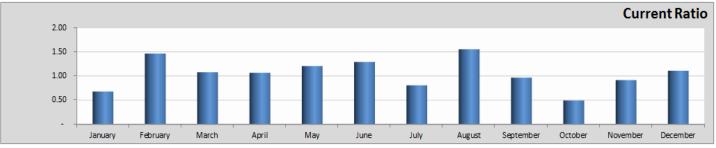
Working capital – Show of the results from JETs

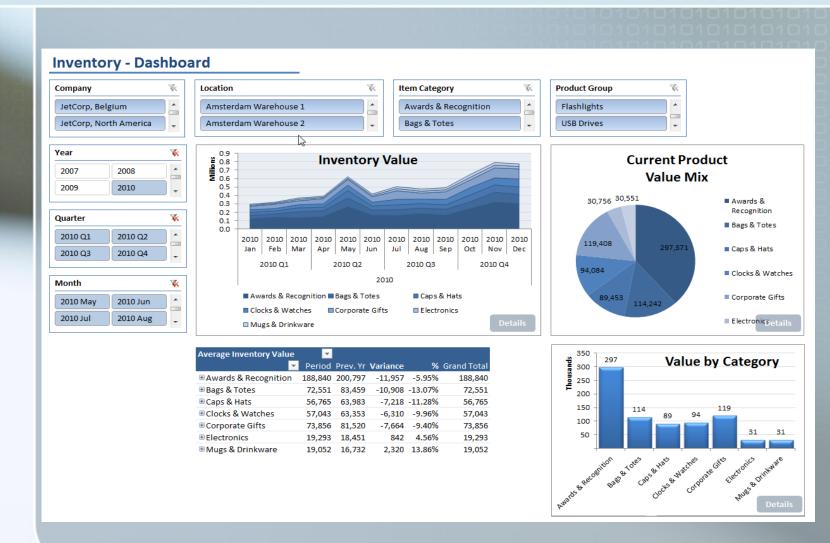
Working Capital & Current Ratio

Report Date 8/23/2011

	⊳				2011							
	January	February	March	April	May	June	July	August	September	October	November	December
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







Another possible project.

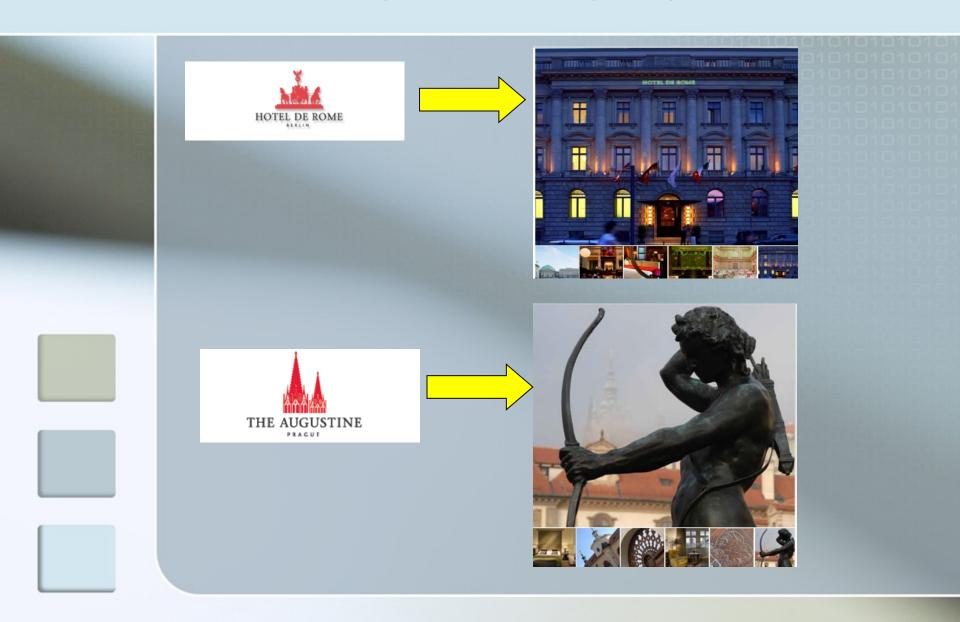


- Hotel chain Rocco Forte * * * * *
- Where? (Great Britain 2x, Scotland 1x, Germany 2x, Prague 1x, Rome, Florence, CH, Russia)
- **SW choice** (chosen company for delivery standard accounting package of ERP and cooperation with author of hotel vertical solution : Serenissima Informatica, Padova)
- Choice 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

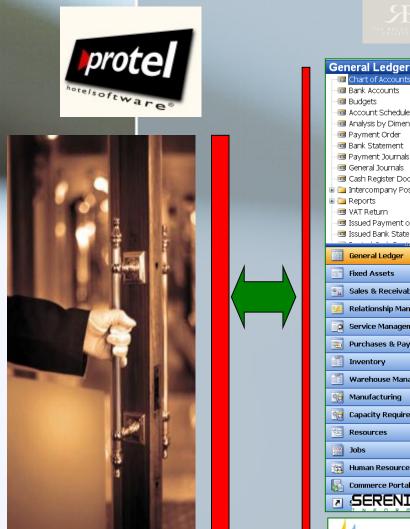
Another possible project...



Another possible project



Basic Concept (survey)







Microsoft Dynamics



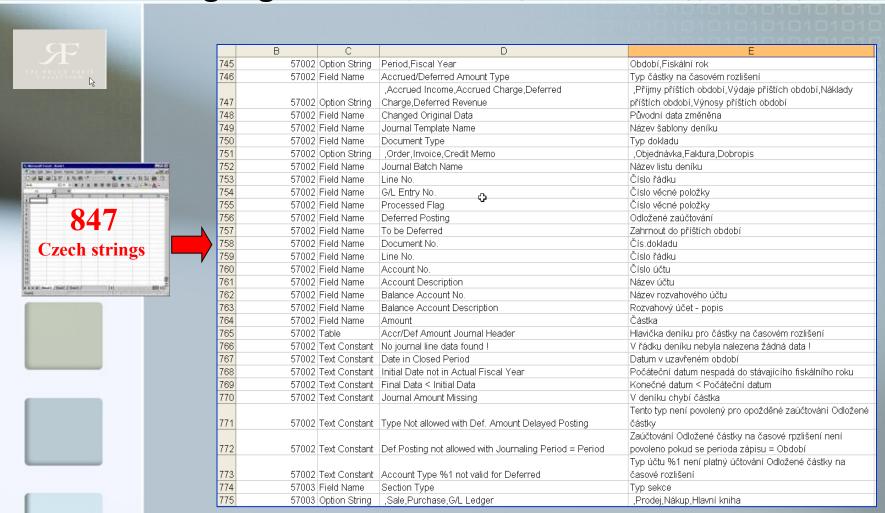






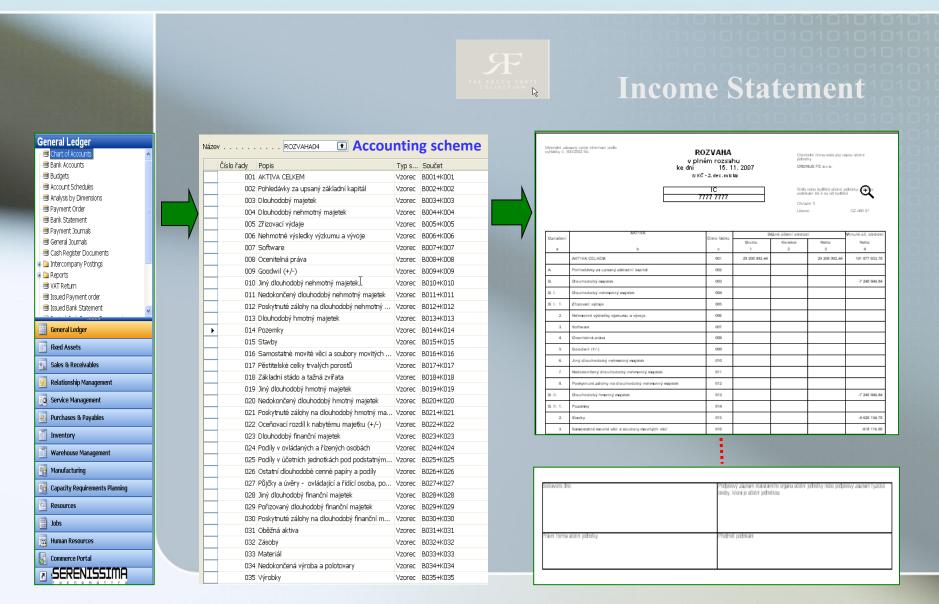
Dataport

Translation of text strings used for communication Protel<->Dynamics NAV to Czech language (necessary knowledge of terminology and language)



Balance sheet (generation using accounting schemes –

will be introduced to students)



Uniform System of Accounts

_	.						-		
No.	Name	▼ Income/Balance	▼ Account Type	▼ Mapping	▼ count synte	Analytic	▼ 0	zech description	1010
0213300	T CHIZION TONIO	parameesmeet	1 wasing	fie der	313	120	LUVULKY		1010
0047500	Other Debtors - Insurance Advances Premium Payment	Balance Sheet	Posting		381	100	Náklady	příštích období - pojištění zaměstnan	ců
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 o	dpovědnosti
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	přístích období - daň z nemovitosti	
0141000	Financing Costs	Balance Sheet	Posting		381	700	Náklady	příštích období - náklady na financova	ání
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 p	říštích období - stock	
0250050	GRNI Non Stores	Balance Sheet	Posting		383	200	Výdaje p	říštích období – non-stock	
0249000	Deferred Income	Balance Sheet	Posting		384	100	Výnosy p	ríštích období	
0249100	Deferred Income Other	Balance Sheet	Posting		384	200	Výnosy p	rříštích období - jiné	
0249500	Deferred Income - Subscription	Balance Sheet	Posting		384	300	Výnosy p	říštích období	
0021000	Guestledger (Accrued Income)	Balance Sheet	Posting		385	100	Příjmy p	říštích období - nevyfakturované tržby	
0048500	Accrued Income - other	Balance Sheet	Posting		385	200	Příjmy p	říštích období-ostatní	

Accrued Revenues (revenues generated in the future periods)

Income (still not created)

General Ledger

Customer

Accrued and Deferrals...(one of many helping letters)

Ciao amico,

For Deferred Costs (In italian "Risconti") it mean when You receive an Invoice for Service; Service provided partially in one Fiscal Year, and Partially for the following Fiscal Year.

Es.: 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 (In Italian Ratei).

Es.: 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.

I hope this explanation can be clear enough.

Regards.

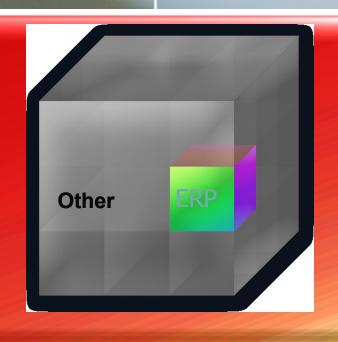
Knowledge of methods, which are necessary for project management and process management

- 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

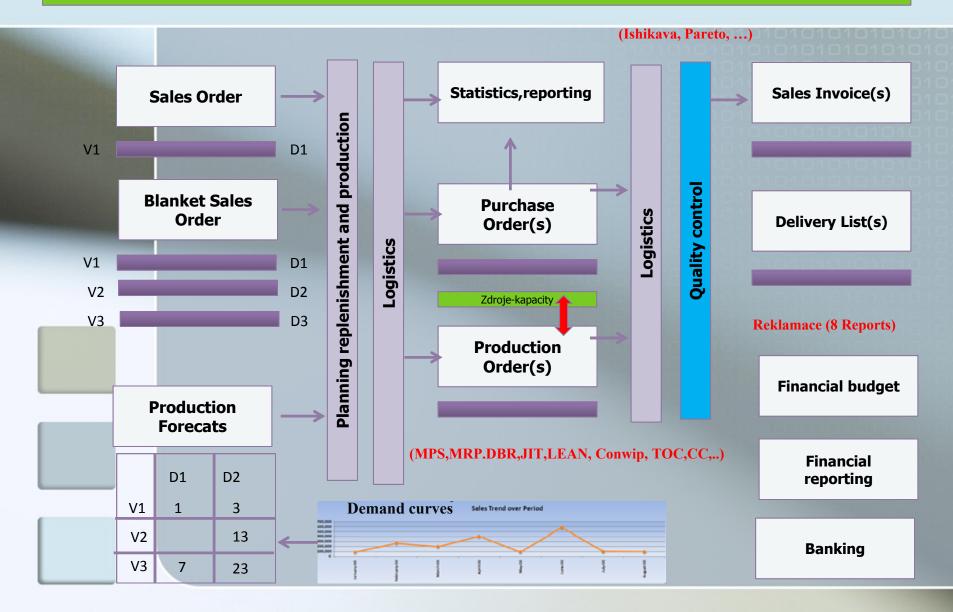
Business Analytics – some reason why to discuss



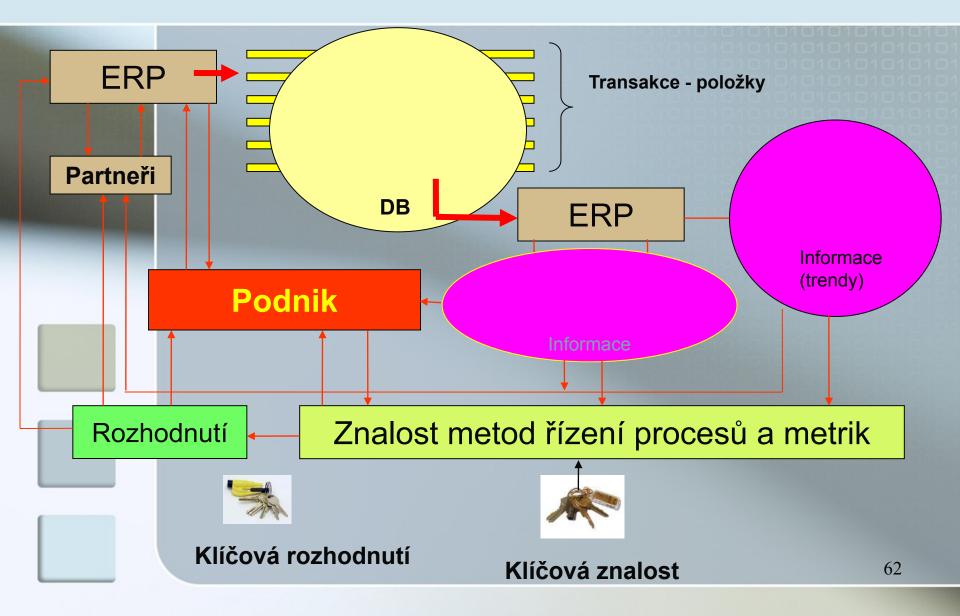
- The data is not all in the ERP
- The tools are rigid and hard to learn
- The tools don't reflect how we work today
- They don't span the continuum of needs

Financial management

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



Zjednodušené schéma využívání ERP



63

Main principles (source tables and their entries) Posting Date | Entry Type | Document Type Document Item No. Invoiced Remaining Sales Amount Cost Amount Ouantity (Actual) Purchase Purchase Receipt 107044 1908-S 10 40 993,06 0,00

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 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 %)