Areas of investigation:

1. Lean construction
2. Building Information Modelling

General information:

Name: David Leicht
Profession: Architect and Construction Engineer
Department of Research and Development at RIB IT AG; Germany

PhD-Program: Civil Engineering at EDUC Santander
Supervisor: Daniel Castro Fresno
Co-Supervisor: Joaquín Diaz
Tutor: Jorge Rodriguez Hernandez
Research Topics: BIM and Lean Construction
Start: 2014-2015 (PARCIAL DEDICATION since December 2014)
Thesis defence: before October 2019

International conferences:

1. EGLC conference; Copenhagen; Denmark; 2015
Lean construction: What are the main efficiency killers in a construction project life cycle? A partial solution approach.

2. BIM - Research & Development; Guangzhou; China; 2017
How to implement supply-chain-management to the construction industry?

Courses and workshops:

1. Courses according to DAD:
   Curso Básico (UNICAN) - 2015
   Curso Avanzado (UNICAN) - 2017
   Course BIM-5D (RIB IT AG) - 2017

2. Workshops according to EIDEIC:
   Study activities till 2014/2015
   Past and current activities 2014 – 2017

2. Extra Course:
   Green Belt – Lean; Six Sigma; Capstone

Journal papers and PhD-Thesis:

1. Journal paper – *under revision:*
   Bridging the gap between planned and built deviations –
   an on-site solution approach.

2. Journal paper – *currently under development:*
   Project execution schedule according to Lean
   Construction Management (LCM) requirements.

![RIB — running together logo]

Journal paper:

Information feedback tool to improve planning accuracy

BRIDGING THE GAP BETWEEN PLANED AND BUILT DEVIATIONS - AN ON-SITE SOLUTION APPROACH -

* iTWO-OnSite is a program to take-off construction performances of subcontractor activities on site

Problem statement:

- lack of information-feedback between site management and design team

- insufficient prediction accuracies about actual required
    - material quantities
    - cost-values
    - execution times

Research methodology:

- analysis about significant reasons (case study / workflow assessment)

- suggestions for improvements (OnSite feedback-loop features)

- OnSite implementation to project workflow
    - UI for actual used material quantity take-off
    - UI for actual used cost and time values

- evaluation of OnSite application

Research methodology:

- real project case study

Figure 1: Case study project: View from west

Figure 2: Case study project: Floor plan

Project location:
- Kirchheim / Germany

Owner:
- German real estate development company

Tasks:
- proving the usability of iTWO-OnSite features to improve planning accuracy in real construction projects

Investigation:

- current workflow assessment
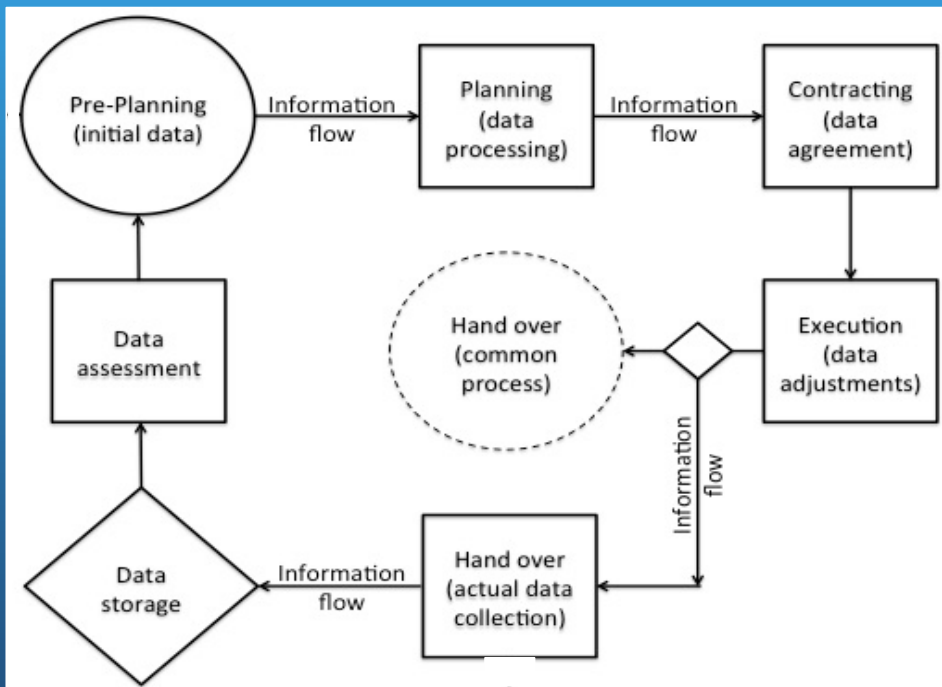
Figure 3: Information assessment and implementation of a continuous improvement process: planned and actual required values of construction products, material, time and costs will be assessed, discrepancies will be fed back to the pre-planning/planning phase

Investigation:

• development of OnSite quantity take-off features
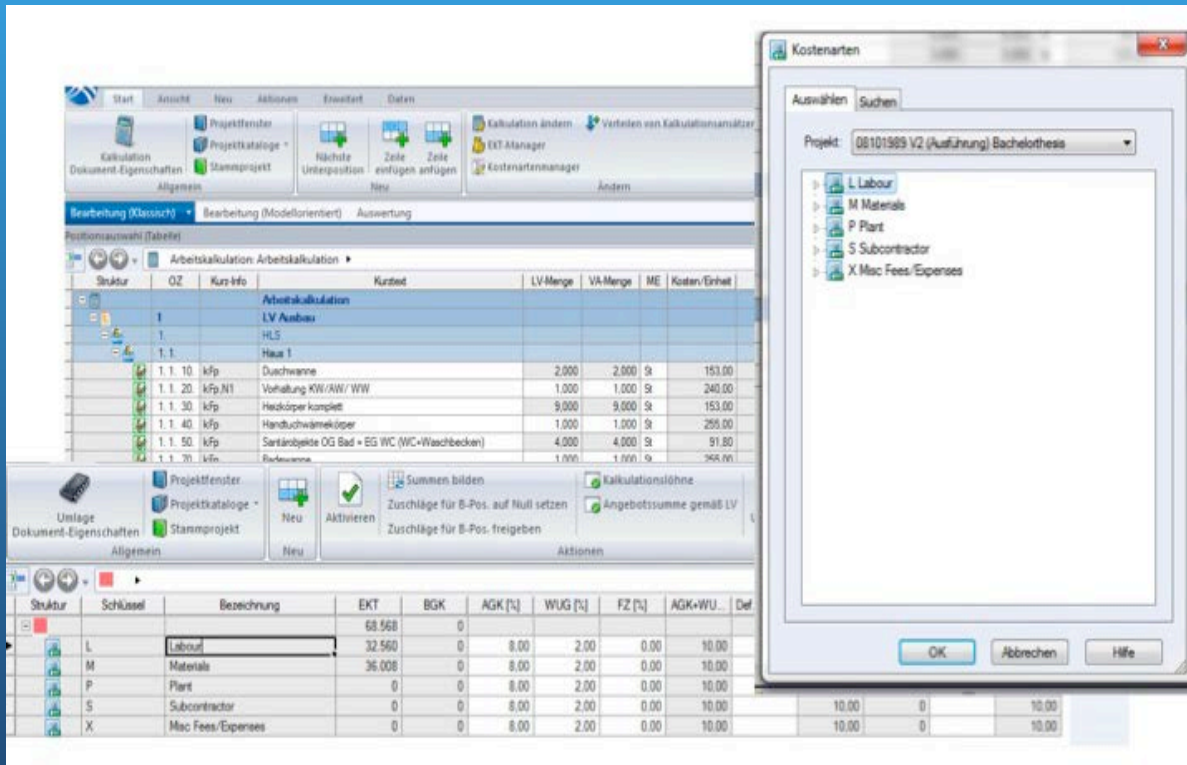
Figure 4: OnSite modification

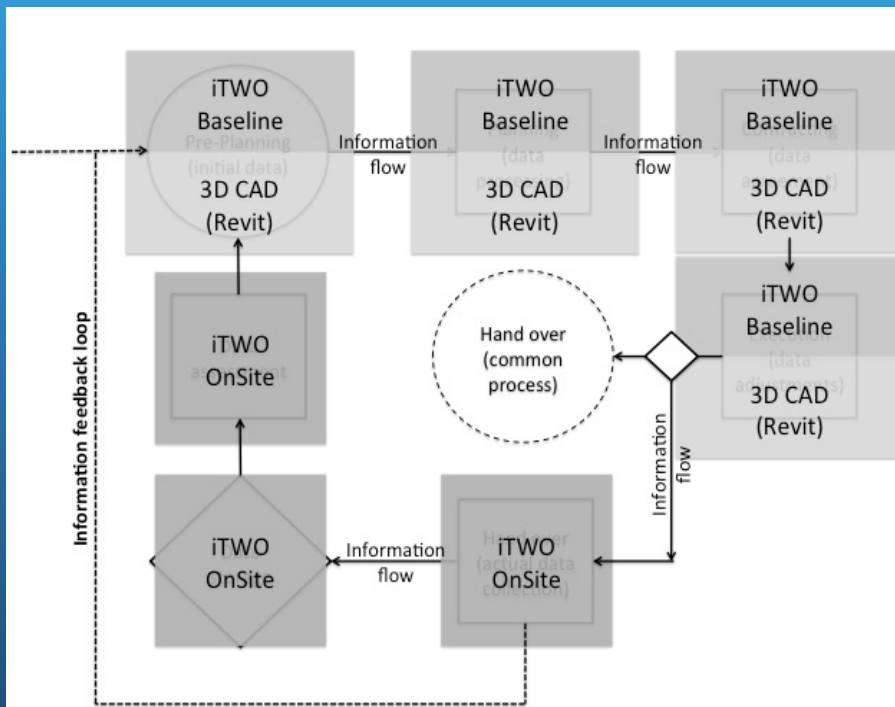# Investigation:

- OnSite implementation to project execution workflow

Figure 5: OnSite implementation to project execution workflow

Investigation:

- take-off material quantities; time and cost values

Figure 6: Case study execution

Results:

- the new OnSite features are applicable for taking off actual used material quantities; time and cost values

- with this "single source" software the implementation of the common Lean method - CIP (continuous improvement process) - has become possible

- improvements in planning accuracy has been achieved

- precise result values have not be achieved by this investigation → further research is required

Current paper preparation

Project execution schedule according to Lean Construction Management (LCM) requirements:

- State of the art:
  - LEAN principles
    - Improvement of productivity performance
    - Incensement in process efficiency
  - Building Information Modelling
    - Project execution scheduling (Gant / Line of balance)
      - Last planner System
      - Lean construction management schedule

  - Problem formulation
  - ...

Thank you for your attention!