INTERNATIONAL
PRINECT USER DAYS

18th and 19th November 2015

Workshop 1

Analyze Point:
What is my production data telling me?

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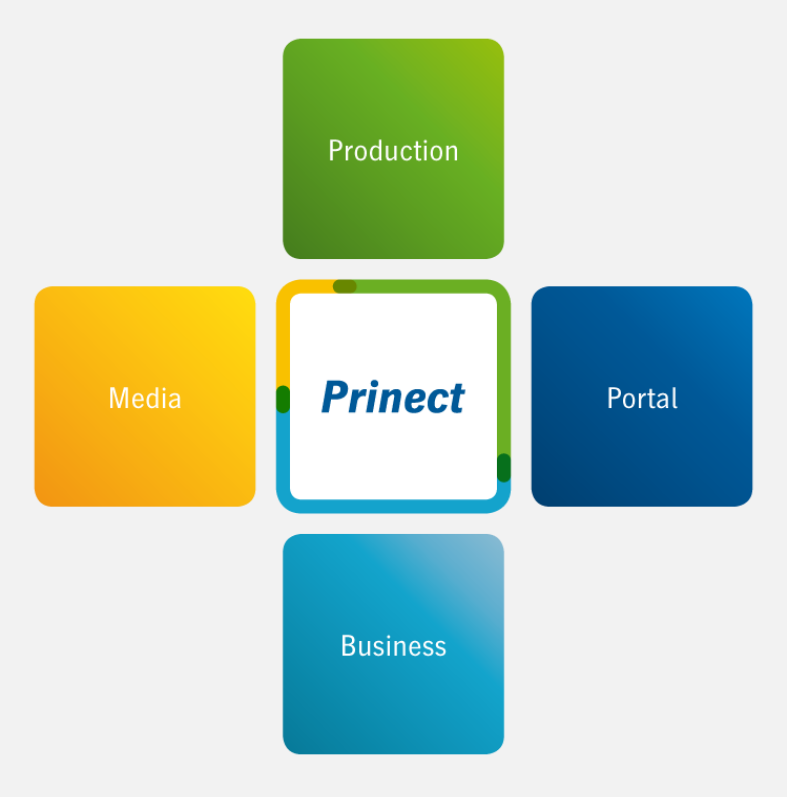
What is my production data telling me?

International Prinect User Days 2015

Brian Hansen, Cordula Voelker / Heidelberg, November, 18th 2015



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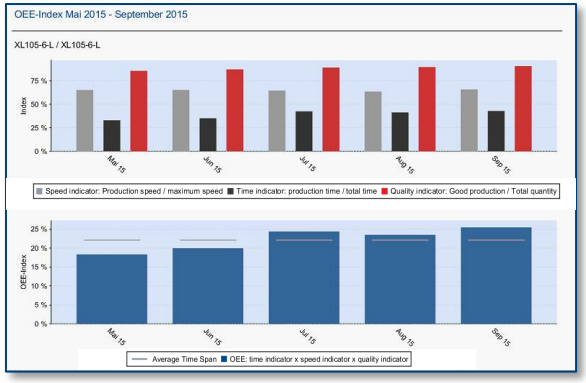
Introduction: What is my production data telling me?

1. What can Analyze Point tell me?
2. Real life and production at GraphicCo's site
   - → How to read reports
   - → What do key indicators stand for?
   - → How to discover possibilities for optimizing production process?
3. Users' experiences



Users‘ experiences – some statements

→ Analyze Point is important to confirm personal monitorings and experiences by its automatically collected and evaluated data. This increases self-consciousness and helps for taking further decisions.

Director of production, Suisse

→ Analyze Point shows real good production speed and therefore is used for postcalculation of jobs and adaptation of hourly press cost rates for precalculation. Prinect helps saving money via delivering realistic values.

Director of production, France

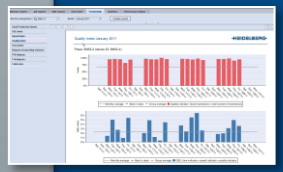
→ Analyze Point helped finding out the most efficient press to produce a cost sensitive job with 26 language versions and helped saving make ready times.

Managing director, Poland

Evaluating your shop

Analyze Point:
What is ongoing in your shop today?

Print shop



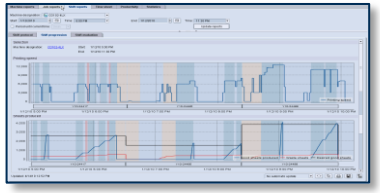
Analyze Point:
How is production developing from a longer term prospective?

Prinect Performance Benchmarking:
What to learn about your productivity compared to other print shops‘ productivity?

Prinect Mobile:
Monitoring from everywhere

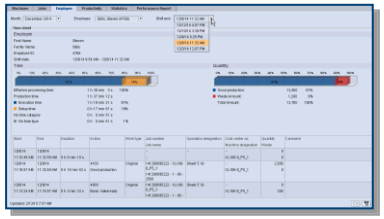
Reporting in several levels
Status information – Trend information

→ Machine reports

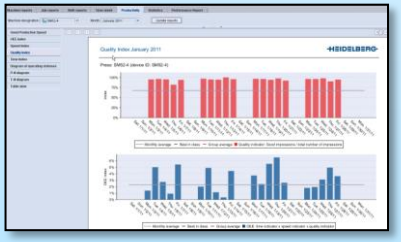


→ Job reports

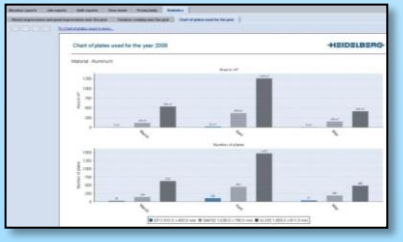
→ Employee reports



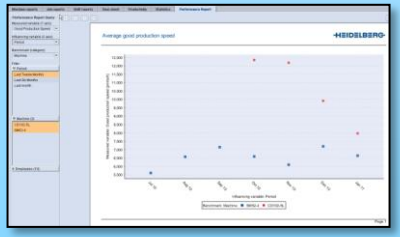
→ Productivity reports



→ Statistics



→ Performance reports

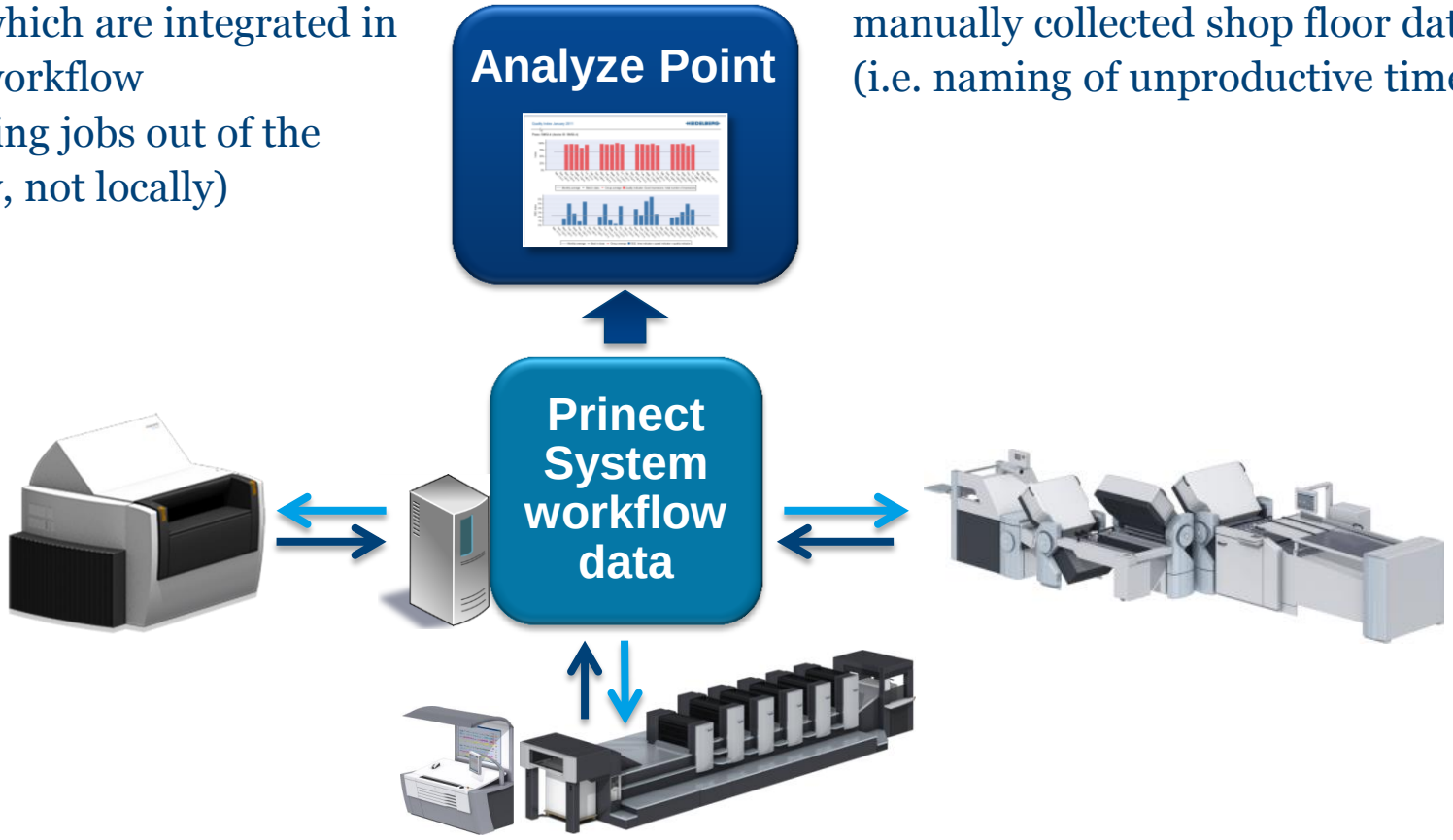


The basis for meaningful reports is a good data collection

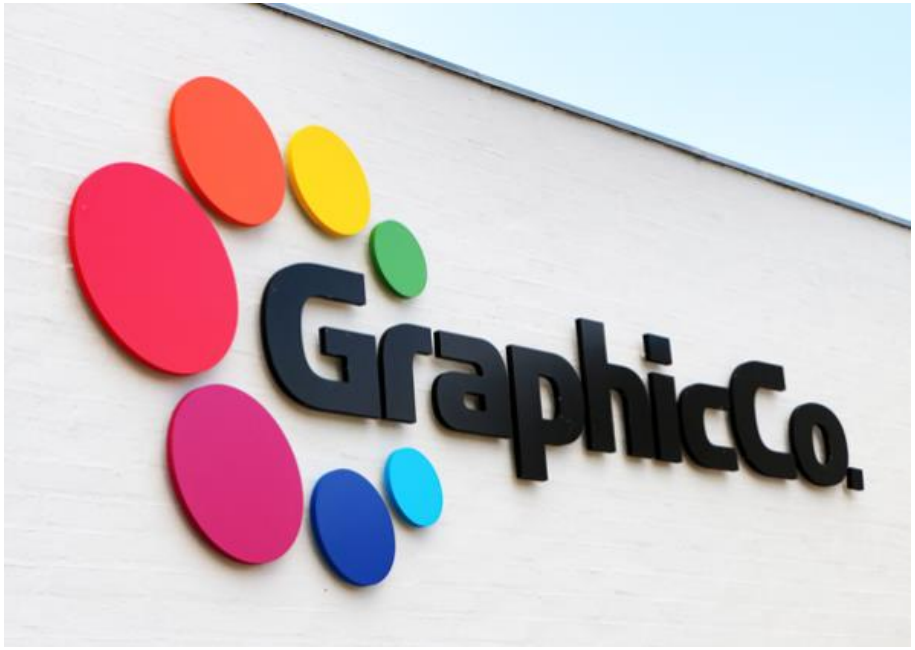
Quality of data collection depends on:

→ The quality of data delivered by the devices which are integrated in Prinect workflow
(i.e. loading jobs out of the workflow, not locally)

→ The quality of supplementing manually collected shop floor data (i.e. naming of unproductive times)



Real life and production at GraphicCo’s

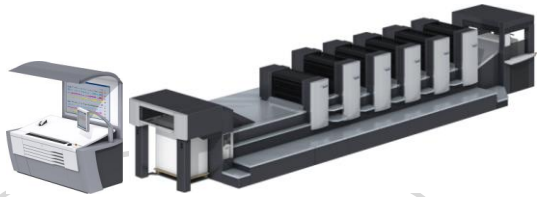


→ Located in Denmark
→ Sites in Svendborg, Odense and Give
→ 80 employees
→ Part of Jysk Fynske Medier

Products
→ Commercial printing
→ Outdoor advertising products
→ Big format printing
→ Web services

Working with Heidelberg Prinect software
→ Prinect Web-to-Print Manager
→ Prinect Business Manager
→ Prinect Prepress Manager
→ Prinect Pressroom Manager
→ Prinect Postpress Manager

Reporting at GraphicCo‘s Svendborg site



Sheetfed press
CD 102-5 (A)
Prinect Axis Control

Folding machine
TH 56

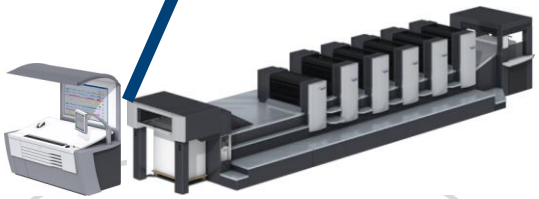
Prinect

Prinect
Pressroom Manager

Analyze Point

Prinect

Prinect
Postpress Manager

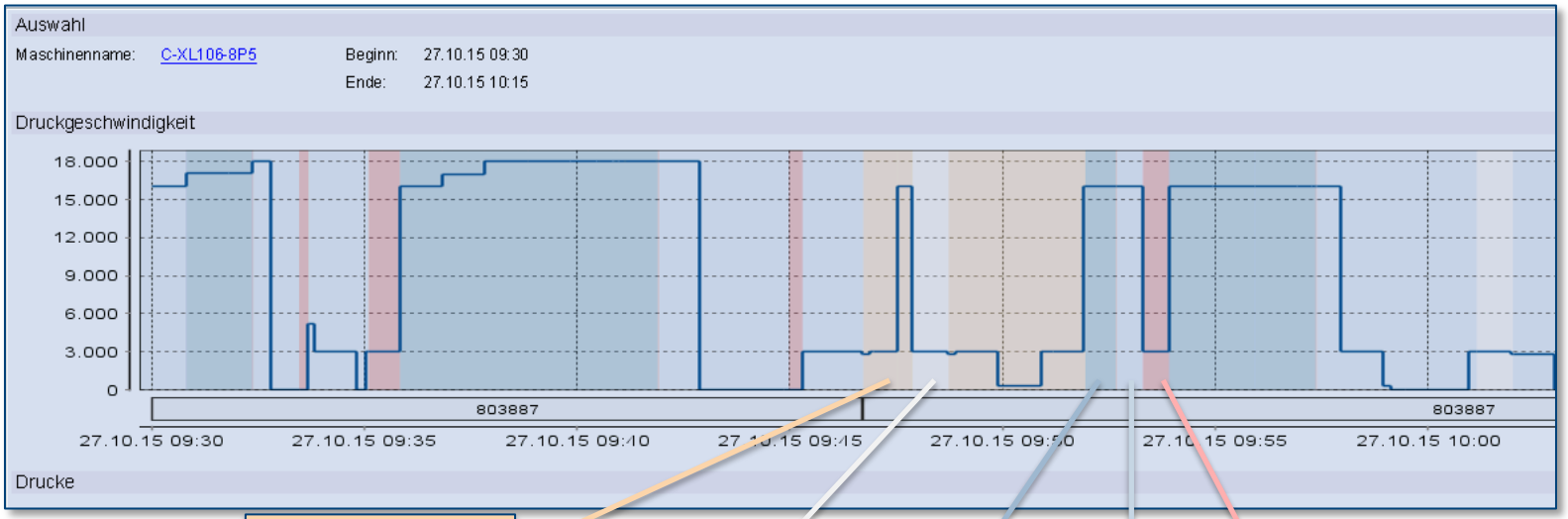


Sheetfed press
CD 102-5 (B)
Prinect Axis Control

Folding machine
KH 78

What reports stand for:
Machine evaluation

→ Background colors stand for dedicated machine statuses



Make ready

Washing

Good production

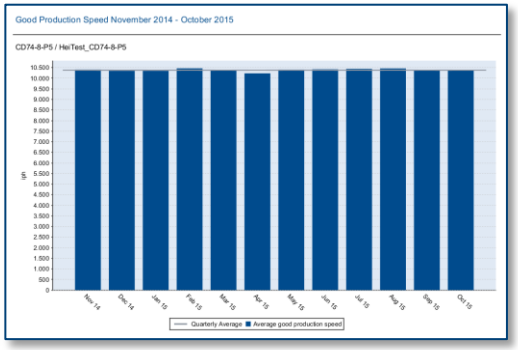
Idling

All other statuses

What key indicators stand for:
Average good production speed

→ Average good production speed = $\frac{\text{Total of good impressions}}{\text{Total times for good production}}$

→ Only days with speed > O are included in monthly average

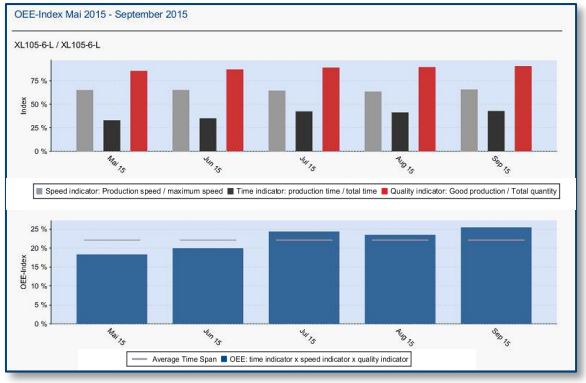


What key indicators stand for:
OEE = Overall equipment effectiveness

OEE index = time indicator x speed indicator x quality indicator

OEE for an "**ideal press**" is 100% because:

Time index	= 100%	= always prints
Speed index	= 100%	= at maximum speed
Quality index	= 100%	= only good sheets



What key indicators stand for:
OEE = Overall equipment effectiveness

For a "**normal press**" the indices are all < 100% because:

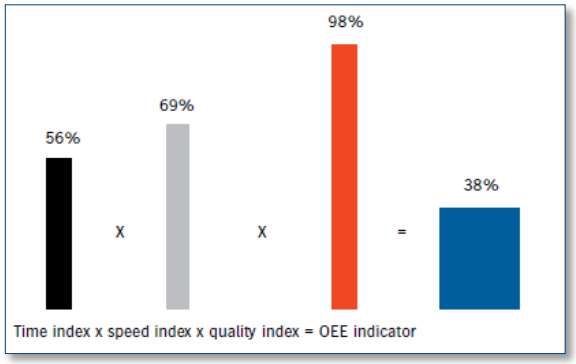
- Time index = Printing time (for good and waste production) / sum of machine up-time

- Speed index = Average production speed (for good and waste production) / individual maximum printing speed

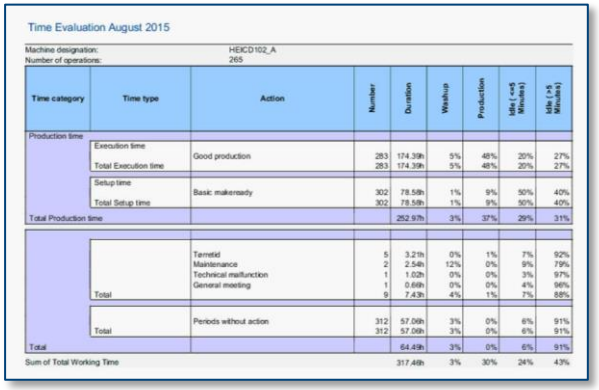
- Quality index = Number of good prints / Total number (good and waste prints)

The OEE index of a "normal press" can be expected in the range of

- 18 – 40 % for industrial commercial printing
- 25 – 45 % for packaging printing



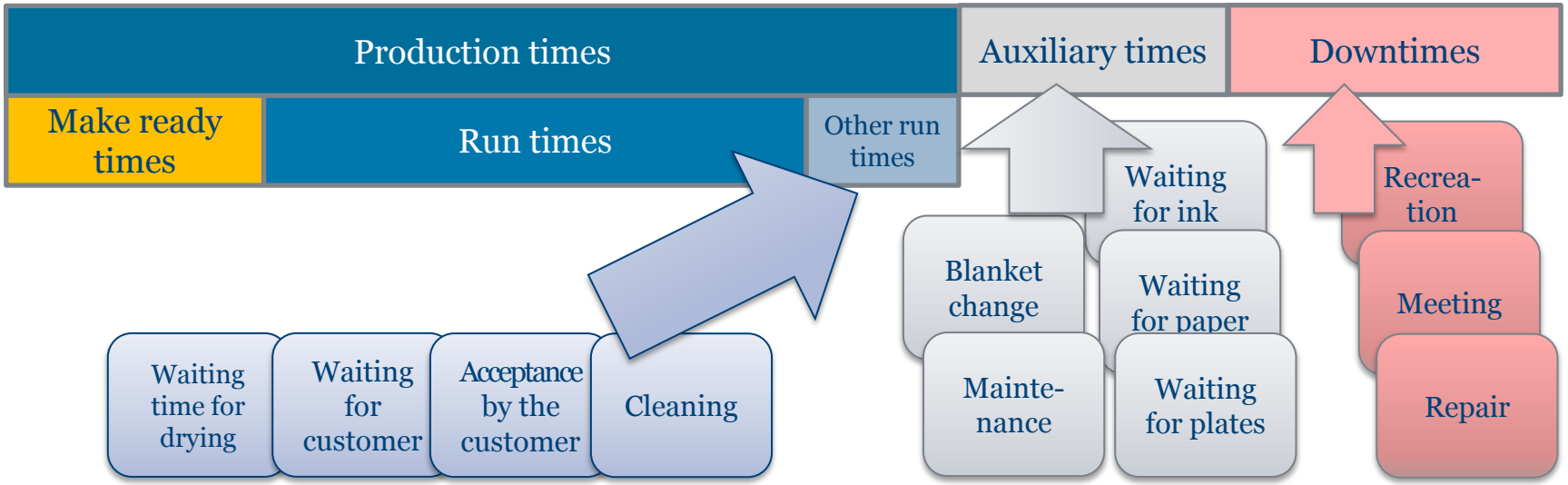
What reports stand for:
Time Evaluation


Time Evaluation August 2015

Machine designation: HEICD102_A
Number of operations: 265

Time category	Time type	Action	Number	Duration	Washup	Production	Idle (<=5 Minutes)	Idle (>5 Minutes)
Production time								
	Execution time	Good production	283	174.39h	5%	48%	20%	27%
	Total Execution time		283	174.39h	5%	48%	20%	27%
	Setup time	Basic makeready	302	78.58h	1%	9%	50%	40%
	Total Setup time		302	78.58h	1%	9%	50%	40%
Total Production time				252.97h	3%	37%	29%	31%
		Terretid	5	3.21h	0%	1%	7%	92%
		Maintenance	2	2.54h	12%	0%	9%	79%
		Technical malfunction	1	1.02h	0%	0%	3%	97%
		General meeting	1	0.69h	0%	0%	4%	96%
	Total		9	7.43h	4%	1%	7%	88%
		Periods without action	312	57.06h	3%	0%	6%	91%
	Total		312	57.06h	3%	0%	6%	91%
Total				64.49h	3%	0%	6%	91%
Sum of Total Working Time				317.48h	3%	30%	24%	43%

- → Time categories and time types are defined following economic standards
- → Activities are classified as time type



What key indicators stand for:
Degree of utilization

→ Degree of utilization = $\frac{\text{Production times}}{\text{Total of production and auxiliary times}}$

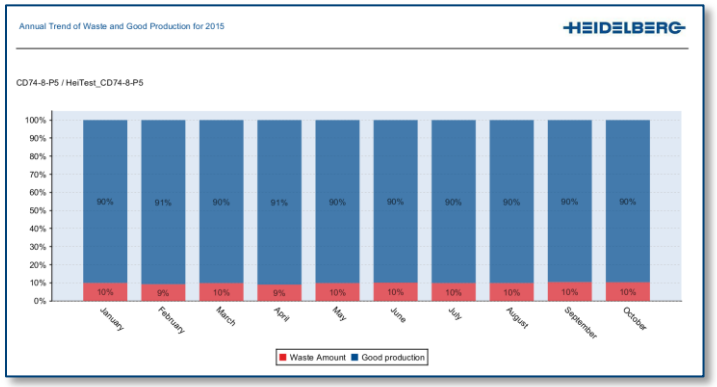
Table view May 2015 - September 2015

	Total Production Volume (Quant.)	Total Good Production (Quant.)	Waste percentage (%)	Operating Time (h)	Ø Speed (good production) (per h)	Ø Speed (per h)	Operations (no.)	Effective processing time (h)	Production volume (no.)
CD74-8-P5	8,980,290	8,077,250	10.1	3,671.87	10,419	2,200	3,764	1,104.96	8,977,790
CX102-4	8,998,076	8,110,443	9.9	3,671.87	10,428	2,209	3,696	1,101.25	8,993,063
XL106-6-L	8,948,046	8,057,406	10.0	3,672.00	10,392	2,194	3,714	1,098.08	8,948,046

What key indicators stand for:
Waste ratio

→ Waste ratio = $\frac{\text{Waste sheets (impressions)}}{\text{Total of waste and good sheets (impressions)}}$

Waste = make ready waste + production waste

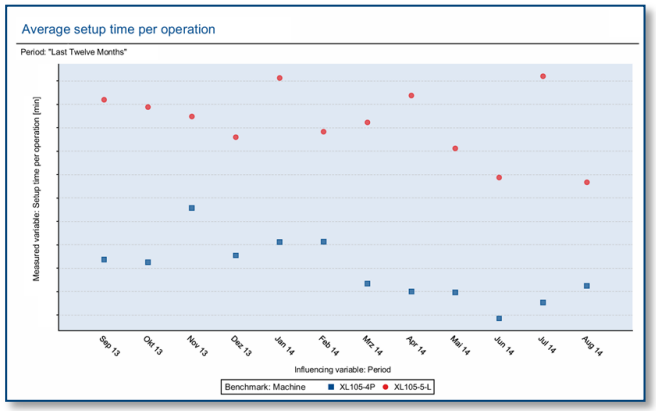


What reports stand for:
Performance reports

→ Average make ready time = $\frac{\text{Total of make ready times}}{\text{Number of operations}}$

→ Average good production speed = $\frac{\text{Total of good impressions}}{\text{Total times for good production}}$

→ Waste ratio = $\frac{\text{Waste sheets (impressions)}}{\text{Total of waste and good sheets (impressions)}}$



How can I discover possibilities for optimizing my production process?

Which reports shall I first use for analysis:

- → Analysis of simple to understand production parameters:
  - → Production speed
  - → Waste ratio
- → Analysis of processing times
  - → Make ready times
  - → Range and amount of auxiliary times and downtimes

Steps of evaluation:

- → Search for trends
- → Search for extraordinary figures
- → Try to explain them

Steps of optimization:

- → How can I influence these production parameters?
- → Which processing steps can be optimized?
- → Which target values for these production parameters do I want to reach?

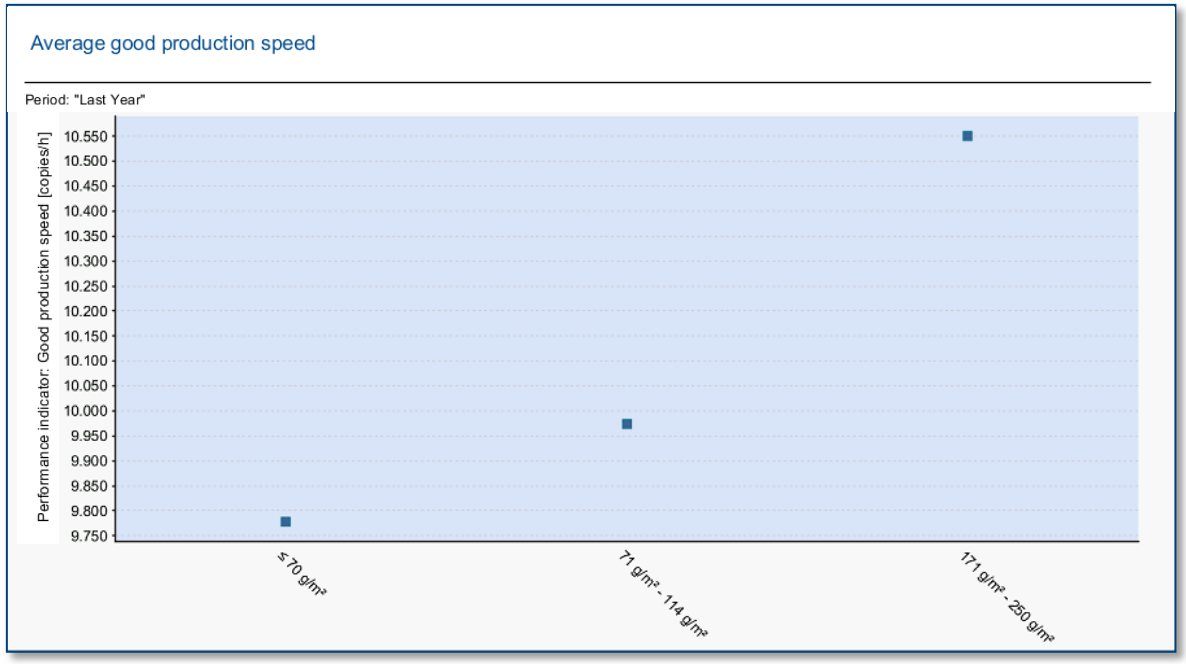
Success story: Non-profitable material avoided

Situation

→ XL 105/ SM 102 printing on a wide range of paper grammage

Activity

→ Find out grammages with poor performance (speed, make ready times)



Result

→ Make sales people aware of non-profitable material

→ Increase monetary benefit by producing jobs with performant material

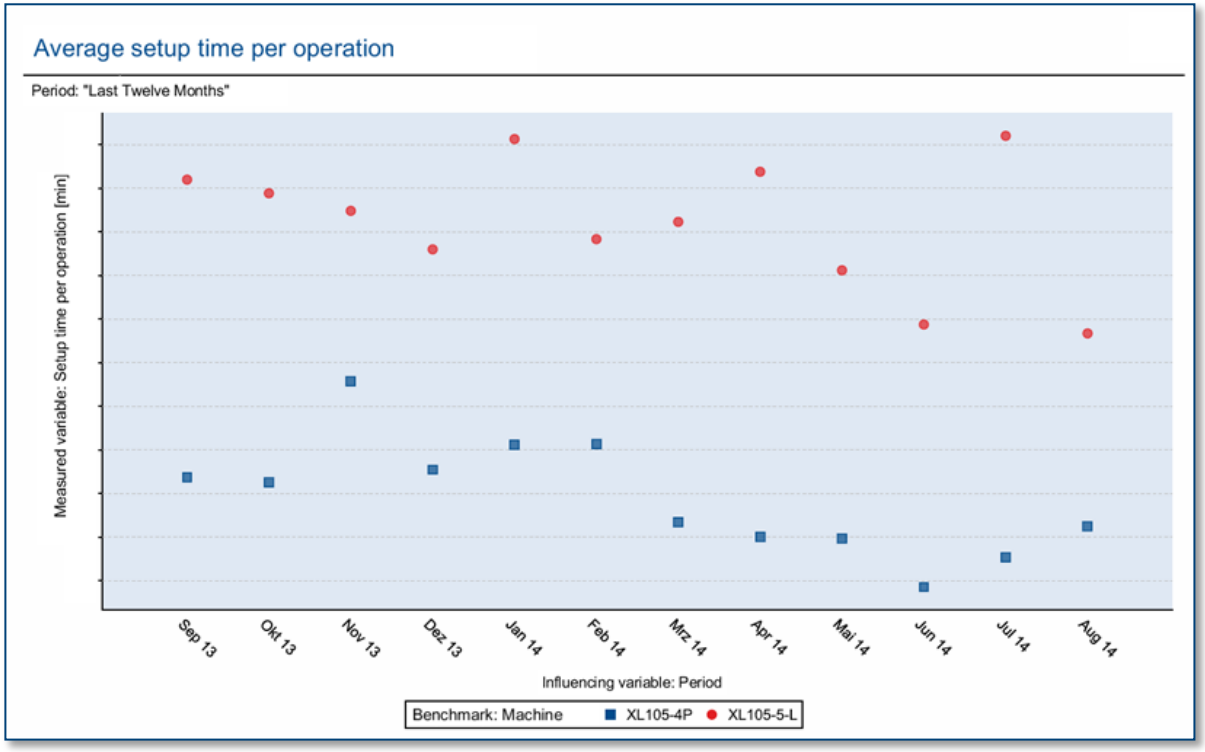
Success Story: Investment decision

Situation

→ XL 105-5+L with Axis Control, XL 105-4-P with Inpress Control

Activity

→ Compare performance as preparation for decision to invest in new press



Result

→ Make ready is significantly faster with Inpress Control.
→ New press is bought with Inpress Control.

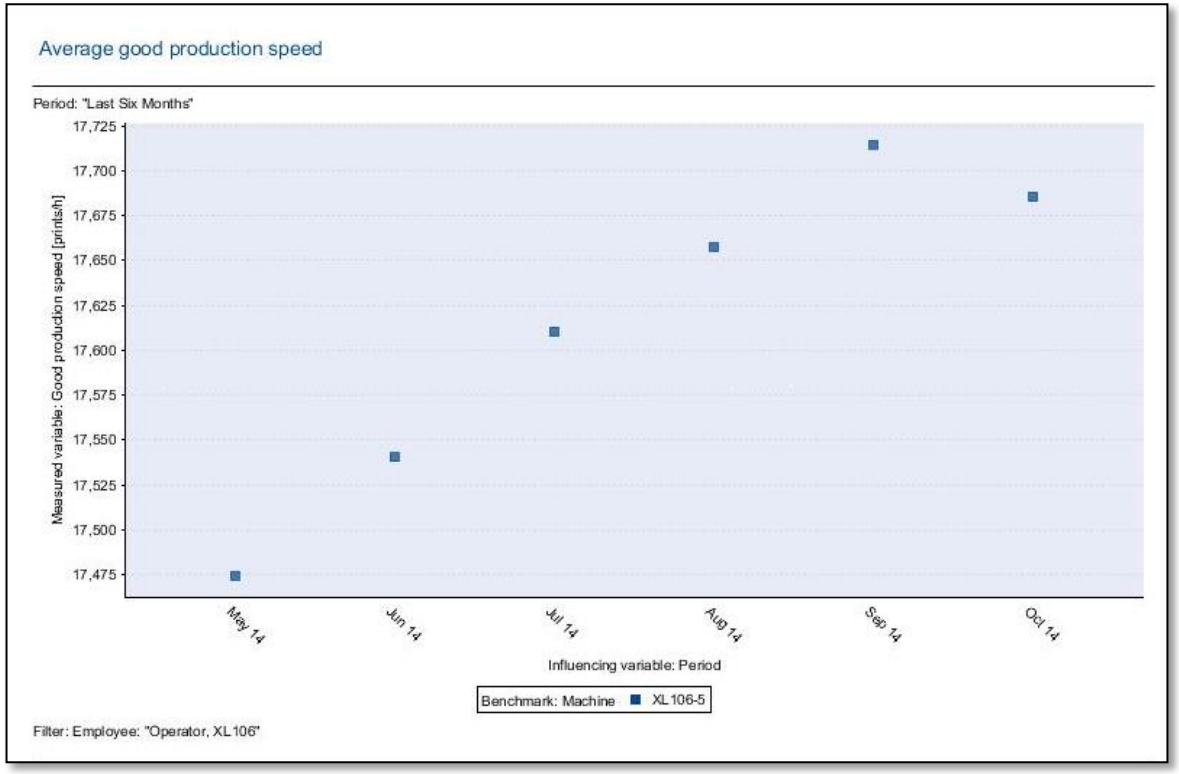
Success Story: Speed increased

Situation

→ Introduction of new press XL 106-5 in January 2014

Activity

→ Re-defining the process protocol for the machine:
- → Colour profiling
- → Substrate management
- → A clearly defined commercial strategy to ensure maximum leverage from the product suite



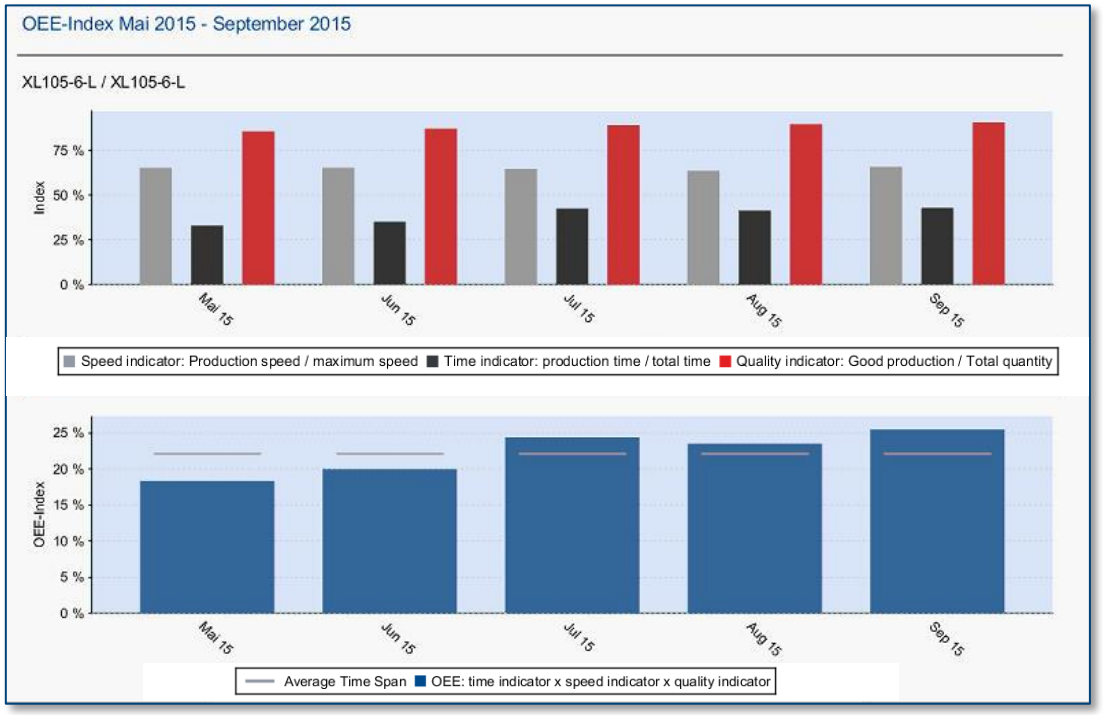
Result

→ 250 sheets an hr gained is an extra 1.7m impressions a year or 1 weeks increased production per annum for free.

Success Story: Productivity increased

Situation

→ High waste ratio and low use of XL 105 production time



Activity

→ 3 production shifts (instead of 2)
→ Former activities at end of shift (stop, clean) and beginning of shift (boot) are omitted
→ Delivery of paper directly to the press
→ Standardized working process: no more questions during night shift
→ Downtimes and waste reduced

Result

→ Productivity (overall equipment effectivity) increased from 18 % to 25%.
→ This means a 7% higher turnover on the XL 105.

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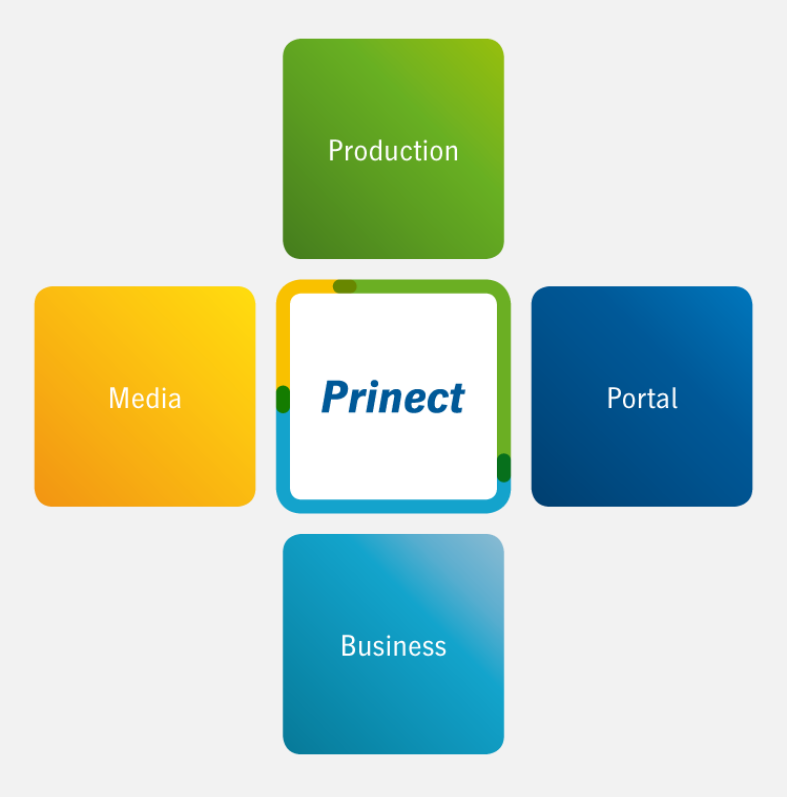

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