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## **Frank Ewasyshyn, Management Briefing Seminars, Traverse City, Mich.**

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### **Opening**

- In times like these, everyone has to do more than they ever did before
- Can't do anything the way you did it previously except things you've done really well
- Everything else is up for change and improvement no matter whether it involves \$100, \$1,000 or \$1 million
- Everything has to be challenged ... taken apart ... put back together in a better way
- Must do way more with a lot less than ever before

### **Industry Trends**

- Manufacturing isn't in a vacuum – it exists in context of larger industry and society trends
- Fragmentation – U.S. auto market gone from 181 models in 2000 to 306 today (70% increase) – means fewer big volume models
- Fast-changing market trends – need ability to respond fast
- Customers have high expectations of quality
- Intense competition requires lean operations
- Energy and environmental concerns – not just product but plants

### **Harbour Report Results**

- Efforts are showing results as proven by Harbour Report
- Seven years ago, Chrysler dead last among major manufacturers in Harbour Report
- When we told media our goal was to stand shoulder-to-shoulder with Toyota in operational excellence by 2007 – they thought we were smoking something!
- This year Chrysler equaled Toyota for No. 1 spot in Harbour
- HPV improved by 31.4% over 7 years
- Took nearly 14 hours per unit out of process to assemble a vehicle, including major components – now 30.37 HPV
- In dollar terms – we've saved a total of \$2 billion as a result of productivity improvements over past six years
- In 2007 alone, HPV improved 7.7%
- Improved in each of 4 manufacturing areas:
  - Vehicle assembly by 9%
  - Stamping improved 5.7%
  - Engine assembly by 7.1%
  - Transmission assembly by 1.0%

## Top Performers

- Chrysler had 4 of Top 10 assembly plants
  - No. 1 Toledo Supplier Park (Jeep Wrangler/Wrangler Unlimited) – best-performing assembly plant in NA with record 13.57 hours
  - No. 4 Belvidere (Dodge Caliber, Jeep Compass/Patriot)
  - No. 8 Jefferson North (Jeep Grand Cherokee/Commander)
  - No. 9 Brampton (Chrysler 300, Dodge Charger/Challenger SRT8)
- GEMA best-performing engine plant at 1.84 hours, 31.3% improvement from previous year
- Vehicle-segment leaders in 3 categories for assembly plants
  - Belvidere – non-premium conventional and compact non-premium CUV
  - Jefferson North – mid-size non-premium utility
- Mack I Engine Plant best in 8-cylinder OHC category
- Chrysler top performer in Transmission Assembly at 3.36 hours per transmission, 1% improvement from last year
- Kokomo Transmission Plant No. 1 in Front Wheel Drive category
- Both Canadian assembly plants in Top 2 of their categories
  - Windsor Assembly No. 2 in midsize non-premium van
  - Brampton No. 2 for large non-premium conventional vehicle

## Manufacturing Equation

- Chrysler manufacturing has evolved to respond to larger trends
- Learned a lot – saving millions of dollars, a thousand dollars at a time
- Not easy to improve flexibility, efficiency and quality when you're cutting production – but you have to find a way
- Manufacturing success is an equation – everything has to add up
- Success factors include:
  - Flexibility in plants
  - Business Model Flexibility
  - Smart Manufacturing
  - Better operator utilization
  - In-station quality
  - Supply and logistics
  - Energy savings
- Let's take a closer look at these factors

## Flexibility in Plants

- Flexibility a key enabler of everything we do
- Must be able to build multiple models in a plant
  - Examples: Belvidere (Dodge Caliber, Jeep Compass/Patriot); Brampton (Chrysler 300, Dodge Charger/Challenger and variants)
  - Windsor Assembly paint shop can accommodate dimensions of at least 11 different body styles
- Flex models between plants – e.g., Belvidere/Sterling Heights
- Rolling launches – e.g., at Brampton – pre-production Challengers built and tested on same line as 300s and Challengers
  - Speed to market: It took just a little over two years from Dodge Challenger's concept car introduction to the time it was in dealerships.
- Underbody pallet systems – enables build of different kinds of models
- Flexible robotics – took advantage of key advancements in robotics and lower costs
- Belvidere our first plant with body shop completely comprised of robotics

- Currently build three products on same line – can do as many as four
- Will be easy and cost-efficient to change-over to next-generation models by simply changing software programs and end effecters
  - Zero down-time, 90% cost savings
- Belvidere was springboard – but we continue to change and improve as move forward

### **Business Model Flexibility**

- Toledo Supplier Park a first for North America – three supplier partners manage and operate major parts of production process from within plant's footprint
  - Magna Steyr operates paint shop
  - Kuka Group responsible for bodies
  - Hyundai Mobis assembles chassis
  - Allows us to save capital to invest in products
- Contract manufacturing
  - Building VW Routan in Windsor Assembly
  - Will build truck for Nissan in Saltillo
- Kokomo Transmission Plant
  - Lease part of plant to Linamar
  - Linamar to manage 200 Chrysler employees
  - Produce powertrain components for Phoenix V-6 and Getrag dual-clutch transmission, other customers

### **Smart Manufacturing**

- Need flexible work force to truly achieve flexibility
- Smart Manufacturing and Workplace Organization Model are major drivers in productivity improvements
- Empowers plant employees and fosters greater creativity and innovation
- Team-based structure with flexible job classifications
- Small teams run their areas, dedicated to continuous improvement, problem solving
- Jobs rotated, work practices standardized
- Indiana Transmission Plant II in Kokomo
  - Smart Manufacturing implemented in collaboration with UAW
  - Design of transmission and manufacturing processes enable multiple models of transmissions to be built for different
- Smart manufacturing spreading through our system
  - Implemented in 2007 at St. Louis South and Windsor, which aided in launch of redesigned minivan
  - Sterling Heights saw additional improvements as Smart program reached further maturity levels

### **Better Operator Utilization**

- Reduction in hours through better design for manufacturing – easier to build
- New minivan achieved over 30% improvement in EHPV
- Improvements in ergonomics
- Increased modularity

### **In-station Quality**

- Getting it right first time – don't need additional time for repair

- Improved quality thanks to reduced operator error and product improvements leads to increased throughput
- From baseline in June 2006: improved nearly 50% in 2007; improved another 25% through June 2007
- RT minivan vs. RS – built-in-station quality similar at start for both, but much faster progress on RT

### **Supply and Logistics**

- Point-of-use delivery of parts
- Belvidere inbound parts sequencing center operated by TDS/US
  - Pre-assembled modules delivered JIT
  - Maintains in-plant stocks at optimum levels
  - Reduces costs
- Work with suppliers to share cost savings
  - Eliminate waste caused by production-schedule changes, late engineering changes
- More efficient racks

### **Energy Savings**

- From 2002-2007, plant CO2 emissions reduced 16% on per-vehicle basis
- Plant energy usage down 15% on per-vehicle basis
- Newark and GEMA plants achieved zero-waste-to-landfill
- When you reduce shifts, can't ignore energy issues
- Wide range of energy initiatives
  - Land fill gas generates steam at St. Louis Assembly
  - Paint sludge hauled to local utilities who burn with coal to generate electricity
  - Optimized operation of heating/cooling systems
  - Applying powder tu-tone in the same booth as powder primer, and eliminating a separate liquid tu-tone color spray booth and oven
  - Systematic approach to identify and repair compressed air leaks

### **Focus on Quality**

- We know we can't just excel in one area – must excel in both productivity and quality
- Warranty costs are down by 29% year-to-year, indicating our progress in quality
- Improvements in Harbour demonstrate what we can accomplish
- Some successes in J.D. Power IQS also show what we can do
  - Dodge Durango/Dakota finished top of segments, PT Cruiser second; Pacifica most improved
  - Overall improved 5 points in latest study – 155 to 150 problems per hundred
- Flexibility and Smart Manufacturing also will be keys to quality improvements
  - Small teams on plant floor continually refine quality processes
- Six Sigma – reduction in variability by consistent approaches and problem solving
  - 44 top manufacturing executives are being trained in Six Sigma by U-M

## **Customer Satisfaction Teams**

- Quality requires discipline across entire enterprise
- Seeing more collaboration across the company
- Cross-functional teams measure success only by improving quality scores
- Not out to assign blame -- eliminates defensive "not my fault" attitudes
- Between 6-15 problem solvers per team
- 18 teams, one for each vehicle system (engine, HVAC, interior, wiring etc.)

## **Close**

- One constant in our business is change – market, economy, business structure, everything
- Chrysler blessed with a lot of tough, committed people who do what it takes to get the job done
- Proud of what we've accomplished in productivity but can't rest on laurels
- Quality – entire organization driving hard to identify, make visible and solve
- We've proven that when we pull together we can meet a challenge

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