

## VIA's MAN-IT™ Leads to Doubling Productivity and Profitability at Autoliv

### Case Study

#### The Challenge:

Autoliv is the world leader in production of automotive safety systems, including airbags and seatbelts. To win the Ford Motor Company business for assembly of Taurus and Sable steering wheels with airbags, Autoliv was required to use a sequencing system that would bring exactly the right part to the assembly line at precisely the right time for each product. Before the Columbia City plant opened in 1998, other Autoliv facilities had been unable to institute sequencing, which led to a number of challenges as well:

- A string of some 15 containers totaling nearly 120 feet in length was necessary for line workers to select parts as each wheel came down the line.
- Keeping part numbers straight was a major issue, since many looked the same but varied slightly in design or in color.
- It was difficult to trace materials that went into specific parts, making it harder to correct defects.
- Data retrieval was extremely slow and, in some instances, almost impossible. Data had been stored in text files, which made searching increasingly difficult.

#### The Strategy:

In launching its new Columbia City plant, Autoliv called on VIA's MAN-IT system, a single highly integrated program that accomplished Autoliv's objectives and dramatically reduced the time, space, labor and expense required for steering-wheel assembly. The integrated solution was a strategy upon which not only the operations for Ford could be

built but also, by taking full advantage of MAN-IT's features, the profitability and productivity of future operations could be enhanced to remarkable levels.

#### The Tactics:

The central feature of MAN-IT that revolutionized Autoliv's operations was its in-line vehicle sequencing (ILVS) capability. After testing, the components of the steering-wheel assembly, including speed control, radio switches and communication switches, are packed in sequence employing (ILVS) in real time. They are matched automatically with steering wheels that are pulled into the line in a specific order. As a result, Autoliv was able to build its steering-wheel assembly in the same order that Ford was building the vehicles into which they would be installed. Moreover, MAN-IT stored data in an Oracle database, rather than text files, making retrieval and traceability simple and fast. At assembly stations, the ILVS aspect of MAN-IT records data for testing relating to specific part. It also keeps track of the lot that was used to create each part, as well as of which workers assembled that particular part. Additionally, MAN-IT ensured that, if a part failed at a station, it would not be allowed to proceed to the next station.

All this is possible because MAN-IT automates data collection, ensuring that the collection process is both accurate and complete. It can create a permanent record of everything produced at the plant, tracking every step in the assembly process and linking machine readings and test results to individual part serial numbers.

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### The Results:

On the line, plant operators were able to replace 16 flow racks with just two that carried in sequence all the variety of parts required to produce eight different types of steering wheels. Instead of 15 different containers for 15 different part numbers sitting on the line, a single stream of material was fed into the line with all the various part numbers arriving in order to match each steering wheel. Now instead of 120 feet of containers, the line needed only eight feet, a huge savings of space.

MAN-IT was capable of holding much more information in its database format and retrieving it very quickly. Older systems in other plants required as much as a week to retrieve some types of data, if it could be retrieved at all. MAN-IT cut that time to two hours.

MAN-IT proved especially impressive in its ability to control failed parts on the line. It ensured that faulty parts could not be promoted to the next station and could not be shipped to the customer. Moreover, the system kept all the part numbers straight so that assembly workers did not have to look for small differences in selecting the right component; the parts were packaged and delivered in a pre-determined sequence.

VIA's MAN-IT system made such a monumental improvement over previous systems that the Autoliv plant was named by *Industry Week* as one of the best plants in the country. The magazine reported that new methods and systems at the plant, including MAN-IT, produced important results:

- QS 9000, ISO 14001, Ford Q1 Award, TS16949 certified, AWC 2002 Gold Safety Award (top performer, Autoliv North America)
- 100% on-time delivery rate
- 173% increase in productivity
- 260% increase in plant-level profitability

Since announcement of the best-plant designation in October 2003, Autoliv has made a further improvement at the 120,000-square-foot plant. It changed the way that sequenced parts are delivered on the line. Previously parts to be sequenced were pulled by ILVS from a "grocery store" line. But large inventories needed to be maintained; and with a long run, the facility could find itself out of a particular part. Because of MAN-IT's flexibility, the plant was able to change to a system where parts are pushed along the line in order. The parts are built in sequence on the line, eliminating the grocery store. As a result, the number of finished goods that need to be on the line to make the line function has been decreased significantly. Instead of requiring 60 types of raw materials at the end of the line, only four or five are needed now.

MAN-IT's speed, organization, flexibility, capacity and integration all have helped turn Autoliv's steering-wheel assembly operations into a success story that will serve as a model for the company and its industry as processes are re-engineered to become more profitable and more productive.