

Open Innovation to Tackle Climate Change



Thaddeus Burns

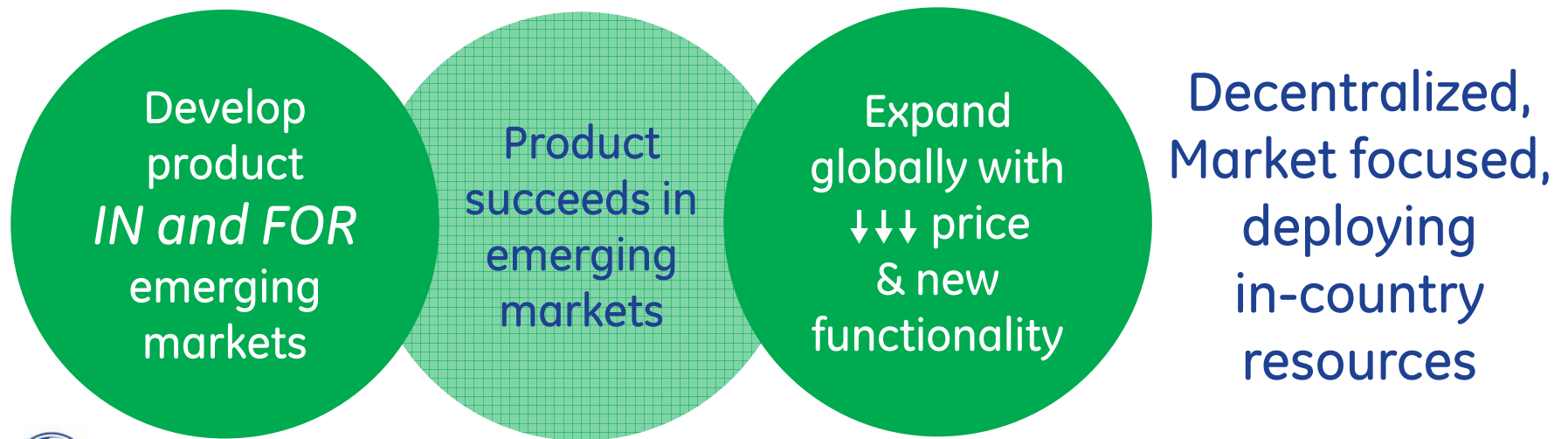
Sr. Counsel, IP & Trade, General Electric
WIPO GA CIED Side Event, September 2010



Glocalization






Reverse Innovation



MYTH: Emerging economies are evolving the same way wealthy economies did

THE REALITY:

-  Emerging economies can leap ahead since they are
 - Not dependent on legacy infrastructure
 - Able and willing to adopt technology breakthroughs
-  Developing countries are not following the same path
 - Must address today's challenges (e.g. oil prices, security)
 - Larger populations, must tackle climate change sooner
-  Lower per-capita income establishes different drivers
 - Developed world: Performance is top priority
 - Emerging economies: adequate performance + low cost

MYTH: Products developed for emerging markets cannot be sold in developed countries



CONVENTIONAL
ULTRASOUND
\$100K and UP
TYPICAL CUSTOMERS
Hospital imaging centers
TYPICAL USES
Cardiology, Obstetrics

**But the expensive, bulky
devices sold poorly in China**

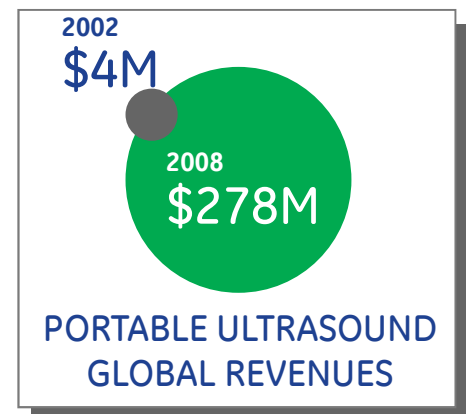


PORTABLE
ULTRASOUND
\$15K
TYPICAL CUSTOMERS
Rural clinics, ambulances
TYPICAL USES
Primary care, needle placement,
finding fluid
**With the dramatically cheaper
model, Chinese sales took off.**

THE REALITY:

Emerging market products can create new markets

- By establishing dramatically lower price points
- By Pioneering new applications

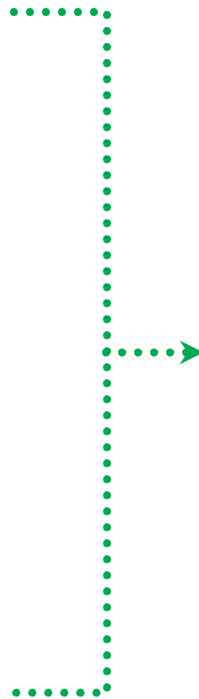


To Grow in Emerging Mkts, Become Indigenous



Developed nations can't match growth of the emerging markets. Reverse innovation is critical to success.

Competing locally
maximized growth in
emerging economies



Access the best

- Talent, resources, and knowledge

Be empowered to innovate quickly

- Not hampered by existing architecture or org structures

Be invested in local growth

- Align with the country's future, to open doors to influence policy

Strongest innovations will tap both local and global talent.

GE Taps into Talent in Emerging Markets

CTC in Shanghai, China



- \$15M directed at projects in China For China by CEO to fuel future growth in both China and abroad
- China's first homegrown commercial aircraft was powered by a GE CF34-10A engine
- Along with Quishuyan Locomotive assembled 298 China Mainline Locomotives

JFWTC in Bangalore, India



- Innovations for the local market include
- Smart Axle Counter System for the Indian Railways Signaling System
 - Flexible, eco-friendly polymers for submersible pump wire, replacing PVC in India
 - MAC 400 Ultra portable ECG, including all design, dev, and manufacturing

Potential Brazil Expansion



- In Jan 2010, GE announced plans to expand its research network and is considering Brazil as its next location.
- In process of meeting with customers, industry partners, and the Brazilian government to determine projects and programs
 - GE has operated in Brazil since 1919, with ~6000 employees locally

Reverse Innovation Requires an IP Foundation

Develop product
IN and FOR
emerging markets

Product
succeeds in
emerging
markets

Expand
globally with
↓↓↓ price
& new
functionality

- Development requires significant investment
- In weak IPR regimes, the private sector lacks protection for their underlying investments
 - ✗ Inadequate IPR makes technology investment uncertain
 - ✗ Ex. Without investing, firms may enter the market at a significantly lower cost point, undercutting margin
- Weak IPR regimes also undercut access to technology
 - ✗ While compulsory tech transfer *may* provide access to *existing* tech, it discourages second generation solutions
 - ✗ Investment slows in light of minimal profits and the market is denied access to technology improvements
- Strong IPR regimes create an incentive to invest
 - ✓ Upon the success of a product, ROI is more predictable
 - ✓ With strong IPR, innovations in an emerging market can be moved to developed countries

Strengthened IPR brings

- More patent applications
- Increased R&D spend
- Inward FDI
- Merchandise & service imports
- Inflow of high-tech products

to Developing Countries



magination at work

Paying to Facilitate Clean Technology

Just to maintain current GHG levels, requires a significant investment in cleaner and greener technology

The Price Tag: **\$200B Annually**

For 20 years, to keep the status quo

Source: UNFCCC

Today

- Clean R&D spending is **less than 1/2** that amount
- The Private Sector pays for **70% of Global R&D** and **over 80% of Clean Energy R&D**

Private R&D is *key* to mitigation & adaptation

Stronger IPR Enhances Technology Transfer

BUT

You also need complementary factors like...

- Infrastructure
- Effective Gov't Policies/Regs
- Knowledge Institutions
- Access to credit/capital
- Skilled Human Resources
- Networks for Research Collaboration

Source: Park and Lippoldt (2008)



Thank You



The Local Growth Team (LGT) Model

1. Shift power to where the growth is

2. Build new offerings from the ground up

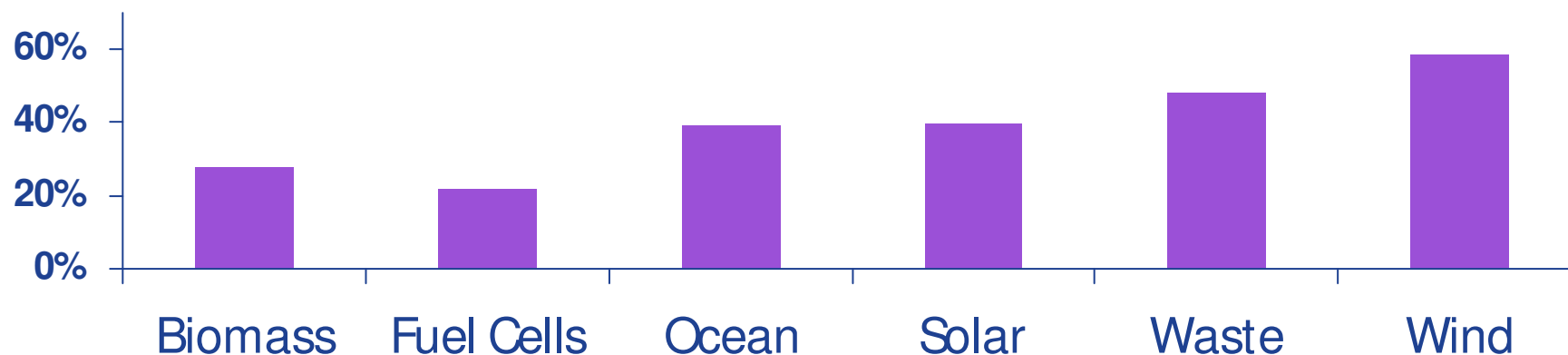
3. Build LGTs from the ground up, like new companies

4. Customize objectives, targets, and metrics

5. Have the LGT report to someone high up in the organization.

The State of Climate Related Patents

- Climate inventions represent ~1% of inventions world-wide
- 2/3 Clean tech patents are concentrated in three countries
 - Japan, Germany , and US
- China, South Korea, & Russia have 15% of climate patents
- Emerging economies own a significant % of patents within their markets



Source: Copenhagen (2009)

We are creating a carbon-neutral future with Masdar City.

- Zero waste
- Carbon neutral
- Research center
- Car-free
- Renewable energy
- University



GE's ecomagination Challenge



The banner features a dark blue background with white text and logos. At the top, "\$200 MILLION" is written in large, bold, white letters. Below it, the tagline "To improve the way we CREATE. CONNECT. USE. power" is written in a smaller white font. At the bottom, five logos are displayed: GE, ROCKPORT CAPITAL, emerald Technology Ventures, Foundation CAPITAL, and KP CB.

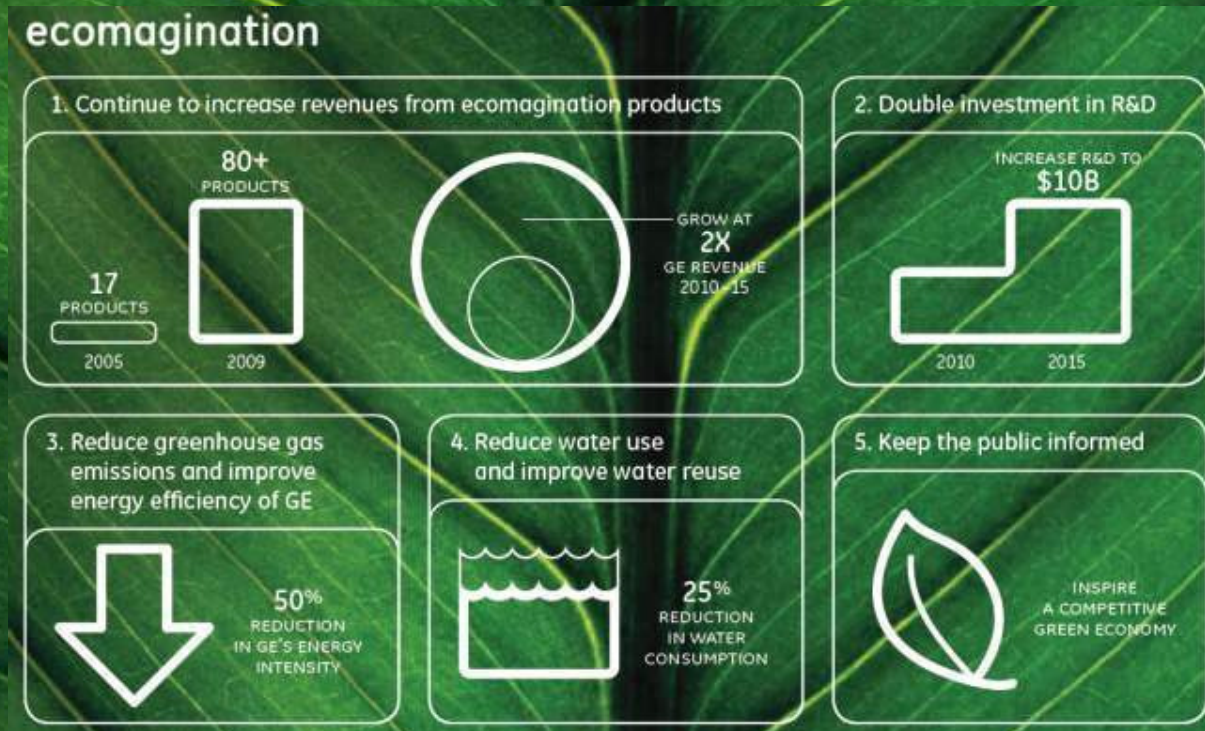
- **Investment:** the \$200 million capital pledge of GE and its partners will be invested globally into promising start-ups and ideas
- **Validation:** evaluate entrant's business strategy through in-depth discussions with GE's technical and commercial teams
- **Distribution:** explore partnership opportunities with GE to scale a business and create global reach
- **Development:** leverage GE's technical infrastructure and GE Global Research Centers to accelerate technology and product development
- **Growth:** explore opportunities for utilizing existing GE customer to take Challenge products to market

ecomagination

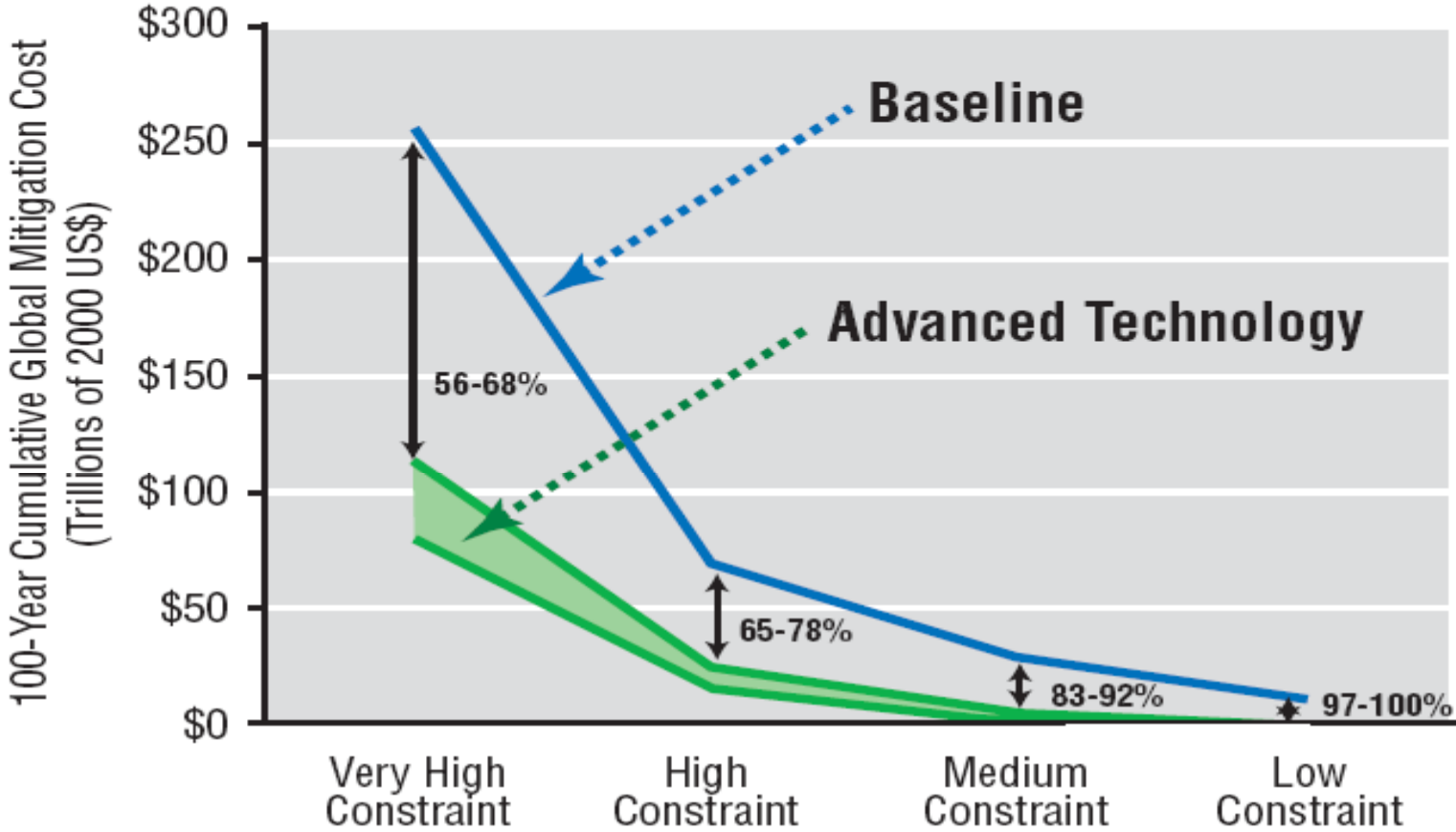
Ecomagination is our business strategy to help meet customers' demand for products that improve their bottom line and reduce their impact on the environment.

Ecomagination reflects GE's commitment to invest in a future that creates innovative solutions to environmental challenges.

Today, GE Evolution locomotives will save so much fuel, it's like taking 43,000 cars off the road.



Managing Climate Mitigation



Technology is the **only way** to afford mitigation