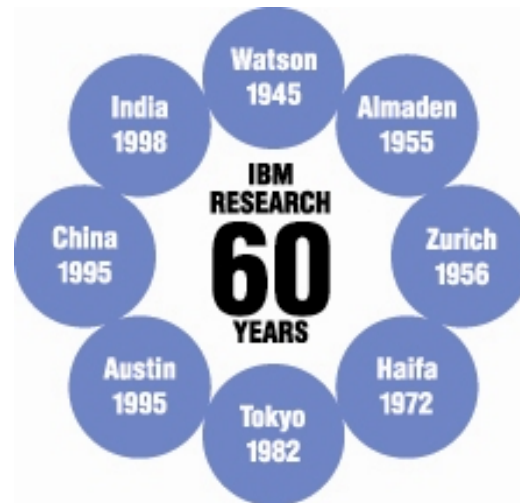




Challenge and Opportunity in Applying Innovative ICT to Transform Traditional Industry

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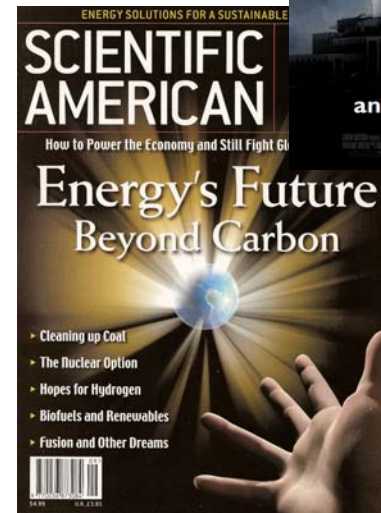


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It's not "speculation" any more...

- Atmospheric warming is a now a broadly accepted trend
- 41% of the Earth's population (2.3 billion) live in water-stressed areas; 3.5 billion will do so by 2025
 - Increasingly includes developed areas such as Western USA, Australia, SE England
- There is now increasing pressure on traditional energy resources, especially from rapidly industrializing nations (China, India)
 - Energy consumption is expected to increase by over 129% in parts of Asia by 2020
- CEO/CFO focus is turning to energy costs & environmental costs (CO2 emissions)
- Major investors increasingly see poor green performance as **a source of risk**



A different kind of downturn – Traditional responses will not suffice

Long and Difficult

- Unprecedented constraints on access to credit and capital; Unwinding of over-leverage
- Falling demand, increased price sensitivity as consumers and enterprises cut back
- Disruptions in supply chains, partner and customer arrangements

Transformative

- Restructuring of industries: Firms fail, sold off overnight
- New regulatory regimes
- Stress on global inter-dependencies

Typical cost management will NOT be enough

Firms must examine working capital & investment: identifying opportunities to restructure, reduce, and preserve capital as well as streamline operations

Yet broader forces are at work

Our world has become...

**Smaller &
Flatter**

- Pervasive connections and communications
- Emerging markets
- Open trade

Riskier

- Systems-level complexity
- Viral spread of information
- Widening gap between information available, and information effectively managed.

Smarter

- Instrumented
- Interconnected
- Intelligent

... And tomorrow's leaders will capitalize on the new opportunities created



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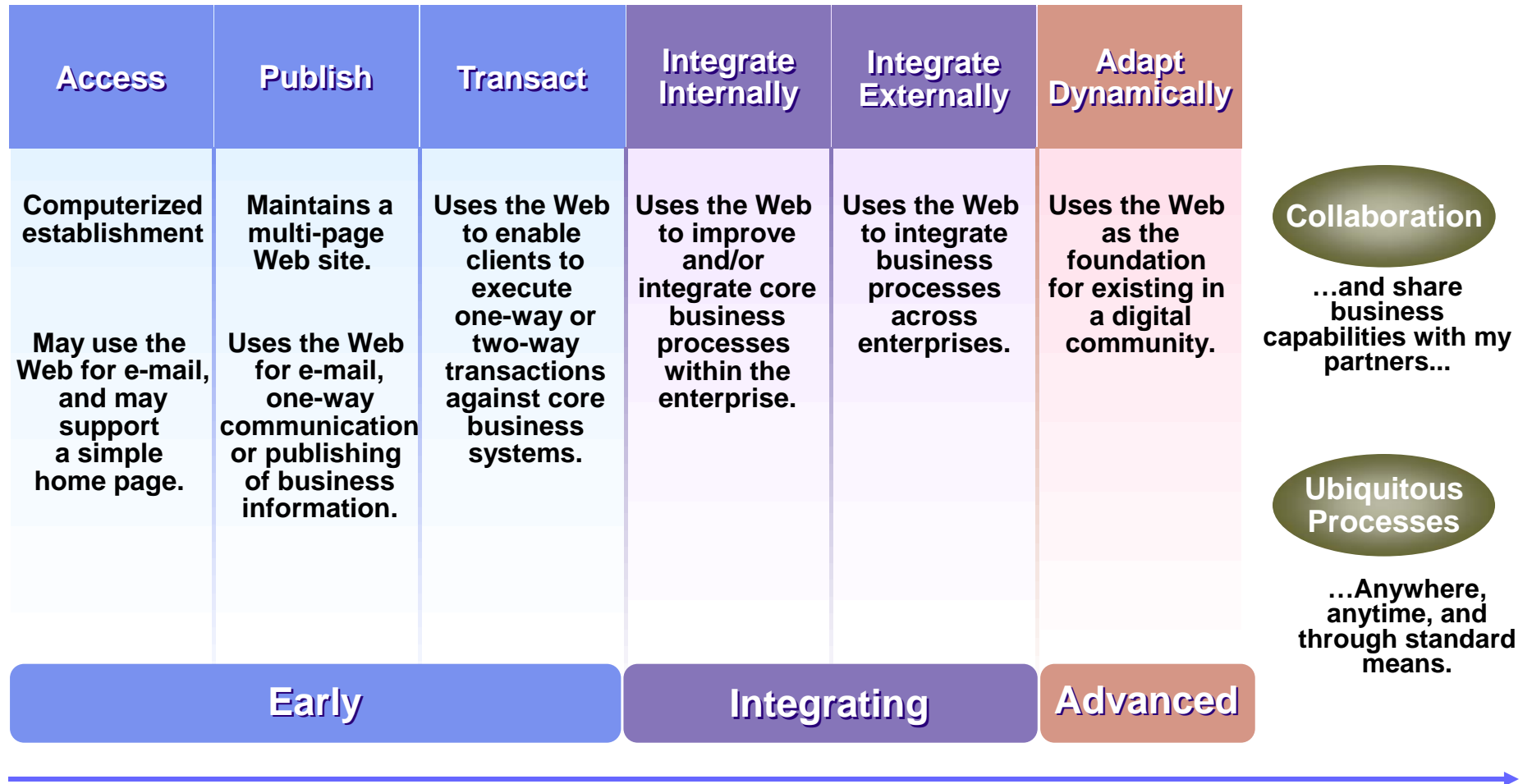
Technology convergence

- Broadband and mobile network access
- Web Services
- Grid Computing
- Service Oriented Architectures
- Next generation dynamic e-Businesses
- Toolkits
- Open Source
- Service Cloud

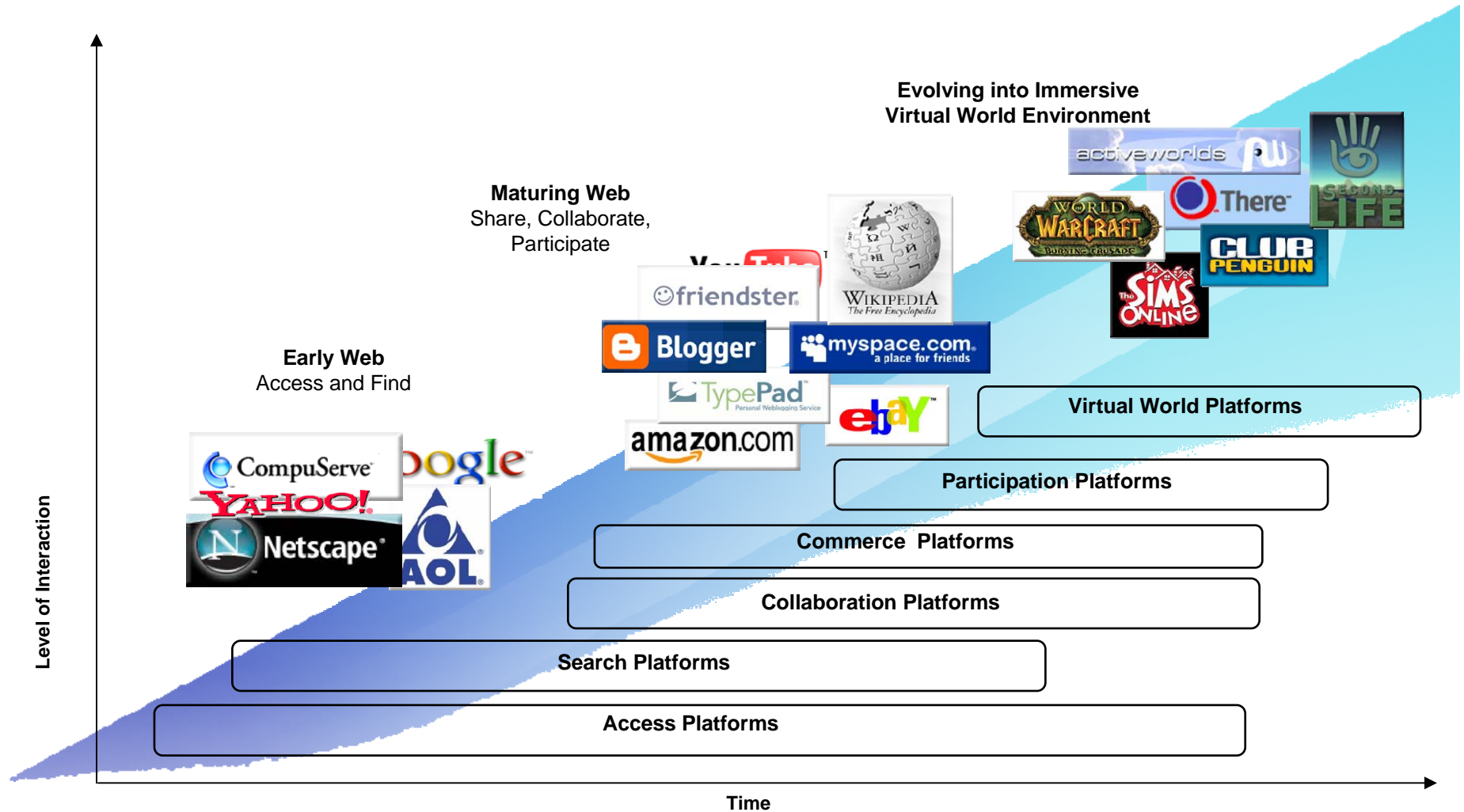
Industry Trends

- Technology:
 - Increasing design complexity, multi-core processors, increased variability of technology and uncertainty of design, low power design at all levels, SOC design
- Systems: integration over the entire hardware and software stack
 - Specialized systems, modular components
 - Dynamic, virtual
 - Scale-out
- Explosion of data
 - Event-driven infrastructure and applications, real-time data
 - Pervasive and sensors – smart, networked sensors, embedded system software
- Security:
 - Security of data and computer systems
 - Security and quality of software systems

Stages of e-business Adoption



Evolution of Web as a Platform





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What is Innovation?

It's not always about inventing something entirely new.

Innovation occurs at the intersection of invention and insight.

It's about the application of invention – the fusion of new developments and new approaches to solve problems.

-- Sam Palmisano, Council on Competitiveness, October 2003



Innovation in the 21st Century

Why now?

- Commoditization of technology
 - We are approaching fundamental limits of technology that will drive new paradigms for software and systems
 - “IT Doesn’t Matter,” Harvard Business Review
- Potential to transform business processes
 - Software complexity is driving a rethinking of software development
 - Globalization of markets
- External forces – government, societal – are significantly influencing the technology agenda
 - Societal benefits
 - Changing business environment demands new approach to use of IT – transformation must be fueled by innovation



Features of innovation

- variation within existing frameworks, limitations, formal structures and limitations
- not so much finding a novel iteration, but a novel integration
 - Engine, wheel → automobiles
- bring them together in an integrated fashion, and you revolutionize transportation
 - Henry Ford, revolutionized the manufacturing of the car .. assembly line
 - business process transformation
- widespread impact and influence
- keen insight necessary to sense an opportunity for innovation







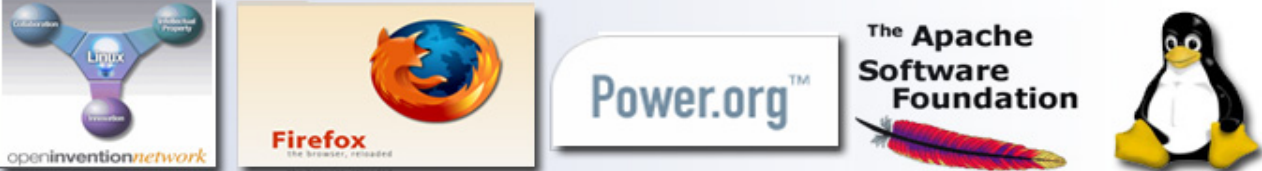

Innovation trends emerge along economic and technological trends

Globalization increases, China and India become major players, western economies are dominated by intangible assets, growth is back on the agenda and decentralization increases as ICT mature and the role of the individual changes

- Open collaborative innovation
 - Global networks of innovators, communities of practice, and open source
- The primacy of the individual
 - Increased autonomy of the individual in business as value are changing
- Focus on Intellectual Capital
 - Rising interest in the systematic creation, management and trade in IC
- Growing non-product innovation
 - Services, channels, enterprise, business models, strategy
- Integration of existing technologies, mostly IT and Communication Technologies
 - Integrating technological components in new ways to create new products, services and business models

Innovation is everywhere, innovation is here to stay

Sustained innovation is a function of the management system and culture

<p>Product Innovation</p>	
<p>Services Innovation</p>	
<p>Business Process Innovation</p>	
<p>Business Model Innovation</p>	
<p>Culture & Mgmt of Innovation</p>	
<p>Innovation in Policy & Society</p>	



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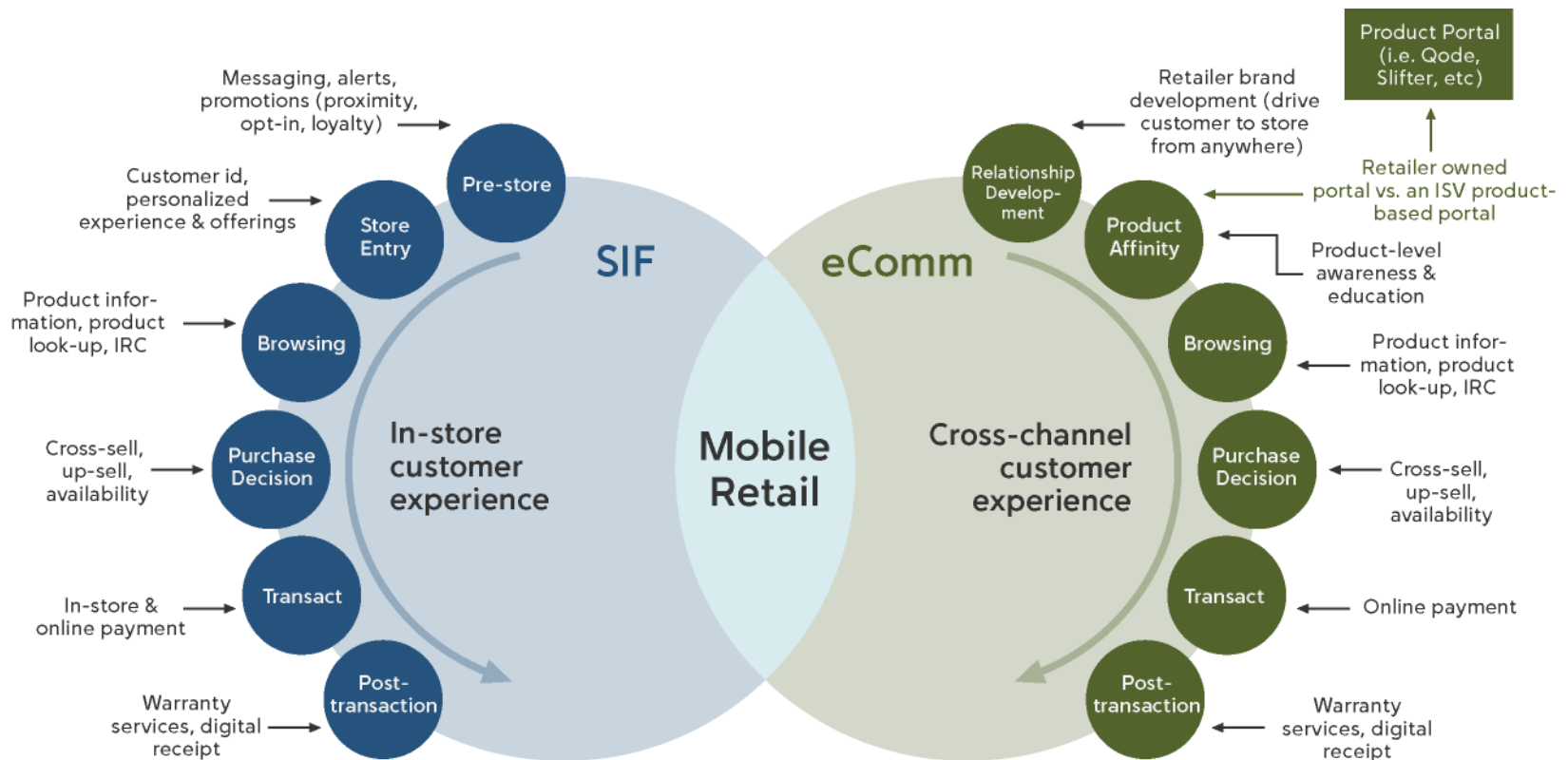
Mobile Banking

Banks are leveraging the mobile platform to enable new services to capture new business opportunities



Mobile Retail

Retailers could leverage the mobile platform to transform shopping and customer service experiences



Support the Bottom of Pyramid

Information service delivery to villagers through mobile phones



Kiosk-operator gathers local information from various sources:

1. Makes phone calls to get train schedules
2. Gets movie list for the day
3. Gets blackout timings from electricity office
4. Gets weather information through internet
5. Gets visitor list (doctors, etc.) by officials from panchayat



Kiosk operator uploads information through a phone



Voigen builds a voice interface for people to access information through a phone



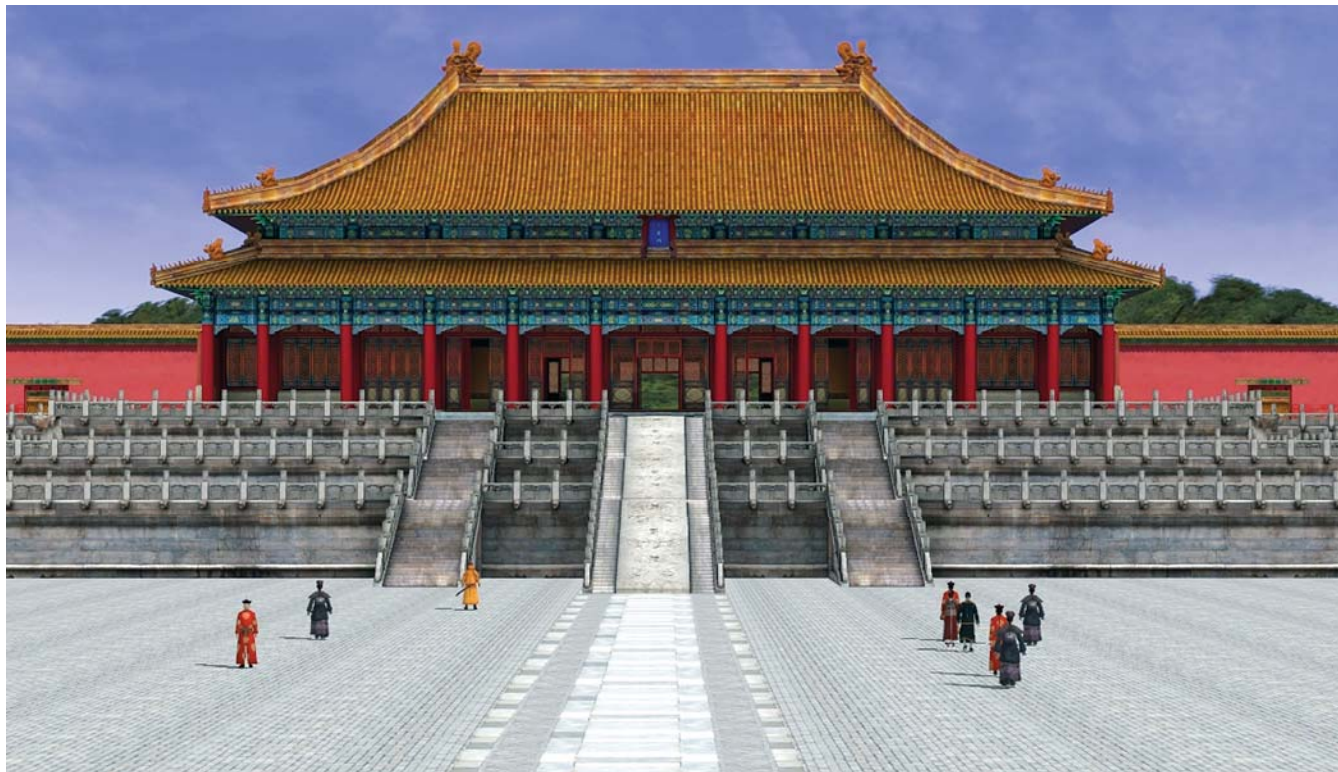
Villagers call the VoiceSite to get information on electricity-blackout timings, train schedule, weather prediction, movie listing, doctor-visit, etc.

Emerging mobile business services in BoP

- M-PESA: SAFARICOM & Vodafone (banking in Kenya)
- Bharti + SBI (bank) pilot (payment in India)
- GrameenPhone (telemedicine in Bangladesh)

The Virtual Forbidden City

www.beyondspaceandtime.org

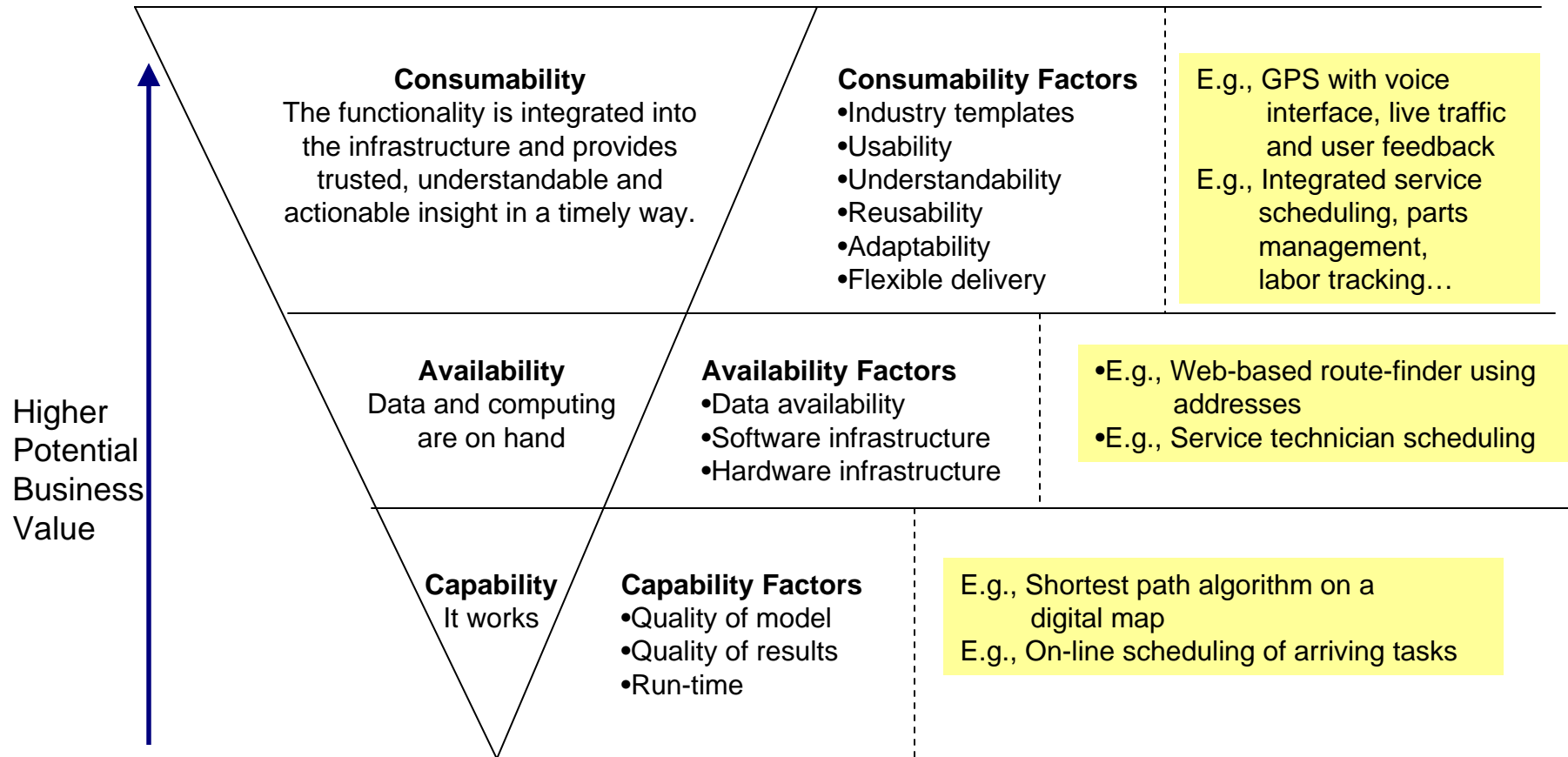




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Consumability is about minimizing the barriers to value attainment





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Business Services Ecosystem

Software as a Service

- Provide software functionality on a subscription basis



Integrators

- Provide value-add services to enable integration of process components



Bus. Service Providers

- Business service providers are domain experts that can run a component process for you (e.g. HR, payments, logistics...)



Hosting Services



Web Services Technologies



Applies Innovation to a Carbon Conscious World

Intelligent Transportation Systems

Sustainable mobility solutions

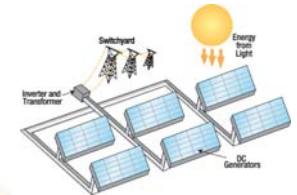
- Reduce traffic congestion
- Reduce CO2 emissions
- Increase mass transit usage
- Reduce energy usage
- Improve environment



Intelligent Utility Networks

Efficient energy transmission & distribution networks

- Reduce usage, reduce outages
- Improved grid management



Energy Efficient Technologies & Services



Green Systems/Data Centers

- IT facilities infrastructure efficiency
- IT operations efficiency
- Active energy management
- Monitoring and verification of efficiency goals
- Demand-side efficiency

Carbon Management

Enterprise Carbon Footprint Management

- Strategy
- Customer and product
- Supply Chain
- People
- IT
- Property and buildings
- Information
- Recycling
- Waste management
- End of life services



Advanced Water Management

Sustainable Water Networks

- Flood avoidance
- Weather event management
- Improved water quality
- Reduced water usage





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How to stimulate innovation

- Skills
 - Bridge the chasms between engineering, business and human relationships
 - Training and university programs
- Research and development
 - intellectual property protection
- Government initiatives
 - Invest in industries and disciplines that ensure growth and competitiveness
- Metrics
 - How do we track innovation (number of patents)?

Lessons Learned

- Hire smart people
 - work with world wide team
- Ensure diversity of thought
 - keep people engaged and stimulated
- Maintain flexibility
 - flexibility to adjust to changes
- Set milestones
- Embrace risk
 - think beyond what is the norm
- Reward success



Improve Consumability Factors

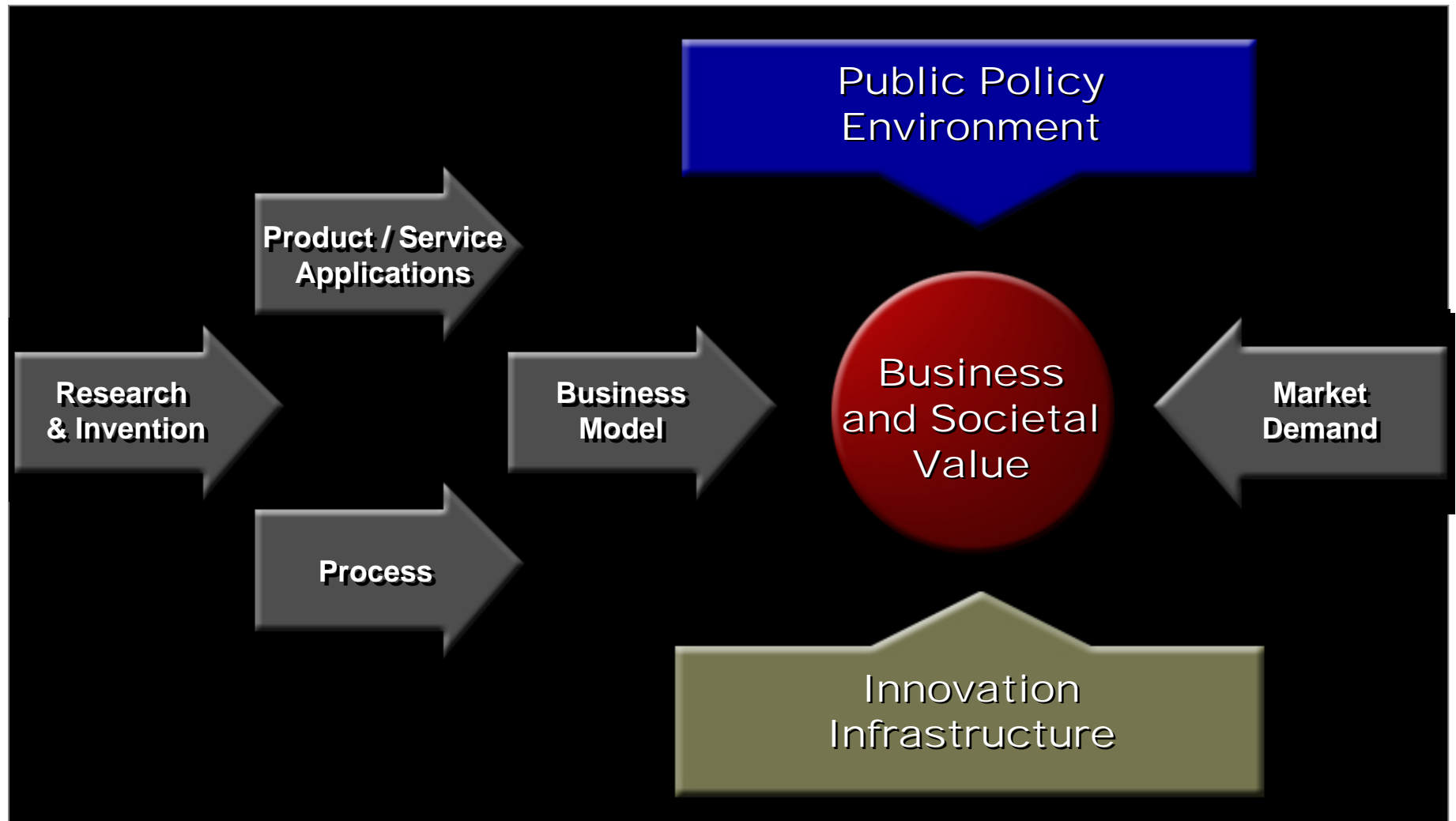
- Industry templates
- Usability
- Understandability
- Reusability
- Adaptability
- Flexible delivery



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A Framework for Innovation





ありがとうございました


Thank You

多謝

Merci


敬請指教

面値を置くかによって定義されます。



お客様の成功に全力を尽くす
私たち、そして世界に価値あるイノベーション
あらゆる関係における信頼と一人ひとりの責任

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