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Industry Knowledge for Business Advantage

Trends and Maximizing the Value of PLM Investments

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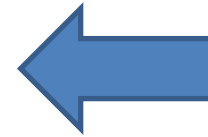
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PLM 2011
INNOVATION

Technology and business trends in PLM

- Market numbers and economic conditions
- Industry Networks
- Technology
- Observations

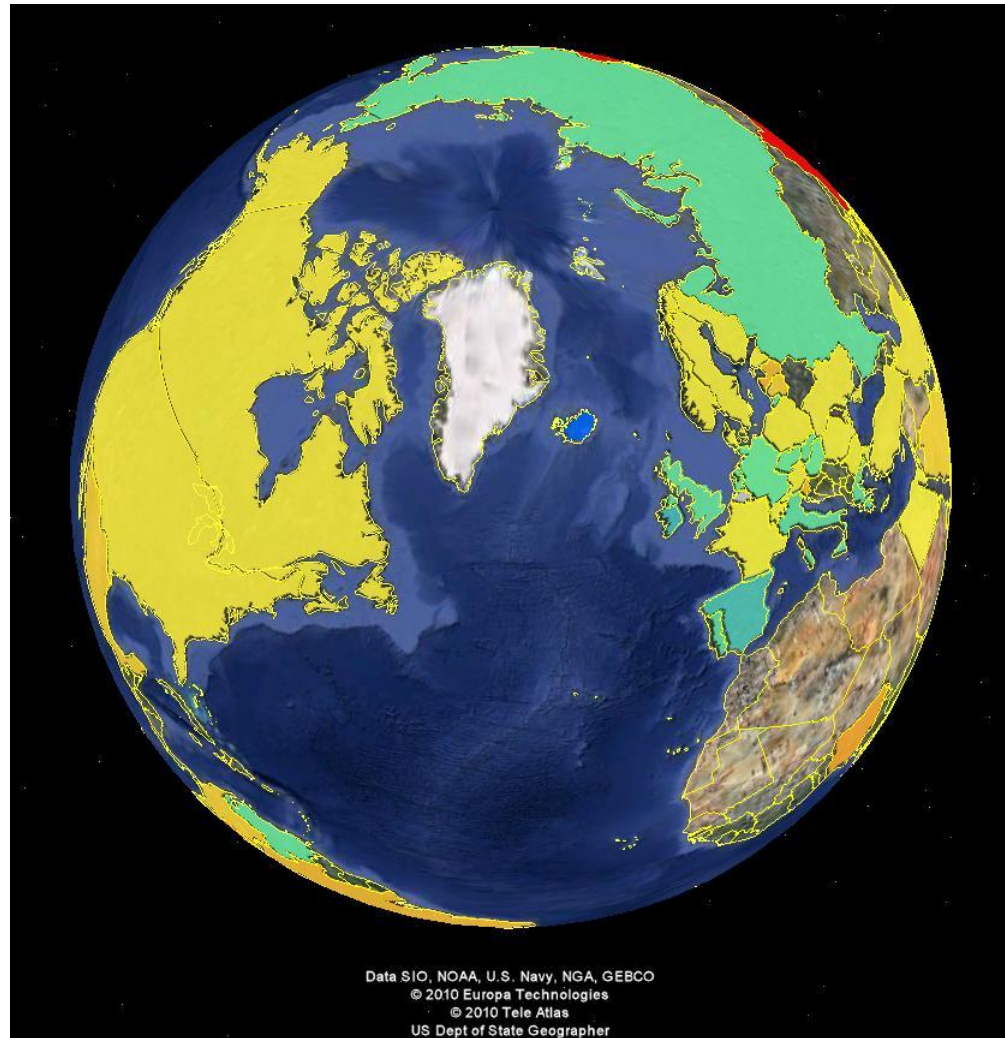


Explore the numbers

- Google earth review of market numbers (colours are rates of growth)
 - Delivered live, sample stills follow

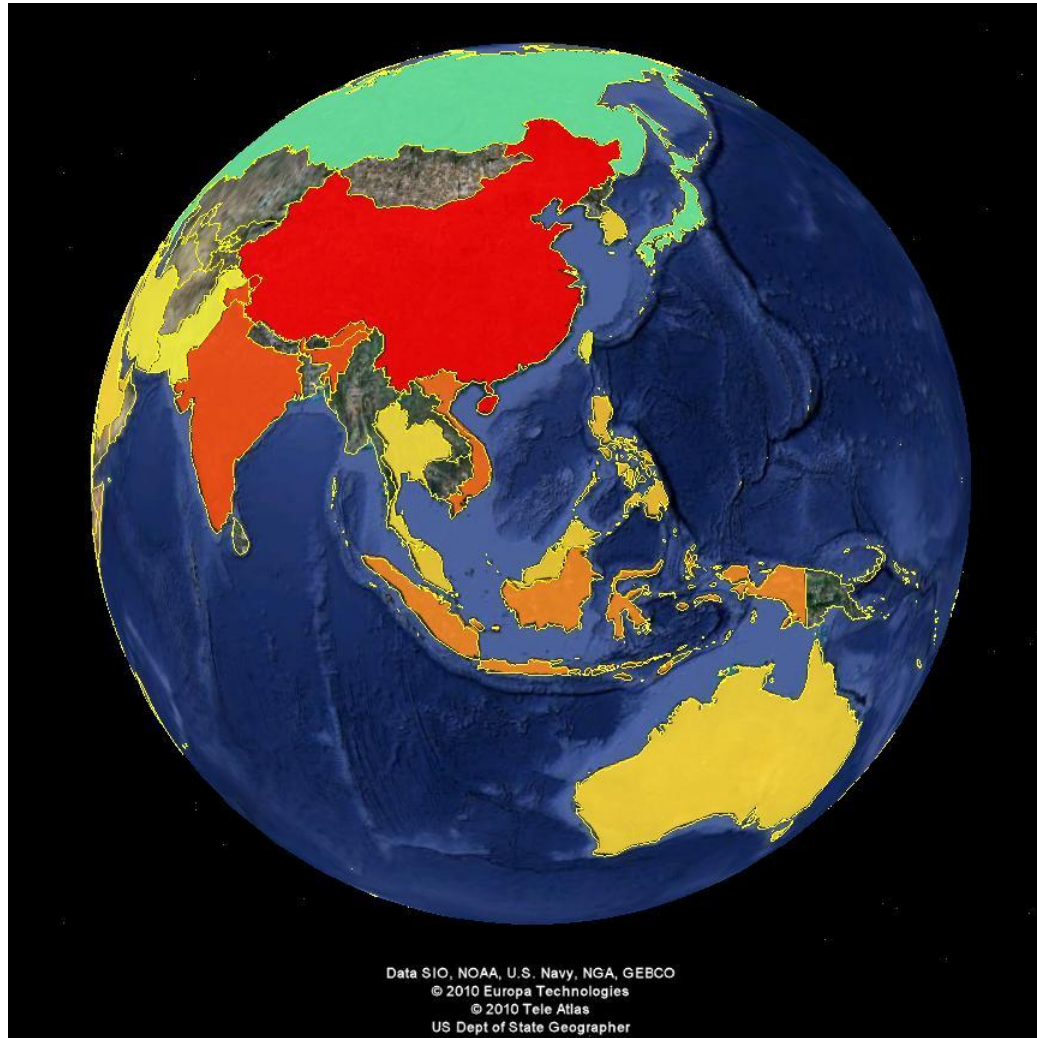
Explore the numbers

2010



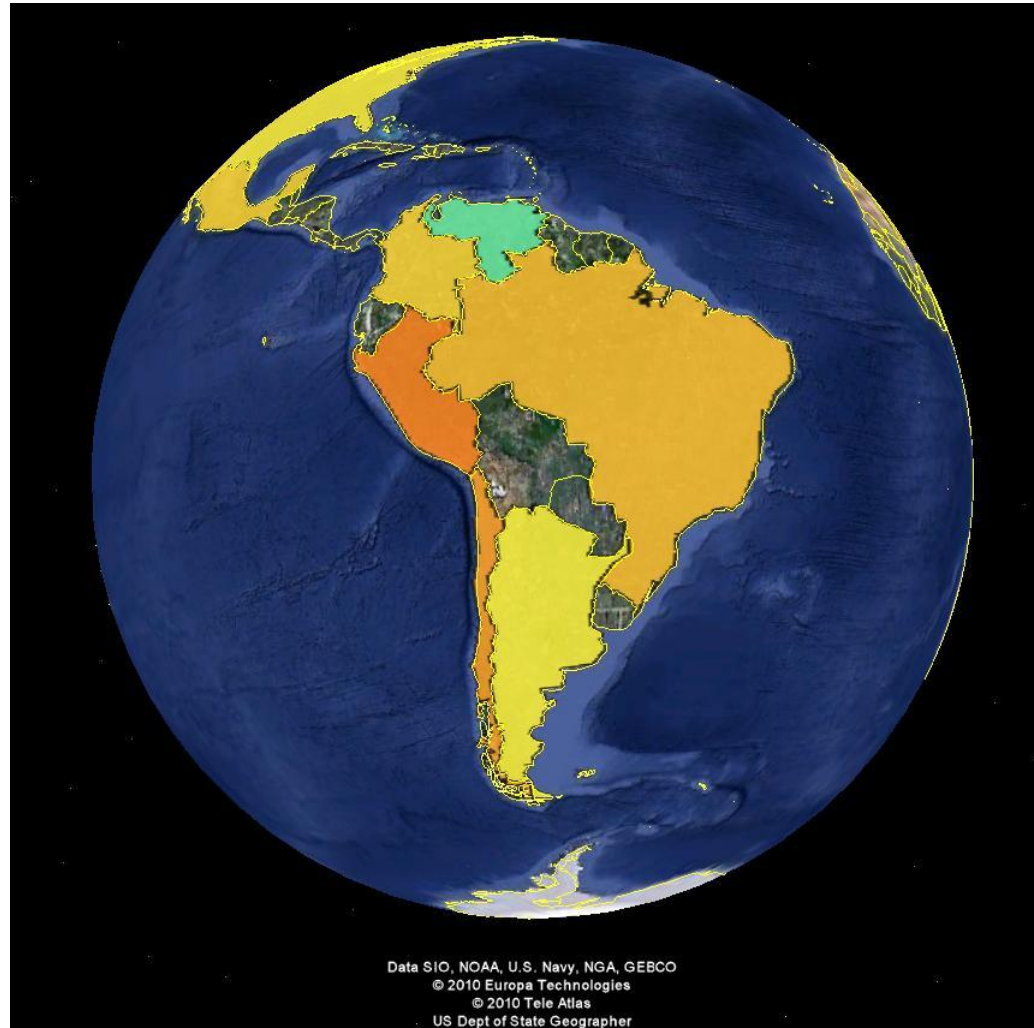
Explore the numbers

2010



Explore the numbers

2010

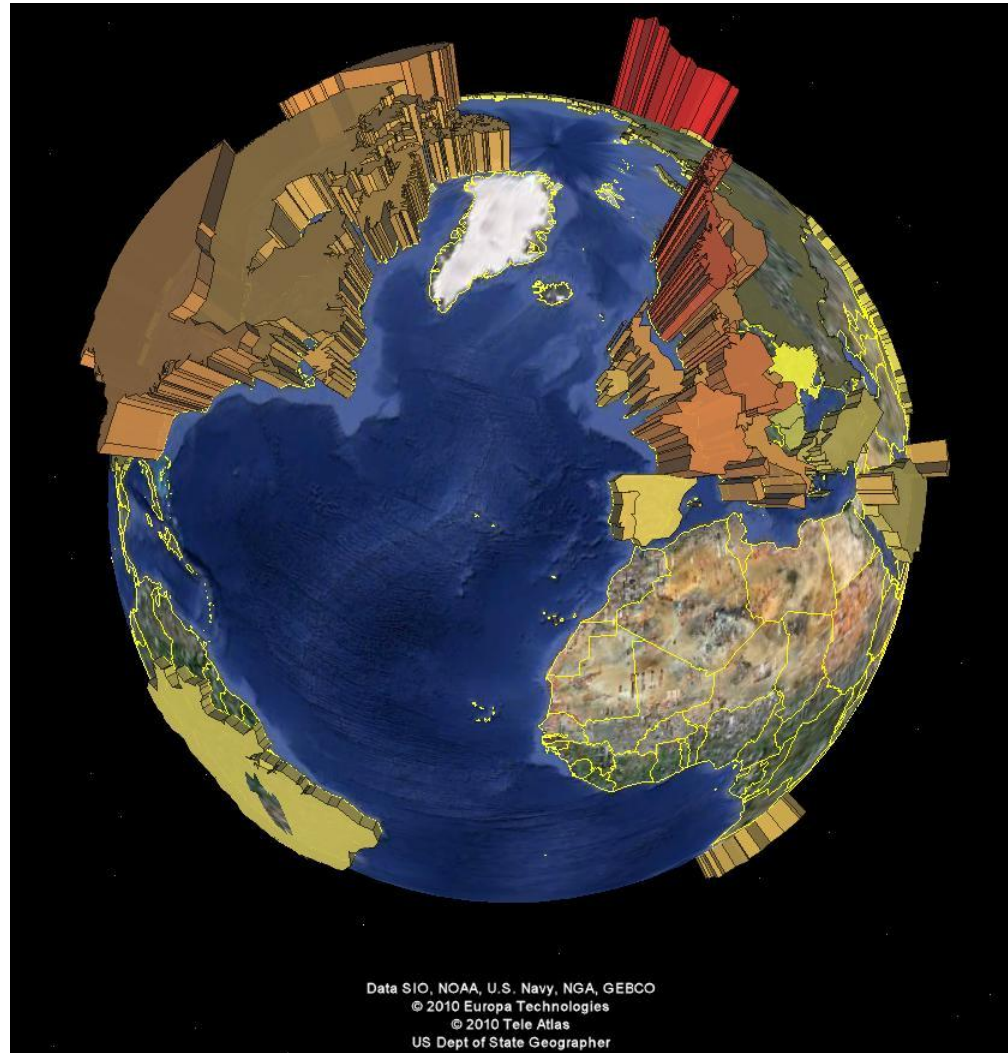


Explore the numbers

- Google Earth review of technical applications spend per professional engineer around the world (height of blocks represent US dollars per engineer).
 - Delivered live, sample stills follow

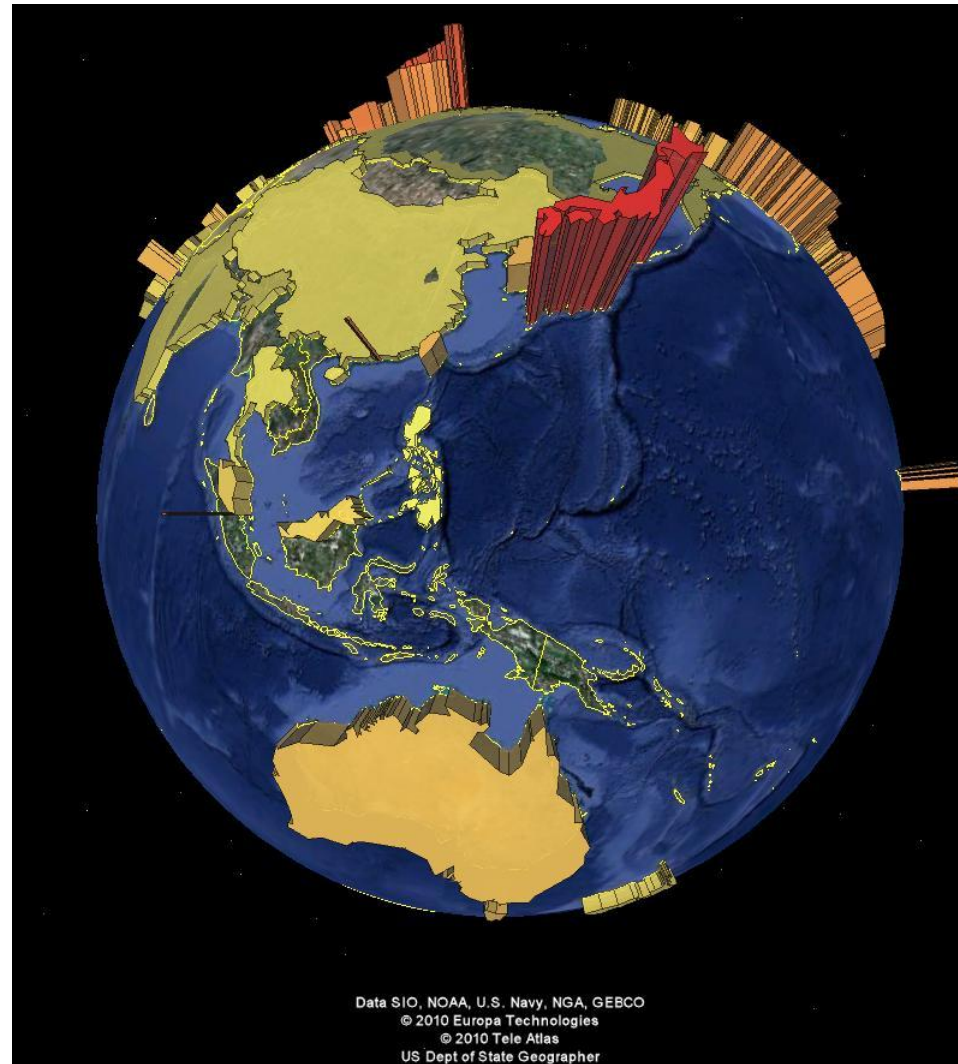
Explore the numbers

2009



Explore the numbers

2009

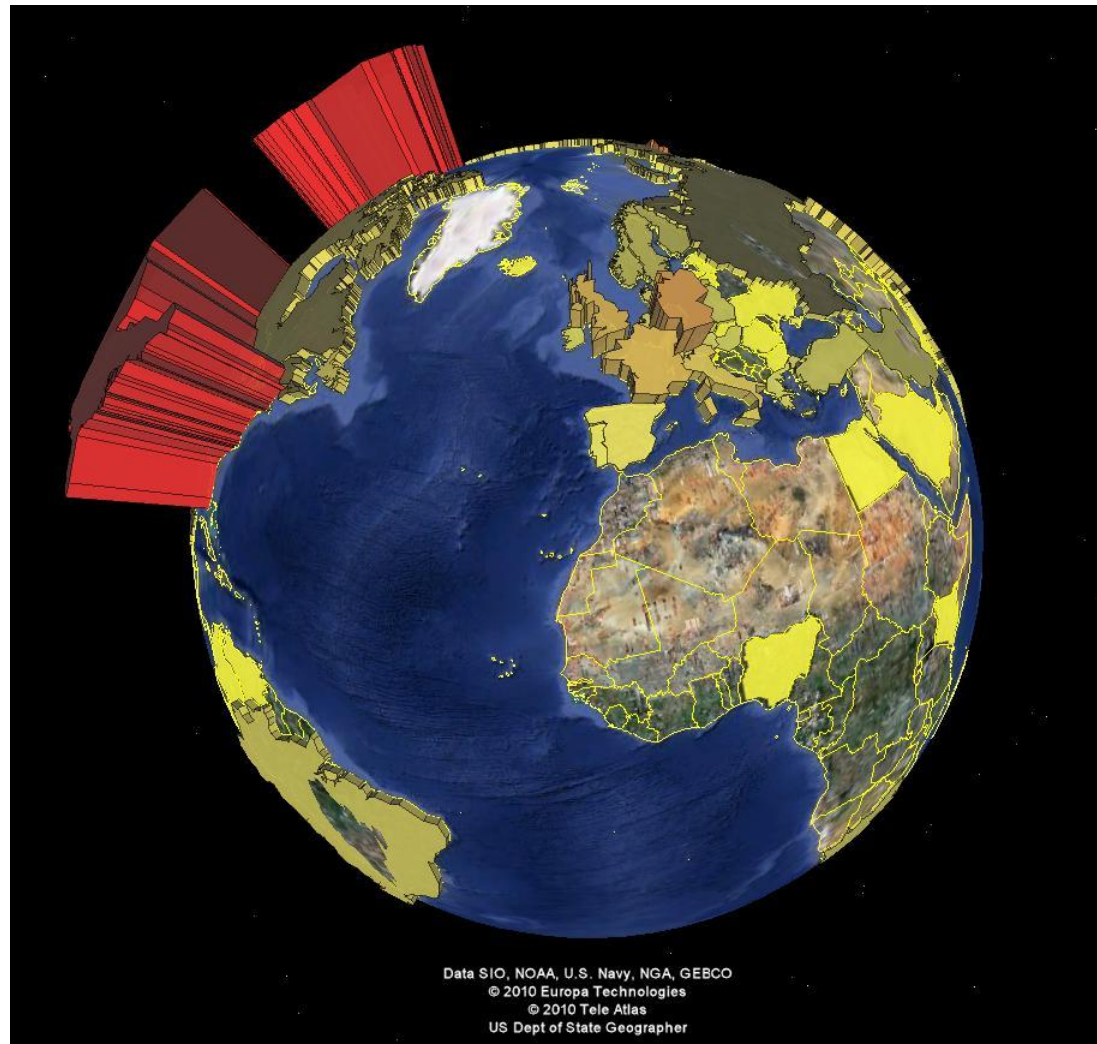


Explore the numbers

- Google Earth view of forecast shares by country of world technical applications software market. (height of blocks represents % share of world market).
 - Deleivered live, sample stills follow

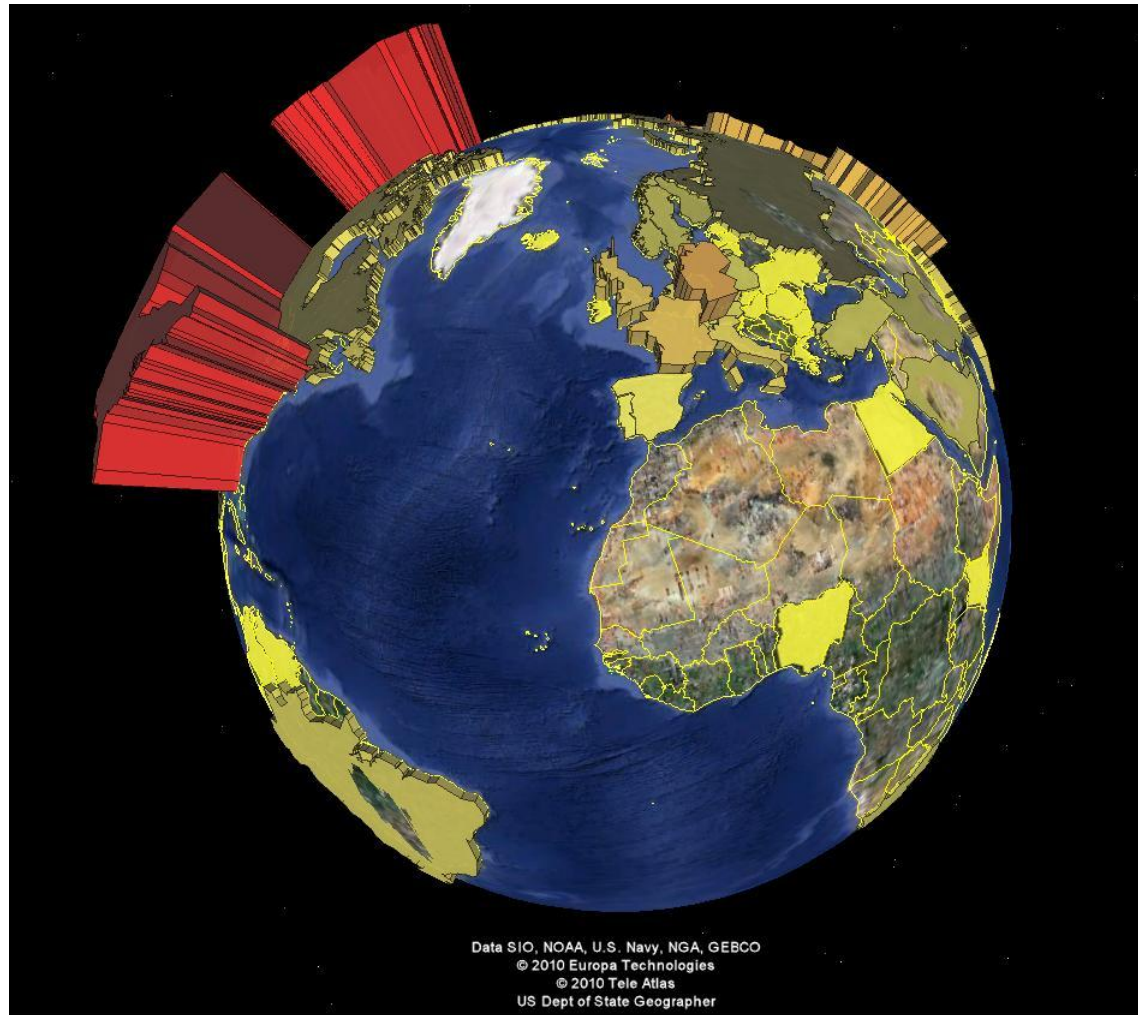
Explore the numbers

2007



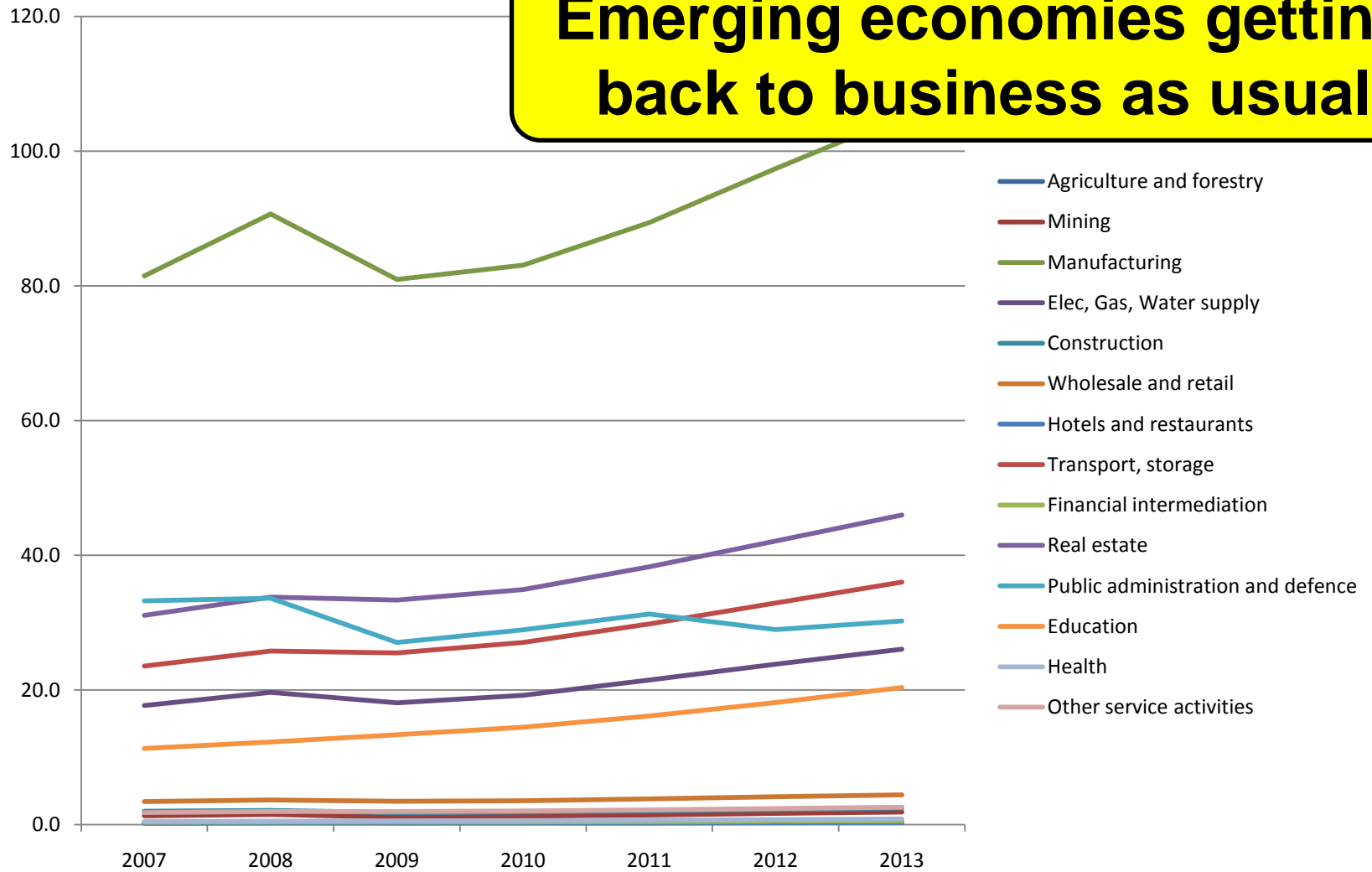
Explore the numbers

2013



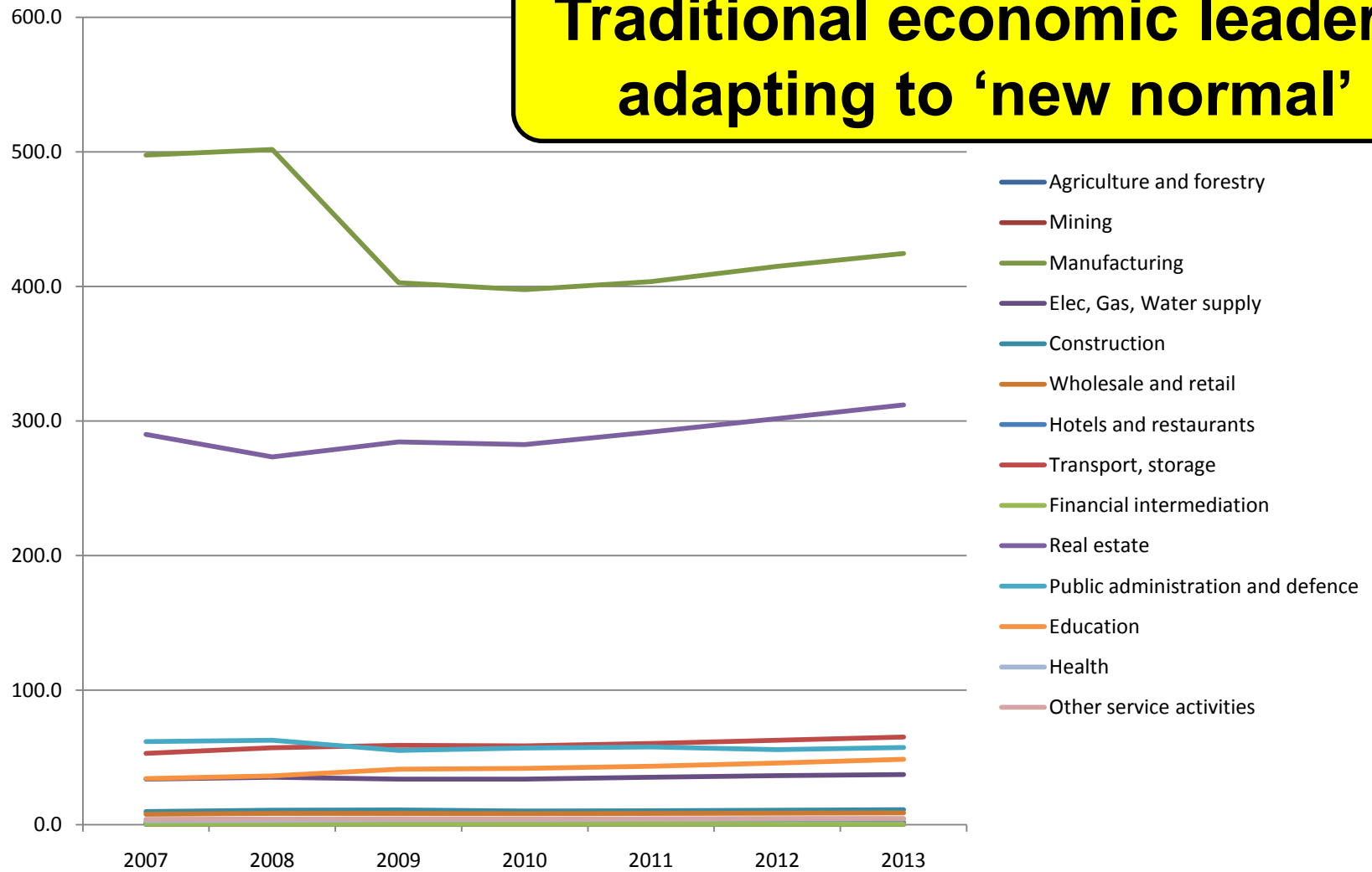
Brazil - tech apps USD millions

Emerging economies getting back to business as usual



Germany – tech apps EUR millions

**Traditional economic leaders
adapting to ‘new normal’**



Tipping point?

- Economists point to 1945 – the energy and skills of the US allowed it to take on the role of global economic powerhouse.
- Is it time for BRIC and other emerging nations?
 - BRIC provided half of world GDP growth between 2000 and 2008.
- But not yet the balance of developed economies
 - Brazil - agro exports
 - Russia – sells oil and gas
 - India – software and services
 - China's stimulus and savings – size and trade

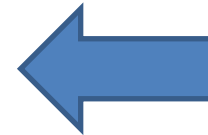
Disruptive change (1)

- Economies need to rebalance
- Consumer demand growth in developing countries
- Resource-rich and exporting regions have surpluses to invest

The location and profile of the best suppliers, customers and competitors is changing.

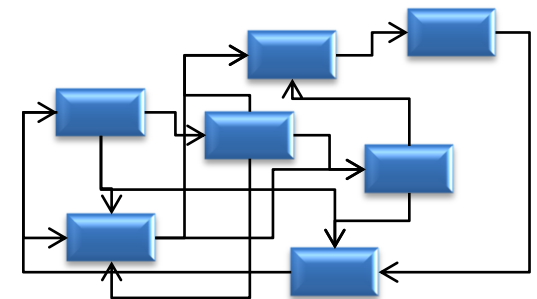
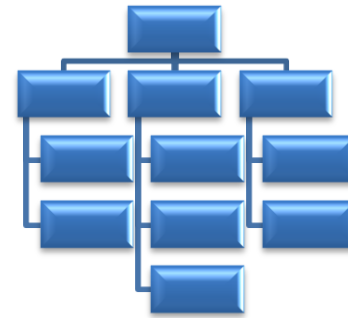
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21st century industry networks

- Enterprise Applications created the platform
 - Optimize the enterprise
- Industry Networks offer the next step
 - Divide and conquer complexity
 - Optimize the value chain
- ROI of investment in new software...
 - ...will be measured against Industry Network business initiatives



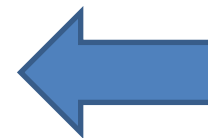
Disruptive change (2)

- Must improve process not simply shift costs around the industry network
 - Reduced cost means less waste
 - Faster response, but small problems turn into big problems fast too
 - Responsive network needs more flexibility, but must still be able to prove compliance
 - Some parameters (e.g. price of power) moving from the annual plan to an hourly input to operations

Industry network optimization needs new dataflows and new skills

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Embedded software

- For function, cost, re-use, flexibility, service
 - Industrial machinery, automation systems
 - Building access and security, HVAC
 - High tech, automotive, aerospace, transportation
- New continuum of product/service capability
 - Functions in device and in support applications (medical imaging, consumer electronics, machinery monitoring, ...)
- New customer opportunities and issues
 - E.g. Gearbox repair!
- New business models
 - Component suppliers, opportunity for 3rd party (and remote) add-ons and service

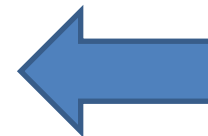
Disruptive change (3)

- Successful incorporation of new technologies will require engineering to introduce new ways of working
- ... and may allow business leaders to introduce new business models

Systematic design methods; systems engineering; new roles in the value chain;

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Challenges for manufacturers

The old must-do list...

- Cost control
- Quality
- Reliable scheduling
- Faster time-to-market with innovative, competitive products
- Efficient asset and resource usage
- Global sourcing and sales

...is now a bit longer

- Deal with new competitors offering new brand values
- Make your industry network into a source of competitive advantage
- Handle customization and late changes; and still prove compliance
- Plan for and manage more “real-time” parameters (price of power, ...)

Where will this lead PLM?

- **Allow new dataflows for industry networks**
 - Customization discussion direct with design and manufacturing
 - Easy interoperability with new partners
 - See the effect of decisions on the rest of the network
- **Provide more complete context for decision-making**
 - Linked, parameterized, interactive requirements, functions, solutions, test
- **Align new product introduction with operations**
 - Automatic or guided configuration of manufacturing processes for custom products and smaller batches
 - Dynamic update of manufacturing and distribution plans in response to design and customization choices



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Thanks for listening

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