

JAPAN-DK-SEMINAR SEP. 13, 2019
BLOXHUB, BRYGHUSPLADSEN 8, 1473 CPH. K

CONSTRUCTION KAIZEN AND I-CONSTRUCTION
THEME 1: CHALLENGES AND VISIONS
THEME 2: CONSTRUCTION KAIZEN



DANISH BUILDING RESEARCH INSTITUTE
AALBORG UNIVERSITY COPENHAGEN

Welcome, Background and Meeting Places

Welcome to all and a special welcome to our three Japanese guests:

- Professor Kazuyoshi Tateyama
- Dr. Eng. Takaaki Yokoyama
- Dr. Hiroshi Furuya

Background and questions:

- Only 20 % a Japanese production companies use TPS or Lean, why?
- How many construction companies in Japan and DK use Lean Construction?
- Why is productivity improvement 0 %?
- Could the solution be a better pull-push-balance?



Meeting place: BLOXHUB

- Theme 1. Challenges and visions for construction, at 8:00-9:50
- Theme 2: Construction Kaizen as a bottom-up-pull, at 9:50-12:30

Meeting place: Postgrunden v/ Aarsleff

- Theme 3. Building project, at 12:30-14:30

Meeting place: IDA-house

- Theme 4. i-Construction and new technology, at 14:00-17:30



Themes and Discussion Room

- ❑ Theme 1: Challenges, visions and focus areas for construction development in Japan and Denmark/EU to improve productivity and other goals.
- ❑ Theme 2: Construction Kaizen, motivation and continuous improvement as a bottom up innovation strategy to improve pull from construction workers.
- ❑ Theme 3: A site visit - Building projects realizes visions, innovation and document the impact on productivity, quality and other goals.
- ❑ Theme 4: i-Construction, new technology, Virtual Design and Construction (VDC), automation, drones and robots as a top down innovation strategy that push construction.

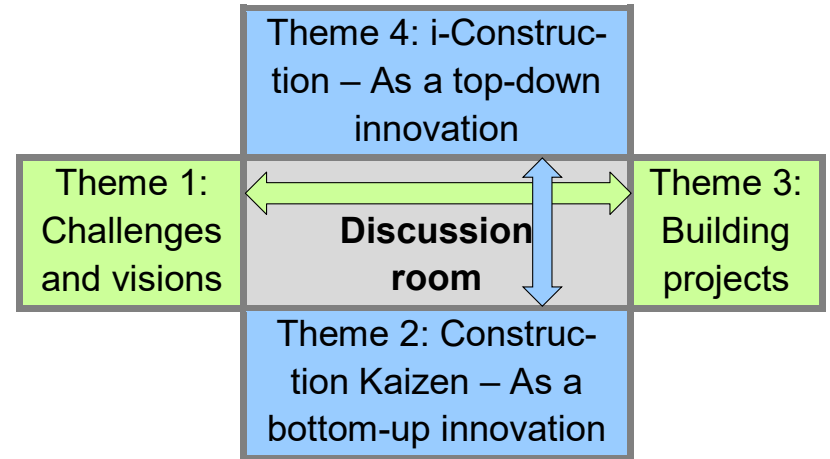
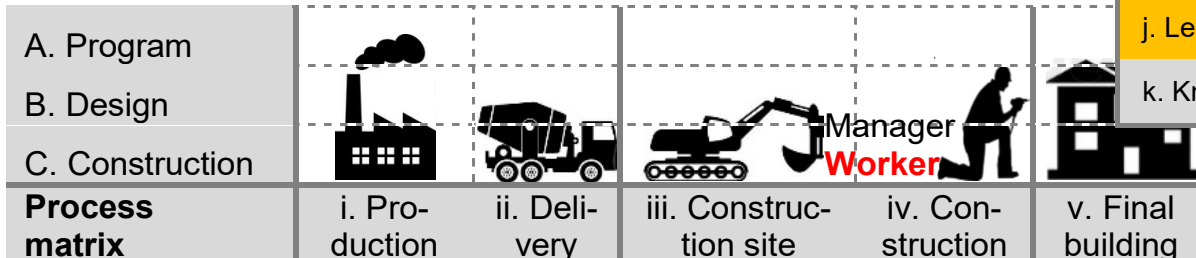


Figure 1. The discussion room at the seminar.

Theme 1 Challenges and Visions

- ❑ We will have a status for Japan and Denmark
- ❑ It could e.g. refer to construction theories from TPS, Lean, Last Planner and others →
- ❑ It could also refer to different parts in the process matrix including e.g. five steps in the value chain and three levels in the management hierarchy ↓

- a. External requirements from authorities a. m.
- b. Values, costumer requirements and quality
- c. Building, property and area as physic 'product'
- d. Activities,, operations, processes and time
- e. Actors, cooperation, leadership and work environ.
- f. Information, digitalization and communication
- g. Materials, components, systems and waste
- h. Equipment, machines, scaffolding and site sheds
- i. Economy, cost in different parts and productivity
- j. Learning, improvements and benchmarking
- k. Knowledge, research, education and theories



Theme 1 Challenges and Visions - Program

- ❑ 08:40 Introduction to theme 1 by N. H. Bertelsen, SBI/AAU
- ❑ 08:50 Challenges and visions in Denmark by CEO Lene Espersen, Danish Association of Architectural Firms
- ❑ 09:10 Challenges and visions in Japan by Professor Kazuyoshi Tateyama, Ritsumeikan University, Japan.
- ❑ 09:30-09:50 Reflections and break:
 - Table 1: Site Crew by Erik Fog Larsen
 - Table 2: Site Management by Andreas Kragh
 - Table 3: Client and Consultants by Mikael Hygum Thyssen
 - Table 4: Training and Education by Carl Johan Fokdal Christensen
 - Theme 1: Challenges and Visions
 - Theme 2a: What is Construction Kaizen?
 - Theme 2b: Learning Construction Kaizen



Theme 1 & 2: Roundtable discussion and reflection

Table 1: Site crew

Theme 1: Challenges and visio

Theme 2a: What is const

Theme 2b: Learning cons

Table 2: Site management

Theme 1: Challenges and visio

Theme 2a: What is constructi

Theme 2b: Learning construc

Table 3: Clients & consultants

Theme 1: Challenges and visio

Theme 2a: What is constructio

Theme 2b: Learning constructi

Table 4: Training & education

Theme 1: Challenges and visions

Theme 2a: What is construction Kaizen?

Theme 2b: Learning construction Kaizen

Gallup (2017) Stage of the Global Workplace

Declining productivity and engagement!

Globally only 15 % of employees are engaged in their job (16 % in DK, 10 % in EU and 6 % in Japan), and global productivity growth is also in decline. It implies a stunning amount of wasted potential.



Can we improve productivity by working toward a more employee-centered world?

How can we improve it?

- When government and private-sector organizations collaborate to promote entrepreneurial activity, they can address the task at several levels, from the macro public policy environment to individual students and employees.
- The world's leading strengths-based companies pursue that culture through four powerful strategies: Leadership, Empowerment, Engagement and Development
- Team members who know each other's strengths can more effectively relate to one another, avoiding potential conflicts and boosting group cohesion.



Theme 2: Construction Kaizen as a bottom-up-pull

- ❑ Pull is a central principle in Just-in-Time (JIT) and Last Planner System (LPS)
- ❑ But focus is still on a ‘top-down-push’
- ❑ It is difficult to implement the pull principle and it must be train constantly in practice
- ❑ We can see the same challenges for a lot of other improvement areas
- ❑ We hope theme 2 ‘Construction Kaizen’ will highlight essential activities for workers and how managers and others can support it in Japan and Denmark. →

Worker activities

- Know customer and value requirements
- See and experience the activity
- Reduce waste and increase throughput
- Lean flow and use the 5 why’s
- Communicate visible with data
- .. ?

Manager support

- Motivate and give space for innovation
- Support collaboration and team activity
- .. ?

Figure 4. Kaizen activities and supports.

Theme 2 Construction Kaizen as a bottom-up-pull

- ❑ 09:50 Introduction to theme 2 by N. H. Bertelsen, SBi/AAU
- ❑ 09:55 Kaizen in Toyota as a joint practical exercise
- ❑ 10:10 Examples from a construction company in DK by J. B. Frederiksen and S. Christensen, EogP a/s
- ❑ 10:30 Utilization of video data on construction sites in Japan by K. Tateyama and T. Yokoyama, Ritsumeikan University, Japan.
- ❑ 10:50 Reflections and break
2a: What is Construction Kaizen?
- ❑ 11:05 Continuous improvements training by organizations by M. Okking, Danish Craft Association and M. Dalsgaard, United Federation of Danish Workers
- ❑ 11:25 Education in motivation and interprofessionalism by J. L. F. Djælund, Association for Architectural Technologists and Construction Managers
- ❑ 11:45 Refection and conclusion
2b: Learning Construction Kaizen
- ❑ 12:00 Networking and walk and talk to the construction site 'Postgrunden'.

