

Guest Editorial

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Dreaming Big

Twenty years from now, you will be more disappointed by the things that you didn't do than by the ones you did do. So throw off the bowlines. Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover.

- Mark Twain

Ever considered starting your own business or becoming an entrepreneur? What does it take to be an entrepreneur? Is it the passion to be an entrepreneur or being your own boss or wish to convert your ideas into a great business or all of these drivers and more?

Identifying the need and developing a method to meet that need is what an entrepreneur does. He recognizes opportunities to produce something new and deliver it. Entrepreneurs are known to take risks and contribute to the economic growth. Entrepreneurs are always on the lookout for new opportunities, either in an existing enterprise or in the creation of a new enterprise – A Startup.

Mushrooming of the startup companies could be seen in the late 1990s with the internet boom. The startups became big due to the advent of the internet. It gave the entrepreneurs a platform to sell services and technology. Silicon Valley was renowned for the high level of startup company activity.

The startup culture in both Silicon Valley and Israel has been driven by emerging technologies. While Silicon Valley is home to many of the world's largest technology corporations as well as thousands of small startups, Israel on the other hand has been the most vibrant high technology cluster outside US since 1990's.

The IT sector in India has led to large scale employment generation. India's reputation as a source and a destination for skilled workforce helped it improve its relations with a number of world economies which facilitated the growth of an entrepreneurial class of immigrant Indians, which further helped in promoting technology driven growth.

India is an entrepreneurial country and Indian entrepreneurs are considered rich in ideas, but its entrepreneurs have had to struggle to create and grow their business ventures. The founders of companies like HCL, Cognizant, Infosys, Bharti and others are the first generation Indians who have generated large scale employment and significant wealth. Others such as Makemytrip and Naukri have also demonstrated value creation through a public listing. These successes have encouraged a new breed of entrepreneurs especially in the internet and e-commerce space.

Cloud computing is the most recent wave of the digital revolution and is one of the best things to happen to the entrepreneurs as they need not invest in hundreds of thousands of dollars upfront because it is on a pay-as-you-use basis. Cloud computing infrastructure has leveraged application development and new business models in Mobile computing. This is the best time for the young

entrepreneurs as they have better access to the world market and emerging technologies than ever before.

2012 was a defining year for Indian startup ecosystem – apart from the launch of few ambitious startups, the ecosystem witnessed launches of several incubators and accelerators in India. Microsoft accelerator, Startup village in Kerala, Tata Elxsi Incub@TE are just a few of the examples. Startup competitions serve as a catalyst for an emerging ecosystem. The Indian startup ecosystem is quite nascent, and has plenty of potential to grow. Some of the recent success stories such as InMobi and Flipkart have only helped in boosting the morale among the entrepreneurs in the country.

Young entrepreneurs of today are the nation builders of tomorrow. Running a business excites the young minds but they also seem to learn a lot through it. Young entrepreneurs are much more resilient and deal better with the knocks entrepreneurs often face. Young India should move from being Job seekers to Job Creators.

Mr. Rajesh Kumar

From Chairman's Desk



Revisiting Some Fundamental Assumptions of Student Learning

Salman Khan (the US educationist , who provides online mentorship to thousands of school students across many countries) has been in the news recently for questioning some of the prevalent assumptions of how our education systems have been designed and operated. He started by preparing short (about 20 minute-long) videos on Math topics and disseminating them through YouTube for

the benefit of school students.

One of his admirers was Bill Gates who used these videos for teaching his children. Subsequently, he has prepared videos on finance, science, technology, current affairs, etc. for the benefit of non-specialists. He has recently written a Book, *One World Schoolhouse* , capturing these ideas .

He has questioned a number of currently prevailing assumptions and offered some recommendations:

“How do people actually learn?”

“Why do students forget so much of what they have supposedly "learned", as soon as the exam has been taken?”

“Why do grown-ups sense such a disconnect between what they studied in school and what they do in the real world?”

“Lessons should be paced to the individual student's needs, not to some arbitrary calendar; what we now have is One -pace -fits -all curricula and education”.

“Well-credentialed education theorists have determined that 10-18 minutes was about the limit of students’ attention spans”.

Examples of activities for recharging student focus: Small- group discussions, Active problem solving, Case- based learning.

“Mastering learning suggests that students should adequately comprehend a given concept before being expected to understand a more advanced one”.

“In a traditional academic model, the time allotted to learn something is fixed, while the comprehension of the concept is variable. What should be fixed is a high level of comprehension, and what should be variable is the amount of time students have to understand a concept”.

“Taking responsibility for education is education. Taking responsibility for learning is learning”.

“How does education happen? Education does not happen in the empty space between the teacher's lips and the student's ears. It happens in the individual brains of each of us”.

“The most effective way to teach would be to emphasize the flow of a subject, the chain of associations that relate one concept to the next, and across subjects”.

“You can standardize curricula, but you can't standardize learning”.

“Our educational system is intertwined with many other customs and institutions. Changing education would therefore lead to changes in other aspects of our society as well”.

“It requires deep introspection and a will to change what needs to be changed in our education systems. Two of the major challenges are scalability and sustainability”.

Prof R Natarajan

BITES Quarterly Plan (Jan – March 2013)

Topic	Resource	Date	Venue
BITES Distinguished Guest Lecture on	Dr. Anantharaman, Director Engineering, Adobe Systems India	First Week of February	PESIT, Bangalore
Workshop on “Cloud Computing”	TCS	8 th February 2013	SIT, Mangalore
Workshop on “Neural Networks and Applications”	NIT- K	9 th February 2013	CEC, Mangalore
TCS TechBytes State Level IT Quiz	Hubli Regionals	23 rd March 2013	BVBCET, Hubli
	Gulbarga Regionals	25 th March 2013	PDACE, Gulbarga
	Tumkur Regionals	28 th March 2013	SIT, Tumkur
	Mysore Regionals	2 nd April, 2013	SJCE, Mysore
	Mangalore Regionals	4 th April, 2013	Sahyadri Institute of Technology, Mangalore
	Bangalore Regionals and State Finals	9 th April 2013	SJBIT, Bangalore

What is new in the world of Technology

IIT-Madras ready for mass production of artificial blood

A team of IIT-Madras scientists from the department of engineering design have made red blood cells from stem cells to be used as artificial blood for transfusion reports TOI. These RBC cells with proven oxygen-carrying capacity would now be tested on animals before human trials.

The researchers have made trillions of red blood cells on a Petri dish. They cultured adult stem cells derived from cord blood for 17 days in the lab.

Earlier attempts had been unsuccessful in getting pure red cells. Always in the past 40% of white blood cells used to get added in the red making it unsuitable for transfusion in patients with a weak immune system

In a typical RBC blood bag, there are a trillion (1 followed by 12 zeros) red blood cells. The new Petri dish had a yield of a quadrillion (1 followed by 15 zeros) cells from the starting point of about a million stem cells.

Having proved their oxygen-carrying capacity, the RBCs will now go into 'mass production' before starting human trials in three years, scientists said. The IIT team recently got a funding approval from the Union ministry of science and technology to produce artificial blood on an industrial scale

As per WHO a country needs a blood equal to 1% of its population. India needs 12 million units of blood, but collects only nine million. It will take at least five years for artificial blood to be available for clinical use.

(Source: http://articles.timesofindia.indiatimes.com/2013-01-12/india/36295882_1_blood-cells-artificial-blood-cord-blood)

Microchip Moves Information Around in 3-D

Scientists from the University of Cambridge have created, for the first time, a new type of microchip which allows information to travel in three dimensions. Currently, microchips can only pass digital information in a very limited way -- from either left to right or front to back.

Researchers believe that in the future a 3D microchip would enable additional storage capacity on chips by allowing information to be spread across several layers instead of being compacted into one layer, as is currently the case.

For the research, the Cambridge scientists used a special type of microchip called a spintronic chip which exploits the electron's tiny magnetic moment or 'spin'. Spintronic chips are increasingly being used in computers, and it is widely believed that within the next few years they will become the standard memory chip.

To create the microchip, the researchers used an experimental technique called 'sputtering'. They effectively made a club-sandwich on a silicon chip of cobalt, platinum and ruthenium atoms. The cobalt and platinum atoms store the digital information in a similar way to how a hard disk drive stores data. The ruthenium atoms act as messengers, communicating that information between neighboring layers of cobalt and platinum. Each of the layers is only a few atoms thick.

This is a great example of the power of advanced materials science. This is the 21st century way of building things -- harnessing the basic power of elements and materials to give built-in functionality."

(Source: <http://www.sciencedaily.com/releases/2013/01/130130132407.htm>)