CODEL
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CASE Mark and Identify Phase 1

CLIENT British American Tobacco Croatia

BRITISH AMERICAN TOBACCO

Codel was invited to provide, through the configuration of its AIDA Manufacturing Execution System (MES) and custom development, a Marking, Identification and Quality Control (QC) solution. This has now been in continuous operation (through multiple versions) for more than 15 years.

Codel provides many, if not all, of the software and hardware elements necessary to manage production facilities, which can be implemented in part or as a complete architecture. Every module can communicate with other (non-Codel) systems and be fully integrated within the Client's infrastructure. Naturally, when providing a complete Codel AIDA MES solution, AIDA modules work faster and offer more capabilities.

In the beginning, there were no marking solutions or equipment present anywhere in the factory. We implemented this on one line, then several lines, and eventually covered the entire production in two factories, over a period of about one year.

Reasons and Drivers

AIDA
SOFTWARE SUITE

SAP®

The driver for starting this project was the lack of any serious management and traceability (IT) system in the factory. The need was recognized at the Management Board, and so they started several initiatives to remedy this issue. One of these projects was Codel's AIDA Printing and Traceability systems, the other was an SAP Implementation. These two projects were executed separately and in isolation to provide maximum focus within the AIDA and SAP teams.

The first version of the (Codel) system was stand-alone, without communication with the Client's ERP system or any other IT system. All material data was maintained in AIDA, production orders were manually created, and the execution queue was generated within AIDA. We added local LAN network hardware to provide connectivity across AIDA equipment (industrial LAN being out of the scope at that time).

During our long-lasting partnership with the Client, the demands on the AIDA system changed and we were engaged to upgrade their AIDA system to provide all the functionality necessary for the adjustment to changes on production lines.
(Please see "Mark and Identify Phase II" case study for details of our engagement with this Client).
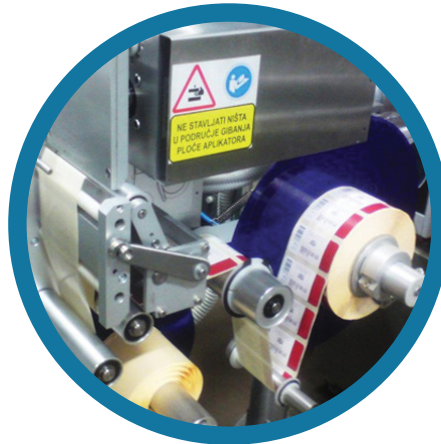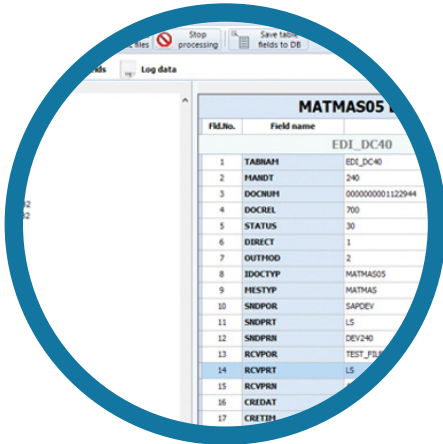
REVEAL THE HIDDEN FACTORY

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The Marking Layer

Every machine was equipped with one or two automatic printer/applicators capable of printing and applying labels without direct contact with the product on the packaging line. Printers were connected to the production line through Codel's communication and data acquisition industrial computer (MPA401), which bridged server printing applications, printers, packaging lines and elevators. Every marking station was equipped with an industrial barcode scanner to check if the label had been correctly printed and applied.

At the inception of the project, real-time LAN based data acquisition equipment was deemed beyond budget and we decided not to use standard PLCs (e.g. Simatic) or other data acquisition equipment (e.g. NI). In its place, we constructed and produced an "all in one" industrial computer with the following key characteristics (re: the AIDA system):

1. LAN connectivity;
2. LAN to serial channels (5 channels, RS232, RS485, RS422) - these serial channels were used for communication with printers, industrial barcode scanners and wireless handheld barcode scanners;
3. Digital I/O – communication with packaging machine and sensors, alarm and light indicators;
4. Analog I/O – temperature measurement in the equipment cases; and
5. MMI – display and keyboard to provide data and control for machine operators.

Server based printing
All printing channels ran on the application server and provided all communications with the equipment and the database.

✓ THE PROJECT ACHIEVED ALL TARGETS SET BY THE CLIENT

RESULTS

JUST IN TIME PRODUCTION

INTEGRATION WITH MACHINES

TRACK AND TRACE

MES