

HEC MONTRÉAL ERP SIMULATION GAME

Introduction to the simulation game



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ERPsim project

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- ✘ Robert Pellerin, École Polytechnique de Montréal
- ✘ Bret Wagner, Western Michigan University

Outline of the presentation

1. **A simulation game to teach ERP concepts**
2. **Description of a simulation game**
3. **What's next ?**



A need for innovative teaching approach for the « Nintendo » generation



- ✘ Show how the ERP system supports business strategies
- ✘ To develop a hands-on understanding of the concepts underlying enterprise systems
- ✘ To experience the tangible benefits of enterprise integration firsthand
- ✘ To develop technical skills at using ERP software

A simulation game to teach ERP related concepts

- ✘ In groups of 6 students, each team operates a **make-to-stock** manufacturing plant that has to interact with the suppliers and customers by sending and receiving orders, delivering their products and completing the whole **cash-to-cash** cycle
- ✘ Using standard reports, participants have to make business decisions to ensure the profitability of their operation



What's ERPsim ?

- ✘ Simulation game software developed at HEC Montréal
- ✘ Compatible with mySAP ERP
- ✘ Development team
 - ✘ Pierre-Majorique Léger (HEC Montréal)
 - ✘ Jacques Robert (HEC Montréal)
 - ✘ Gilbert Babin (HEC Montréal)
 - ✘ Robert Pellerin (École Polytechnique de Montréal)

Web video of the ERP simulation game

Outline of the presentation

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Elements of a simulation

- ✘ An ERP simulation game is a market game where the unique interface between participants and the market environment is an ERP system.
- ✘ We must define the business processes and transactions used in the game
- ✘ We must model and simulate the market environment
- ✘ Automate some transactions



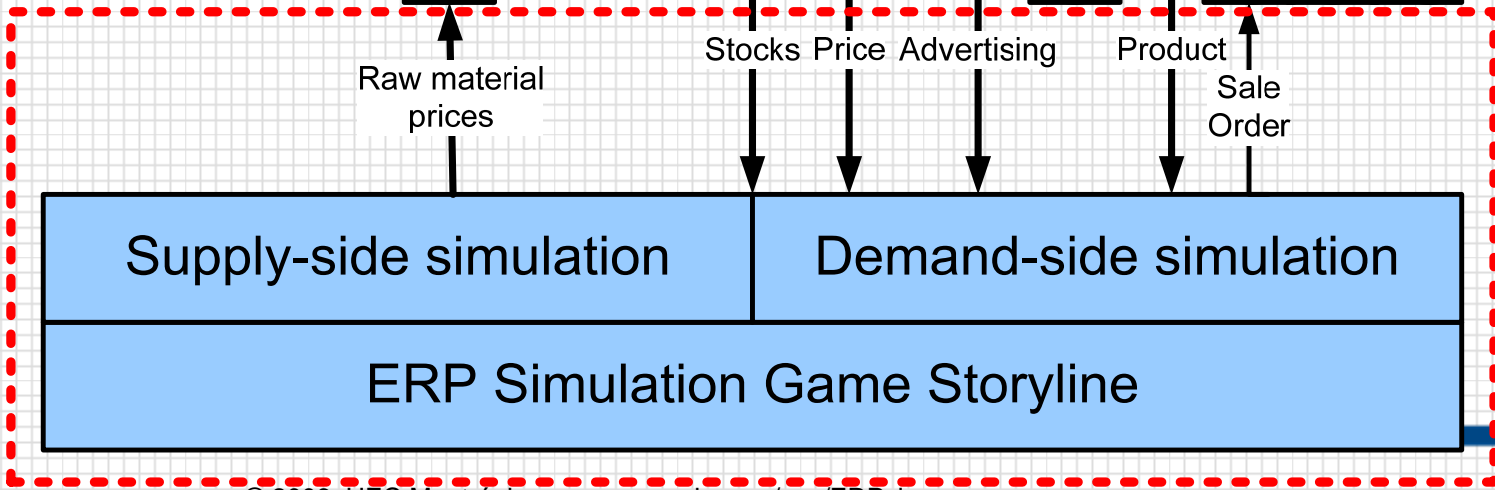
Decisions

Decision Support Systems



MySAP ERP

Business transaction



Raw material prices

Stocks

Price

Advertising

Product

Sale Order

Supply-side simulation

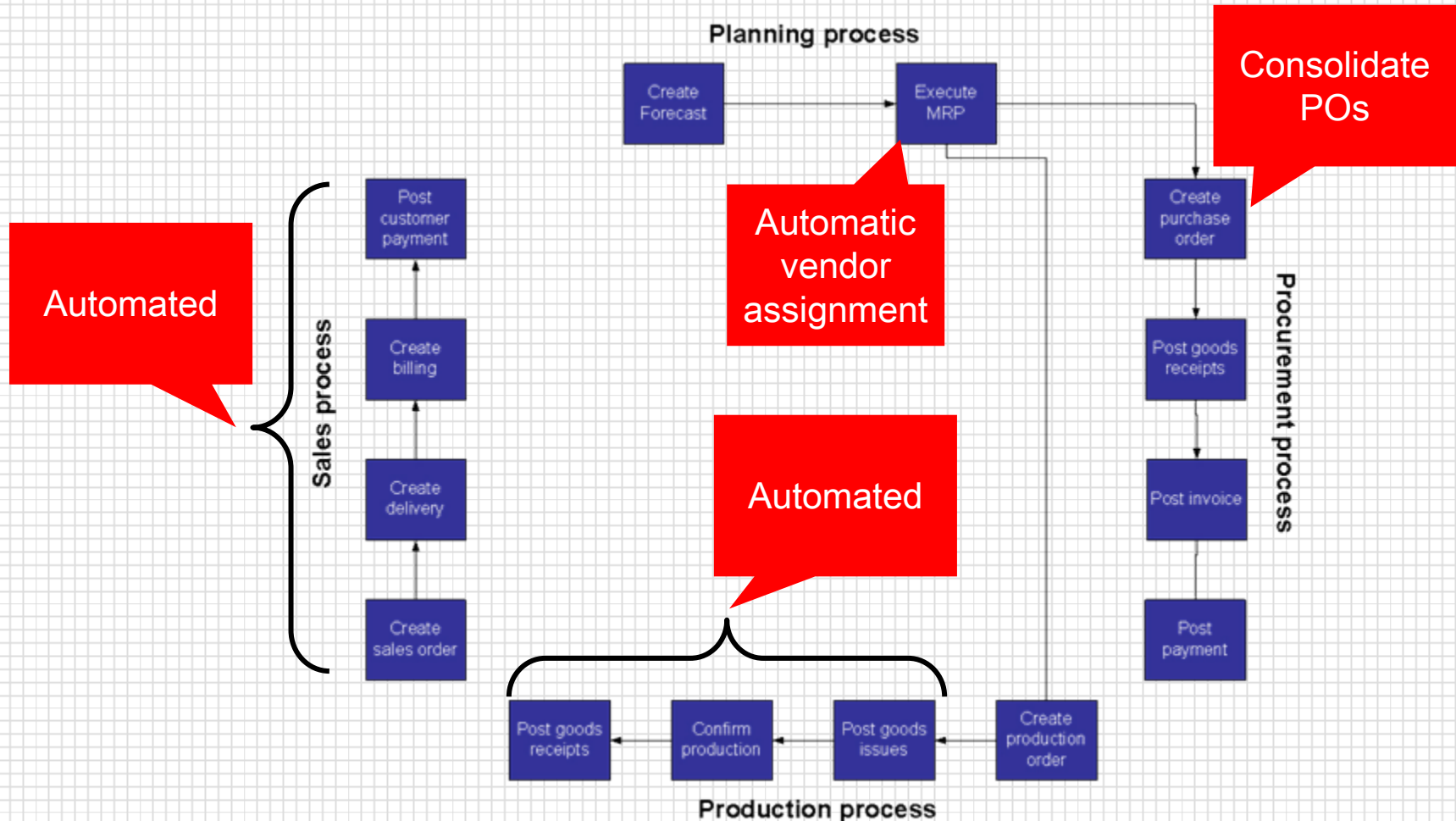
Demand-side simulation

ERP Simulation Game Storyline

ERPSim

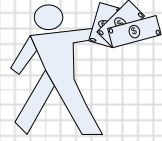

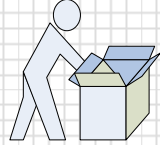
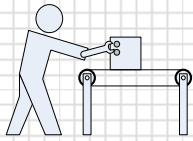

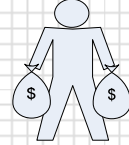
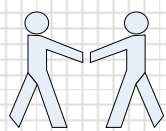
An example

The make-to-stock business scenario



An example Roles

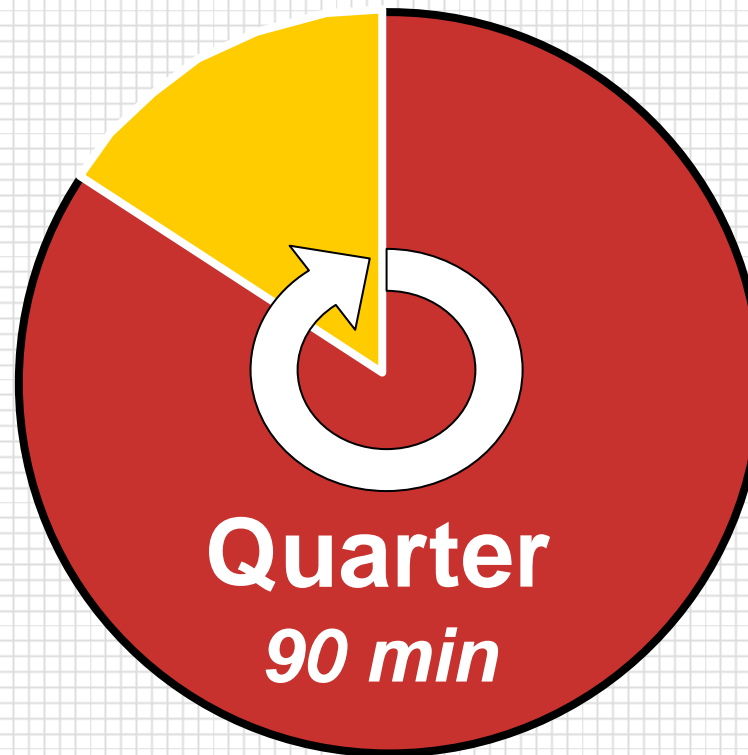
*Each participant plays one or more roles so that all
business activities are covered*

						
Procurement	Shipping & receiving	Warehousing	Production execution	Production planning	Accounting	Sales



The HEC Montreal ERP Simulation Game

Simulation day schedule

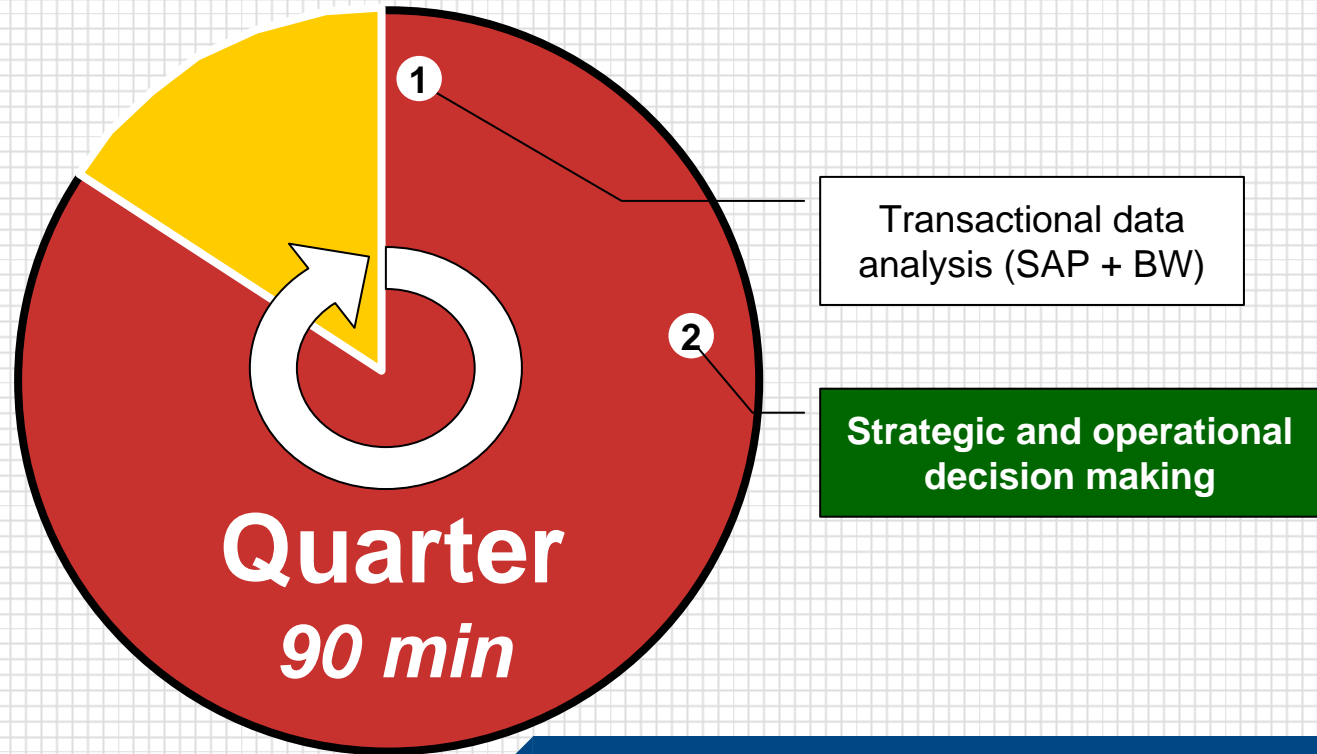


Break



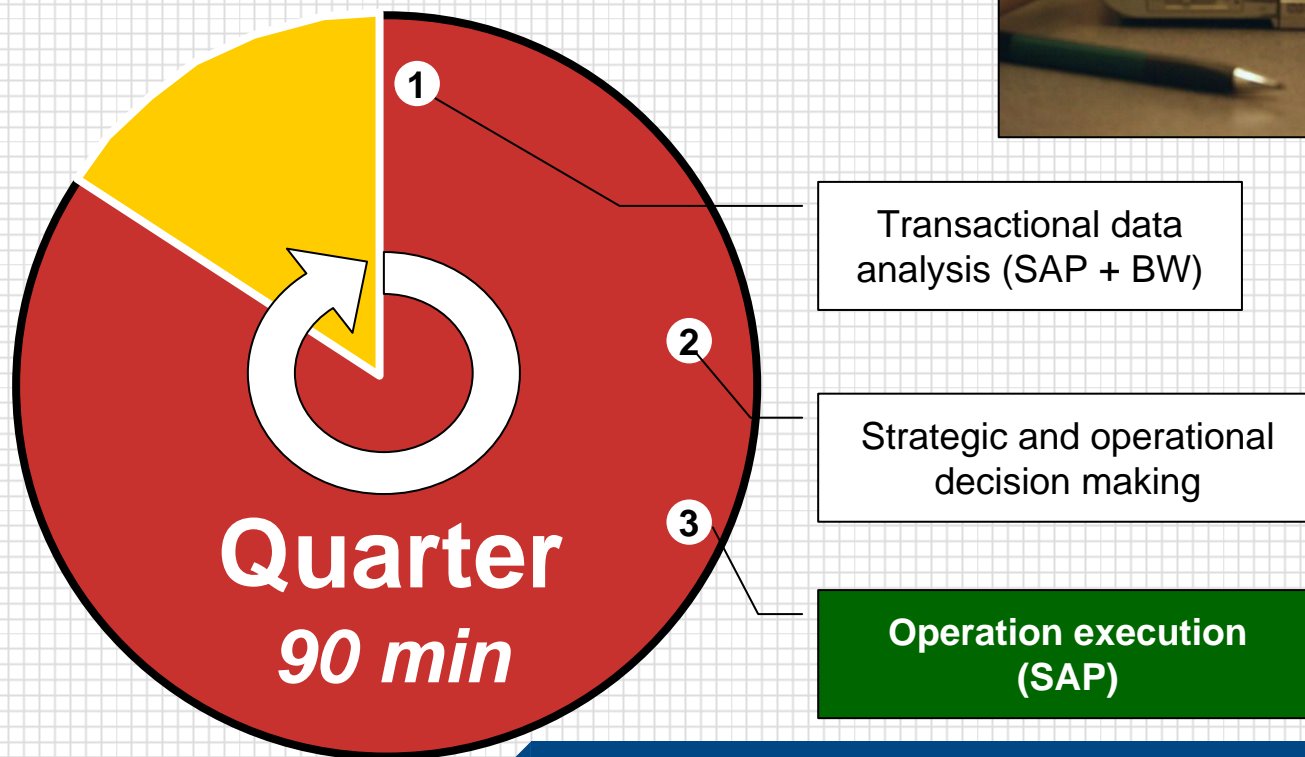
Participants

Simulation day schedule



The HEC Montreal ERP Simulation Game

Simulation day schedule



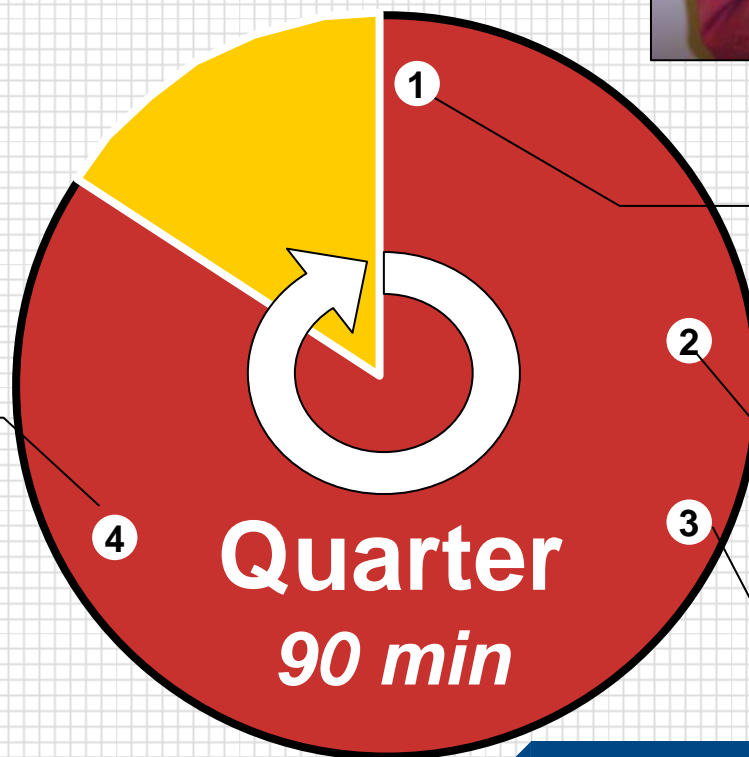
- Break
- Participants

Simulation day schedule



Prices
Inventories
Promotions
Recipe

Decisions posting



Transactional data analysis (SAP + BW)

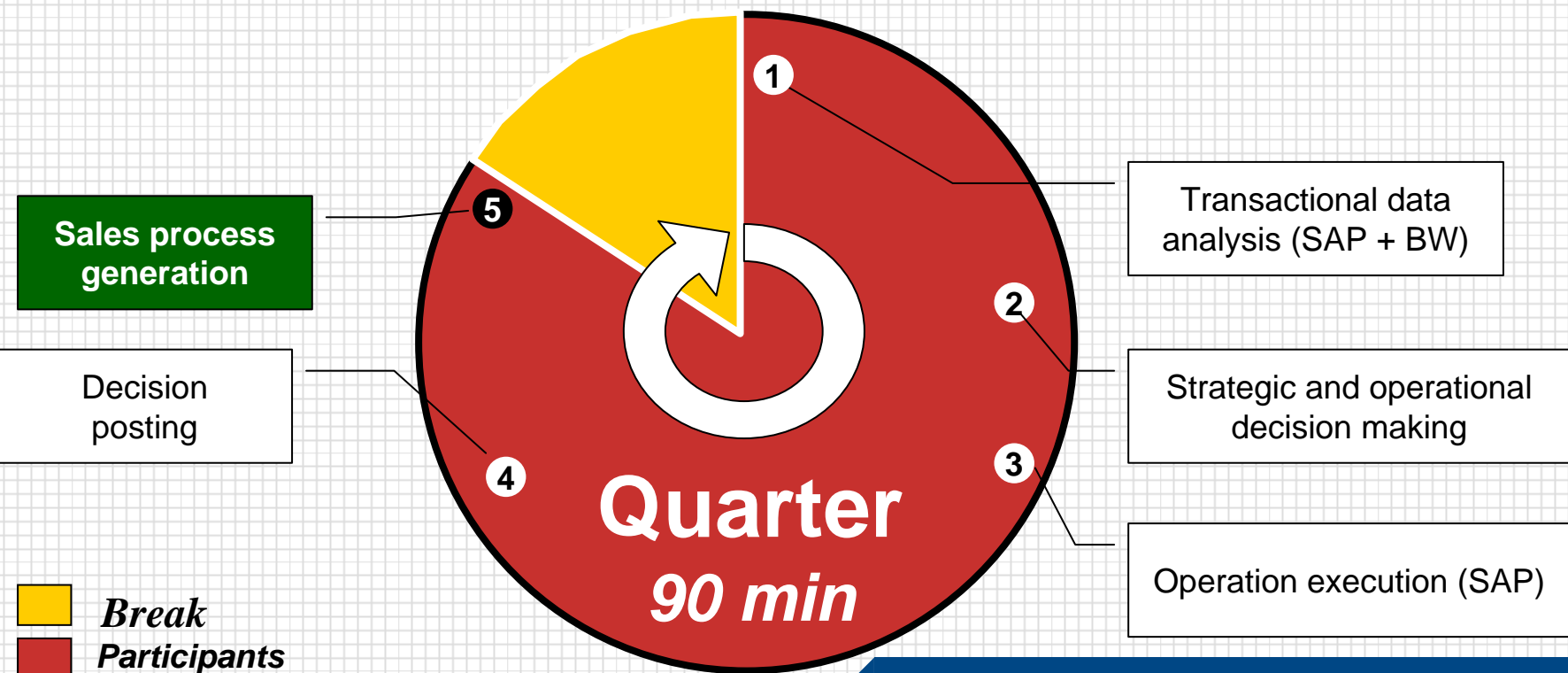
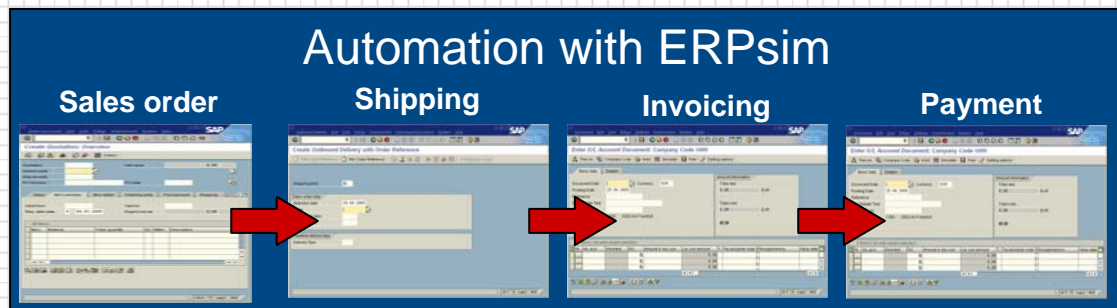
Strategic and operational decision making

Operation execution (SAP)

Break

Participants

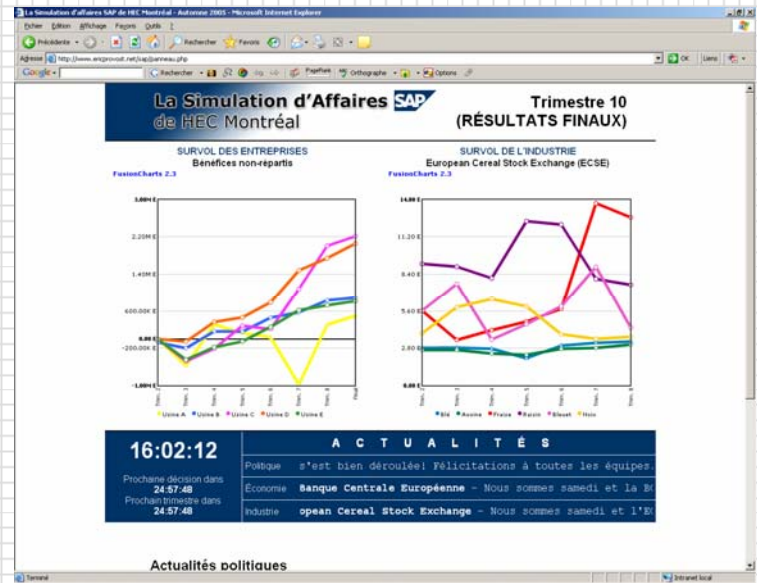
Simulation day schedule



The HEC Montreal ERP Simulation Game

Schedule of the simulation day

Divulagation of quarterly business news



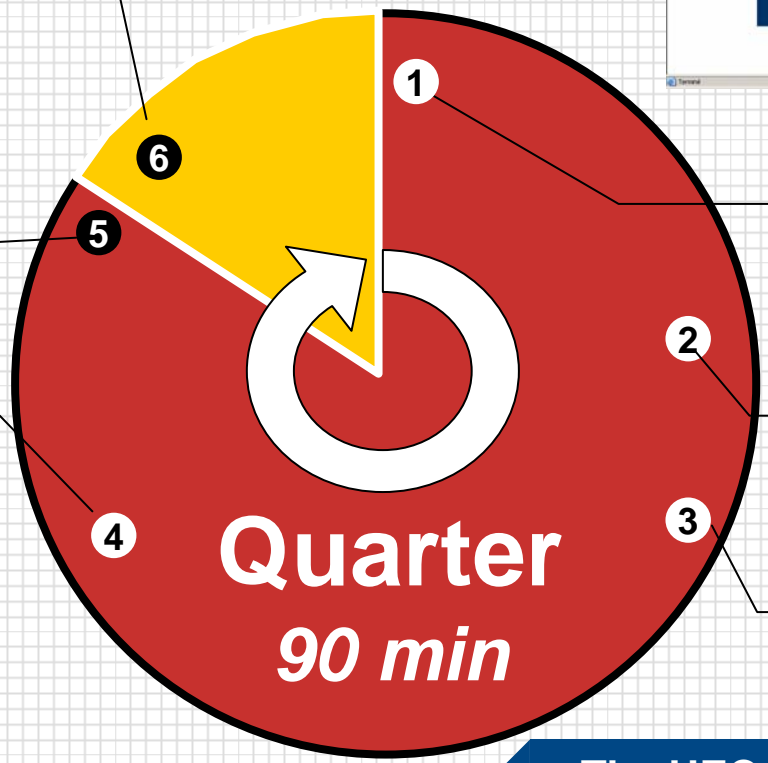
Sales process generation

Decision posting

Transactional data analysis (SAP + BW)

Strategic and operational decision making

Operation execution (SAP)

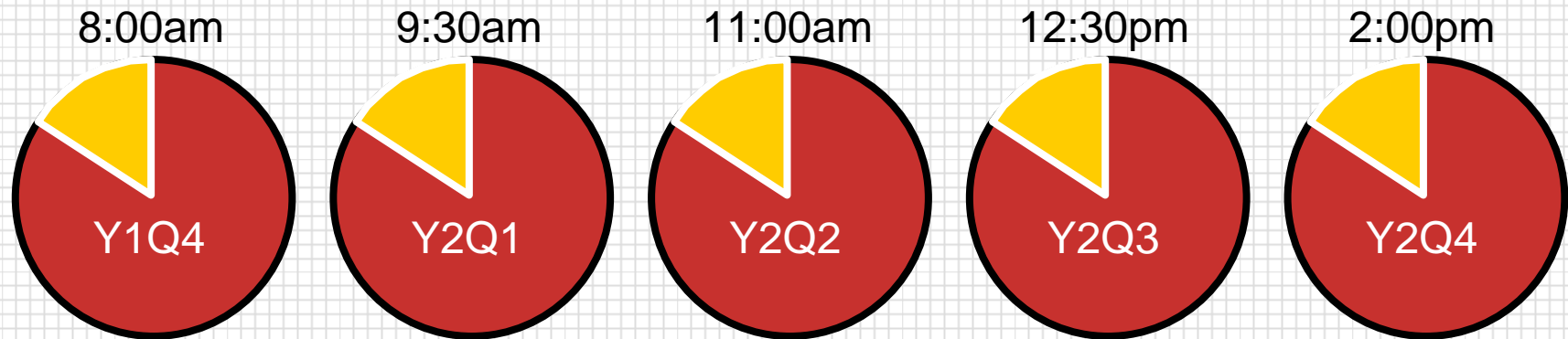


Break
Participants

The HEC Montreal ERP Simulation Game

Simulation day schedule

Typical simulation day schedule



3:30pm – 5:00pm : Preparation of annual reports

5:00pm – 6:00pm : Presentations to the board of directors

6:00pm : Announcement of the winning team



The HEC Montreal ERP Simulation Game

Simulation game demo

- ✘ Simulation 02 (Sandbox)
- ✘ 8 companies
- ✘ About 15 seconds per day

Simulation game demo

Pricing strategy



Moyenne de		product					
Team	dc	1	2	3	4	5	6
A	10	3,55			0,00	2,75	2,50
B	10	3,49	5,00	5,99	7,00	5,49	5,00
C	10	4,00		5,60		5,50	
E	10	4,43	5,26	2,49	4,78	4,51	5,55
F	10		5,00	4,50	4,50	4,80	
G	10	4,00	4,50	5,00	5,05	4,65	5,50
H	10	5,75	4,00	5,00	5,00	7,00	4,00

Moyenne de		product					
Team	dc	1	2	3	4	5	6
A	12	3,55	3,75		3,00	2,75	2,50
B	12	3,49	5,00	5,99	7,00	5,59	5,00
C	12	4,00	5,00	5,30	4,40	5,50	6,00
E	12	5,31	4,44	3,42	3,50	3,56	4,67
F	12	3,40	3,80	5,20	4,99	4,20	3,70
G	12	3,90	3,00	3,50	5,30	5,00	5,70
H	12	5,75	4,00	4,00	5,00	7,00	4,00

Moyenne de		product					
Team	dc	1	2	3	4	5	6
A	14	2,10	3,75		0,00	2,75	2,50
B	14	5,00	5,00	5,00	5,00	5,00	5,00
C	14		5,00		4,40		6,00
E	14	5,55	4,28	3,75	4,00	3,02	4,29
F	14	3,70	4,20	5,50			4,10
G	14	5,15	3,50	4,20			5,00
H	14	5,75	4,00	4,00	5,00	7,00	6,57



Simulation game demo

Recipes (team A to D)

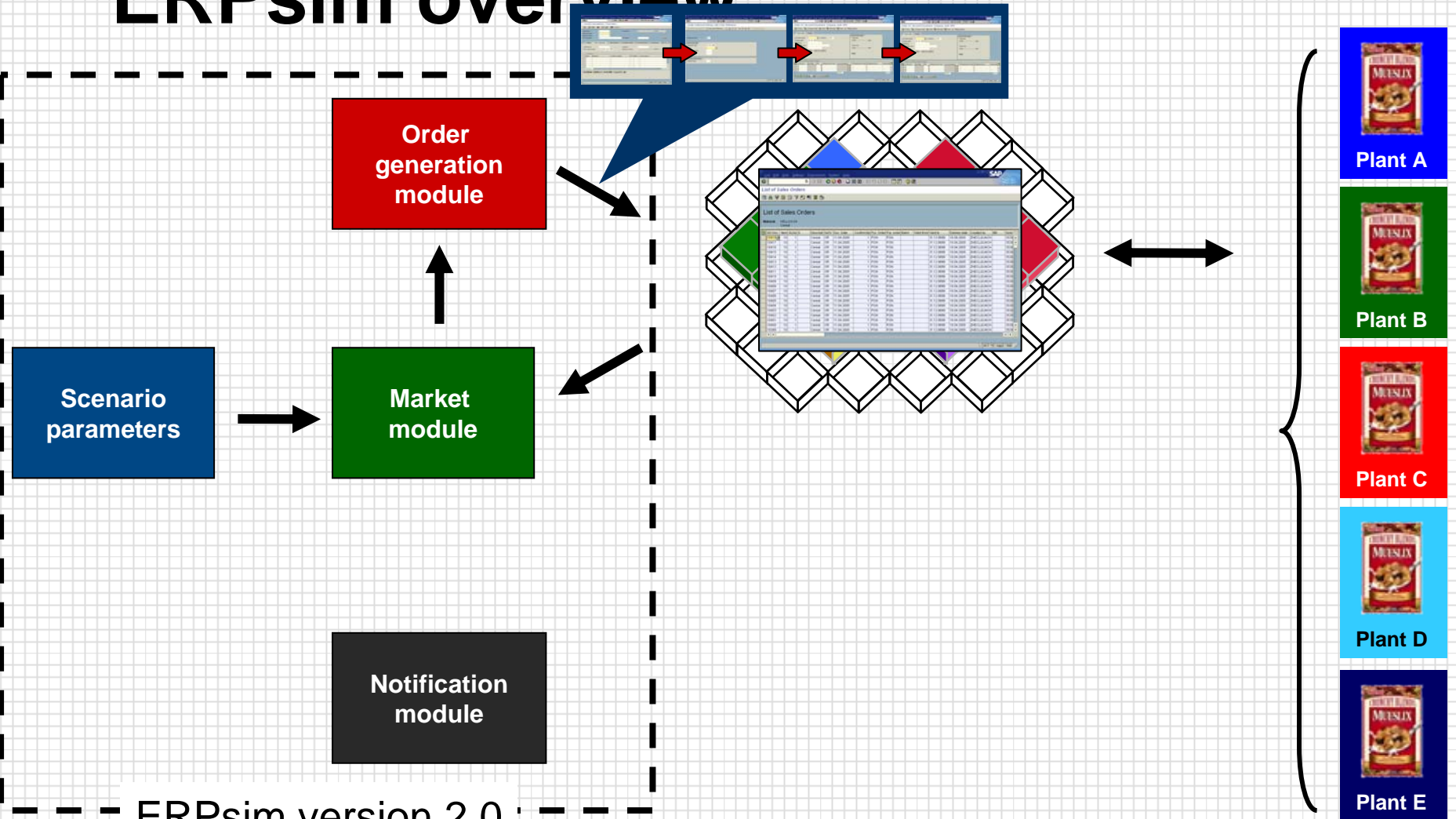
Team	Product	BLU	NUT	OAT	RAI	STR	WHE	Total
A	1		0.25	0.15	0.01		0.10	0.50
	2		0.15	0.25			0.10	0.50
	3		0.13	0.28			0.10	0.50
	4		0.25	0.55			0.20	1.00
	5			0.55	0.25		0.20	1.00
	6			0.80			0.20	1.00
B	1			0.55			0.45	1.00
	2	0.10	0.08	0.25	0.05	0.02	0.50	1.00
	3			0.35		0.30	0.35	1.00
	4			0.35	0.30		0.35	1.00
	5		0.30	0.35			0.35	1.00
	6	0.10	0.08	0.25	0.05	0.02	0.50	1.00
C	1			0.55			0.45	1.00
	2			0.28			0.23	0.50
	3		0.30	0.40			0.30	1.00
	4		0.15	0.20			0.15	0.50
	5			0.43	0.25		0.33	1.00
	6			0.21	0.12		0.16	0.50
D	1			0.50			0.50	1.00
	2			0.35		0.25	0.40	1.00
	3			0.18		0.13	0.20	0.50
	4			0.30	0.40		0.30	1.00
	5		0.13	0.18			0.20	0.50
	6	0.10	0.08	0.25	0.05	0.02	0.50	1.00

Simulation game demo

Recipes (team E to H)

Moyenne de Quantity			Raw material					Total
Team	Product		BLU	NUT	OAT	RAI	STR	
E	1	0.05	0.05	0.50	0.15	0.05	0.20	1.00
	2			0.60	0.20		0.20	1.00
	3			0.30		0.10	0.10	0.50
	4			0.30	0.10		0.10	0.50
	5		0.60	0.20			0.20	1.00
	6	0.03	0.03	0.25	0.08	0.03	0.10	0.50
F	1		0.10	0.20			0.20	0.50
	2			0.10		0.20	0.20	0.50
	3			0.40		0.40	0.20	1.00
	4			0.50			0.50	1.00
	5			0.40	0.20		0.40	1.00
	6		0.30				0.20	0.50
G	1			0.50			0.50	1.00
	2		0.21	0.15			0.15	0.50
	3		0.12	0.19			0.19	0.50
	4			0.36	0.28		0.36	1.00
	5			0.24	0.38		0.38	1.00
	6	0.20		0.40			0.40	1.00
H	1			0.50			0.20	0.70

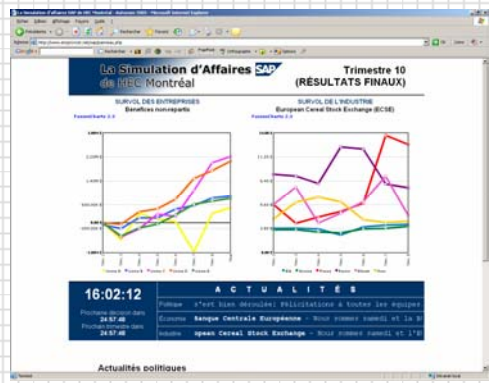
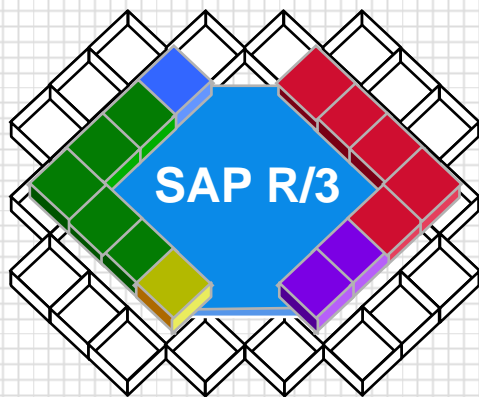
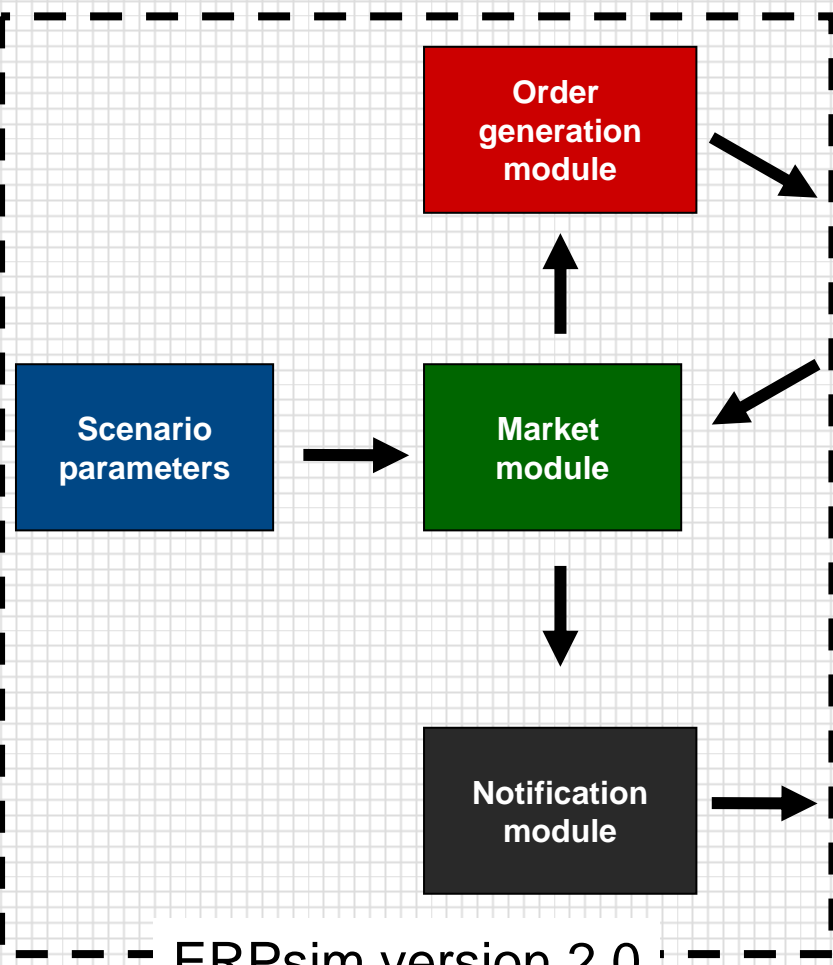
ERPsim overview



ERPsim version 2.0
 Compatible with mySAP ERP

The HEC Montreal ERP Simulation Game

ERPsim overview



-  Plant A
-  Plant B
-  Plant C
-  Plant D
-  Plant E

ERPsim version 2.0
Compatible with mySAP ERP

The HEC Montreal ERP Simulation Game

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3. **What's next ?**



2006-2007 Beta roll out

✘ Fall 2006

- ✘ University of Southern California
- ✘ University of Central Florida
- ✘ University of Missouri – Rolla

✘ Winter/Spring 2007

- ✘ École Polytechnique de Montréal
- ✘ Western Michigan University
- ✘ University of Arkansas
- ✘ Carnegie Mellon University
- ✘ Ryerson University
- ✘ University of Cincinnati
- ✘ Grant MacEwan College

The HEC Montreal International ERPsim Game

- ✘ Spring 2007 : Beta test of a virtual competition with 4 to 6 sites
- ✘ Fall 2007 : Global roll out
- ✘ Spring 2008 : First International ERP Simulation Game

Simulation material

✘ Article

- ✘ Léger, P-M. Using a Simulation Game Approach to Teach ERP Concepts. Journal of IS Education, Forthcoming.

✘ Book

- ✘ Léger, Robert, Babin and Pellerin. « ERP Simulation Game with mySAP ERP », HEC Montréal.

✘ Instructor guide DVD

✘ ERPsim software

- ✘ Beta release of academic version 2.3
- ✘ Visit www.hec.ca/sap/ERPsim for additional info.

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