The Joint Development of a Global Vehicle
The Ford Escape and the Mazda Tribute

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Market climate

- Smaller, more fuel-efficient and refined domestic SUV
- Generation X and Echo-boomers
- High-quality, high-economy vehicle
- The target customers
  - 70% will come from cars. In many cases, second car out of college; first was a used car
  - People who want the utility of an SUV but not the size
  - Young married couples, small families, and empty nesters. Age dispersion from 25-60 years old.
  - One-half of buyers expected to be women
  - Customers who had stayed away from SUVs because of size, fuel-economy, refinement, and wanted something fun to drive
Ford and Mazda

- Ford didn't have open engineering capacity
- Mazda didn't have open US-based manufacturing capacity
- Integration of effort.
  - Ford assumed responsibility for Manufacturing.
  - Mazda to lead product development.
Difference or Distinctions? (1/3)

- Disparate cultures - both corporate and geographical
- Language barriers
- Time differentials
- Knew very little of one another's personal and professional cultures, processes, capabilities, or markets
Difference or Distinctions? (2/3)

• **Mazda** – "Everyone knows everyone" and "Everyone knows their job"
  - Spent much more time up front, developed information and consensus before proceeding.
  - Patient and methodical, lean production focused, lean product creation focused.
  - Although led by non-Asian directors, Mazda as a company remained very Japanese in culture and identity.

• **Ford** – more impersonal
  - Somewhat open-minded
  - Quicker to drive to decisions, less patient, and broad in their thinking
  - Mass production oriented.
“There was no "right" and "wrong" to either cultural preference. There were simply distinctions. One of the most important things, right off the bat, was to use those distinctions to our advantage, and to find and emphasize synergies.”

Keith and Yoshihito
Global collaboration

• The Ford Probe/Mazda MX6 was Mazda led. The Ranger and Mazda B-Series was Ford led and the J97 Thailand Ranger was Mazda led.

• Four vehicle lines
  - Left-hand drive (LHD) Escape and left-hand drive Tribute assembled in Kansas City
  - Right-hand drive (RHD) Escape and right-hand drive Tribute assembled in Hofu.

• Kansas City products use virtually all components supplied by traditional Ford North American vendors while Hofu products are dependent on traditional Mazda Japanese and Asian supply base.

• Only the roof panels, windshields and front-door glass are shared.
Challenges to Accomplish Common Process (1/4)

- Human infrastructure differences
- Level and balanced schedules
- Robust and capable process
Challenges to Accomplish Common Process (2/4)

- Human infrastructure differences
  - Seniority vs. meritocracy
  - Team based vs. traditional individual worker roles
  - Culturally, racially, and gender diversity versus homogeneous workforce
  - Strong supplier interface versus independent and autonomous relationships.
  - A passion and focus on continuous improvement, waste reduction, and standardized work
Challenges to Accomplish Common Process (3/4)

• Level and balanced schedules
  - RHD/LHD
  - 2WD, 4WD, automatic transmission, manual transmission, 3 models of Ford, 3 models of Mazda, two engine configurations, front and side airbags, ABS, and at least 10 free-standing options
  - The Pacific pipeline (40 days) of components and uncertainty in transportation enhanced by the sheer distance across the Pacific Ocean
Challenges to Accomplish Common Process (4/4)

• Robust and capable process
  – Mazda built their own tools for final assembly in conjunction with a Keiretsu supplier. The opposite was true in the U.S. Tooling suppliers were very much independent and OEM or supplier employees were not involved until actual tool tryout.
  
  – Further, Mazda was accustomed to error proofing everything through early manufacturing involvement and Mazda-supplier involvement (Poke-yoke).
  
  – Another major source of capability and robustness was Mazda's religious obedience to the SDCA principal – Standardize, Do, Check, and Adjust.
Mass Production vs Lean

- **57.5 Jobs Per Hour (JPH) Mass production**
  - 270,000 units per year at Kansas City plant
  - One vehicle, two brands.

- **8 Jobs Per Hour (JPH) Lean production**
  - 40,000 units per year at Hiroshima (Hofu 2) plant
  - Four vehicles, two platforms. Mazda 6, Premacy, Mazda Xedos9, Tribute
Summary

• **Products:**
  - The two vehicles successfully share the same platform and architecture, but each one has the elements that help delineate the vehicle's personalities.
  - The vehicles share the same basic powertrain and chassis construction, but provide unique driving experiences through steering gears, suspension tuning, shocks and transmission shift points to support the unique brand promise.

• **Process:**
  - Joint Programs will play a critical role in the strategies of future automotive industry.
  - The form of Joint Programs has been diversified and has been constantly evolving.
  - Joint Programs provide both strength and weakness.
  - Communication is the key to success in different languages / different cultural environments.
  - Improvement in language skills and understanding cultural differences are essential.
What went right (1/2)

• Products a great success:
  – Sold-out, even after two increases in plant capacity
  – Numerous media awards
• Fast product creation cycle time – 28 months from program approval to Job 1
• Among the lowest warranty in Ford within 24 months of launch.
• Lowest incentives of any light truck in the U.S. Market
• $400 million PBT (Profit Before Tax) for CY2002
• Leadership (both domestic and international) in the car-based SUV segment
What went right (2/2)

- Huge learning experience between Ford and Mazda
  - Cross-cultures
  - Cross-functions
  - Cross-time zones
  - Cross-geographies
  - Cross-processes
  - Cross-languages
  - Cross-markets
- Model for future collaboration created
- Cross-market standards refined and harmonized
- Low-emissions vehicle (LEV) and hybrid powertrain was enabled
- Improved capacity utilization in the U.S. and Japan
- Financial merit shared development costs and reduced part and vehicle costs
Barriers and Enablers