



Planspiele zur Aufdeckung von betrieblichen
Energie- und Ressourceneffizienzmaßnahmen

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Simulation Games – A Method for Uncovering Resource Efficiency Potentials in Manufacturing Companies

23.10.2019



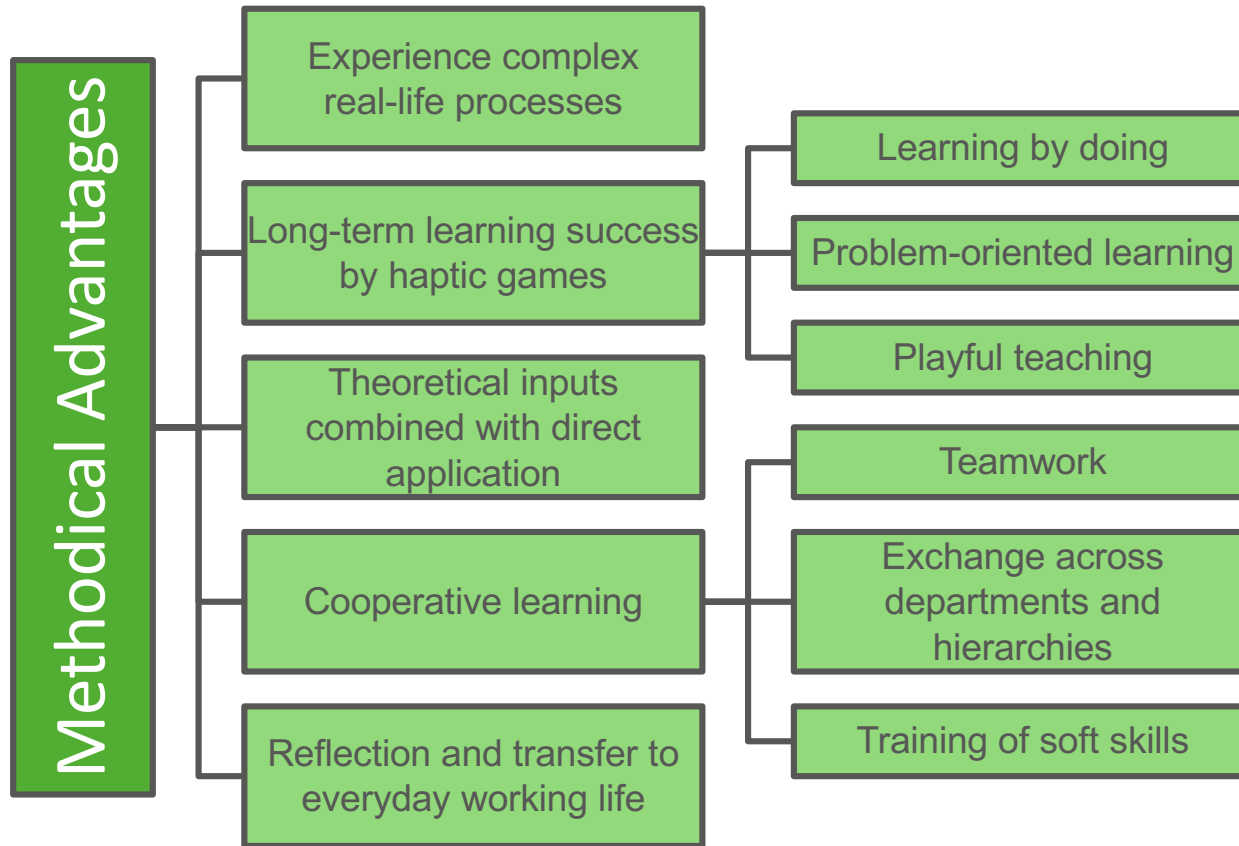


1. Overview and Introduction

RE:PLAN	Simulation Games to Uncover Resource and Energy Efficiency Measures
Background	<ul style="list-style-type: none"> ▪ Energy and material costs are major cost factors in manufacturing companies ▪ High saving potential expected ▪ Positive influence on competitiveness and environmental impact
Goal	<ul style="list-style-type: none"> ▪ Creation of long-term competences in advanced trainings ▪ Increasing the resource efficiency awareness in manufacturing companies ▪ Contribution to the reduction of greenhouse gas emissions
Target Group	Employees of manufacturing companies
Topics	<ul style="list-style-type: none"> ▪ Energy and material flow analysis RE▶MATERIAL ▪ Material Flow Cost Accounting (MFCA) RE▶MFKR ▪ Lean Production RE▶LEAN



2. Methods





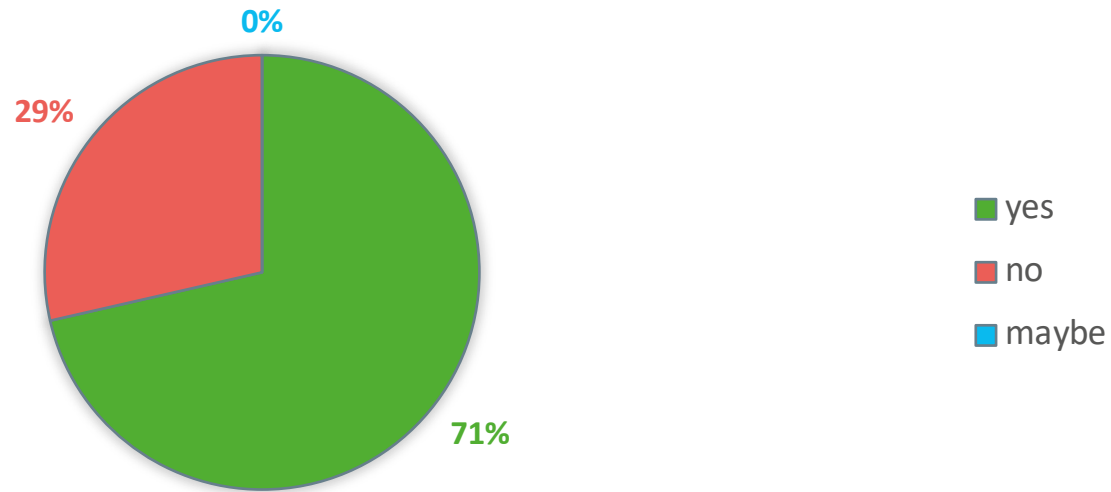
3. Results – Possible Impacts on Resource Efficiency

- ▶ **Change of corporate culture → increased resource efficiency awareness**
- ▶ **Application of new analysis methods → transparent process analysis**
- ▶ **Critical analysis of existing processes → process optimization**
- ▶ **Economical use of resources**
 - Reduction of material losses
 - Closed-loop circulation
 - Lean processes
- ▶ **Increased focus on technology and innovation management**



3. Results – Impacts after the Trainings

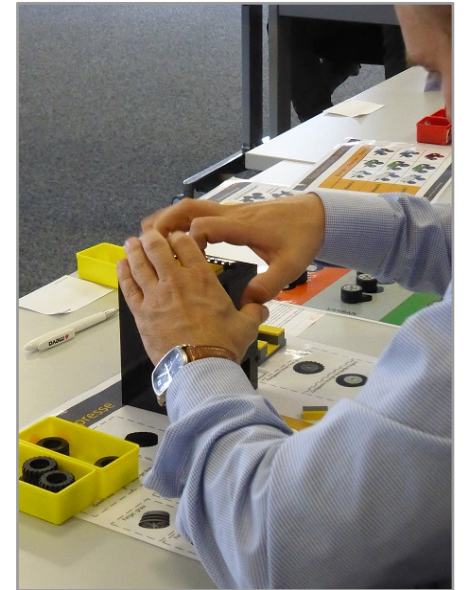
HAVE CONCRETE OPTIMIZATION MEASURES BEEN TAKEN AFTER
PLAYING THE GAME?





3. Results – Projects Initiated after the Game

- ▶ Implementation of different methods learned in practice
- ▶ Enabling of self-reliant and self-organized working
- ▶ Process optimizations for single production lines
- ▶ Usage of simulation game in in-house training academy
- ▶ Initiation of a corporate case study with focus on material losses (MFCA)
- ▶ Introduction of a new environmental performance indicator (→ material efficiency) for all company sites





3. Results – Long-term Implementation

Simulation games will be integrated
in advanced training concepts in the future

- ▶ **Institute for Industrial Ecology**
- ▶ **Train-the-Trainer concept:**
 - Participants are educated to become trainers
 - Promote the application of the simulation games
- ▶ **Cooperation with different networks:**
 - Chamber of Industry and Commerce (Germany)
 - Chamber of Crafts (Germany)
 - Resource Efficiency Networks (e.g. BilRess, VDI ZRE)
- ▶ **Cooperation with consultants as multipliers**





4. Conclusion

Improved Resource Efficiency Awareness within companies

Suitable for different sectors and company sizes

Highlight the link between resource efficiency and climate protection

Business examples show applicability of the taught methods

Initiation of first projects – more optimizations expected

Players become multipliers within and beyond the companies

Exchange across hierarchies and departments important

*„I hear and I forget.
I see and I remember.
I do and I understand.“*

Confucius (551 – 479 v. Chr.)

Thank you for your attention!

Contact

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