



ENTREPRENEURSHIP IN SCIENCE

FROM LAB TO FAB

Bankim Subhash Chander, PhD

MEG-unit Head, ZI-Mannheim

Co-founder ALS Voice

Co-founder Brain Portal Technologies

29.6.2024

OVERVIEW I – CV

- Coming to Germany
- PhD Position – Neurotechnology
- Entrepreneurship – PainSOL
- Postdoc – Tuebingen
- Job Applications I
- Postdoc – Magdeburg
- Job Applications 2
- Entrepreneurship – ALS Voice
- Entrepreneurship – BrainPortal Technologies
- Overview 2 – How to start a business?

COMING TO GERMANY

- Engineering – Biotechnology (India)
- Masters – Computational Neuroscience (India)
- Motivation – Improve health care technology!
- Over 50 Applications and after 1 year
- International Max-Planck Research School Tuebingen – 1 year
- PhD Experimental Medicine – University Hospital of Tuebingen, Germany





■ Psychiatry

- Non-invasive electrical brain stimulation
- Developing novel stimulation paradigm in MEG
- Improving working memory
- Relieve symptoms of psychiatric patients

■ Neurosurgery

- Neuromodulation for chronic neuropathic pain
- Established evaluation of pain pathways using LEP
- Predict success of neuromodulation therapy
- Improve patient selection and surgery outcomes

ENTREPRENEURSHIP – PAINSOL LLC



- PainSOL – Bringing light to chronic pain!
 - 10 % of world population suffers from chronic pain
 - Neuromodulation is last resort treatment
 - 50 % of patients do not receive sufficient pain relief
- New neuromodulation paradigm
 - Photo stimulation of spinal cord
- MedTech startup school Tuebingen
- Would it work?
 - Animal experiments support our claims
- Is there a need?
 - Yes! Giving hope to people 50 % of patients
- Freedom to operate
 - Patent conflict!

POSTDOC – TUEBINGEN

- Medical Psychology
 - ALS Patients – Completely locked in
 - Improve communication
 - Machine learning profile – Feature engineering
 - Job satisfaction!
 - End of funding

JOB APPLICATIONS I

- 6 months of unemployment
- Industry Positions
 - Around 120 applications
 - 5 interviews
 - Job offers – 0
- Post docs Positions
 - 4 applications
 - 3 interviews
 - Took the first offer

POSTDOC – MAGDEBURG



LIN

LEIBNIZ-INSTITUT
FÜR NEUROBIOLOGIE
MAGDEBURG



OTTO VON GUERICKE
UNIVERSITÄT
MAGDEBURG

- Neurology
 - Role of spinal cord in sensory processing
 - Recorded high frequency spinal activity non-invasively
 - Basic research
 - Potential application in characterization of peripheral neuropathies
- Limited contracts in academia

JOB APPLICATIONS 2

- Selected applications – Covid time
 - Related to core expertise
 - Sales and support job – Biomedical Device
 - Permanent position
- Restructuring of the company
 - People were laid off
 - Mostly within the probation period
 - Again jobless

LAB HEAD – ZI MANNHIEM



- Head of MEG lab – Part of central core facility
 - Maintenance of the MEG facility
 - Support MEG users
 - Data collection
 - Data analysis
 - Experimental setup
 - MEG user training
- Research Activity
 - Own research
 - Biofeedback for improving mindfulness experience
 - Relieving psychiatric symptoms

ENTREPRENEURSHIP – ALS VOICE GGMBH (2021)



A Non-Profit initiative

Individuals lose the ability to speak – Full body paralysis

ALS, MS, stroke, TBI, etc.

Patients can use their eye for communication

Eye tracking technology

Eventually lose control of their eye muscles

Patients are left without any means of communication

Able to express their needs, desires, and wishes.



ENTREPRENEURSHIP – BRAIN PORTAL TECHNOLOGIES GMBH (2023)

- BrainPortal – Wearable Neurotechnology
 - Devices controlled by your thoughts
- Inducing sleep
 - 1B people world wide have problems with sleeping
 - 400 M severe sleep problems – seek sleep aids
- Solution
 - Monitors brain activity – EEG
 - Propriety intervention
- Life Science Accelerator Mannheim
- Would it work?
 - Human sleep experiments
- Is there a need?
 - Yes! Millions will benefit

OVERVIEW 2 – HOW TO START A BUSINESS?

- Skills required for entrepreneurship
- Lab to Market
- Patents
- Business canvas check
- Company registration
- Investments
- Share distribution
- Regulatory affairs

DISCLAIMER

The content I am presenting is intended for informational and **educational purposes** only. I am **not** a certified **expert** in all the topics discussed. **Do not consider my views as professional advice.** Participants are encouraged to seek the advice of qualified professionals regarding specific issues or concerns. While I strive to provide accurate and up-to-date information, I make no warranties of any kind about the completeness, accuracy, reliability, or suitability with respect to the contents.

SKILLS REQUIRED FOR ENTREPRENEURSHIP – GOOGLE.COM



Leadership



Time management



Strategic planning



Financial Management



Customer service skills



Technical skills



Sales



Curiosity



Problem solving



Active listening



Networking



Critical thinking skills



Resilience



Ability to learn



Budgeting



Business management sk...



Communication



Creativity



Skills management



Adaptability



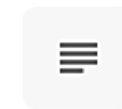
Networking and marketing



Interpersonal communic...



Confidence



Opportunity recognition



LAB TO MARKET

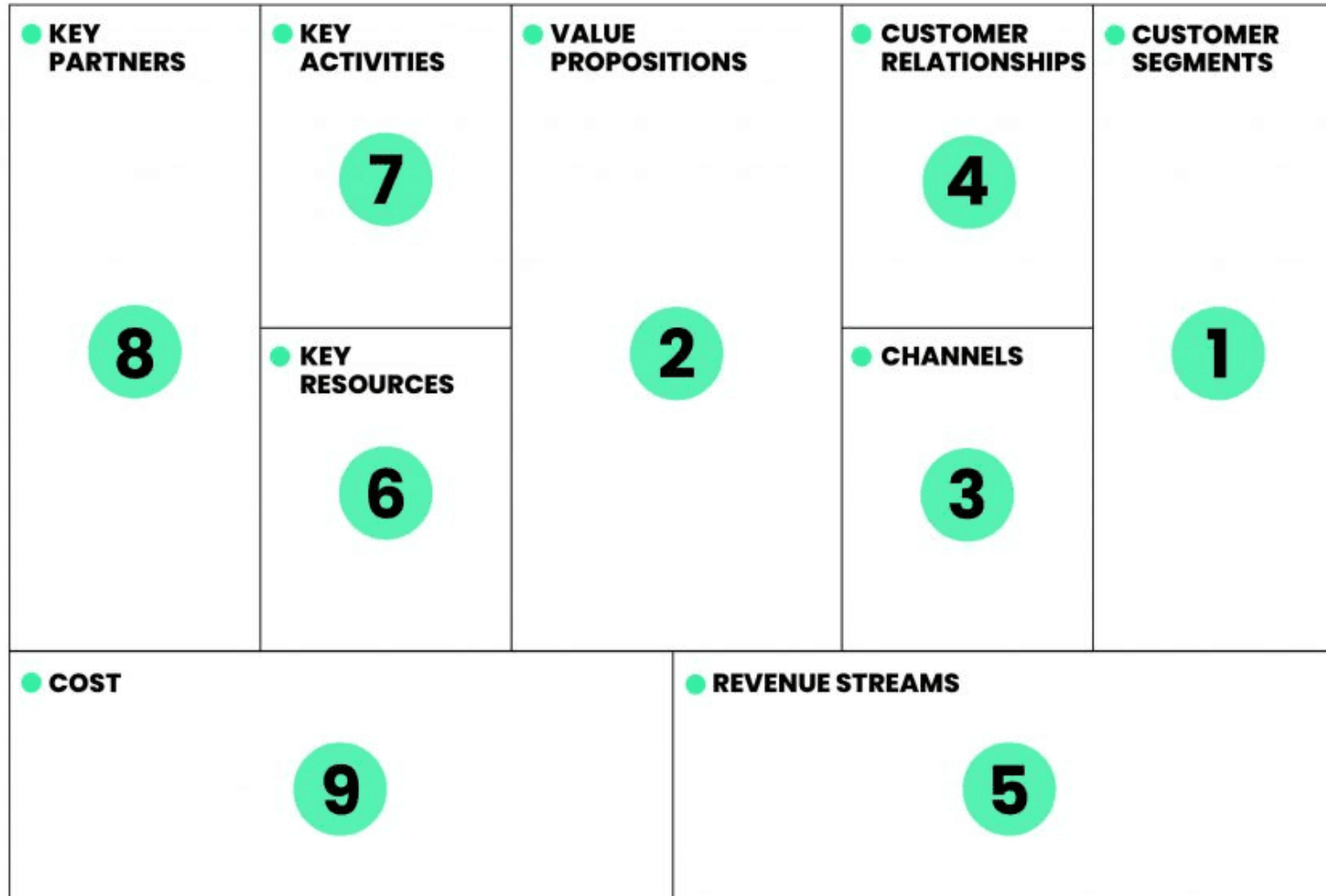


- Why?
What is your motivation?

PATENTS

- Invention disclosure – Technology transfer office of employer
- Can you patent? – Publish or perish!
- Why patent?
 - Claiming to be the first – Rights of the invention
 - Protecting market from others
 - Copy Rights and Trade Marks
 - Infringements
 - Someone else files a patent on your invention!
- Patent attorney!

COMMERCIALIZATION ASSESSMENT BUSINESS MODEL CANVAS



START A COMPANY

- Location – Germany?
 - Nature of the business
 - Proximity to the market
 - Rent price and cost of utilities
 - Talent availability – hiring employees
 - Infrastructure and accessibility
 - Government incentives
- Types of corporate entity
 - Sole Proprietorship
 - Limited Liability Company (GmbH) – € 25.000
 - Limited Liability Entrepreneurial Company (UG) – € 1

COMPANY REGISTRATION



- Company Registration – Lawyer and notary!
 - Choosing a suitable corporate entity
 - Incorporation document and share holders – Public domain
 - Share holder’s agreement (optional)
 - Opening a corporate bank account – deposit founding capital
 - Approval from IHK – Reserve Name, declare commercial activities
 - Notarization
 - Registration into the commercial handle
 - Tax Registration
 - Trade license (optional)

GETTING READY FOR INVESTORS

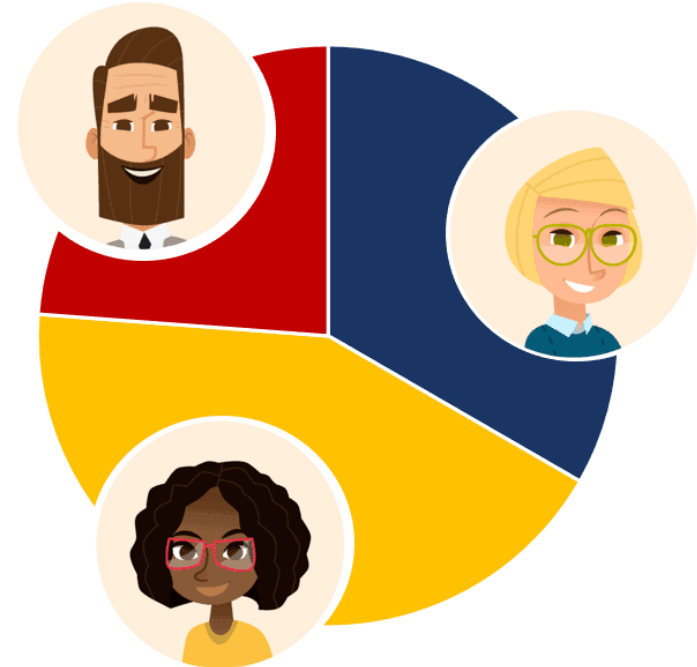
- Before going to investors – Data Room
 - Whitepaper
 - Pitch Deck
 - Founders' agreement – cap table
 - Business Model
 - Financial Plan

FIND A PARTNER INVESTMENTS

- Bootstrapping, Friends and family
- Non dilutive funding – Grants from Germany, EU, Exist startup grant
- Angel investing – under 500 K – Proof of Concept
- Startup accelerators
- Debt funding – bank loans
- **Venture capital**
- Seed – 1 M to 2 M – MVP / Prototype
- Series A – over 10 M – Scale up and market entry
- Series B – over 25 M – Marketing and sales, mass production

SHARE DISTRIBUTION

- Now you have investors – Slicing the pie
 - Founders – Majority share holder and minority
 - Investors
 - Employees
 - Advisors and board members
- Types of shares



REGULATORY AFFAIRS

- CE certification
- ISO certification
- Conformity with MDR
- Compliance with GDPR

- Inform yourself
- Consult with professionals



SUMMARY – WHERE TO START?

- **Self-Reflection:** Motivation!
- **Fuel Your Passion:** Requires resilience and dedication
- **Validate Your Idea:** Product market fit.
- **Step Out of Your Comfort Zone:** Learn on the fly! Market your venture.
- **Bridge the Gap:** Keep it simple and non-academic!

- **Embrace the process!**

☘ Good Luck ☘