Light Weight Simulation

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Abstract

Many simulations suffer from the fact that the investment and the maintenance costs more than the harvested value of the simulation results. In this presentation we show a light-weight approach to simulation. Key success factors are discussed to keep the simulation light-weight and to get useful results nevertheless.
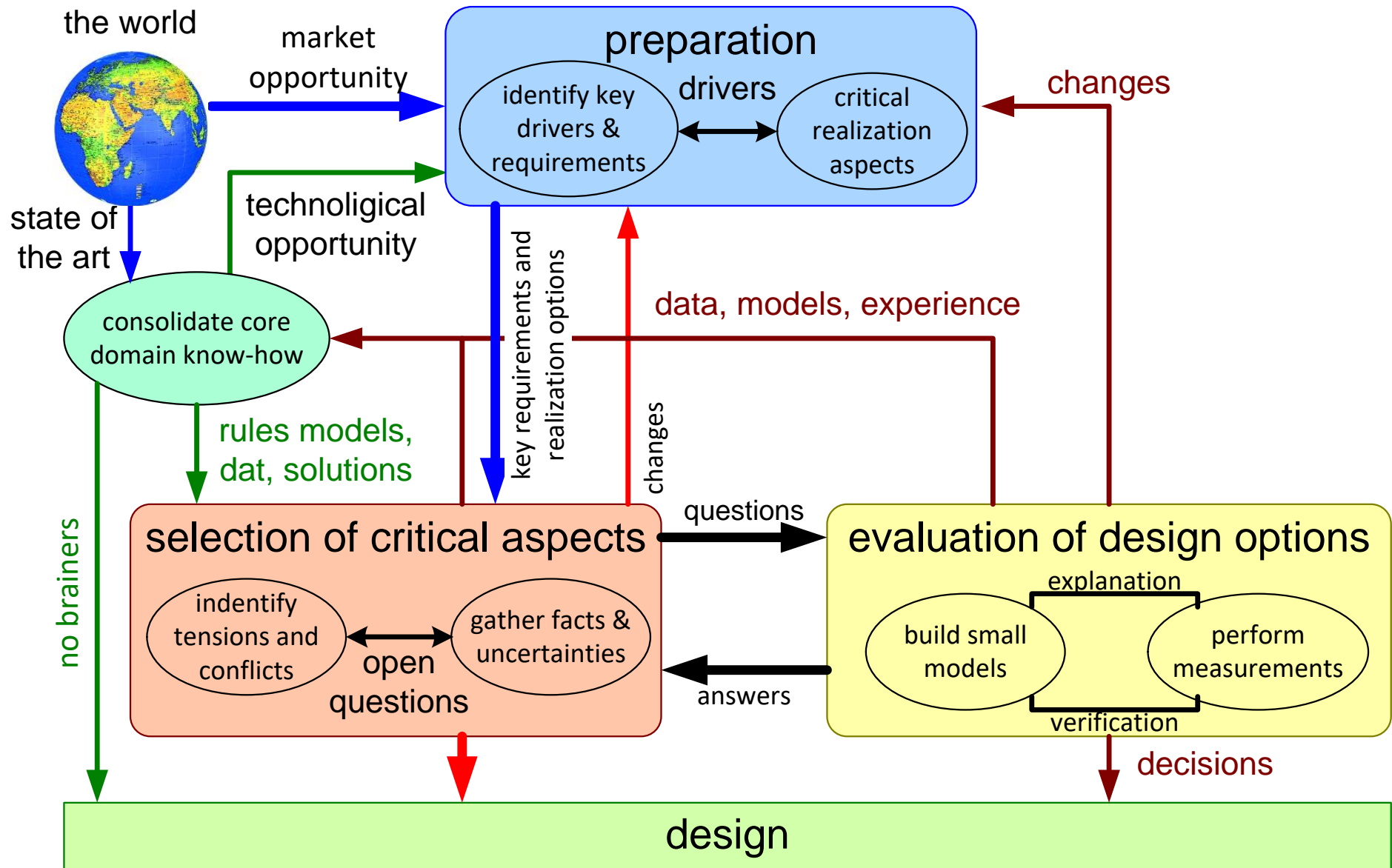
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logo
TBD

High Level Method

High Level Method Stepwise

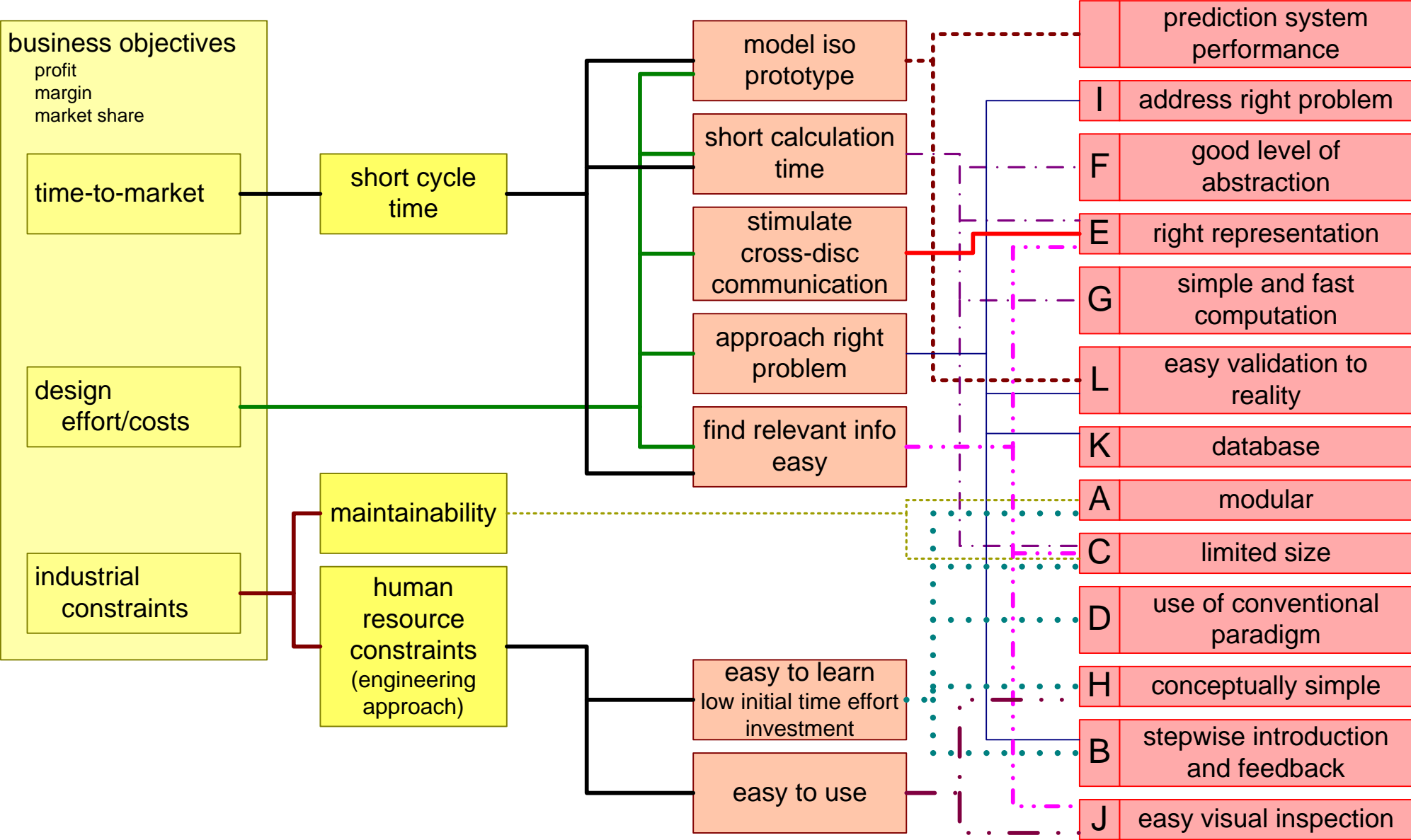|	
1A. Identify (customer) key drivers	in terms of **stakeholders** and **concerns**
1B. Identify critical realization aspects	for instance due to **cost**, **performance**, **robustness**, **technological maturity**, et cetera
1C. Consolidate core domain know how	make **implicit** know how **explicit**
2A. Identify tensions and conflicts	
2B. Gather facts, identify uncertainties	**figures** of **merit**, **design rules**
3A. Build small models *hours .. weeks*	addressing **tensions**, using **facts**, and creating **insight** in the **uncertainties**
3B. Perform measurements	for **calibration** and **validation**

- Iterate many times
- Provide overview   by means of **visualizations**

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Success Factors Light Weight Simulation

business objectives
- profit
- margin
- market share

time-to-market

design effort/costs

industrial constraints

short cycle time

maintainability

human resource constraints (engineering approach)

model iso prototype

short calculation time

stimulate cross-disc communication

approach right problem

find relevant info easy

easy to learn
low initial time effort investment

easy to use

prediction system performance

I — address right problem

F — good level of abstraction

E — right representation

G — simple and fast computation

L — easy validation to reality

K — database

A — modular

C — limited size

D — use of conventional paradigm

H — conceptually simple

B — stepwise introduction and feedback

J — easy visual inspection

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Colophon

Light weight simulation is based on

research performed in the *Boderc* project.

Especially the work of

Jan Beckers (Océ) and *Maurice Heemels* (ESI)

has contributed.