




Enemærke & Petersen a/s

Søren and Jan

 Søren Christensen b. 1974

 Plummer

 Construction architect

 Experience:

- Construction 13 years

 Other:

- Lean Master
- Change management
- Head of Process – one of 4 departments in Production support

 Jan Buur Frederiksen b. 1975

 Carpenter

 Construction architect

 Experience:

- Designers for 3 years
- Construction for 14 years

 Other:

- Lean Agent
- Change management
- Head of Production support (5 years)
- Board member in LC - Denmark



Together, we can alone

Together we create a remarkable business

We share our Knowledge
We all take responsibility
We Collaborate
We are All Sellers

Established in 1975 - part of MT Højgaard

East and West departments

713 employees

Construction East & West (220 functionaries,
400 – 500 Own craftsmen - carpenters, bricklayers,
plumbers, scaffolding)

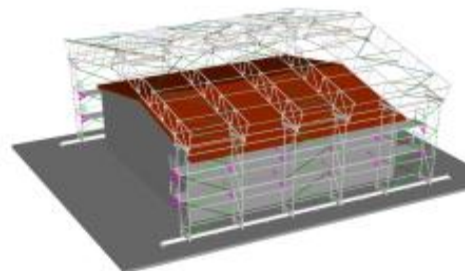
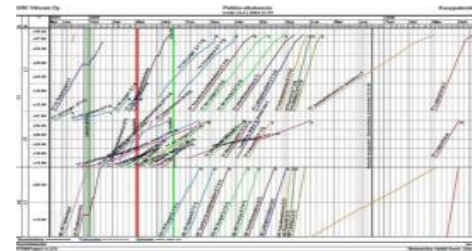
E&P Service

Turnover 2018 approx. 2,2 Billion. Dkr. (34 Billion YEN)



Our Lean journey

Urbanplanen



Brøndby Strand



2004

2005

2006

2010

2015

2019



LCDK & LPS



Procesprisen

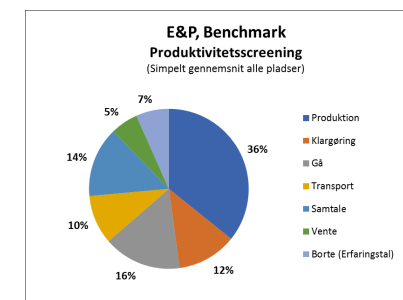


Workshop



Evalueringer
Kundemålinger

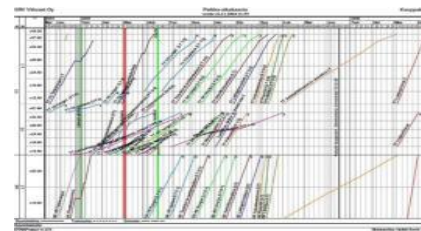
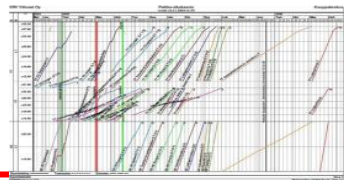
KAIZEN



The process



Planning



Calculation
Vs building
management

Workshop
Costumer

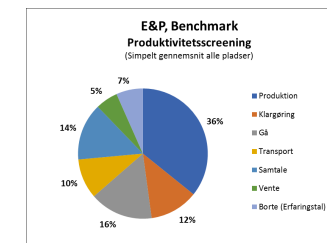
Workshop
On site
With craftsman

LPS
"last planner system"

Learning
Gemba

Collaboration
Who are we?
Risc'?

Collaboration
Planning
VSM





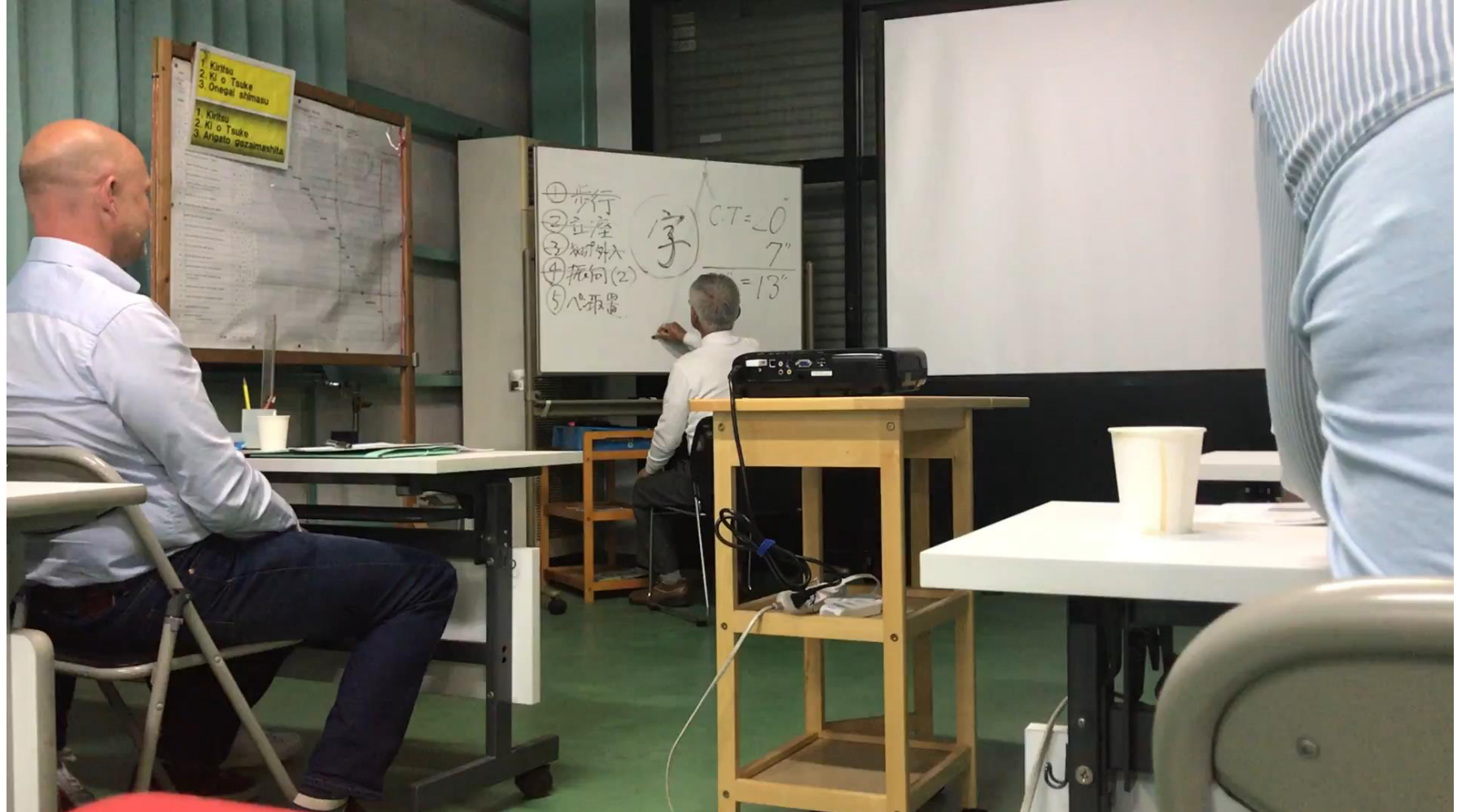
KAIZEN EXERCISE

How Toyota do training

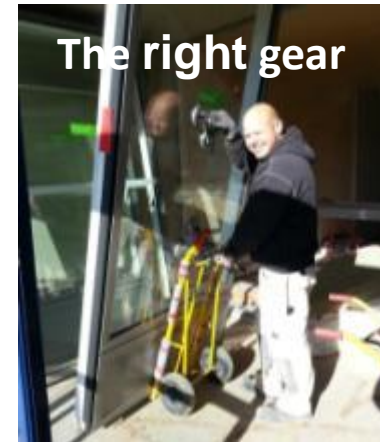
Kaizen

Mindset

What can we do better



Kaizen results





Potential Check & Productivity Screening

Element factory

BEFORE:



AFTER:



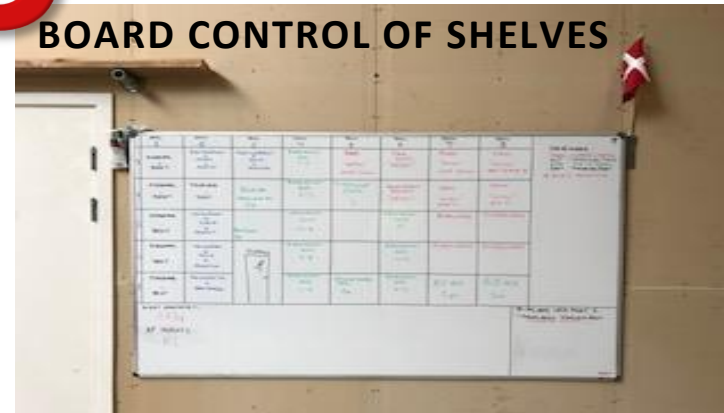
5S

Winnings:

Finding materials vs. 5S:	DKK 360.000
Annual Savings on rented storage space:	DKK 380.000
Sale of stock materials:	DKK 260.000
Total:	DKK 1.000.000

(15.000.000 YEN)

BOARD CONTROL OF SHELVES



Construction site productivity

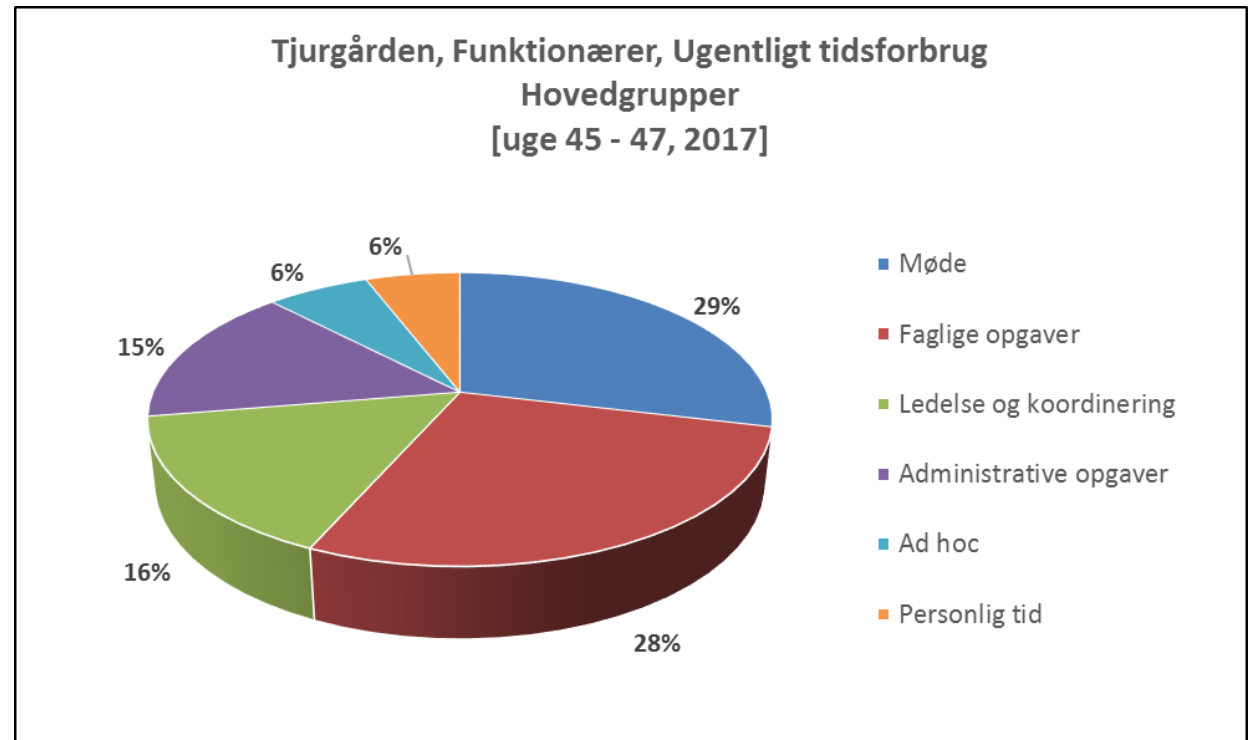
6/12-13

Sted	Produktiv			Transport		Uproduktiv	
	Produktion	Klargøring	Gå	Transport	Sentale	Vente	Sum
kl. 6 til 7	 			 			
kl. 7 til 8	 				 		
kl. 8 til 9	 				 		
kl. 9 til 10					 		
kl. 10 til 11	 	 					
kl. 11 til 12	 						
kl. 12 til 13	-----						
kl. 13 til 14	 			 			
kl. 14 til 15				 			
kl. 15 til 16							
Sum							



Construction management time registration

	Projektsvarlig GNS	Projektleder GNS	Byggeleder GNS	Procesleder GNS
Møder	55%	32%	26%	24%
Bygherremøder	7%	1%	1,5%	
Byggeledelse	3%	9%	7,0%	
Andre interne møder	10%	14%	8,2%	3%
Møder med rådgivere	10%	4%	2,1%	
Møde med leverandør	12%	1%	3,2%	3%
Erfa udveksling	9%			
Møde med eksterne myndigheder	4%			
LPS møder		1%	2,4%	14%
Opstartsmøder		3%	1,4%	4%
Ledelse og koordinering	18%	32%	24%	60%
Korrespondance, referater	13%	3%	6,6%	4%
Div. koordinerings- og ledelsesopg.		26%	16,2%	
Tidsplaner, justering				56%
Personaleledelse, løn og planlægning	4%	2%	1,7%	
Faglige opgaver	12%	18%	36%	16%
Tilsyn	1%	7%	4,6%	4%
Detaljeafklaring			2,9%	
Tilbud			1,7%	
Materialer - bestille/modtage			10,5%	
Diverse opgaver	4%	11%	9,2%	
Byggepladsrundering	7%		7,2%	12%
Personlig tid		2%	1%	
Spildtid		2%	0,7%	
Ad hoc		11%	2%	
Ad hoc opgaver		11%	2,4%	
Økonomi	9%	6%	9%	
Personaleledelse, løn og planlægning			1,3%	



Construction management: The employees have each registered 2 weeks of activities.

Speeddating – LEAN maturity in construction management

LEAN Modenhed, Byggeledelse

Modenhed i byggeprocessen handler naturligvis om mange ting. FOKUS i denne vurdering af modenhed, er alene på de kritiske områder. Det er områder, der - hvis man lykkes - vil få en byggeproces til at ligne en klassisk industriel proces.

De fem hovedområder er:

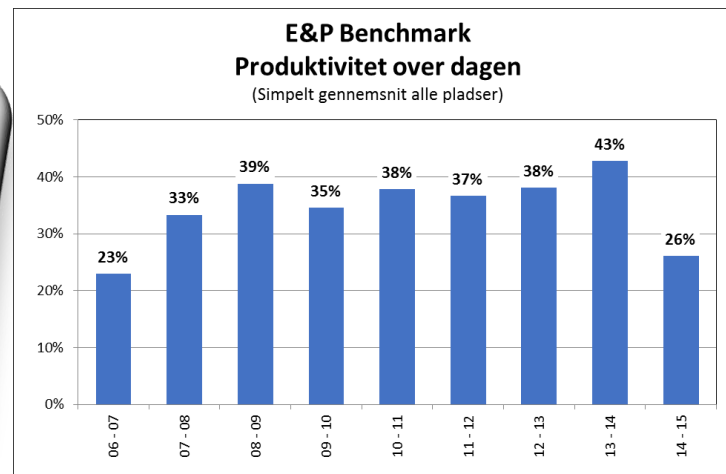
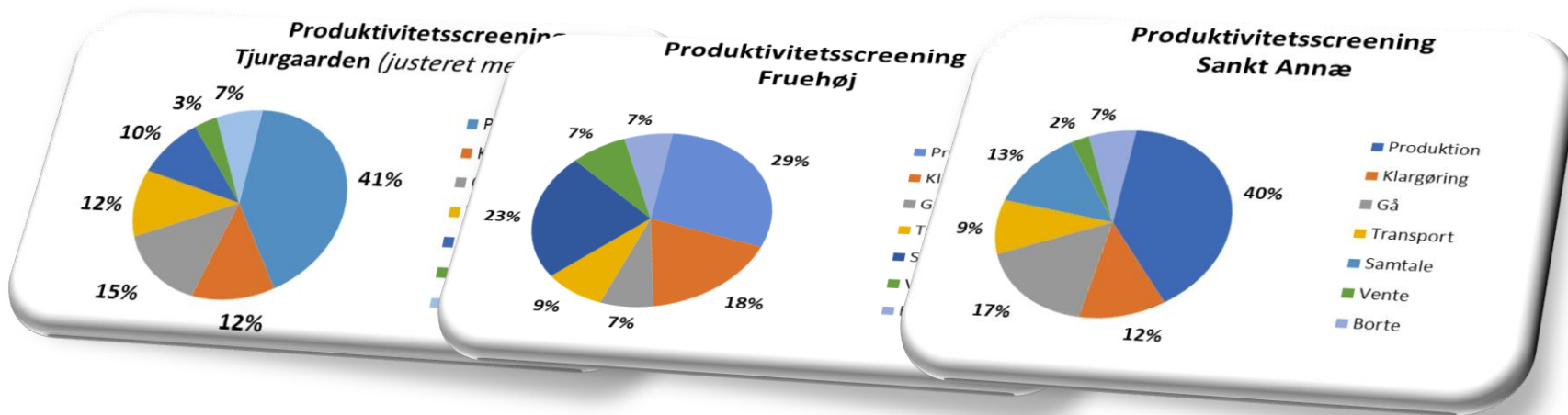
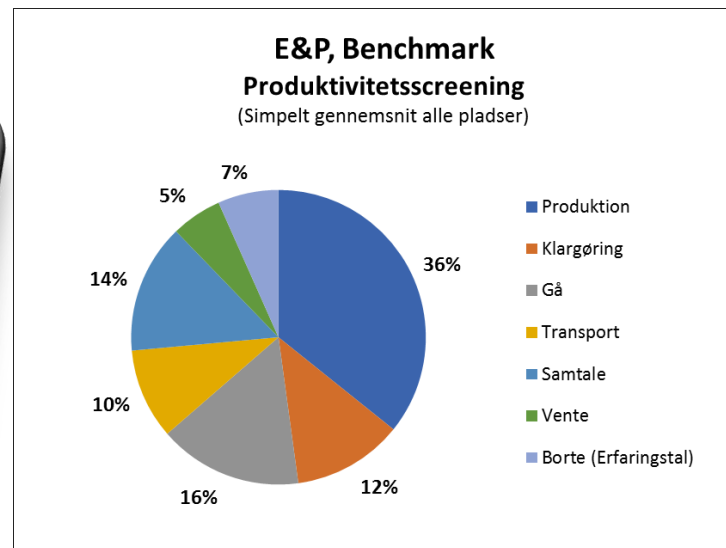
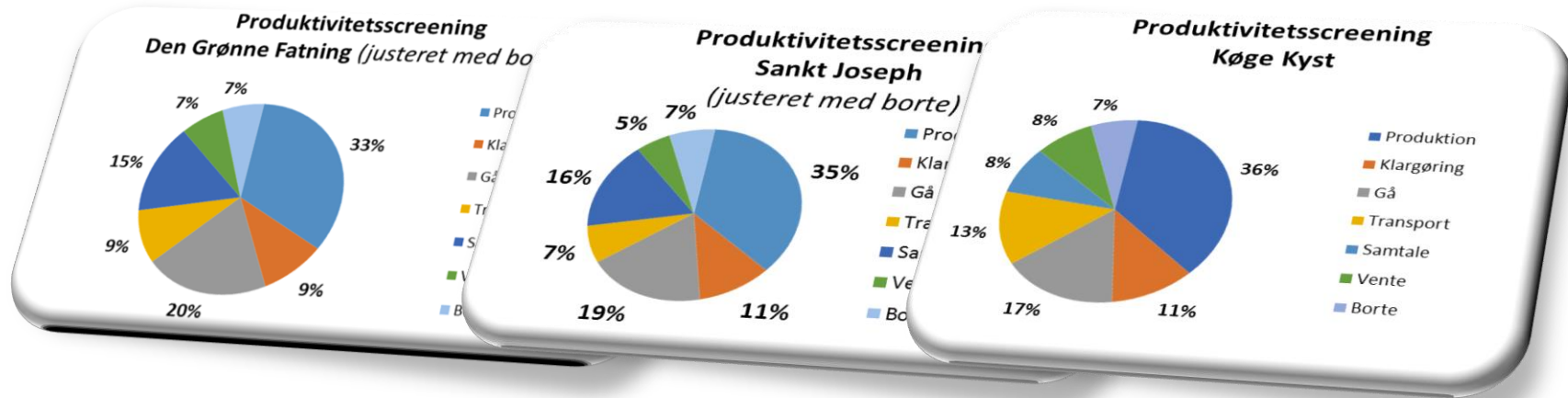
	Scoring - GNS
1. Lean tankegange på byggepladsen	
2. Last Planner System (LPS)	
3. Få de rigtige ansatte på de rigtige pladser	
4. Udvikl den næste generation af Bygge- og Procesledere og Formænd	
5. Budget og økonomi samt indkøb	

COMPOSITION OF BUILDING MANAGEMENT

Niveauerne

1	2	3	4	5
Ingen eksempler på Best Practice		Få eksempler på Best Practice – men også eksempler på, at vi kan blive bedre		Mange og overbevisende eksempler på Best Practice

Screened Construction sites = E&P Benchmark



Very Short Conclusion

Construction Management **DESIGNS THE CRAFTSMEN PRODUCTIVITY!**

- Supports / experiences show that there is a great correlation between good planning and the resulting productivity.
- **Visible management = Higher productivity**



Various tools

Daily structure for Construction Manager



Gevinster:

- Synlig ledelse
 - Min 25 % af tiden forgår på pladsen
- 24 timers planlægnings loops
 - Ingen forhindringer over 24 timer
- Færre ad hoc spørgsmål = mindre "gå og samtale"
 - Ro til obligatorisk PC arbejde
 - Ro til at være på forkant af fx arbejdsmiljø

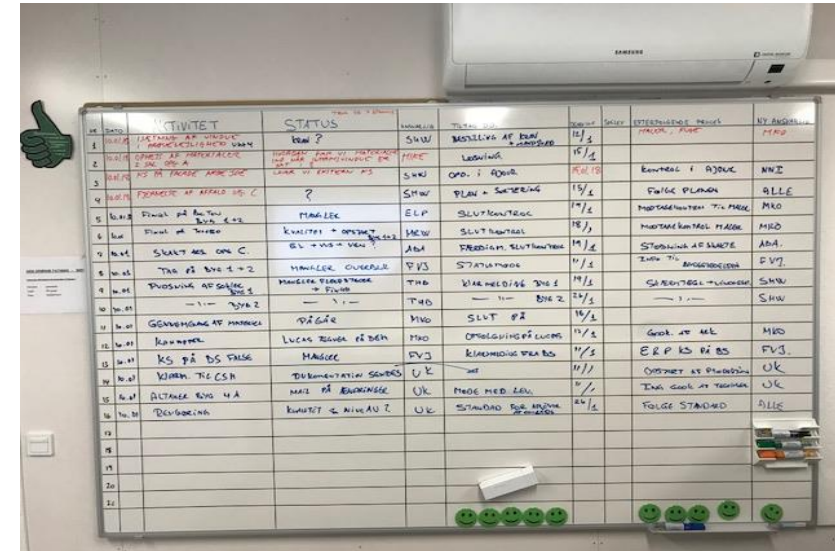
Morning meetings in the board room



Agenda

- Hvad laver vi i dag (cyklogrammet)?
- Hvor er vi?
- Mulige konflikter?
- Evt.

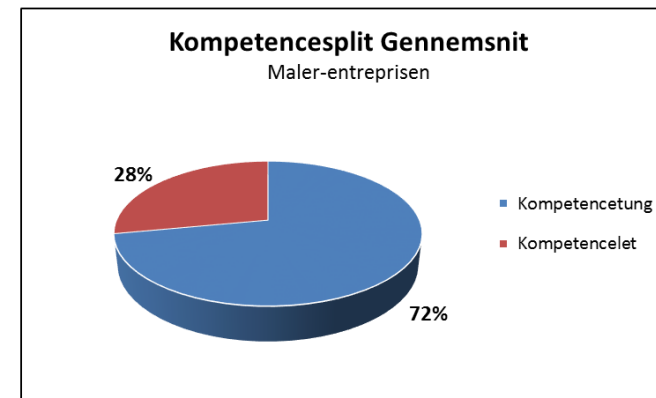
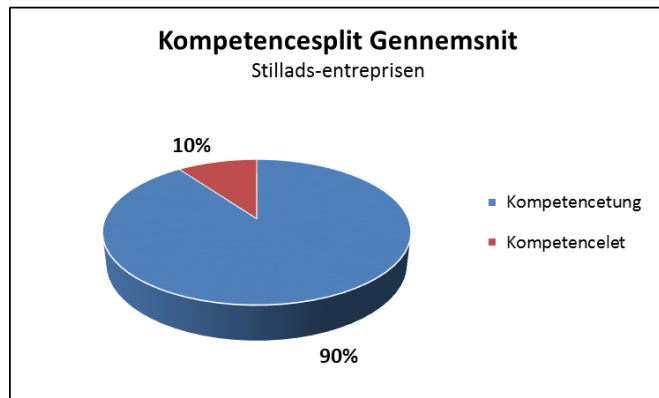
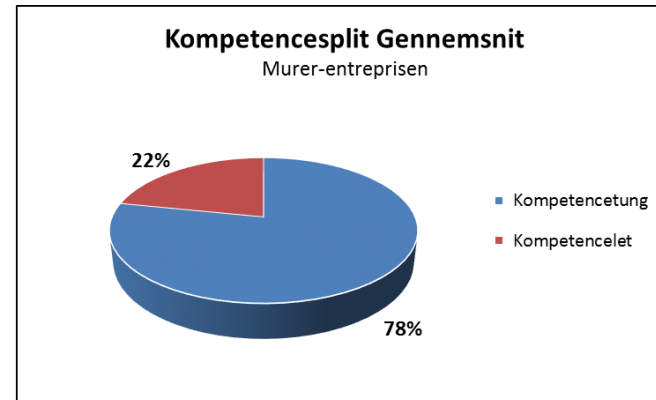
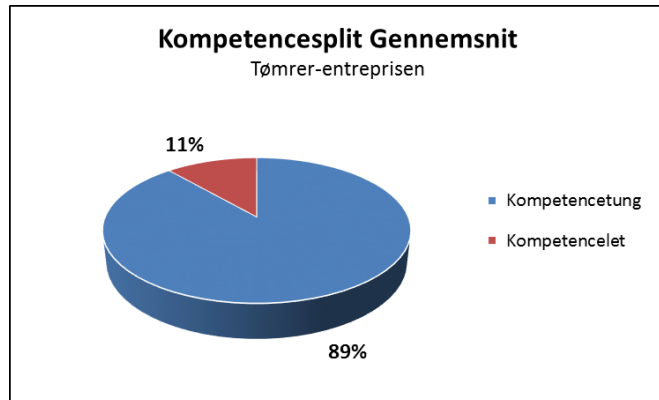
Activity boards for construction management





**” The helping hand”
Sankt Annæ high school**

Competence split- details



Observation / Conclusion:

As can be seen across the subjects, there is a difference between the average proportion of competency-light tasks.

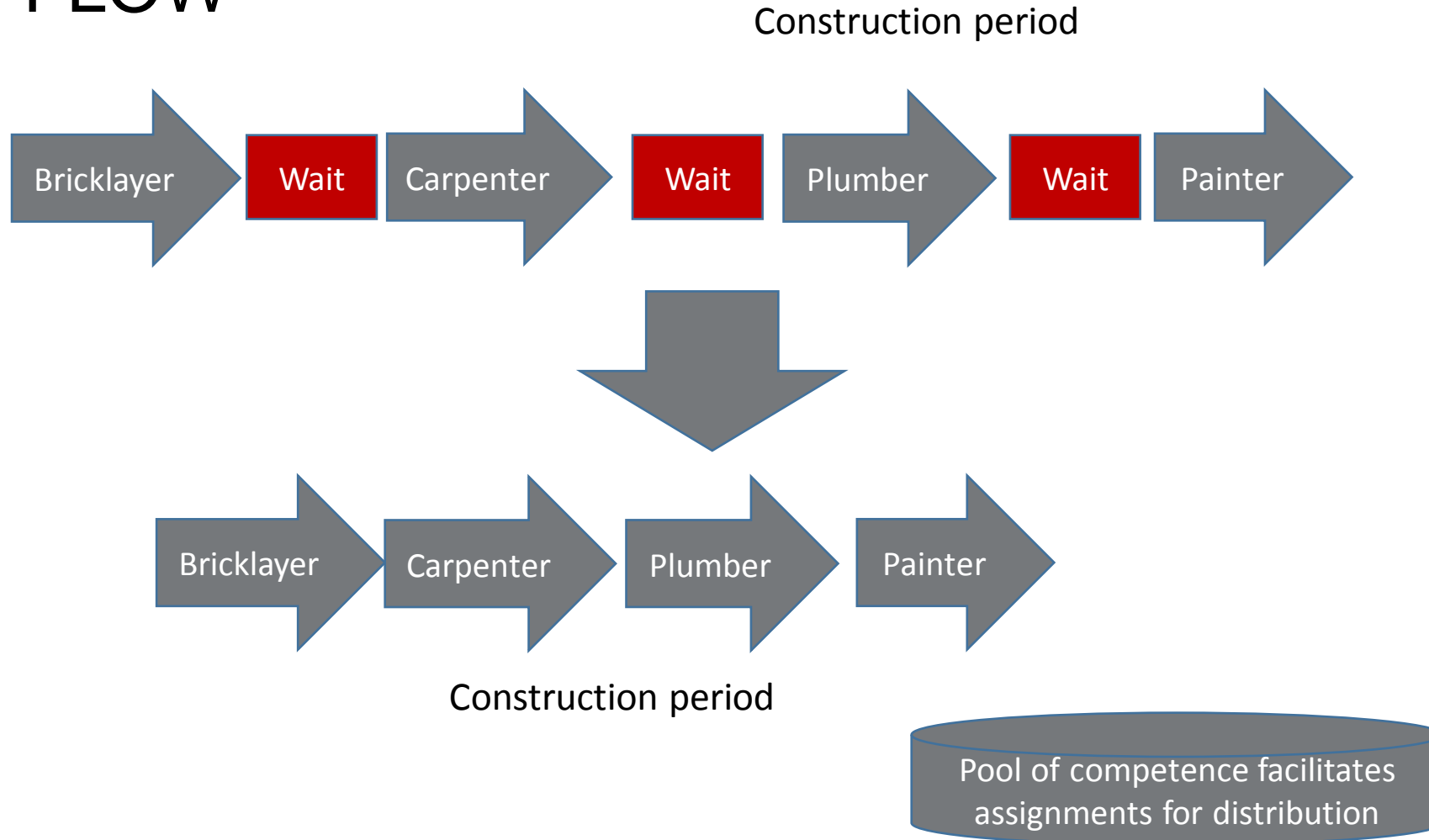
- Due to authorization, the scaffolding contract has only 10% competence-light activities.
- The painter contract has opposed 28% of competency work.

Prerequisite for "The helping hand":

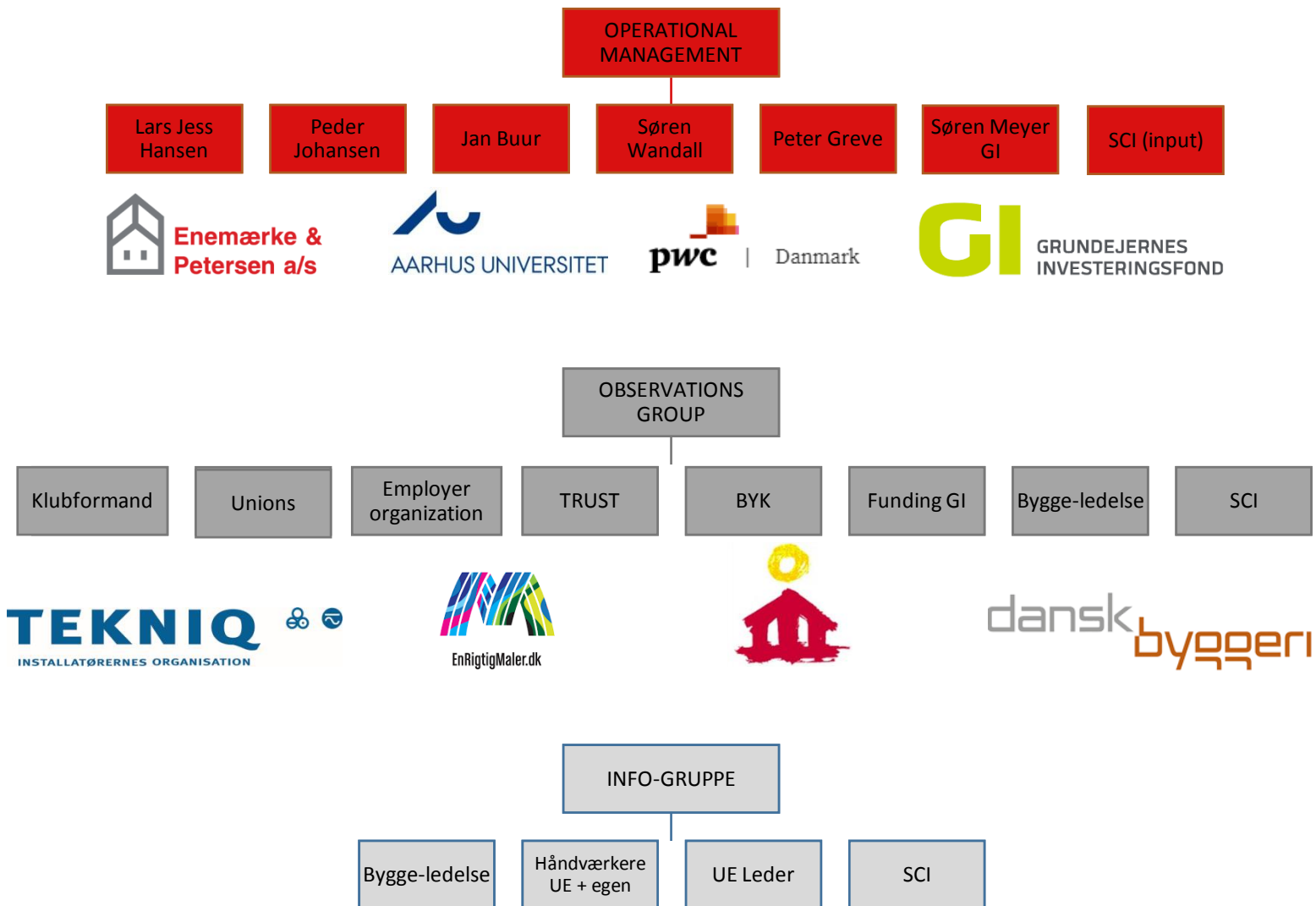
- The starting point is that the payment follows the contract.
- Self-esteem among the craftsmen is expected to "level" supply / demand for the free helping hand.
- In order to avoid billing of "Extra work", tests of competency split must be done through agreement before work on the test site begins.



AS IS – TO BE : SHORTER BUILD TIME - BETTER FLOW



Project organization



Goal

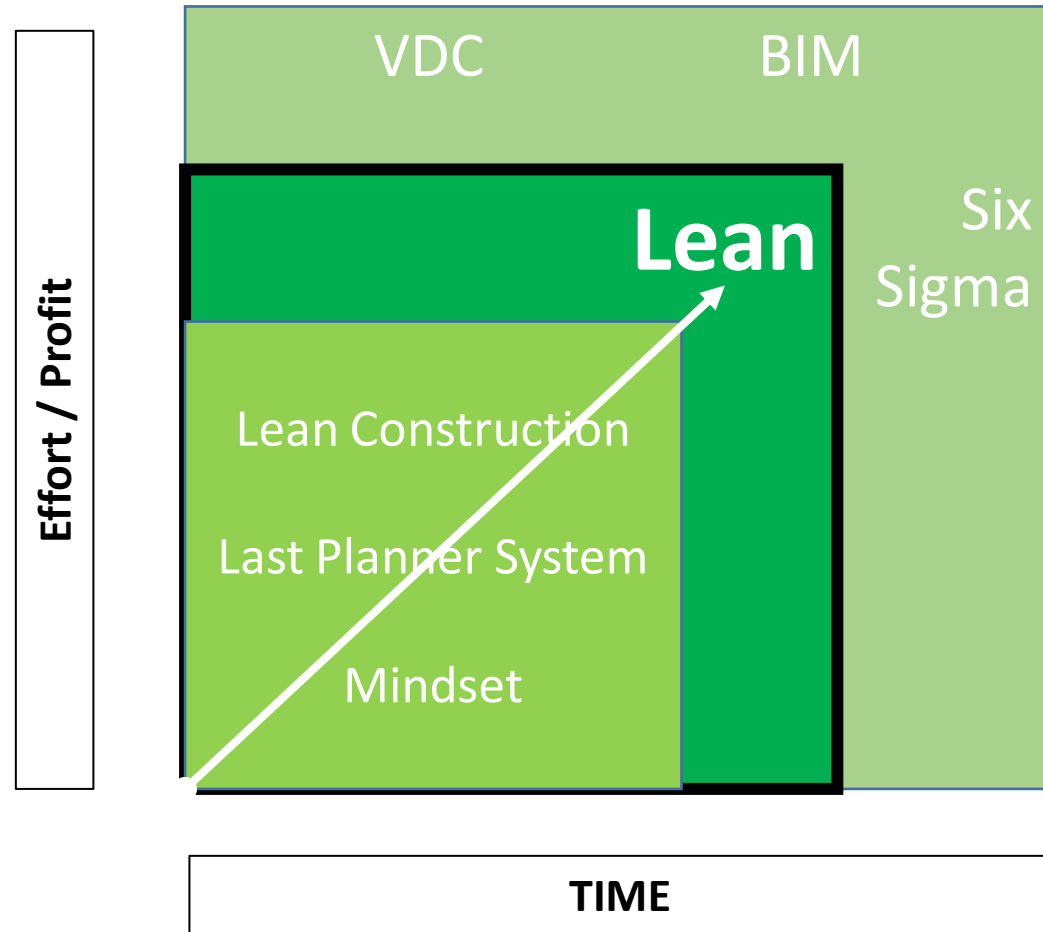
- The method test of the site's ability to implement “The Helping Hand” to **strengthen the site's total productivity.**
- The overall aim is to **increase productivity in Danish construction** through increased cooperation and a joint solution.
- Challenge the foreign construction companies on quality, price and time so that the **work remains on Danish hands.**





The future state

What is the next step?



Learning and improvement

Main Learning

- Management support - from the top!
- Keep it simple - choose from the LEAN / LPS box and develop new ones!
- Focus on flow
- The construction site and logistics - as well as Work Environment and KS in the process
- The plans change in line with the experience

Biggest improvement

- More ownership (Craftsmen / UEs in planning)
- Element production = Better customer experience and better bottom line
- Better and realistic schedules - Location planning
- 3 to 12 months before schedule

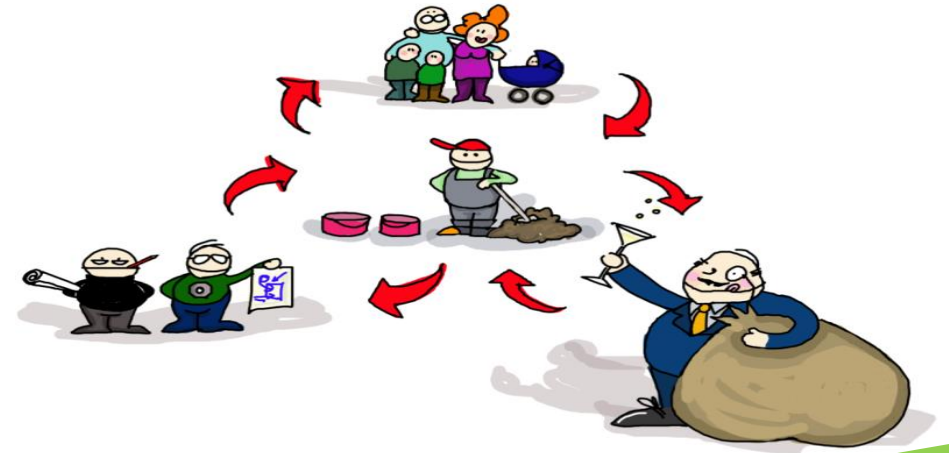
GO GEMBA

FOLLOW UP

FUTURE

When we need to move on - remember:

- Planning at the beginning of the construction case
- Process before finance
- Incorporate the right skills
- Honesty, Visibility and better communication



What does it take?

- Previous involvement
- The process manager role as the new player
- Workshop = Make good collaboration with everyone (customer values)
- Break down subject boundaries - Organizing in areas
- Follow-ups and Learning - **Knowledge sharing is power!**

Process before finance



THANK YOU FOR LISTENING

QUESTIONS ?