

# Workshop Packaging 4.0

Use of electronic data to achieve and maintain superb quality, efficiency and profitability

- Packaging 4.0 – Why?
- Packaging 4.0 – Objectives
- Packaging 4.0 – Solutions and Applications by W&H





industry **4.0**

# Global Mega Trends

Analysis of 26 mega trends shows the six most important mega trends for extrusion:

- Population Change
- Digitalization
- Urbanization
- Globalization
- Climate Change

 <p>Population Change</p>	<p>Growing and aging population challenges food supply chains and medical advancements. Individualism increases. Hence food packaging will change to more individual packaging.</p>
 <p>Digitalization</p>	<p>Technical products are integrated in our day to day lives. Machines and technology become smarter. Work environments will change.</p>
 <p>Urbanization</p>	<p>More and more people are living in cities. Food supply chains will face new challenges. Transportation of goods as well as protection of food will be more important.</p>
 <p>Globalization</p>	<p>Due to growing interdependency between nations a strong middle class in the developing countries with new demands will arise.</p>
 <p>Climate Change</p>	<p>The growing consumption of water, energy and other resources challenges the world to look for more efficient ways of resource management.</p>



# Packaging 4.0 – Objectives



- Packaging 4.0
  - Intelligent technologies
  - Intuitive handling
  - Integrated processes
- Packaging 4.0 solutions leverage machine and production data to
  - increase efficiency
  - handle complexity
  - increase transparency along the value chain

Packaging 4.0 – additional benefits by each W&H machine



# Packaging 4.0: Fully integrated modules

*Integrated modules for closed loop machine intelligence*



**PROCONTROL:** *Central machine intelligence for all integrated modules*



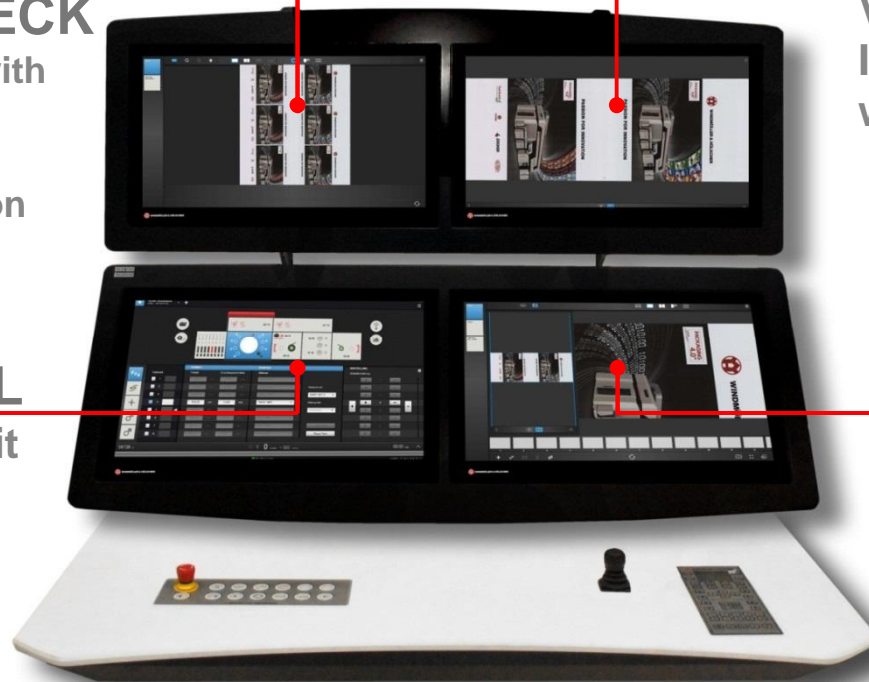
# Z VISION – Web, Print & Machine inspection

## W&H Vision – Control Panel

### VISION – CHECK DEFECT - CHECK

Image Processing with  
Defect Detection  
Algorithms for  
100% print inspection

### PROCONTROL Press Control Unit



### VISION - FULL

Visual Print  
Inspection  
with Line Cameras

### VISION - ZOOM

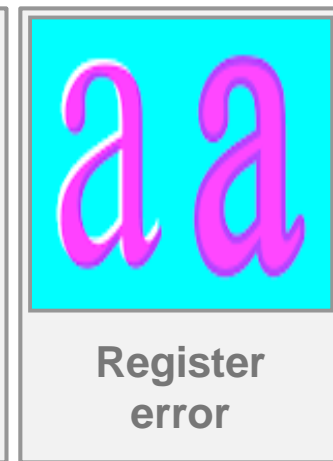
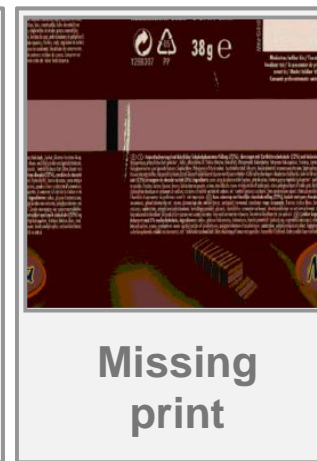
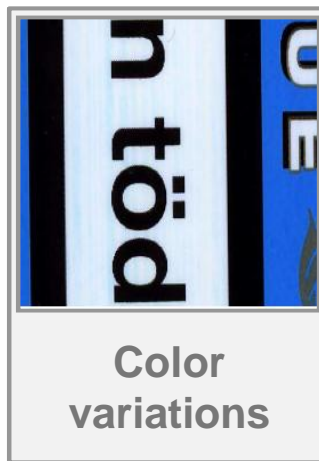
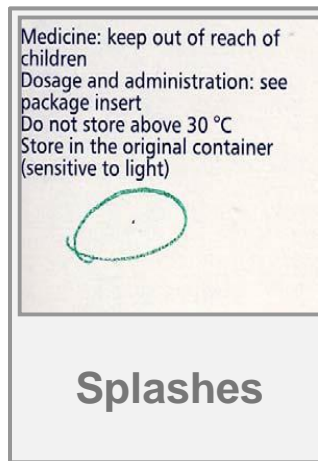
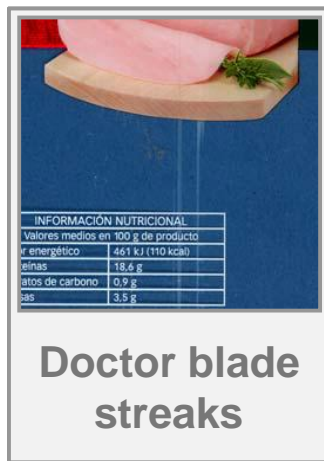
Visual Print  
Inspection  
with Matrix Cameras



# Z VISION - CHECK

## DEFECT CHECK:

- Real time 100% print inspection based on VISION-FULL images
- High-performance image processing with specific print defect algorithms.
- Reliable detection, recording and display of the following types of defects (but not limited to):



# Packaging 4.0: Value Chain

*“Added Process Data” for increased production efficiency*

## Data flow along the value chain:

- Every value chain part has access to production **information** of its supplier.
- **Information** such as raw material specifications, defects, winding & machine parameters, e-modules, color settings, etc. is available **for each produced roll.**



- TRACEABILITY



# Your ideas? Are we on the right track?

