

High Capacity Transport in Finland

What 34,5 m and 76 t
means for energy efficiency?

Otto Lahti
Chief Advisor

25,25 m 60 t old standard since 1997

- reference level in Finland



Measuring energy efficiency

- ▶ Liter /100 km
- ▶ l/100 km /tonne payload
- ▶ l/100 km /cubic meter payload
- ▶ l/100 km /trolley or pallet
- ▶ l/100 km /tonne in one way transport
 - ▶ Timber transport is good example
- ▶ g CO²/tkm or m³km
 - ▶ Probably too theoretical unit to understand
- ▶ At the end, system level efficiency matters

76 t trucks since 2013

More efficient timber transportation was a key reason in the background



EMS2 trials 11/2013 ->

The first high speed test 7/2013

Suomen DuoTrailer-
hankkeen tutkimus- ja
kehityssuunnitelma
18.1.2013

2013-2018
14 milj. km

36 trucks in the end



The first application
And the first permit



Several major and many local transport companies
took part to trials



Comparing different prototypes and driving lines in real traffic



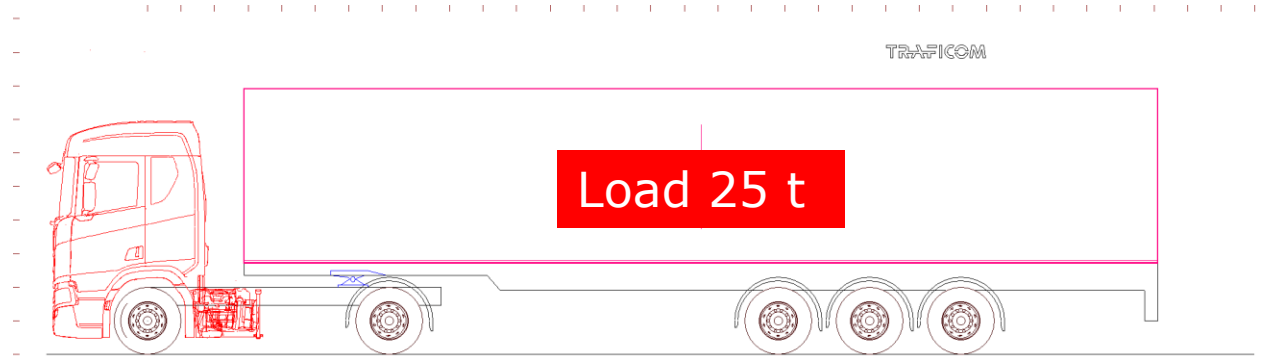
76 t Finnish A-double

Road friendly solution for heavy loads

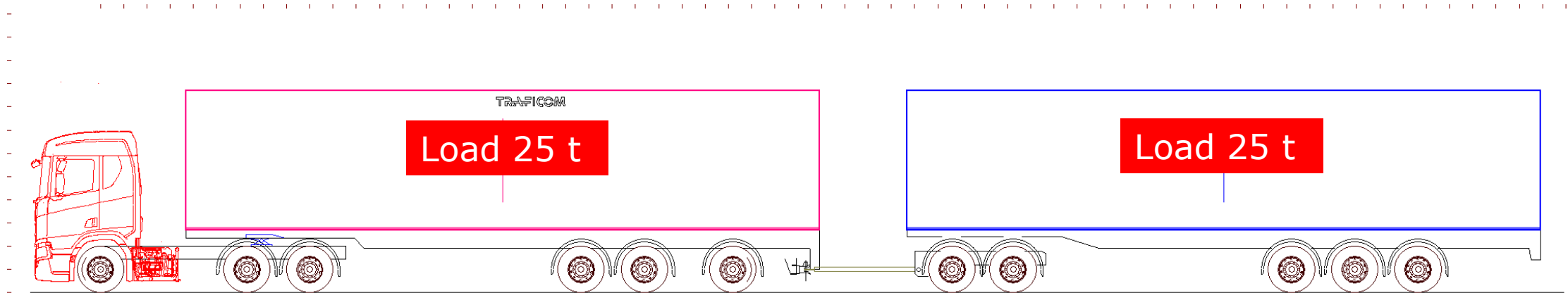
Compared to 2x standard semitrailers
one axle more and 4 t less weight

14 % less weight / axle

The important number is road load
compared to payload



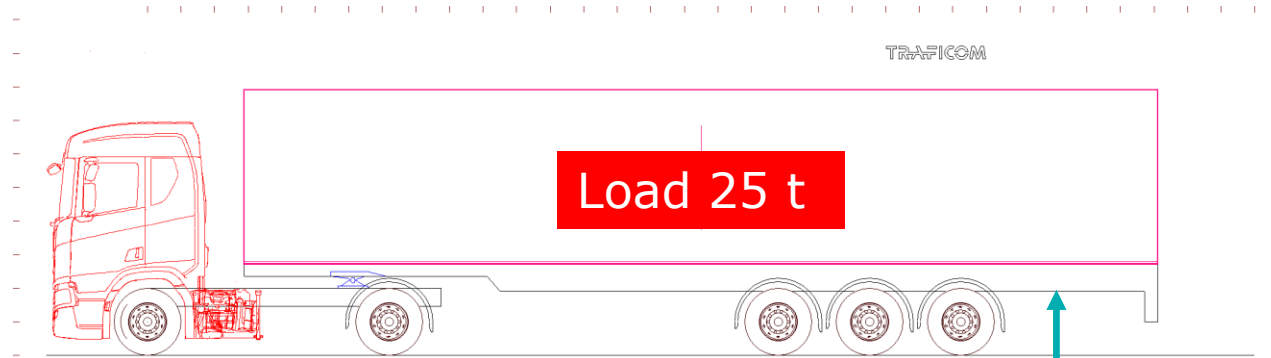
Truck 8 t + trailer 7 t
Standard 40 t truck



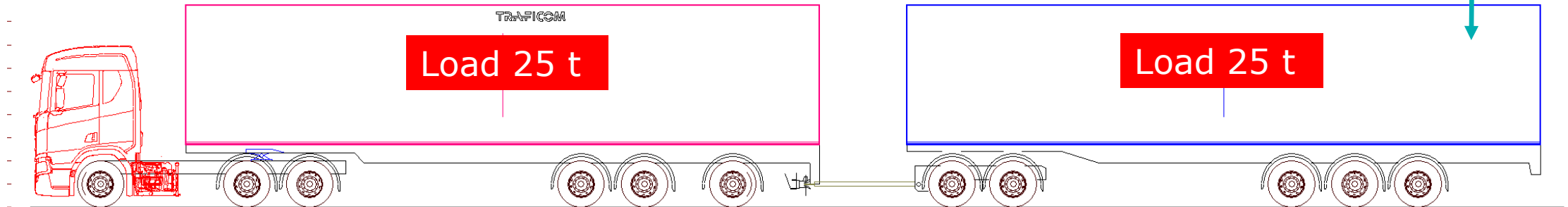
Truck 9 t + trailer 7,5 t + dolly 2,5 t + trailer 7 t
Standard Finnish 76 t A-double

Accurate comparison of payloads

Same:
-Cabin
-Power-weight ratio
-Engine model
-Transmission
-Tyres



Same trailer



Truck 9 t + trailer 7,5 t + dolly 2,5 t + trailer 7 t
Standard Finnish 76 t A-double

Right length to every use

7,7 + 13,6 box
25,25 truck



13,6 + 13,6 box
32 truck

19 m box 22 m truck

Tailor made truck and full trailer combinations to local needs



Hooklift + 3x 18 t box

9,5+17,5 body length
~13,6+13,6



Good traction and dynamic stability

8,8+15,6 load
EMS1 + 15 %



Agile to turn, steering

EMS2 traffic in Finland

We don't measure the number of trucks
We measure traffic

4 week
average

HCT-YHDISTELMIEN (yli 29m) KESKIMÄÄRÄINEN VUOROKAUSILIIKENNE

Rajaukset

Valittuja päiviä
28

HCT-Yhdistelmiä
73 305

KVL
2 618

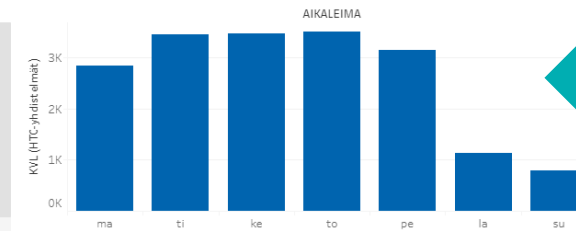
KVL kartalla



KVL asemittain

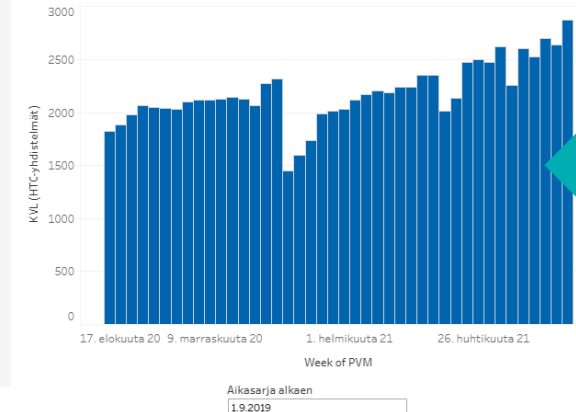
Tie	Tieosa	m	LAM #	LAM Nimi	Ajoneuvojen lkm	KVL (HTC-yhdistelmät)
1	9	1058	104	Tie 1 Palojarvi	1562	55,8
	31	4806	227	Tie 1 Kaarina, Kirismäki	1670	59,6
2	15	5038	122	Tie 2 Karikkila	539	19,3
	103	4180	137	Tie 3 Vantaa, Keimola	2188	78,1
	117	435	437	Tie 3 Hämeenlinna	2547	91,0
	135	2373	471	Tie 3 Tampere, Multisilta	2889	103,2
	214	1530	204	Tie 3 Ikaalinen	1476	52,7
3	250	4648	1030	Tie 3 Vaasa	434	15,5
	104	1520	7	Tie 4 Vantaa, Honkanummi	4418	157,8
	108	3372	99	Tie 4 Järvenpää, Isokytö	3945	140,9
	111	1000	998	Tie 4 Mäntsälä, etelä	4093	146,2
	210	1626	628	Tie 4 Heinola, Murhamäki	4368	156,0
	222	4252	928	Tie 4 Joutsa	3082	110,1
	305	1965	936	Tie 4 Vehniä	3093	110,5
	340	9276	1121	Tie 4 Karsämäki	2345	83,8
	401	425	1250	Tie 4 Oulu, Kontinkangas	2140	76,4
	1740	1237		Tie 4 Oulu, Intiö	1875	67,0
4	402	862	1244	Tie 4 Oulu, Laanila	1257	46,6
	403	844	1238	Tie 4 Oulu, Isko	1273	47,1
	414	11179	1229	Tie 4 li, Myllykangas	480	17,1
	448	2546	1451	Tie 4 Rovaniemi, Ala-Korka...	725	25,9
	128	531	633	Tie 5 Mikkeli	1360	48,6
	145	1883	631	Tie 5 Kuvansi	1134	40,5
	201	2216	828	Tie 5 Rahusenlampi	1035	37,0

KVL viikonpäivittäin



Traffic in differend
week days

KVL kehitys



Weekly
development

Strict PBS rules for trucks and big network or Limited stiff network but simply rules for trucks?

Theory



Reality



Easier then you think



Light goods, long distances, tight schedules, flexible service

CO2 reduction is still possible

- High Capacity Truck, EMS2
- Efficient loading
- Latest engine technology

2-deck trolley specialist, 165 trolleys
2,9x semitrailer load
1,8x 25,25 EMS load

Efficiency level means
15 l/100 km for standard semi
25 l/100 km for 25,25 EMS1



Thank you for your interest and attention

My contact information:

Otto.lahti@traficom.fi

+358295345259

Pictures:

Otto Lahti, Vähälä Logistics, Kaukokiito

Ammattilehti, VAK, Laurinaho

