

Remote scaling using images

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Swedish forestry

Area: Montana + 20%, 23 million ha

Owners: private 50%, companies 25%, federal 15%

Scots pine, Norwegian Spruce, Birch...that's it

Sawtimber – 4 & 2 classes (50 % yield, 40 % chips)

Pulpwood – class 1 & 2 during 2019

Fuelwood (log & residues)

Managed forests – low amount reject

Logging – cut to length according to prize list
(mm & cm)

General about Swedish timber measurement



100 million m³

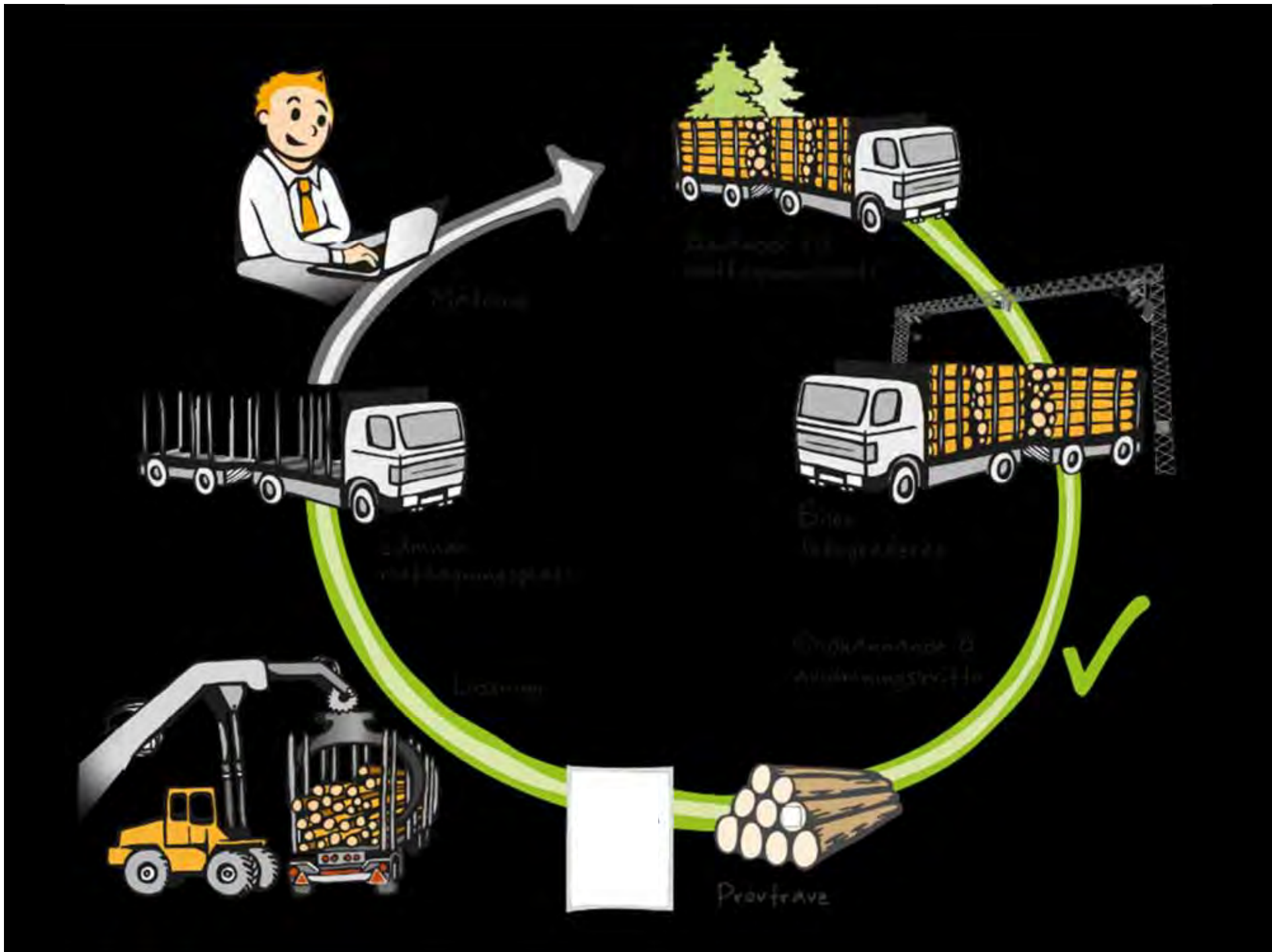


Challenges for measurement



Remote scaling – how & why?

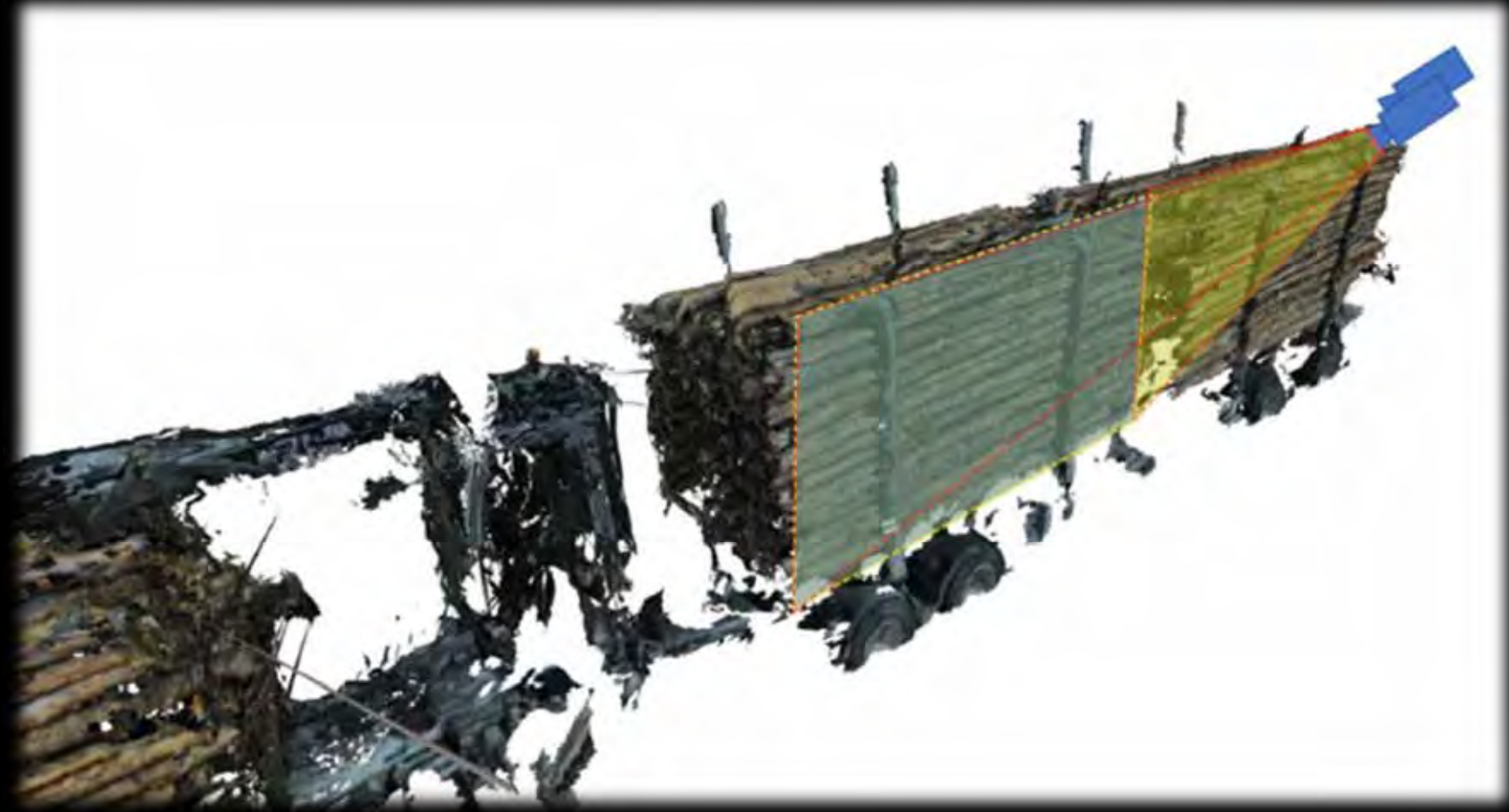




Step 1



Stereo cameras





Step 2

SAC IRIS

Mottagningskontroll

Chauffören har väntat 24d 22h 47m



Trave 1, mätobjekt A1

Information

Kortnummer	0000006010
Virkesorder	84358882
Trp. nummer	0060501
Sortiment	152
Virke märkt	
Leverantörsnummer	L46253

Godkänn

Neka

Begär ändring

Avbryt



K2 - Trave 1 sida

Identification is crucial



....as well as bunk width and divided piles



Step 3



Step 4

STORA IRIS Arkiv 00 Hansson, Fredrik (9998)

Kontrollerad av Tomas.Kjelberg@sdc.se
Mätning utförd av Joakim.Grafstrom@sdc.se

A1 A2 A3

Trave 1, mätojekt A1


Information

RNT	20658210
Kortnummer	0000001010
Virkesorder	32321015
Produktionsdatum	2018-01-10
Dagar gammalt	33 dagar
Trupnummer	0001010
Sortiment	1000
Ursprung	5
Mottagare	STORA ENSO SKOG
Kran	Ja

Meddelanden (0)

Mätuppgifter

Längd (cm)	Höjd (cm)
479	207
N.BB (cm)	O.BB (cm)
329	235



Båt 02 - Trave 1 sida - Ca 1 meter per gavel (0,33)

Measurement tool IRIS – two side views

IRIS Arkiv 00 Hansson, Fredrik (799) Inställningar Logga ut

Kontrollrad av Ines.westin@dc.se Mätning utförd av Kajana.Lander@dc.se

A1 A2 **A3**

Trave 3, mätobjekt A3

Information


RNI	15425548
Kontrollnummer	0008002105
Yrkesorder	92548644
Produktionsdatum	2018-01-24
Dagar gammalt	33 dagar
Trip nummer	8002105
Sorsenhet	1040
Ursprung	6
Mottagare	BILLERUDKORSNÄS
Land	SWEDEN AB
Laddvikt	39.88 ton
Köpa	Ja
Netovikt	63.5 ton

Meddelanden (0)


Mätuppgifter

Längd (cm)	Bredd (cm)
445	265


Trave 3 (04g sid6) - Genomsnitt per punkt: 0.110



Mätbara bilder



Trave 3 (04g sid6)



Trave 3 (04g sid6)

...and two from the gable

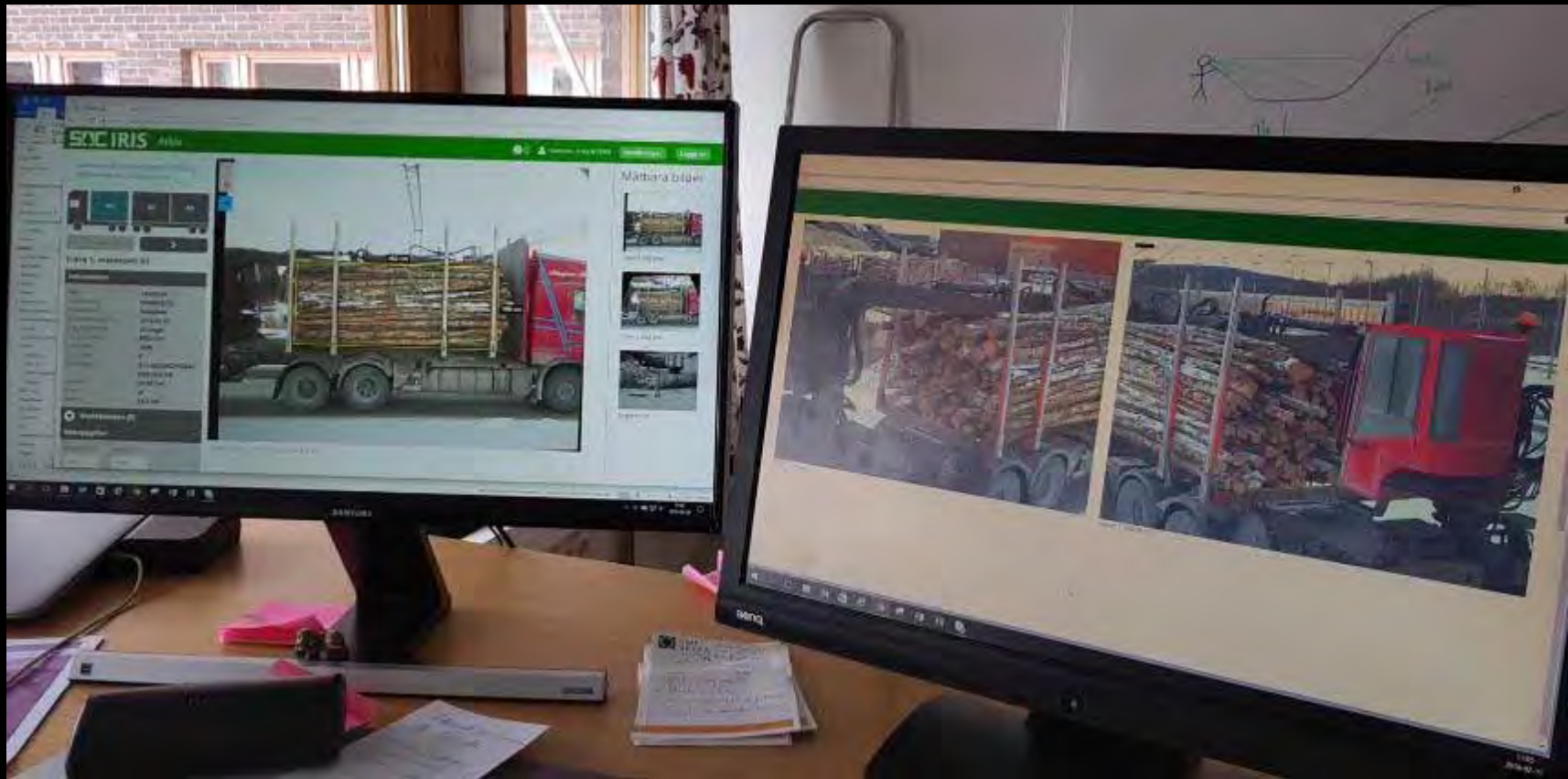


Trava 3 (and x)



Trava 3 (and n)

Double screens



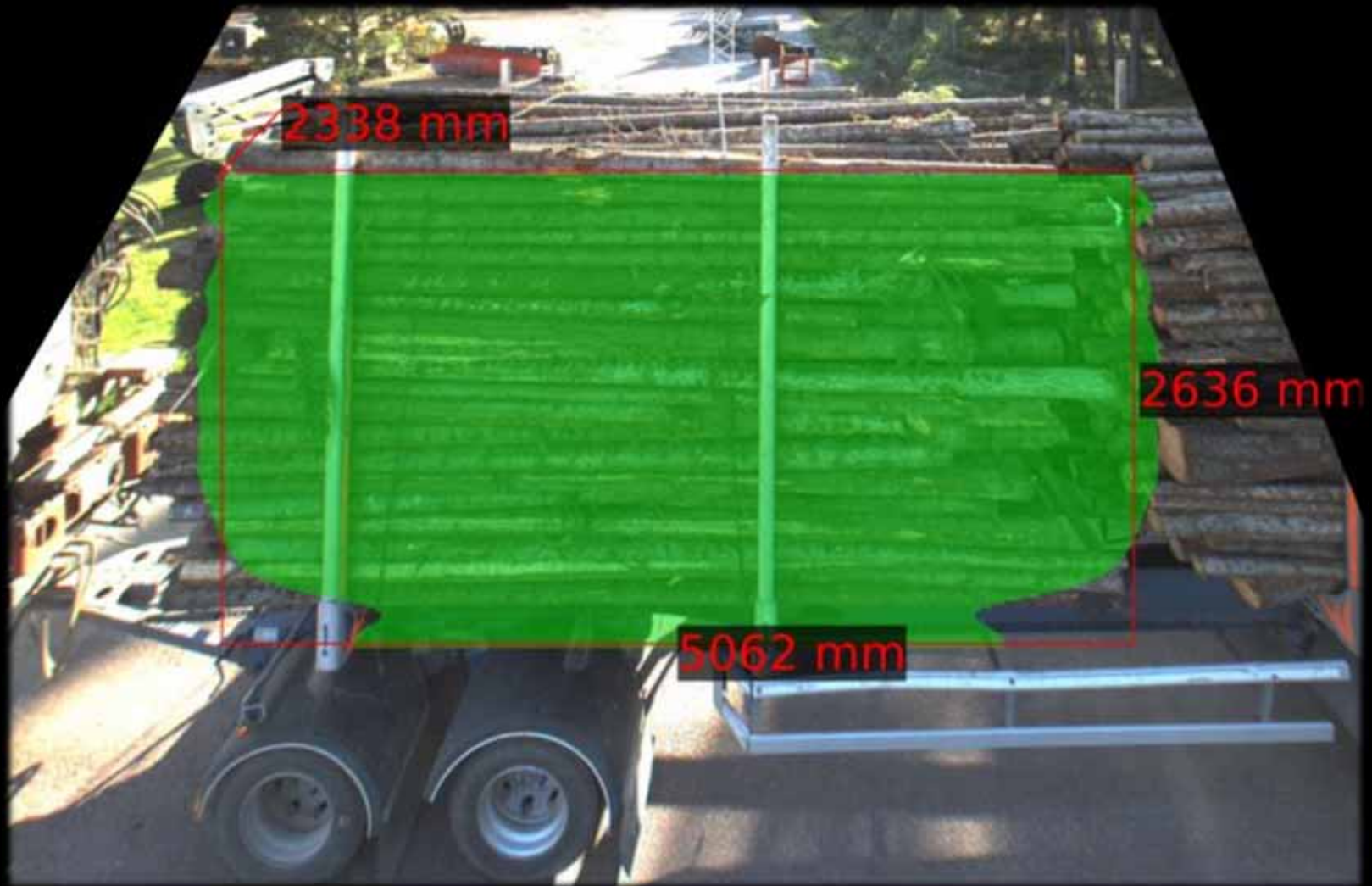
Situation today



Next 1: Automatic log diameter



Next 2: Piled/boxed volume



Next 3: Machine learning

Boxed volume

Predictors

- Gable images
- Wood type/origin
- Log diameter distribution

Access to detailed data