



WOOD MEASURING AND RECEPTION IN FINLAND

MEASURING METHODS 2009

MEASURING PRACTISES AND ORGANISATIONS

DEVELOPMENT OF MEASURING

NORDIC WOOD MEASUREMENT CONFERENCE 2010

26.10.2010 Timo Saarentaus

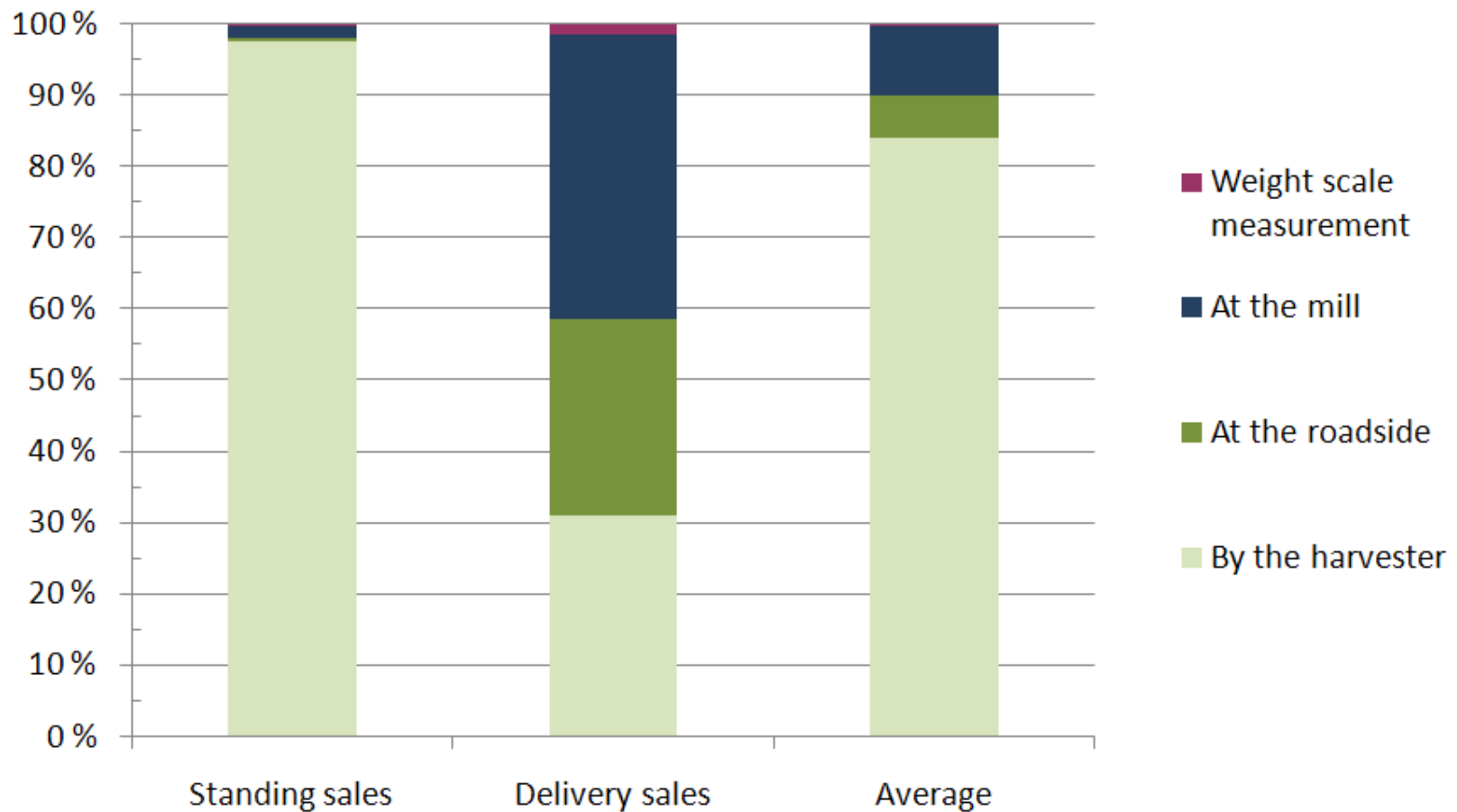


MEASURING METHODS 2009

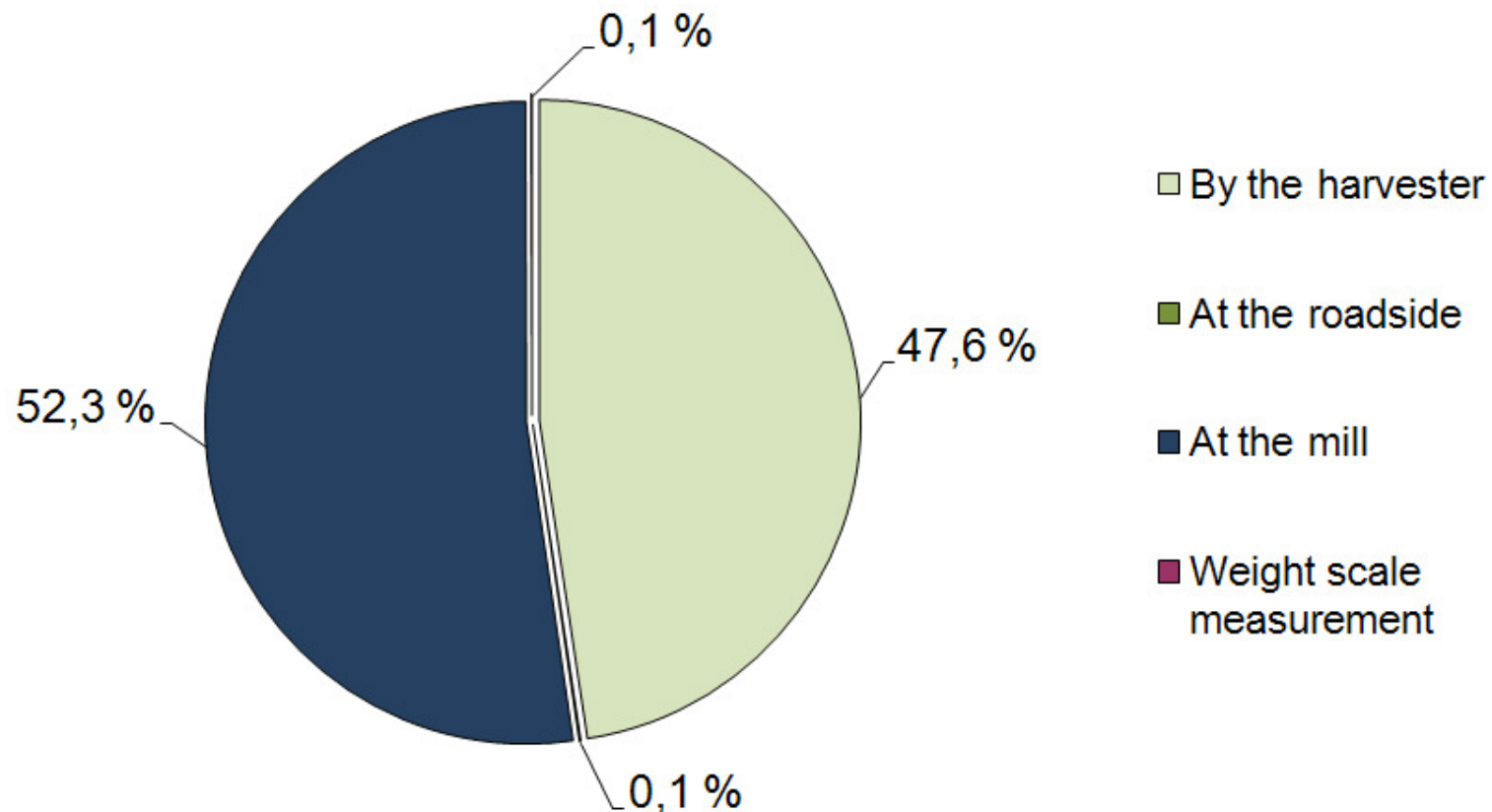
The volume of wood measuring in 2009

- Wood measuring methods used in 2009 –statistics based on the answers which Metsäteho owners, the Finnish forest industry companies and Metsähallitus, have reported. It consists of only domestic timber felling.
- The used volumes (m³ sob) in statistics are the next:
 - Standing sales in private-owned forests 19.5 million m³
 - Delivery sales in private-owned forests 4.9 million m³
 - Forest industry-owned forests and state-owned forests managing by Forest and Park Service 9.1 million m³
 - Together 33.5 million m³
- In 2009, the volume of standing sales was **25.5** million m³ sob and delivery sales **6.6** million m³ sob from private-owned forests. (Source: Metla = Finnish Forest Research Institute)
- Timber felling from industry-owned and state-owned forests totalled **9.3** million m³ sob. (Source: Metla)
- Commercial roundwood fellings in 2009 stood at **41.4** million m³ sob in Finland, of which sawlogs amounted to **16.8** and pulpwood **24.2** million m³ sob. (Source: Metla)
- Timber volume is expressed in cubic metres, real solid volume over bark.

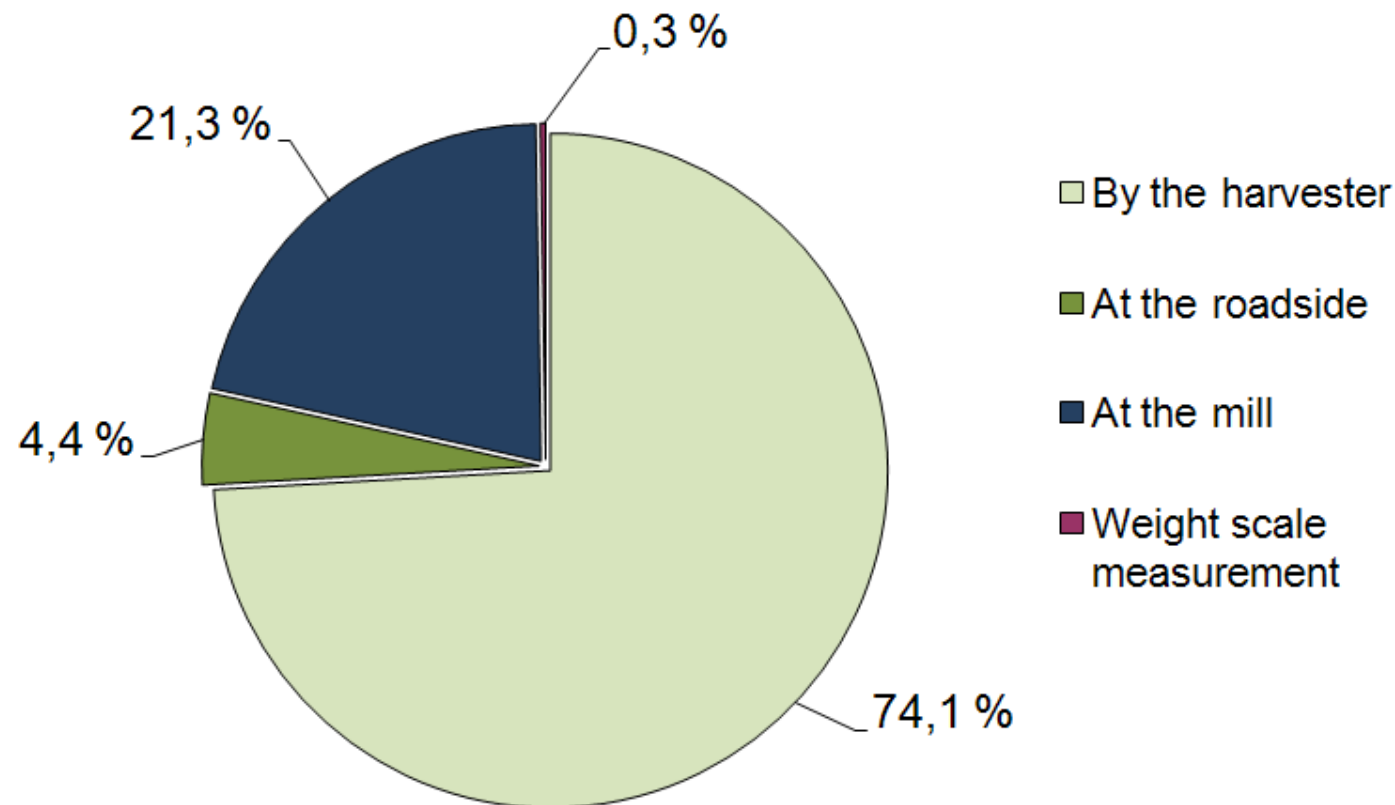
Measurement methods in private-owned forests in 2009 (standing and delivery sales, about 24.4 million m³)



Measurement methods in industry-owned forests and state-owned forests in 2009 (about 9.1 million m³)



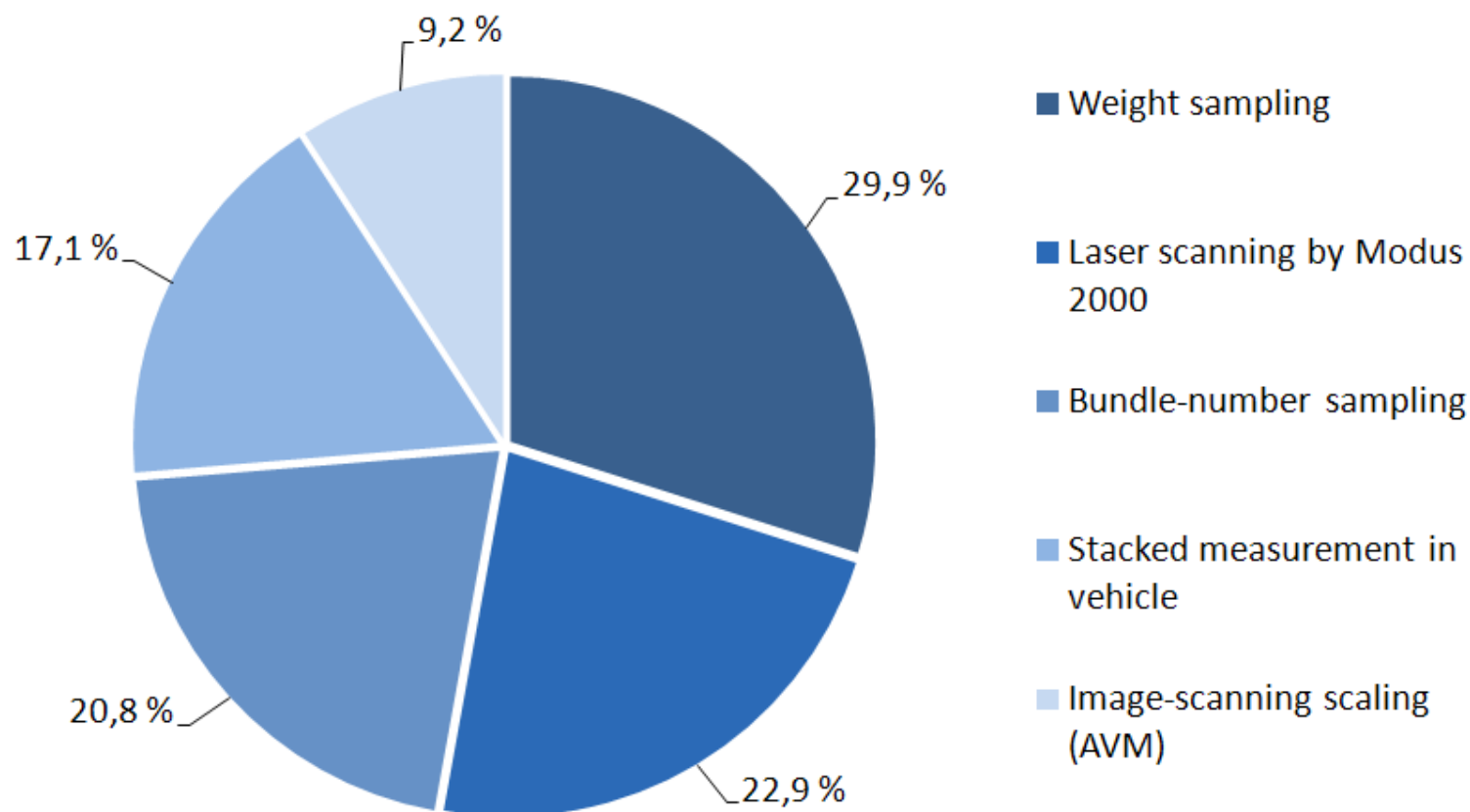
Measuring methods in the total commercial roundwood fellings in 2009 (about 33.5 million m³)



Sawlogs and pulpwood measured at the mill and at the roadside in 2009

- At the mill altogether 7.1 million m³ was measured, which represents 21.3 % of total commercial round wood fellings in 2009. The proportion of the sawlogs measured at the mill was 40.6 % and pulpwood 59.4 %.
 - The sawlogs were mainly measured by using log scanners.
 - The pulpwood measuring methods are presented in the next slide.
- At the road side altogether 1.5 million m³ was measured, which represents 4.4 % of total commercial round wood fellings in 2009. The proportion of sawlogs measured at the road side was 16.3 % and pulpwood 83.7 %.
 - The sawlogs were measured based on the top diameter of the log and the pulpwood was measured by using pile scaling method.

Methods used for pulpwood in measuring at the mills in 2009 (about 4.2 million m³)



A close-up photograph of green pine needles, filling the frame. The needles are sharp and pointed, with a vibrant green color. The lighting is soft, creating a natural and organic feel.

MEASURING PRACTISES AND ORGANISATIONS

Measurement ideology

- Measurement is part of wood procurement process
- Measurement serves needs of all organisations' – forest and mill
- Harvester measurement is done nearly 90%
 - ⇒ Base of bucking, payments to seller and contractor, logistic reasons
- Measurement is normally done at the mill too
 - ⇒ Base of payments, storages and control
 - More and more done by driver (truck or high lift)
 - Mostly possible 24 h 7days /week
- Balancing costs and business needs
 - Costs are considered in the hole supply and logistic chain

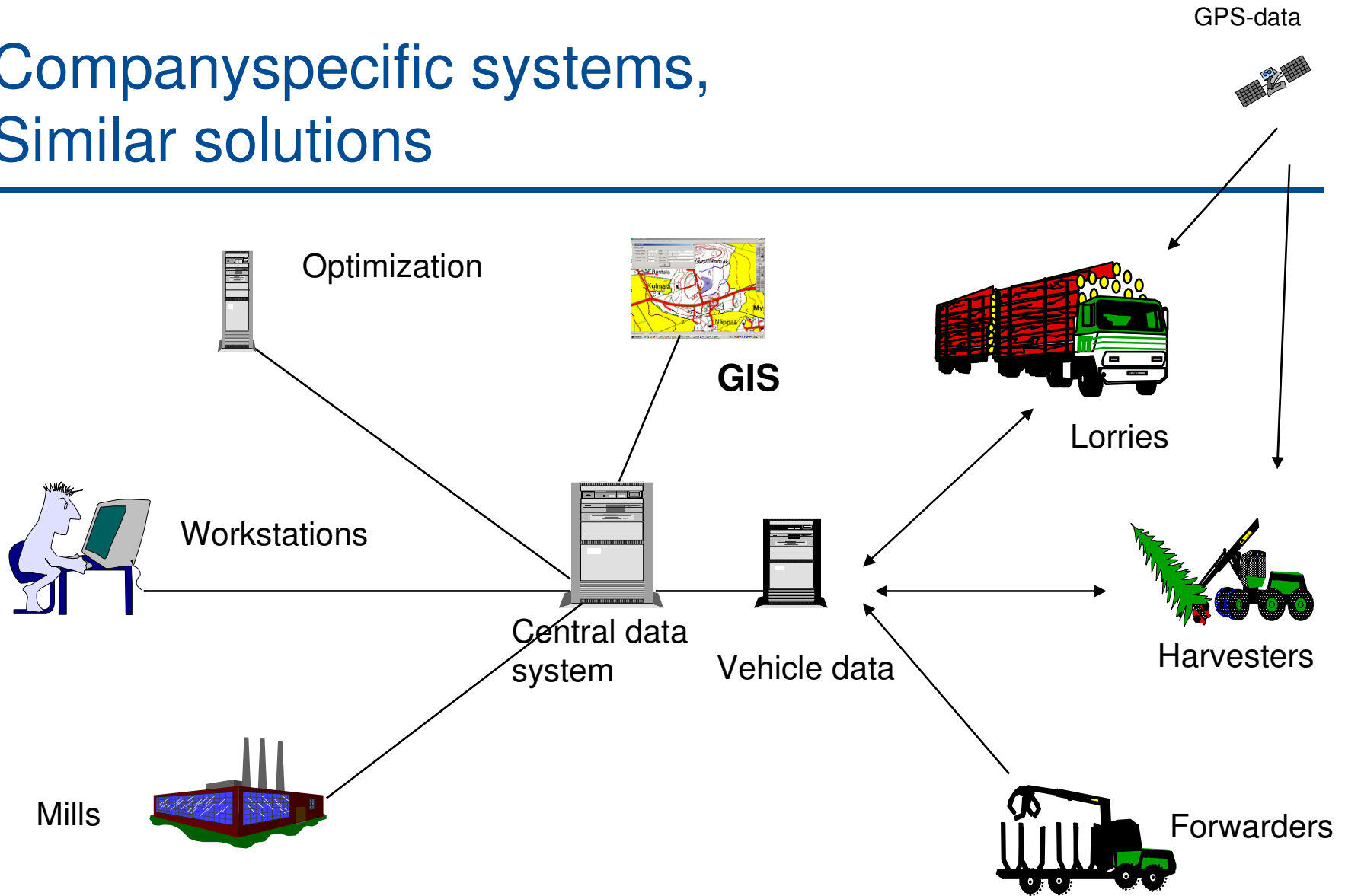
Measuring organisations

- Organised per company/wood procurement organisation/mill
- In the forest and at the roadside measuring is responsibility of wood procurement organisation
- Measuring at the mill
 - Mechanical industry: normally one unit of mill
 - Chemical forest industry: normally one unit of wood procurement organisation
 - In several mills wood handling and machinery under measuring organisation
 - Specialized measuring companies merged to mother companies
 - Mittaportti Oy only exception nowadays
- Control measuring done by measuring organisations
 - Official measurers check it out

Role of measuring station at mill

1. Following of measuring law and good measuring practices
2. Measuring volume and quality of deliveries and mills' raw material
 - Base of payments between different parties
 - Mill – Wood Supply – Supplier – Transportation
 - For forest owner in 10 % of sales
 - Mills' usage of raw materials, size of storages and accounting
 - Monthly reporting of volumes, quality and measuring precision
 - Reception of other raw materials and chemicals
3. Part of the chain from forest to product, mills customer co-operation
 - Link and communication between mills and deliveries
 - Co-ordination of deliveries, mill logistics and storages
 - Mill site wood handling and machinery issues
 - Making daily debarking and log sorting schema for the mill

Company specific systems, Similar solutions



Mittaukset - [BPG-610 Automittaus]

Tiedosto Muokkaa Asetukset Ikkuna Ohje

Rek. tunnus: BPG-610 Yrittäjän nimi: Tuominen J. Kulj.liike Oy Kuorma: 385

Mittapaikka: RAUMA Mittaaja: Impmappi Rahtikirja: Käyttök:

Lähettilä: Kuormaus: Rajanylitys: Rajanylityspvm: Iarkastuserä

Huomautus:

Tuloaika: 08.10.2007 08:18 Lähtöaika: Tapahtumahetki: Toimintasyys:

Y-aaka: Päivitä tyhjääpaino taarapunnituksessa Kuormain Yhd. Veto Perä

Brutto: 1 62400 26960 35440
Iaara: 3
Päivitys Netto: 62400 26960 35440

Kuorma: Kesken Odotus Valmis

Suunta: Vasen Sisään Oikea Ulos

Autotiedot: Veto: Perä: Korkeus: Pituus: Leveys: 230 235 Tilavuus:

Tyhjääpaino (17.08.2007): 22720 15480 7240

Kum.	Ri vi.	Alue:	Piiri:	T J	Toimitus kohde:	Toim:	Toim. nimi:	Toim. ryhma:	Var ku:	Kaup pa:	E L	Ptl/ tavara:	Lyh:	Vko:	Varas to:	T	Moto nro:	K V	Em3:	Ekg:	m3:	Netto:	Mitt. men:	S	S men:	V 1	2	3	P 1	2	3	4	5	V				
9223	1	03	99	09	96290	5621	ML Drivesi P	00000	5621	17037	145	Mäk5	37	1	1	3240	21,00	19650,00	0,00	0	1	1	1	1	1	2												
9223	2	03	99	09	96290	5621	ML Drivesi P	00000	5621	17057	145	Mäk5	40	1	1	3240	24,00	20540,00	0,00	0	1	1	1	1														

- Receiving and reporting system is essential
 - Used by all big companies
 - Middle-size and small companies has simplified systems
- Based on drivers information and picture of load (truck & rail)
- Done by truck driver according to transport order (also rail)
- Information flow between companies of their own loads
- Picture is called "Scheme of bundles" or "Load map"

8.10.2007 8:21

Measuring methods in wood sales

- All timber is measured solid volume over bark
- No common quality and measurement requirements

Method	Place	Measurer
By the harvester	Forest	Harvester driver
Pile scaling	Roadside/terminal storage	Buyer
Weight scale	Roadside/terminal storage	Truck driver
At the mill	Mill/terminal	Buyer

- In standing sales buyer is responsible that harvested timber is according to quality and measurement requirements
- In delivery sales seller is responsible that timber is according to quality and measurement requirements



DEVELOPMENT OF MEASURING

Trends of measuring methods - pulpwood

- Driver **self service terminal** or **high lift driver receiving**
 - Delivery to mill is possible 24h 7 days /week
 - Possible by Weight sampling or Laser scanning
- **Weight sampling** is increasing
 - Quite often to suppliers common sampling of raw density (kg/m³)
- 10 Laser scanners Modus 2000 in use
 - Additionally 2 Laser-image scanners AVM
- 13 sample measuring devices
 - 7 is measuring stick by stick
 - 6 is basins to utilize Archimedes law
- In rail deliveries **bundle counting or weight measuring and sampling**
 - 3 out of 10 Modus in measuring rail deliveries

Receiving at mill by driver, self service terminal

- Truck driver make
 - Registering to self service terminal, weightings, marking and unloading of sample bundle
- Unmanned receiving at mill by truck driver with self service terminal is increasing to make more effective use of resources
 - ⇒ Receiving 24h 7 days /week by weight sampling
 - Manned receiving for mixed bundles and mill measuring for forest owner
- Receiving can be done also by mill's high lift driver
- Controlled by sampling, high lift driver and recording video-camera at mill
- Weight sampling in use also in some “cold” railway terminals
 - No measuring personnel



High lift receiving at mill
-Wlan or 3G
-Pc in machine



Developing in saw mills

- For saw logs new **3D**-meters based on digital cameras and **X-ray**
 - For measuring inner quality and bark thickness
 - X-ray in 9 sawmills
 - Developing of sorting has a big role
 - Could be in future base for inner quality payment to supplier
- Stock accounting based on GPS and volume has been taken into use in several sawmills

Weight scale measuring

- Official measuring method since beginning of 2009
 - Practically only in test use before that
- Used for round wood and bio energy
- New conversion factors of raw density (kg/m³) 2010
 - New models of getting dry and its' effect to kg/m³
- Used both for measuring and division of total volume
 - Measuring can be for seller and contractor
- Measuring of delivery sales by weight scale improves efficiency both in logistics and measuring
 - Different sale batches can then be transported or stored in same piles
 - ⇒ **Weight scale** method is encouraged!
- Weight scales in Finland
 - 1500 in trucks
 - 600 in forwarders



THANK YOU!