# “Opti-Soft” LLC –
# optimization software for industry

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# «Opti-Soft» LLC today

**Established** in 2002

**Now**: a group of 4 entities, 80+ employees

Opti·soft
Оптимальное планирование вашего производства

**3 business lines:**

1. BL «**Services**» (custom software development):

Valmet metso Outotec More out of ore

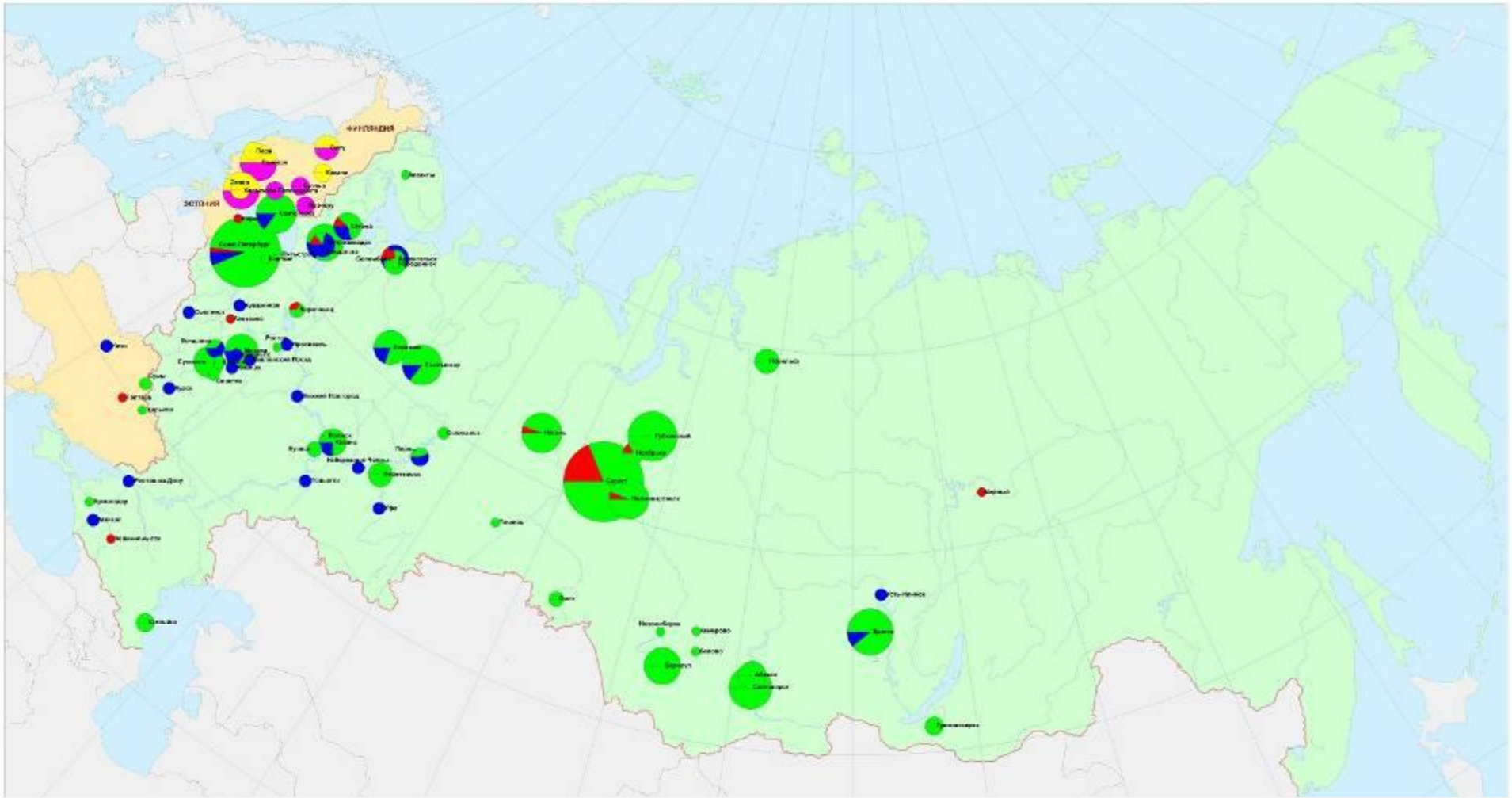
2. BL «**PCS**» (Valmet / Metso DNA training and projects)

3. BL «**Products**» (optimal production planning systems)

Opti-Corrugated
Opti-Storage
Opti-Sawmill
Opti-Paper
Opti-Loading
Opti-Plywood

# 1. Main industrial customers and partners

# 1. Geography of projects, customers and partners



- Enterprise Management - number of completed projects
- Process Control - number of completed projects
- Process Control - number of trained specialists
- Foreign Customers - number of Customer companies and organizations
- Foreign partners - number of partner companies and organizations

# 2. Cooperation with Valmet and Metso

Valmet: since 1993. On average 30+ full-time persons in R&D

- Since 2003 **multiple** full-size applications and major platform enhancements delivered **world-wide** in **all parts** of Valmet DNA platform: reporting, analysis, monitoring, configuration, diagnostics, templates, inter-systems communication, …
- 10 International conferences “New Information Technologies in the Pulp and Paper Industry and Energy” (1994-2012)
- 11th International conference “Automation and Control in Forestry and Energy Industries” (20-21 April 2016)

Metso: since 2013, 5 full-time persons

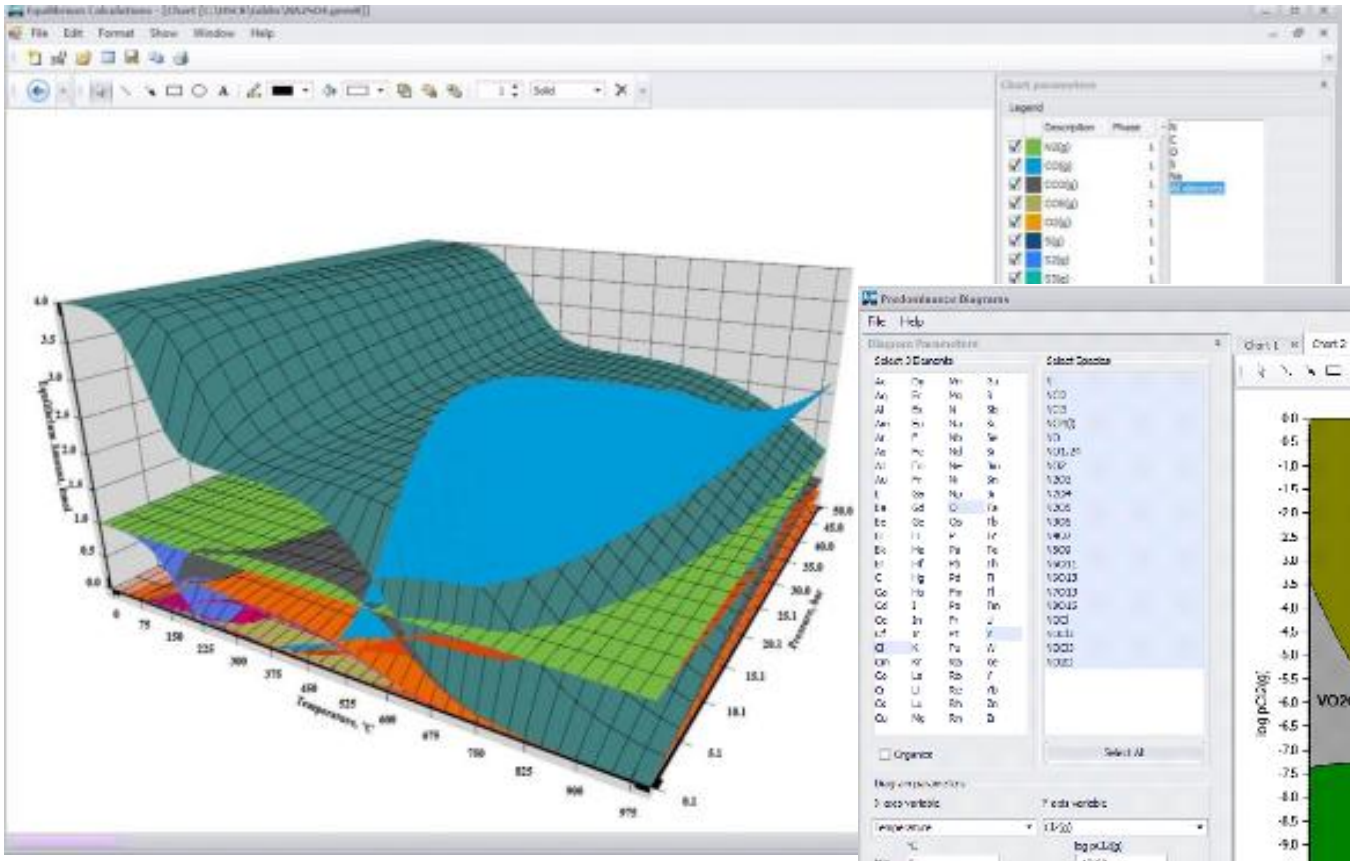
- Development and improvement of various applications using Lotus and Sharepoint, used practically every day by Metso senior management and employees on all 5 continents

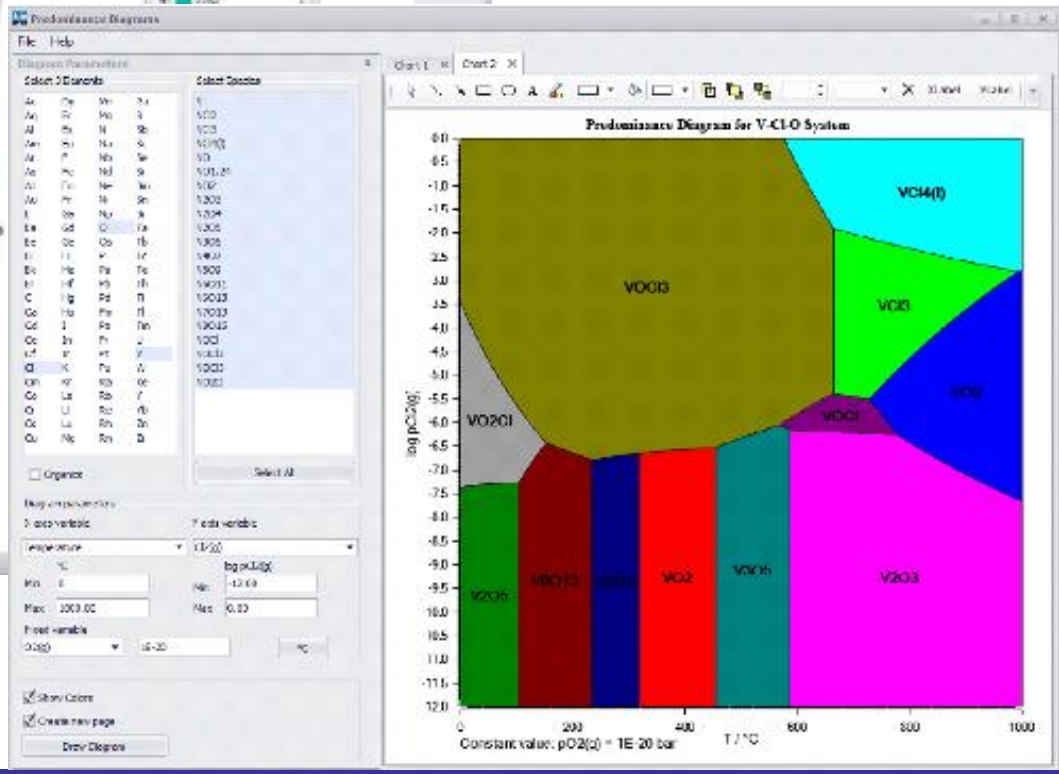
# 2. Outotec Research Center

Over 1500 customers in 76 countries

Outotec
More out of ore

HSC Chemistry

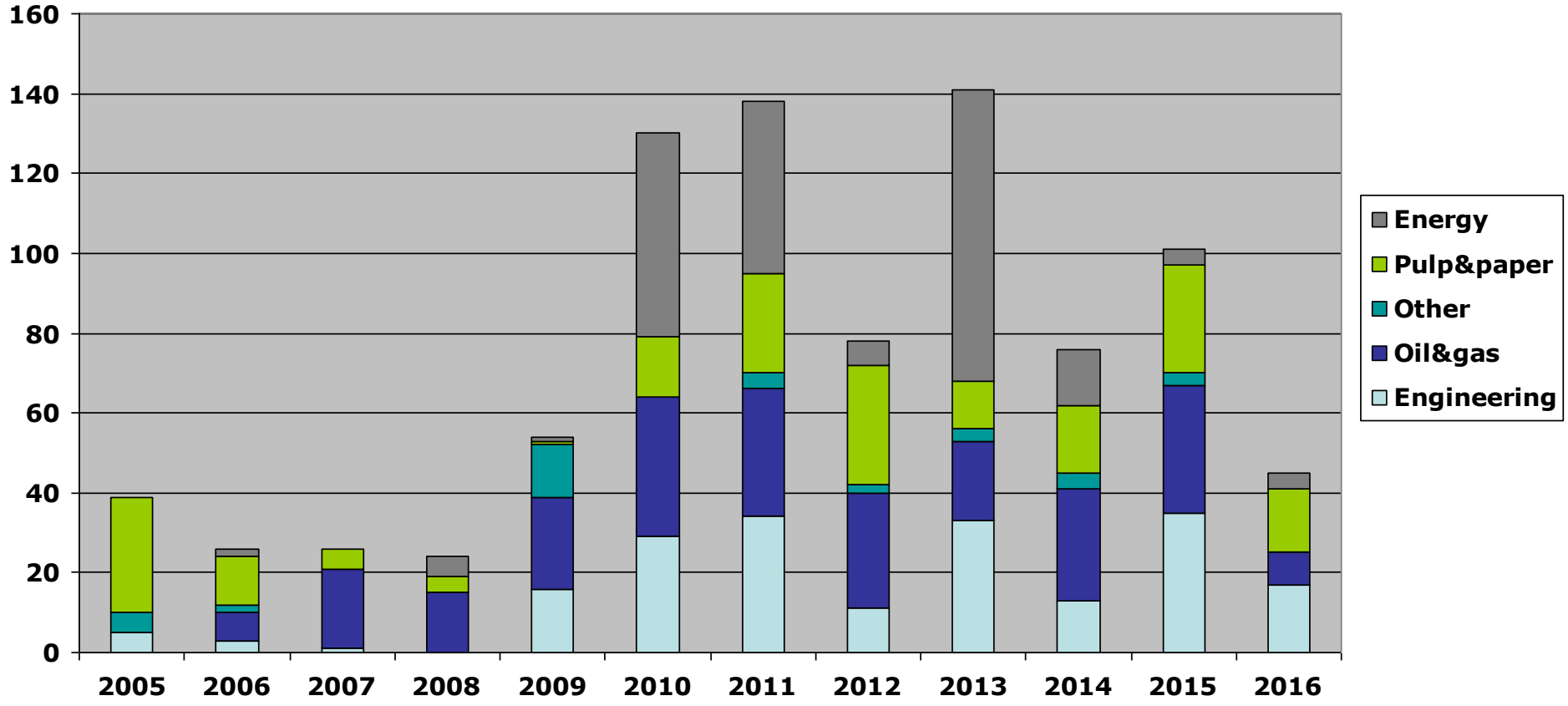




# 2. Metso / Valmet DNA customer projects

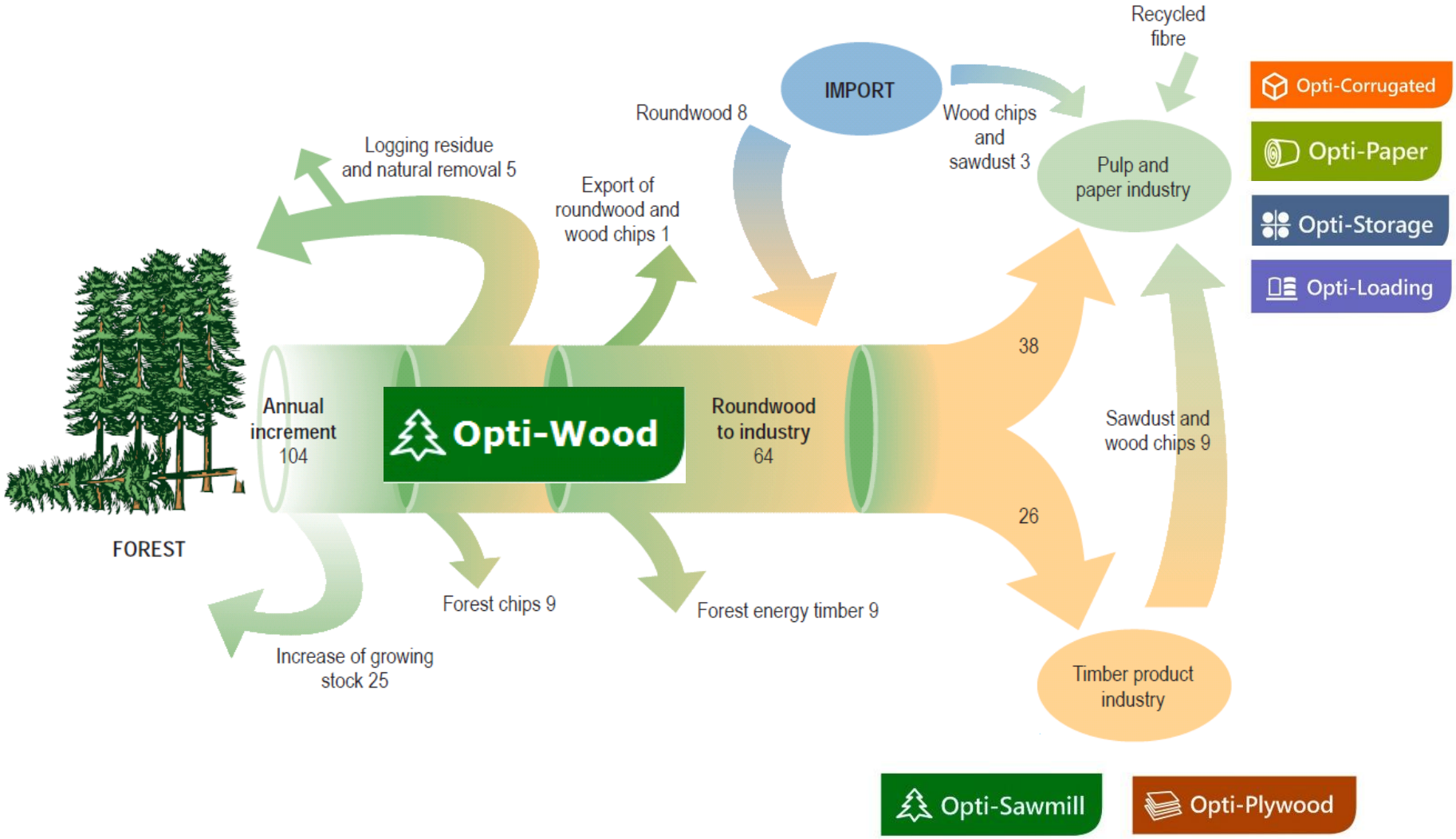
| Customer, years | Projects |
|---|---|
| OJS “Surgutneftegas" (GKS, GTES): 2001-2015 | 22 |
| OJS “Arkhangelsk PPM": 2002, 2011, 2012 | 3 |
| OJS “Sibur“: 2006, 2012 | 2 |
| OJS “Segezhsky PPM”: 2002, 2008-2009 | 2 |
| OJS “Kondopoga“: 2001, 2004 | 2 |
| OJS “Belozerny GPK“: 2013 | 1 |
| OJS “Cherepovetskaya GRES“: 2011 | 1 |
| Other | 5 |
| TOTAL: | 38 |

# 3. Metso / Valmet DNA customer training




«Man-courses» by years (total 870+ specialists from 65+ companies)

# 3. Optimal production planning systems



# 3.1 «Opti-Wood»

MAIN EFFECTS

- Optimal planning of wood transportation, minimizing **truck fleet** (by 2…6%), **unnecessary mileage** (by 5…7%) and **unnecessary inventory** (by up to 20%)
- Increasing **profit** (by 3…6%) by better sales planning, including fulfilling orders with higher "margin"
- Improved **utilization** of units in the supply chain due to mutual integration
- Reduce the **time** for management decision-making (by 25...50%) due to increased "transparency" of inventory movement and information availability
- More efficient use of enterprise **financial resources** in operations and investments (by 10...15%) by evaluating various strategies using **virtual** and real work centers

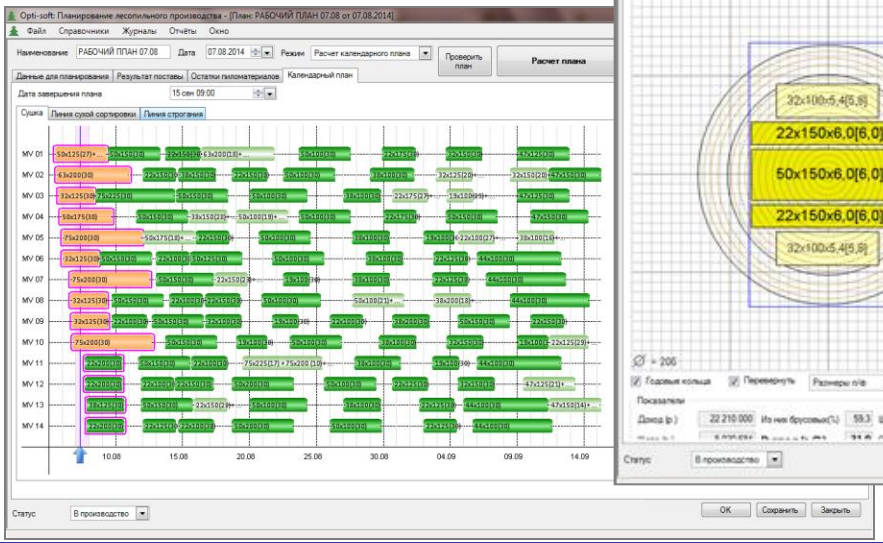
# 3.2 «Opti-Sawmill»

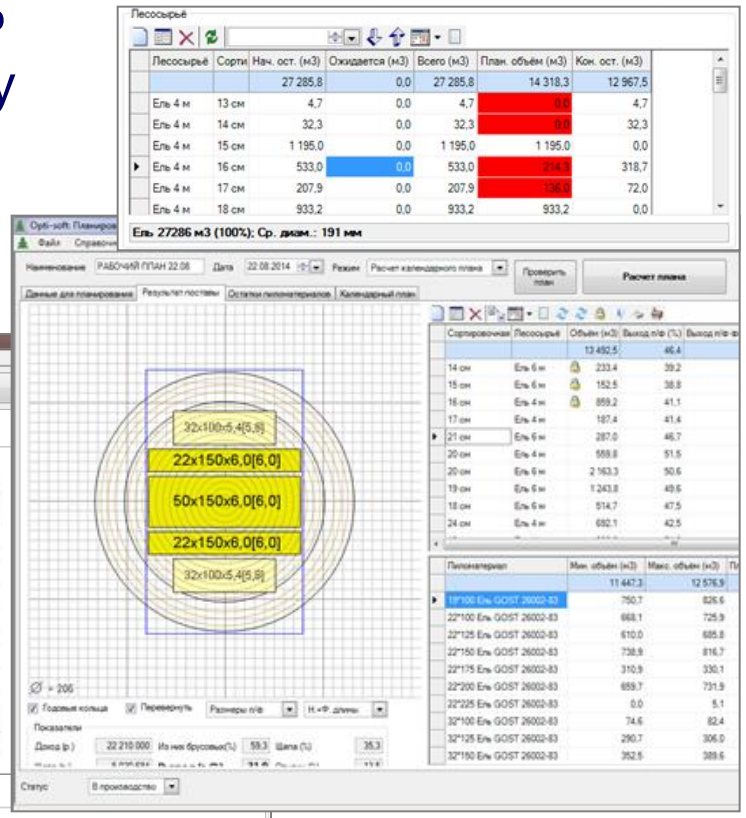
Unique mathematical models, methods and algorithms, combined with modern software development platforms and methodologies, improve **profitability** of the customers:

1. increased share of lumber by 1…2%
2. increased utilization of equipment by 2…3%
3. decrease the volume of in-process inventory

With average monthly production volume 15 000 m3 of lumber, the **economical benefits** amount to **300-400kEuro annually**

«*Software company who is very much advanced in production planning for sawmill. In my understanding they are World leader in this area!*» Aleksey Ulybin Business development director, **Ilim Timber Group**





# 3.3 «Opti-Plywood»

Purpose: raise Customer profit by means of:

- Priority production of more profitable goods ("higher grades")
- Reduction of in-process inventory
- Reduction of orders fulfillment time

Economic benefits

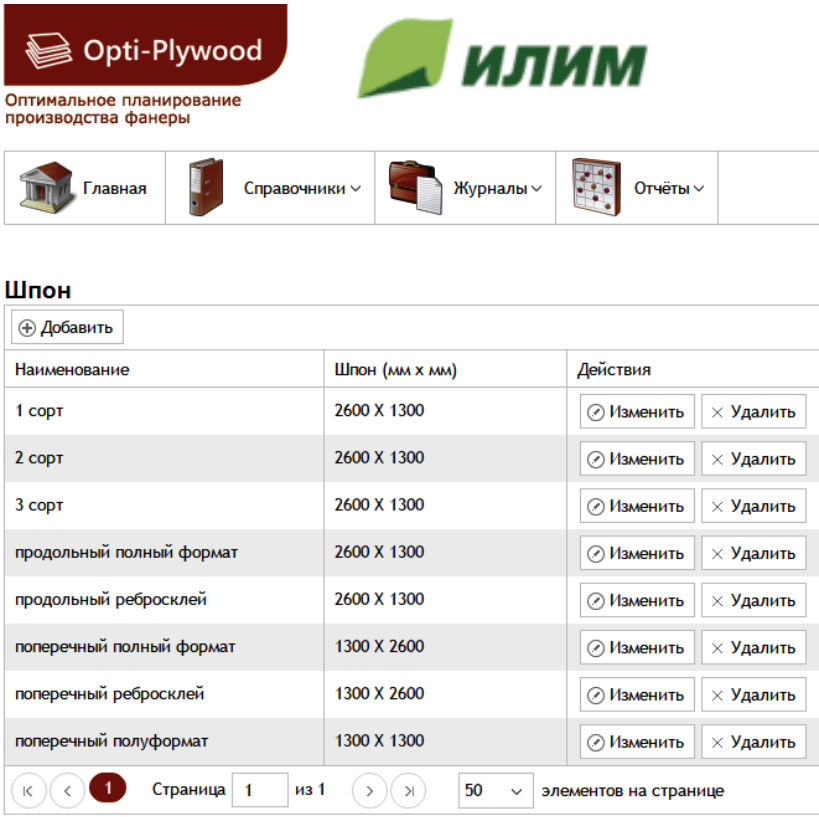
- Increased profit: by 1.5...2%
- Reduced time for management decision-making: by 2...3 times

Main customers

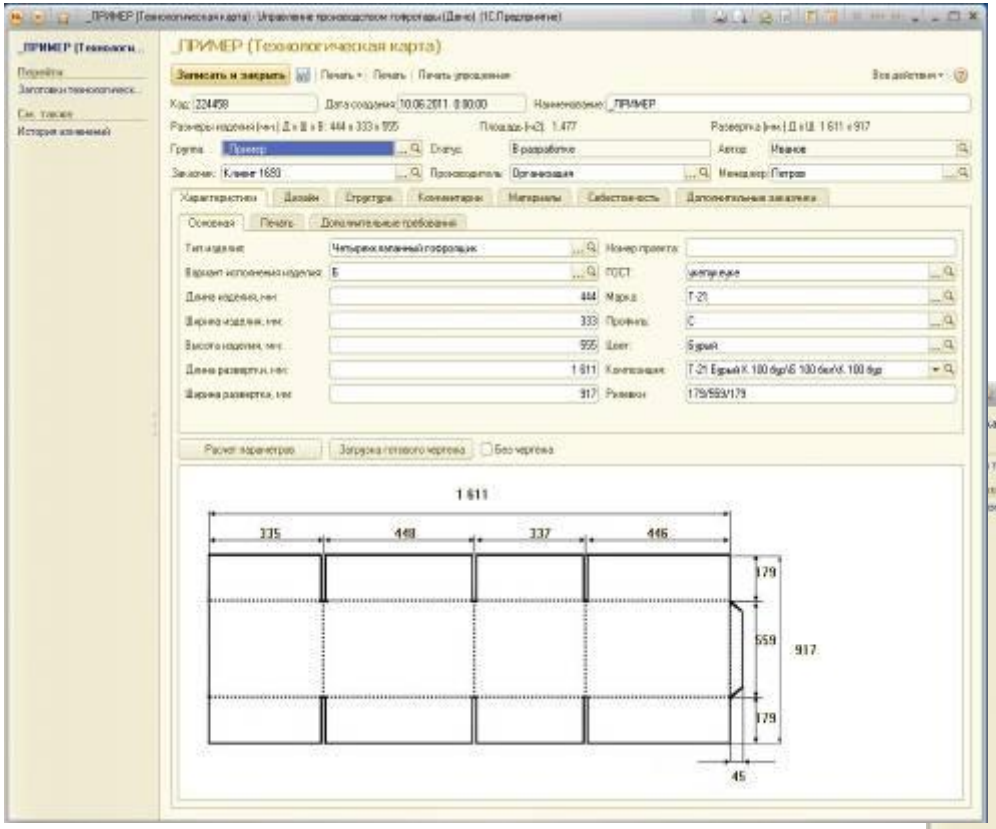
- «Ilim Bratsk Woodworking Plant»

Access

- Web-service: www.opti-soft.ru , section «Opti-Plywood»

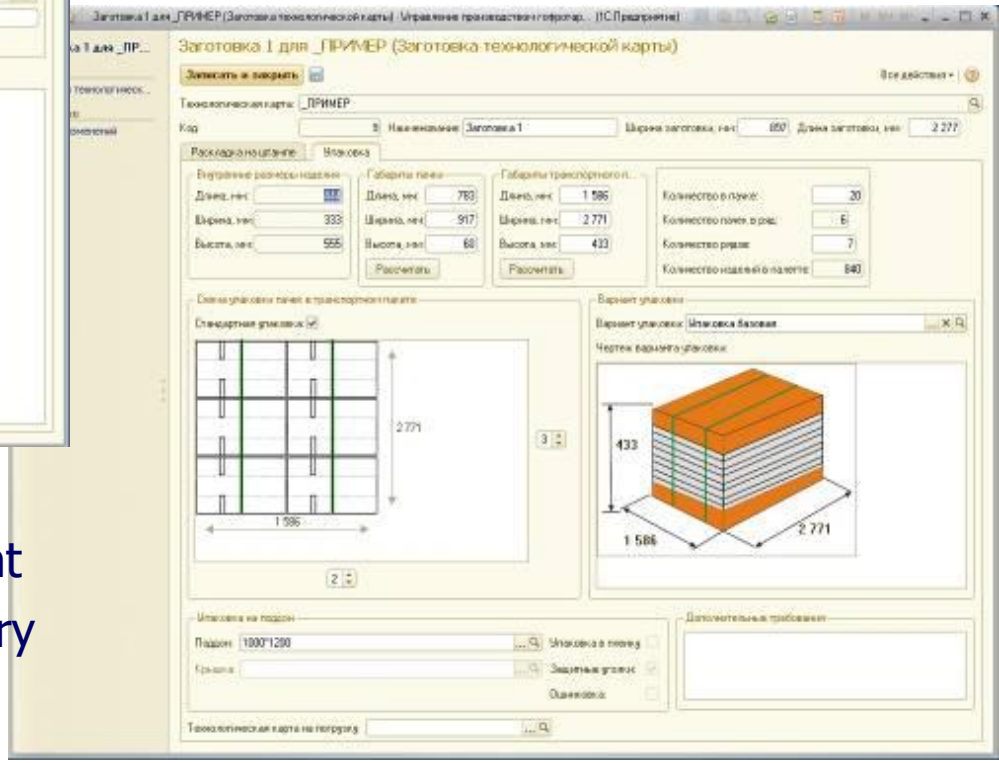


# 3.4 “Opti-Corrugated”



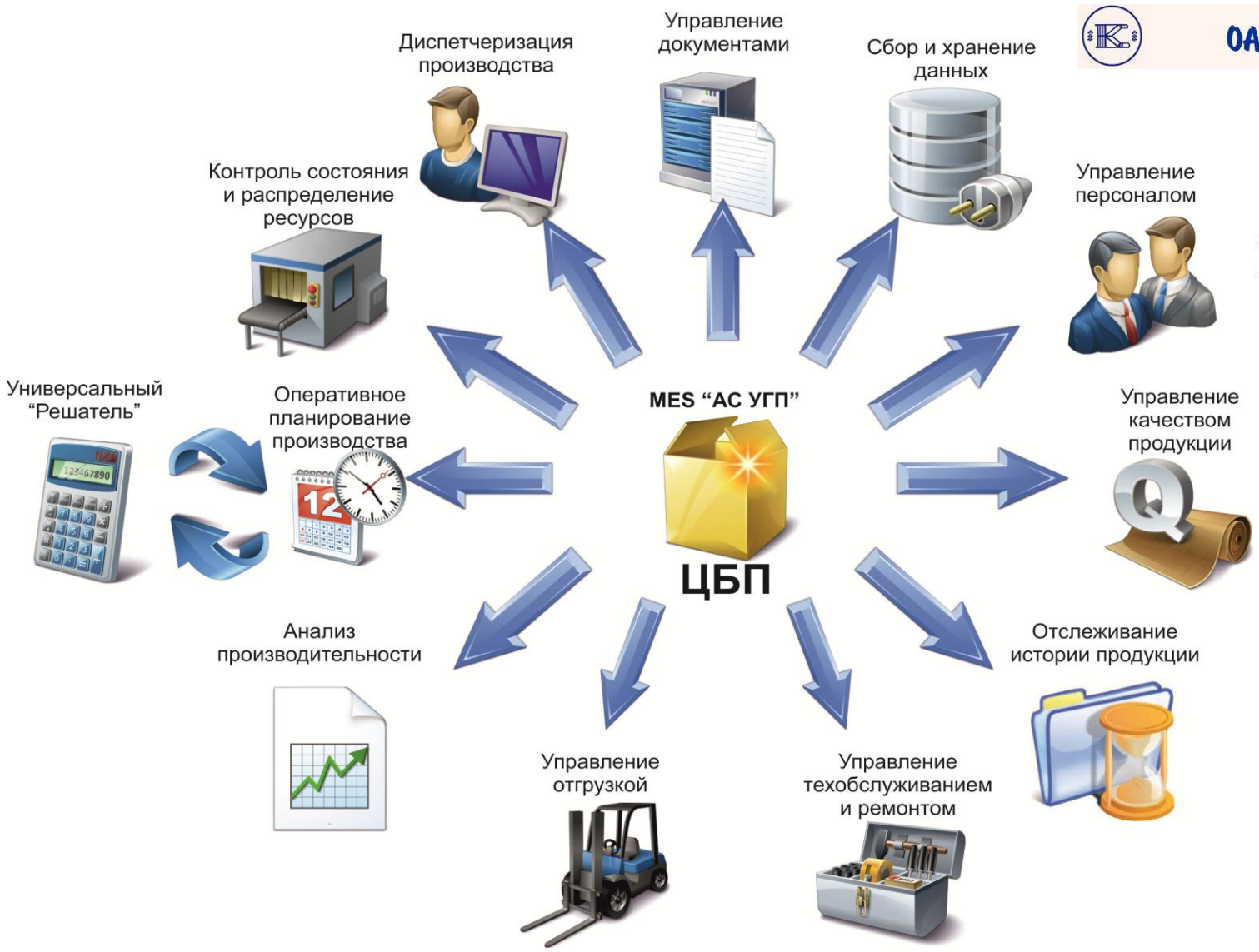

Opti-Corrugated

**30+ customers in Russia and Ukraine**




1. decreased consumption of materials
2. increased utilization factor for equipment
3. decreased volume of in-process inventory

# 3.5 “Opti-MES” for pulp-and-paper mills




ОАО "КОНДОПОГА"

KARJALA PULP

# 3.5 “Opti-MES” for pulp-and-paper mills

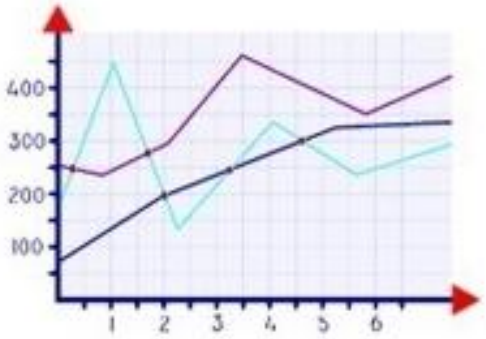
**Tasks:**

- Eliminate the drawbacks in the existing automation system
- Adding new features
- Migration to a new hardware
- Use of modern development tools and techniques

**Scope**:

- 7 paper machines
- 9 slitters
- 4 warehouses of finished products
- Operation schedule: around the clock 365 days a year
- The number of paper rolls: up to 5000 / day
- The number of contractors: 7000+
- The number of paper grades: 60+
- The number of generated documents: 11 000+ / month
- The number of users: 200+ people

# 3.6 «Opti-Paper»

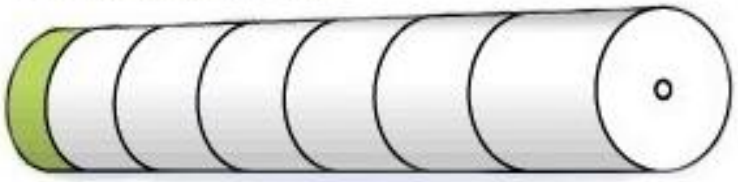



расчет сбалансированных **планов производства и отгрузки** продукции

Opti-Paper

Экономия до 1-2% материала в виде кромок

**оптимальный раскрой** тамбура на рулоны



составление **отчетной документации**

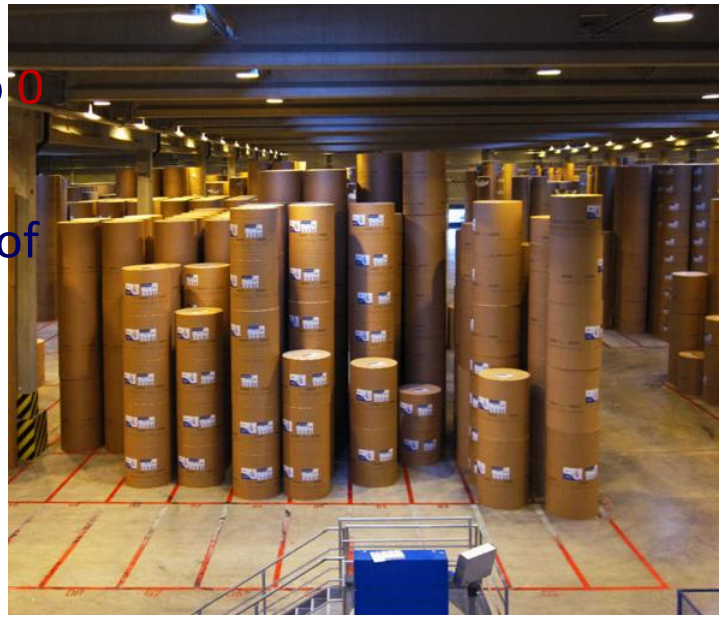
# 3.7 «Opti-Storage» module

## Warehouse optimization of a mill

Opti-Storage

Архангельский целлюлозно-бумажный комбинат

+ Practically all operations in mill's warehouse are planned with the Module
+ Time of loading a transport was decreased by 30%
+ Reduction of unproductive operations by 2 times
+ Number of non-free cells decreased by 10-12%
+ Roll misplacements reduced to 0
+ Rolls defective due to long storage time reduced to 0
+ Time of warehouse inventory reduced by 5 times
+ Inventory is made 1-2 times per year: great saving of the working time for the staff
+ Complete integration with ERP, MES and other IT systems of the mill



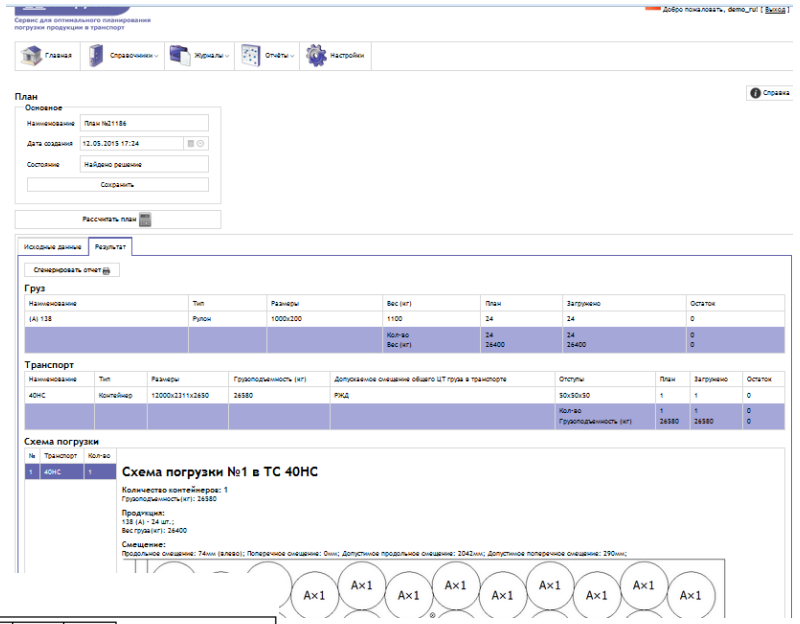
# 3.8 «Opti-Loading»

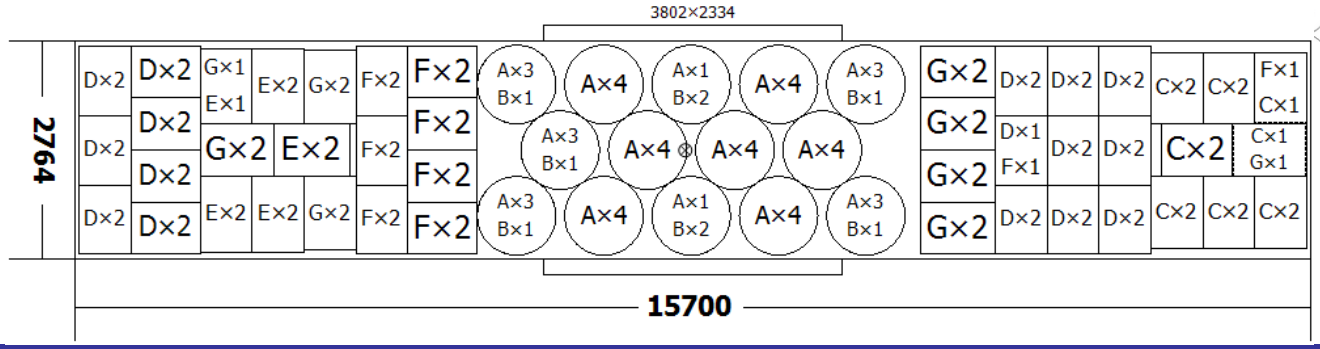
## Optimization of paper goods shipment

Opti-Loading

mondi

- «Cloud» service is used by Mondi mill almost **daily; 10** to **30 non-standard** loading schemes calculated **monthly**
- Loading vehicles from **different warehouses**
- Different types of goods (“**round**” and “**cubic**”), pallets forming
- Transportation costs reduced by 5%



# 4. Application types

- Mathematics, algorithms, **optimization**
- **Desktop** applications (using different UI frameworks, etc.)
- **Web** applications (jQuery, Ajax, knockoutJS, underscore.js, MooTools, HTML5; SOAP, ASP.NET, XML, WCF, Web API)
- **Graphical user interface** frameworks
- **Database** applications
- Application **modules** and **libraries**
- **Add-ons** (Excel VSTO, Visual Studio IDE)
- **Mobile** applications

# 4. Development process and tools

- **Agile development** Scrum with Jira and GreenHopper
- **Subversion** and **Git**
- **Code Analysis** reports: code style, coding guidelines
- **Code coverage** report
- **Performance profiling** with ANTS
- **Project tracking and collaboration**: JIRA+Confluence
- **Quality** assurance, automated **unit-testing** (MStest, Nunit + Moq, Rhino Mock, Jasmine for JavaScript)
- **Visual Studio IDE** (Nuget, Ankh)
- **Source control system (SVN):** tagging, branches, SVN properties
- **Continuous integration** with Jenkins:
  - Automatic build on commit (unit testing; code analysis; latest stable component build; automatic deployment to test server)
  - Integration build on schedule or command (build the whole developer version of Info server; automatic deployment to test server)
  - Stable build on command (the whole system from stable SVN tags)

# 4. Main competences

- **Advanced** optimization algorithms of **own** development
- **Advanced** development platforms, approaches, **tools**: code analysis, performance monitoring, automated testing, design patterns, integration, stable builds, Scrum, Object-Oriented paradigm
- Studying the Customer processes to **every detail**
- **Completed** systems delivered to industrial users
- **Joint teams** of permanent developers, researchers, and students
- **Various** development environments, and programming languages (.NET, C++, Python, Java, PHP, Javascript, Qt, etc.)
- **Medals** of various exhibitions and contests (2 gold, 5 silver, 4 diplomas)
- **Patents:** 11, and counting

# Patents and awards

12 patents on software systems

6 diplomas and 4 medals of Russian and regional contests