

# **Environmental Drivers of Product Lifecycle Management (PLM)**

## **Module 2**

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*Teaching Notes in Notes Page View*



## External PLM Drivers

- External Drivers
  - Scale – companies have gotten larger
  - Complexity – variation in products have increased
  - Cycle time – manufacturing timeframe has decreased due to competition for first to market
  - Information technology – digital information is mobile and price of technology has decreased
  - Globalization – worldwide manufacturing arena and markets
  - Regulation – increasing scope of governmental regulations worldwide

Michael Grieves, *Product Lifecycle Management: Driving the Next Generation of Lean Thinking* (New York: McGraw-Hill, 2006), 95-109.

## Internal PLM Drivers

- Internal Drivers
  - Productivity – quest for increased productivity
  - Innovation – product and process
  - Collaboration – within and between organizations
  - Quality – meeting specifications and standard of usage
  - Return on investment – ratio of input to output

Michael Gieves, *Product Lifecycle Management, Driving the Next Generation of Lean Thinking* (New York: McGraw-Hill, 2006), 109-120.

# Impact of Information Technology

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## Information Technology

- Leading cause of transformation in business
- Geographical barriers less relevant
- Cultural barriers lowered through information
- Boosting productivity
- Data sharing
- Video- teleconferencing

B. Delong, "Globalization means we share jobs as well as good," Financial Times, August 27, 2003.

Speed and accuracy of information transmission make geographic barriers less relevant.

Political, economic, market, and competitive information is available almost instantaneously permitting informed accurate decision making.

Cultural barriers are lowered as information serves to educate societies about one another. Tastes and preferences begin to converge

Software is boosting productivity as work can "can follow the sun." Electronic work files can be closed and reopened in contiguous time zones around the world.

Internet is propelling electronic commerce around the world as companies can link to employees, customers, distributors, suppliers, and partners.

# Impact of Globalization

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## Global Business Environment

- Network of international linkages
- Highly competitive
- Interdependent global economy

T. Morrison, W. Conaway, and J. Bouress, *Dun & Bradstreet's Guide to Doing Business Around the World* (Upper Saddle River, NJ: Prentice Hall, 1997).

Business competition has evolved to a level that many term globalism.

Characterized by networks of dynamic international linkages binding countries, institutions, people in a interdependent economy.

Globalism is being propelled by a borderless world.

“The nation-state itself---that artifact of the eighteenth and nineteenth centuries---has begun to crumble, battered by a pent-up storm of political resentment, ethnic prejudices, tribal hatred, and religious animosity (Ohmae, 1995).

Growth rate of the trade of goods is faster than the world production of goods. Foreign direct investment has grown more than three times faster than the world output of goods. United States and the European Union share the position of the world's largest investor (Reid, 2004). The United States is the largest home for foreign investment, the United Kingdom is the most active source of merge and acquisition investment.

Investments by global companies benefits developing economies through the transfer of financial, technological, and managerial resources, as well as through the development of local allies that later become self-sufficient.

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## Partnerships - Alliances

- Outsourcing
- Offshoring

<http://en.wikipedia.org/wiki/Outsourcing>  
Friedman, Thomas, *The World is Flat: A Brief History of the 21<sup>st</sup> Century* (New York: Farrar, Straus and Giroux, 2006), 136-150.

Outsourcing - **Outsourcing** (or **contracting out**) is often defined as the delegation of non-core operations or jobs from internal production within a business to an external entity (such as a subcontractor) that specializes in that operation. Outsourcing is a business decision that is often made to lower costs or focus on competencies. "Outsourcing" became a popular buzzword in business and management in the mid-1990s.

Offshoring – Offshoring, a related term, means transferring work to another country, typically overseas. Offshoring is similar to outsourcing when companies hire overseas subcontractors, but differs when companies transfer work to the same company in another country.

## References

- B. DeLong, "Globalization means we share jobs as well as good." *Financial Times*, August 27, 2003.. P. 13.
- Friedman, Thomas, *The World is Flat: A Brief History of the 21<sup>st</sup> Century*, New York: Farrar, Straus and Giroux, 2006, 136-150.
- Michael Grieves, *Product Lifecycle Management: Driving the Next Generation of Lean Thinking*, New York: McGraw-Hill, 2006.
- T. Morrison, W. Conaway, and J. Bouress, *Dun & Bradstreet's Guide to Doing Business Around the World*, Upper Saddle River, NJ: Prentice Hall, 1997.
- Wikipedia: The Free Encyclopedia, <http://en.wikipedia.org/wiki/outsourcing>
- Bernard Wysocki, Jr., "Global Reach: Cross-Border Alliances Become Favorite Way to Crack New Markets," *Wall Street Journal*, March 26, 1990, A1, A4.

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