



# GLOVIA G2 AUTOMOTIVE

CrescentOne | 2022



# AUTOMOTIVE

As a manufacturer in the automotive industry, your needs have grown more complex and increasingly urgent. You must manage a rapidly growing product base. You must respond to customer demands quickly and accurately. You must gain visibility into all your operations and synchronize your supply chain. You must also provide immaculate service.

The automotive industry is experiencing changes like no other. Gasoline to electric engines, user/driver features to self-driven automobiles (smart cars) and so on. Research being done creating and supporting these changes is greater than ever before. Regardless of the 'Tier' within the supply chain, auto manufacturers must be responsive to these changes.

Globalization and regulations are also impacting your operations in an increasing way. While globalization may provide opportunities to expand your supplier base it also increases your competition. Technology is enabling product and manufacturing process enhancements. Visibility of recalls makes customers leery, resulting in greater need for perfect quality. Because your product is considered consumer goods, the expectations put on you and your product quite often appear unrealistic. At the same time, aside from everything else your customers want, they want it at an increasingly less expensive price.

CrescentOne's extended ERP suite can help you achieve these objectives efficiently and cost effectively by enabling you to select from more than 70 modules to fit your manufacturing operating environment, many of which are designed exclusively for the automotive industry.

CrescentOne has successfully obtained approval from Honda of America Manufacturing for our EDI and automotive shipping software, a very rare distinction among ERP providers.

We have worked closely over many years with top automotive suppliers to develop these capabilities to support the industry as it has evolved. Our customers use GLOVIA G2 to achieve critical operational advantages, especially reduced product and delivery lead times, and to reach target goals of greater and greater profitability.

The flexibility and adaptability of GLOVIA G2 will allow you to manage and improve every aspect of your business with one proven solution to meet today's business needs and to support your system needs as your company, products and industry grow and change. We welcome the opportunity to discuss your business issues with you and our potential solutions to those issues. In the interim, we invite you to visit our website at [www.CrescentOne.com](http://www.CrescentOne.com).

Sincerely,  
Your CrescentOne Team



# ACCELERATION

**CrescentOne's ERP suite, GLOVIA G2, has dedicated automotive functionality that will greatly help you to reduce, manage and replenish inventory, streamline production, cut lead times, collaborate in real time, integrate supply chains and your enterprise, and link accurate demand forecasting to production and supply.**

In the automotive world it is essential that the shipment transactions can be conducted as they physically happen and that the shipping information can be immediately communicated to the customer. This is a must - even when the inventory records may be located in a different system, or inventory data is not in alignment with what was actually physically available. The GLOVIA G2 'Quick Ship' is a 'must have' feature that provides for the rapid recording of shipments either directly via the GLOVIA G2 application, or corroboratively from an external shipping application/partner.

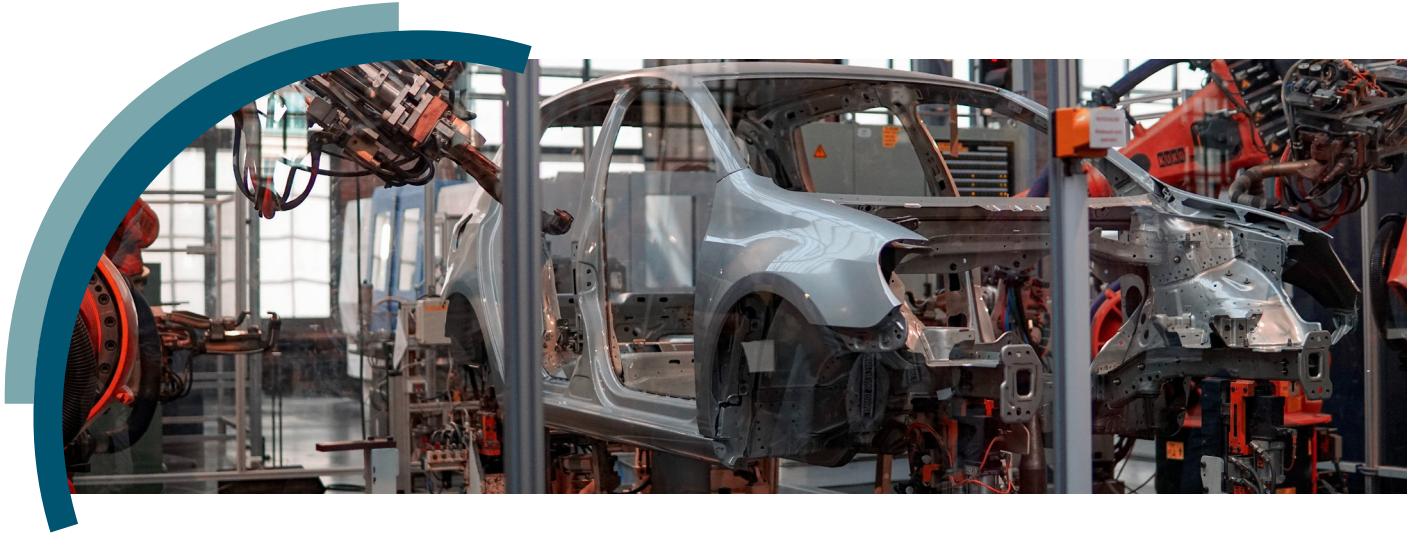
The rapid rise of global competition, complex supply chains, surges in costs, booming customer demands, recent economic downturns, environmental and safety legislation, and pressure from original equipment manufacturers (OEMs) to reduce costs and be more responsive have combined to leave absolutely no room for error for automotive manufacturers and suppliers.

To be competitive, automotive suppliers need to eliminate waste, increase responsiveness, deploy lean manufacturing initiatives internally and throughout the supply chain, become more demand-driven, and have widespread access to real-time business intelligence. Essentially, you need applications that support the way you do business— without special programming and “work-arounds.” This is exactly where CrescentOne comes in.

Quick and accurate information intelligence will enable you stay on top of rapidly evolving customer demands. GLOVIA G2's easily installed and fully integrated modules allow you to adapt quickly as changes occur within your company, customers, markets, and industry. GLOVIA G2 enables collaboration with OEM customers early in the design cycle and supports integrated supply chains. With GLOVIA G2, your company can provide more product options and features while monitoring product development cycles and reducing production lead times, inventory levels, and order processing time. You achieve higher quality, cut costs, and accelerate response—all while you maintain profit margins.

**“Acceleration—  
Everywhere you look,  
the pace is increasing  
and the stakes are  
getting higher.”**





# CHALLENGES ON AUTOMOTIVE MANUFACTURING ENVIRONMENTS

**To be successful in today's automotive marketplace, your company needs an information systems infrastructure that can support new ways of doing business and applications that support the way you do business.**

## **Information Comes of Age**

A well-recognized need in the automotive manufacturing industry is real-time information and systems to keep the quick delivery cycles operating smoothly. Some suppliers use outdated or poorly integrated systems that OEMs recognize as a cause of missed schedules and higher costs.

Within the tiered automotive supplier network, there are several key structural changes being brought about by the OEMs. First is the concept of an extended enterprise model for the suppliers. This is being encouraged and supported by joint training and cooperative teaming efforts by the OEMs to bring about a more

tightly coupled supply chain through the first three tiers.

What the OEMs want is increased sharing of data, schedules and design information between the various component suppliers. They also are requiring EDI integration, electronic processing, material tracking, and lot control. This will bring about improved productivity, less inventory and obsolescence, and faster attainment of cost reduction goals.


## **Bottom Line: Time And Money**

Wringing both time and cost out of the supplier tiers is a key strategic process for OEMs. This leads to the second important trend in the supplier tiers: the movement towards being a systems provider as opposed to a component supplier. For example, many of the Tier 1 suppliers are now organizing themselves to be able to provide not just seats but entire interior systems. These systems have all the attributes required for the end

automobile—color, options, lighting and power—all sequenced and delivered for simple installation into the right car at the right moment on an OEM's final assembly line.

This has led to significant consolidation in the automotive supplier market. The larger companies, in addition to the acquisition and merging of various component suppliers into systems-oriented manufacturing companies, are devising joint ownership and teaming efforts, even among those that historically were competitors.

Now, Tier 1 and 2 suppliers are driven by the need to manage their businesses better: reduce errors and inventory losses, improve quality, and decrease cost and time-to-delivery by removing multiple layers of production, inventory and profit.



**In addition to the common manufacturing competitive issues shared with other discrete product manufacturing environments, the automotive industry experiences a number of additional pressures.**

### **Model/Year Issues and New Product Introductions**

Each year the OEMs introduce new models of existing cars as well as entirely new products. The ability to do this effectively spells the difference between success and profitability or outright failure. For suppliers, this means significant coordination of engineering work, synchronized delivery timings, and a need to handle materials management issues through information systems.

### **Global Competition**

International companies are now able to source and deliver components around the world. Information systems are being leveraged to minimize the need for inventory and warehousing. By utilizing existing engineering content and production facilities, companies anywhere can bid on new production and not lose to local manufacturers. Many of the larger suppliers are moving into emerging markets such as China, Brazil and Eastern Europe.

### **Environmental and Government Regulation**

In addition to the numerous regulatory agencies all manufacturers face, automotive manufacturers must also concern themselves with safety and environmental information reporting, tariffs, and process issues. This has become extremely complex as the companies not only sell but also manufacture their products in many countries, each of which has its own regulations.

### **Quality Management Conformance and Automaker Oversight**

Suppliers are under constant pressure from OEMs to conform to ever increasing quality standards. Programs such as ISO9001:2000 are considered the price of admission and many OEM manufacturers now require suppliers to achieve and adhere to QS9000 standards. QS9000 mandates additional controls and plans in the areas of production part approval processes, continuous improvement methodologies, and manufacturing capabilities improvement. Fortunately, the entire industry has adopted common quality standards. Unfortunately, these are much stricter than the requirements each OEM formerly imposed on suppliers.

### **Continual Cost Reduction Pressure From Oems**

Automakers have taken an aggressive posture in working with suppliers to determine the cost of components and future cost reduction targets. OEMs are providing education, training and cooperative engineering work to the suppliers. With this continual price pressure, suppliers look to require their suppliers to remove as many steps and as much cost as possible.

# THE STRATEGIC SOLUTION FOR AUTOMOTIVE COMPANIES

**CrescentOne has worked closely with customers to develop a seamless, agile, industryspecific solution that offers superior software functionality, integration, flexibility, and customer support for a true end-to-end enterprise system for automotive suppliers.**

GLOVIA G2 can enhance your company's capabilities with a closed loop ERP solution that satisfies requirements for both automotive suppliers and their customers. The software speeds communications across the supply chain with fully automated receiving and shipping functions and integrated Collaboration & Integration functionality (including EDI and XML) that conforms to automotive industry standards.

Because GLOVIA G2 reflects the primary business processes in automotive manufacturing, the system complements your existing business practices. You can also configure the software to meet your specific market or business objectives.

GLOVIA G2's consistently superior level of application capability—and highly competitive total cost of ownership—helps companies achieve significant operational improvement in every area:

- Flexible production schedules enable quick throughput manufacturing and dynamic daily schedules with full support for cumulative accounting methodology and sequenced production
- Seiban provides control needed at every level of the production process for items built for specific products and daily shipment requirements
- Project management provides control and visibility for R&D and product engineering projects and also helps to facilitate collaborative engineering between OEMs and suppliers
- Engineering database supports revision and engineering change visibility and control
- Integrated support for simultaneous mixed mode manufacturing: from highly engineered prototypes to high volume production
- Extensive product costing capabilities help companies measure costs accurately and monitor progress toward meeting target costs
- Advanced purchasing capabilities support today's procurement strategies including supplier releasing, blanket orders, vendor balancing, consignment inventory, automated replenishment, assembly outsourcing, and streamlined payment options
- Unique functionality, such as tool and gauge management, container tracking, and plant maintenance that extend control and visibility to every part of your operations
- Specific lot and serial identification/tracking by shipment and by container, item, as well as major components of the item
- Even if you have multiple OEM customers, the system automatically generates Advanced Shipment Notices and barcode labels with complete tracking and EDI
- System flexibility makes it easy to manage many different types and sizes of operations, multi-site operations, focused factories, and dynamic conditions like mergers, acquisitions and spin-offs, all with the same extended ERP infrastructure
- Multi-site, multi-currency, and multi-language support—incl. double byte languages—enable software standardization and functional centralization for more efficient business processes.





# SPEED ORDER PROCESSING WITH RELEASE MANAGEMENT

**GLOVIA G2 can help your company reduce order processing costs and turnaround time—and free up order processing staff for extra service to your customers. With comprehensive, closed-loop functionality, GLOVIA G2 supports quotes and price negotiations and simplifies business communications with customers and suppliers.**

With GLOVIA G2, information flows seamlessly through your entire operation, from fast evaluations of OEM releases and JIT shipping schedules, through timely production plan updates, to calculating and communicating changing requirements to your suppliers.

**The system integrates automotive release accounting with demand creation, planning, and shipping and maintains:**

- annual, semi-annual, and quarterly forecast quantities;
- contract terms and conditions;
- weekly, daily, and hourly release-to-ship quantities;

- detailed delivery information including transit offset time and delivery slot;
- monthly orders;
- quarterly, monthly, weekly, and bi-weekly raw material and fabrication authorizations;
- and cumulative quantities.

Material releases and shipping schedules are fully integrated into demand creation and shipping to provide maximum visibility of requirements and eliminate duplicate data entry. GLOVIA G2 supports Automotive Network Exchange (ANX), leading EDI standards including Edifact, ODETTE and ANSI X.12, as well as XML.

## **Deliver To Customer Requirements With Order Management And Shipping**

Comprehensive, fully integrated order filling, labeling, and shipping functionality helps you respond quickly and deliver superior service to your customers. GLOVIA G2 load planning capabilities allow you to manage lot

sizes in the way that is best for your product and customer. Quantities can be exact or rounded up or down by container size, depending on customer preferences. The solution manages returnable containers in the same way as inventory and can plan and track both consumable and returnable containers.

GLOVIA G2 provides all the information for trading partner-specific product labels, master packing labels and bills of lading, generates advanced ship notices and prints all the barcode labels and necessary shipping documents.

GLOVIA G2 notifies suppliers of changes to inbound shipping requirements and reduces errors by validating orders to part numbers, supplier identifications, engineering levels, and shipping destinations.

# IMPROVEMENTS DOWN THE LINE

## Improvements Down the Line with Manufacturing Planning and Scheduling

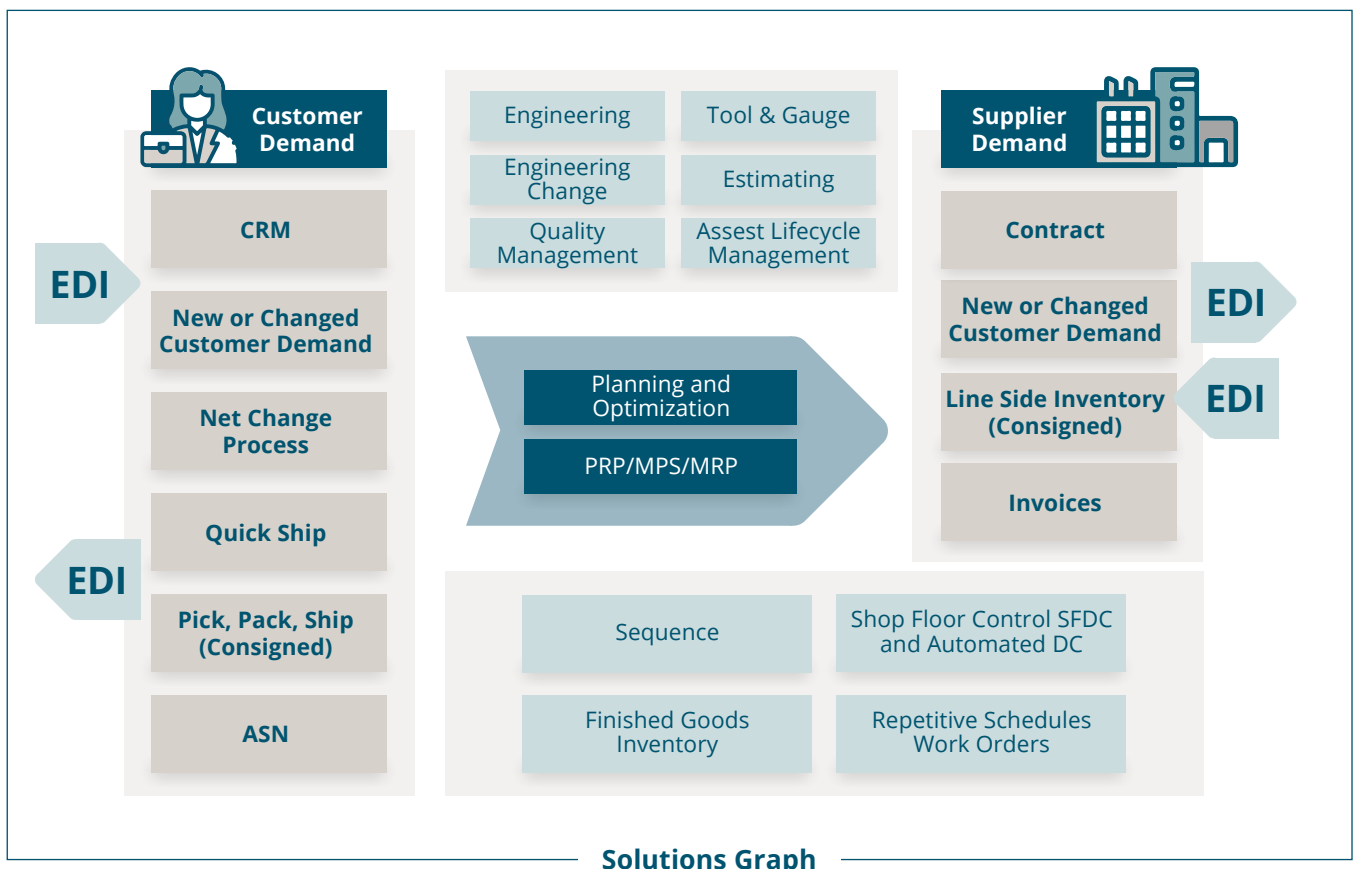
GLOVIA G2 delivers comprehensive functionality that reduces paperwork and increases your ability to meet customer requirements. Flexible scheduling for high volume repetitive production eliminates the reporting overhead of work orders without limiting production visibility. The system supports Just-in-Time production with Kanbans, a pull inventory system, and the tools you need to analyze changing material

requirements. Material releases and shipping schedules are fully integrated into demand creation and shipping to provide maximum visibility of requirements and eliminate duplicate data entry.

## Streamline Operations with Production Planning

Production schedules can be created automatically or manually—based on flow rates per item and production quantity by intervals—and easily adjusted as often as necessary when rates and demand patterns change.

GLOVIA G2 streamlines planning and control for specific products, models, and sequenced production, and supports small lot size through to high volume production methods. Current production totals are always available, as well as any deviations from scheduled rates and quantities, to alert you to anomalies requiring corrective action. Line side labeling for shipping or stacking is available, with the ability to re-label to ship, if necessary.







# MANAGE COMPLEXITY AND THE UNEXPECTED

## Manage Complexity and the Unexpected with Supply Chain and Factory Planning

The nature of the automotive industry is to source materials and inventory from more and more providers around the world to multiple locations within your extended enterprise. As your business grows, your supply chain becomes more complex. With many different demand streams to account for and multiple production choices, you can lose focus on how to fulfill customer orders most cost-effectively.

GLOVIA G2 helps you make the most effective use of enterprise-wide resources to meet demand and improve order fulfillment. The solution aggregates your enterprise-wide demand and intelligently allocates it to individual production facilities based on your strategic business objectives, such as cost reduction or customer service, while still allowing those facilities to determine the optimal way to meet demand. The result is an effective blend of centralized control and localized

optimization that increases visibility, improves responsiveness, compresses planning times, and increases customer service.

GLOVIA G2 also gives you the flexibility to accommodate schedules that are changing more rapidly and urgently than ever before. Through GLOVIA G2's dynamic scheduling—including constraints for raw materials, customer orders, machines, capacity and labor—and 'what if' analyses, you see the impact of changes before accepting them and offer accurate capable-to promise commitments.

## Optimize Resources with Superior Tool & Gauge Management

GLOVIA G2 helps your company optimize tool use and protect valuable tools inventory. The software schedules and tracks the usage of all types of tools and gauges, consumable and non-consumable, and manages tool kits and assemblies, which enables your company to manage these resources just like any other inventory. You can automate

tool purchasing, balance stock levels, maintain gauge calibration requirements, and schedule and monitor routine maintenance. With the control and visibility that the solution provides, you can achieve optimized deployment of your tool inventory while simplifying record-keeping and improving accuracy.

## Optimize Assets with Asset Lifecycle Management

Preventable equipment breakdowns cost companies dearly in lost revenues, missed deliveries, and upset customers. GLOVIA G2 provides companies with comprehensive maintenance management capabilities. The solution enables companies to reduce maintenance costs and minimize the risk of expensive breakdowns by creating preventative maintenance schedules and executing service requirements for equipment and machines. GLOVIA G2 also provides comprehensive visibility into total maintenance costs, which limits excess spending and improves decision-making for new capital expenditures.

# JUST-IN-TIME

## **Just-In-Time with Kanban**

Kanban was originally developed at Toyota in the 1950s as a way of managing material flow on the assembly line. Kanban has developed over the past three decades into a major component of Just-in-Time and Lean Manufacturing philosophy creating an optimum manufacturing environment leading to global competitiveness.

The essence of Kanban is that a supplier, warehouse, or manufacturer should only deliver components when they are needed, avoiding excess inventory. In GLOVIA G2, the monthly requirements are calculated using MPS and the number of Kanbans required is calculated. When a shipment is due, pack lists and container labels are produced. For each container label the warehouse staff will select a full container from the warehouse. The production Kanban is removed and both this and the container label are scanned. The details are compared and the operator is only allowed to proceed if they match.

When the production line has finished producing a full container of parts, the production Kanban is then placed in this container and moved to finished goods storage. To minimize data entry, all Kanbans are produced with bar codes and the system is ready to accept data entry through scanning devices.

## **Reduce Errors with Shop Floor Data Collection Automation**

GLOVIA G2 includes a real-time, mobile or fixed data collection interface. The solution supports radio frequency and hardwired terminals, laser and thermal barcode printers, fixed mount barcode readers, relays, reader boards and other serial or Ethernet devices, as well as radio frequency identification (RFID). The power of the product is realized in the flexibility of device types, real-time data access and ability to handle multiple locations in variable configurations. Shop floor data collection automation helps customers by increasing productivity, reducing errors, cutting inventory costs and improving customer satisfaction.

## **Streamline with Lean and Demand-Driven Manufacturing**

Since its inception as a Lean production tool for Xerox in the 1970s, GLOVIA G2 has enabled manufacturers to realize the tremendous benefits of Lean. GLOVIA G2 is now one of the leading enterprise applications that support lean manufacturing strategies. Many Glovia customers have transformed their operations with GLOVIA G2, including several manufacturers that are recognized around the world for their Lean, demand driven business models.

The key to this success is GLOVIA G2's ability to support, enable and complement the key technical elements behind Lean Manufacturing: Visual Control; Standardized Work; Set-up Reduction and TPM; Cellular Production; Mistake Proofing; Takt Time; Continuous Flow; Leveled Production; and Pull System.

Demand-Driven manufacturing in automotive suggests a system of cascading production and delivery instructions from upstream to downstream activities in which the downstream supplier waits until the upstream customer signals a need. This accommodates customer need for a more controlled inventory environment and provides improved cash flow, inventory reduction, and overall better material flow management. The purpose of "pull" versus "push" methods is to offer customers an inventory program alternative to traditional blanket orders, bin stocking, and consignment programs. This allows you to take advantage of bulk quantity pricing while maintaining minimum inventory levels in house.

# SPAN THE GLOBE

## **Span the Globe with Collaboration & Integration**

Many manufacturers have already made significant investments to streamline their internal processes and squeeze costs from their operations. To realize further improvements and remain competitive, they need to invest in solutions that help them integrate with their customers and trading partners to share information seamlessly and automate critical processes.

GLOVIA G2 includes a comprehensive set of applications and infrastructure technology that integrates disparate systems and enables your operations for e-business. The solution facilitates the rapid transfer of large amounts of data between GLOVIA G2 and other applications, keeping GLOVIA G2 synchronized with your other systems. GLOVIA G2 supports e-commerce initiatives with EDI and XML functionality and provides a platform for true e-business and collaboration.

The solution enables manufacturers to increase supply chain visibility and transparency, decrease response times and automate key business processes. Based on an open XML platform, the solution includes inbound and outbound XML transaction sets, XML data synchronization capabilities and functionality for trading partner management, workflow, and transaction automation.

GLOVIA G2 also supports the latest technology and industry standards including J2EE, SOAP, UDDI, ebXML, CORBA and RosettaNet.

## SUMMARY OF BENEFITS

### **BUSINESS PARTNERSHIP**

We know that Automotive manufacturers are not looking for a software vendor as much as a solution partner. From the start, we work to establish a partnership based on the ongoing value that we offer to your business. We provide one of the industry's lowest total costs of ownership. One customer concluded that their Glovia investment was 1/10th what they would have paid for the same solution from another provider.

### **PROFESSIONAL SERVICES**

Our services professionals help you realize immediate and ongoing value from your solution. We work closely with you to define your strategic plans, operational tactics, and business requirements. We then bring together an experienced team of professionals to deliver a complete business solution at exactly the pace you want, fully leveraging your existing investments so you gain tangible benefits right away. We come in, get you up and running—and in control.



# ABOUT CrescentOne

**CrescentOne is the leading supplier of ERP solutions for the discrete manufacturing industry. The GLOVIA G2 ERP platform offers complete solutions for automotive, capital equipment, electronics & electrical engineering, and the high-tech industry. Thanks to these extensive solutions, companies in the manufacturing industry can manage the entire life cycles of their products – from design, production and delivery to installation, maintenance and support and implement Industry 4.0 concepts and solutions.**

As of September 2021 CrescentOne is part of FOG and the Constellation family. FOG is an independent operating group of Constellation Software Inc., (“CSI”) which is listed on the Toronto Stock Exchange [TSX:CSU]. CSI and FOG acquires, manages, and builds software companies in a variety of vertical markets. Constellation Software is an international provider of market-leading software and services to a number

of industries. Their mission is to acquire, manage and build market-leading software businesses that develop specialized, mission-critical software solutions to address the specific needs of the particular industries.

The company was founded in 1995 to assemble a portfolio of vertical market software companies that have the potential to be leaders in their particular market. Since then, they have grown rapidly through a combination of acquisitions and organic growth, and established a strong constellation of companies with a large, diverse customer base.

They have six operating groups which currently service customers in over 100 different markets worldwide. With headquarters in Toronto, Canada, and offices in North America, Europe, Australia, South America and Africa, they have over 25,000 employees generating consolidated revenues exceeding US \$4 billion.

## CrescentOne

**HQ global:** Los Angeles, US

**HQ EMEA:** Eindhoven, the Netherlands

**Solutions:** Manufacturing ERP software and solutions for discrete manufacturers

**Implementations:** around 1,000 worldwide

Active member in innovative Industry 4.0 initiatives in the Benelux, such as Industry 4.0, Brainport Industries Campus (BIC), Factory of the future, Smart Connected Supplier Network (SCSN) and PXL Smart Factory (Diepenbeek, Belgium)

## Constellation Software, Inc.

- 19.000 Employees
- 1.000+ Offices
- Headquarters in Toronto
- 125.000 Customer in 100+ countries
- 700+ Acquisitions since 1995
- \$ 4.5 Billion in revenue
- 20% 10 year CAGR (Compound Annual Growth Rate)



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