Collaborative Planning in Design
Vegard Knotten, PhD
Head of BIM and Design Management development
Veidekke Entreprenør AS
Vegard.Knotten@Veidekke.no
WHO, WHAT, WHERE IS VEIDEKKE?

+ Norway’s largest and Scandinavia’s fourth-largest contractor and property developer
+ 8,000 competent employees in three countries
+ Annual revenue of NOK 31.6 bn. (2017)

<table>
<thead>
<tr>
<th>Area</th>
<th>Percentage of Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORWAY</td>
<td>62%</td>
</tr>
<tr>
<td>SWEDEN</td>
<td>31%</td>
</tr>
<tr>
<td>DENMARK</td>
<td>7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-residential buildings</td>
<td>33%</td>
</tr>
<tr>
<td>Residential buildings</td>
<td>25%</td>
</tr>
<tr>
<td>Civil engineering operations</td>
<td>27%</td>
</tr>
<tr>
<td>Industrial operations</td>
<td>15%</td>
</tr>
</tbody>
</table>
COLLABORATIVE PLANNING IN DESIGN
The Start-up process

**Prepare**
- Brief
- Organising the project - core group
- Work structure suggestion
- Planning the Start-up

**Define**
- Start up Session
  - Team process
  - Expectation alignment
  - Planning
  - Meeting structure
  - Tools
  - Design plan

**Execute**
- Design meeting
  - Look ahead plan
  - Dialogue matrix
  - ICE
Work and meeting structure
Constraint analysis

Expectations and requirements

Decisions

Dialogue

Deciding

Processing

Informing

Design basis

Team

Methods and tools

Basis for production or further designing
SOME THEORETICAL FOUNDATIONS

1. Both design and production are value creating processes consisting of transformations and flows
   Koskela (2000): An Exploration Towards a Production Theory and its Application to Construction

2. Both design and production can be managed through the Last Planner System
   Ballard (2000): The Last Planner System of Production Control

3. There can be pooled, sequential and reciprocal interdependences between tasks
   Thompson (1967): Organizations in Action

4. Both design and production are logistical, economical and social processes
   Andersen, Bølviken, Dammerud, Skinnarland (2008): Approaching Construction as a Logistical, Economical and Social Process

5. Dialog is a precondition for design
   Bølviken; Gullbrekken, Nyseth (2010): Collaborative Design Management