StanForD2010

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Structure

- Standardization & StanForD2010
- New possibilities! On-going projects
- Trends....where are we heading?
Supplying data

Our production chain!

We need data!! Standardized data!!

We want to plan and control for maximum value and minimum costs!
A number of standards....

Flexible between systems

Plug’n play International

Between systems, not paper machines!

Forestand SS637009
Focus on forests and terminology

StanForD2010
Focus on machines

papiNet
Focus on business transactions, product & logistics

Plan and control for maximum value and minimum costs!
Using StanForD? Focus?

1990
Control bucking

2000
Harvested production

2010
Forwarding Measuring Monitoring GIS
Present focus...
Integration Flexibility Higher resolution

StanForD2010

Area 2,8 ha
Volume 28,8 m³/sub/ha
Stems 418 stems/ha
Basal area 5,7 m²/ha
Mean stem vol 0,07 m³
Strip roads 21%
Instructions

**Forwarding object instruction (foi)**
- Object identities
- Landing (location)

**Forwarding delivery instruction (fdi)**
- Product groups per mill

**Object geographical instruction (ogi)**
- Map layers (photo, shp-files)
- Presentation of map layers

**Object instruction (oin)**
- Object identities
- Logging company
- Forest owner etc
- Products

**Species group instruction (spi)**
- Definition of species-groups
- DBH height
- Identitites
- Bark function

**Product instruction (pin)**
- Identities
- Lengths/Diameters
- Qualities
- Price matrix
- Distribution matrix
Reporting production

**Forwarded production (fpr)**
- Products at specific landing?
- When unloaded?

**Harvested production (hpr)**
Per harvested log:
- Product
- Length
- Diameter
- Stem no

Per harvested stem:
- Stem no
- Species
- GPS-position
- Time of harvesting
Operational monitoring

Operational monitoring data (mom)
Time, operator, object registered individually for:
• Processing
• Terrain travel
• Break
• Repair
• Maintenance
• Travel to work
• Planning etc.
**Forwarding quality control (hqc)**
- Known reference mass
- Scale control mass
- Calibration

**Harvesting quality control (hqc)**
- Log lengths
- Log diameters
- Measured by:
  - Harvester
  - Operator
  - Auditor
The major building blocks

- XML
- Basic/measured data registered in machine
  - Calculations avoided in machine
- Globally unique ids.
- Plenty of coordinates.
- Optional time stamps.
New possibilities!

- Large detailed datasets from normal work situations
- Combining machine datasets
- All bucking control settings reported
- Flexible adjustment of harvester production
- Combining manual field data, ALS, saw mill measuring and harvester data
Large dataset from normal work situations

- On-going project: New model for paying contractors

Productivity (sec/m^3 sub)

950,000 stems with harvest date
Combining hpr and hqc data

- On-going project: Improved analytical tools for improved measuring
- Effect on measuring accuracy?
  - Pressure settings
  - Manual opening of knives
  - Speed of feeding
  - Reversing

- Parameters registered in hpr.
- Measuring accuracy from hqc
Feeding speed per log based on hpr

Log length error, cm
All bucking control settings are reported

- E.g. bark, butt end extrapolation, cutting window,
  - Instructions created correctly?
  - Implementations correct?
  - Modifications done by operator?
Flexible adjustment of harvester production

Pine saw logs for X-Mill

- 3,82 m
- 4,05 m
- 5,13 m

Harvested Demand

Update product instruction
Trends...where are we heading?
Globalization:

- Back to basics
  - volumes
  - bark functions
- Extending
  - E.g. tree-length operations
New detailed machine data:

- Tracking
- Stem-codes
- User-defined-data
- Crane angle and extension
- Forwarding quality control
New use of machine gis-applications:

- Monitoring thinnings
- Route optimization
- Product quality parameters
- Operators updating forest databases
Plenty of fun stuff to do until 2036-08-15!