

Strategic Implications of PLM

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IBM Product Lifecycle Management

Agenda

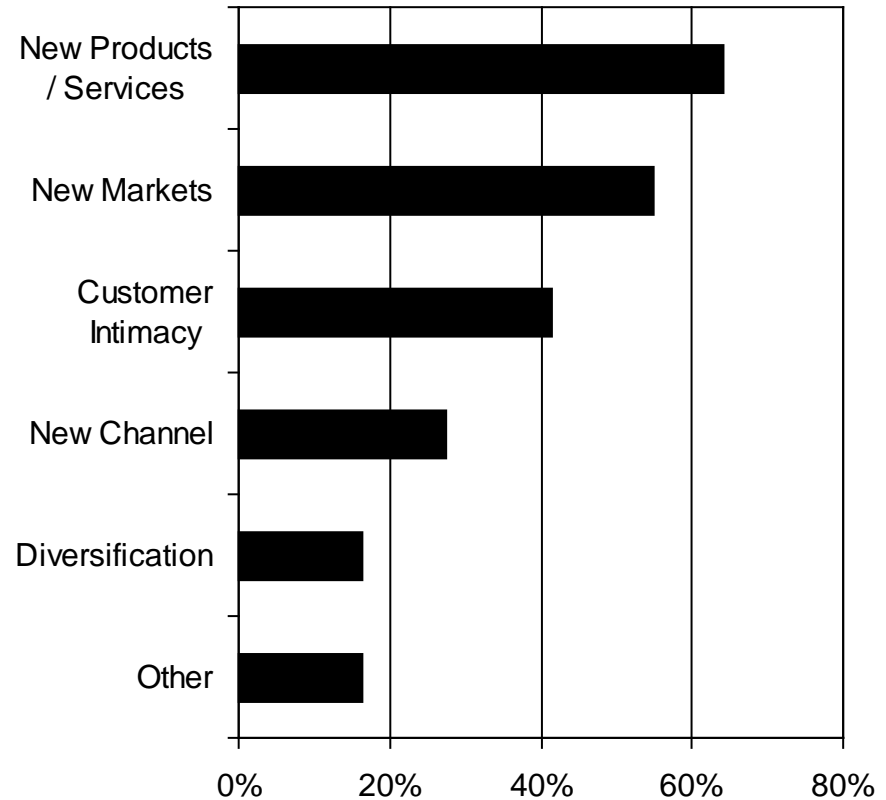
- Marketplace Drivers
- Why PLM?
- Looking Ahead

Revenue growth is on the corporate agenda

“Nearly two-thirds of CEOs see new and differentiated products as the key drivers for growth.”



Areas Offering the Greatest Opportunity for Revenue Growth in the Next Three Years



Source: IBM's Global CEO Survey, 2004

Innovation Drives Success

The world's most innovative companies...

- Generate twice as many ideas
 - Develop three times as many into products and
 - Enjoy twice the success rate for new products as their average competitors
- **“Companies that generated 80% of their revenue from new* products typically doubled their market capitalization in a five-year period.”**
 - **“A 10% increase in the percentage of sales from new products and services was correlated with a 2.5% increase in revenue growth.”**
 - **“A 10% increase in percentage of sales from new products and services was associated with an increase in total shareholder returns of nearly 9%, year on year.”**
 - **“High performing companies - those which generate annual total shareholder return in excess of 37% and have seen consistent revenue growth over the last five years - average 61% of their sales from new products and services. For low performers only 26% of sales comes from new products and services.”**

Source: Trevor Davis, Innovation and Growth: a global perspective, ©2000 IBM.

CEO Views – Innovation Focus

“If you can’t differentiate yourself in this world, you get commoditized instantaneously. So we are constantly driving for more technology. When I rally people inside GE, I say, ‘Growth is out there to be had, but it’s not going to be even. Unless you are willing to make investments in the future, to take steps and stands, this is not a tide that’s going to raise every boat. There will be winners and losers.’”

“We must have differentiated products to win!”

Jeffrey R. Immelt
Chairman and CEO, GE

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“Great, innovative ideas are usually called out by the customer.”

W. James McNerney, Jr.
Chairman and CEO, 3M Company

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“Our solutions will help our customers be more competitive, innovative and flexible.”

Jorma Ollila
Chairman and CEO, Nokia

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CHAIRMAN AND CEO, NOKIA

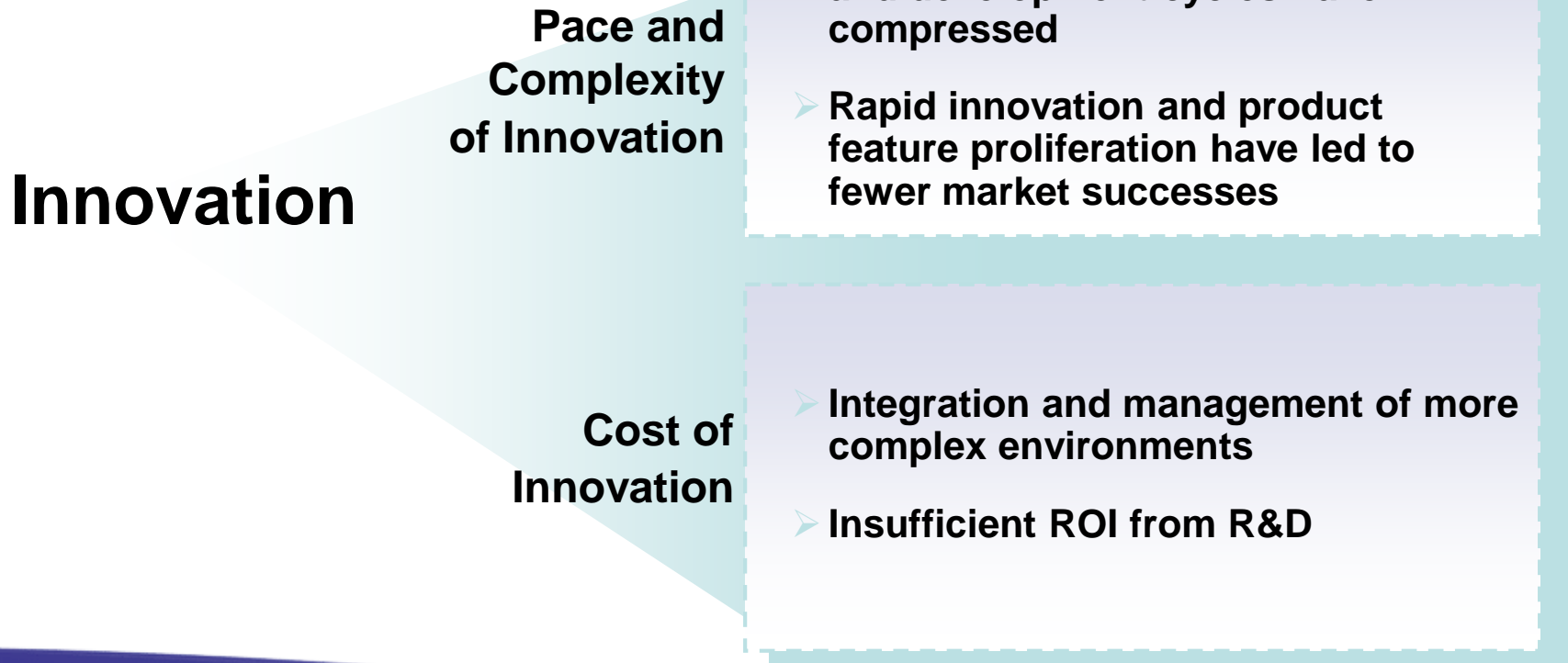
“On demand and synchronized commerce are about treating every customer — and for us, every package — as if it were special. Our solutions must be innovative enough to support a global enterprise.”

Michael L. Eskew
Chairman and CEO, UPS

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CHAIRMAN AND CEO, UPS

The pace and complexity of product innovation is increasing, and the effectiveness of R&D is decreasing

“Only one in seven product ideas succeed in the market” PDMA Report - 2004



Source: AMR, Improving Innovation and Cash Flow in Aerospace & Defense, Automotive and High-Tech Manufacturing, 2003

Nature of Innovation is Changing

From ▶ ▶ ▶ ▶ ▶ **To**

Invention

Innovation

Linear innovation model

Dynamic innovation mode

Build to forecasted demand

Sense and respond to demand

Independent

Interdependent

Single discipline

Multiple Discipline

Product functions

Value to customer

Local R&D teams

Globalized 24x7 R&D teams

Innovation Requires

The Right Tools, Processes & Access to Information

■ **Product information access**

- Few companies provide a collaborative product development environment to access critical product related data and documents,
- Less than 3% of the companies allow suppliers external access to all relevant product data. 25% have no external access.

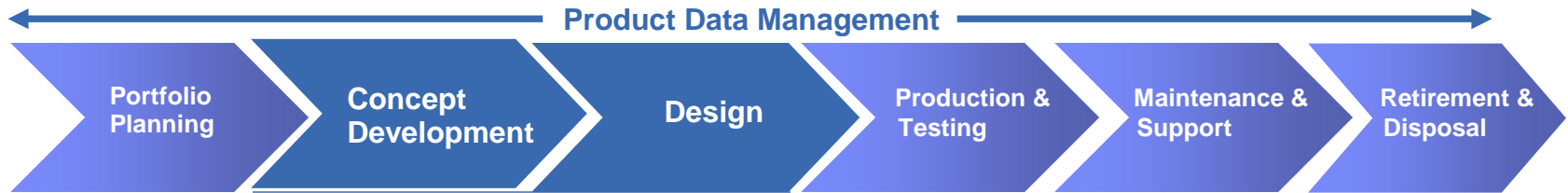
■ **Lack of visibility to business performance and market changes**

- 75% use no knowledge based tools or expert systems in product development
- 65% do not know how much more productive their product development value chain now relative to five years ago

■ **Complex product development ecosystem**

- Less than 10% have automated integration between enterprise applications (90% have no automated integration between enterprise applications)
- Only 4% have integration between development and digital manufacturing systems

Why PLM?



Three vertical panels illustrating specialized capabilities:

- Mechanical Product Design & Development:** Includes images of a person working on a car, a person using a handheld device, and a car's interior.
- Electrical Product Design & Development:** Includes images of a person at a computer workstation, a person at a whiteboard, and a person sitting at a desk.
- Software Design & Development:** Includes an image of a person at a computer workstation.

PLM as a set of capabilities that enables an enterprise to effectively and efficiently innovate and manage its products and related services throughout the entire business lifecycle, from conception/planning through recycling or disposal.



How are companies using PLM to innovate today



PLM is not just for Automotive and Aerospace

Electronics

- Honeywell
- SONY
- Nintendo®
- Canon

Industrial Products

- Hydro Québec
- NOKIA
CONNECTING PEOPLE

Chemical & Petroleum

- INI STEEL

CPG & Life Sciences

- minsa
- MAYO CLINIC
- AESCULAP®

IBM is our best PLM reference

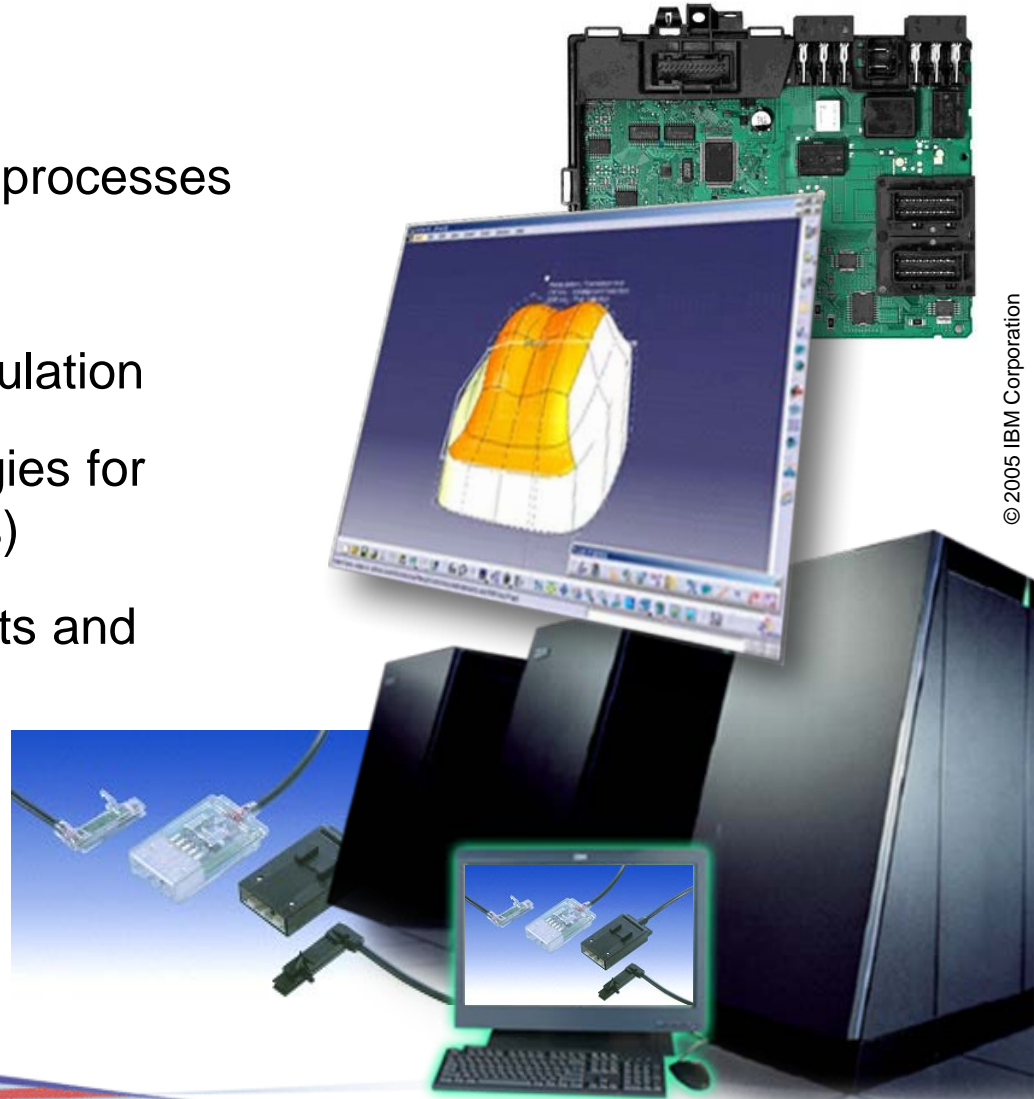
Before After

Part Numbers	540k	250k
Parts Reuse	2%	59%
Suppliers	5k	1.2k
Abandoned Projects	25%	1%
Development E/R	12%	5.8%



Looking Ahead - Research & Development

- Streamline design-simulation processes
- Expand Grid enablement
- Explore Deep Computing simulation
- Integrated design methodologies for embedded SW (Mechatronics)
- Open technology environments and product data federation



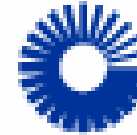
Thank You

 **DEMAND BUSINESS™**

Pratt & Whitney accelerates innovation

“We must enable customers, partners, suppliers and employees worldwide to collaborate while not wasting time in data transfer or management.”

Sherrill Novosad, project manager Digital Enterprise program, Pratt & Whitney Canada



Pratt & Whitney

A United Technologies Company

The situation:

- To respond to customer demands and remain competitive, Pratt and Whitney Canada needed to reduce the development lifecycle of a brand new engine to less than three years.
- They also sought seamless collaboration among an expanding number of partners worldwide.

Delivering results:

- Pratt & Whitney implemented an IBM PLM solution that employs digital design technology throughout the entire product lifecycle.
- These new tools help them save millions of dollars each year with the ability to reduce the assembly design phase by 20%, conduct NC programming up to 10 times faster and machining up to 35% faster.

Maschio Group drives innovation

“By shortening the cycle time by ten months, we are now much more flexible and better adapted to the changing market demand. This benefit is priceless for our company.”

Paolo Cera, Marketing Director, Maschio Group



The situation:

- If the Maschio Group misses the springtime introduction of new agricultural machines, it costs them an entire year of potential sales.
- They must meet local customer requirements for innovative, market-specific seed drills and mowers. And to do so, they need to drastically reduce new product development cycle times.

Delivering results:

- IBM PLM solutions helped the Maschio Group reduce time-to-market by 55%, from 18 months to 8 months.
- Productivity gains during design allow them to explore 50% more design options, fostering innovation.