



# IAC

## Solutions for the Automotive Industry

### Results

- Optimizing workflow every day of the week instead of only at longer production stops
- Products are built “Right First Time”
- Creation of Product Birth Certificates to meet contractual obligations and warranty abatement
- Changes in order sequence or part numbers do not require system changes
- Ability to implement production changes on line
- Ability to dynamically rebalance the line
- Four month delivery of the project – start to finish
- Reduction in IT team overtime expenses as system changes are eliminated and re-testing is not necessary
- No longer held hostage to resources that understand, maintain and upgrade the home grown solution

### Tier 1 Automotive Supplier Puts Proficiency\* Assembly Applied Solution to the Test For Right First Time and Sequencing Applications

Automakers are facing increasing challenges to contain warranty/recall exposure, and Right First Time applications can offer that solution – with the potential to significantly improve throughput, efficiency and quality.

Right First Time requires a powerful toolset, including in-line sequencing and error proofing, to create product birth certificates and minimize missed delivery penalties. By working together, manufacturing operations and corporate IT teams can put these systems in place to enable Right First Time, as well as develop strategies for standardization and globalization to reduce support burdens and achieve long-term success.

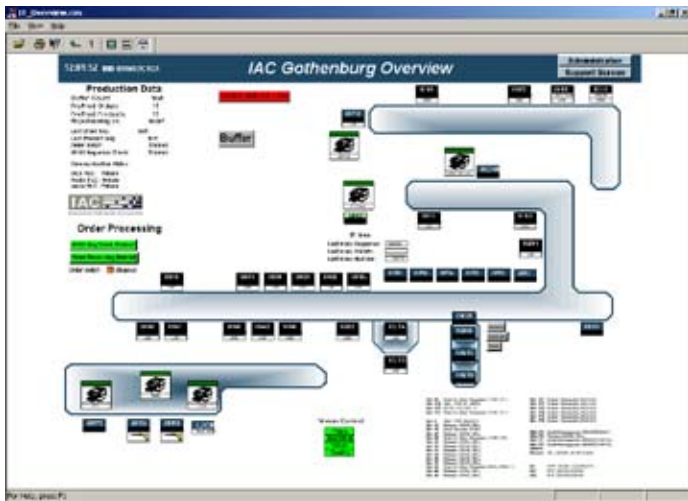
“By not building Right First Time, Tier 1 suppliers are subject to large financial penalties based on their delivery contracts with the auto manufacturers,” said Rich Breuning, Global Automotive Industry Manager for GE Intelligent Platforms. “A switch from Build to Stock to Build to Order and Just in Time Sequencing is a continuing trend in the marketplace. Tier 1 suppliers now have to manufacture and deliver sub-assemblies in sequence in as little as one to five hours from the time they are notified by the automakers.”



In addition, the automotive manufacturers are tightening up the contracts with their Tier 1 suppliers to include penalties for sub-assemblies missed, delivered out of sequence, or of poor quality. As part of the contract, a complete "Birth Certificate" (i.e. genealogy and traceability records) of each sub-assembly, needs to be delivered along with the finished product.

IAC, a European division of International Automotive Components Group, is one of those companies. The company is one of the world's largest suppliers of automotive interior systems and components providing complete seating systems, electronic productions and electrical distribution systems. IAC prides itself on its dedication to provide the best possible service to the world's automakers by delivering increased value through the latest vehicle interior technologies and the continuous improvement of processes and product quality.

The Gothenburg, Sweden plant, formerly owned by Lear, manufactures cockpits (instrument panels) for Volvo and is therefore required to not only produce the quality product that Volvo expects, but to deliver it on time and in sequence for their production needs. IAC produces the cockpits for four Volvo models – V70, XC70, XC90 and S80 – with 100-plus part numbers in each panel and many different combinations depending on the model of car.



Volvo installs the instrument panel in the car approximately 4 ½ hours after the order is received at IAC. If the parts are not ready and IAC shuts down Volvo production, the company incurs large penalties. Keeping the line running and meeting production are clearly critical for IAC's success.

### Changes, Everywhere

In early 2006, prior to being acquired by IAC, Lear began the process of interviewing vendors for an application that would give them the capabilities of Right First Time and error proofing. In addition, the company was redesigning its three existing production lines to shift production from two shifts to three. GE and its European partner Novotek were brought in to determine the best solution for Lear.

"We as a management group at the Driving Unit, decided to replace our old in-house development system in September 2005,"

said Eva Flinck, IT Manager, Interior Products Division, for Lear Gothenburg. "The old system was unstable and inflexible."

According to Flinck, the project was originally scheduled to begin in January of 2006, but the final decision was delayed. At the same time, Volvo decided that it would start a 24-hour production schedule after that year's summer vacations so it became more obvious to the team at IAC that they needed a more robust and configurable system to meet the needs of their customer.

"We had already started to talk with GE's local partner about the new system," said Flinck. "But now the timeframe was a bit tight and we needed GE to step up and help us."

### Right Place, Right Time

"We were discussing new opportunities with the European sales team," said Rhonda Landis, Customer Solutions Manager for GE Intelligent Platforms. "We were told about the Lear opportunity and the customer's needs. By that time, my team had spent a few months gathering customer requirements to validate an Error Proofing product concept. It was clear during that meeting that my team was in the process of designing exactly what Lear needed. This confirmed our assumption that our Proficy Assembly Error Proofing product design was right on the mark."

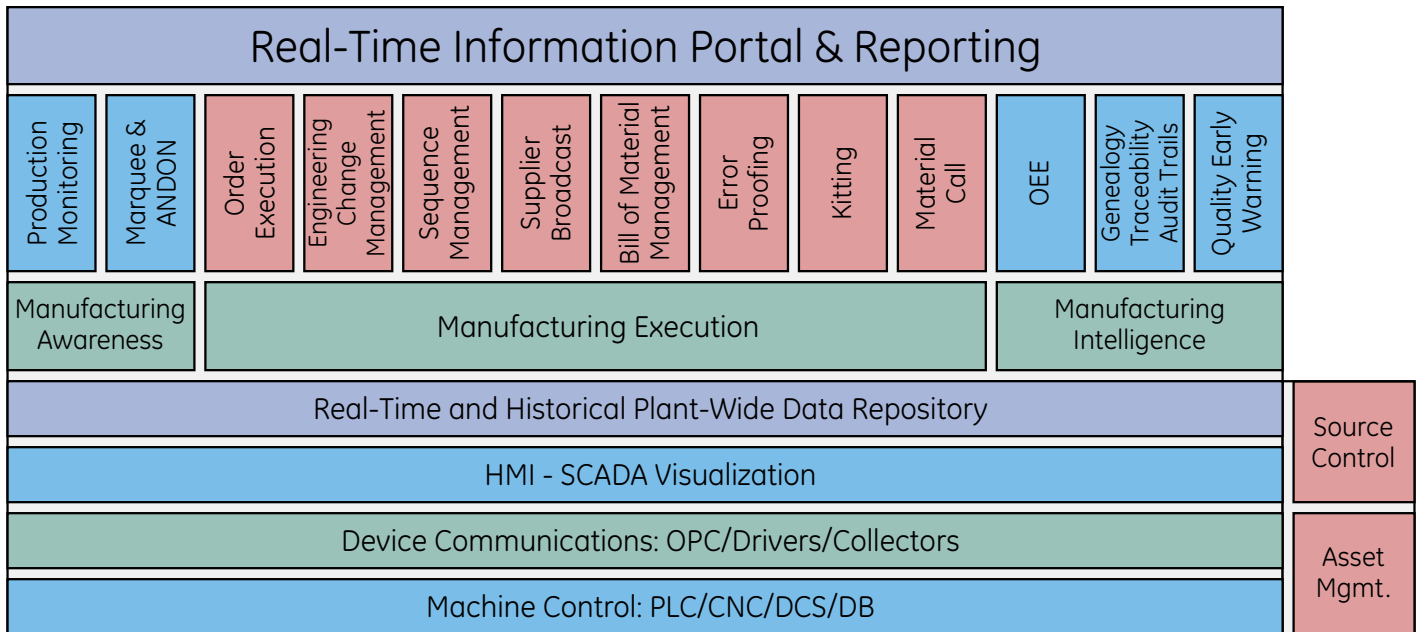
The basic solution idea was to use existing products where possible to shorten the development cycle and reduce new product deployment risk. The team designed new solution modules, focused on Product Genealogy and Error Proofing that plug directly into our existing products. These new modules focus the product on a particular solution, which makes the configuration quick and easy with less risk of entering incorrect data. This architecture was possible since GE's Proficy Tracker product contained all of the basic functionality needed for the solution, as well as the modular design necessary to easily add the new modules.

Proficy Tracker provides the ability to not only track the real time location of jobs on the production floor, but can be configured to perform routing logic on the movement of jobs through the facility. This unique capability allows manufacturers to manage the manufacturing, routing, and delivery of multiple product components into complex product assemblies.

The global GE team went back to IAC and described the Proficy Assembly Error-Proofing solution that Landis and her team were developing. "We flew there and listened to their pain points. We then described the value of our new solution and how it could eliminate that pain. They bought it before we even left," Landis explained "IAC wanted this solution."

The Customer Solutions Group in GE is part of GE Professional Services. This group works with customers before they buy their solution to scope out the project, perform technical estimations and gather the customer requirements before the sales team draws up the contract.

One of the key points in the negotiations was the ability to implement in a very short time frame. "We just started conceptualizing this application. In less than one month (May 2006) we had the order, and we had to go live in August," said Landis.



There was no time to hand this off to a local project team so the global GE team worked together to complete the project. With only three months to get from design to production, this also meant that the customer was part of the team. "I had a very close working relationship with the team during the implementation," said Lear's Flinck. "They made sure we would have all the resources we needed to be able to implement on time."

### The Results

The goal of the IAC application was to error proof every step in the product production process, it was extremely important to Lear that each step be performed correctly and in sequence; this forces the end product to be better through consistency and reliability. Correcting issues at the point they are introduced saves time and money on rework and providing traceability and genealogy for the entire lifecycle of the product helps to defray warranty and recall costs. Every activity that has been performed, every user that has touched it, any defect that may have been introduced, and every part that is installed is logged and available for viewing, reporting, or analyzing.

What resulted is Proficy Assembly, a Sequencing and Error Proofing Applied Solution that provides an easy to configure and modifiable application that meets production line requirements. Customers have the ability to dynamically change the production line through a drag-and-drop interface with minimal to no product, database or IT knowledge on site.

Proficy Assembly meets the following high-level CTQs:

- Error Proofing to deliver Right First Time and abate warranty costs
- Genealogy/Birth Certificate of the product and the process to meet contractual requirements
- Build and Deliver to Sequence to avoid contract penalties
- Configuration templates that can be re-used across work cells, lines, and sites to decrease time to value

- Meet production schedules
- Simple to configure and modify on site
- Process Flexibility
- Mission Critical System
- Non-IT Target Skill Set for Support
- One part number for ease of ordering
- Data Connectivity
- Unique visibility of all data using standard HMI tools which is built into the product. This feature made all plant floor data visible to operators "in a click"
- Possibility to add other existing function based on the same platform (Proficy Tracker), like material pull, add-on boards, barcode label editor and shipment broadcast.

Basically, Proficy Assembly ensures that each product is built consistently and reliably every time. This solution also provides



warranty and recall defense for every customer. There is never a question on what parts were included or how a product was built. In fact, it is becoming a mandatory deliverable in many Tier 1 automotive supplier plants. The end-user wants the assurance that the products were built according to the mandated processes.

"We had already identified this application as something we wanted to do," said Landis. "And, Lear was one of the targeted Tier One companies we wanted to work with. It was an extremely successful project for both of us."

From IAC's perspective, it is difficult to quantify hard benefits because of the change from a two-shift production schedule to a three-shift schedule. "We are now able to do line changes during production and the system is configurable. These are considerable benefits," said Flinck. "Being able to change the line and not have to pay overtime for either my team nor the operators to test the changes after production hours, is a huge benefit for IAC/Lear."

In addition, time is always important when you are trying to meet the same schedules as your customer. "Being able to ramp up or down in the same way as our customer is also a key benefit," she continued.

IAC now has the capability to reconfigure the line fast and easy, making this system a more stable situation than other companies in the industry that might have in-house developed software.

"This is important. If any of the IT persons leave the company, as happened at IAC," said Flinck, "They always have GE in the background able to help out. With an in-house developed system the knowledge always leaves with the person and it takes forever to get someone else up to speed."

### The Next Generation

GE is now in a second phase development with this application. Based upon what was learned from the implementation and other general market needs, the GE team is able to keep the fundamental design but add enhancements that will add functionality as needed in line with today's manufacturing standards.

"We are excited about the prospect of 'productizing' this solution as part of our GE Proficy suite of products," said Landis. "Due to the IAC partnership during the implementation, we feel confident that we can penetrate this area with a well thought-out, market-tested product."

GE will also continue to work with IAC on the next iteration of their project. IAC is now deciding on next steps with regard to manufacturing operations. One of the options under consideration is order management.

"They want to extend the error proofing capabilities by combining it with order management," Landis said. "It's a necessary evil in these types of applications. The orders and Bill of Materials (BOMs) are not always 100 percent correct and a bad order fed into an Error Proofing application can stop a production line.

The feedback from the plant has been outstanding. "The engineers in the control room are bored because the system does everything for them," Landis reports. "A bored support staff is an indication of a successful project."

### GE Intelligent Platforms Contact Information

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Global regional phone numbers are listed by location on our web site at [www.ge-ip.com/contact](http://www.ge-ip.com/contact)

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