

Presented at the Lean in Public Sector Construction Conference (LIPS 2014)
at the University of California, Berkeley, on September 25, 2014.
Hosted by the Project Production Systems Laboratory (P2SL)
Posted online at p2sl.berkeley.edu/2014-09-25&26

Finnish Transport Agency Alliancing the Tunnel of Rantaväylä

Liik
enne
vira
sto

LIPS 2014
Mauri Mäkiäho

The Tunnel of Rantaväylä Tampere, Finland



Liikennevirasto

RANTAVÄYLÄ
tunneli
- KAUPUNGIN KASVUALUSTA -



**Tunnel allows
built new
housing to the
city center**





- ✓ Target costs 180,3 M€ (May 2013)
- ✓ Development period (in Alliance) July 2012 – autumn 2013
- ✓ Implementation period (in Alliance) has been started October 2013
- ✓ Ready to use in 2017
- ✓ Finishing 2018

- ✓ 2 one-way 2,3 km road tunnels
- ✓ Interchange in both ends
- ✓ Provision for one in the middle
- ✓ Daily traffic volume Over 40 000
- ✓ In the future 54 000



Tampere tunneling alliance partners

WE DO EVERYTHING
TOGETHER



OWNERS

- Finnish Transport Agency
- Tampere City

SERVICE PROVIDERS

- Lemminkäinen Infra Oy
- Saanio & Riekkola Oy
- A-Insinöörit Suunnittelu Oy

WE SHARE ALL IDEAS
TO ALL OTHERS



Ideas in the implementation phase

säkuun 2013 jälkeen kirjatut ideat =TAS

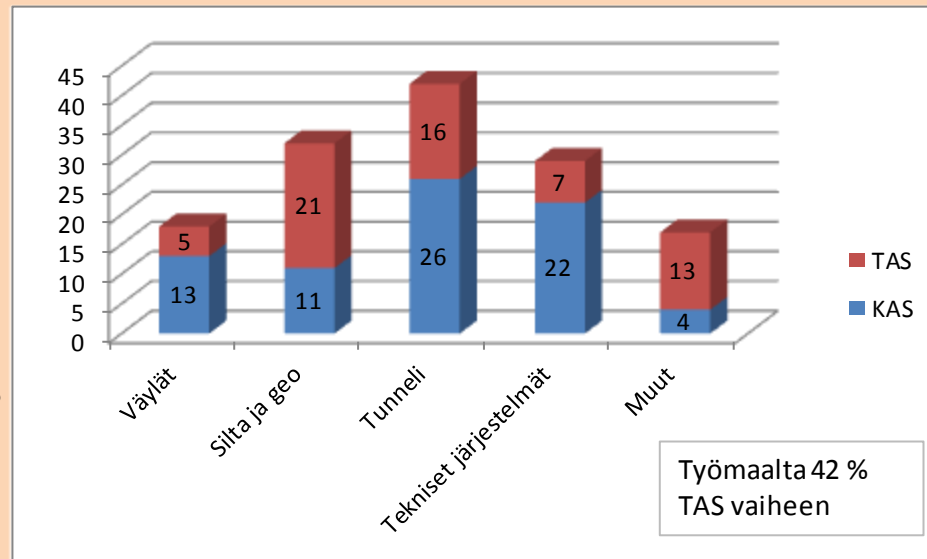
kniikkalaji	KAS	TAS	Yhteis
Väylät	13	5	18
Silta ja geo	11	21	32
Tunneli	26	16	42
Tekniset järjestelmät	22	7	29
Muut	4	13	17
Yhteensä	76	62	138

Työmaalta yhteensä	26	42 %
Muut kuin TV	18	29 % 69 %
työmaalla toteuttava TV	8	13 % 31 %
		100 %

Development Phase

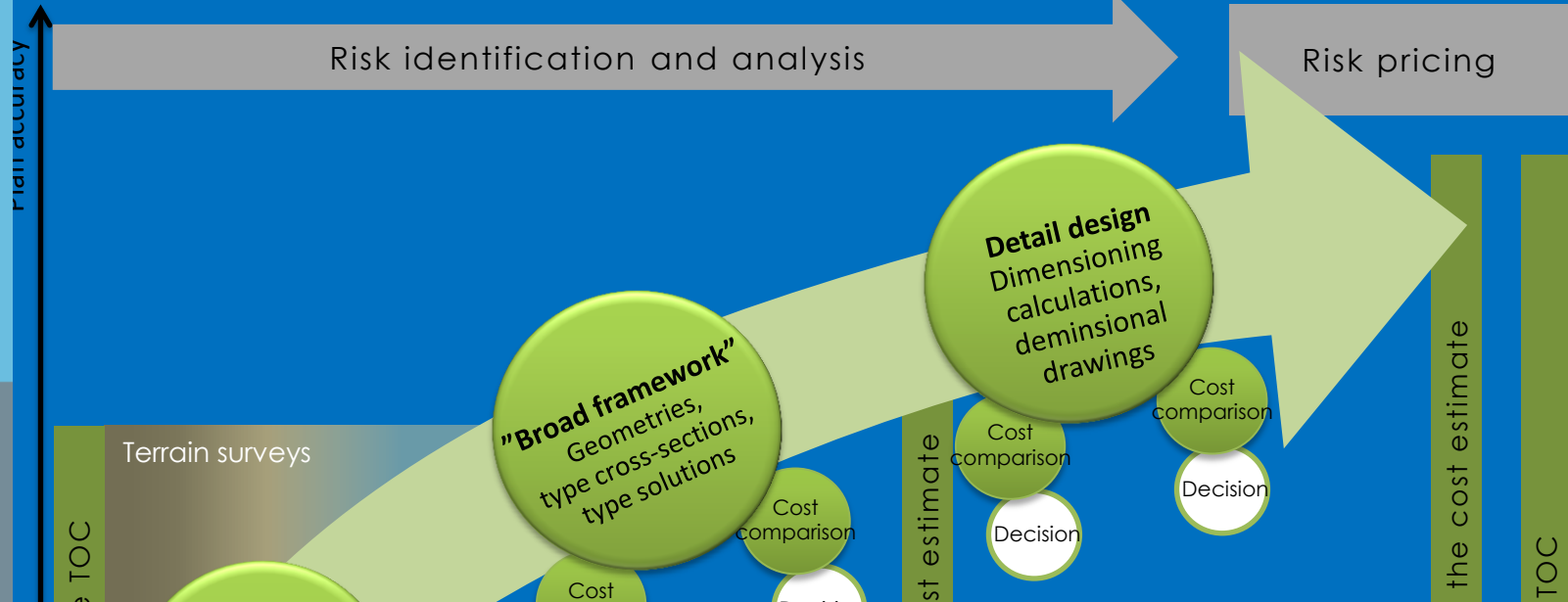
Implementation Phase

Statistics of different technical types



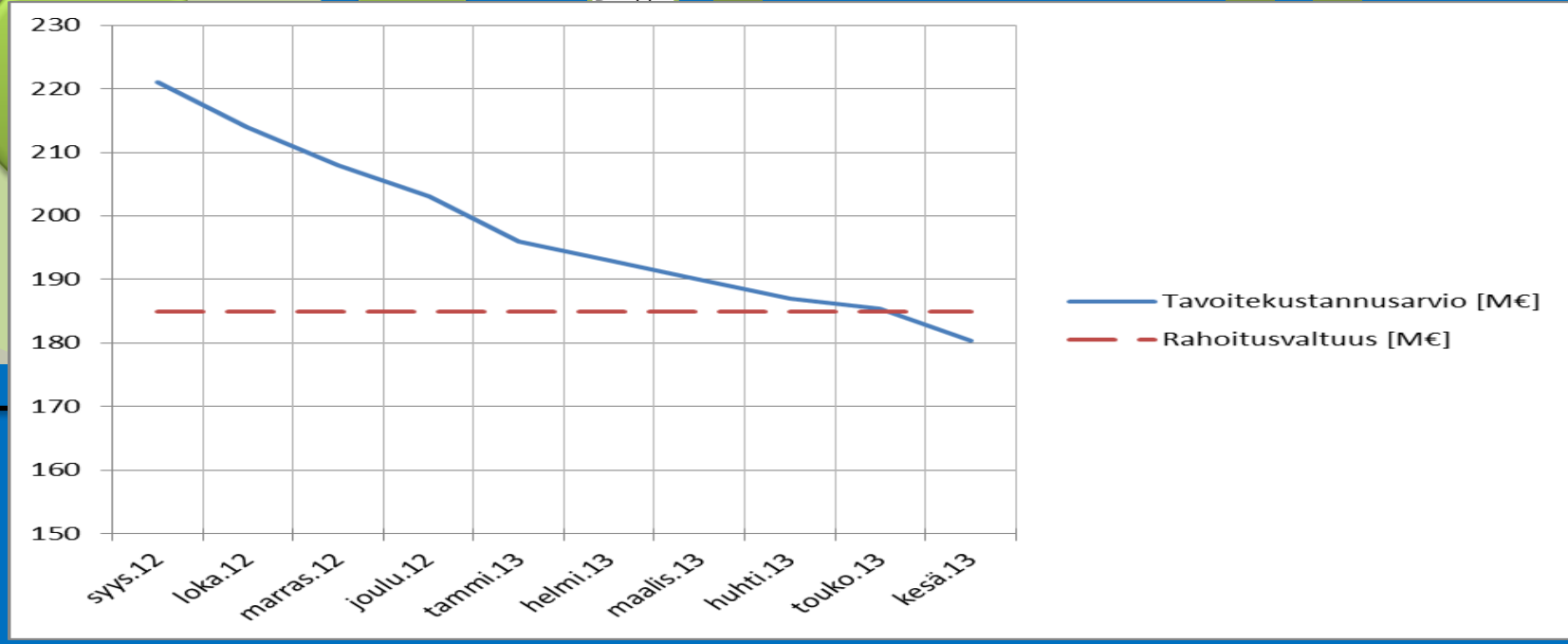
26 % of development phase's ideas turned into the innovations

Setting the target cost


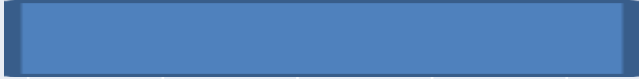



Update of the TOC

August








Schedule in the project plan

	2012	2013	2014	2015	2016	2017	2018	2019
Development phase <ul style="list-style-type: none">• Design• Key targets• Target price• Impl. plan								
Implementation phase <ul style="list-style-type: none">• Construction								
Defects correction period								

Performance

Table 6.2. Key result areas, performance indicators and values.

Key result area	Key performance indicator (KPI)	KPI values			
		-100 points	0 points	+100 points	
Schedule	On schedule	240 days late	15...0 days late	120 days early	
Safety	No. of accidents	100	16-14	0	
	No. of days of absence due accidents	1000	200-160	0	
Usability	Traffic disturbances caused after the construction phase completion	Set at 3 months before the construction phase completion	Pls. See the measurement description	0	
Public image	Tone of public image	40	85-90	100	

Performance

Table 6.3. Positive modifiers

Positive modifier	Indicator	Indicator values	Points
Traffic disturbances during construction	Amount of traffic during construction	KVL same as before the project	+ 10 points <input type="radio"/>
		KVL less than a maximum of 7 % compared to before the project	+ 5 points <input checked="" type="radio"/>
Damages	Amount of damages	Total damages below 0.75 ‰ of the target outcome cost, 180 million euros	+ 5 points <input checked="" type="radio"/>
Significant accolade	Reward for accolade	See description of the measurement	+ 5 points <input type="radio"/>
Life cycle cost	Reduction in operation costs	100,000 euros / year	+ 5 points <input type="radio"/>

Performance

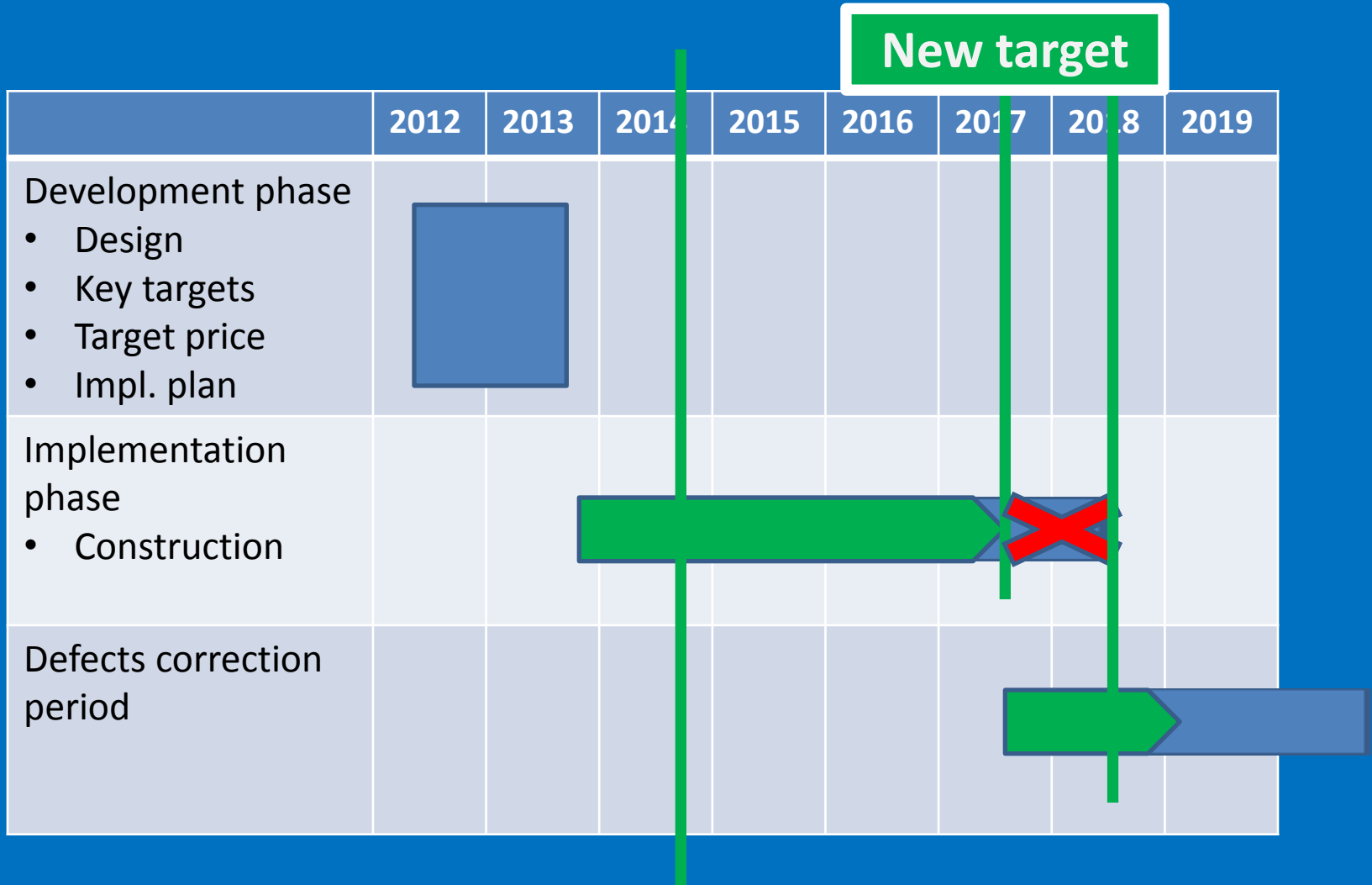
Table 6.4. Negative modifiers

Negative modifier	Indicator	Indicator value	Points
Highway 12 traffic disturbances	Hours	Traffic stopped for 12-24 h	-2 points
		Traffic stopped for 24 h	-5 points
Train traffic disturbances	Hours	Traffic stopped for 6-24 h	-3 points
		Traffic stopped for 24-48 h	-6 points
Grey economy	Observations	Observed once	-2 points
		Observed twice	-5 points

Table 6.5. Major event modifiers (major negative factors).

Major event modifier	Indicator	Indicator values	Points
Train traffic disturbance	Hours	Train traffic stopped for > 48 h	-50 points
Major accident	Observation	Alliance activities found to have caused the accident according to the Accident Research Board	-50 points

New Schedule



**It seems that:
the new schedule will succeed
the target cost is not exceeded**

Thank you