



# Realizing the Promise of DC Power

## Humanity, Energy And Regional Transformation

**John C. Camillus**

*The Donald R. Beall Professor of Strategic Management*



# Who We Are



Bopaya Bidanda  
Co-P. I.



Louis Luangkesorn  
DC-HEART Initiative



Kristy Bronder  
Program Manager



John Camillus  
P. I.



**ENGR 1050 Product Realization** (3- Credit Elective, Spring Term Two student teams. Will implement greenhouse structures, power generation systems, and business model developed by **BSPP 2328 Business of Humanity** teams.)

**IE 2998: Graduate Projects/Practicum**  
(3- Credit Elective. Fall Term. Two students. Developing Gap Analysis for DC power.)



**BSPP 2328 The Business of Humanity: Strategic Management in the Era of Globalization, Innovation and Shared Value** (3- Credit Elective. Fall Term. Six student teams. Will handoff to **ENGR 1050 Product Realization** teams in the Spring Term.)

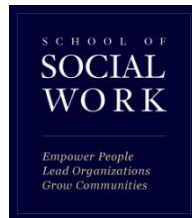
**BSPP 2061 Independent Study in Strategic Planning**  
(3- Credit Elective. Fall Term. One student developing final business plan for DC-powered greenhouse project in Homewood)

Student  
Teams

KEY  
PARTNERS



DC-POWER  
INITIATIVE



AHMEDABAD  
UNIVERSITY



Hillman Family Foundations

Beall Family Foundation



Narottam Lalbhai Rural Development Fund

# Overview

The Business of Humanity® Proposition

The Business Environment

The Business of Humanity® Strategy

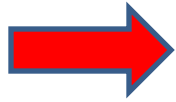
The BoH® DC Power Initiative

The Promise of DC Technology

The BoH® “DC-HEART” Initiative



# Overview



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# The Business of Humanity® Proposition

Strategic decision making that employs criteria falling under the rubric of

**"humanity,"**

in its two dimensions of

***"humaneness"*** and ***"humankind,"***

leads to

**superior economic performance**

and

**enduring value.**



# Origins of BoH®: The Empirical Basis

- **Organizational Transformations**
  -  **General Electric**
  -  **Rockwell**
- **Organizational Failures**
  -  **Enron**
  -  **Westinghouse**
- **Benchmarking Studies**
  - 22 target (best practice) companies
  - 87 sponsoring companies



Jeffrey R. Immelt, Vijay Govindarajan and Chris Trimble, "How GE Is Disrupting Itself," Harvard Business Review, October 2009, pp. 56 – 65.

For decades, GE has sold modified Western products to emerging markets. Now, to preempt the emerging giants, it's trying the reverse.

SHOULD YOU LAUNCH A FIGHTER BRAND?...page 86

# Harvard Business Review

hbr.org  October 2009

**5 Traps of PERFORMANCE MEASUREMENT**  
page 96

**IMMELT ON How GE Is Disrupting Itself**

**SPOTLIGHT ON RISK**

**MANAGING RISK in the New World**  
Five Experts Discuss the Future of Enterprise Risk Management

**HBR TOOL Mapping Your Fraud Risks**

**BLACK SWAN EVENTS How to Reduce the Impact**  
Nassim N. Taleb,  
Daniel G. Goldstein, and  
Mark W. Spitznagel

**HOW VULNERABLE IS YOUR BUSINESS to Consumer Debt?**

**Making Financial Markets Safe**  
**ROBERT MERTON**



How  
GE  
Is  
Disrupting  
Itself

For decades, GE has sold modified Western products to emerging markets. Now, to preempt the emerging giants, it's trying the reverse.

We call the process used to develop the two machines and take them global *reverse innovation*, because it's the opposite of the *glocalization* approach that many industrial-goods manufacturers based in rich countries have employed for decades. With *glocalization*, companies develop great products at home and then distribute them worldwide, with some adaptations to local conditions. It allows multinationals to make the optimal trade-off between the global scale so crucial to minimizing costs and the local customization required to maximize market share. *Glocalization* worked fine in an era when rich countries accounted for the vast majority of the market and other countries didn't offer much opportunity. But those days are over – thanks to the rapid development of

**IN MAY 2009**, General Electric announced that over the next six years it would spend \$3 billion to create at least 100 health-care innovations that would substantially lower costs, increase access, and improve quality. Two products it highlighted at the time – a \$1,000 handheld electrocardiogram device and a portable, PC-based ultrasound machine that sells for as little as \$15,000 – are revolutionary, and not just because of their small size and low price. They're also extraordinary because they originally were developed for markets in emerging economies (the ECG device for rural India and the ultrasound machine for rural China) and are now being sold in the United States, where they're pioneering new uses for such machines.

by Jeffrey R. Immelt, Vijay Govindarajan, and Chris Trimble

56 Harvard Business Review | October 2009 | hbr.org

Tom Burns

Donald R. Beall, *Formation, Evolution and Transformation of Rockwell*, Dartbrook Partners, Newport Beach, CA, 2008

“The culture and character of a company are derived from the character of its people – not vice versa.”

Individual values – integrity, diversity, teamwork, respect for the individual – drive and enhance shareholder value.

FORMATION, EVOLUTION AND



TRANSFORMATION OF ROCKWELL

by Donald R. Beall





# "Best Practice" Companies Studied



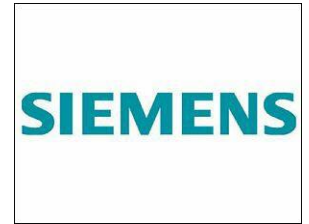
JOHN DEERE



STERLING  
CHEMICALS



Shell



醫院管理局  
HOSPITAL  
AUTHORITY





# Other Organizations Recently Studied in the Field





# Motivation for the BoH<sup>®</sup> Project

- Dramatically changing context of business and engineering
- Increasing significance, diversity and activism of stakeholders
- Demonstrated inadequacy of accounting profit projections and ROI as the sole criteria for strategic decision making in business
- Budding understanding of the profitability of “good works”
- Continuing and fundamental importance of business as a social institution



# Evidence Supports the Robustness of “Humanity” in Strategic Decision Making

- **“Humaneness”** Adds to the Bottom Line
  - Measured Approaches to Enhancing Quality, Safety, Environmental Sustainability, Social Sustainability, Diversity, Gender Equality, Integrity, Ergonomics and Good Design Have Been Shown to Grow the Bottom Line
  - Mitigates Weaknesses of the Profit Measure -- Accounting Profits  $\neq$  Economic Profits, Unreliability of Forecasts in Disruptive Contexts
- **“Humankind”** is Economically Appealing and Strategically Stimulating
  - Global Opportunities/Growth of BRICs Can Enhance the Top Line
  - The **“NEXT FOUR BILLION”** Consumers are at the BOP and Moving into the Working/Middle Class with **\$5 to \$13 TRILLION** of Purchasing Power
  - Reverse Innovation Resulting from Addressing Low Price Point Markets Creates Competitive New Products and Technologies for Developed Economies
  - New Business Models that Respond to the BOP Create Competitive Advantage in Higher income Segments
- “Humaneness” and “Humankind” are the Two Dictionary Definitions/Dimensions of **“Humanity”**



# Evidence Supports the Robustness of “Humanity” in Strategic Decision Making



David Bach and David Bruce Allen, Sloan Management Review, Spring 2010, Vol. 51, No. 3, pp. 41 – 48.

In a global economy, sustained competitive advantage arises from tackling social, political and environmental issues as part of a corporate strategy – not just pursuing business as usual.

# What Every CEO Needs to Know About *Nonmarket* Strategy

In a global economy, sustained competitive advantage arises from tackling social, political and environmental issues as part of a corporate strategy — not just pursuing business as usual.

BY DAVID BACH AND DAVID BRUCE ALLEN

NOVARTIS AG, the world's fourth largest pharmaceutical company, has been engaged since 2002 in a high-profile public battle with the Indian government over Glivec, a popular cancer drug. (The drug is known as Gleevec in the United States.) India has denied Novartis a patent for Glivec, alleging it does not offer "improved efficacy" over its predecessor.<sup>1</sup> Novartis, which has obtained patents for Glivec in more than 40 countries, including China, insists that India's stringent requirements for novelty violate international intellectual property treaties. The company is waging its campaign in courtrooms and ministries, and with the public — its Web site features videos of Indian patients extolling the drug's benefits and Indian experts detailing the dire consequences for patients deprived of Glivec.

Novartis, however, was not content simply to fight for its intellectual property rights. In a subtle and related thrust, the company offers Glivec to needy Indian patients at dramatically reduced prices. The program is featured among the company's "corporate citizenship" initiatives, which also provide leprosy and tuberculosis drugs to millions of patients free of

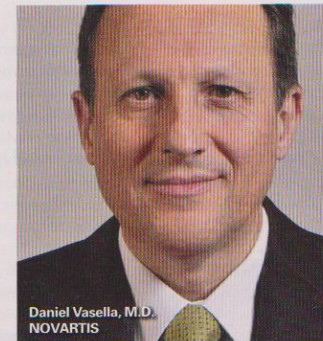


## THE LEADING QUESTION

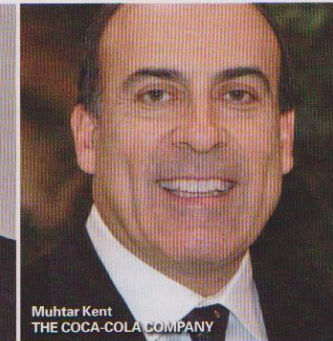
Why should companies pursue a nonmarket strategy?

## FINDINGS

- ▶ Companies face risk in nonmarkets, from government regulations, social campaigns and political movements.
- ▶ A nonmarket strategy allows a company to shape the environment in which it operates, creating opportunities.
- ▶ Managing key issues and actors is crucial to success in the nonmarket.



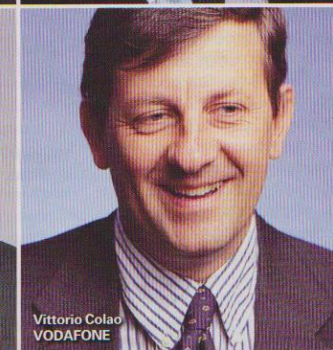
Daniel Vasella, M.D.  
NOVARTIS



Muhtar Kent  
THE COCA-COLA COMPANY



Yoshimi Inaba  
TOYOTA MOTOR SALES, U.S.A., INC.



Vittorio Colao  
VODAFONE

# FORD BRAZIL: Economic Benefits of Humaneness



**Marcos S. de Olivera**  
**President and Chief Executive Officer**  
**Ford of Brazil**

# FORD BRAZIL: Humaneness Means Success

A man in a light blue shirt and dark tie is speaking, gesturing with his hands. He is in an office setting with a fern plant on the left and a framed picture on the wall behind him.

**Marcos S. de Olivera**  
**President and Chief Executive Officer**  
**Ford of Brazil**



# VODAFONE CZ: Organization = People = Values

A woman with blonde hair, wearing a dark jacket, is speaking. She is positioned in front of a white background with a Vodafone logo partially visible on the right. The text 'Vodafone Czech Republic' is overlaid on the bottom of the image.

**Muriel Anton**  
**CEO**  
**Vodafone Czech Republic**

# VODAFONE CZ: Living the Values

**Katarína Brončeková**  
**Vice President - People**  
**Vodafone Czech Republic**



**vodafone**

# FORD BRAZIL: Humane Objectives

A portrait of Celso Moscardo de Salles, a man with short brown hair, wearing a white button-down shirt. He is looking slightly to the left of the camera. The background is an office setting with a green fern plant on the left and a framed picture on the wall to the right.

**Celso Moscardo de Salles**  
**Project Manager**  
**Ford Camaçari**

# VODAFONE CZ: Hierarchy of Strategic Goals



**Monika Čížková**  
**V.P. of Brand & Communications**  
**Vodafone Czech Republic**

Ted Leonsis, "How to Build a Happy Company," Newsweek, April 12, 2010, p. 18.

My 25 years as an entrepreneur and investor, however, have shown me firsthand the link between pursuing happiness and achieving financial success.



## HOW TO BUILD A HAPPY COMPANY

BY TED LEONSIS

WALL STREET WAS PERPLEXED LAST month when Google decided to flout China's censorship laws, routing Web users to an unrestricted search page based in Hong Kong. In the short term, the move threatens the company's foothold in the biggest Internet market in the world. By my lights, however, it's a brilliant long-term plan.

I have followed Google for more than a decade—first as one of the earliest investors (pre-IPO) in the company and later as an AOL executive who helped arrange a pair of big partnerships with the search giant. But my interest has always been more than merely financial. Google is a prime example of what I call a double-bottom-line company—an organization that measures its success by both its fiscal results and its positive impact on humanity. Google aims to make money, of course, but it also has a motto ("Don't be evil") and a higher calling: to organize the world's information and make it universally accessible. By refusing to participate in Chinese censorship, the company imperiled billions of dollars in future profit. More important, it protected its status as a happy company at peace with its values—and happy companies are more, not less, likely to continue being successful.

The notion of championing principle over profit may strike some people as naive. But I'm no socialist or sap.

I realize that "doing the right thing" is meaningless if it doesn't keep the lights on. My 25 years as an entrepreneur and investor, however, have shown me firsthand the link between pursuing happiness and achieving financial success.

AOL offers one of the best examples of my happiness model at work. When the company pursued the higher calling of spreading Internet access, both our bottom lines were healthy and our company was happy. When we got off that path and worshiped the false god of the short-term earnings bump, we lost our way. We sold off businesses we had pioneered, such as the online dating service Love@AOL. We walked away from a 20 percent stake in Amazon.com, because another retailer offered us a way to impress Wall Street with better quarterly profits. And we ultimately entered a merger with Time Warner, a move that I opposed in part because it subverted our goal of building a global medium and catered to financial analysts instead. We were no longer asking ourselves, "What great product did we release this week?" Everything—*everything*—was about whether we were going to send enough money to New York to help our corporate parent impress investors. I remember coming out of meetings and saying to people, "We could be making nuclear-power plants, for all you could tell from that meeting."

I utilize double-bottom-line thinking in my personal investments as well. As the principal owner of the Washington Capitals hockey team, I probably could have earned short-term praise by lowering our already low ticket prices in recent years. But the team would soon have lacked the financial resources to put a Stanley Cup contender on the ice. So in order to generate enough money to win—and make our fans really happy—I raised ticket prices. Now we have a happy team, happy fans—and a shot at a championship.

Admittedly, the concept of the double bottom line is unlikely to pop up in business schools any time soon. To people who talk in terms of "the hurdle rate of return" and "maximizing shareholder value," the idea of pursuing

**I'm no socialist or sap. I realize that 'doing the right thing' is meaningless if it doesn't keep the lights on.**

happiness seems woefully out of place. But consider that no less than Charles Forbes—founder of *Forbes* magazine—has said that business originated to produce happiness. He might have added that happiness can produce business as well. Revenue growth, after all, is central to the service of a company's higher calling—a fact that Google certainly appreciates, even as it seems to be walking away from easy profits.

*LEONSIS is a former AOL vice chairman, the principal owner of the Washington Capitals, and the author of The Business of Happiness.*

Christopher Meyer and Julia Kirby, “Leadership in the Age of Transparency,” Harvard Business Review, April 2010, pp. 56 – 65.

For along time, companies have been able to ignore “externalities” – the side effects that their operations have on the world. But as those ripple effects become more measurable, the true corporate leaders are stepping up to the challenge of managing them.

Consumers know everything about your company – not just its carbon emissions but its countless other “invisible” effects on the globe. That has changed the rules of business forever.

# HBR.ORG Harvard Business Review

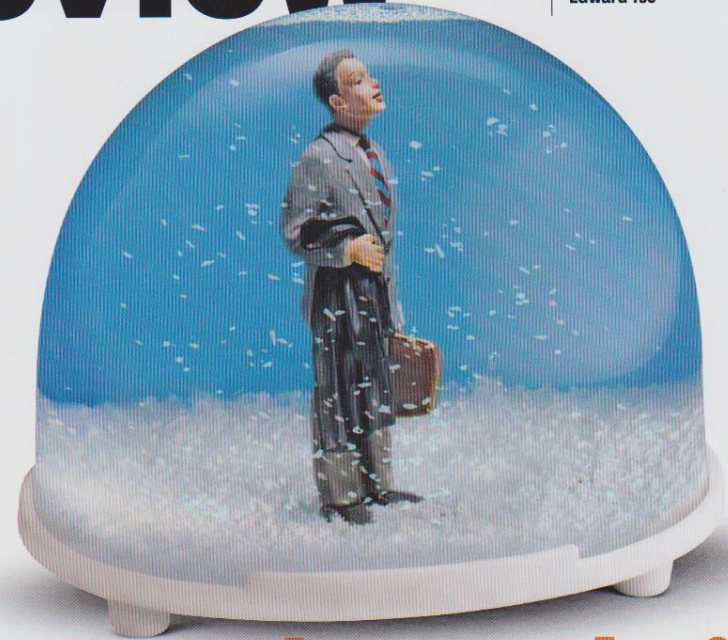
APRIL 2010



50 **Spotlight on Fixing Health Care**  
Turning Doctors  
into Leaders  
Thomas H. Lee

80 **Organization & Culture**  
Is Your Company in  
Danger of Burning Out?  
Heike Bruch and Jochen I. Menges

96 **The Globe**  
Is It Too Late  
to Enter China?  
Edward Tse

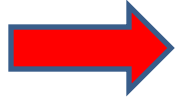


## Leadership in the Age of Transparency

Consumers know everything about your company— not just its carbon emissions but its countless other “invisible” effects on the globe. That has changed the rules of business forever.

# Overview

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# Today's Business Environment

## It's a VUCAC World

- Volatile
- Uncertain
- Complex
- Ambiguous
- Chaotic





# Three Mega-Forces

- The Inevitability of **Globalization**
- The Imperative of **Innovation**
- The Importance of **Shared Value**



# Why Globalization?

- **Demographics**
  - Market Size
  - BoP\* and Price Point Pressures#
- **Geography of Innovation**
  - Investment in Innovation Outside Home Country
  - Progress up the Value Chain in Emerging Economies
  - Reverse (Disruptive) Innovation # from BRICs

\* Prahalad, C.K. 2006. *The fortune at the bottom of the pyramid: Eradicating poverty through profits*. Upper Saddle River, NJ: Wharton School Publishing.

#Hart, S. L. & Christensen, C. M. 2002. The great leap: Driving innovation from the base of the pyramid. *Sloan Management Review*, Fall: 51-56.

# Why Innovation?

## **Economic Growth** Results from Two Possibilities\*:

- Increase in Inputs (Resulting in Greater Output)
- **Innovation (in Processes and Outputs)**

This is also **true for firms.**

\*Nathan Rosenberg, Innovation and Economic Growth. OECD 2004. Available at <http://www.oecd.org/cfe/tourism/34267902.pdf>

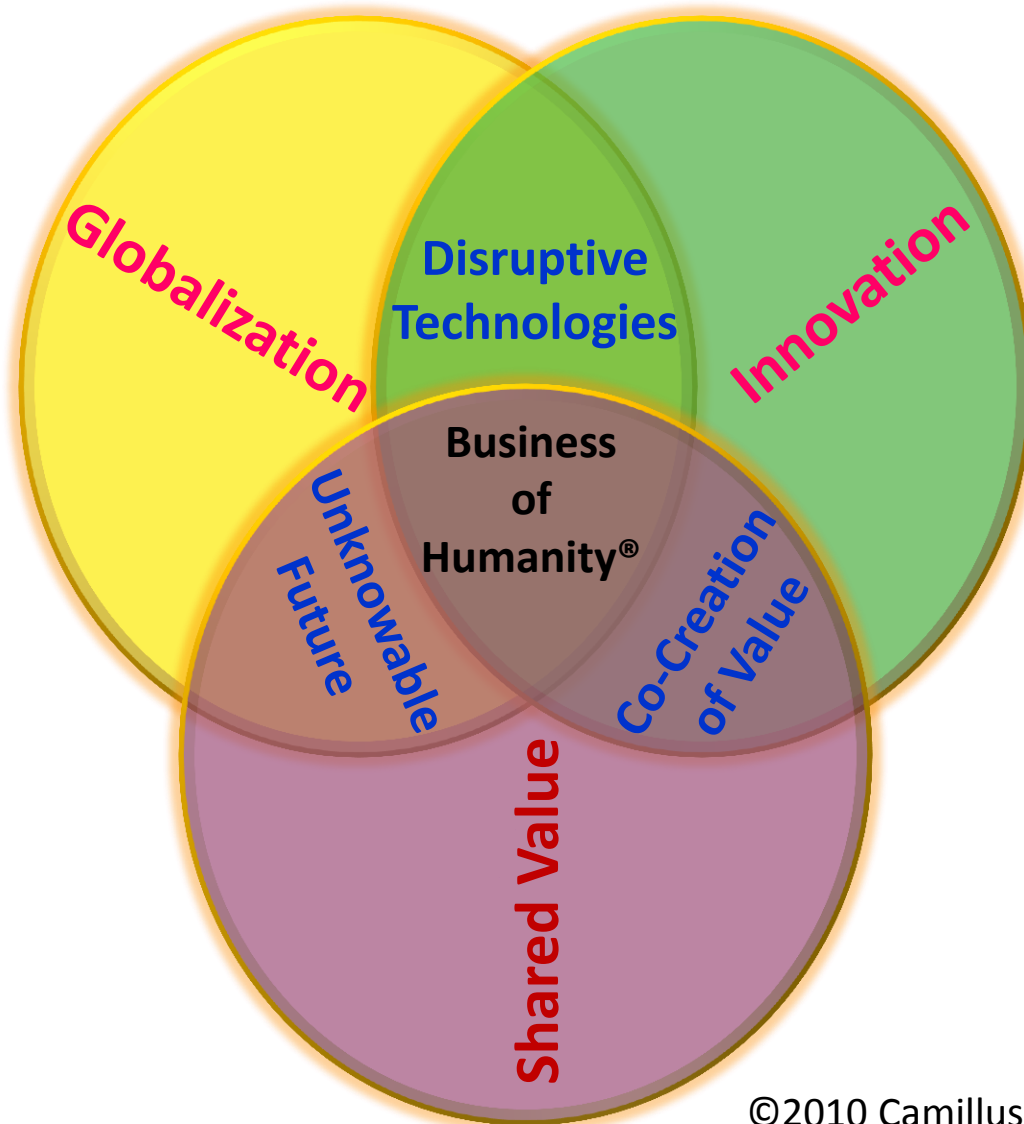
# Why Shared Value?

- **Synergy** of Economic Benefits and Social Benefits\*
- Motivating **Improved Business Models** Resulting in Competitive Advantage and Greater Profits
- Promoting **Innovation and Growth**

\*Michael E. Porter and Mark R. Kramer, 2011 "Creating Shared Value," *Harvard Business Review*, January-February, 62 – 77.



# BoH<sup>®</sup> in the New Business Context





**Globalization**

## **Pervasive, Accelerating Trends:**

- **Global Sourcing**
- **Global Competition**
- **Global Standards**
- **Global Quality**
- **Global Markets**
- **Global Partnerships**
- **Global Financing**

# NASSCOM: Global Thinking

A middle-aged man with a grey beard and mustache, wearing a dark suit, white shirt, and red tie, is seated in a green patterned armchair. He is gesturing with his hands while speaking. The background consists of a light-colored wall and a wooden panel.

**Kiran Karnik**  
**President, NASSCOM**

# PRODAPT: Flexible Roles and Boundaries

A man with glasses and a blue shirt is sitting in a chair, gesturing with his hands while speaking. The background is a wooden office wall with a window.

**Vedant Jhaver**  
**President, Prodapt**  
**Jhaver Group**



# HCL: Global Business Mindset

A man with a mustache and glasses, wearing a dark suit, white shirt, and purple tie, is seated on a light-colored sofa. He is gesturing with his right hand while speaking. The background is a wood-paneled wall.

**Vineet Nayar**  
**CEO, HCL Technologies**

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# THE NEXT 4 BILLION

Public Disclosure Authorized

MARKET SIZE AND BUSINESS STRATEGY  
AT THE BASE OF THE PYRAMID

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# Redrawing the map

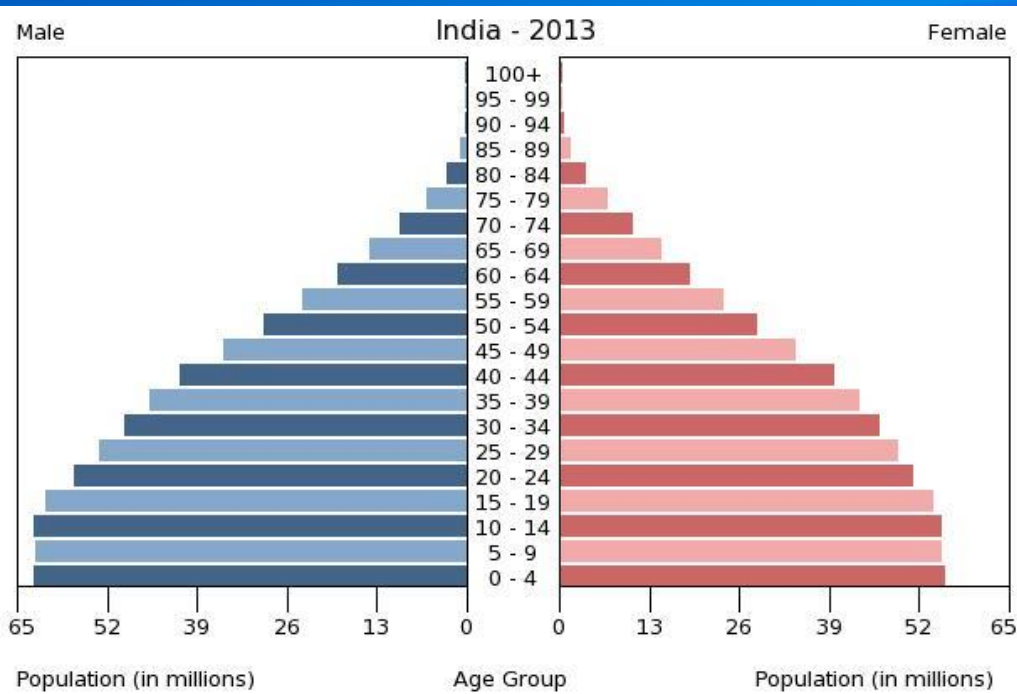
Globalization and the changing  
world of business

Featuring insights from *The Globalization Index*,  
compiled by the Economist Intelligence Unit

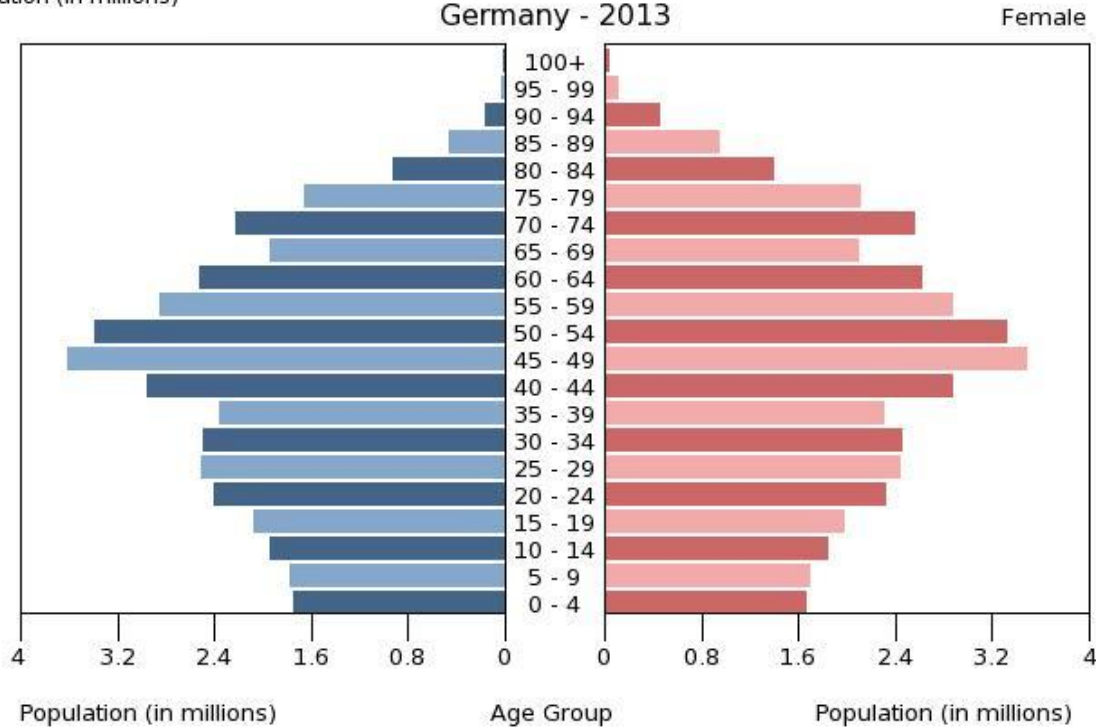


 **ERNST & YOUNG**  
Quality in Everything We Do

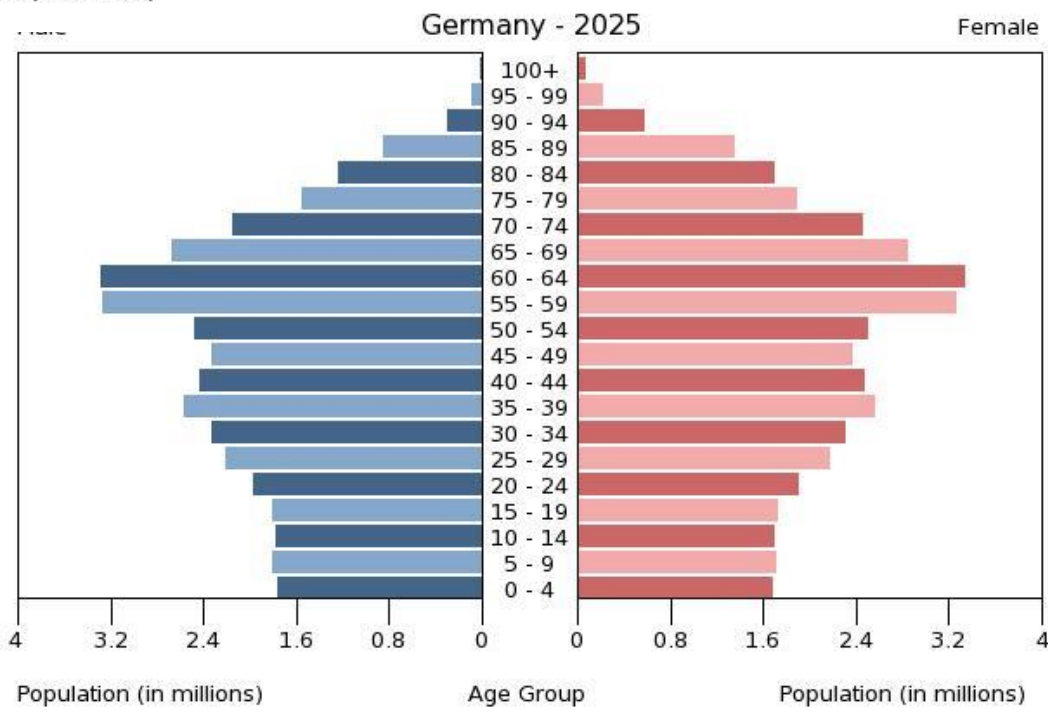
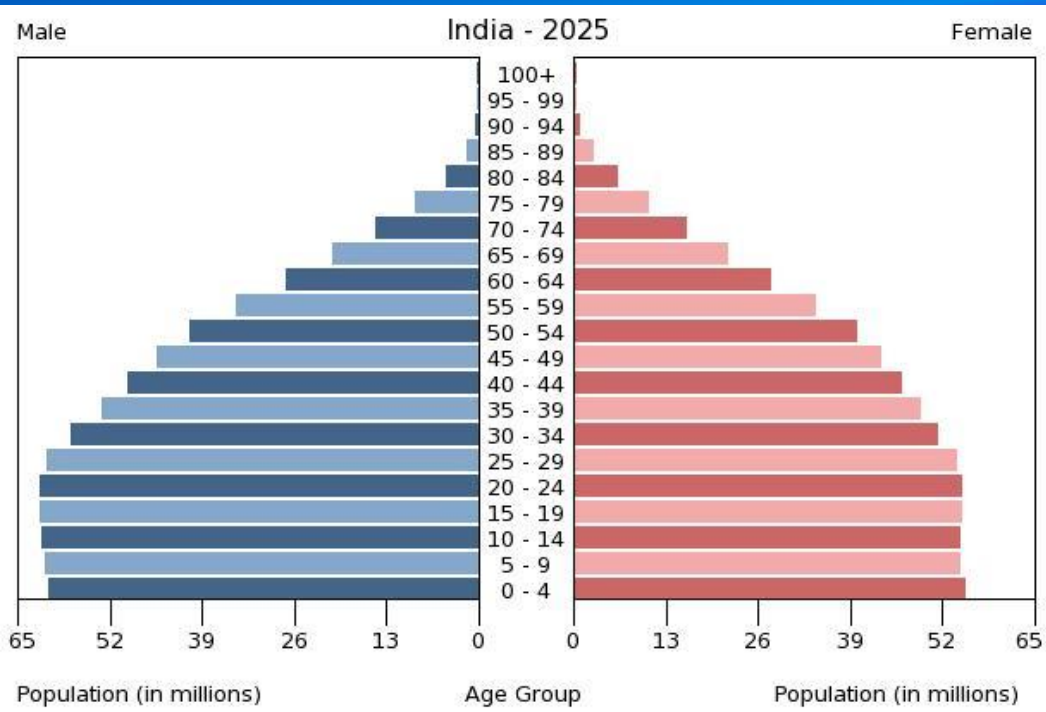
# Population Pyramids



**Germany - 2013**



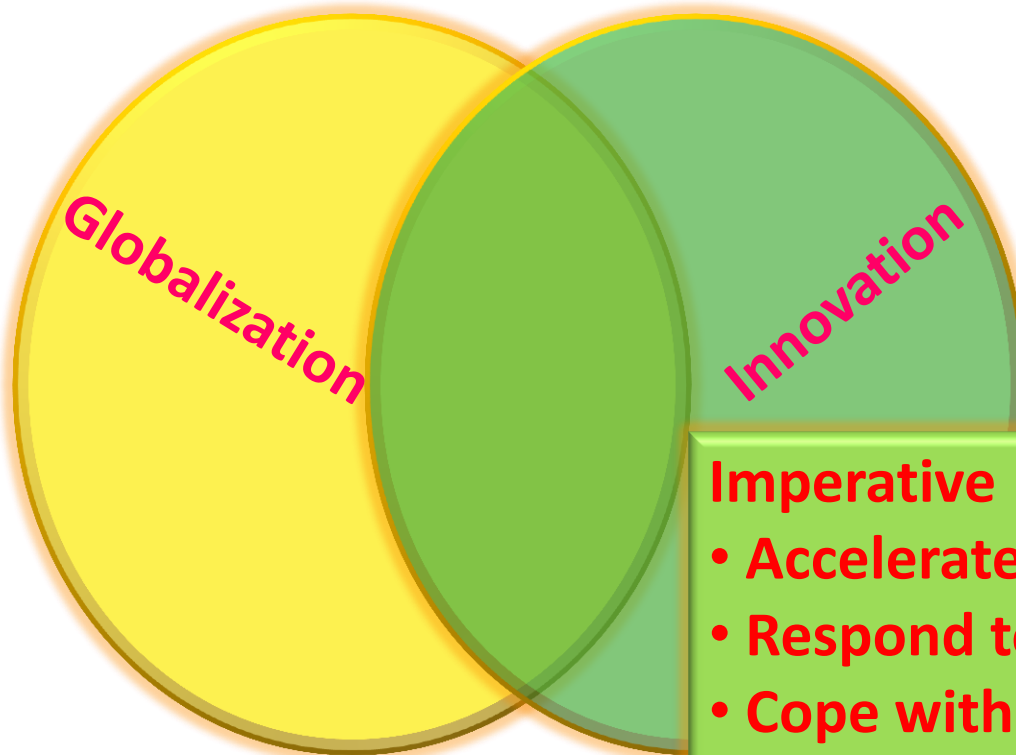
# Population Pyramids



# Projected GDP Growth – BRICs and G6

<b>China</b>	UK Germany	Japan					US
<b>India</b>		Italy	France	Germany	Japan		
<b>Russia</b>			Italy	France	Germany		
<b>Brazil</b>				Italy	France	Germany	
<b>BRIC</b>							<b>G6</b>
<b>YEAR</b>	2010	2015	2020	2025	2030	2035	2040

Source: "Dreaming with BRICs," *Goldman Sachs*, 2003



**Imperative to:**

- **Accelerate growth**
- **Respond to competition**
- **Cope with change**
- **Meet customer expectations**

## INNOVATION AND ECONOMIC GROWTH

by Nathan Rosenberg  
Professor of Economics (Emeritus), Stanford University

### Abstract

This paper illustrates why technological innovation is considered as a major force in economic growth and focuses on some of the most distinctive features of innovation in the highly industrialized economies of the OECD area. In particular, the paper attempts to examine a primary single feature, “uncertainty” that dominates the search for new technologies by drawing several cases on the American experience. It also touches on the impact of technological innovation in the tourism industry and how it is transforming the tourism business model.

### Technological innovation, a major force in economic growth

It is taken as axiomatic that innovative activity has been the single, most important component of long-term economic growth and this paper will start by drawing upon the findings of a very influential paper published by my colleague at Stanford, Prof. Abramovitz, back in the mid-1950s.

In the most fundamental sense, there are only two ways of increasing the output of the economy: (1) you can increase the number of inputs that go into the productive process, or (2) if you are clever, you can think of new ways in which you can get more output from the same number of inputs. And, if you are an economist you are bound to be curious to know which of these two ways has been more important - and how much more important. Essentially what Abramovitz did was to measure the growth in the output of the American economy between 1870 and 1950. Then he measured the growth in inputs (of capital and labor) over the same time period. He then made what were thought to be reasonable assumptions about how much a growth in a unit of labour and how much a growth in a unit of capital should add to the output of the economy. It turned out that the measured growth of inputs (i.e., in capital and labor) between 1870 and 1950 could only account for about 15% of the actual growth in the output of the economy. In a statistical sense, then, there was an unexplained residual of no less than 85%.

Surprisingly enough, no economist had ever undertaken this exercise before - partly because it was only after the Second World War that reasonably accurate estimates of inputs and outputs for the American economy, over some very long time period, became available. Now, in any statistical exercise in which you are trying to tease out the relative importance of some variable, and you find yourself with a residual of 85%, you know you are in big trouble! Yet a number of other economists in the late 1950s and 1960s undertook similar exercises, using different methodologies, different time periods, and different sectors of the economy, with roughly similar results – they found themselves left with a very large residual that could not be accounted for. Robert Solow, who later won a Nobel Prize in Economics, was one of those other economists who discovered a very large residual, using a very different methodology and different time period. As it happened, he got the same result for the size of the residual – 85%. It was precisely the size of this residual that persuaded most economists that



\*Nathan Rosenberg, Innovation and Economic Growth. OECD 2004.


Available at

<http://www.oecd.org/cfe/tourism/34267902.pdf>



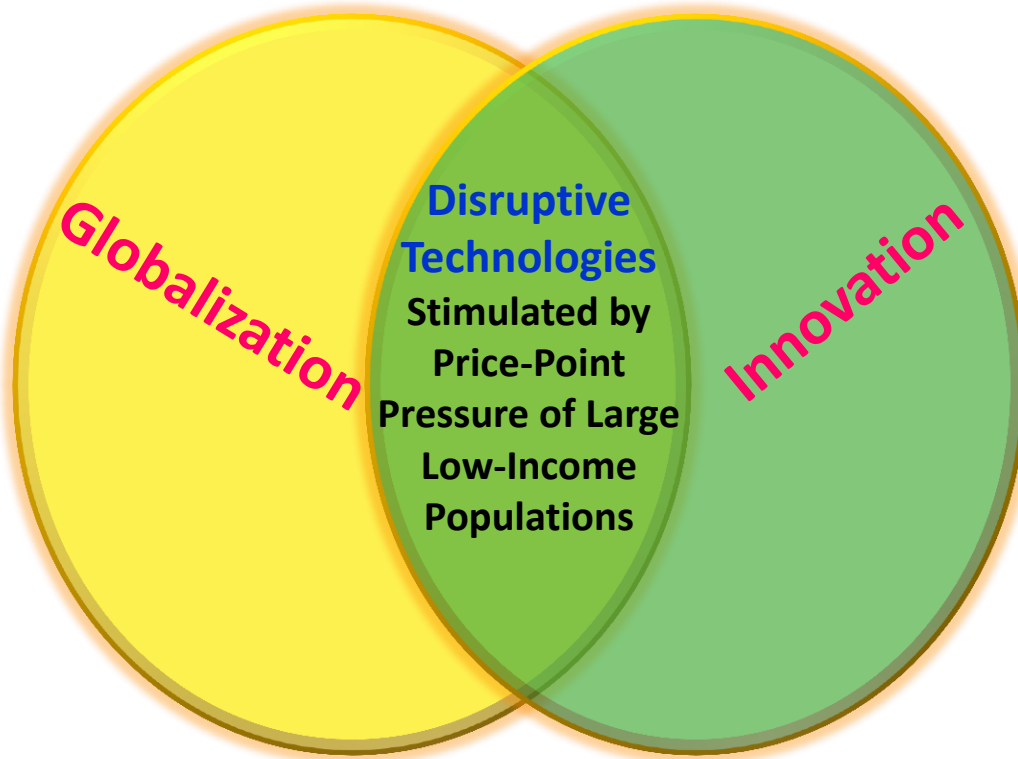
# Innovation: Geographic Trends

Location of Innovation 	Home Country			Foreign Location	International Network
	In-House	Cluster (Suppliers and Related Industries)	Strategic Community (Alliances)		
Focus/Direction 					
Home Country (Product and Process Focus)	Original (Sustaining Innovation)	Classic	Occasional	Increasing Trend in the Eighties	
Glocalization (Product Focus)	Dominant	Dominant		Market Research	
Reverse Innovation (Product Focus Initially, Moving to Processes and Business Models)				Dominant	Emerging Focus on BoP and Security Needs (Disruptive Innovation)





# BoH<sup>®</sup> in the New Business Context

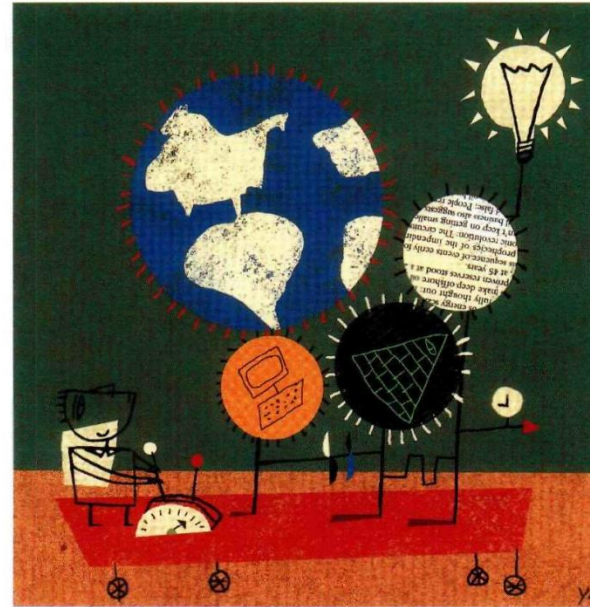


# The Great Leap

Driving Innovation From the Base of the Pyramid

The Interaction of Globalization and Innovation Creates Disruptive Innovations that are the Foundation for Reverse Innovation

Hart, S.L. and Christensen, C.M. “The Great Leap Driving Innovation from the Base of the Pyramid.” *Sloan Management Review*



Billions of poor people aspire to join the world's economy. Disruptive innovation can pave the way, helping companies combine sustainable corporate growth with social responsibility.

Stuart L. Hart and  
Clayton M. Christensen

**G**lobal companies today are struggling with a Catch-22. On one side is the legacy of the 1990s, when investors became accustomed to double-digit annual growth. While investors are no doubt revising their expectations now that the bubble has burst, they are not ready to give up on demands for rapid, steady growth in

the companies they fund. This need to find new markets or products is in itself a huge challenge.

Add to that the second part of the dilemma: Antiglobalization demonstrations have made it apparent that if corporate expansion is seen to come at the expense of the poor and the environment, it will encounter vigorous resistance. This is not just an issue for a few thousand protesters. As multinationalals unrelentingly seek new growth to satisfy shareholders, they increasingly hear concerns from many quarters about environmental degradation, labor exploitation, cultural hegemony and local autonomy. What is to be done? Must corporations' thirst for growth and profits serve only to exacerbate the antiglobalization movement?

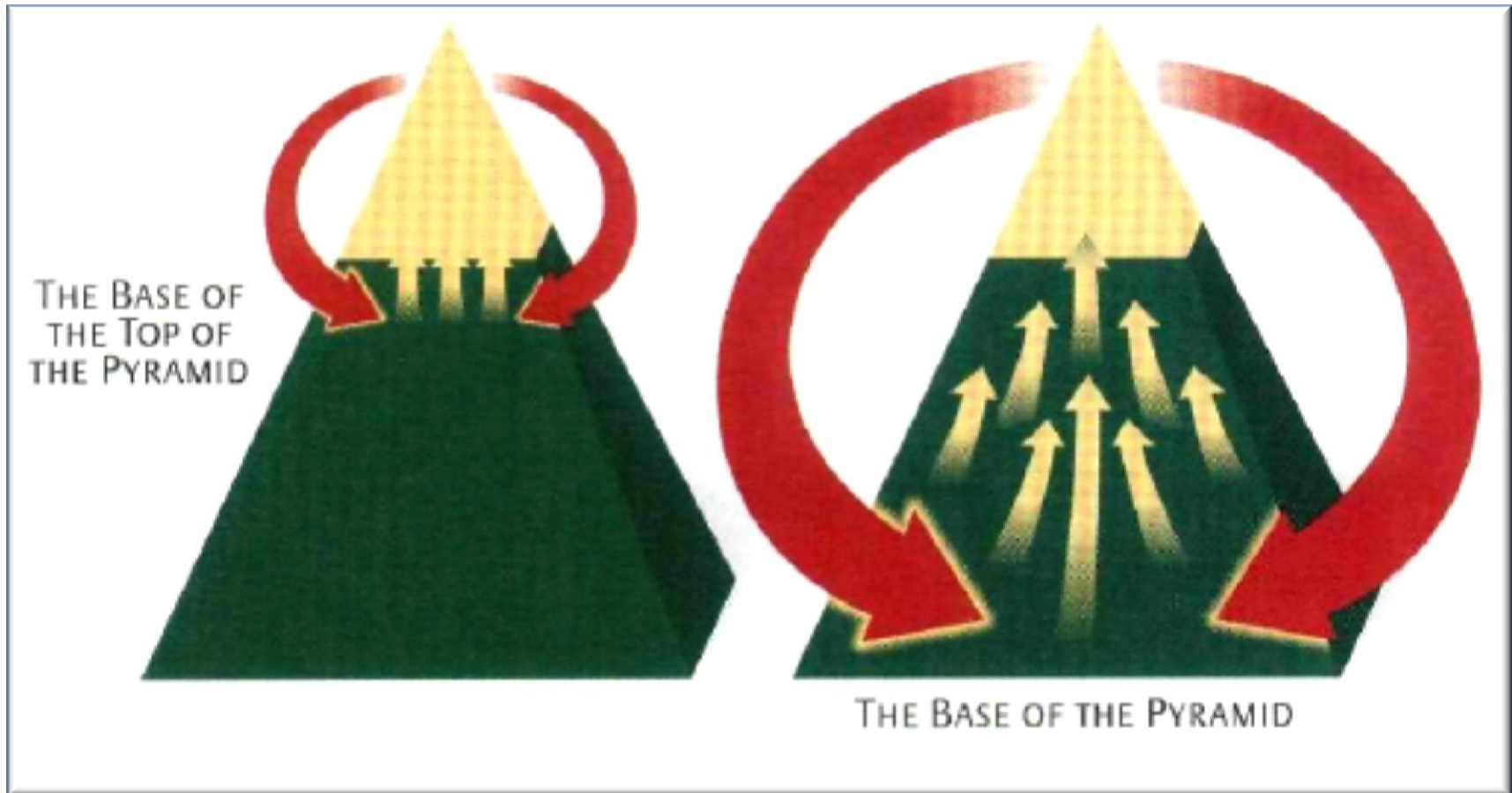
On the contrary, a solution to this dilemma does exist. Companies can generate growth *and* satisfy social and environmental stakeholders through a “great leap” to the base of the economic pyramid, where 4 billion people aspire to join the market economy for the first time.<sup>1</sup> This is not a question simply of doing the right thing in order to lift people out of poverty — although that will surely be a result of the leap we have in mind. From a senior executive's point of view, it's a matter of finding the most exciting growth markets of the future, an especially important task for major corporations considering that 69% of the S&P 500 had below-average growth in 1999 and that turnover in the S&P 500 has

*Stuart L. Hart is a professor of strategic management and director of the Center for Sustainable Enterprise at the Kenan-Flagler Business School at the University of North Carolina at Chapel Hill. Clayton M. Christensen is the Robert and Jane Cizik Professor of Business Administration at the Harvard Business School in Boston. They can be reached at [slhart@unc.edu](mailto:slhart@unc.edu) and [cchristensen@hbs.edu](mailto:cchristensen@hbs.edu).*

# The Great Leap: The Key Concept

Traditional

Recommended



Source: Hart, S.L. and Christensen, C.M. "The Great Leap Driving Innovation from the Base of the Pyramid." *Sloan Management Review* (Fall 2002).

# TENET: Motivation for Innovation

A medium shot of Dr. Ashok Jhunjhunwala, an older man with grey hair and glasses, wearing a light blue button-down shirt. He is looking slightly to the right of the camera with a serious expression. The background is dark and out of focus, with a whiteboard visible behind him.

**Dr. Ashok Jhunjhunwala**  
**Tenet, IIT Madras**

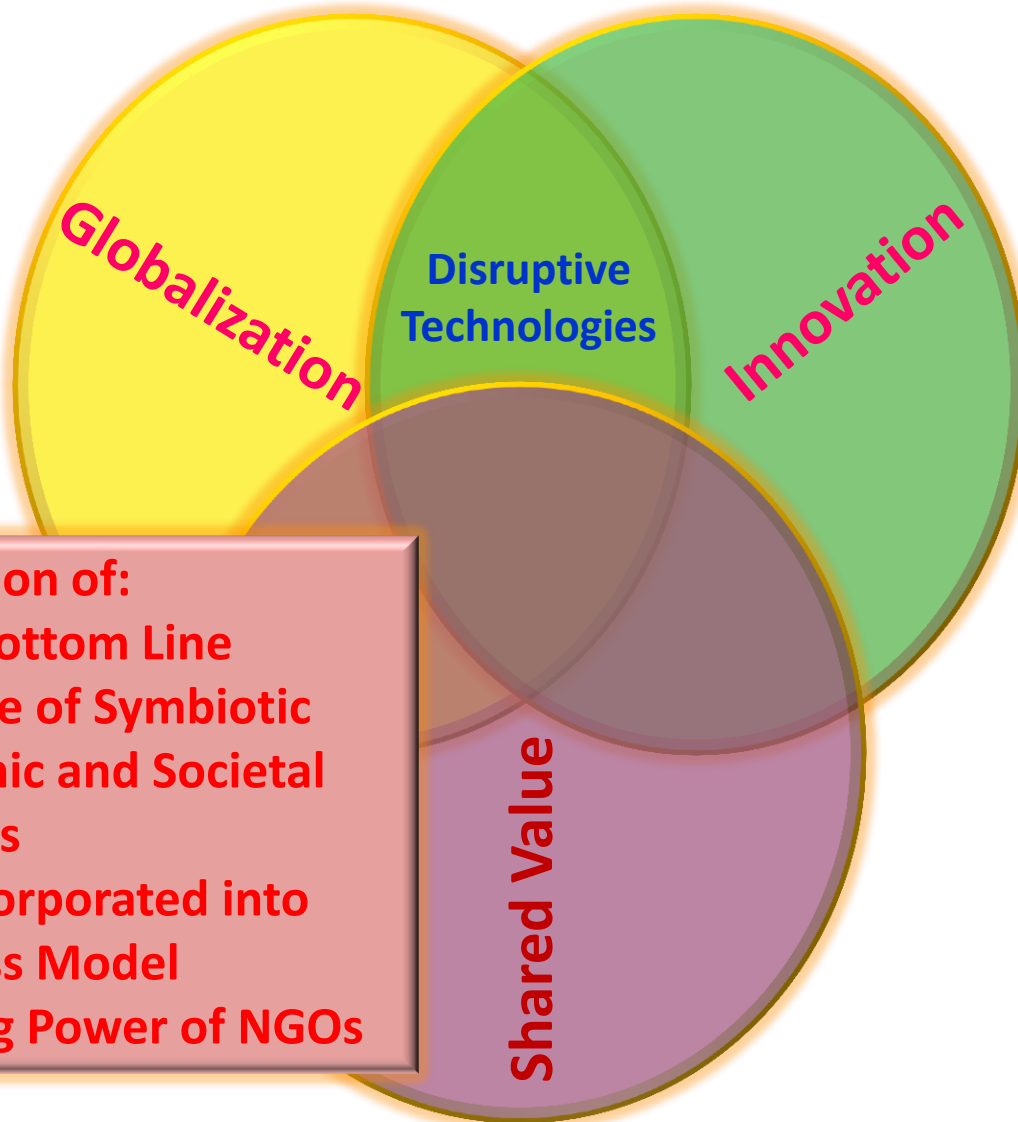
*And as we started working on  
connecting every village in India*

# TENET: Symbols of Success

TENET

Amdale

TEKRIT  
web'izing businesses

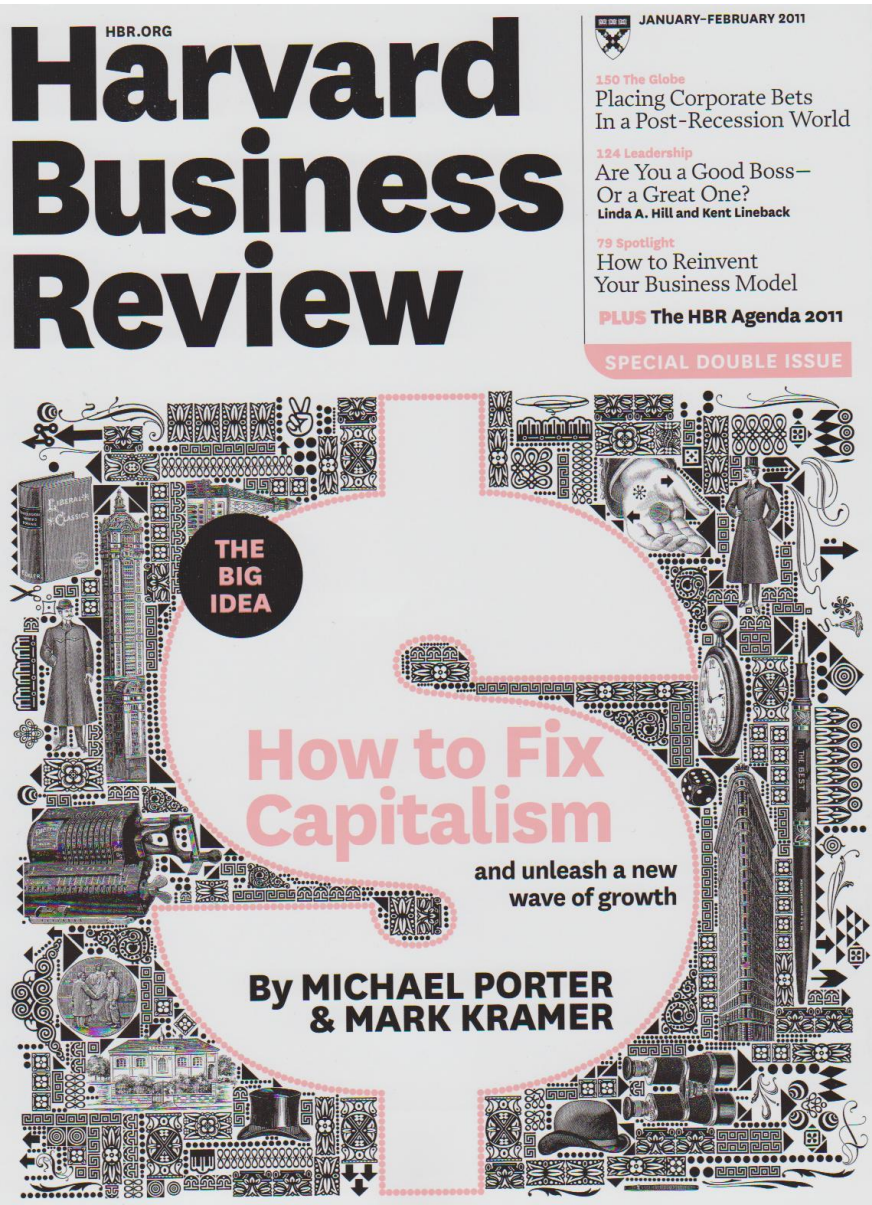


**Recognition of:**

- **Triple Bottom Line**
- **Evidence of Symbiotic Economic and Societal Progress**
- **CSR Incorporated into Business Model**
- **Growing Power of NGOs**

Michael E. Porter and Mark R. Kramer, "Creating Shared value," Harvard Business Review, January-February 2011, pp. 62 – 77.

Shared value creation focuses on identifying and expanding the connections between societal and economic progress.



## CSR

1. Value: doing good
  2. Citizenship, philanthropy, sustainability
  3. Discretionary or in response to external pressure
  4. Separate from profit maximization
  5. Agenda is determined by external reporting and personal preferences
  6. Impact limited by corporate footprint and CSR budget
- E.g.: Fair trade purchasing

## Creating Shared Value

1. Value: economic and social benefits relative to cost
  2. Joint company and community value creation
  3. Integral to competing
  4. Integral to profit maximization
  5. Agenda is company specific and internally generated
  6. Realigns the entire company budget
- E.g.: Transforming procurement to increase quality and yield



# Companies Can Create Shared Value Opportunities

There are three key ways that companies can create shared value opportunities:

- By reconceiving products and markets
- By redefining productivity in the value chain
- By enabling local cluster development

Michael E. Porter and Mark R. Kramer, 2011 "Creating Shared Value," *Harvard Business Review*, January-February, 62 – 77.

# 1. Reconceiving Products and Markets

- Products and services that meet societal needs
- Serving disadvantaged communities
  - BRICs/BoP
  - Nontraditional communities/Urban areas

## 2. a. Redefining Productivity in the Value Chain



Michael E. Porter and Mark R. Kramer, 2011 "Creating Shared Value," *Harvard Business Review*, January-February, 62 – 77.

## 2. b. Redefining Productivity in the Value Chain

### **“Externalities” that Can Affect Productivity**

- **Energy Use and Logistics**
- **Resource Use**
- **Procurement**
- **Distribution**
- **Employee Productivity**
- **Location**

Michael E. Porter and Mark R. Kramer, 2011 “Creating Shared Value,” *Harvard Business Review*, January-February, 62 – 77.

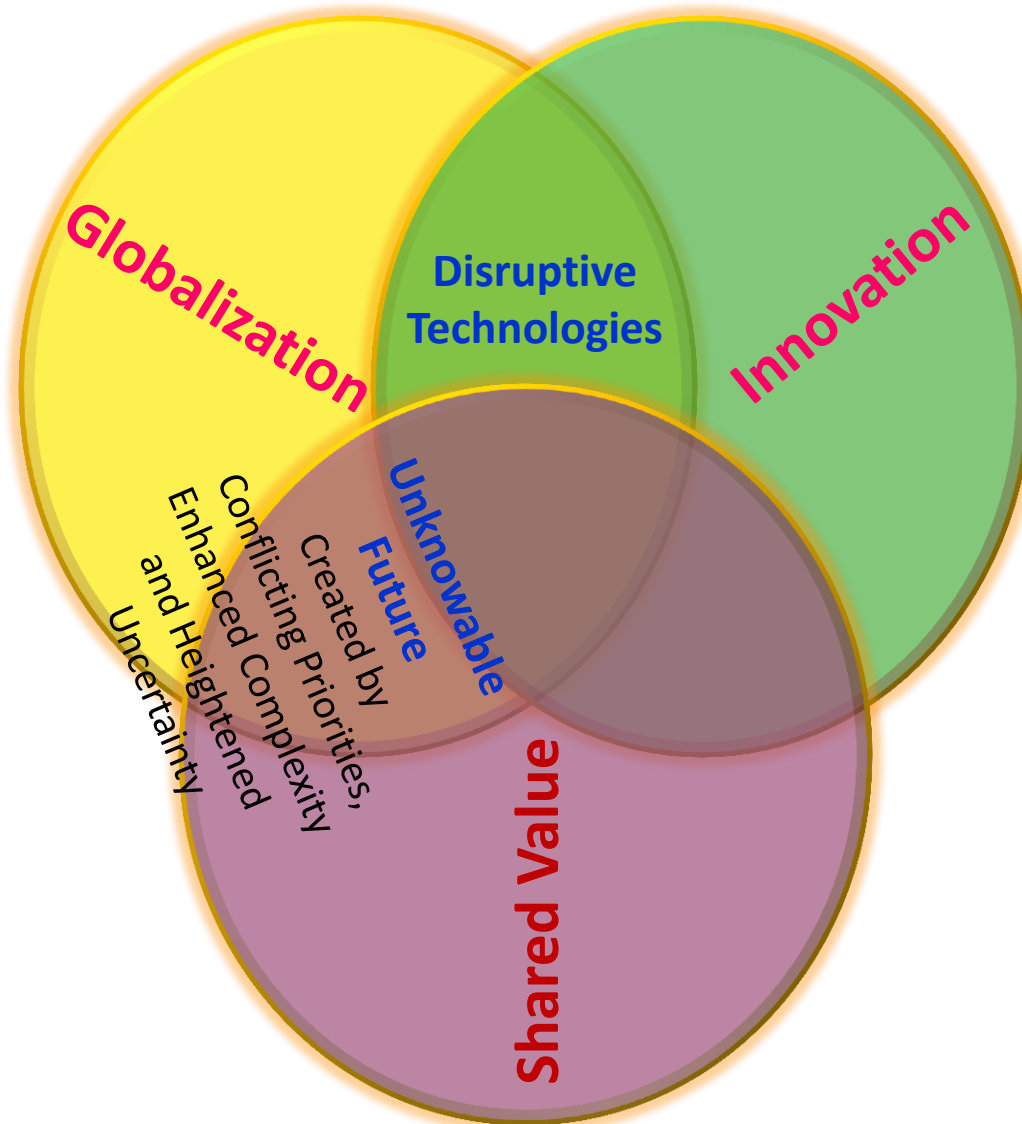
### 3. Enabling Local Cluster Development

#### **Cluster elements to consider for development:**

- **Local suppliers**
- **Local training**
- **Public education**
- **Open and transparent markets**
- **Research institutions**
- **NGO development/partnerships**

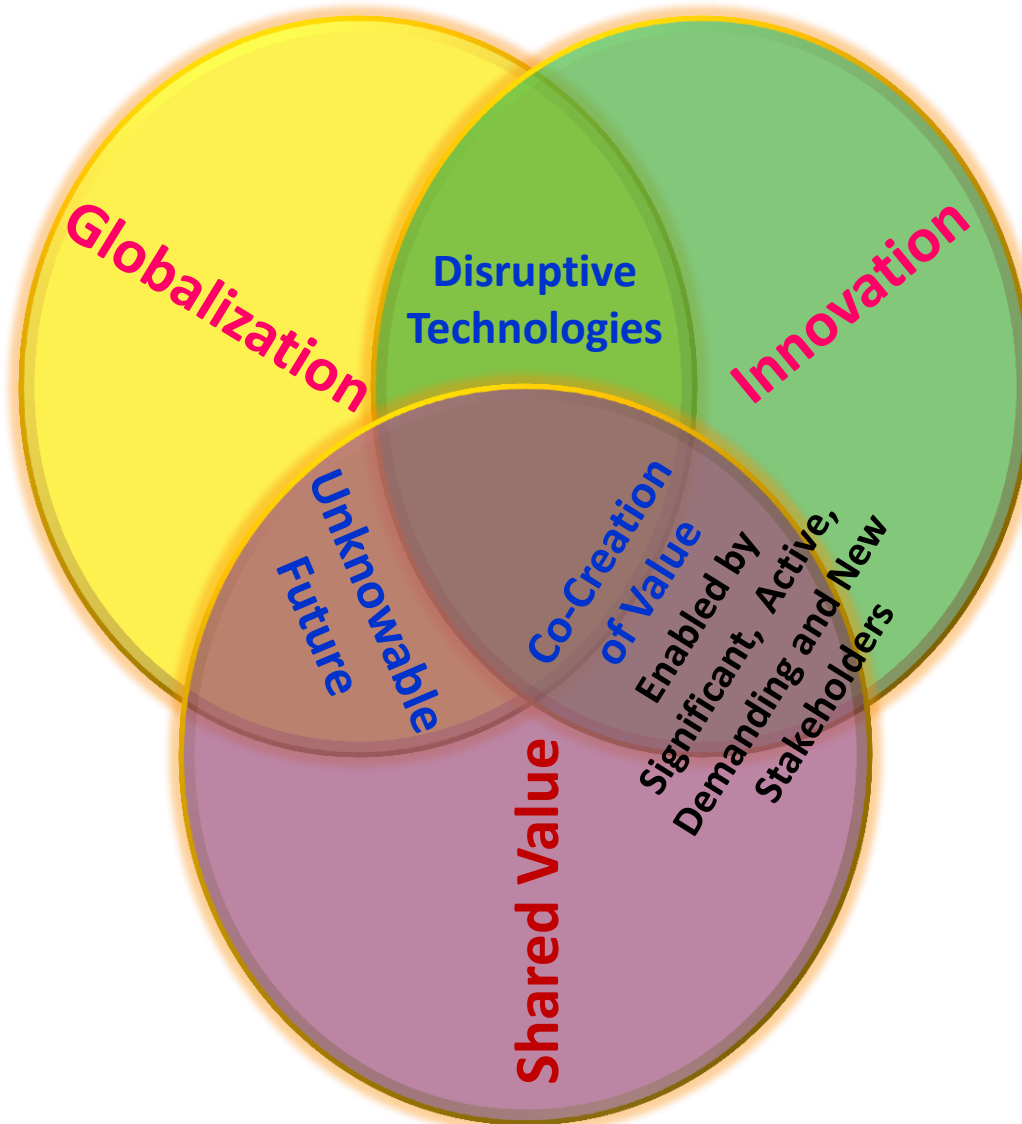


# BoH<sup>®</sup> in the New Business Context





# BoH<sup>®</sup> in the New Business Context



Pfizer, M., Bockstette, V.  
and Stamp, M. "Innovating  
for Shared Value," *Harvard  
Business Review*, September  
2013.



## Innovating for Shared Value

Companies that deliver  
both social benefit  
and business value  
rely on five mutually  
reinforcing elements.

by Marc Pfizter, Valerie Bockstette,  
and Mike Stamp

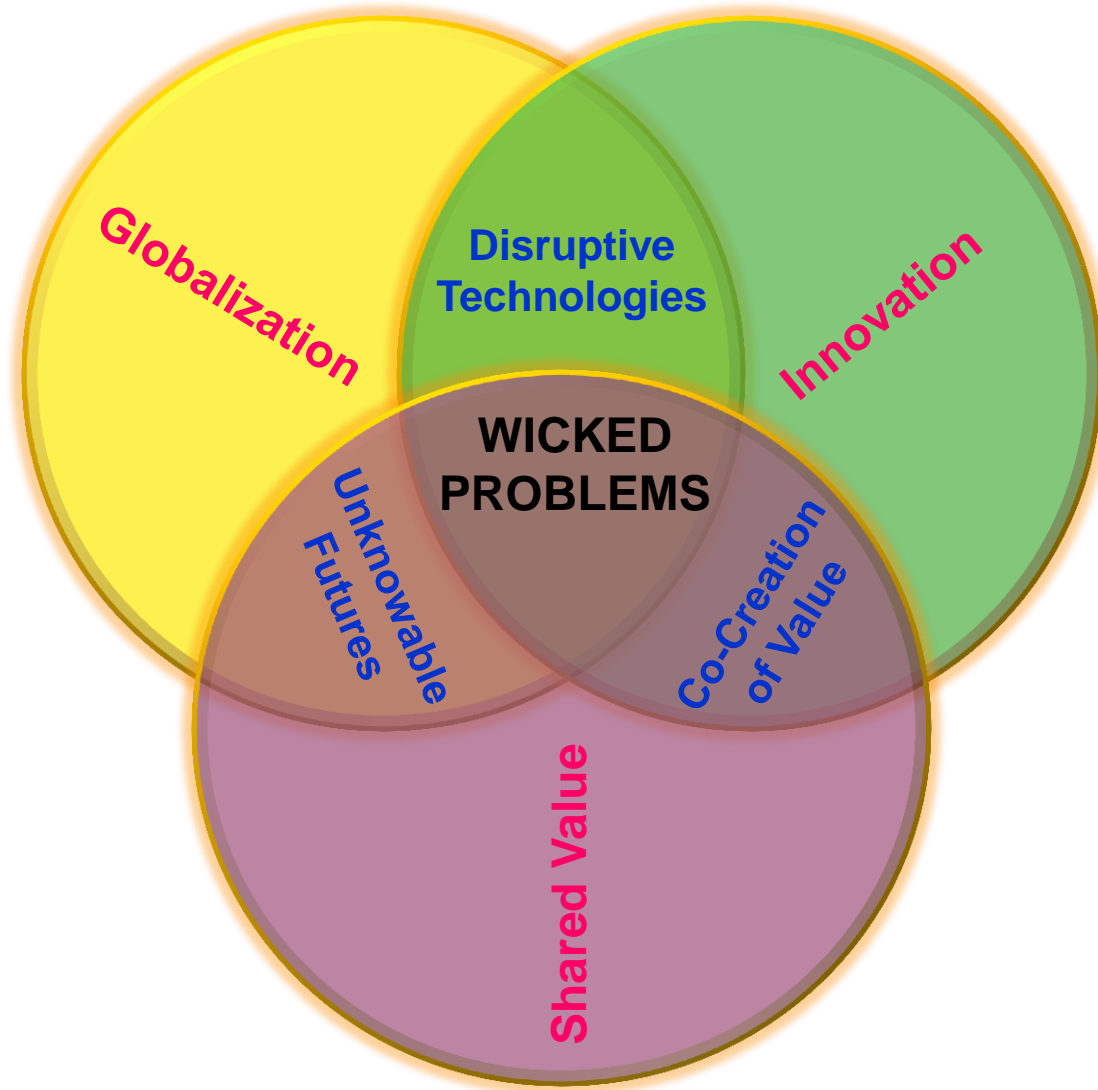


# Innovating for Shared Value\*

- Embedding a Social Purpose
- Defining the Social Need
- Measuring Shared Value
  - Estimate the Business and Social Value
  - Establish Intermediate Measures and Track Progress
  - Assess the Shared Value Produced
- Creating the Optimal Innovation Structure
  - Integrate with a Legacy Business
  - Create a Semiautonomous Unit
  - Obtain Philanthropic or Government Support
  - Finance External Entrepreneurs
- Co-Creating with External Stakeholders
  - Enlist a Wide Range of Stakeholders
  - Leverage Others' Capabilities



# Three Mega-Forces and Their Impact on Business



John C. Camillus, “Strategy as a Wicked Problem,” Harvard Business Review, May 2008, pp. 98–106

## Wicked Problems:

- Involve many stakeholders with different values and priorities
- Have roots and causes that are complex and tangled
- Are difficult to define and morph as different solutions are considered or as attempts are made to address them
- Have no precedents from which lessons can be drawn
- Offer no indication that the right solution has been identified

*“Wicked” problems can’t be solved, but they can be tamed. Increasingly, these are the problems strategists face—and for which they are ill equipped.*

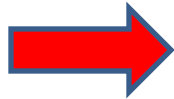
## Strategy as a Wicked Problem

by John C. Camillus

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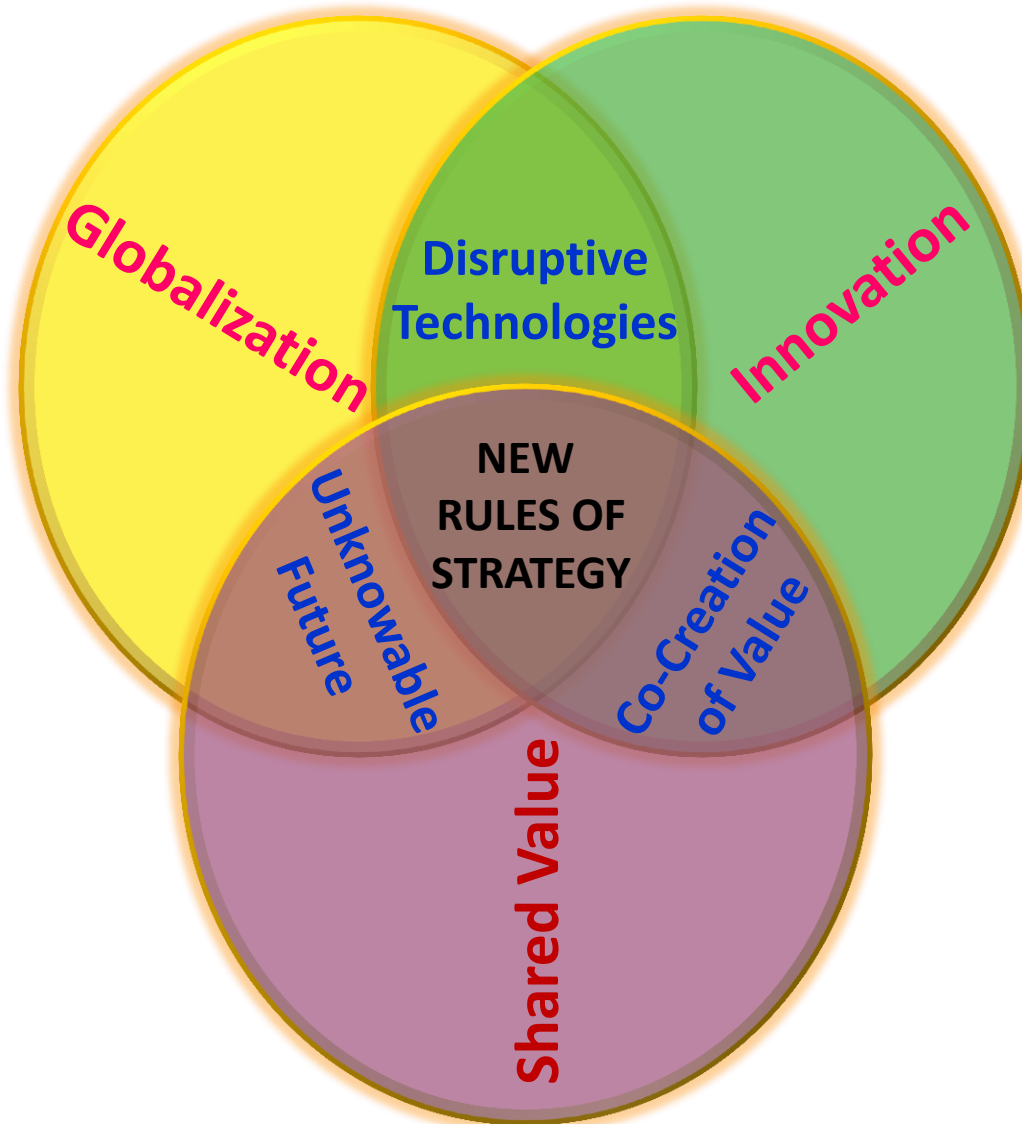
The Business of Humanity® Strategy

The BoH® DC Power Initiative

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The BoH® “DC-HEART” Initiative





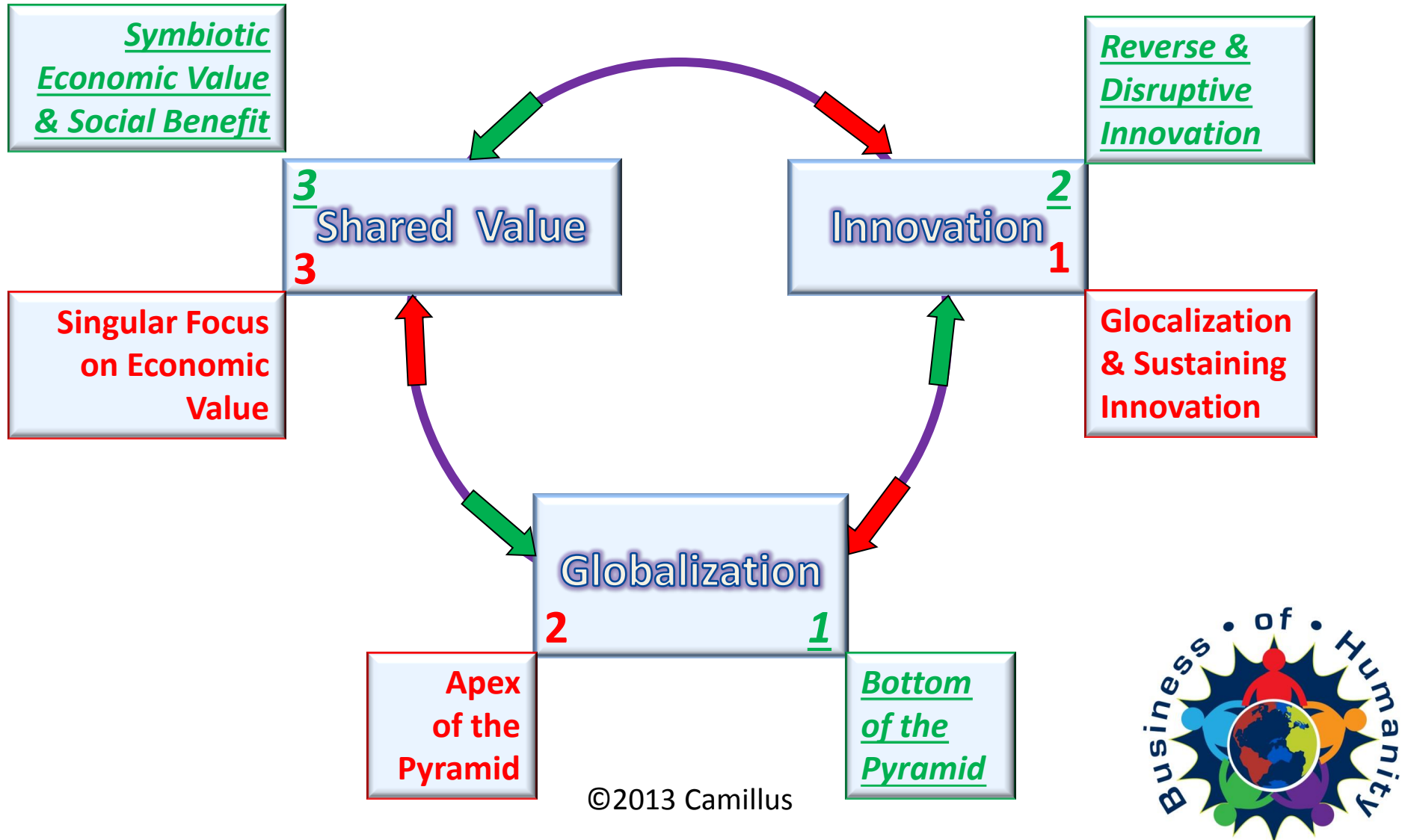


# “BoH” Versus Classic Mindsets

<b><i>TYPE OF STRATEGY</i></b>  <b><i>Characteristic</i></b>	<b>BUSINESS OF HUMANITY®</b>	<b>CLASSIC</b>
<b>Dominant Management Mindset</b>	Learn from the Future <b>Feedforward</b>	Learn from the Past <b>Feedback</b>
<b>Response to External Disruptive Change</b>	Source of Competitive Advantage <b>Create / Embrace</b>	React to the Threat <b>Resist</b>
<b>Orientation toward Organizational Transformation</b>	Stimulate and Support <b>Continuous</b>	Survival Response <b>Episodic</b>
<b>Sustainability of Strategy</b>	Core Identity Transcends External Disruptions and Organizational Transformations <b>Intrinsically Enduring</b>	Competitive Strategy Threatened by Disruptive External Developments and Organizational Transformation <b>Inherently Obsolescent</b>

# The Business of Humanity®

## Converting Challenge to Opportunity





# The Business of Humanity® ~~Proposition~~ Mandate

Strategic decision making that employs criteria falling under the rubric of **"humanity,"** in its two dimensions of **"humaneness"** and **"humankind,"** leads to **superior economic performance** and **enduring value.**

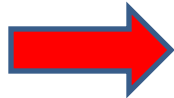


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Humanity, Energy, And Regional Transformation

WHY

DC POWER



# Humanity, Energy, And Regional Transformation

## WHY DC POWER?

- Serendipitous Triangulation
- Green
- Disruptive Technology



# Humanity, Energy, And Regional Transformation

## WHY DC POWER?

### ➤ Serendipitous Triangulation

- India: Dr. Jhunjhunwala, IIT Madras and *Rural DC Microgrids*
- Czech Republic: NUPHARO and DC power for *Western homes*
- U.S.: Universal Electric Corporation and 380VDC systems for CDCs



# Humanity, Energy, And Regional Transformation

## WHY DC POWER?

### ➤ Green

- Energy efficient lighting (LEDs) and motors – lower utility bills
- No conversion loss for electronic equipment (from LEDs to computers)
- Compatibility with distributed, renewable power generation



# Humanity, Energy, And Regional Transformation

## WHY DC POWER?

- Disruptive Technology
  - Opportunity for competitive advantage
  - Fit with Pittsburgh energy innovation ecosystem
  - *Opportunity for jobs and economic development*



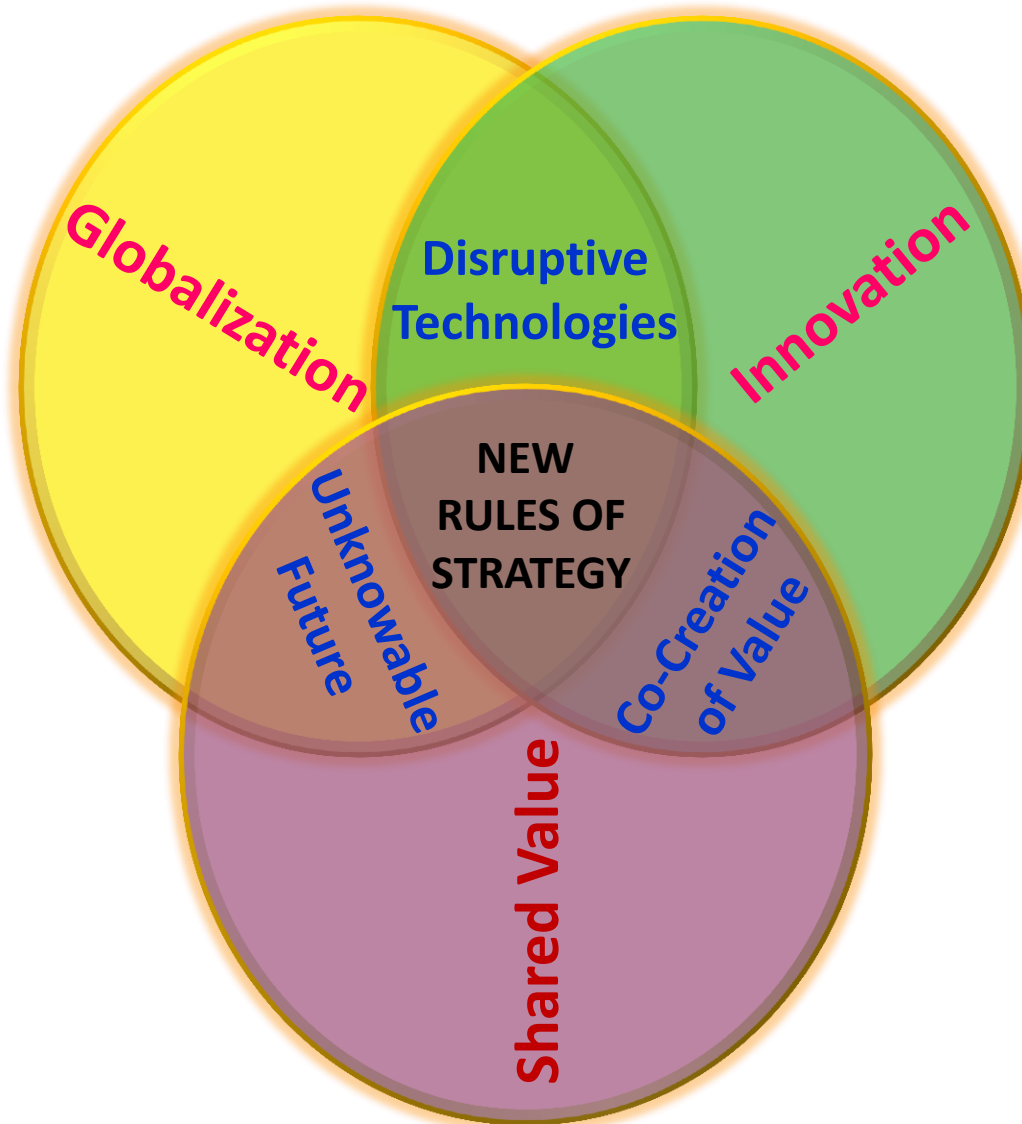
# Humanity, Energy, And Regional Transformation

## WHY DC POWER?

- Serendipitous Triangulation
  - India: Dr. Jhunhunwala, IIT Madras and **Rural DC Microgrids**
  - Czech Republic: NUPHARO and DC power for **Western homes**
  - U.S.: Universal Electric Corporation and 380VDC systems for CDCs
- **Green**
  - **Energy efficient lighting (LEDs) and motors – lower utility bills**
  - **No conversion loss for electronic equipment (from LEDs to computers)**
  - **Compatibility with distributed, renewable power generation**
- Disruptive Technology
  - Opportunity for competitive advantage
  - Fit with Pittsburgh energy innovation ecosystem
  - **Opportunity for jobs and economic development**



# The New Business Context





# BoH<sup>®</sup> in the New Business Context



# DC Power and BoH<sup>®</sup> Strategy

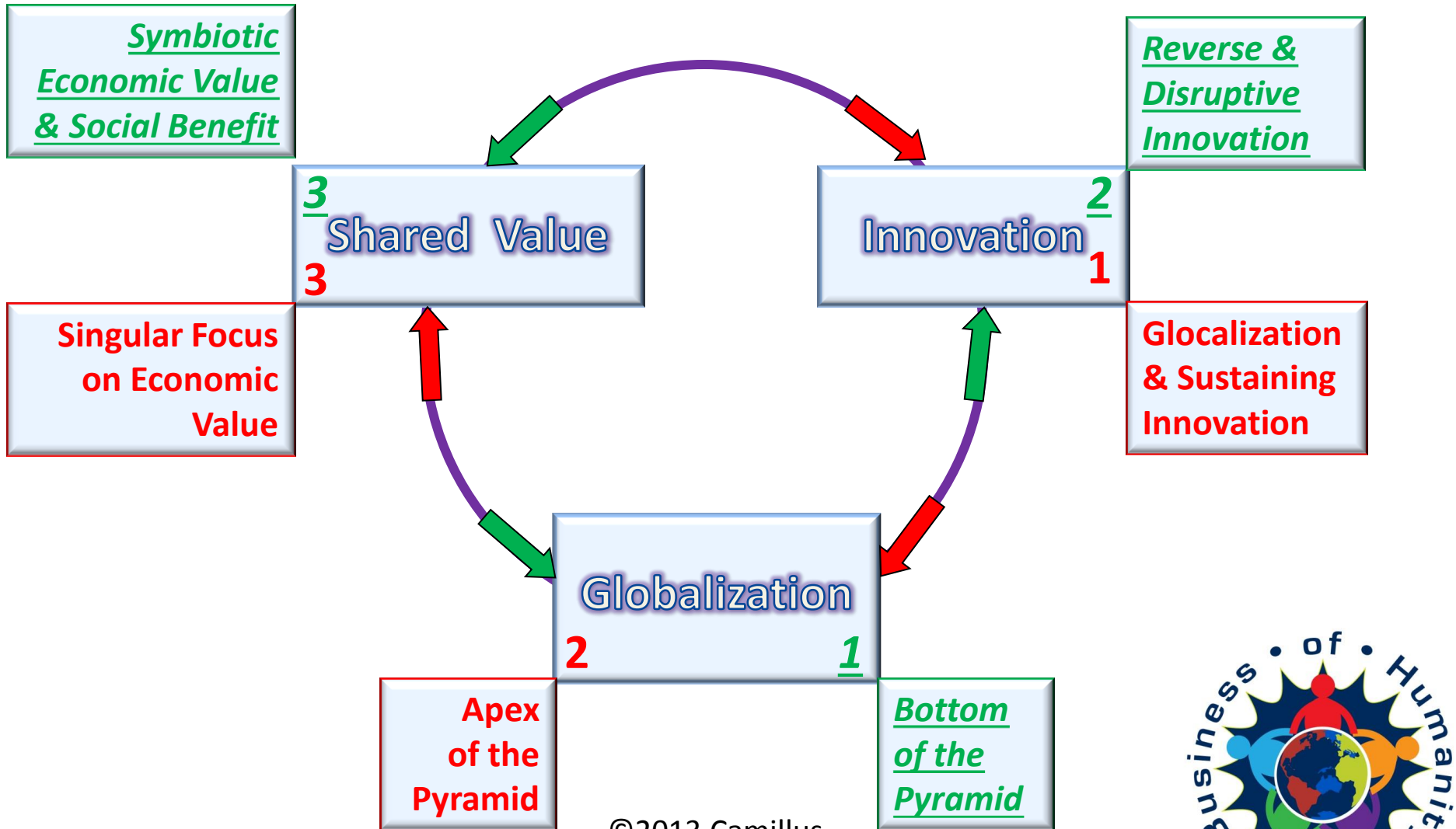


**\*PMT:**

- **Product**
- **Market**
- **Technology**

# The Business of Humanity®

## Converting Challenge to Opportunity



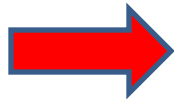
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# DC

Realizing the **Promise** of DC Technology  
*“Energizing” Low-Income Communities*  
Prague, October 4-5, 2013





- Bopaya Bidanda, Ernest Roth Professor and Chairman of Industrial Engineering, Swanson School of Engineering, University of Pittsburgh



- John Camillus, Donald R. Beall Professor of Strategic Management, Katz Graduate School of Business, University of Pittsburgh



- Jana Ryslinkova, Board Member, Nupharo Park



How can we best

- Create a closely-linked global network – a community of knowledge that supports the implementation of DC technology, especially in low-income communities ?
- Implement demonstration projects in Pittsburgh and other regions of the world?
- **Strengthen the strategy and support the objectives of the Business of Humanity® project by accelerating the utilization of DC power?**





Create a transnational alliance that can enable and accelerate the use of efficient and green DC technology in Pittsburgh, Prague, and communities across the world.



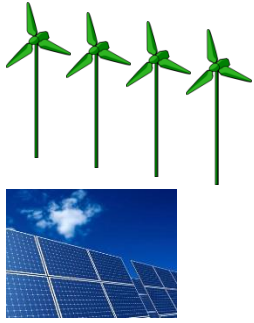
**Topic #1 – DC Power Generation**

**Topic #2 – Designing the DC-Powered Home**

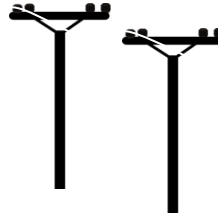
**Topic #3 – Implementation Strategy**

**Topic #4 – Economic Development & Jobs**

# DC



Generation



Transmission



Consumption

Transnational  
Alliance



Demonstration  
Project





The content of today's deliberations will lead to a series of 'white papers' on each of the four topics discussed by the working groups that will, in turn, serve as project roadmaps in the realization of the Business of Humanity<sup>®</sup> and Nupharo visions.





Dr. Ashok Jhunjunwala (Distinguished Professor, Indian Institute of Technology, Madras, second from left), Dr. Rabikar Chatterjee (Associate Dean, Katz Graduate School of Business, University of Pittsburgh, third from left) Mr. Milan Galnik (Chairman of the Board, Nupharo Park, fifth from left), followed by, in sequence, Honorable William Peduto (Mayor of Pittsburgh), Mr. Tim Martinson (Director, Starline DC Solutions, Universal Electric) , Dr. John Delaney (Dean, Katz Graduate School of Business, University of Pittsburgh), Dr. Jana Ryslinkova (Executive Board Member, Nupharo Park and Dean of USBSP), Dr. Bopaya Bidanda (Ernest Roth Professor and Chair of Industrial Engineering, University of Pittsburgh), Mr. Jeff Johnson (Group Vice President, ABB), Dr. Ad van Wijk (Distinguished Professor, Technical University of Delft), Dr. John Camillus (Donald R. Beall Professor of Strategic Management, Katz Graduate School of Business, University of Pittsburgh).

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The Business of Humanity® Proposition

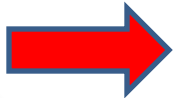
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Humanity, Energy, And Regional Transformation



The DC-HEART Initiative





# DC-HEART: Projects



1. Homewood Demonstration and Learning Projects
2. Gap Analysis
3. Community of Knowledge and Practice
4. Virtual Home
5. Rural DC Micro Grid in India – Quality of Life Ecosystem and Reverse Innovation
6. Education and Training – to Transform Western Pennsylvania into a DC Manufacturing Hub



# DC-HEART: Projects



1. Homewood Demonstration and Learning Projects
  - i. Greenhouse
  - ii. Children's Village Offices and Activity Center
  - iii. Community Center
  - iv. STEAM Center for Faison School
  - v. DC Grid for Homewood
  
2. Gap Analysis
3. Community of Knowledge and Action
4. Virtual Home
  
5. Rural DC Micro Grid in India – Reverse Innovation
  - i. Solar and wind power
  - ii. 100 watts per household – 3 LED lights, 25-watt fan, phone charger
  - iii. Purified drinking water
  - iv. Communication
  - v. Education – programmed secondary
  - vi. Health – telemedicine clinic
  - vii. Economic Opportunity
  
6. Education and Training – To Transform Western Pennsylvania into a DC Manufacturing Hub



# DC-HEART: Homewood Projects



1. Greenhouse
2. Offices and Activity Center
3. Community Center
4. STEAM Center for Faison School
5. DC Grid for Homewood



# DC-HEART: Homewood Projects



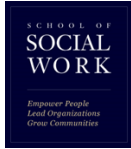
1. Greenhouse (Conventional/Hydroponic/Aquaponic)
  - i. DC – Solar Powered
    - a) Lighting
    - b) HVAC
    - c) Pumps
  - ii. Organic and Local Produce
    - a) Homewood community
    - b) Restaurant and food trucks
    - c) Online sales
    - d) Rental of growing space
    - e) Modular/mini greenhouses design and sales
2. Offices and Activity Center
  - i. Three integrated row houses
  - ii. DC – solar-powered lighting
  - iii. Net metering
3. Community Center
  - i. Restaurant, classrooms, activity rooms, offices
  - ii. DC – solar powered lighting
  - iii. Net metering
4. STEAM Center for Faison School
  - i. Sustainability focus
    - a) DC – solar and wind; hands-on projects
    - b) Greenhouse; hands-on care
5. DC Grid for Homewood
  - i. Above projects plus Community College , YMCA, Library, etc.



# Greenhouse Project – Resource Matrix

Key: Primary Responsibility  Secondary Responsibility

	Site	DC System Design	DC Equipment	Greenhouse Building	Greenhouse Equipment	Growing Technology	Business Model	Govt. Incentives	City Govt. Relations	Financing	Project Mgmt.
John Wallace (Homewood Church)	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Primary	Secondary	Primary
Richard Piacentini (Phipps)	Secondary	Secondary	Secondary	Secondary	Primary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary
Steve Ross / Tim Martinson / Dave Geary (UEC)	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
Jeff Elder (Trojan Battery)	Secondary	Secondary	Primary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
Graduate Student Teams	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary
Kannu Sahni (Pitt)	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	Secondary	Secondary
BB/KB/JC/MC/LL (BoH)	Secondary	Secondary	Secondary	Primary	Secondary	Secondary	Primary	Secondary	Primary	Primary	Primary



**Hillman Family Foundations**

**Beall Family Foundation**

# Complementary (Hillman-Funded) DC Projects



## **Gregory Reed**

*Professor of Electrical and Computer Engineering, Director Electric Power Initiative and Electric Power Systems Laboratory, and Interim Director Center for Energy*

## **William Stanchina**

*Chairman and Professor, Department of Electrical and Computer Engineering*

**Research and Technology Development—Integrating Renewables into a DC Microgrid Environment and Advancing Power Conversion and Control Technologies**

**Future Laboratory Capabilities for Higher Voltage and Microgrid Developments**

.

# Complementary (Hillman-Funded) DC Projects

## Gregory Reed

*Professor of Electrical and Computer Engineering, Director Electric Power Initiative and Electric Power Systems Laboratory, and Interim Director Center for Energy*



## William Stanchina

*Chairman and Professor, Department of Electrical and Computer Engineering*

### **Research and Technology Development—Integrating Renewables into a DC Microgrid Environment and Advancing Power Conversion and Control Technologies**

Utilizing our new Electric Power Systems Laboratory for low-power/bench-scale R&D, testing, and evaluation, which is equipped with photovoltaic panels and DC interconnection capabilities, the following activities will contribute to the DC program mission.

- Modeling and simulation of DC microgrid conceptual designs and operation, including renewable energy resource integration, energy storage interconnection, control system development, and other applications directed at low and medium voltage connection (LVDC and MVDC)
- Power converter technology development, evaluation and testing to meet evolving standards and applications
- Sensitive and electronic load supply on distribution load circuits
- Microgrid bi-directional source/load interactions

### **Future Laboratory Capabilities for Higher Voltage and Microgrid Developments**

A future option to enhance initial and long-term research efforts to develop and evaluate these concepts in a higher voltage environment is through a new Electric Power Technologies and Micro-grid Laboratory at utility distribution level capacity, which is currently under planning and consideration.



Humanity, Energy, And Regional Transformation

# The DC-HEART Initiative





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