



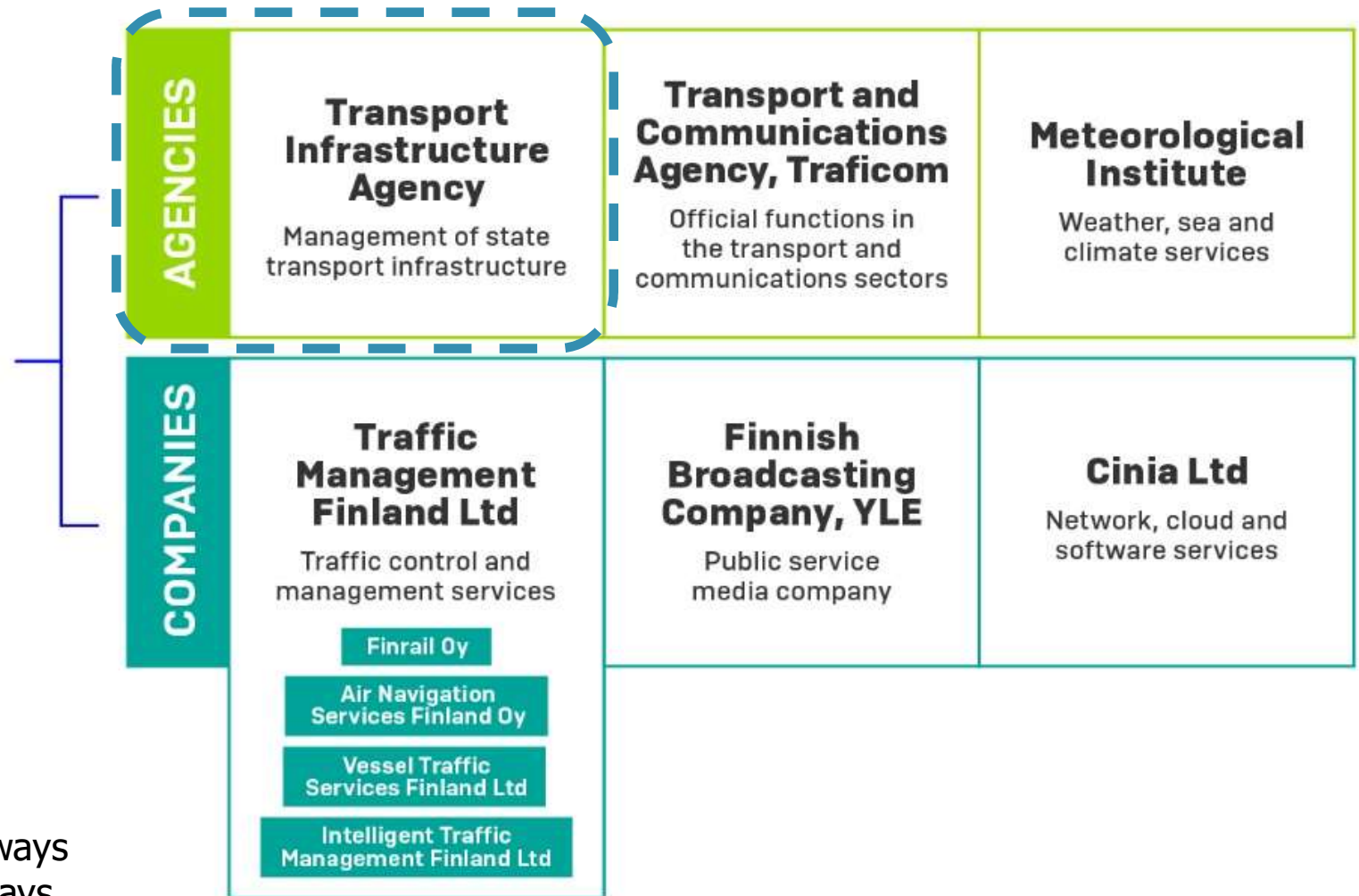
# Finnish Journey - Approach and Experiences to Integrated Project Delivery

26.6.2019



MINISTRY OF TRANSPORT  
AND COMMUNICATIONS

- 78 000 km Roads
- 6 000 km Railways
- 8 000 km Coastal Fairways
- 8 000 km Inland Fairways



# Infrastructure provides a platform for growth

€ Infrastructure assets  
**20** billion €

€ Current spending on ongoing projects  
**2.6** billion €

€ Maintenance backlog of traffic network  
**2.6** billion €

€ Annual budget approximately  
**2.0** billion €

FTIA personnel, permanent  
  
**400**  
experts

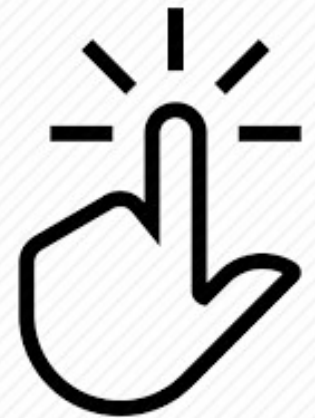
Number of people the FTIA employs indirectly through projects  
  
**13,500**



# My key points will be



- FTIA set strategic goals 2011
- Why Integrated project delivery (IPD) and Lean Construction for construction projects
- To create IPD-culture, brave owner organizations and owner people are needed as far as great dialogue with the construction industry
- IPD-projects create great results
- Focus on people, challenge and educate them
- Co-operate with research institutes



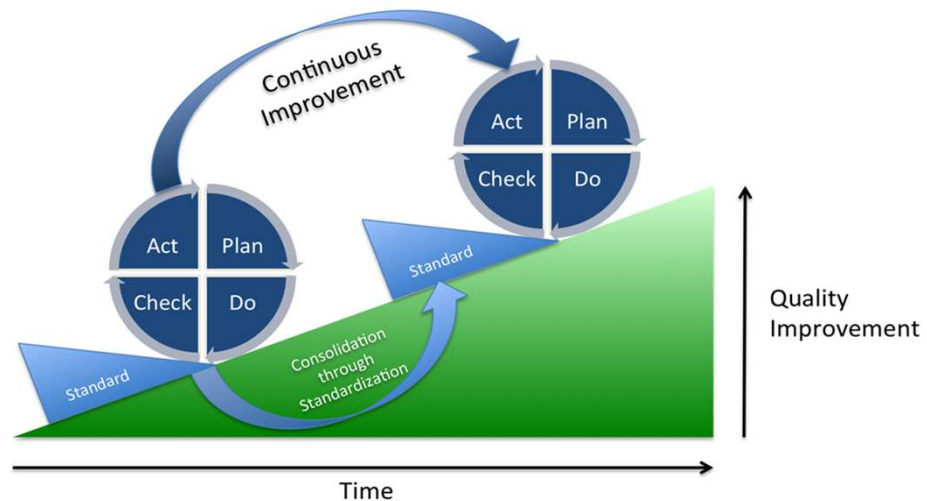
# Short History of IPD & Lean Construction in Finland



- **2006-08: LCI comes to Finland**
  - Some studies of Australian Project Alliance
  - Some understanding of Lean principles and IPD's
  - Establishing LCI Finland
- **2009: LIPS Karlsruhe, Germany**
  - Introducing Project Alliance
  - EU-legislation challenge public procurement
- **2010: LIPS Washington DC**
  - 1st Joint LCI R&D Project 2010-2012 (3 M€)
- **2011 LIPPI Brisbane, Australia**
  - 2 Project Alliances
  - PATINA research and development project, Technical Research Centre of Finland
- **2012: LIPS Tampere, Finland**
  - 4 Project Alliances
- **2013: LIPS Nottingham, UK**
  - 6 Project Alliances + some hybrids
  - 2nd Joint LCI R&D Project 2013-15 (4,5 M€)
- **2014: LIPS Berkeley, USA**
  - 16 Project Alliances + 4 IPD Projects
  - 1st Public Sector R&D Project 2014-16 (11 pilot Projects)
- **2015: LIPS Barcelona, Spain**
  - 34 Project Alliances + several IPD Projects
- **2016: LIPS Elsinore, Denmark / LCI Berkeley**
  - over 40 Project Alliances + more coming
  - 1st Lean Production R&D Project 2016-18 (0,7 M€)
- **2017 ILCC Chennai, India / LCI Anaheim**
  - over 60 Project Alliances + IPD Projects
  - 2nd Public Sector R&D Project 2017-19 (12 pilot Projects)
  - 20 participants in Anaheim from Finland
- **2018 LIPS Berkley**
  - First ICT Alliances
  - Over 70 Projct alliances total
- **2019**
  - Publication of new Alliance Contracts and Guidelines

# THEME 1

## Why Integrated project delivery (IPD) and Lean Construction for construction projects?



# FTIA Strategic Targets to use Lean & IPD

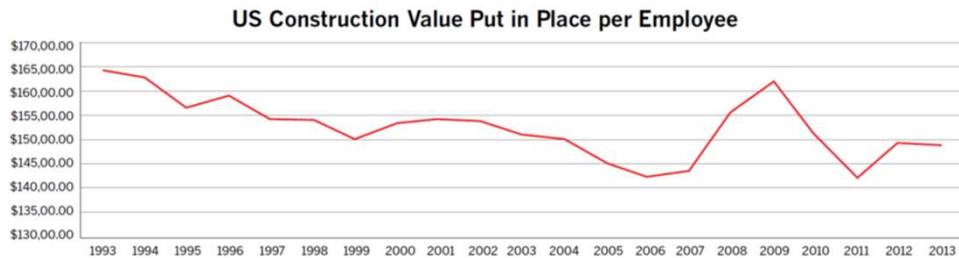
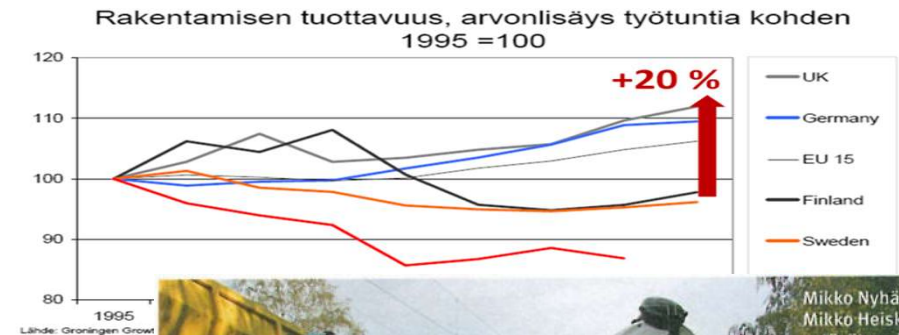


CHART CREATED BY MATT STEVENS WITH DATA FROM THE US DEPARTMENT OF LABOR AND THE US BUREAU OF ECONOMIC ANALYSIS.



Lähde: Groningen Growth



- To improve productivity of the entire industry
- To change the culture into a more open and trusting way of working
- To improve the customer satisfaction for end products – faster, better quality and cheaper
- To develop innovativeness and knowledge
- We do believe there is huge potential, which is connected to the way of acquiring services and cooperating during the project

# Working day consideration

## Managing projects having risks and contingency

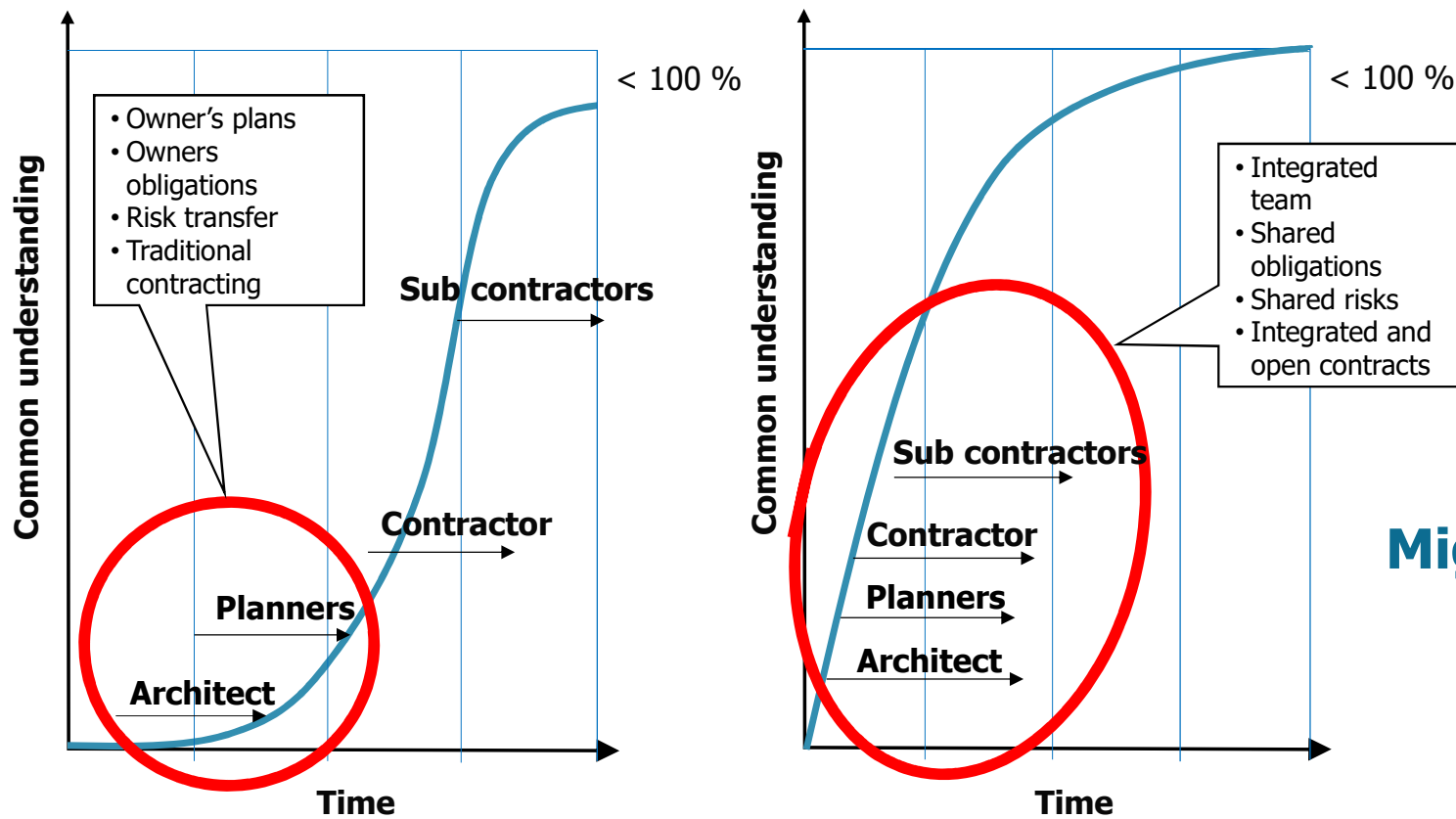
- Who are pricing risks? Who are bearing risks?
- How I am able to get different parties to collaborate together?
- How do I ensure, that different parties optimize the whole instead of optimizing their own (suboptimizing)?
- How do I create an project organization which deliver transparent information?
- How can we add value for money and customer?
- How can we eliminate waste and focus more on people?



*Owner's consideration*



# Early involvement



**Might this help a bit?**

# Alliance Contracting in a nutshell

## Project Alliance is a project delivery system



No roles and duties defined in the contract

- based on a **joint contract** between the key actors to a project
- whereby the parties assume **joint responsibility** for the design and construction of the project

Multi-party contract applied

Pains and gains are to be shared

- to be implemented through a **joint organisation**
- and where the actors **share both positive and negative risks** related to the project

The owner is part of the organisation

'No fault – no blame' culture

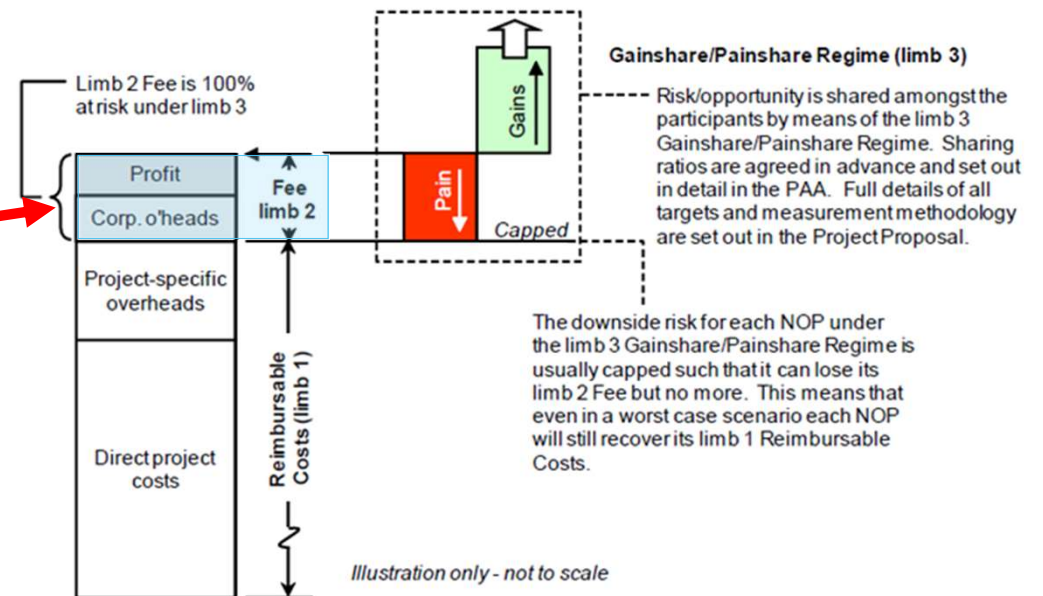
- and observe the principles of **information accessibility**
- in pursuing **close cooperation**

Open books principle is followed

# Alliance and European Union procurement legislation

## According to the EU directives and Finnish legislation:

- The price should be used, when contracting authority is making comparison of tenders
- Two possible selection criterias:
  1. The lowest price, or
  2. the most economically advantageous tender (so-called quality and price)
- In Alliance, the **limb 2** will be used as a price element.
- Contracting entities should write out justifications for every comparison criteria



The European commission rejected claim against using Alliance Model September 2013

# Lean thinking in IPD projects...

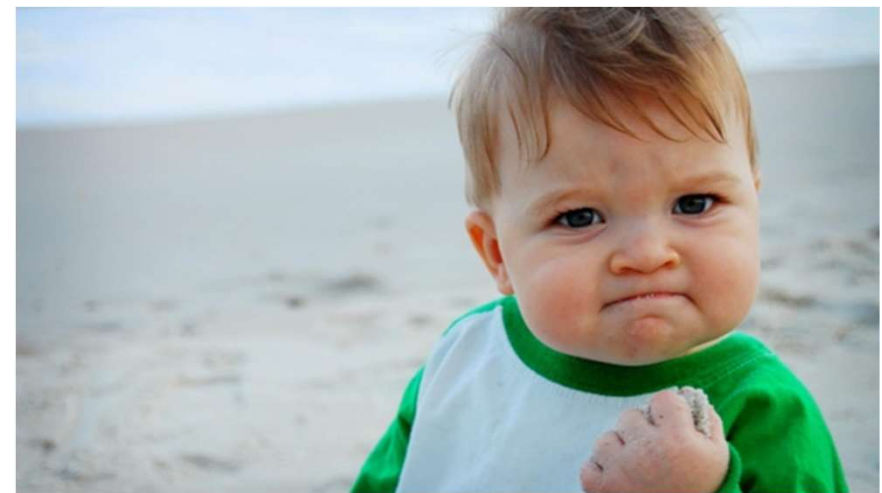


- Last planner System through the supply chain
- Caves/BIM/VDC (CAVE = Computer assisted virtual environment)
- Big room environments
- Target Value Design/Delivery
- Problem solving tools and methods
- Continues improvement
- Prefabrication
- A3 reporting
- Takt time production has also started





**...Leads huge Cultural change !**



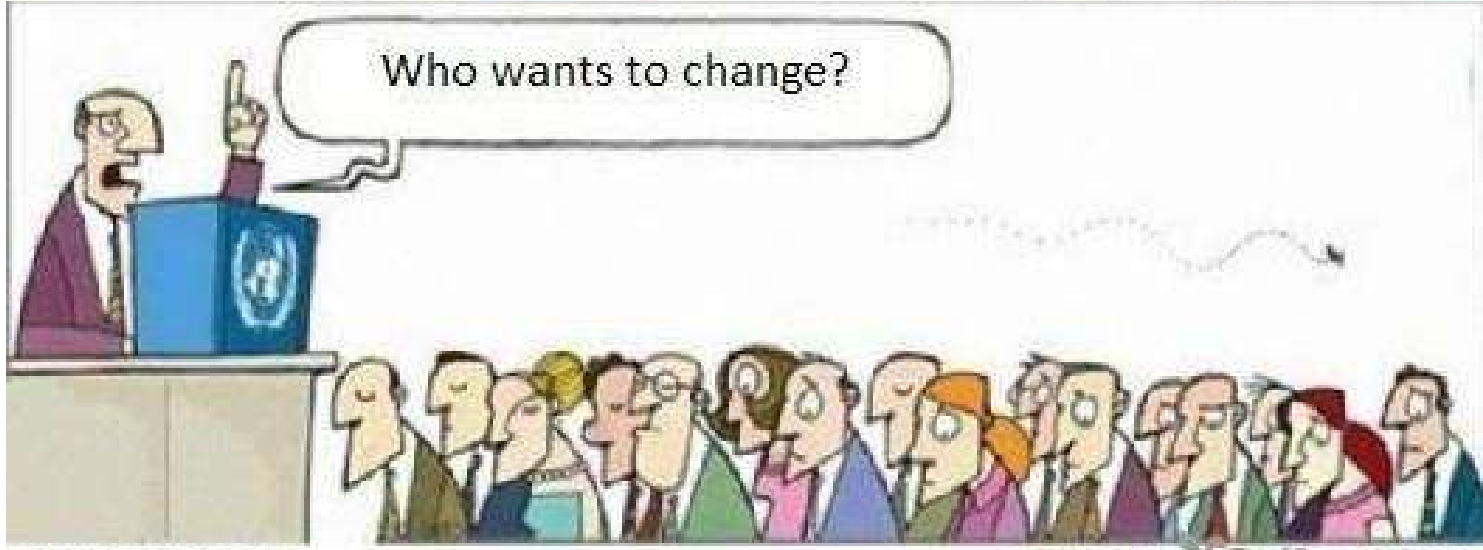
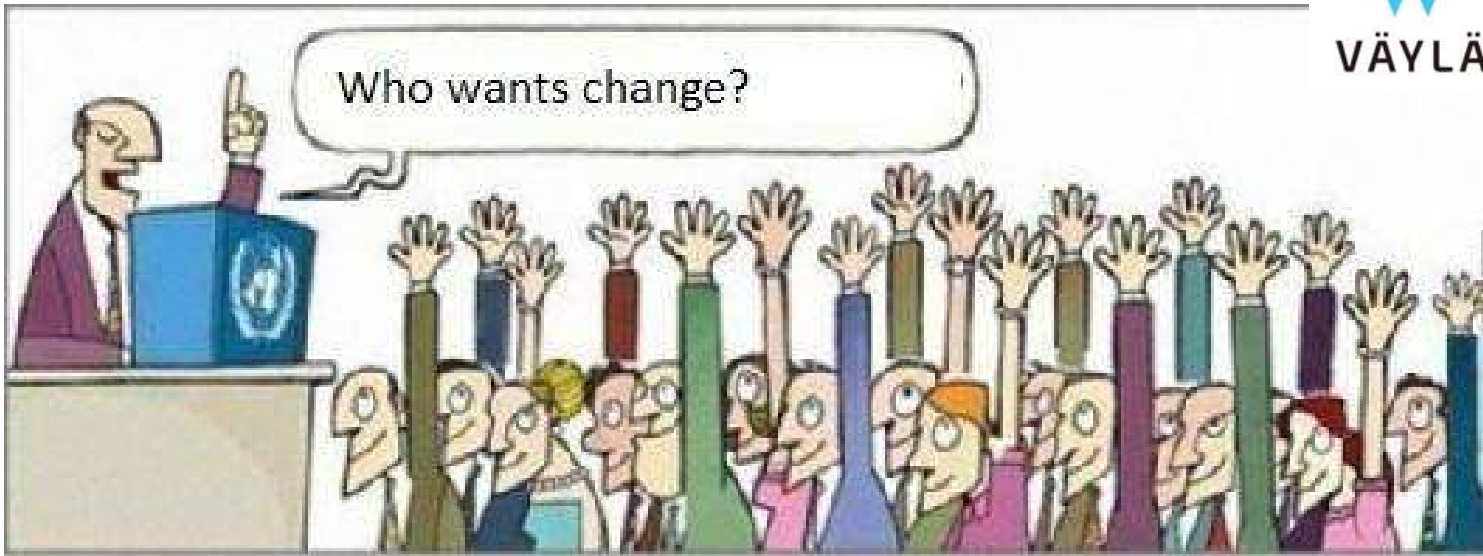
## THEME 2



**To create IPD-culture, brave owner organizations and (owner) people are needed as far as deep dialogue with the construction industry**



If you want a change, you need somebody to kick it off !!!



qome.me/ZGijZGL

Créé sur Québecmeme



# First Pilot Projects 2011-12



- Liekki-project (Railway renovation), **Finnish Transport Agency**
- Tampere Tunnel, City of Tampere, **Finnish Transport Agency**
- Vuolukiventie campus renovation, **University of Helsinki, Center for the Premises and Facilities**
- **Alliance documents from Australia apply to EU legislation**



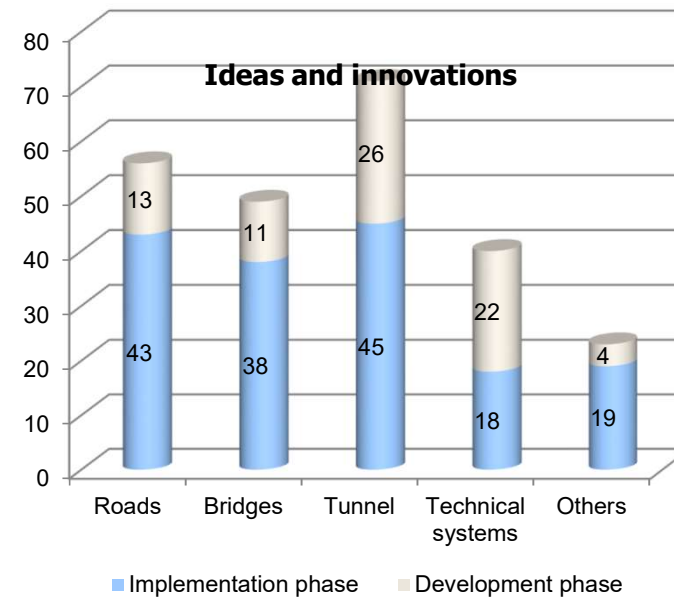




# THEME 3



## IPD-projects create great results



# Tampere Tunnel Alliance project



## Project

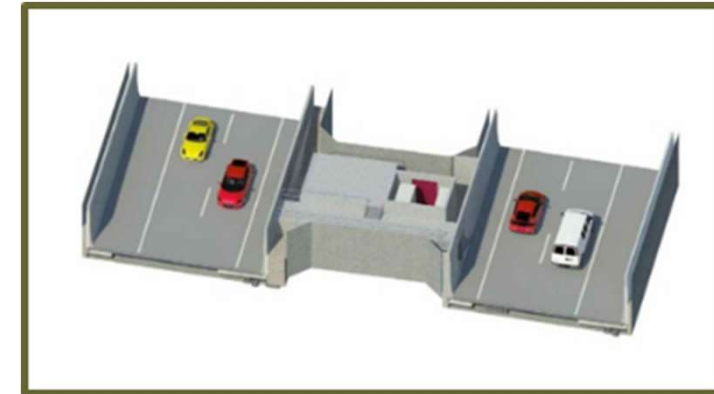
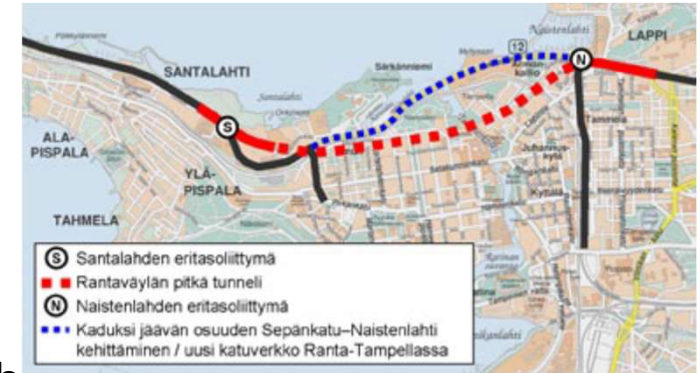
- 2x one-way 2,3 km road tunnels
- Target cost 180,3 M€ + owners risks (eg. polluted soil)
- Development period (in Alliance) July 2012 – September 2013
- Implementation period October 2013 – completed 2017

## Idea

- Forming alliance with **two Owners** – City of Tampere and Finnish Transport Agency
- Improving Big Room activity and practices

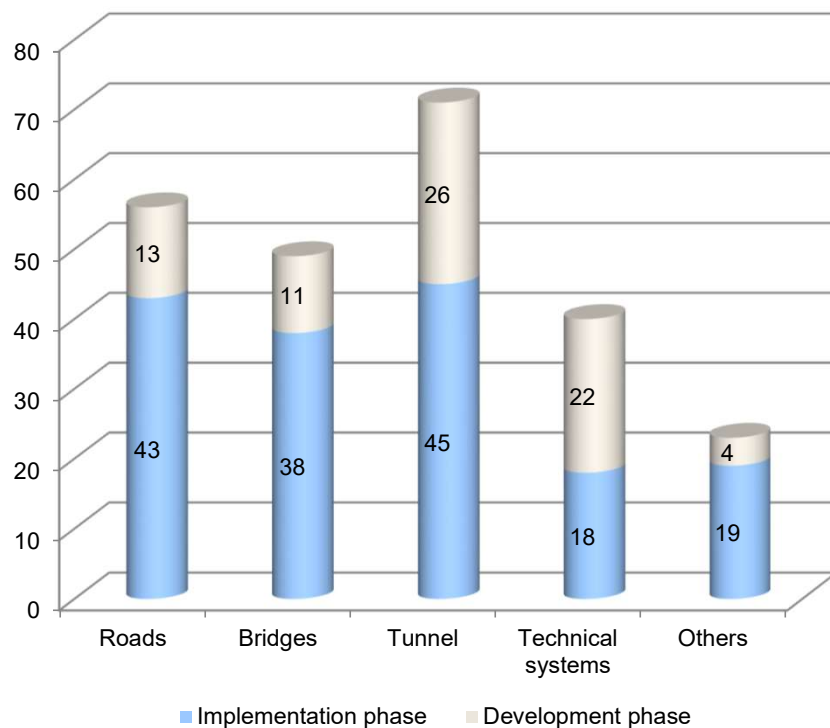
## Impacts

- **Designing the project to client's budget from 220 M€ to 195 M€**
- **TVD-process was successfully applied in the project**
- **Successful Big Room activity**
- **Major innovations**
- **Delivered six months ahead and under budget**
- **All KRA's exceeded**



## What has been achieved & Lessons learnt

**More than 200 ideas → More than 30 innovations (VfM over 20 M€)**



**Technology groups have taken the responsibility to develop the ideas**

- **Clear evidence of innovation promotion, but ideas have to be systematically developed into innovations**
- **Less waste with internal processes since Alliance can define, plan and prepare what is best for the project => right things in the right time**
- **One and only Big room is a must**
- **Rather unanimous decision making is not workshop than a meeting**
- **Quick and a problem even with 5 parties in an Alliance**
- **You get what you measure (KRA)**



# Helsinki Airport Terminal



## Project

- 300 M€ Terminal Expanding Investment
- Renovation of 157.000 m<sup>2</sup> + 25.000 m<sup>2</sup> of new passenger and baggage facilities + 9 gates for widebody jets
- Alliance members: Finavia, ALA Architects, HKP Archtiects, Ramboll Finland and SRV (Construction)

## Idea

- The best Project Alliance in Finland & Lean everywhere
- 50 % increase in passenger and baggage handling capacity



# THEME 4



**Focus on people, challenge and educate them**



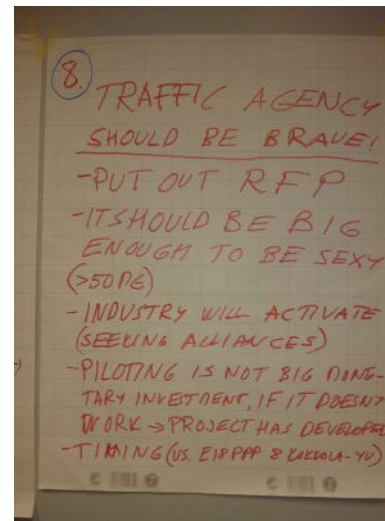
# Changing culture is the issue

## - Building trust, trust, trust



### Dialogue with the industry

- Started in May 2010
- General Information of the pilot projects in September 2010
- Workshop with the industry in November 2010. Focus on commercial framework and selection criteria
- More workshops during the selection processes in every project



# Selection of Service Providers



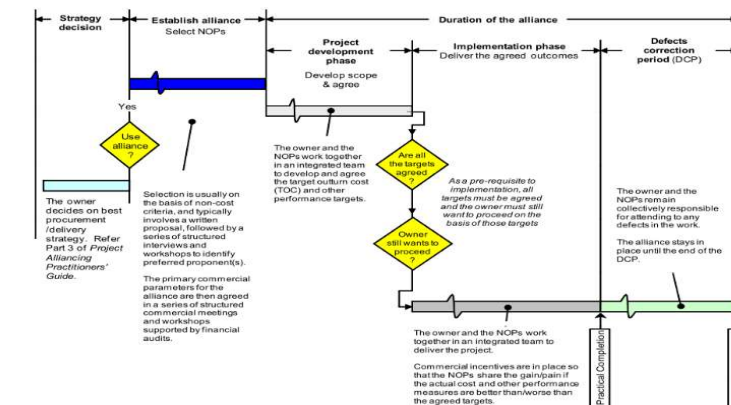
Selection of most suitable parties to build up an integrated team with an owner - to design and execute project and reach owner's targets and high performance

## Process

- Competitive tendering process
- Non cost selection criteria

## Selection criteria

- Technical, financial and management capacity
- **Understanding and commitment to the Alliance way of doing business**
- **Lean processes**
- **Tests and exams**
- Margin / Fee



Project Alliances Building on the Australian experience - May 2010 Helsinki

Evaluation criterion		Weight			
		Stage2		Stage3	
		total	sub	total	sub
<b>A.</b>	<b>Capability</b>	<b>100 %</b>		<b>75 %</b>	
<b>A1.</b>	<b>Project implementation plan and organisation</b>	<b>25 %</b>		<b>10 %</b>	
	A1.1 Project implementation plan and organisation		25,00 %		10,00 %
<b>A2.</b>	<b>Track Record</b>	<b>35 %</b>		<b>10 %</b>	
	A2.1 Track record in Key Result Areas		25,00 %		10,00 %
	A2.2 Learning from mistakes		10,00 %		no evaluation
<b>A3.</b>	<b>Value for Money</b>	<b>40 %</b>		<b>30 %</b>	
	A3.1 Setting the target outturn cost		25,00 %		15,00 %
	A3.2 The budget critique		15,00 %		15,00 %
<b>A4.</b>	<b>Alliance ability and leadership</b>	<b>0 %</b>		<b>25 %</b>	
	A4.1 Alliance understanding and demonstrated leadership capabilities		no evaluation		25,00 %
<b>B</b>	<b>Price</b>			<b>25 %</b>	
<b>B1</b>	<b>Fee %</b>		no evaluation		25,00 %
	<b>A+B Total</b>	<b>100,00 %</b>		<b>100,00 %</b>	



# Big Room Concept – Continuous Improving



**Shared workspace for all parties**

**Cooperation and collaboration**

- Owner + designers + contractors + suppliers
- Stakeholders
- Information and data sharing

**Building of Trust**

- Open books
- Transparency

**Commitment on continuous improvement**

- Last planner
- Target value design etc.

**Best for the project**

**Value for a money**



# Group projects 2014-2019 for Owners - learning, coaching, dialogue



## 2014-16 Project level



### Foundation

- 11 Public organizations
- 11 Pilot Projects
- IPD Procurement
- IPD Agreements and commercial models
- IPD phases
- Lean principles and some tools

## 2017-19 Organization level



### Producing value and improving productivity

- **13 Public Organization**
- **13 Projects**
- **Building new culture**
- **Challenging and educating people**
- **Lean processes and tools**
- **Creating value and reducing waste**

## 2020 -Industry level

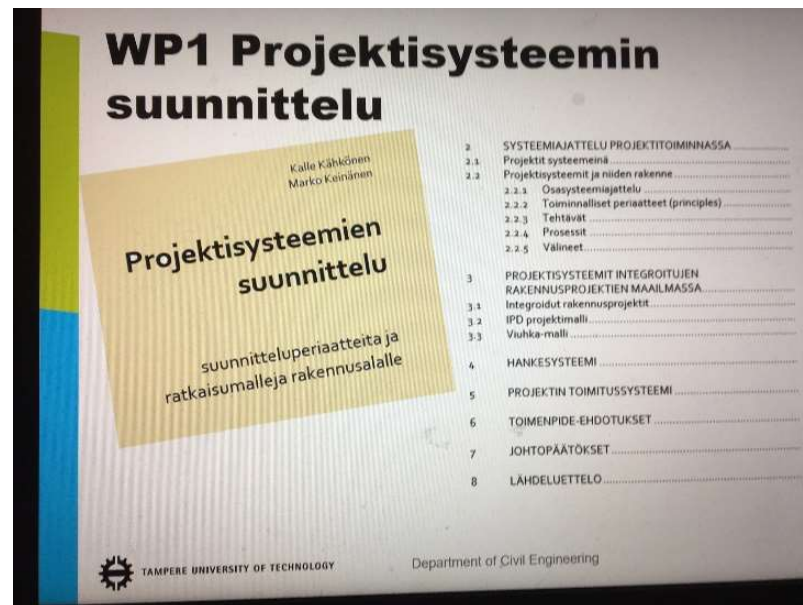


### #1 in Using Integrated Projects

- New strategies
- New business models and opportunities
- Focus to operational and lifecycle value
- Something we have not seen yet

# THEME 5

## Co-operate with Research institutes



# Why LCIFIN research projects?

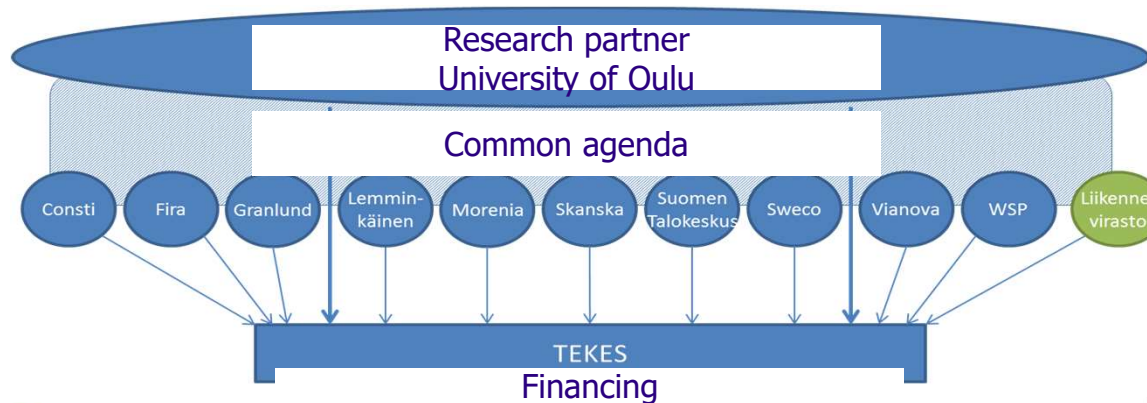


- We believe that Lean methods and Lean Construction are powerful philosophies and give us theoretical and practical platform to develop the whole industry
- We need forums where we can study together and share common understanding and lessons learnt
- We need to bring academy and industry closer to each other
- We need participants who represent the whole value chain. We can across the borders in joint R&D projects
- $1+1 > 2$



# LCIFIN Research Projects

- ✓ LCI1 & LCI2
- ✓ 12 organizations
- ✓ Financing 8,0 M€
- ✓ Duration 2010-2015





# Academic research

Research and papers	Number
Doctoral thesis	4
Master Thesis	30-40
Lower academic thesis	30-40
Scientific articles	10-120
Conference papers	several dozen
Presentations	> 100



# RAIN- Project (Integration in Construction)



Fira

SWECO 

 PÖYRY



talokeskus 

RAMBOLL

Lemminkäinen

VÄYLÄ

OULUN  
YLIOPISTO

TAMPEREEN  
TEKNILLINEN  
YLIOPISTO



Granlund

VR TRACK

YIT

CONSTI

- 2,5 years joint program-> October 2018
- Five themes
- Joint R&D budget 450 000 €
- Companies together over 2 M€

# Not the best players – but the best Team!



# Not the best players – but the best Team!



- **The RIL Project of the Year in Finland 2016**
- **The IPMA Project of the Year in Finland 2017**
- **The IPMA Global Project of the Year 2018**



# My key points again...



- **Why Integrated project delivery (IPD) and Lean Construction for construction projects**
- **To create IPD-culture, brave owner organizations and owner people are needed and great dialogue with the construction industry**
- **IPD-projects create great results**
- **Focus on people, challenge and educate them**
- **Co-operate with research institutes**







VÄYLÄ