

Conference in honour of János Kornai's 85th birthday

## Reinventing innovation



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# Outline

**Crowdsourcing** and **reverse innovation**: the newest phenomena in 21<sup>st</sup> century innovation

Common features and their roots

Revolutionary changes in innovation model as reflection or consequence of the „Great transformation” from industrial to information (knowledge based) economy

# Epochal changes in innovation

Earlier unknown types of innovation have emerged;

The innovation process itself takes place in an unusual manner;

New - till now peripheral or unknown – players enter the scene in innovation;

The role of innovation in the global economy is re-evaluated;

**Drucker:** 19<sup>th</sup> century . 'Invention' had become 'research', a systematic, purposeful activity.

**Nowadays:** „Innovating innovation” Networked intelligence has become determinant

# Crowdsourcing as a kind of open innovation

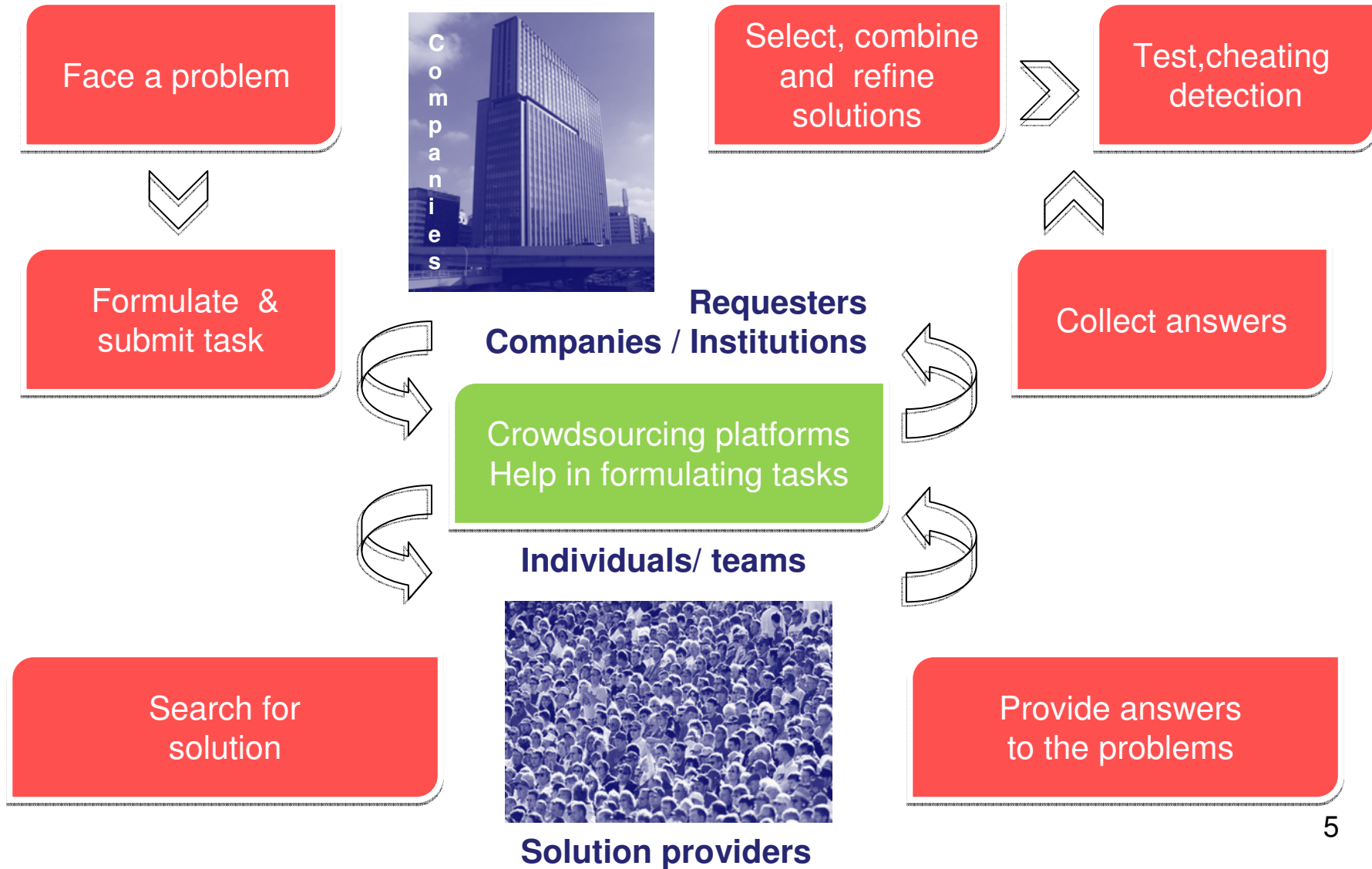
“ The act of a company or institution taking a [creative] function once performed by employees [or contractual partners] and outsourcing it to an undefined (and generally large) network of people in the form of an open call”

(Jeff Howe, 2006)

It makes for companies and other organizations possible to expand their talent pool for the entire globe, and in parallel with that to get better and more detailed picture of what customers want

Other field of application (Science, social field, politics)

# How does it work?



# Mutations of crowdsourcing

Problem solving (Mechanical Turks, NineSigma)

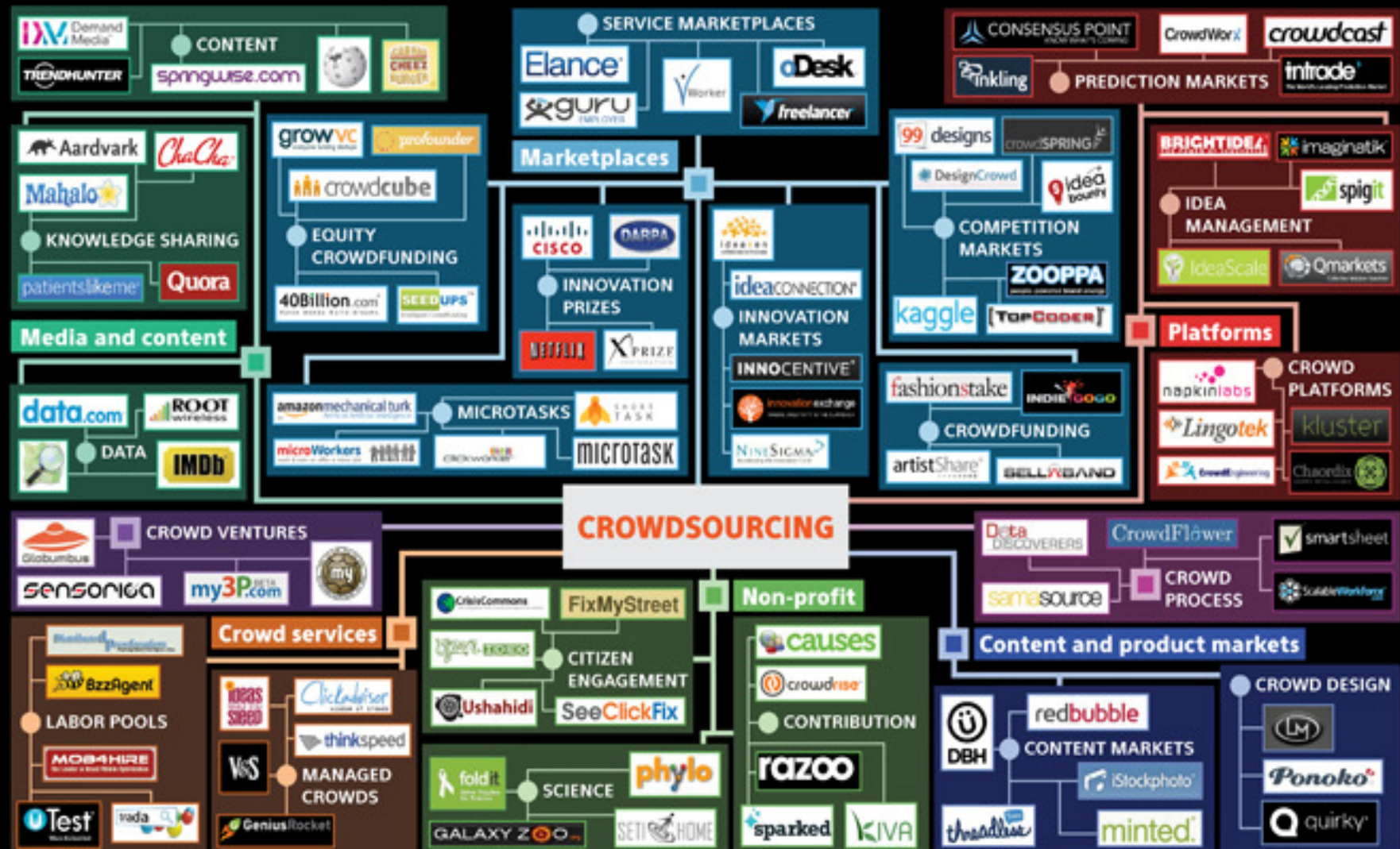
Information/Knowledge sharing „Citizen science” (Noisetube, Cornell University birdwatch program, Wikipedia)

Voting (objective evaluation, opinion, ranking)

Crowdsourcing workers select the preferred variation from a number of choices. The version that the majority selected is considered to be correct or can be chosen. The law of large numbers

Crowdfunding (Funding startups, Obama first campaign)  
There are 548 crowdfunding platforms in development.

# Crowdsourcing landscape Beta v2



Excerpted from  
**Getting Results From Crowds**  
 by Ross Dawson and Steve Bynghall

For definitions, analysis, free book chapters,  
 and other crowdsourcing resources go to:  
[www.resultsfromcrowds.com](http://www.resultsfromcrowds.com)

*Note: examples only; see website for full list of crowdsourcing services*



ROSS DAWSON

# Crowdsourcing cases: Threadless t-shirt company



Threadless.com has a community of 700,000 (!) users who contribute to t-shirt designs

The concept of Threadless is simple: Anyone can submit a design idea that gets ranked by members of the crowd. If the design gets enough votes, it makes it into the store and the designer gets a big payout – \$2000 in fact.



# InnoCentive

Problem-solving marketplace spun off from Eli Lilly.

250,000 registered “solvers” from 200 countries (!) competing for more than \$35 million in prizes.

Currently in its third round of venture capital funding, InnoCentive has a “Challenge Driven Innovation” platform that uses a network of millions of problem solvers.

Cloud-based technology, to transform the economics of innovation and R&D.

Prize competitions to solve major enterprise problems from the outside.  
(Source: Aron, 2012)

Further examples: NineSigma, TexScout, Yet2.com, Hypios, One Billion Minds, Amazon, Mechanical Turks (internet marketplace for computer programmers).

Battle of Concepts, Brainrack.



# Reverse innovation



„...any innovation that is adopted first in the developing world. Surprisingly often, these innovations defy gravity and flow uphill to the rich world. ”

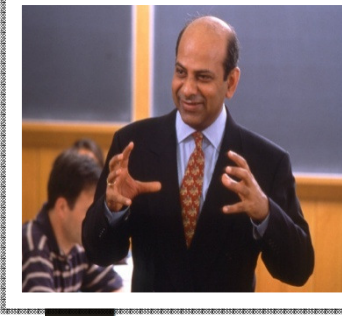
*(Govindarajan, 2012)*



Innovation is not born out of an engineering idea, or from the autonomic development of R&D, but from the answers provided to the problems of the potential buyers



Low-cost, easy to use types of simple solutions come to the fore



# Handheld ultrasound scanner (China)



1980s, GE had been trying to sell ultrasound scanners in China, but 90 percent of hospitals couldn't afford them.

The company decided to create an independent local team in China to develop a scanner just for the Chinese market. The team came up with a handheld scanner - 15 percent of the cost of the company's previous low-end ultrasound device.

Lower performance was outweighed by the portability, ease of use, and low price for rural hospitals.

Today GE sells the portable scanners in the U.S. and other developed countries for use in ambulances and operating rooms

(Source: McLure, 2012)

# Low-cost pacemaker (India)

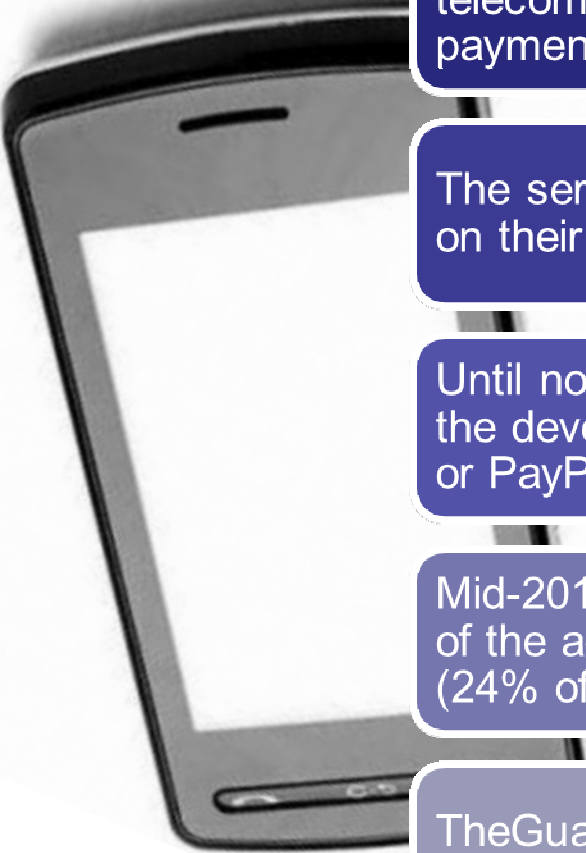
**Medtronic** designed a low-cost, pill-sized pacemaker inside a stent that can be put into the heart instead of the invasive intercardiac leads used in the U.S. to electrically synchronize the heart

Remote sensors in the pill-sized pacemaker transmit signals via any smartphone to a cloudcomputing infrastructure. Although this new technology was developed for India, which has 1 billion citizens but only 100 electrophysiologists, Medtronic intends to market this low-cost pacemaker in the United States and Europe. (*Bottles, 2011*)

Other examples: Tata: the World's cheapest water purifier. The product does not require running water, power or boiling and uses paddy husk ash as a filter. It also uses silver nanotechnology.



# Reverse Innovation: M-pesa (Kenya)



In 2007, as a result of a student software development project, telecom giant, Safaricom developed a mobile phone based payment and money transfer service, the so called M-Pesa

The service allows users to deposit money into an account stored on their cell phones, to transfer money by SMS to other users

Until now this type of payments were to the online environment in the developed world. And they require either a credit card, bank or PayPal account.

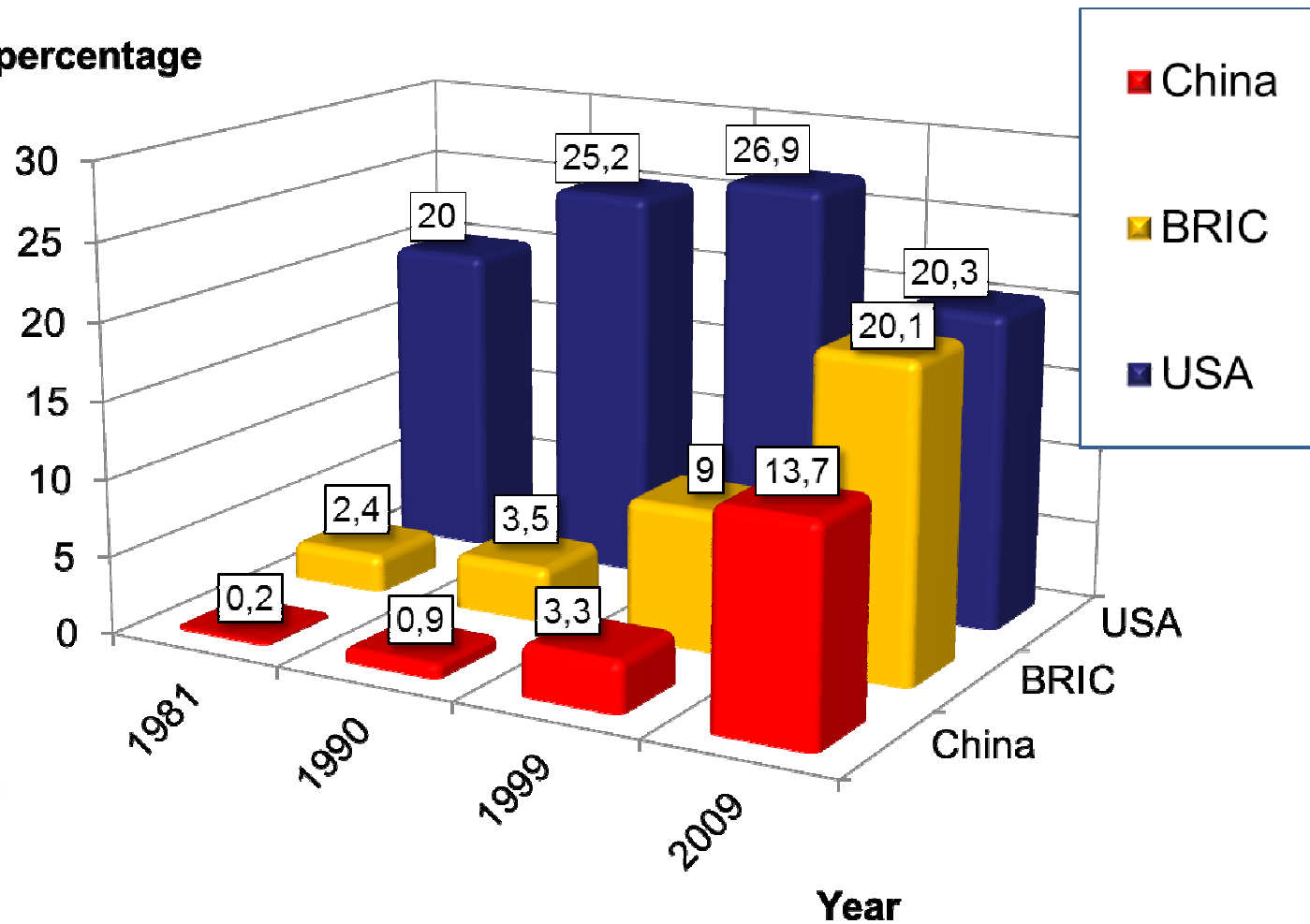
Mid-2012, there were 19.5 million m-money users in Kenya (83% of the adult population), transferring nearly US\$8 billion per year (24% of the Kenyan GDP)

TheGuardian: Kenya sets world first with money transfers by mobile. In the U. K. Pigin system 5 years later

# Comparative share of global publication



% percentage

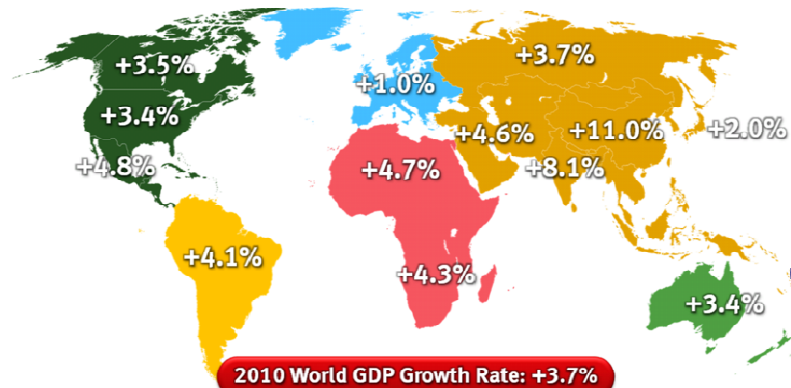


(Source of data: Kumar & Asheulova, 2011)

# Common features of crowdsourcing and reverse innovation

## The World is Changing . . .

GDP Growth Rates by Region



2010 World GDP Growth Rate: +3.7%

Determining role of world wide web, geographic place has no real importance

Lower risk of originally „high-risk” innovation process

Decreasing the cost of innovation

Channeling of ideas from remote areas, combining achievements from different fields

Active role of consumers/users

Drawing in marginal actors, „democratizing the process”

# The new type of innovations comparing to the traditional innovation model of industrial capitalism

Characteristics of innovation	Traditional model <b>1</b>	Crowdsourcing / Reverse innovation <b>2</b>
Main agents	Vertically integrated corporations	Innovation networks: Increasing importance of marginal agents
Place of birth	“Closed” research labs	Internet (open innovation)
Geographic structure	Highly concentrated in the world’s economic centers	Decentralized, spreads to the less developed countries
Main driving forces	Profit	Besides profit social goals and human motivations of innovators <b>also</b> gain larger weight (glory, self-realization, etc.)



# Conclusions

**Crowdsourcing** and **reverse innovation** did not pop up by chance at about the same time

The ongoing “**Great Transformation**” of the economic system – from industrial capitalism to **information economy** stands behind both new forms

The fundamental features of the Great Transformation

- the **dematerialization / virtualization** of goods
- transformation of vertically integrated corporations into **global networks**
- fundamental **changes in the relationship** between the buyers and sellers are reflected in the new types of innovation

We have learnt from **János Kornai** that every phenomenon can be understood only as a part of a system, and its **changes** can only be interpreted in the frames of **systems transformation**.

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