



The 'New Economy' of Auto Steel: Learning at the Regional and Firm Levels

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Channels of Steel Learning

- ✦ R&D
- ✦ Mergers, joint ventures
- ✦ User-producer interface
- ✦ FDI
- ✦ Private-Public Partnerships
- ✦ Steel companies, universities and community colleges

Two Competing Themes

- ✦ Regional learning cluster
 - ✦ Traditional Integrated Producers
 - ✦ NAFTA auto-steel cluster
- ✦ Industry-driven system integration
 - ✦ Minimills, service centres

Steel-Auto Link: Traditional

★ Big 3 Steel

- ★ Stelco
- ★ Dofasco
- ★ Algoma

★ Big 3 Auto

- ★ GM
- ★ Ford
- ★ Chrysler

Steel-Auto: Parts

- ✦ Subsidiary parts Divisions of Auto companies
- ✦ 75% internal, 25% outsourced
- ✦ Central purchasing of Steel
 - ✦ GM-US Steel yearly contracts

Steel-Auto Link: Late 1980s

- ★ New steels for Auto: Electro-Galvanizing
 - Japanese joint ventures, US, Canada
 - Stelco-Mitsubishi
 - Dofasco-Kawasawki
- ★ Independent Auto parts companies
 - Magna
 - Ventra
- ★ Strategic goal: new competitiveness
 - Pressure from minimills: Body Panels



Steel-Govt-Academic Link

- ✦ Basic science and engineering
 - ✦ Stelco Engineering
- ✦ Bessemer Project: Thin Strip Casting
- ✦ Nucor challenge to US basic steel

Steel 2000: New steel, old players

★ New steel

- ★ 60% new steel for autos in 5 years
- ★ New materials science: Research Chairs
- ★ USLAB project

★ Investment:

- ★ Foreign partners: France, Mexico, Brazil
- ★ Steel auto divisions: Dofasco, Algoma
 - ★ Dofasco goes laser

Steel 2000: New steel, new players

★ Steel players

- ★ Minimills: Ipsco
- ★ Service Centres: Russell Steel, Maksteel

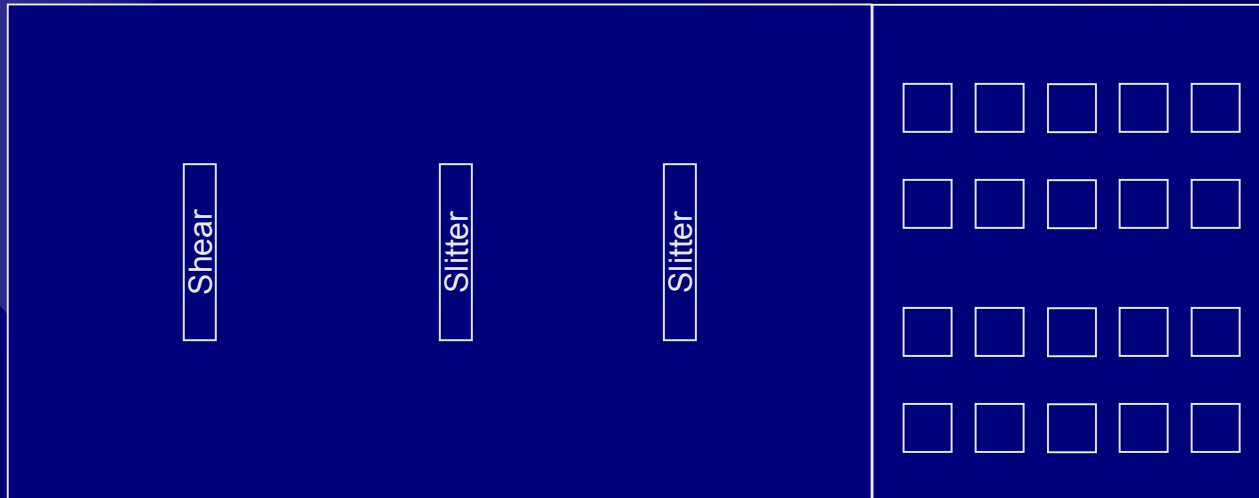
★ Independent parts companies

- ★ Value added processing
- ★ Contract manufacturing

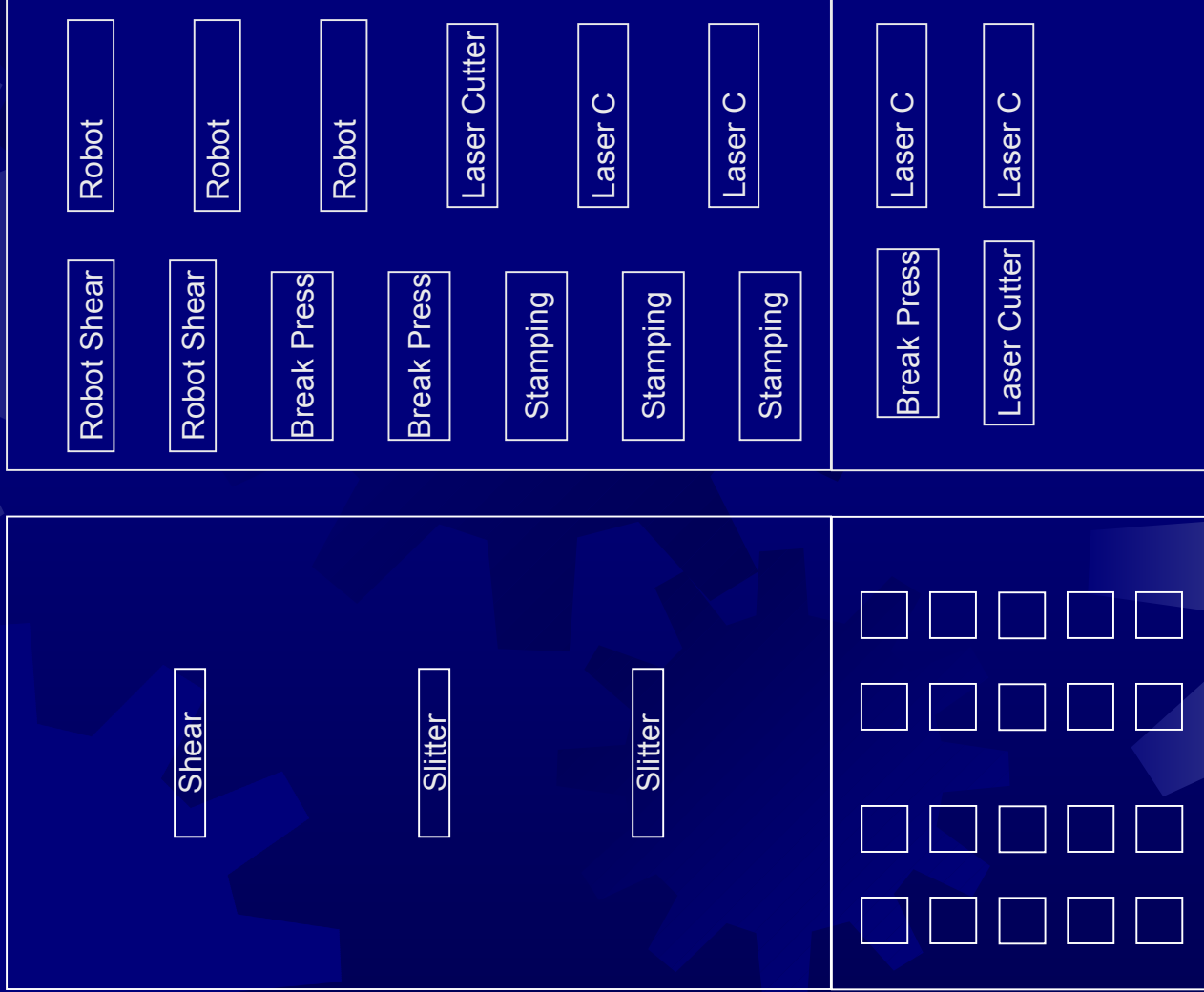
Steel in Learning Region: Themes

- ★ Steel manufacturing in new economy: companies, suppliers, researchers and labs teach each other
- ★ Globalization: NA steel trade, ULSAB consortium, NAFTA investment

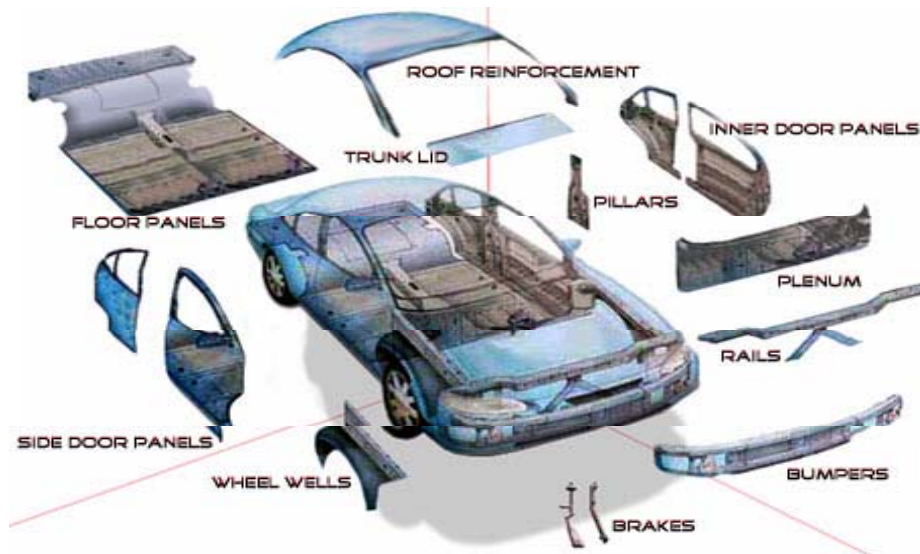
Traditional Steel Processing Line



Value-Added Steel Processing Line



Steel Mfg Transition: MakSteel



Steel-Auto Supply Chain

- ★ U of Michigan Thesis

- ★ System Integration

- ★ Auto Companies: Design & Assemble

- ★ Suppliers: Manufacturing, Design and Process Engineering

- ★ Capital Restructuring

- ★ Total NA auto industry \$250B

- ★ Suppliers \$175B

Life on the Chain Gang

- ★ Steel Chain: 4% ROI, S&P 22%
- ★ Price Pressure: 5 years cars 0.5%, suppliers – 3-5% P.A.
- ★ Power Relations in Supply Chain
 - ★ Steel-Auto vs Aircraft Industry

Steel-Auto: Outsourcing Redux

★ Where it Works

- ★ Steel supply surges: no system learning
- ★ Capital underperformance, disinvestment
- ★ Supplier-led Innovation stalls

★ Where it Doesn't

- ★ Maksteel: Up to 500K tons, then bankruptcy
- ★ OEM challenge: re-acquisition, re-capitalize
- ★ OEM Innovative models delayed