Better quality and efficiency by automated printing

CSWO printing in Alma Manu’s new printing house
Personal career

- 28 years in printing industry
- Mainly in production
  - as an operator
  - press machine maintenance
  - production management
  - developing quality of materials, machinery and products
  - management of environmental impacts
  - several investments and research projects
Alma Manu

- Printing and distribution company of Alma Media
- 1200 workers, 1000 for distribution
- Production 3-4 million copies per week

- New printing house in Tampere opening in spring 2013
  - Ferag mailroom
  - AGFA and Nela platemaking with automated plate sorting
  - Colorman Autoprint Coldset press machine, 9-cylinder satellite
- Automation
  - cut off and side lay, web edge, web tension, temperature controlled dampening, plate loading, reel handling
  - Q.I. Press Controls; IDS closed-loop colour control
  - Q.I. Press Controls; IQM reporting & analyzing tool

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How we approach automated application; What kind of automation might be needed?

- Maintenance oriented automation
- Quality and efficiency oriented
- Automation for reporting and analyzing
Maintenance oriented automation

- Different kind of washers for blankets and cylinders, ink and water rollers, web guiding rollers etc.

- Main purpose
  - keep printing conditions constantly at level good enough
  - usable between productions and during different production phases
Quality and efficiency oriented automation

- Automations for web control
  - side lay and cut off control
  - web edge control
  - web tension control

- Automations to control image quality
  - 4-colour register
    - systems compensating fan out
    - plate to plate mis-register compensating systems
  - closed-loop ink adjustment
  - print defect observation
  - automated dampening control
Automation for reporting and analyzing

• Sensors of press machine and automation produce continuously a lot of data
• software logs data and convert it automatically to reports which highlight clearly the key factors of the process
• data is converted online during production to visual information
Preconditions for well functional automation

• Careful consideration of needs
  – What are quality demands and accuracy the automation can help to achieve
  – Think carefully how it fits to machine configuration
  – Needs for automatic quality measuring and reporting
  – ROI good enough

• User’s knowledge of automated system
  – operational principal must be known well enough
  – skill of using measuring, reporting and analyzing data

• Press machine conditions
  – Both press machine and devices of automation systems need constant maintained
Automation and press machine conditions

• Examples:
• Dirty or worn-out web leading elements
  - unstable web tension
  - cut off is constantly varying and automation can’t correct cut off quality

• Dirty camera lens or shields
  - misread of image
  - wrong or lost measuring and adjustment error

• Poor maintenance of wash automation devices
  - production interruptions and worsening preconditions of automation

• Most of product quality maintaining and improvement work is done outside of production time

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Proving of functionality of automation

- User need to have confidence in the automated solutions

- Verify
  - Results of automated functions are according to specifications
    - first by using manual measuring tools
    - system’s own measuring results
  - No system malfunctions
  - Amount of maintenance needs remain in agreed level
Benefits of automation

• Ergonomics

• Quality

• Production efficiency

• Environment
Benefits of automation

- **Ergonomics**
  - observation of high accuracy quality factors by eye is tiring
    - *automation reduced it significantly*
  - printer’s work is changing to be more supervising and analyzing
  - physically stressing work phases decrease
  - operator’s contact with washing solvents reduce
Benefits of automation

• Quality
  – Less risks of human errors
  – reaction time of adjustments is much faster
  – analyzing of quality and process factors is much easier
  – enables faster preventing and correction of quality defects
  – same data of process and quality is available for all
  – decisions of quality improvements can based on objective facts
Benefits of automation

• Production efficiency
  – reduction of manpower per product is possible
  – constantly monitored and controlled production
  – less interruptions of production
  – faster production
  – less waste
  – better material efficiency
Results high level of automation; just 1 operator per folder
Results high level of automation; Low waste numbers
Results high level of automation; standarized consistent quality
Benefits of automation

• Environment

  – With washing automation it is possible use eco-friendlier washing solutions and reduce solvent consumption

  – less waste ➔ less environmental impact
Increasing of automation in CSWO-printing gives better possibilities to develop quality and production efficiency

Thank you!