Crowe® Automotive Accelerator for Microsoft Dynamics® AX
A Powerful New ERP Tool for Automotive Suppliers
As the automotive industry adapts to a rapidly changing global economy, tiered suppliers continue to struggle with aging information technology and management systems that are no longer adequate to the task, leaving them vulnerable to global competitors. Even after wrestling for years with piecemeal upgrades to their aging enterprise resource planning (ERP) systems, many suppliers have been hesitant to embrace totally new systems since few vendors have offered genuinely effective alternatives.

Today, however, that situation is changing: Crowe Horwath LLP is building a record of success in implementing Microsoft Dynamics AX, a powerful ERP solution that can deliver value quickly and enable automotive suppliers to respond quickly and effectively to the requirements of their customers while managing their internal work process more efficiently.
New Challenges: Why Yesterday’s Tools Are No Longer Adequate

Suppliers in the automotive manufacturing industry are facing a crucial moment as they adapt to a rapidly changing economy and at the same time respond to new demands and challenges from original equipment manufacturers (OEMs) and large, Tier 1 automotive suppliers.

As the industry weathered the economic downturn, many suppliers postponed needed upgrades to their legacy information systems. Today they can delay no longer. Their aging IT and production management systems are not adequate to meet the challenges of the new, global economy, and they find themselves losing ground to aggressive global competitors as they struggle to respond to their customers’ new requirements.

This situation presents suppliers with a difficult choice. One option is to continue struggling to upgrade a multitude of aging, disparate, and disconnected information systems, many of which were internally developed or are no longer supported by major vendors. Another option is the daunting challenge of choosing, qualifying, and implementing a new system provided by one of the traditional ERP vendors, an option that is complicated by the major expense involved and the lack of suitable choices that can smoothly accommodate the industry’s highly specialized requirements.

Finding neither of those options particularly appealing, many suppliers are searching for a more viable alternative that offers flexibility, a proven history of success, very deep support, and superior integration with other business systems.

Fortunately, such a solution is now available. Microsoft Dynamics AX offers a powerful ERP solution that, when coupled with Crowe professionals’ extensive experience with the Microsoft Dynamics platform and long-term record of success in the automotive industry, enables tiered suppliers to respond nimbly and effectively to the new automotive environment.
The Chronology: How the Industry Reached This Point

Throughout most of its history, the automotive industry has been characterized by continuing OEM pressure on tiered suppliers to reduce costs, increase output, improve quality, and deliver more frequently. Often OEMs and Tier 1 suppliers demanded “givebacks” in price, which further tightened suppliers’ already-thin margins. In addition, the cyclical nature of the industry further challenged suppliers’ plans for growth and expansion.

In recent years, these pressures intensified as a result of the economic downturn, which exacerbated the industry’s technology challenges in several ways.

Four Factors That Intensified the Technology Challenge

■ Fiat revenue and tight margins made it difficult to support large investments in new enabling technology, leaving many suppliers to make the best of their current investments.

■ Significant technology spending was put on the back burner as every dollar was focused toward leaner processes or more productivity – doing more with fewer resources. Many suppliers have not made a major technology investment in their supporting systems for a decade or more.

■ Because few automotive suppliers had adequate capital budgets to support a transformational software development effort, major software vendors were reluctant to invest heavily in systems and solutions tailored for the automotive industry.

■ Some startup operations have attempted to adapt low-cost alternatives such as cloud or software-as-a-service (SaaS) solutions, but so far these have lacked the strategic, long-term staying power needed to effect a transformational technology.

Why Software Makers Did Not Adequately Respond

■ Makers of mainstream automotive ERP solutions, responding to the shrinking revenue base in their target market, have delayed investment in upgrades to their core technology platforms. Increasingly, the dominant midtier software players have relied instead on adaptations of older technology to meet today’s industry demands. In addition to reducing research and development (R&D) expenditures, this has the effect of maximizing the vendors’ return on their existing installed customer base.

■ The inevitable outcome of this strategy has been an ongoing consolidation among software providers. Some established companies and their solutions were absorbed by other companies, while major vendors continued to offer separate, nonintegrated solutions for functions such as program management, engineering change, and release accounting.

Three Additional Concerns Today’s Suppliers Must Face

■ As their customers respond to competitive market issues by assessing platforms more strategically, many suppliers now face the need for greater diversification as they serve multiple OEMs, Tier 1 suppliers, and international platforms.

■ Today’s automotive suppliers must also be able to support long-term growth while responding to the continually evolving requirements of their customers for further advancements in specific technologies such as electronic data interchange (EDI), release accounting, lean manufacturing, and in-line vehicle sequencing (ILVS) support.

■ At the same time, tiered suppliers must address vulnerabilities in their own supply chains to ensure a continuous flow of critical components.
Inadequate Choices: How Suppliers Have Struggled to Respond

With their customers managing an economic upturn, a changing market, and seriously outdated legacy systems, automotive suppliers must take a hard look at their systems. Traditionally, they have been forced to choose from three unsatisfactory alternatives.

Adapt and Patch Existing Legacy Systems

- It is quite common for today’s automotive suppliers to be wrestling with a patchwork of largely custom system applications that are supported and maintained by their own internal IT resources. In such a scenario, the company takes on nearly total risk and responsibility for maintaining critical customer-facing interfaces, new functionality updates and improvements, and the integrity of existing programs and databases, along with all necessary documentation and support services. Many companies are finding they have reached the point where their current system architecture has become too complex to advance, creating significant barriers to future changes in system design.

Install Expensive, Traditional ERP Solutions

- The significant capital investment required for most of the presumed conventional ERP solutions represents a serious hurdle for most automotive suppliers and is particularly difficult to overcome when long-term total cost of ownership is considered. In addition, traditional choices in this area present important disadvantages for automotive application, such as a lack of industry-specific tools and applications.

Take a Chance on Niche Solutions

- While smaller niche players have occasionally attempted to address automotive industry specifics, they invariably suffer from a lack of integration among system components and a lack of transparency with customer systems. Moreover, their unproven histories and often-limited resources raise questions about the vendors’ long-term viability – and their platforms’ ability to keep up with future changes in technology.
What Every Manufacturer Requires From an ERP Solution

Regardless of the specific industry, an ERP solution must be capable of providing certain fundamental advantages in order to be considered a potential candidate for adoption in most businesses. At the most basic level, the enterprise solution and reporting platform must:

- Be capable of improving the company’s overall operation, lowering costs, and reducing risk
- Consolidate existing systems and data sources into one “single source of truth” to meet operational, financial, and management reporting needs
- Enable complete integration of financial and operational processes into one platform
- Produce time savings and process efficiencies by eliminating manual and redundant process steps and data maintenance
- Employ centralized, flexible reporting and analysis tools to monitor ongoing performance and facilitate better decision-making
- Implement a structured knowledge base to eliminate the risk and vulnerability associated with having only individual knowledge sources
- Be adaptable to support future organizational strategies and initiatives
- Cause internal teams to follow corporate policies and adhere to industry best practices, customer requirements, and government and industry regulations and standards

Virtually all major ERP platforms can legitimately claim to address these general concerns. But in the automotive industry, meeting these minimal requirements is simply not enough.

Additional Concerns an Automotive ERP Solution Must Address

An effective automotive supplier ERP platform must support and integrate a broad range of industry-specific planning, scheduling, engineering, inventory, production, and reporting functions including:

- **EDI support** – including real-time supplier and customer communication as well as breadth of support for applicable EDI transaction requirements
- **Release accounting** – handling replacement logic based on OEM, division, plant, or product group; including different rules by plants to handle cume quantity, lead time calculation, model year changes, prices, and engineering revision levels
- **Program management** – including estimating and cost-tracking capabilities
- **Engineering change notice/management (ECN/M)** – including change request/order management, automated task workflow tracking, bills of material/routing, and update management
- **ILVS support** – including automated workflow of 866 and 862 transactions through manufacturing and distribution sequencing
- **Lean manufacturing** – including sales-based scheduling, demand-pull production support, kanban management, and process flow tools
- **Bar code labeling and shipment verification** – to enable automated shipping, receiving, and inventory management functions, including standards required under industry regulations such as MMOG/LE
- **Quality management** – to address the policy, engineering, and product-planning aspects of quality as well as the necessary day-to-day operational procedures
- **Supply chain management** – using proven principles to strengthen and streamline the entire procure-to-pay process and life cycle
A New and Better Alternative: Crowe and Microsoft Dynamics AX

Fortunately, the list of technology options – most of which are not overly appealing – facing automotive suppliers can now be expanded to include a much more promising alternative: Microsoft Dynamics AX. When implemented by experienced technology teams from Crowe, this solution can enable automotive suppliers to reduce time to market, improve production throughput, and more effectively link supply chains to planning and production.

The advantages of Microsoft Dynamics AX over other alternatives include flexibility, deep support, and superior integration with other systems. Furthermore, this flexible ERP platform can empower automotive suppliers to generate additional revenue growth from both current and new customers, reduce costs, and improve overall resource utilization.
A Closer Look: 
Crowe Automotive Accelerator

The introduction of Microsoft Dynamics AX marked more than just the next release of a proven software product. It is, in fact, a generational shift in business software, providing automotive industry suppliers the principal capabilities they need to respond to the industry’s ever-changing requirements while also reducing time to market, improving plant-floor production, and enhancing supply chain integration.

Crowe implementation teams are experienced and are building a record of success in configuring the Microsoft Dynamics AX platform to accommodate the highly specialized functions required by automotive suppliers.
EDI
- Real-time communications throughout the supply chain using multiple protocols
- Support for all major EDI standards such as ANSI X.12, EDIFACT, and Odette
- Standard, out-of-the-box mapping for all major OEM documents
- Linkage among OEM and supplier production scheduling, inventory, and distribution systems
- Simpler, more reliable, and more cost-effective interface with no third-party translator
- Fully integrated within Microsoft Dynamics AX

Release Accounting
- Replacement logic specific to OEM, plant, product group, and document
- Rules (lead time calculation, standard package quantity, selling price, model year changes) specific to OEM, plant, and product group
- Cumulative quantity based on OEM receipt, supplier shipment, and no-netting functionality
- Validation and generation of ASN documents that are fully compliant with OEM standards
- Payment processing
- Processing and tracking of ordering numbers (PO numbers, Kanban numbers, and RAN numbers)
- Processing of miscellaneous charges based on OEM, plant, or product group
Program Management
- Tracking of entire part life cycle – from prelaunch through service
- Estimating
- Creation of formal quote documents
- Tracking of change history
- Tracking of program costs (e.g., tooling and prototyping) and comparison to budgets
- Tracking of PPAP status
- Logging of customer communications history

Lean Manufacturing
- Sales- and release-based scheduling including time establishment and automated handling of sales orders linked to production pull signals
- Demand-pull production support including production leveling and sequencing tools such as heijunka boards, constraint loading, and similar technologies
- Assembly or production schedules generated directly from sales orders and releases, eliminating the need for separate production orders
- Schedule visibility from book to order and cumulative perspectives
- Kanban management encompassing both point-of-use and pull-on-demand replenishment systems employing a variety of triggers
- Automated approval routings and electronic signatures
ILVS Support

- Support for 866 and DELJIT
- Receipt and interpretation of production sequence data
- Setup sequencing rules at the OEM, plant, or product level
- Sequencing at the production or shipping stages
- Interfacing with programmable logical controllers (PLCs) for verifying (poka-yoke) and tracking production

Bar Code Labeling and Shipment Verification

- Bar code labels generated directly from Microsoft Dynamics AX in compliance with Automotive Industry Action Group (AIAG) guidelines
- Bar codes on shipping documents
- Creation of mix and master shipments
- Specification of which document is to be used for shipping based on rules set up by OEM, plant, or product group
- Establishment of validation rules for ASN based on OEM and plant
- Reporting and inquiry functionality for shipments
Quality Management
- Support for all aspects of quality management including policy and procedures, quality-related engineering concerns, and operational and production quality considerations
- Incorporation of proven and recognized quality management principles and programs such as failure mode and effects analysis (FMEA) and advanced product quality planning (APQP)
- Compliance with relevant AIAG quality management guidelines

Supply Chain Management
- Extension and coordination of kanban throughout the supply chain
- Automated receipt procedures and preconfigured material routing
- Improved real-time visibility of forecast demand and significant data trends
- Support for kanban replenishment and vendor-managed inventory initiatives

Engineering Change Management
- Creation and management of engineering change requests (ECRs) and generation of engineering change orders (ECOs)
- ECO prioritization, task workflows, notifications, and time tracking
- Management of items, bills of materials, and routes
- Management of engineering revisions and incorporation of changes
Putting Microsoft Dynamics to Work

The Crowe Microsoft Dynamics AX implementation team is recognized for the deliberate and detailed planning it employs as well as for an implementation framework that covers the five critical phases of an implementation.
A Long-Standing Commitment to the Automotive Industry

Crowe has a long history of working with automotive suppliers and consulting on specific industry technology solutions. In that time our teams have developed exceptionally deep and specialized knowledge of the challenges of the automotive industry.

In addition to specific experience with ERP solutions, the Crowe team has dedicated resources that focus on a broad range of industry issues including ongoing performance improvement initiatives such as supply chain optimization, IT implementation initiatives, agile or lean manufacturing support, and improved product life cycle tracking. Through the many cyclical variations that have long been an automobile industry feature, Crowe has remained heavily invested in the industry, actively collaborating with industry participants of all sizes.
Why Choose Crowe and Microsoft Dynamics?

With technology playing an essential role in virtually every aspect of your business, it is imperative to choose the right organization to collaborate on major software projects. Dozens of vendors offer implementation support for Microsoft® products, but a successful project depends on much more than technical competence alone. Over the course of more than 30 years of technology consulting, Crowe has developed a proven approach to this increasingly important process – an approach that is built on five significant attributes Crowe brings to every relationship:

■ **“Business-First” Approach**
  At Crowe we are firmly committed to the principle that technology solutions must be tailored to match your business – not the other way around. Rather than adapting your business’s processes and priorities to work within the technology platform’s limitations and constraints, Crowe insists that technology decisions must always be driven by bottom-line business considerations first. Of all the many advantages Crowe offers, clients tell us they value this attitude most.

■ **In-Depth Understanding of Your Business and Industry**
  In addition to technological expertise, Crowe offers in-depth thought leadership across a broad range of essential business and management issues and concerns. Crowe experience encompasses major economic sectors including automotive, construction, financial services, food and commodities, government, healthcare, higher education, manufacturing and distribution, not-for-profit organizations, and private equity groups. Crowe client teams are typically led by executives who draw on direct, real-world experience in their specific industry or sector to augment their successful consulting backgrounds.

■ **Ability to Bridge the Gap Between Microsoft and High-Value Users**
  Just as Crowe is recognized for its exceptionally close client relationships, it is also widely recognized for its strong relationship with Microsoft. This enables Crowe to take an active role in the development of specialized configurations and industry-specific accelerators – a capability that works to everyone’s benefit. Clients gain a clearer “big-picture” understanding of the technology universe, while Microsoft development teams gain valuable real-world input to help them identify unmet needs their technology can address.

■ **Long-Term Client Commitment and Service**
  Successfully implementing business technology is a process, not an event, so Crowe is committed to providing long-term support. Once the initial software configuration and implementation projects are complete, the Crowe team stays with you for the long haul, developing and upgrading training and user-support capabilities, monitoring platform upgrades and revisions, and helping you identify critical new features and add-ons that can have a direct, bottom-line impact on your business.

■ **Certifications and Proven Technical Capabilities**
  As a strategic implementer of technology solutions, Crowe is one of a very few select companies that have been named:
  - A Microsoft Gold Certified Partner in Information Worker, Integrated eBusiness, Security, and Microsoft Business Solutions
  - A 2010 President’s Club for Microsoft Dynamics member
  - A 2010 Inner Circle Winner for Microsoft Dynamics
  - Microsoft Security Partner of the Year
  - Microsoft CRM Partner of the Year

Above all, Crowe clients repeatedly express their appreciation for the Crowe team’s ongoing commitment to putting their needs first. It’s a commitment Crowe has honored consistently over the course of more than 60 years of general consulting experience that encompasses not only technology but also the people and processes that make technology work.
Contact Information

Josh Cole is a principal with Crowe Horwath LLP and specializes in advisory services to the manufacturing and distribution industry. He can be reached at 616.752.4274 or josh.cole@crowehorwath.com.

If you would like to start receiving information via email about topics of importance to you, please sign up on our website at www.crowehorwath.com/emailsingup.

Crowe Horwath LLP, The Unique Alternative®

Crowe Horwath LLP (www.crowehorwath.com) is one of the largest public accounting and consulting firms in the United States. Under its core purpose of “Building Value with Values®,” Crowe uses its deep industry expertise to provide audit services to public and private entities while also helping clients reach their goals with tax, advisory, risk, and performance services. With a total of more than 3,000 personnel, Crowe and its subsidiaries have offices coast to coast. The firm is recognized by many organizations as one of the country’s best places to work. Crowe serves clients worldwide as an independent member of Crowe Horwath International, one of the largest global accounting networks in the world, consisting of more than 150 independent accounting and advisory services firms in more than 100 countries around the world.