

The logo for the University of Lausanne (UNIL), featuring the word 'Unil' in a white, elegant cursive script.

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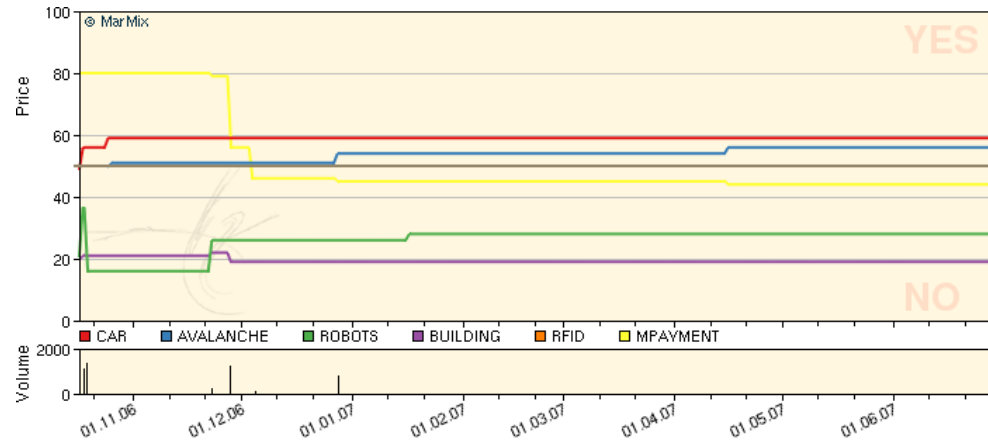
HICSS'08 > CL 16 - Negotiation Support Systems

# Preparing a Negotiated R&D Portfolio with a Prediction Market

Cedric.Gaspoz@unil.ch - University of Lausanne - Switzerland

# Agenda

- Motivation
- R&D Portfolio Management
- Prediction Markets Foundations
- Design Issues
- Evaluation of the Experiments
- Conclusions



# R&D Portfolio Management (I)

The R&D project portfolio selection is a **periodic activity**, which aims at **optimizing** the research effort of the company, while enabling it to **select** a portfolio which corresponds to its **strategic objectives** and without **exceeding the resources** available.



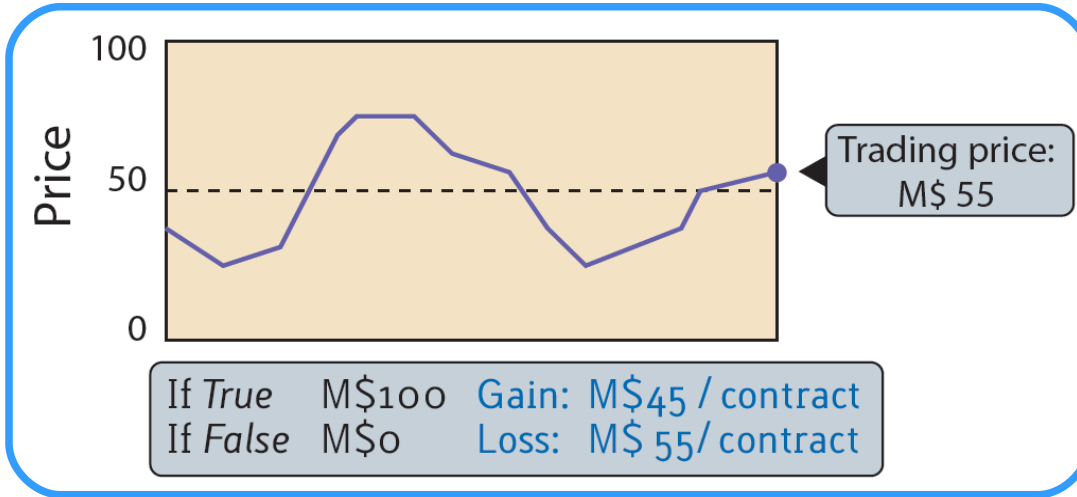
# R&D Portfolio Management (II)

- Selecting the right criteria
  - Applicable to all projects
- Collecting the data
  - Lack of concrete information
  - Updating the data
- Negotiating the evaluation
  - Multi-actor negotiation or multi-criteria decision-making process



# Prediction Markets Foundations (I)

« *What will be the HICSS papers acceptance rate next year?* »



Sell (Qty)	Buy (Qty)	Last	Change
\$56 (10)	\$53 (45)	\$56	+2% ▲

Never!  
55% is too high

Sell		Buy	
Qty	Price	Price	Qty
30	56	56	20
80	57	53	45
10	59	50	12
250	62	42	100

It will be 57%

Perhaps 42%

# Prediction Markets Foundations (II)

- Selecting the right criteria
  - Implicit comparison criteria
- Collecting the data
  - Aggregate in real time the data
- Negotiating the evaluation
  - Continuous negotiation by the market-maker

# Design Issues

- Choice of forecasting goal
  - Claim Description
  - IPO
- Incentives
  - Interface
  - Lack of interest
- Market design
  - Market maker algorithm

**Choice of forecasting goal:**  
Selection and description of  
prediction issue



**Incentives for participation and  
information revelation:**

- Composition of initial portfolios
- Choice of incentive mechanism



**Financial market design:**  
Choice of trading mechanism  
and market rules

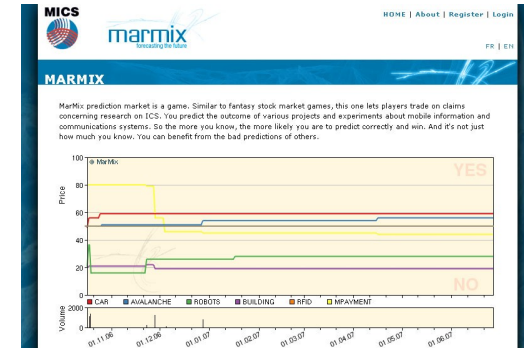
# Evaluation of the Experiments

A prediction market for R&D should:

- integrate a **standard framework** to support claim formulation
- integrate an easy **IPO mechanism** to support the innovation process
- occult the **financial mechanisms** to reduce the trader's learning curve and increase his incentive
- allow the combination of **group sessions** with individual sessions to increase the incentive of the traders
- integrate an **automatic negotiation agent** i.e. market maker to increase the quality of the evaluation



# Conclusion



R&D Portfolio Problems	Prediction Markets Solutions	Design Propositions
<b>Data collection and actualisation</b>	Reduced to BUY/SELL, contributed by everybody	<ul style="list-style-type: none"> <li>Interface design</li> <li>Group sessions</li> </ul>
<b>Comparison criterion selection</b>	Implicit in BUY/SELL, aggregated in the price	<ul style="list-style-type: none"> <li>Claim description</li> <li>IPO process</li> </ul>
<b>Judgment negotiation</b>	Automatic market making between buyers/sellers	<ul style="list-style-type: none"> <li>Automatic Market maker</li> </ul>

# Further research

> Prediction market for **Environmental Scanning** <

**What will be the next mainstream research topic in IS for the next decade?**

## Motivation

- Actual individual indicators are biased or inappropriate (bibliometric, #patent, grants, #faculty, ...)
- No combined model
- Lot of criticism but no solution

# Are prediction markets a real alternative?

## If YES...

- Define maturity levels for research topics (emerging topic, established topic, declining topic, ...)
- Formulate appropriate claims (without using the «common» indicators -> biais)
- Evaluate the claims (how to pay?)

...For NSF / Universities-> better ressource allocation

...For Faculty -> better research «productivity»