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From the VC’s Desk

Innovation Drives Entrepreneurship

DR. K. N. B. MURTHY
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“Innovation is the specific instrument of entrepreneurship. The act that endows resources with a new capacity to create wealth”

- Peter F. Drucker

It is a well accepted fact that higher education needs to promote social and economic development of the country. To this end, nothing can be more impactful, than entrepreneurship. All around the world, the most promising technology start-ups have sprung from university campuses. The untapped potential in India is huge, considering Indian higher education system is the THIRD largest in the world after US and China. India has 864 universities, 40,026 colleges and 11,669 stand alone institutions with about 35.7 million enrolment and a Gross-Enrollment-Ratio (GER) of 25.2%. This raises the question, what kind of support structure, universities in India can provide to staff, students and alumni to churn out successful enterprises.

The dream of entrepreneurship starts while the students are in the university. There is unbounded enthusiasm, ideas and energy. It is crucial to ensure that such ideas and energies are channelled properly to result in ventures that become engines of economic growth for the state and the country. Universities can provide the right ambience where intellect and experimentation can be synergized to seed next generation start-ups. Universities can help establish partnerships with larger ecosystems that can help fund start-ups through their growth journey.

Only through innovative products and services, can a newly started enterprise hope to make its presence felt in an increasingly crowded market place. The innovation can be in technology, business model and in some cases even user experience. Succeeding in innovation however is easier said than done. Geoffrey Moore, who is considered a guru in business innovation said “The most common misunderstanding of disruptive innovations is to overestimate their impact in the short term and underestimate it in the long term. Another common misunderstanding is to associate disruptive with good”. Thus innovation has both great opportunities and immense challenges.

Recognizing the importance of promoting Innovation and Entrepreneurship considering the challenges involved, PES University (PESU) has established a Center of Innovation and Entrepreneurship (CIE) at its Ring Road campus in Banashankari, Bengaluru in December 2017. The Center has created space for incubation activity, tinkering space and made available experienced mentors to provide support to potential entrepreneurs through the pre-Incubation, Incubation and post-Incubation stages. The charter of CIE is to help the students, alumni and staff to incubate their ideas and seed startups, by providing the right guidance and a supportive ecosystem. Further, CIE is expected to help the new entrepreneurs to commercialize their ventures at a later stage. This initiative of PES University is in line with the Government of Karnataka’s vision of making Karnataka a pre-eminent destination for start-ups to reality. Karnataka has a head start as the startup ecosystem in Bengaluru is ranked within the top twenty startup ecosystems in the world. If this position has to be maintained and improved, the state needs to further encourage entrepreneurship through the establishment of such centers.

To make the culture of innovation and entrepreneurship pervasive, this center should consider designing a program of study around innovation and entrepreneurship. Candidates with new ideas can join the program and work towards proof of concept and build prototypes with the requisite financial support from the center. The center could also provide requisite training, mentorship services as well as connectivity to funding agencies and churn out successful entrepreneurs. In a matter of time, PES University should join the league of global peers who offer such programs that have become highly successful.
From the Director's Desk

Role of Global Collaboration in Innovation & Entrepreneurship

Prof. Sathya Prasad
Director, CIE

Much like education, Innovation and entrepreneurship is extremely multi-dimensional. One of these dimensions is the purposeful establishment of linkages with key stakeholders and partners to build a vibrant ecosystem that can foster technology-led innovation and entrepreneurship (I&E) at Universities. It is not an overstatement to say that for I&E to flourish, there must be a network of various stakeholders across geographies.

As CIE marks the 1st year of its existence, it is humbling to see the support and encouragement from key external stakeholders in India across Industry, Academia Incubators/Accelerators and Alumni (from India and across the globe). While this is something we will continue to work on, we feel it is equally important to explore linkages with like-minded partners and institutions from across the world.

We are thrilled to have had the opportunity to present PES University’s CIE’s startup journey at Global Venture Labs (GVL) 2018 at Sutardja Center for Entrepreneurship and Technology (SCET) at University of California (UC) Berkeley. GVL is a conclave of entrepreneurship educators from across the world that enables sharing of perspectives and learnings related to teaching innovation and entrepreneurship. This is the 10th anniversary for GVL and is the brainchild of Prof. Ikhlaq Sidhu who is the Founder Director and Chief Scientist at SCET and a Professor at Industrial Engineering & Operations Research (IEOR) at UC Berkeley. This year’s GVL was held on Aug 20-21 at UC Berkeley and was attended by about 75 senior educators from across 15 countries.

CIE’s startup journey was featured in ‘New Initiatives and Programs’ section and delivered in a TED-style talk. The participants ranged from institutions that have had a long track record in I&E like Prof. Thomas Byers (Stanford Technology Venture Program), Aalto University (Finland) to name a few.
This was also a great opportunity for CIE to be exposed to a creative effort to combine technology and innovation in a University context. Case in point is the Data-X which started as an initiative and has become popular for its projects and startup ideas and is also offered as a course at UC Berkeley. A very interesting roundtable discussion on ‘Future of Entrepreneurship’ was led by Ken Singer, Managing Director of SCET.

In the ‘Partnerships in Action’ section, several initiatives at UC Berkeley were covered: Global Bootcamp at UC Berkeley, Startup Semester & Startup-Fellows and Silicon Valley Innovation Week. In the section on ‘Ecosystem’, Susan Giesecke (Director of Global Engagement, SCET) brought together participants who have created and nurtured a global network of entrepreneurship educators and their initiatives.

I had the privilege of being a Mentor at Founder’s Institute at Palo Alto and took in the pitch from 5 startups, all working in different areas but with a unifying theme of Data Science led opportunities for new ideas/market.

This was also an excellent opportunity to meet PES University’s alumni in Silicon Valley who have come a long way after their graduation but still nurture a strong bond with PES University. It was encouraging to see these alumni very keen on helping CIE at PES University.

CIE will continue to build local and global linkages that will benefit our students but equally importantly help contribute to a startup ecosystem that is beyond borders and geographical limitations that can better the lives of people through tech-led innovation and entrepreneurship.
Mr Rishikesh S R, an alumnus of PESIT - Bangalore returned to his alma mater to share his experience with an audience of students across various disciplines. Rishikesh has had an eventful journey between college and the launch of Rapido, India’s largest bike taxi platform.

It all went back to his college days, when Rishikesh started attending startup networking/events in the city. Not one to be confined by a curriculum, Rishikesh put a significant amount of time and effort into personal projects. As a student resident on campus, he had limited internet connectivity. To overcome this, he’d borrow a friend’s laptop on a daily basis. He eventually went to the extent of moving out of his dorm to have better access to resources which he then dedicated to his projects.

As he grew closer to graduation, he stood out among his peers by choosing to be a full-time entrepreneur rather than taking up a conventional job.

He co-founded his first entrepreneurial venture - ‘theKarrier’ - in response to one of the problems plaguing the city - transportation. With his co-founders, two others he met at a networking event, he dedicated all his time to building theKarrier, an intra-city logistics provider which connected users and truck drivers to move goods.

The trio put a lot of effort into theKarrier, even personally talking to hundreds of truck drivers to identify their issues. It paid off, as theKarrier took off to handle a volume of 1000 orders per month with over 25 clients including the likes of Flipkart. A major challenge they faced was that the stakeholders were relatively non-tech savvy, unlike the taxi segment. This rendered the app and website interface ineffectual, eventually leading to the pivoting of theKarrier into what is now known as Rapido.

Rapido addresses last mile connectivity in a very economical way by offering bike taxis, which outweigh the luxury of a car within the confines of cities. It differs from a conventional taxi platform in that it is more like a pooling service thereby allowing anyone with a two-wheeler to work part-time, and at their convenience. Rapido is currently operational in over 17 cities across India.

Rishikesh’s parting message to the students was to dream big and do everything possible to achieve the same by putting in the dedication and time without letting obstacles and societal conventions get in the way.

Decoding The Entrepreneur (DTE) at CIE

Demystify and separate hype from reality about innovation & entrepreneurship in a live-format where students get to hear directly from entrepreneurs.

DTE format is part interview and part Q&A with students where entrepreneurs share experiences about their entrepreneurial journey. This serves to help students form their own understanding/opinion about entrepreneurship and innovation.
Ayushman, an alumnus of MIT, Karnataka, is first and foremost a maker. A mechanical engineering graduate, he grew up tinkering with appliances and gadgets to discern their inner workings.

A robotics and product design enthusiast, he joined his college's robotics team and therein found a platform to develop his interests.

He worked on several projects in his college days such as a wind powered robot, a badminton playing robot, a pole climbing robot and so on, before shifting focus to a project that would turn into his first startup venture - a modular CNC machine named Modulus.

Modulus was born as a project for Provenance, a state level business plan competition. Ayushman's team went on to win the competition and used the prize money to take Modulus from concept to prototype.

At a time when rapid prototyping and digital fabrication were not easily accessible, Ayushman founded Strange Matter to bridge the gap between high-end industrial machines and low-end desktop CNCs to make manufacturing solutions affordable for smaller businesses.

Having spent hours manually machining, himself, Ayushman understood the need for automation of machining processes.

Strange Matter then set out to improve on Modulus and fabricate it.

A semi-industrial model (christened as Modulus 1) was designed and was selected for funding in the Texas Instruments India Innovation Challenge among 30 teams in India.

Ayushman stresses on the need for interdisciplinary interaction for product creation. He emphasized the importance of real-world problem identification and team diversity.

He ended his address by encouraging students to get out of thinking ruts and to simply start building.
Overview of CIE Course

Introduction to Entrepreneurship
Level 1

The Introduction to Entrepreneurship, is an introductory course offered by Center for Innovation and Entrepreneurship (CIE) to allow students to start exploring the expansive and intricate world of entrepreneurship. Below is my perspective as a student enrolled in this course this semester.

In this course, students will have the opportunity to develop an understanding of the nature of enterprise and entrepreneurship while also gaining insights about the business opportunities that are increasingly led by innovation in technology.

While the heart of this course lies in exploring the principles of the entrepreneurial mindset, there will be a diverse set of skills that develop along the way such as discipline, critical thinking, problem solving, teamwork, communication skills, ethics, emotional intelligence and much more! This diverse skill set should be helpful for the entrepreneurial and intrapreneurial journeys that the students will embark upon.

The course is designed to be a mix of interactive lectures, discussions, activities and a final project. Each session also has a list of resources that interested students can use to explore the topics in greater depth.

Entrepreneurship is slowly becoming the global standard, so what better time to start than right now?

Here’s what other students had to say about this course:

“The course is interactive and the teachers are patient and incredibly approachable”

“The lectures and the presentations were fantastic”

“It was really good and fun as we learnt a lot and did loads of activities!”
**IoT**

In a nutshell, the Internet of Things is the concept of connecting any device to the Internet and to other connected devices. The IoT is a giant network of connected things and people – all of which collect and share data about the way they are used and about the environment around them.

- Size of the IoT market worldwide (2018): 249.2B $
- Revenue of Internet of Things subsystems worldwide in 2017: 36.3B $
- Projected Internet of Things services spending (worldwide, 2017) – 273B $
- Internet of things connected devices installed base worldwide -2018 - 23.14B $
- Number of IoT smart home units installed base within smart cities in 2018: 1B $

**Artificial Intelligence (AI)**

AI as a concept refers to computing hardware being able to essentially think for itself, and make decisions based on the data it is being fed. AI systems are often hugely complex and powerful, with the ability to process unfathomable depths of information in an extremely quick time in order to come to an effective conclusion.

- Revenues from the AI market (worldwide, 2018): 735B $
- Growth of Artificial Intelligence(AI) market (worldwide, 2017): 4.8B $
- Funding - AI start-ups (worldwide, 2017): 15.2B $
- Worldwide sales of industrial robots (units, 2017): 387000 units.
- Unit shipments of artificial intelligence(AI) based systems used for automotive purposes in the year 2017: 7.5 million AI based systems

**Blockchain**

Blockchain is a decentralized, encrypted, digital ledger technology that creates and stores real-time records of transactions made. These transactions are recorded and processed without any third-party provider, like a bank.

- Reported potential annual savings for banks utilizing Blockchain Technology: 8-12B $
- Amount the global blockchain market is expected to be worth in 2024: 20B $
- Average investment in Blockchain projects in 2017: 1M $
- Amount that IBM is investing in Blockchain-powered IOT: 200M $
- The expansion of the blockchain space every year to 2022 : 42.8 %
Tech in Focus

Blockchain: An Overview

Transactions of any kind: wealth, data, goods and services are ever changing and constantly evolving to become safer, more efficient and trustworthy. Of late, cryptocurrencies have had a global impact, transforming the landscape of online financial transactions. While it is unclear how cryptocurrencies will fare in the long run, it is the underlying blockchain technology that possesses huge potential for disrupting entire industries, unlimited to just online financial transactions.

What is Blockchain?

Blockchain, a technology extant since 2008 is a decentralized, encrypted, digital ledger technology that creates and stores real-time records of transactions made. These transactions are recorded and processed without a third-party provider, like a bank.

How Does It Work?

Think of Blockchain as a text document that has multiple contributors. Every transaction that takes place is recorded in this document. What differentiates Blockchain from this text document is its immutability - once an entry is made it can neither be changed or replaced. Cryptography secures this document and its entries; as each transaction is verified, it is encoded into a block of data that is identified by a unique code. This block is chained to the previous and the next one, creating a chain of blocks that is impossible alter or delete. Only new entries can be made, before which users of this particular Blockchain document must verify its veracity and reach a consensus on what gets placed in the document.

How Blockchain Can Help

An important feature of blockchain is its distributed nature; a copy of the ‘ledger’, or bits and pieces of data are stored across the hundreds (or millions) of systems that make up the network. So data is always within reach, even if one system or server is unavailable. Because it is decentralized, transactions and data are virtually immutable and unhackable. To make a change in a particular block, every block added after it must be detached and this action must be repeated for every copy of that particular transaction across the network; impossible to pull off without being noticed. With so many third party witnesses and evaluators, scamming and falsification of information is a remote possibility; anyone can verify and confirm the legitimacy of a transaction. Blockchain is very much on the cusp of revolutionizing today’s world and only time will tell if it’s here to stay.

Potential Areas of Application

Blockchain technology applied to supply chain management would be a game changer. With multiple stakeholders involved in a sequence of processes, transparency and circumventing delays and errors are paramount. A product can be tracked all the way from its source until it reaches the consumer, creating a permanent timeline and increasing trust and assurance, among other perks. Another use-case is in the IoT (Internet of Things) domain. By 2020, an estimated 20 billion devices will be deployed across the world. Blockchain could be applied to efficiently handle the impending data deluge - its distributed nature would allow data to be stored in systems across the world, preventing bottlenecks, and account for security of this data with its immutability and encryption. With seemingly endless applications and many more yet to be discovered, it will be interesting to see how much of an impact Blockchain will have on our lives in the near future.
AMIT RATHORE

Educational Background
Batch 2001, Electronics and Communications Engineering

Present Company and Role
Principal @ CEAi, a startup studio for deep-tech and AI startups

Career Highlights
Worked at ThoughtWorks for ~7 years, left to do startups 10+ years ago. On my 7th startup now, with 3 successful exits. Previous startup Runa sold to Staples. Quintype still in operation. CEAi (the most recent startup) is a meta-startup - a startup platform for AI companies, and there are already 5 startups in play, with space for another couple dozen over the next 2-3 years.

Start of your Entrepreneurial Journey
Back in high-school I wrote codes for local companies and friends who needed help. It was my first attempt at making money from coding and software services. After learning how to build software, manage teams, scale companies, I left the corp world to do startups. The driver was the fulfillment of potential - if you have a burning desire to accomplish something, if you see something that could be better, then you’re driven to make it happen. This raw power of creation is awe-inspiring, and what makes me go. Making something from nothing, that is the challenge startups have.

Mission and its course of change
As mentioned above, my initial mission was to just do amazing things, build stuff that people would pay for, and grow companies. Now I am inspired to teach and mentor others to do the same, building successful ventures, and the new startup venture platform is a great place to do that at scale, in meaningful ways, while delivering and creating value for everyone involved.

Attribute and measurement of your Success
Detachment from outcome - you definitely have a goal, but know that you’re only in control of your own actions. Focus on that, and everything else follows. What to do next, in any situation, will come to you - it is a stateless process in the end, despite past events appearing to colour your options. See this clearly, and you will not be held back.

Challenges
It’s a roller-coaster ride! There are days when you wake up wondering what on earth made you think of this idea at all, and there are days when you’re on top of the world. Neither lasts. Just keep taking that next step, it is all there is.

Decision you might want to change
I would move to startups run by successful entrepreneurs as soon as possible. This is the best way to learn, and to create wealth. Keep an open mind, and learning is truly a life-long process. It’s a way of being.

Advice for aspiring PES student entrepreneurs
The first thing is - don’t get into analysis/paralysis, and know that working software beats ideas any day. So get started! Find some users! Get traction wherever you can - technology is the somewhat easier part, it is the market that must be cracked. First step: get into the market! Build something people would pay for! Relentlessly find what that might be, and tweak your product/service. Rinse and repeat!
It would be good to see the ideas pitched during boot/base camps move into execution phase right inside PESU or its associated organisations with partial funding. That would surely set up the student entrepreneurs to embark on their businesses.

Attribute and measurement of your Success
“Dream It. Make It Happen”

Challenges
a. Every day is a challenge, small or big! It is typically about taking up a challenge head on and moving on to the next. That’s what makes entrepreneurship irresistible the myriad ideas, the constant tug between the why’s and the why not’s and pushing boundaries to turn dreams real.

b. And well, I need to put this one down here – trying to explain the what/why/how of “strategy”, the most misunderstood and misused intangible element among entrepreneurs!

Advice for aspiring PES student entrepreneurs

Having studied in PES, you have an enviable, undeniable advantage over others and its up to you to capitalise the opportunity, especially the launch of CIE. CIE under Prof. Sathya has created a fabulous platform for wannabe student entrepreneurs. Hats off to Prof. Sathya for his clear vision and the way he has set up programs for students to interface and hobnob with industry stalwarts, trailblazing entrepreneurs and wizards from premier management institutes, CIE has literally brought the best of all entrepreneurial advisors to you.
SURESH NARASIMHA

Present Company and Role

I manage a turn-around fund CoCreate Ventures. We are a VC firm who focus on helping companies turn around by investing capital & management capabilities we have. Some of the businesses we run include, JustBooks, the world's most extensive network of libraries, Bonhomia World, a venture that is focusing on bringing best of Indian coffee to global premium consumer segment. I am also on the board of TiE, world's largest ecosystem of Indian Entrepreneurs & currently run a special interest group around Retail.

Career Highlights

I started my career with Siemens immediately after I graduated. After spending three years in the first wave of startups in India, I decided to jump into Entrepreneurship. Since 2004, I have been part of the startup ecosystem as an Entrepreneur & Mentor. Some of my ventures are TELiBrahma, Sensara, and MonkeyBox.

Start of your Entrepreneurial Journey

I started pretty much immediately after my graduation, though in a part-time mode. What inspired me was just an opportunity to make a difference & the joy of bringing benefits to someone's life. I should stress how much my PESIT experience helped here. In PESIT I experienced efforts to be the best, to make a difference and create opportunities within limited resources. I was greatly influenced & intrigued by Prof. Jawahar, who was as young as what he is today and could dream of changing the future of so many students. I could see the changes in front of my eyes. It's my belief that one can challenge established institutions, be it in education or business with passion & innovation.

As soon as I passed out, a cousin of mine, who is a doctor, started forcing me to think of a software solution for his blood bank. I felt it was a good enough problem to tackle (Though in 1996, software for most doctors was only as valuable as the number of 3.5-inch floppy discs that came with it). I encouraged some of my friends who were yet to find a job to launch a business, funded part of my salary (which was 12K at that time ;-) ) spent most of my evenings helping my friends learn & code. While business could never take off then, it gave an amazing learning experience for me when I started TELiBrahma.

Mission and its course of change

My mission was to create an amazing consumer product from India for the global market & this mission remains the same.

Find a purpose for which you can give the rest of your life.

Attribute and measurement of your Success

What % of the target market is genuinely impacted by what we are delivering is the single most important metric that I use in all my businesses.

A tale on the impact of your startup

There are quite a few startups I have run and some of the ideas that I am proud of include
a. A solution that we developed for Bangalore Traffic Police. Back in 2007, we developed a blackberry-based solution for ticketing & to track repeat offenders. The same system is used even today & we are amazed at the change the solution has brought to the system.
b. I am proud of what we did with MonkeyBox to help & motivate kids to eat healthy food.
c. I am incredibly passionate about JustBooks. That is the destination for all avid readers. We have proven how well stacked & managed libraries are the best solution for encouraging our kids to read more and keep them away from addictive influences of gadgets.
d. With another venture Bonhomia, I am excited to help Indian coffee growers get a better price globally.

Challenges

The biggest challenge has been building a great team that can work together. Having a network of high-quality people who want to work with you is the single most important factor that determines success.

Decision you might want to change

I would choose problems with greater impact & larger market size.

Alumni Speak
The courses started by CIE on campus has had a positive response in its first iteration with a high approval rating from the students.

Approval rating of 93% in its first iteration. 74% of the students giving the course a perfect rating of 5!

The course is interactive and the teachers are patient and incredibly approachable.

I didn’t really come into L1 with rigid expectations. Hence, it was a pleasant surprise to find such a friendly and interactive classroom and course with stellar instructors. Something I really appreciate is the “clear” and effective communication. This makes for a refreshing change from other courses.
Upcoming Events

Bengaluru Tech Summit
21st edition of The Department of IT & BT, Government of Karnataka’s flagship event. This year on the theme of ‘Innovation & Impact’.

Venue - Palace Ground, Bengaluru
Date - 29th November 2018 to 1st December 2018
Event Link - https://www.bengalurutechsummit.com/

Annual Global Convention 2018
AGC is a 24-hour-non-stop event for Entrepreneurs, joined by policymakers, investors and media.

Venue - Great Lakes Institute Of Management, Chennai, India
Date – 8th December 2018 to 9th December 2018

Hackference
India’s biggest ever Open Source Community event for thinkers and doers.

Venue - Bengaluru
Date - 15th December 2018
Event Link - https://hackference.in/

MAHAbfic
MAHAbfic (Maharashtra - Blockchain, Fintech, ICO, cryptocurrency) is an ideal event to network with Blockchain, Fintech, ICO, cryptocurrency, industry experts.

Venue - Hyatt Pune, Pune
Date – 1st February 2019 to 3rd February 2019
Event Link - http://mahabfic.com/event/3dayssummit/

STARup
STARup is a gathering of over 2,000 entrepreneurs, investors, corporate representatives, and government officials and influencers from the Indian, Asian and European startup ecosystems.

Venue - SP-TBI, Mumbai
Date – 18th January 2019 to 19th January 2019
Event Link - http://www.starup.in/
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