HCT trucks in Swedish forestry

- operational experiences

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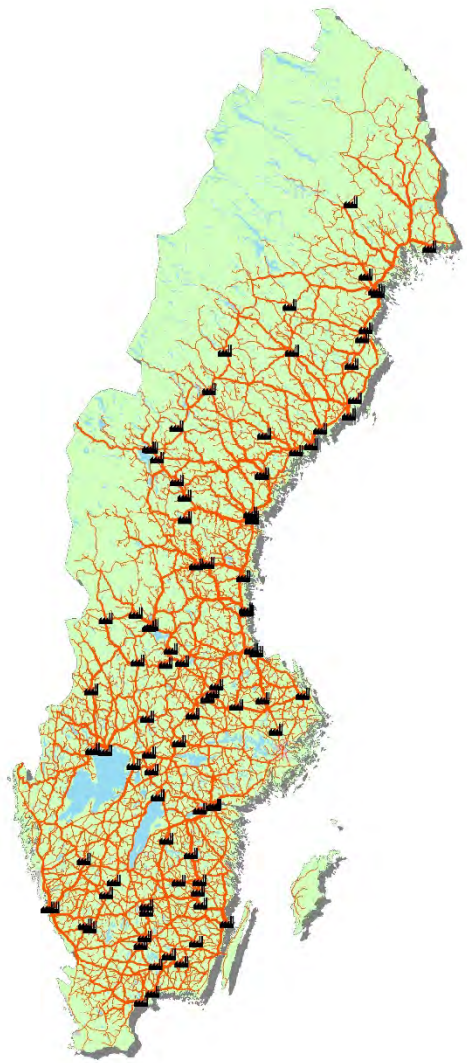
SKOGFORSK

NB-NORD Meeting, June 14–16 2017, Lappeenranta, Finland

Annual wood transportation in Sweden



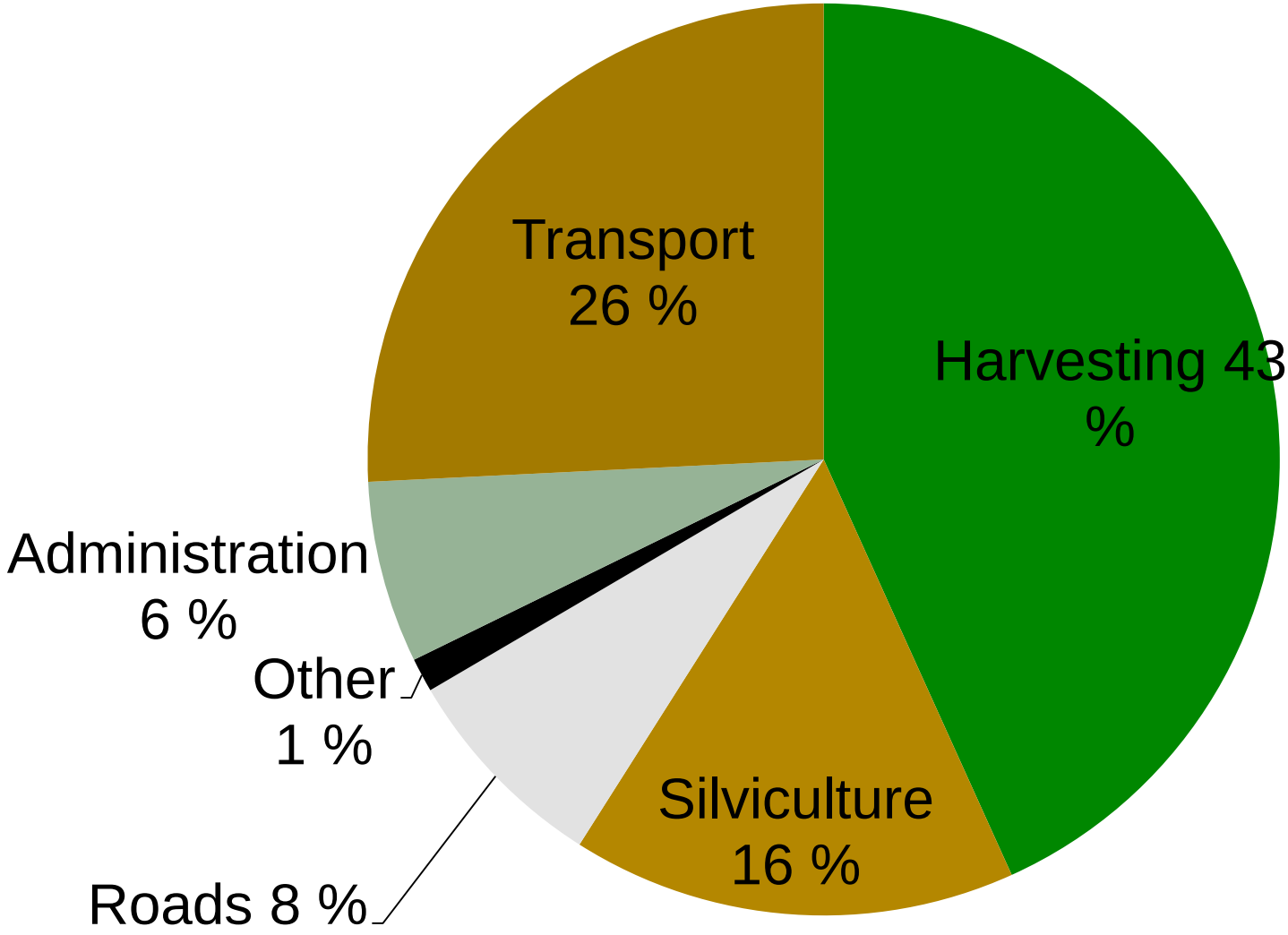
Number of transports – 2 million

Average transport distance - 91 km

Transported weight - 72 millions tonnes

Transport cost – 700 million euro

Wood supply cost in Sweden




One More Pile, 10+ years

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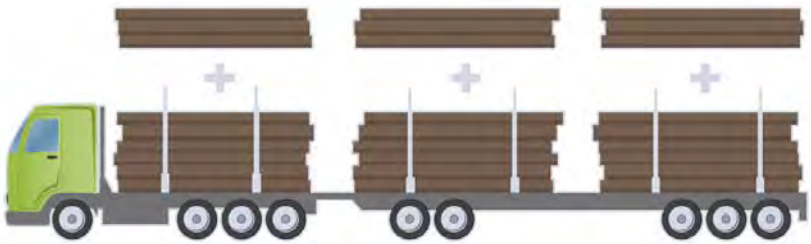
Conventional vehicle

Gross vehicle length: 24 m
Gross vehicle weight: 64 t

High capacity transport (HCT)

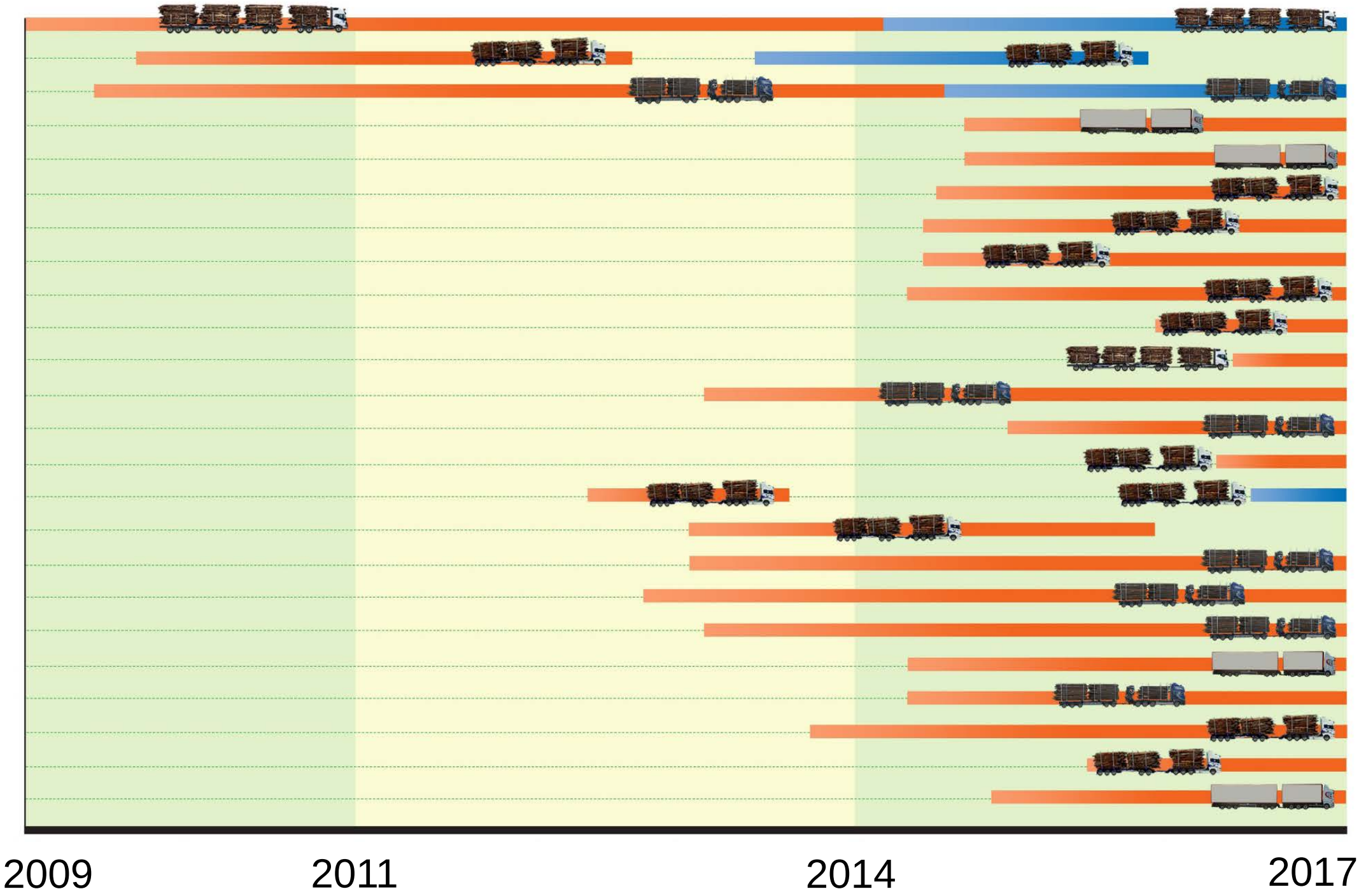


”Bigger Piles”

Gross vehicle length: 24 m
Gross vehicle weight: 74 t

”One More Pile”

Gross vehicle length: 30 m
Gross vehicle weight: 90 t


2009
2011
2014
2017

Fuel consumption

- Fuel consumption 7-13% (20% 90 tonnes) lower compared to 60 (64) tonnes
- Low density material reduces the effect

From 60 to 64 tonnes

GVW, tonnes	60	64	Difference, %
litres/100 km	52,6	54,3	3,2
litres/t	2,4	2,2	-5,6
ml/tkm	27,4	25,6	-6,4

Transport economy

	60	64	74
Fixed costs	<1%	-	+6%
Variable costs, per km	-2%	-	+11%
Distance per year	1%	-	-2%
Total costs	<1%	-	+5%
Transported volume	-4%	-	+11%
Transport cost per m^3	4%	-	-5%

Vehicle combination	Lenght	Empty weight	Average load	Max, allowed load	Load ratio
ETT (no crane)	~ 30 m	24	66	66	99 %
ST (crane)	~ 23 m	26	47	48	97 %
ST (no crane)	~ 23 m	22	49	52	94 %
ST (chips)	~25 m	24	47	50	94 %
Based on 6 572 loads					

Conclusions – transport economy

- Transport cost is reduced by 4% by the introduction of 64 tonnes GVW
- Under right conditions – 74 tonnes GVW has similar potential
- Proportion driving with load, and load ratio is crucial

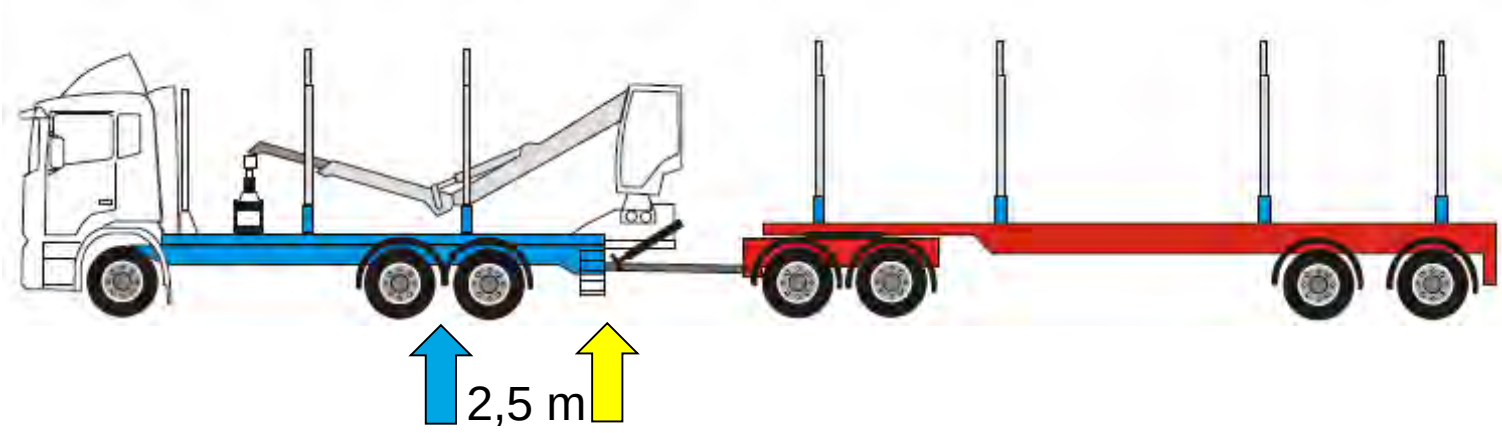
Driver experiences

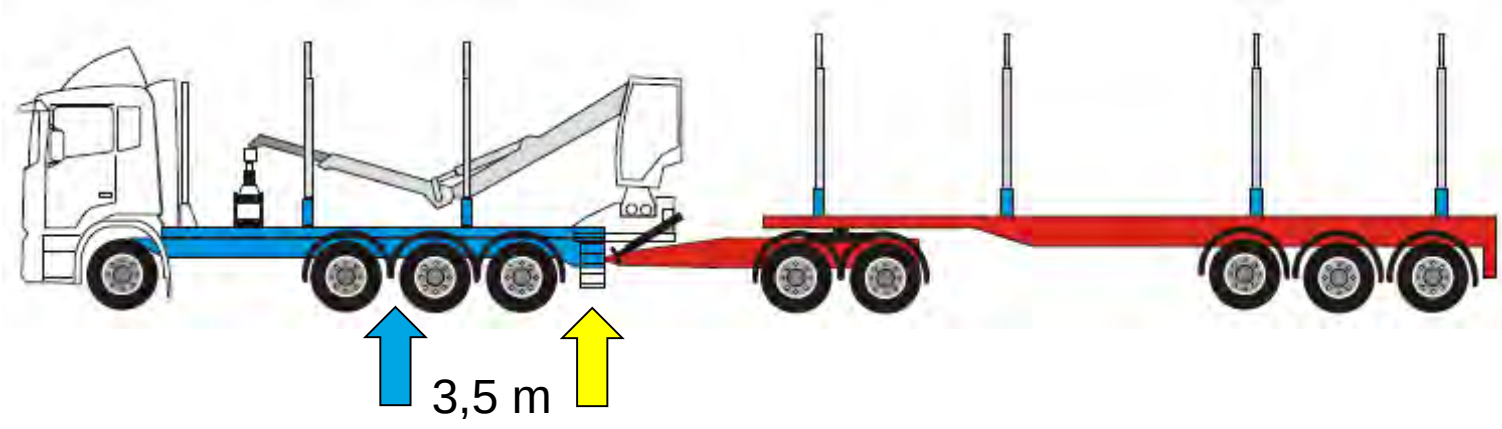
- 650 – 700 hk is enough for 74 tonnes in most cases
- RME and HVO works well - if it's not contaminated!
- Problems starting in the woods – handled by:

  Hydraulic front-wheel drive, crawl gear,

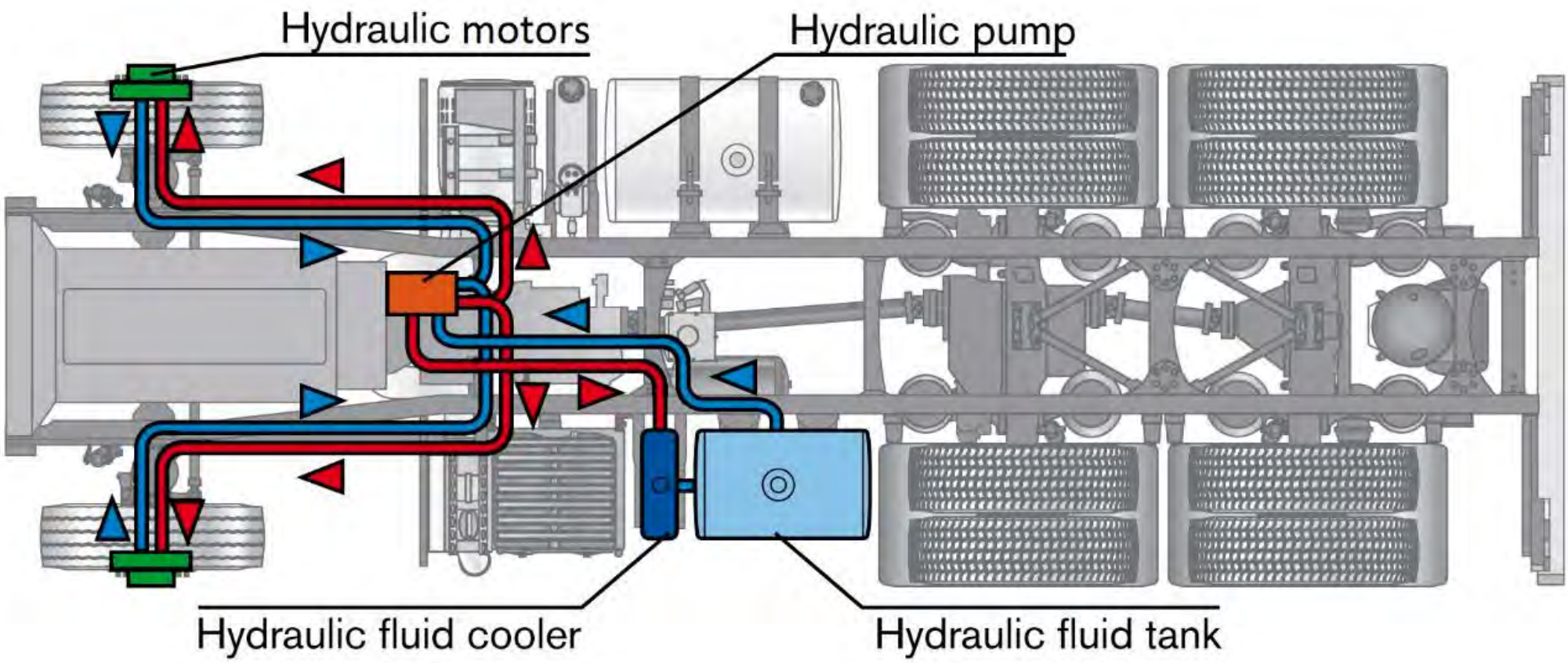
  CTI, liftable axles and air-dump
- Significantly more flexible than 64 tonnes

Flexible construction





Improved traction



Impact on infrastructure

Impact on road safety

- The effect levels when the weight ratio between the impacting vehicle exceeds 10:1 (15-25 tonnes)
- Less number of vehicles reduces the risk of accidents
- Not statistically proved that overtaking accidents were more common for 24-meter than a 18-meter rig

Deviations & incidents

- A few driver related accidents
- A few overtaking incidents (1+2 – roads)
- Some fatigue cracks in frame and timber banks
- Problem with bent stakes on some carriages

74 tonnes in Sweden – status report

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- May 4th 2017 – decision to introduce BK4 bearing class
- July 1st 2017 – BK4 bearing class starts to apply
- Swedish Transport Administration will define which roads are suitable for 74 tonnes
- July 1st 2018 – probable start of 74 tonne trucks in practical operation

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