

Innovation

Murat Demirbas

SUNY Buffalo

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Innovation

Innovation is the creation of better products, services, technologies

Innovation refers to the use of a new idea or method, whereas creativity refers more directly to the creation of the idea/method

In society, innovation aids in comfort, convenience, efficiency

In business and economics, innovation is the catalyst to growth

Global innovation index for 19 largest countries by GDP

Rank	Country	Overall	Innov. Inputs	Innov. Perf.
1	South Korea	2.26	1.75	2.55
2	United States	1.80	1.28	2.16
3	Japan	1.79	1.16	2.25
4	Sweden	1.64	1.25	1.88
5	Netherlands	1.55	1.40	1.55
6	Canada	1.42	1.39	1.32
7	United Kingdom	1.42	1.33	1.37
8	Germany	1.12	1.05	1.09
9	France	1.12	1.17	0.96
10	Australia	1.02	0.89	1.05
11	Spain	0.93	0.83	0.95
12	Belgium	0.86	0.85	0.79
13	China	0.73	0.07	1.32
14	Italy	0.21	0.16	0.24
15	India	0.06	0.14	-0.02
16	Russia	-0.09	-0.02	-0.16
17	Mexico	-0.16	0.11	-0.42
18	Turkey	-0.21	0.15	-0.55
19	Indonesia	-0.57	-0.63	-0.46

Applied research vs Basic research

Applied research aims to solve practical problems, rather than to acquire knowledge for knowledge's sake. The goal of the applied scientist is to improve the human condition.

Basic research aims to discover new phenomena/ideas of general interest

Applied research builds on basic research. E.g., the creation of atomic clocks to study relativity & Einstein's physics led the way to **GPS**

Innovation numbers on the web

Google search for

- innovation → 402 Million results
- creativity → 226 Million results

YouTube search for

- innovation → 191K videos
- creativity → 171K videos

Innovation: Where do good ideas come from?

<http://bit.ly/aiyr9d>

Feynman method for innovation

Keep a dozen of your favorite problems constantly in your mind

Every time you hear/read a new trick/result, test it against each of your twelve problems to see whether it helps

Every once in a while there will be a hit, and people will say: “How did he do it? He must be a genius!”

Everything is a remix

Remember : Everything is a remix!

“Creativity is just connecting things.” (Steve Jobs)

Creativity is not a trait that we inherit in our genes or a blessing bestowed by the angels. It's a skill. Anyone can learn to be creative and to get better at it. (<http://on.wsj.com/xEDb0U>)

Techniques to boost innovation

Take initiatives Don't get stuck, try different things. Always make.

Make mistakes Perfection comes from iteration. Start with a rough draft, then refine, and refine quickly.

Write, write, write Writing shows us how sloppy our thinking is. Writing enables us to analyze our work, make sense of it, see the big picture, and find several new ideas along the way.

Techniques to boost innovation

Relax, Loosen up We are all creative, at least in our dreams. Use *lateral thinking* to move from one known idea to creating new ideas. “Creativity is the residue of time wasted.” (A. Einstein)

Brainstorm / Change assumptions If you find the “right” problem, solution is generally easy. The best way to solve a problem is often to redefine it.

Work hard, work persistently

“All great artists and thinkers are great workers” (F. Nietzsche)

“Nothing in this world can take the place of persistence. Talent will not; nothing is more common than unsuccessful people with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent.” (C. Coolidge)

Myths of innovation

- The myth of the epiphany
- There is a method for innovation
- People love new ideas
- The lone inventor
- Good ideas are hard to find
- The best ideas win

Scott Berkun

Innovation paradox

“Whoever makes the most mistakes wins.” (Farson, Keyes)

Failure has its upside, success its downside. Both are steps toward achievement, and the two extremes are not as distinct as we imagine. In today’s business economy, it’s not success or failure – it’s success and failure that lead to genuine innovation.

The more you try to “manage” innovation, the more difficult it becomes to do any innovation.

Internet Entrepreneurship

You can change the world

<http://bit.ly/vLQopx>

<http://bit.ly/zcGD4E>

(Steve Jobs)

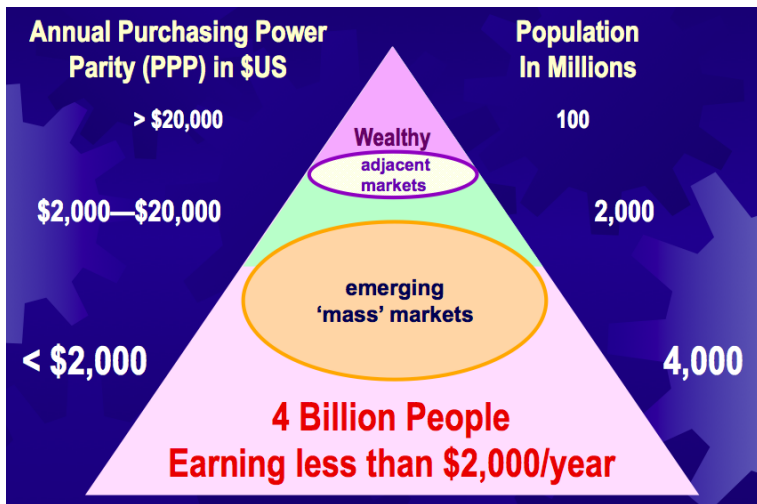
Make meaning, not money

Entrepreneurs should create meaning. It all starts with the desire to change the world and make it a better place.

Socially-relevant computing projects

IT for improving developing regions (Eric Brewer)

Case for technology in developing regions



Entrepreneurship in 137 chars

Make something someone specific needs, launch fast, let users show you what to change, change it, repeat last two.

(@paulg)

An innovator doesn't worry about shipping an innovative product with elements of crappiness if it's truly innovative. The first permutation of an innovation is seldom perfect. But you should iterate and improve quickly. Innovation is not an event. It's a process. (Guy Kawasaki)

Changing directions is part of the game. Ever heard of 3M company? Minnesota Mining & Manufacturing Company!

Entrepreneurship ideas

- Find a problem intolerable & feel it must be possible to solve it
- Make things cheaper; make a luxury into a commodity
- Make things easier to use

(via @paulg)

Ideas are worthless without execution

It is not hard to come up with ideas for startups. The initial idea is just a starting point– not a blueprint, but a question. (@paulg)

Execution refines the idea. In the process of discovering your initial idea is broken, you'll come up with your real idea.

With innovation there is no last nugget. Every new thing creates 2 new questions and 2 new opportunities.

Examples

Games with a purpose

<http://bit.ly/yn535E>

<http://bit.ly/At3xGb>

- reCAPTCHA to digitize books
- ESP game as Google image labeler
- Duolingo learn a language, help translate the Web into every major language

Google

Google began in 1996 as a research project by Page & Brin, Ph.D. students at Stanford.

Google.com was registered in 1998 and Google Inc. started at a friend's garage

Google keeps on innovating

The first Google index in 1998 had 26 million pages, and by 2000 the Google index reached the one billion mark. In 2008 Google index reached 1 trillion (as in 1,000,000,000,000) unique URLs on the web at once!

Apple

Woz about early Apple

<http://bit.ly/yjVU7W>

Apple keeps on innovating

<http://bit.ly/dvYeMR>

Amazon

Amazon is the world's largest online retailer. Jeff Bezos created Amazon.com, Inc. in 1994, and the site went online in 1995.

Amazon Web Services (AWS): In 2006, Amazon launched an online storage service S3 and introduced EC2, a virtual site farm, allowing users to use the Amazon infrastructure to run applications ranging from running simulations to web hosting. AWS is now the largest cloud computing vendor

Amazon keeps on innovating
<http://bit.ly/IH8vA>

Twitter

Twitter's origins lie in a daylong brainstorming session. Dorsey introduced the idea of an individual using an SMS service to communicate with a small group.

It was created in March 2006 and launched that July. The service rapidly gained worldwide popularity, with over 300 million users

Facebook

<http://bit.ly/AfpiQX>

Facebook was founded by Mark Zuckerberg with his college roommates.

The Web site's membership was initially limited to Harvard students. Facebook has more than 845 million active users now.

Dropbox & Instagram

Drew Houston conceived the Dropbox idea after repeatedly forgetting his USB drive. Existing services at the time “suffered problems with Internet latency, large files, bugs, or just made me think too much.”

He began making something for himself, but then realized that it could benefit others with the same problem. Houston founded Dropbox, Inc. in 2007, and Dropbox launched in 2008.

Just 3 engineers built and run Instagram, which has 14 million users, 150 million photos, several terabytes of data, and hundreds of machines.

Cloud computing fuels innovation

Cloud computing is an innovation enabler/catalyzer

Cloud computing enables faster access to innovation and rapid prototyping & deployment

Cloud computing reduces costs, and avoids the need for large initial investments

<http://bit.ly/zFi6nO>

Mobile app markets

Mobile app markets make it easy for you to reach 1000s of users

A smartphone combined with a singlehop access to a cloud-backend is essentially a supercomputer in your pocket

Enormous potential for innovation in this domain

Opportunities for venture capital in Turkey

Teknogirisim Sermayesi Destegi by Bilim, Sanayi ve Teknoloji Bakanligi

<http://sagm.sanayi.gov.tr/ServiceDetails.aspx?dataID=217>

Girisimcilik Destek Programi by KOSGEB

<http://www.kosgeb.gov.tr/girisimcilik/DestekProgrami.html>

ETohum <http://www.etoHum.com/>

Note of caution: winner bias

For every Zuckerberg there are 100 Suckerbergs who didn't make it. . .

- 70% of you won't even attempt to start a serious project
- 25% of you will drop it within the first 6 months
- 5% will stick to it, but
- only 1% will see the project adopted.

It is a lot of hard work, and it may not work. Failing is actually not bad, you learn and get stronger.

Twenty years from now . . .

Twenty years from now
you will be more disappointed
by the things you didn't do
than by the ones you did.
So throw off the bowlines.
sail away from the safe harbor.
Catch the trade winds in your sails.
EXPLORE. DREAM.
DISCOVER.
(Mark Twain)