Technology, Innovation and Entrepreneurship

By Chad Kymal
Agenda

- Understanding Innovation
- Disruptive vs Sustainable Technologies
- Entrepreneurs and Innovation
Innovations
Top 10 Innovations in the last Century

1. The electric furnace (1889) It was “the only means for commercially producing Carborundum (the hardest of all manufactured substances).” The electric furnace also converted aluminum “from a merely precious to very useful metal” (by reducing it’s price 98 percent), and was “radically transforming the steel industry.”

2. The steam turbine, invented by Charles Parsons in 1884 and commercially introduced over the next 10 years. A huge improvement in powering ships, and to drive generators that produced electricity.

3. The gasoline-powered automobile. Many inventors worked toward the goal of a “self-propelled” vehicle in the 19th century. Wyman gave the honor specifically to Gottlieb Daimler for his 1889 engine

4. The moving picture. Entertainment always will be important to people. The technical pioneer he cited was Thomas Edison.
Top 10 Innovations in the last Century

5. **The airplane.** For “the Realization of an age-long dream”

6. **Wireless Telegraphy.** Telegraph signals got a speed boost in the U.S. from Samuel Morse and Alfred Vail. Wireless telegraphy as invented by Guglielmo Marconi, later evolving into radio, set information free from wires.

7. **The cyanide process.** Sounds toxic, yes? It appears on this list for only one reason: It is used to extract gold from ore. “Gold is the life blood of trade,” and in 1913 it was considered to be the foundation for international commerce and national currencies.

8. **The Nikola Tesla induction motor.** “This epoch-making invention is mainly responsible for the present large and increasing use of electricity in the industries.”
Top 10 Innovations in the last Century (con’td)

9. **The Linotype machine.** The Linotype machine enabled publishers—largely newspapers—to compose text and print it much faster and cheaper. It was an advance as large as the invention of the printing press.

10. **The electric welding process of Elihu Thomson.** In the era of mass production, the electric welding process enabled faster production and construction of better, more intricate machines for that manufacturing process.

   - The rules: “our time” meant the previous quarter century, 1888 to 1913; the invention had to be patentable and was considered to date from its “commercial introduction.”
   - The first-prize essay was written by William I. Wyman, who worked in the U.S. Patent Office in Washington, D.C., and was thus well informed on the progress of inventions.
Since the Industrial Revolution, the world has experienced an unprecedented rise in economic growth that has been fueled by innovation.
Innovation, Technology and Entrepreneurship

**Innovation**
Translating an idea or invention into a good or service that creates value or for which customers will pay. – Webster’s Dictionary

**Technology**
Making, modification, usage, and knowledge of tools, machines, techniques, crafts, systems, and methods of organization, in order to solve a problem, improve a pre-existing solution to a problem, achieve a goal, handle an applied input/output relation or perform a specific function.

**Disruptive Technology**
An innovation that helps create a new market and value network, and eventually disrupts an existing market and value network (over a few years or decades), displacing an earlier technology.

**Entrepreneurship**
The capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit.

So what is the relationship among all these?

Innovation leads to Technology that leads to many opportunities for the Entrepreneur
Disruptive vs Sustainable Technologies

Source: Clayton Christensen, *The Innovators Solution*
Why large companies fail?
The Bigger They are The Harder They Fall?

**Sears Roebuck**

American multinational department store chain headquartered in IL,

Industry: Retail

Founded:
Chicago, Illinois (1893)

Founder(s)
Richard Warren Sears & Alvah Curtis Roebuck

Products:
Clothing, footwear, bedding, furniture, jewelry, beauty products, appliances, housewares, tools, electronics, office supplies, school supplies

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**Borders Book Store**

Was an international book and music retailer based in Ann Arbor, Michigan.

**Employees**: 19,500 (2010)

**Products**: Books, Maps, CDs, DVDs, Calendars, Gift Packs, Magazines, Board games, Encyclopedias

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**Digital Equipment Corporation (DEC)**

Was a major American company in the computer industry from the 1960s to the 1990s

**Industry**: Computer manufacturing

**Products**:

PDP minicomputers, VAX minicomputers Alpha servers and workstations
Why large companies Fail

Principle #1: Companies Depend on Customers and Investors for Resources

While managers may think they control the flow of resources in their firms, in the end it is really customers and investors who dictate how money will be spent because companies with investment patterns that don't satisfy their customers and investors don't survive.

The highest-performing companies, in fact, are those that are the best at this, that is, they have well-developed systems for killing ideas that their customers don't want.

Principle #2: Small Markets Don’t Solve the Growth Needs of Large Companies

Disruptive technologies typically enable new markets to emerge. There is strong evidence showing that companies entering these emerging markets early have significant first-mover advantages over later entrants.

Such companies succeed and grow larger, it becomes progressively more difficult for them to enter the even newer small markets destined to become the large ones of the future.

Source: The Innovators Dilemma – Clayton M. Christensen
Principle #3: Markets that Don't Exist Can't Be Analyzed

Sound market research and good planning followed by execution according to plan are hallmarks of good management. When applied to sustaining technological innovation, these practices are invaluable; they are the primary reason, in fact, why established firms led in every single instance of sustaining innovation in the history of the disk drive industry.

Principle #4: An Organization's Capabilities Define Its Disabilities

An organization's capabilities reside in two places. The first is in its processes-the methods by which people have learned to transform inputs of labor, energy, materials, information, cash, and technology into outputs of higher value. The second is in the organization's values, which are the criteria that managers and employees in the organization use when making prioritization decisions.
Why large companies Fail – Contd...

Principle #5: Technology Supply May Not Equal Market Demand

Disruptive technologies, though they initially can only be used in small markets remote from the mainstream, are disruptive because they subsequently can become fully performance-competitive within the mainstream market against established products.
Disruptive Technologies

NEW WAYS OF DOING THINGS THAT DISRUPT OR OVERTURN THE TRADITIONAL BUSINESS METHODS AND PRACTICES.
Top 12 Disruptive Technologies

- Mobile Internet
- Automation of knowledge work
- The Internet of Things
- Cloud technology
- Advanced robotics
- Autonomous and near-autonomous vehicles
- Next-generation genomics
- Energy storage
- 3D printing
- Advanced materials
- Advanced oil and gas exploration and recovery
- Renewable energy

Source: McKinsey Global Institute Report
# Top 12 Disruptive Technologies and their Economic Impact

**Speed, scope, and economic value at stake of 12 potentially economically disruptive technologies**

<table>
<thead>
<tr>
<th>Illustrative pools of economic value that could be impacted</th>
<th>GDP of Major Countries (2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobile Internet</strong></td>
<td>United States 15.68 Trillion USD</td>
</tr>
<tr>
<td>$1.7 trillion GDP related to the Internet</td>
<td><strong>India</strong> 1.842 Trillion USD</td>
</tr>
<tr>
<td>$25 trillion Interaction and transaction worker employment costs, 70% of global employment costs</td>
<td><strong>China</strong> 8.227 trillion USD</td>
</tr>
<tr>
<td><strong>Automation of knowledge work</strong></td>
<td><strong>Germany</strong> 3.4 trillion USD</td>
</tr>
<tr>
<td>$98 trillion Knowledge worker employment costs, 27% of global employment costs</td>
<td><strong>Source</strong>: McKinsey Global Institute Report</td>
</tr>
<tr>
<td><strong>The Internet of Things</strong></td>
<td>United States 15.68 Trillion USD</td>
</tr>
<tr>
<td>$36 trillion Operating costs of key affected industries (manufacturing, health care, and mining)</td>
<td><strong>India</strong> 1.842 Trillion USD</td>
</tr>
<tr>
<td><strong>Cloud technology</strong></td>
<td><strong>China</strong> 8.227 trillion USD</td>
</tr>
<tr>
<td>$1.7 trillion GDP related to the Internet</td>
<td><strong>Germany</strong> 3.4 trillion USD</td>
</tr>
<tr>
<td>$3 trillion Enterprise IT spend</td>
<td><strong>Source</strong>: McKinsey Global Institute Report</td>
</tr>
<tr>
<td><strong>Advanced robotics</strong></td>
<td>United States 15.68 Trillion USD</td>
</tr>
<tr>
<td>$6 trillion Manufacturing worker employment costs, 19% of global employment costs</td>
<td><strong>India</strong> 1.842 Trillion USD</td>
</tr>
<tr>
<td>$3.3 trillion Cost of major surgeries</td>
<td><strong>China</strong> 8.227 trillion USD</td>
</tr>
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<td><strong>Autonomous and near-autonomous vehicles</strong></td>
<td><strong>Germany</strong> 3.4 trillion USD</td>
</tr>
<tr>
<td>$4 trillion Automobile industry revenue</td>
<td><strong>Source</strong>: McKinsey Global Institute Report</td>
</tr>
<tr>
<td>$155 billion Revenue from sales of civilian, military, and general aviation aircraft</td>
<td>United States 15.68 Trillion USD</td>
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**Next-generation economics**

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<thead>
<tr>
<th></th>
<th>United States 15.68 Trillion USD</th>
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</thead>
<tbody>
<tr>
<td><strong>$6.5 trillion</strong></td>
<td>Global health-care costs</td>
</tr>
<tr>
<td><strong>$1.1 trillion</strong></td>
<td>Global value of wheat, rice, maize, soy, and barley</td>
</tr>
<tr>
<td><strong>$2.5 trillion</strong></td>
<td>Revenue from global consumption of gasoline and diesel</td>
</tr>
<tr>
<td><strong>$100 billion</strong></td>
<td>Estimated value of electricity for households currently without access</td>
</tr>
<tr>
<td><strong>$11 trillion</strong></td>
<td>Global manufacturing GDP</td>
</tr>
<tr>
<td><strong>$85 billion</strong></td>
<td>Revenue from global toy sales</td>
</tr>
<tr>
<td><strong>$1.2 trillion</strong></td>
<td>Revenue from global semiconductor sales</td>
</tr>
<tr>
<td><strong>$4 billion</strong></td>
<td>Revenue from global carbon fiber sales</td>
</tr>
<tr>
<td><strong>$100 billion</strong></td>
<td>Revenue from global sales of natural gas</td>
</tr>
<tr>
<td><strong>$3.4 trillion</strong></td>
<td>Revenue from global sales of crude oil</td>
</tr>
<tr>
<td><strong>$3.5 trillion</strong></td>
<td>Value of global electricity consumption</td>
</tr>
<tr>
<td><strong>$100 billion</strong></td>
<td>Value of global carbon market transactions</td>
</tr>
</tbody>
</table>

**Speed, scope, and economic value at stake of 12 potentially economically disruptive technologies**

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Source: McKinsey Global Institute Report
WIIFY – Why Should You be Interested in Disruptive Technologies

- Innovation
- Where are my interests
- How is the world changing
- Research Opportunities
- Higher Study
- Business Opportunity
- Apply Disruptive Technology
- Entrepreneurship

Disruptive Technologies give rise to opportunities for Entrepreneurs
Understanding the Top 12 Disruptive Technologies

Mobile Internet
- More than one billion people who own smartphones and tablets.
- In USA, an estimated 30 percent of Web browsing and 40 percent of social media use are done on mobile devices.
- By 2015, wireless Web use is expected to exceed wired use.

Automation of knowledge work
- Artificial intelligence, machine learning, and natural user interfaces help to automate impractical for machines to perform.
- Possibilities expanded for a sweeping change in how knowledge work is organized and performed.
- Use of Sophisticated data analytics tools

Consider that the world’s stock of data is now doubling every 20 months; the number of Internet-connected devices has reached 12 billion; and payments by mobile phone are hurtling toward the $1 trillion mark.
The Internet of Things

- Embedding sensors and actuators in machines and other physical objects to bring them into the connected world
- From monitoring the flow of products through a factory to measuring the moisture in a field of crops to tracking the flow of water through utility pipes
- Allows businesses and public-sector organizations to manage assets, optimize performance, and create new business models.
- Great potential to improve the health of patients with chronic illnesses and attack a major cause of rising health-care costs through remote monitoring

Cloud technology

- Application or services can be delivered over a network or the Internet, with minimal or no local software or processing power required.
- Enabling the explosive growth of Internet-based services, from search to streaming media to offline storage of personal data as well as the background processing capabilities that enable Mobile devices to respond to spoken commands to ask for directions.
- Provides greater flexibility and responsiveness.
- Enable entirely new business models, including all kinds of pay-as-you-go service models.
T SENSORS SUMMIT FOR TRILLION SENSOR ROADMAP

Estrada La Jolla Hotel & Spa, La Jolla, CA
November 12-13, 2014

July 24, 2014

News from the Summit
Topics to be presented announced

The 2014 US Summit will feature dozens of presentations over two days. We are also working on three very exciting Keynote talks -- details will be announced soon!

Topics to-date include:
- Affordable Scaling of Sensor Manufacturing with Printed Electronics
- Context Sensors for IoT
- Game-Changing Terahertz Sensor Technologies for Large-Scale Consumer Market
- High Accuracy Calorie Sensing
- High accuracy wearable fitness and health sensors
- High growth MEMS applications that can drive the business to a trillion units
- Highly Selective and Sensitive Membrane Protein-based Sensing Transducers
- Human-centered wearable technology
- Hundred gigabyte communications and the impact for all of us
- Introducing the UCSD Center for Wearable Sensors
- Lenmense Computational Image Sensors as a Foundation for New Opportunities in Biotech
- Markets and Applications for IoT
- New generation of sensors for mobile devices
- Non-invasive Glucose Monitoring
- Pass-Through pH Technology based on TI Sensors for Sensing and/or Power Source
- Sensors for Agriculture
- Sensors Monitor Everything When Anything Connects
- Single-Chip Gas Chromatograph for Healthcare, Biotech and Agriculture
- Smart Dust in 21st Century
- Smart Systems to Improve our Quality of Life
- Spectrometer-on-a-chip, the next Ultra High Volume Networked Sensor for IoT
- The Distributed, Horizontal IoT Infrastructure, in the Perspective of the Health Vertical
- The importance of bioimetics and the role in bioengineering
- The Intelligent Edge, when the hub-and-spoke paradigm of the cloud is combined with powerful intelligence
- Towards the Single-Breath Disease Diagnosis Breathalyzer
- T Sensors Roadmap -- Update on Sensor Technology Relforms
- T Sensors Roadmap -- Update on T Sensors Infrastructure Relforms
- T Sensors Technology: Research Innovation and Education
- T Sensors: The Foundation for the Third Technical Revolution and Abundance
- Why we need wearable IoT sensors save the day?

For additional details or if you have questions please contact Bette Cooper at bcooper@tsensorssummit.org or telephone +1 650-714-1570.
Understanding the Top 12 Disruptive Technologies – Contd.

Advanced robotics
- Industrial robots have taken on physically difficult, dangerous, or dirty jobs, such as welding and spray painting. They are expensive, bulky, and inflexible—bolted to the floor and fenced off to protect workers.
- Advanced robots are gaining enhanced senses, dexterity, and intelligence, thanks to accelerating advancements in machine vision, artificial intelligence, machine-to-machine communication, sensors, and actuators.
- This technology could also enable new types of surgical robots, robotic prosthetics, and “exoskeleton” braces that can help people with limited mobility to function more normally, helping to improve and extend lives.

Next-generation genomics
- Advances in the science of sequencing and modifying genetic material with the latest big data analytics capabilities.
- Can systematically test how genetic variations can bring about specific traits and diseases, rather than using trial and error.
- Impact on medicine, agriculture, production of high-value substances such as biofuels
Autonomous and near-autonomous vehicles
- Low-cost, commercially available drones and submersibles could be used for a range of applications.
- Autonomous cars and trucks could enable a revolution in ground transportation.

Energy storage
- Advances in energy storage technology could make electric vehicles (hybrids, plug-in hybrids, and all-electrics) cost competitive with vehicles based on internal-combustion engines.
- On the power grid, advanced battery storage systems can help with the integration of solar and wind power, improve quality by controlling frequency variations, handle peak loads, and reduce costs by enabling utilities to postpone infrastructure expansion.
- In developing economies, battery/solar systems have the potential to bring reliable power to places it has never reached.
Understanding the Top 12 Disruptive Technologies – Contd.

**3D printing**
- With 3D printing, an idea can go directly from a 3D design file to a finished part or product, potentially skipping many traditional manufacturing steps.
- Enables on-demand production, which has interesting implications for supply chains and for stocking spare parts

**Advanced materials**
- Nanomaterials in particular stand out in terms of their high rate of improvement, broad potential applicability, and long-term potential to drive massive economic impact.
- At nanoscale (less than 100 nanometers), ordinary substances take on new properties—greater reactivity, unusual electrical properties, enormous strength per unit of weight—that can enable new types of medicine, super-slick coatings, stronger composites, and other improvements.
Advanced oil and gas exploration and recovery
- The ability to extract so-called unconventional oil and gas reserves from shale rock formations is a technology revolution that has been gathering force for nearly four decades.
- The combination of horizontal drilling and hydraulic fracturing makes it possible to reach oil and gas deposits that were known to exist in the United States and other places but that were not economically accessible by conventional drilling methods.

Renewable energy
- Renewable energy sources such as solar, wind, hydro-electric, and ocean wave hold the promise of an endless source of power without stripping resources, contributing to climate change, or worrying about competition for fossil fuels.
- Solar cell technology is progressing particularly rapidly.
- In the past two decades, the cost of power produced by solar cells has dropped from nearly $8 per watt of capacity to one-tenth of that amount. Meanwhile, wind power constitutes a rapidly growing proportion of renewable electricity generation.
Ten IT – enabled Business Trends for the Decade Ahead

1. Joining the social matrix
2. Competing with ‘big data’ and advanced analytics
3. Deploying the Internet of All Things
4. Offering anything as a service
5. Automating knowledge work
6. Engaging the next three billion digital citizens
7. Charting experiences where digital meets physical
8. ‘Freeing’ your business model through Internet-inspired personalization and simplification
9. Buying and selling as digital commerce leaps ahead
10. Transforming government, health care, and education
Transformation of Product Lead Time from 36 months to 3 months

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Function</th>
</tr>
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<tbody>
<tr>
<td>VOC-0010</td>
<td>The Engine should propel the plane off the ground</td>
<td>Provide propulsion on demand</td>
</tr>
<tr>
<td>VOC-0020</td>
<td>The Engine should be kept cool</td>
<td>Keep engine cool</td>
</tr>
</tbody>
</table>

Voice of the Customer for Production Item Jet Engine

Bill of Material

Social Technology

Big Data - Data Analytics

Voice of the Customer

3D Prototyping

Design Reuse and Process Reuse

Flexible Manufacturing

Advanced Materials

Advanced Robotics
Linking product and process characteristics real time to improve Quality and customer satisfaction) (Need for Big Data Analytics)
“DESPITE MUCH DISCUSSION THESE DAYS OF THE “ENTREPRENEURIAL PERSONALITY” FEW OF THESE ENTREPRENEURS WITH WHOM I HAVE WORKED DURING THE PAST 30 YEARS HAD SUCH PERSONALITIES. BUT I HAVE KNOW MANY PEOPLE – SALESPERSONS, SURGEONS, JOURNALISTS, SCHOLARS, EVEN MUSICIANS – WHO DID HAVE THEM WITHOUT BEING THE LEAST BIT ENTREPRENEURIAL. WHAT ALL THE SUCCESSFUL ENTREPRENEURS I HAVE MET IN COMMON IS NOT A CERTAIN KIND OF PERSONALITY BUT A COMMITMENT TO THE SYSTEMATIC PRACTICE OF INNOVATION.”
Popular Entrepreneurs

Steve Jobs
American business magnate, investor, computer programmer, and Innovator.
Co-Founder of Apple Inc.

Bill Gates
American business magnate, investor, computer programmer, and Innovator.
Founder of Microsoft Corporation

Elon Musk
Canadian-American business magnate, inventor and investor.
CEO and CTO of SpaceX and CEO of Tesla Motors.
Entrepreneurs - The discipline of Innovation

In the Hyper-competition for breakthrough solutions, managers worry too much about characteristics and personality" - and not enough about process.

A commitment to the systematic, search for imaginative and useful ideas is what successful entrepreneurs share—not some special genius or trait. What's more, entrepreneurship can occur in a business of any size or age because, at heart, it has to do with a certain kind of activity: innovation, the disciplined effort to improve a business's potential.

Most innovations result from a conscious, purposeful search for opportunities—within the company and the industry as well as the larger social and intellectual environment. A successful innovation may come from pulling together different strands of knowledge, recognizing an underlying theme in public perception, or extracting new insights from failure.

The key is to know where to look.
“Successful entrepreneurs don't wait for innovative ideas to strike like a lightning bolt. They go out looking for innovation opportunities in seven key areas:”

- Unexpected Occurrences
- Incongruities
- Industry and Market Changes
- Demographic Changes
- Process Needs
- Changes in Perception
- New Knowledge
### 7 Key areas of innovation opportunities - Peter F Drucker

<table>
<thead>
<tr>
<th><strong>1</strong> Unexpected occurrences.</th>
<th><strong>2</strong> Incongruities</th>
<th><strong>3</strong> Process needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>These often include failures.</td>
<td>By the 1960s, cataract removal had become high-tech, except for cutting a ligament, an &quot;old-fashioned&quot; step that was uncomfortable for eye surgeons, Alcon Laboratories responded by modifying an enzyme that dissolved the ligament. Surgeons immediately accepted the new product, giving Alcon a monopoly.</td>
<td>Two process innovations developed around 1890 created &quot;the media&quot; as we know it today: linotype made it possible to produce newspapers quickly, and advertising made it possible to distribute news practically free of charge.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>4</strong> Industry and market changes.</th>
<th><strong>5</strong> Demographic changes</th>
<th><strong>6</strong> Changes in perception.</th>
<th><strong>7</strong> New knowledge.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The brokerage firm Donaldson, Lufkin &amp; Jenrette achieved fabulous success because its founders recognized that the emerging market for institutional investors would one day predominate in the industry.</td>
<td>Why are the Japanese ahead in robotics? Around 1970, everyone knew that there was both a baby bust and an education explosion, such that the number of blue-collar manufacturing workers would decline. Everyone knew—but only the Japanese took action.</td>
<td>Such changes don't alter the facts, but can dramatically change their meaning. Americans’ health has never been better—yet we’re obsessed with preventing disease and staying fit. Innovators who understand our perception of health have launched magazines, introduced health foods, and started exercise classes.</td>
<td>Knowledge-based innovations require long lead times and the convergence of different kinds of knowledge. The computer required knowledge that was available by 1918, but the first operational digital computer did not appear until 1946.</td>
</tr>
</tbody>
</table>
The Long and Winding Road

**1945-1960s**
- Pollution
- Denial
- "Smell of money" (oblivious)

**1970-80s**
- End-of-pipe regulation
- "Pay to reduce negative impact" (trade-off)

**Mid 1980s-1990s**
- **Greening**
  - Pollution prevention
  - Product stewardship
  - "Eco-efficiency" (win-win)

**2000's- Present**
- **Beyond Greening**
  - Clean technology
  - Base of the pyramid
  - "Eco-effectiveness" (positive force)

Opportunity → Obligation → Reorientation
The Sustainable Value Portfolio

**Clean Technology**
- develop new competencies
- pursue leapfrog innovation

**Pollution Prevention**
- minimize process waste
- enhance resource productivity

**Product Stewardship**
- lower product life cycle impact
- increase transparency/accountability

**Base of the Pyramid**
- meet unmet needs
- raise the base of the pyramid

**Base of the Pyramid**
- meet unmet needs
- raise the base of the pyramid

**Clean Technology**
- develop new competencies
- pursue leapfrog innovation

**Pollution Prevention**
- minimize process waste
- enhance resource productivity

**Product Stewardship**
- lower product life cycle impact
- increase transparency/accountability
MOP versus BOP

Wealthy
>$15,000

Emerging Middle Class (MOP)
$1,500 - 15,000

Base of the Pyramid
(<$1,500)

Saturation of current markets
800

Population in millions
1,500

New capability; New market
4,000

Existing capability; New market

Purchasing Power
Parity in U.S. dollars

Prahalad & Hart, 2002
Beyond the “Great Trade-Off Illusion”

- Revel in contradiction
- Defy convention
- Turn upside-down
- Embrace paradox
- Reconcile opposites
- Shatter trade-offs

“If you want high quality, it will cost you”

“You can't do business with the poor”

“It doesn’t pay to be green”

“Clean technology is not yet economically viable”
Videos – Haptics for Vocational Skill Development

Haptics - Interactive Motorcycle Assembly in Unity 3D using the Leap motion sensor
https://www.youtube.com/watch?v=bI30wVAMphA

Ammachi Labs - Haptic Simulators for Vocational Skill Development
https://www.youtube.com/watch?v=UBD9agFynFM

Women’s empowerment
https://www.youtube.com/watch?v=KipXJoCw2Ec
Why here, why now?
Working age population in select countries (as % of total population)

Source: NSDC, UNESCO population division
Receipts (R) and Payments (P) of Royalty and License Fee for Innovation in US $ million (Source World Bank–World Development Indicators 2008 and various Issues)

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<tbody>
<tr>
<td>USA</td>
<td>44,142</td>
<td>19,258</td>
<td>48,227</td>
<td>0,049</td>
<td>52,643</td>
<td>23,901</td>
<td>57,410</td>
<td>24,501</td>
<td>62,378</td>
<td>26,433</td>
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<tr>
<td>JAPAN</td>
<td>10,422</td>
<td>11,021</td>
<td>12,271</td>
<td>1,003</td>
<td>15,701</td>
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<td>17,655</td>
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<td>20,096</td>
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<td>5,993</td>
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<td>India</td>
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<td>356</td>
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<td>421</td>
<td>25</td>
<td>421</td>
<td>112</td>
<td>949</td>
</tr>
</tbody>
</table>

India will be the largest Human capital with a capability to Innovate
Thank You!

Questions?

info@omnex.com
734.761.4940
References

- On Innovation – HBR
- McKinsey Global Reports
- The Innovator’s Dilemma – Clayton M. Christensen