



Abstracts IK Final Seminar

Day 1 – Monday 22 of March 2010

▪ Session 1: Cooperation between actors within the supply chain

09:05 - 9:25 - Abstract 1 & 2

Industrial breakthrough of new methods and technology

Richard Uusijärvi (SP, Sweden), Gunnar Niblaeus (Tieto, Sweden) -

The session industrial breakthrough of new methods and technology gives a short description of the IK-system, its components and implementation. Also it gives an overview of the *IK-Solutions* that are Commercially Available and under Preliminary further development. Some IK-system possibilities are presented as how it can highlight wood production's environmental impact by increasing its visibility. Also how it can be used to defeating illegal logging and to optimize the wood production will be shortly discussed.

09:25 - 9:45 - Abstract 3

Roadmap for the European Wood Industry

Filip De Jaeger (Secretary General CEI-Bois, Sweden)

The Roadmap 2010 action was launched in 2003 with the aim of:

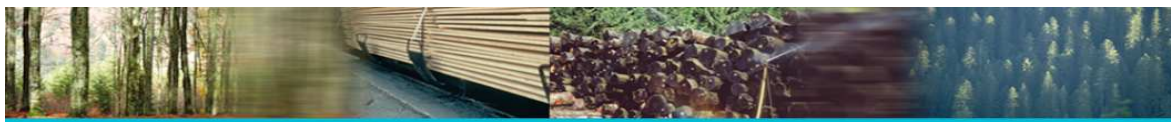
- Producing an updated analysis on key factors and challenges affecting the European woodworking industries;
 - Identifying the opportunities for the sector;
 - Describing the ideal position;
 - Producing an action programme for the European woodworking industries towards 2010;
- ... within the general vision of "Wood and wood products to become the leading material in construction and interior solutions by 2010".

The first phase of the work was completed in March 2004, and the results were distributed widely throughout the woodworking industries. The publication of the results also marked the start of the second phase, with work focusing on the following processes:

- Building with wood;
- Living with wood;
- Wood in packaging and transport;
- Wood in sustainable development.

While the first three processes aim at setting the right conditions to allow for an increased use and application of wood and wood-based products in the respective market segments, the "wood in sustainable development" process has formed the basis of policy work aimed at recognising the advantages of increased wood use for mankind and the environment.

The presentation will look at the results achieved to date and the plans for the (near) future.



09:45 - 10:00 - Abstract 4

Expectations from Forest management point of view

Didier Pischedda (ONF, France)

The development of ICTs (information and communication technologies) in the wood industry seems very promising for an improvement of the supply chain between the forest and the industry especially since the public forests are distributed on about 12000 owners.

For the French forest administrators who manage more than about fifty species on very different stations and with a time scale of more than 100 years, the traceability raises new questions concerning the relationships evolution between downstream and upstream parties and the conclusions that it will be possible to get from it. Some examples will be presented in an organizational context in full evolution.

10:00 - 10:20 - Abstract 5 & 6

Traceability for mutual benefits in the supply chain – 2

Robert Golja (FCBA, France), Gunnar Niblaeus (Tieto, Sweden)

Select the right logs for a specific end-use is a demanding objective that traceability can make accessible. BUT the wood supply chain involves many actors who today are not always convinced about the need to invest and change behavior for better cooperation. How do we make it happen? This will be the focus point presented, in particular with a detailed discussion about the drivers the project took into consideration when developing the needed components / tools / models. The offering will be described and also how this offering can lead to benefits on successive levels from in-house to integrated supply chain and accelerate the needed transformation from conflicts of interests to cooperation.

11:00 - 11:40 - Abstract 7 & 8

Traceability to its purpose – 1 & 2

Lars Wilhelmsson & John Arlinger (Skogforsk, Sweden)

Harvesters measure length and diameter of all harvested logs. With additional information of the forest stand timber qualities such as strength, durability, and surface properties can be predicted at the log level using Skogforsk's PRI-analysis. The established "Quality certification system for harvesters" can be a cost effective basis of marking for traceability. If traceability is limited to sample logs and pile batches the sample logs can be analysed in detail while the piles can be characterised by the distributions of all individual log measurements and predictions. The log information is available without any delay and can be used for monitoring of impact on process efficiency and proportions of different products. If the marked logs are tracked and analyzed further on in the process the value of measurements and predictions from the forest can be determined. This information can be used for improvement of selection, bucking and logistics in the wood supply chain.

11:40 - 12:20 - Abstract 9

Traceability in the sawmill and other wood manufacturing factories

Jean-Pierre Olgiate (CIRIS, France)

Better management of the relationship between raw material and a company's objectives in terms of production is one of the major goals of traceability deployment in sawmills or equivalent primary wood processing units. Easy and real time access to process information can broaden industrial capacity to follow up and optimize the yield and closely related margins.

From the integrator point of view, a vision of the current market for traceability solutions will be proposed. Challenges and potential pitfalls in deployment projects will be identified.



11:40 – 12:20 - Abstract 10

Traceability in the sawmill and other wood manufacturing factories – 2

(Avo Raigla (Hekotek, Estonia)) presentation by Ahti Põlder (Tallinn University of technology, Estonia)

Sawmill production consists of various parts – log sorting line, saw line, sorting and packing lines, drying chambers etc. As a rule, sawmill have their own databases used for analysis, product planning, logistics. Data are collected from various sources: automatically from the process equipment and also by manual input. Very often data from different sawmill parts are not related with each other and some data exist only on paper media. Presentation describes possibilities of connecting existing databases in sawmill and data flows with data generated by “Indisputable Key”. We consider the possibility of minimizing errors associated with a data collection from different technological equipment. It also describes possible solutions to the difficulties associated with collecting accurate data from some parts of sawmill.

▪ **Session 2: Success stories**

14:30 - 15:30 - Abstract 11

Traceability solution from forest to the wood component - 1

Johan Oja (SP, Sweden)

The forest value chain is in most cases a divergent flow with sorting decisions made in several steps along the production chain. The complexity of this production chain makes a traceability solution into an interesting and efficient tool for improving the process control. This talk is the first of three talks that discusses the use of traceability technology in the production flow from forest to the wood component, with special focus on Swedish demonstration project within Indisputable key. The demonstration project covers the chain from the forest owner Sveaskog, through a sawmill owned by Setra and finally to the wood component producer Norsjö Trä. This talk will describe different possible ways of utilising traceability solutions and give a principle description of how traceability can make the forest value chain more efficient.

14:30 - 15:30 - Abstract 12

Traceability solution from forest to the wood component – 2

Anders Lycken (SP, Sweden)

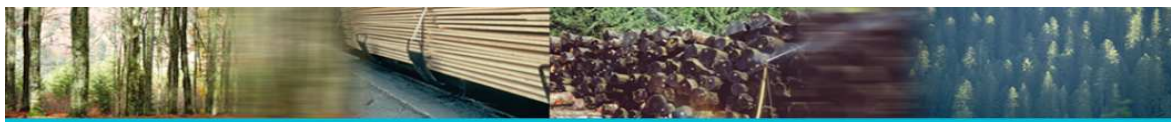
This is the second talk discussing traceability in the Swedish Wood Supply Chain. It will go deeper into some of the technical solutions as well as into some of the possible benefits.

14:30 - 15:30 - Abstract 13

Traceability solution from forest to the wood component - 3

Christer Ranvald (Sveaskog, Sweden)

The benefit of traceability for a forest company is divided in several parts. Firstly, the traceability from harvester to log scaling gives us the means to monitor the performance of the harvesting team on measurement, damages and sorting which allows us to take the appropriate actions to minimize lost value due to quality losses. Secondly, traceability within the sawmill will help the sawmill company to tune the process for higher value yield and eventually fulfill the prerequisites that are needed for improved production control. The benefit for us as a forest company then mainly is that the customer (the sawmill) gets more profitable, competitive and values the supplied logs even higher. Thirdly, when the forest company is partnering with the sawmill company in joined efforts to improve the overall efficiency of the forest-wood chain, traceability allows for improving the customer orientation already at harvesting. This means that models of quality within the trees can be built from real data and better adaption of the log types to the end use can be made in the harvesting operation.



14:30 - 15:30 - Abstract 14

Traceability solution from forest to the wood component – 4

Bo Andersson (Setra Group, Sweden)

Setra's saw mill in Malå has been one of the scenes for installations and data collection in the project. The saw mill's benefits with a traceability system will be discussed, with examples of business cases possible to reach, mainly within the saw mill, but also when looking upstream, to the supplier of logs, and downstream, to the customer, the buyer of the boards.

15:30 - 16:00 - Abstract 15 –

Pole production using traceability

Stian Skarpnord (ScanPole, Norway)

Installation Scanpole is one of the installations in the Indisputable key project.

The RFID technology and its use at Scanpole:

Two installations at Scanpole: 1) Consignment lot control and 2) PoleDry model.

1) Identify all individual wooden poles from peeling station through preservation to shipping.

Mainly due to tag problems, no reliable lot control was achieved.

High temperature in the kilns and the impregnation liquid was the biggest challenges for different types of tested tags through the production.

2) Developed for predicting the open-air seasoning. The model gives rough estimates for the drying progress and final moisture content based on general and specific log parameters and climatic observations.

15:30 - 16:00 Abstract 16

Wood production using traceability

Olli Raunio (Raunion Saha Oy Finland)

Raunion Saha Oy is a sawmill located in South-Western Finland. Annual turnover of the company is 45 million euro and with a production capacity of 200.000 cubic meters of sawn timber it is among the largest privately owned sawmills in Finland.

The strategy of Raunion Saha Oy is to serve industrial customers that have high demands concerning the length distribution of timber. This requires a steady flow of information between production planning and forest operations.

Company's main goal in the Indisputable Key project was to find ways to improve traceability through the logistical and production processes.

RFID-technology was used to demonstrate the possibilities of achieving an ideal fit between the log sourcing area and final product.

16:15 - 16:45 - Abstract 17 & 18

Traceability for improved wood procurement and production in a plywood mill

Emanuell Pawliez (Marc Vincent) Smurfit Kappa RolPin (France), Jean Pierre Olgiate (CIRIS, France)

In a context of increasing international competition, optimized control of the procurement is essential to ensure the competitiveness of a veneer production unit like Smurfit Kappa ROLPIN. The key challenge of traceability deployment along the supply chain of such a company is to achieve performance monitoring of the suppliers and the production through early control of the balance between raw material quality and costs. The presentation will highlight initial industrial expectations in this demonstration and the collaborative work done to deploy a solution to trace logs from procurement to production of green veneer sheets. Benefits and related future perspectives for the company will conclude the presentation.



16:45 - 17:15 - Abstract 19 &20

Automatic and reliable stock management in an oak sawmill – 1&2

Jacques Ducerf (DUCERF, France), Pierre Mauchamp (Pierre Mauchamp SA,France)

In a hardwood sawmill, the management of the sawn products' stock represents the center of competitiveness. A reactive management of the dryers as well as an exhaustive and reliable knowledge of all the product references (more than 30000 references in Stock) are so many keys of success to guarantee the best product and the best service to the customers. Within this framework the traceability is an essential asset.

The presentation will bring to light the expectations of the company in term of improvement of the sawn products' stock management, the works of the tested traceability solution deployment, the set up indicators and their use in everyday life, finally the perspectives of profits for the company



Day 2 – Tuesday 23 of March 2010

▪ Session 3: Traceability in detail (models and components)

09:00 - 9:30 - Abstract 21

IK architecture and standards for information exchange

Trond Karlsen (Skog-Data, Norway)

Indisputable Key has defined architecture for collecting and distributing information. The architecture is robust enough to handle large installations and simple enough to be used in small scale installations.

One of the main objectives for Indisputable Key is to define a standard for exchanging B2B information related to traceability for the forest and wood industries. One goal for the project was the use of XML based messages.

Both the architecture and the standard messages for information exchange will be discussed.

09:30 - 10:00 - Abstract 22

Mark, read and identify wood objects - 1

Jan Wikander

(KTH-Royal Institute of Technology, Sweden)

A key requirement in traceability solutions for logs and boards is to keep additional costs as low as possible. Therefore, the Indisputable Key project has investigated ink based marking and reading technologies focusing not only on low cost of the identifier itself but also at keeping additional process time at a minimum. This short introduction gives a background to the ink based log and board marking and reading solutions that have been developed in Indisputable Key and for which proof of concept has been demonstrated.

09:30 - 10:00 - Abstract 23 –

Mark, read and identify wood objects - 2

Björn Möller (KTH-

Royal Institute of Technology, Sweden)

The talk presents a log code applicator and the corresponding code detection. A log code applicator for harvesters has been developed in the I-Key project. Its design is modular and can be adapted to a lot of harvesters. The applicator utilizes ink as the marking substance and applies a two dimensional code during the cutting procedure. The current design facilitates the usage of standardized 10*10 2D data matrix codes with up to 2 million identities. A detection device based on vision technology has been developed. The device reads the codes printed on log end surfaces as they pass the equipment at the log sorting station. Field tests have been performed and the result is promising. Further work is in progress to take this marking/reading concept closer to the market.

09:30 - 10:00 - Abstract 24

Mark, read and identify wood objects – 3

Märt Juurma (Tallinn University of technology, Estonia)

The presentation describes board visual marking and reading system which is universal for marking and reading codes on and from any sawn wet and dry wood surfaces. The system is based on implementing of 2D Data Matrix code marked with solid ink and corresponding universal visual code detection, decoding and communication system based on smart camera network. Options for code detection enhancement are also discussed in brief. The case studies discussing implementation of the system in Mala sawmill in Sweden and in RolPin in France are presented and work results given.



10:20 - 11:00 - Abstract 25

RFID a new breakthrough for the wood Industry? – 1

Kaj Nummila (VTT, Finland)

The use of long range UHF RFID technology in the forest industry has been studied. The four season outdoor conditions in Scandinavia combined with the industry specific requirements posed a challenge for the development. The main properties of the developed transponders made of an artificial wood material are discussed. These include compatibility with the pulping processes, good applicability to the logs, a high readability and the feasibility for cost-effective mass manufacturing by injection molding. The robust RFID reader designed for operation in the harvester head is presented. The reader features a novel adaptive RF-front to maintain a high readability and dynamic range under high reflection conditions caused by wet logs and massive metal blocks. The identification of the logs at sawmills is also discussed. Test performed in the forest and at saw mills have shown that the technology works well and a high level of readability can be achieved.

10:20 - 11:00 - Abstract 26

RFID a new breakthrough for the wood Industry? – 2

Roland Karlsson (Rottne Industri AB, Sweden)

Our task was to develop an automatic transponder applicator for a harvester head. The solution was to make an applicator arm and use the feeding force of the feed rollers to press the transponder into the log end. A transponder magazine with automatic feeding also had to be developed. To find a place for the transponder reader and antenna to get as good readings of the transponder codes as possible, was an important work. Software has been developed to control the hydraulic/electrical functions, and also the communication between measuring system and transponder reader. The equipment needed to be very rough to survive in a very tough environment, but mechanical precision was also essential.

Bohult Maskin, DASA Control System, SP Träteknik and VTT have taken part in the project.

11:00 - 11:30 - Abstract 27 &28

Indisputable Key Performance Indicators - economic and environmental

Martin Erlandsson (IVL (Sweden), Fahrudin Bajric (FCBA, France)

Key Performance Indicators (KPIs) are introduced in the project as a basic set of measured properties to handle environmental and economic aspects in the supply chain and a part of the overall information system developed. A first set of generic KPIs is developed and may be extended in the future. The environmental KPIs can be used as a basis for an Environmental Product Declaration (EPD), which is found on Life Cycle Assessment (LCA) methodology. A graphical EPD layout has been developed that also include the information from the upcoming climate declarations. These EPD's may be generated from the IK traceability system more or less automatically and are applicable for market communication. The economic KPIs may be used to assess and quantify the changes in performance from the supply chain and an individual producer perspective. Some may be exchanged in the supply chain based on company agreements. They are designed to support and check the outcome of company's business and are therefore a tool for measuring improvements. The final goal of traceability is to increase the competitiveness and create value, but the associated impacts and benefits are difficult to identify by future users. This talk will highlight a method as well as a selection, limitations and challenges associated to KPIs. The results from some demonstrators will illustrate the measurements attainable in practice.



11:30 - 12:00 - Abstract 29

Models and simulation tools for characterising yield and log properties

Lars Wilhelmsson (Skogforsk, Sweden)

Forest inventories and standardized production reports from harvesters can be used to feed models for predicting stem, wood and branch properties of importance for wood manufacturing. This can be performed using tools for bucking simulations and additional software such as Skogforsk's demonstration tool, PRI-analysis. Analyses can also be performed by simulations based on forest inventories of individual sample trees like data from national forest inventories. The information can be used to make priorities for different areas when planning timber supply. With accurate data from individual forest stands prognosis can be powerful when planning for efficient fulfilment of customers orders. Based on information from the harvester, models can also be used to predict the green timber weights and the rates at which timber dries under different weather, handling, and storing conditions. The aim is to ensure cost effective supplies of fresh timber to the mills.

▪ **Session 4: New project perspectives**

13:40 - 14:00 - Abstract 30

New technologies in the Wood Supply Chain – consequences for the organisation of work

Ute Seeling (KWF, Germany)

The organisation of the wood supply chain is realised today by involving a high number of independent persons – forest owners, foresters, forest entrepreneurs, timber transportation entrepreneurs and also wood trading and wood processing enterprises. The demand of detailed and reliable information within the wood supply chain has increased dramatically. Therefore any technical development that reduces the time needed for measurements, identification and quality assessment of the timber. For an optimal use of these new digital tools people involved need a better training and a higher qualification.

14:00 - 14:20 - Abstract 31

How to handle the resistance against modification due to traceability implementation

Jean Marc-Morlet (Pôle Traçabilité, France)

The implementation of tractability in organizations and process often generates resistance and misunderstanding from different kinds of players (company team, organization, suppliers, etc..). Furthermore the technical aspects could also be seen as none adapted, intrusive and finally been rejected or misused. That is the reason why it's necessary to understand on which aspects the traceability will have an impact to be able to anticipate and to manage the traceability implementation process. We will see on which kinds of problematic the traceability has an effect and what are the main topics to considerate in order to build a successful traceability project. This will be presented with real examples coming form different types of industry to show how it could be done in an operational situation.



14:20 – 14:40 - Abstract 32

How to succeed a mass adoption of ICT : example of electronic data exchange

Rémy Marchand (AFNET, France)

Electronic data exchanges represent the corner stone in the traceability deployment for the wood industry. In fact, majority of the expected benefits are depending on the willingness of the actors to transfer and share IAD (individual associated data). From a technical point of view, this is usually well managed. But the highest innovation makes no sense if not adopted by the user. In the wood industry case we need it to be massive. Through examples and feedback from experiences in other sectors the presentation will extract practical guidelines to transform a technical success in an adoption success story.

15:45 - 16:00 - Abstract 33 & 34

IK Future from research to industry – 1

Richard Uusijärvi (SP, Sweden) & Gunnar Niblaeus (Tieto, Sweden)

IK Future from research to industry session summarises what most likely would be the next steps to increase the use of IK solutions.

Examples to be discussed are: further development of processes to manifold RFID transponders for marking logs, improved systems for automatic log id-marking, and decentralized modular systems for IAD data generation, storage and transfer in a scaled fashion based on pull philosophy.

Also will be discussed further implementing and demonstration in several forestry-wood-production chains, involving as well a few as several nodes between different production stages: as raw material providers, wood industry units, secondary manufacturers and customers of final products.

All patents that have been applied for during IK will be shortly informed about: wedge-shaped tag, rhomboid shaped tag, Semi-Passive tag ...

16:00 - 16:30 - Abstract 35

European Commission policy towards RFID and the Internet of Things

Florent Frederix (European Commission - Information Society & Media Directorate, Belgium)

RFID and the Internet of Things have taken up a lot of policy makers' attention and this deserves a few words of explanation.

This is what Florent Frederix, head of the RFID sector, will do in his presentation. He guides you through the 'young' political history of RFID. He explains why the topic became a point of attention for policy makers, the resulting action plan and its current state of implementation.

The presentation will conclude with an overview of the action plan on the Internet of Things, the logical next step in the policy debate.