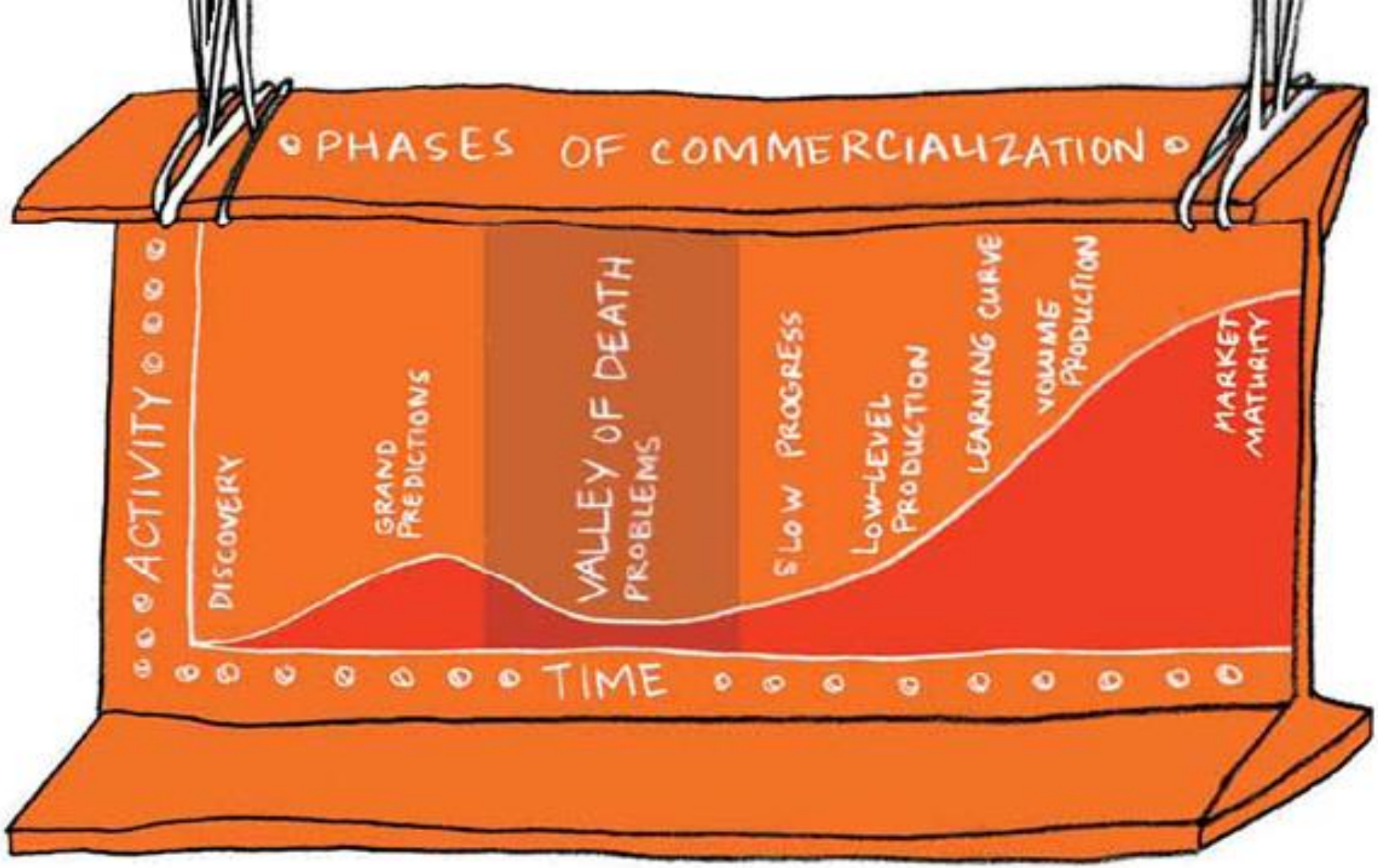


Journey through the Valley of Death
From idea to investment

Témavázlat

A tech transzfer piaci oldala

Mi történik egy találmánnyal, miközben átkel a halál völgyén

Az egyetemi inkubátor szerepe

Út az ötlettől a befektetésig – AQDOT esettanulmány

- Üzleti modell – BMC
- BMC validálás
- Befektetés

Innovatív vállalkozás (startup) alapításának kötelező és ajánlott feltételei

Bevezetés a kockázati-tőke világába

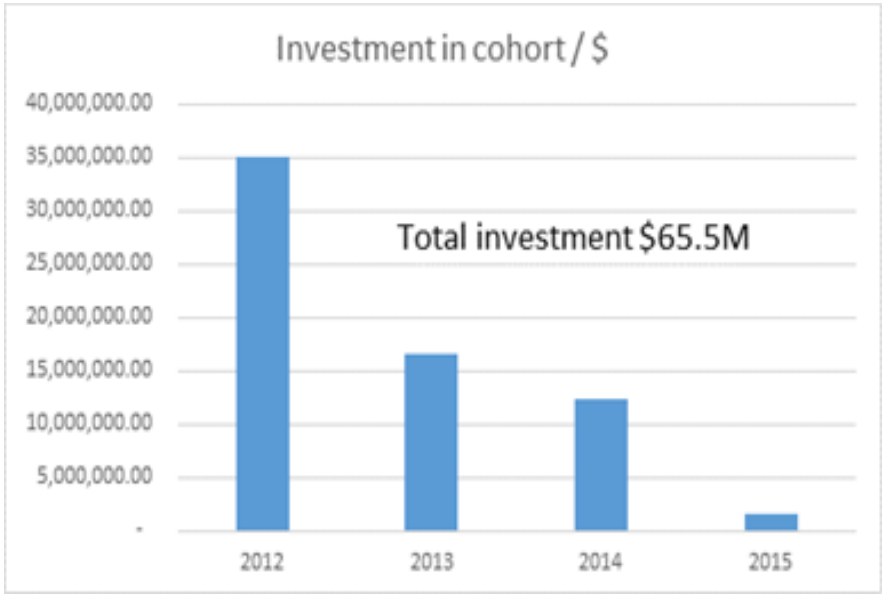
Topics for discussion

Commercial side of tech transfer
How an invention crosses the valley of death
The role of university incubators
The path from idea to investment – AQDOT
    The Business Model
    BM validation
    Investment
Launching your startup
Venture capital 101

Key achievements

Accelerated 66 startups since 2011
27 graduated from programme
Cumulative investment in startups
$65.5 million

Imperial College London Incubator



Changing pathways to innovation

Transformation of the industrial context of innovation in past decades

Universities

- Widened brief from R+E focus to translation of research into innovation

Large tech companies

- No positive returns from R&D
- Struggle to retain role as leading innovators
- Slow to keep up with changing markets
- Lack agility to drive disruptive technological change
- Increasingly outsource parts of their R&D
- Acquire specialist technology companies
- Reduce spending on internal fundamental research

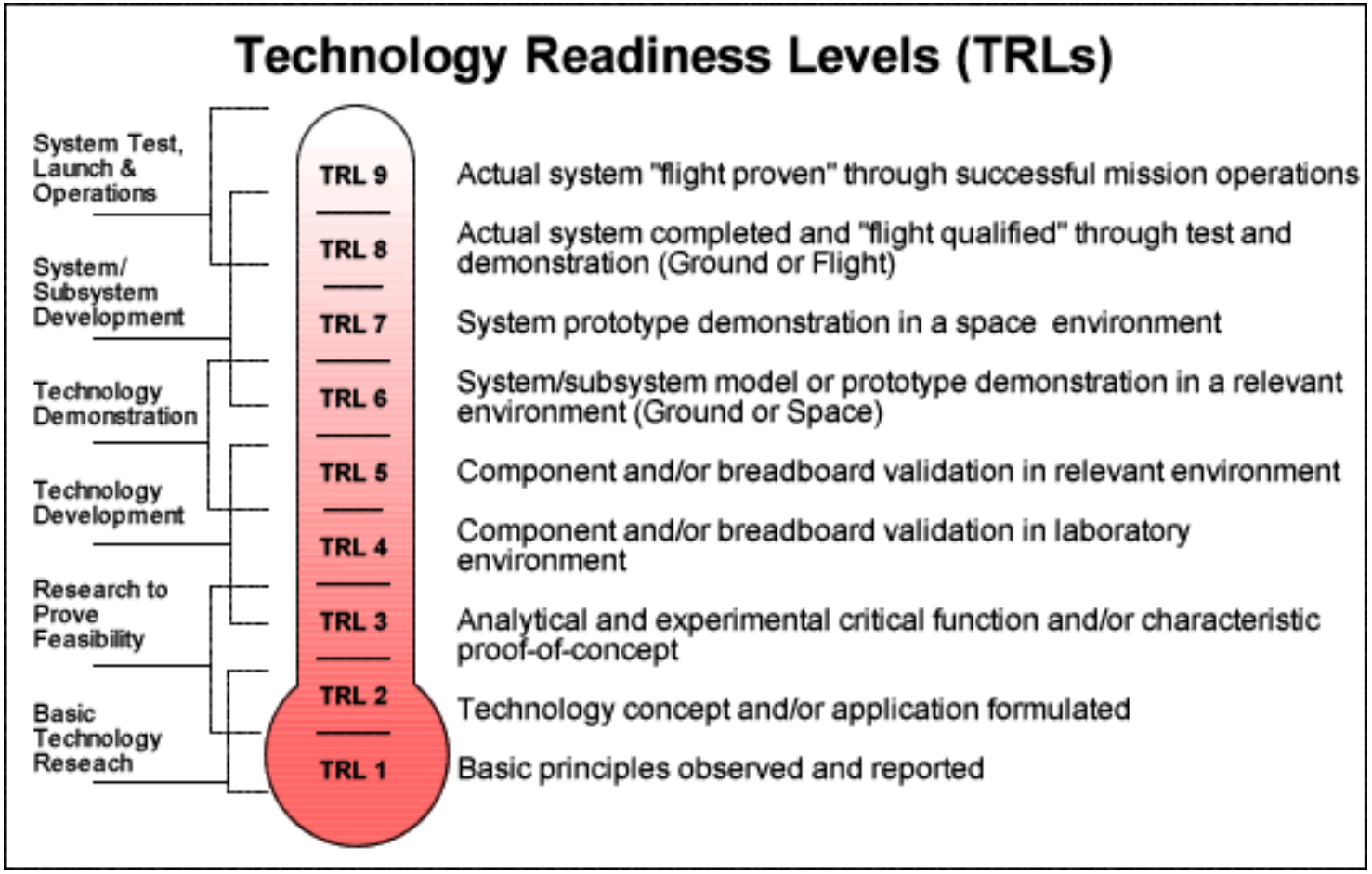
Small tech companies

- Taken the lead in driving transformational change
- Success dependent on universities and large corporates

Key terms

- TRL
- Valley of death
- Startup/spinoff
- Incubator/Acceleration
- Business model (not business plan)
- Life cycle of a venture
- Hype cycle

Technology readiness levels (**TRL**) a method of estimating technology maturity of Critical Technology Elements (CTE) of a program during the acquisition process. TRL are based on a scale from 1 to 9 with 9 being the most mature technology. The use of TRLs enables consistent, uniform discussions of technical maturity across different types of technology. Source: European Association of Research and Technology Organisations (EARTO)

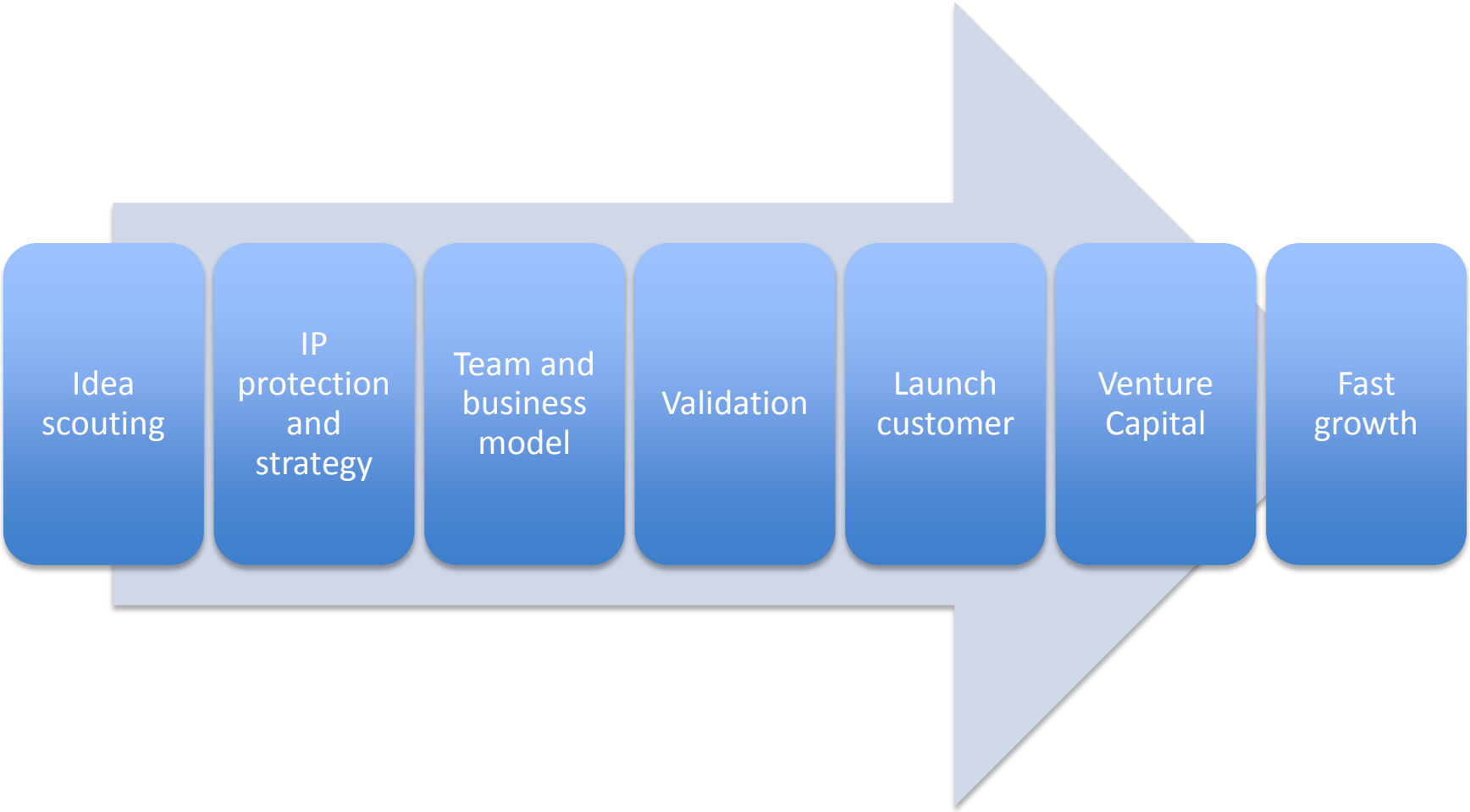


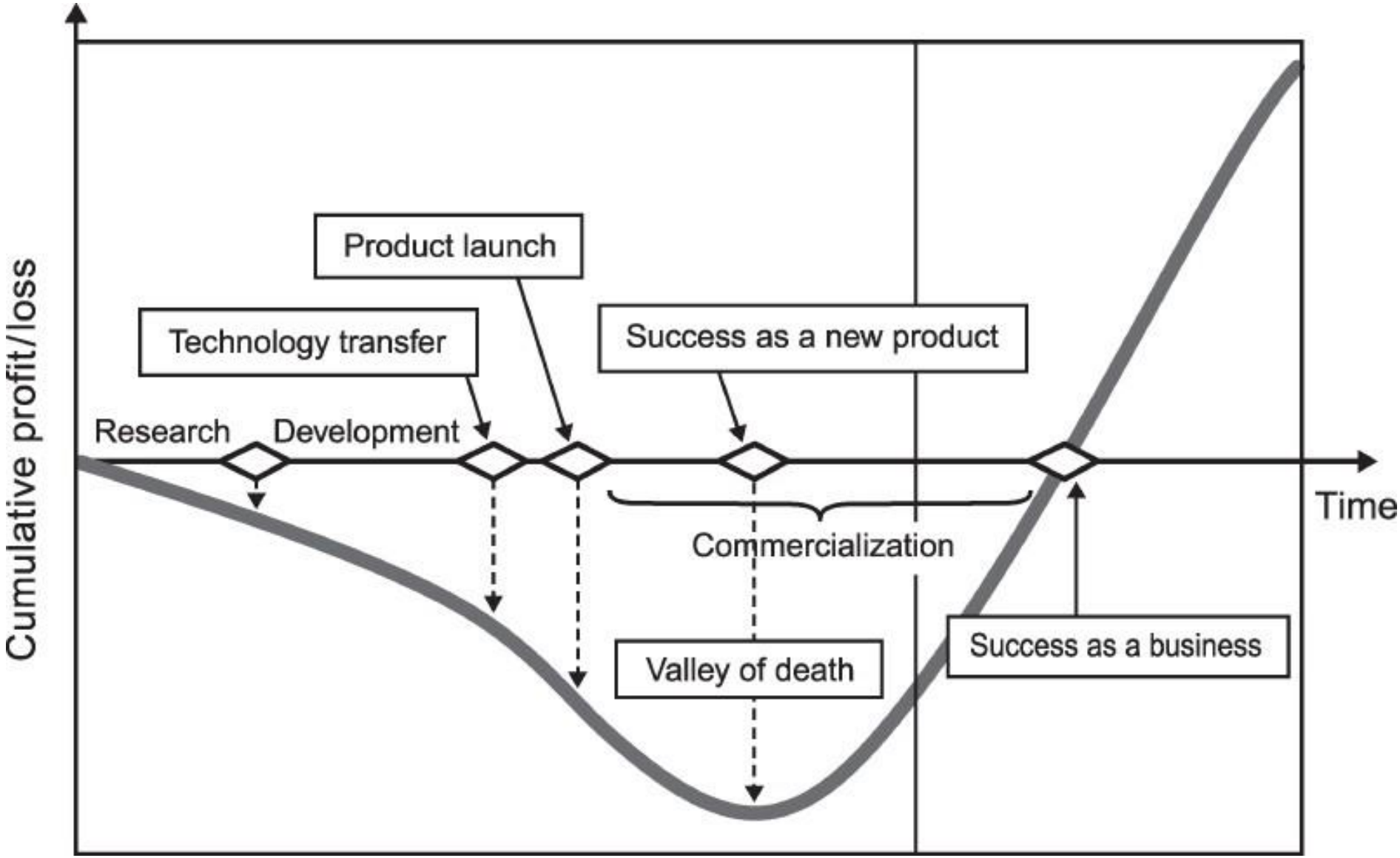
TRL in EU

Technology Readiness Level Description

TRL 1. basic principles observed
TRL 2. technology concept formulated
TRL 3. experimental proof of concept
TRL 4. technology validated in lab
TRL 5. technology validated in relevant environment
TRL 6. technology demonstrated in relevant environment
TRL 7. system prototype demonstration in operational environment
TRL 8. system complete and qualified
TRL 9. actual system proven in operational environment

R&D Commercialisation chain





View of the valley from Osawa and Miyazaki

Valley of death

Few companies that enter ever emerge

Three character traits all survivors share are

- Determination
- Focus
- Fiscal restraint

Incubator - Acceleration

An incubator is a company that helps new and startup companies to develop by providing services such as management training or office space

- Helps ideas grow from early stage (R&D) to maturity
- Funds vs. investment
- Training (skills, team, strategies, pitch)
- Services

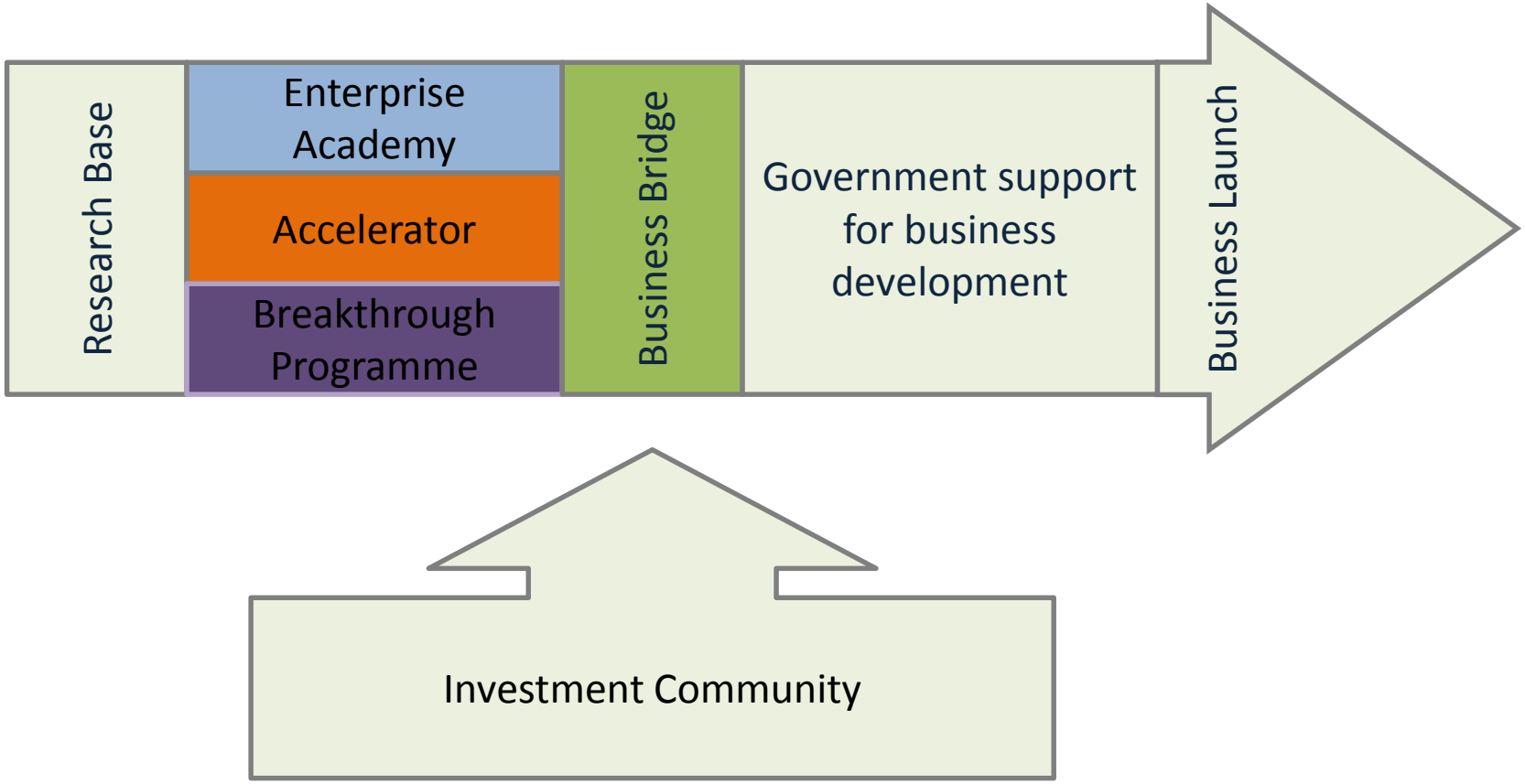
Accelerator

- Enterprise development programme
- Shorten time to market
- Stages and gates

Incubator services

- Help with business basics
- Networking activities
- Marketing assistance
- Market Research
- High-speed Internet access
- Help with accounting/financial management
- Access to bank loans, loan funds and guarantee programs
- Help with presentation skills
- Links to higher education resources
- Links to strategic partners
- Access to angel investors or venture capital
- Comprehensive business training programs
- Advisory boards and mentors
- Management team identification
- Help with business etiquette
- Technology commercialization assistance
- Help with regulatory compliance
- Intellectual property management

Incubator design



Professional Ideation

- Support both challenge led and push innovation ideas through professional ideation approaches.
- Bring together all partner categories and integrate across ecosystem. Incubator to lead on this.

Elements of Acceleration

- The three stage accelerator approach and start-up support mechanisms are applied, where appropriate, to all early stage innovation and business creation activities.
  - Stage 1: business model development
  - Stage 2: customer discovery
  - Stage 3: team establishment

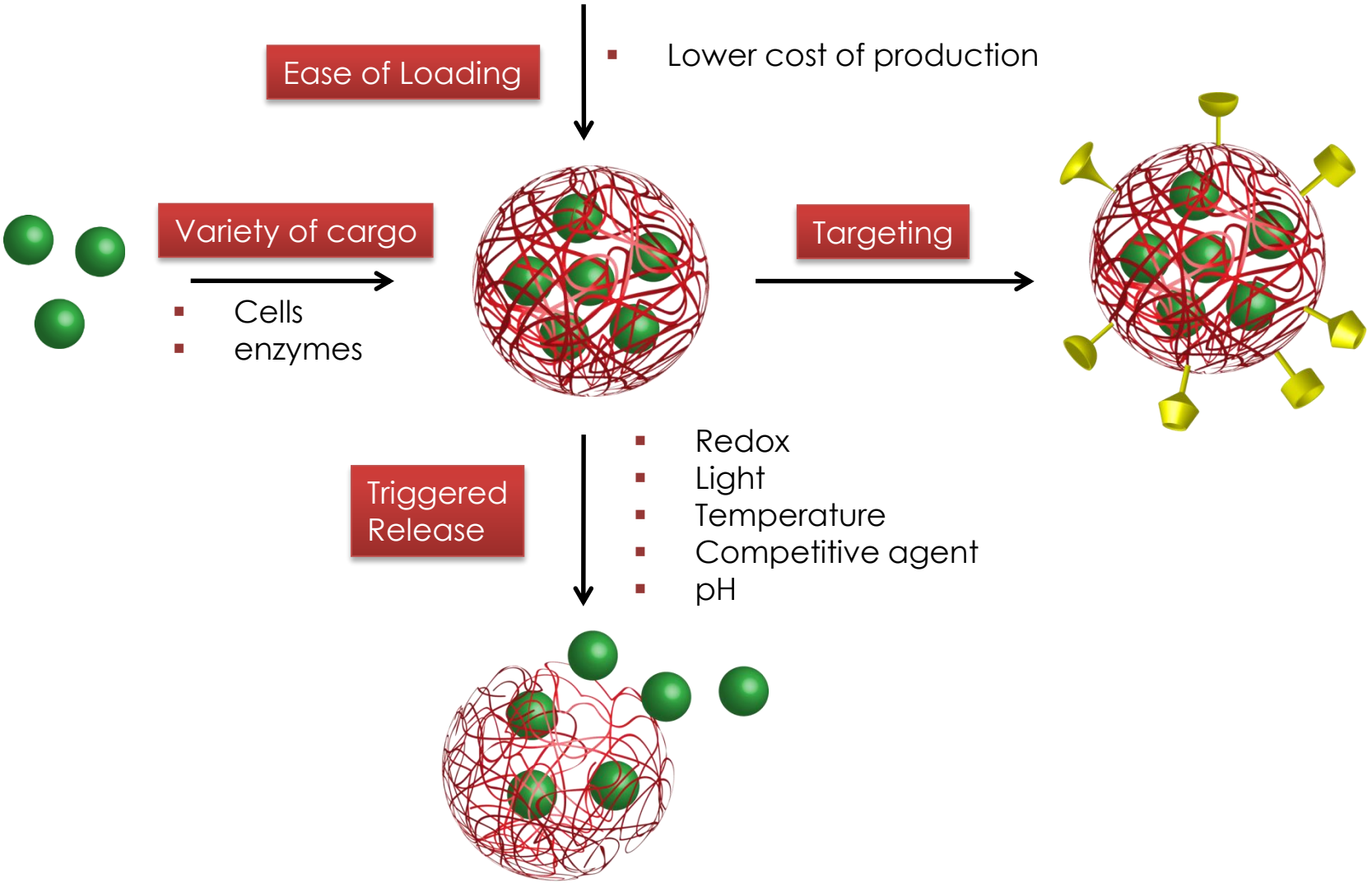
Innovation Translation Team

- A team that would typically include appropriate technical people and business acumen. They work with the inventor to translate the idea into a viable start-up
- Teams trained through Venture Academy, with continuing training and support whilst doing innovation translation

Climate-KIC Stage 3 Incubation Programme

aqdot

Platform Technology



Application Potential

Oil and Gas

Paints & Coatings

Paper

Textile

Adhesive, Sealants, & Lubricants

Food

Pharma and Medicine

Household Care

Agriculture

Personal Care

Industry Validation

aqdot

Climate-KIC added value

Links between UK start-up and enzyme industry giant Novozymes

R&D Director confirms that aqdot's approach is novel and potentially applicable to Novozymes enzyme systems

Application for funding of aqdot/Novozymes innovation project submitted to Climate-KIC in 2014

novozymes®

Rethink Tomorrow

Startup

- Not a small sized company
- Does not execute a business plan
- A temporary organisation searching for a replicable and scalable business model

Spinoff

- a company founded on the findings of a member or by members of a research group at a university

Business model

https://www.youtube.com/watch?v=QoAOzMTLP5s

The Business Model Canvas

Designed for:

Designed by:

On: Day Month Year

Iteration: No.

Key Partnerships	Key Activities	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		Channels	

Cost Structure	Revenue Streams

www.businessmodelgeneration.com

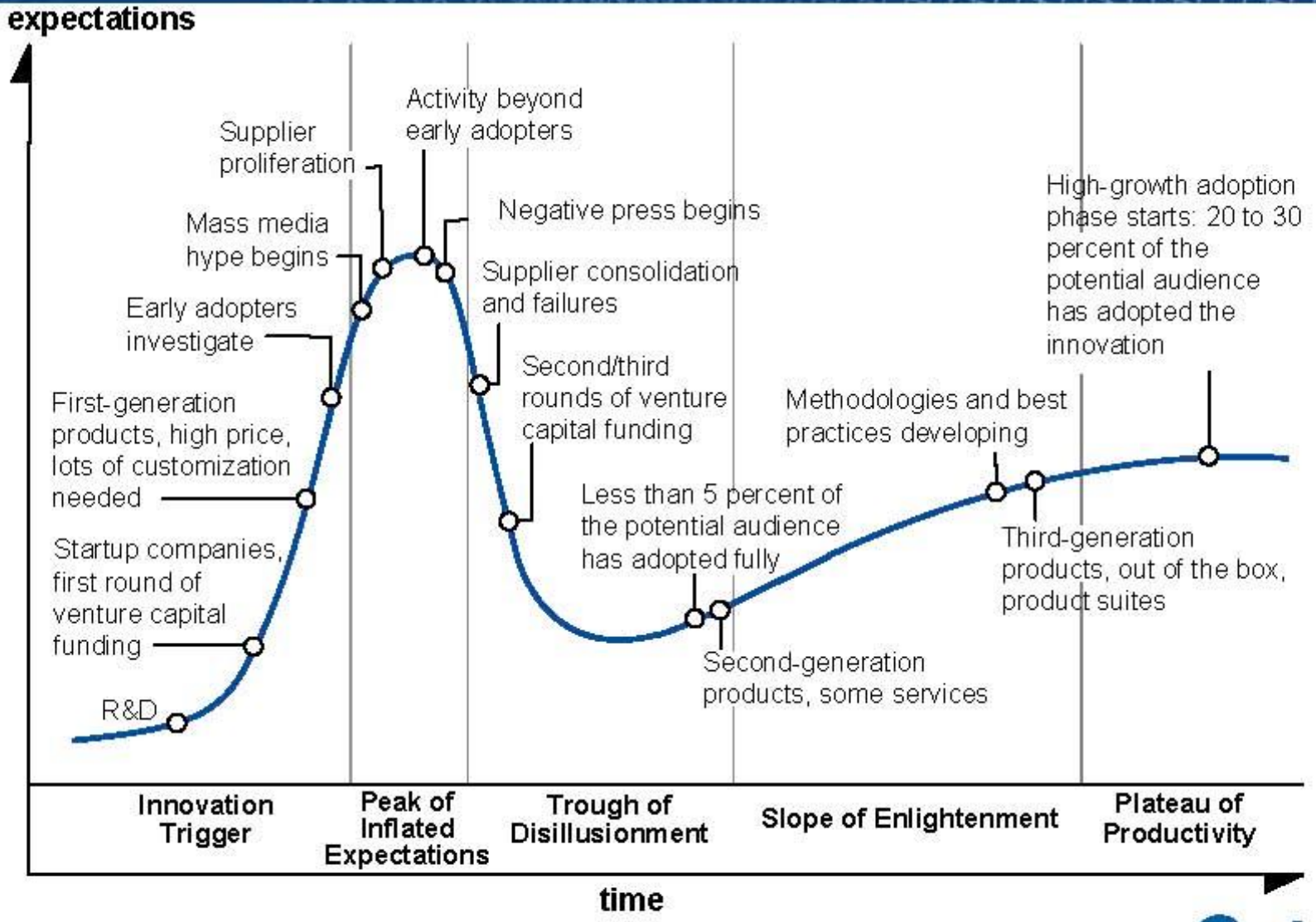
Visio diagram created by Craig Mathews of Big Think (www.bigthinkresults.com).

https://strategyzer.com/canvas/business-model-canvas

Startup launch

- Idea
- Team (vision, sales, fiscal restraint)
- Sweat equity
- BMC
- MVP vs prototype

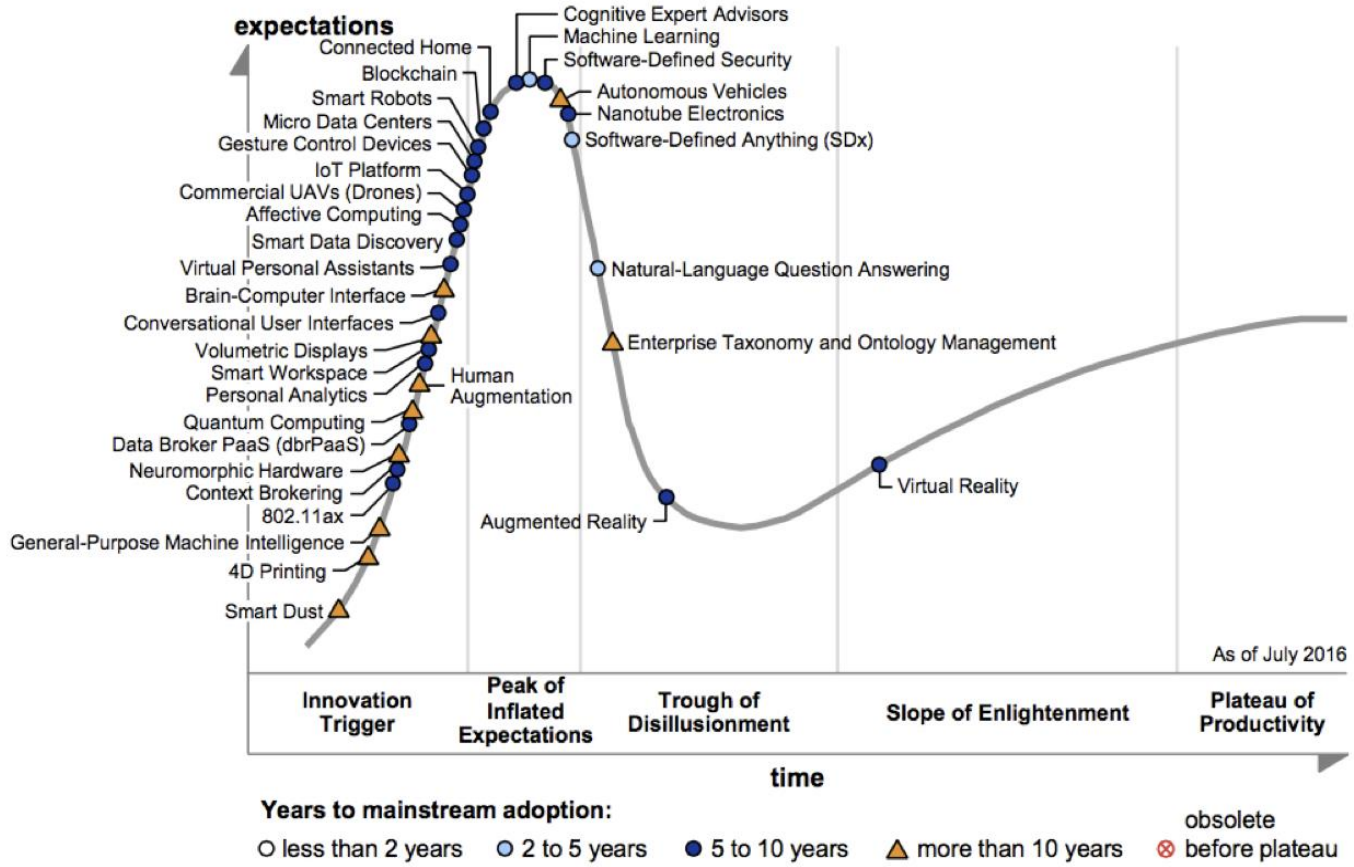
Hype Cycle Indicators



Gartner

Gartner Hype Cycle

Figure 2. Hype Cycle for Emerging Technologies, 2016



Source: Gartner (July 2016)

Smart dust

Definition: Smart dust refers to motes, which are tiny wireless micro-electromechanical systems (MEMS), robots or other devices that can detect everything from light, temperature and pressure to vibration, magnetism and chemical composition. They run on a wireless computer network and are distributed over an area to perform tasks, usually sensing through RFID. As they do not use large antennas, these systems have ranges measured in just a few millimeters.

https://www.youtube.com/watch?v=dW6uHC7qXsM

4D Printing

Definition: Four dimensional printing (4DP) is a technique where the materials are encoded with a dynamic capability — either function, confirmation, or properties — that can change via the application of chemical, electronic, particulate or nanomaterials. The printing technology has extra functionality to sequence, mix and place specific materials that will have a calculated effect.

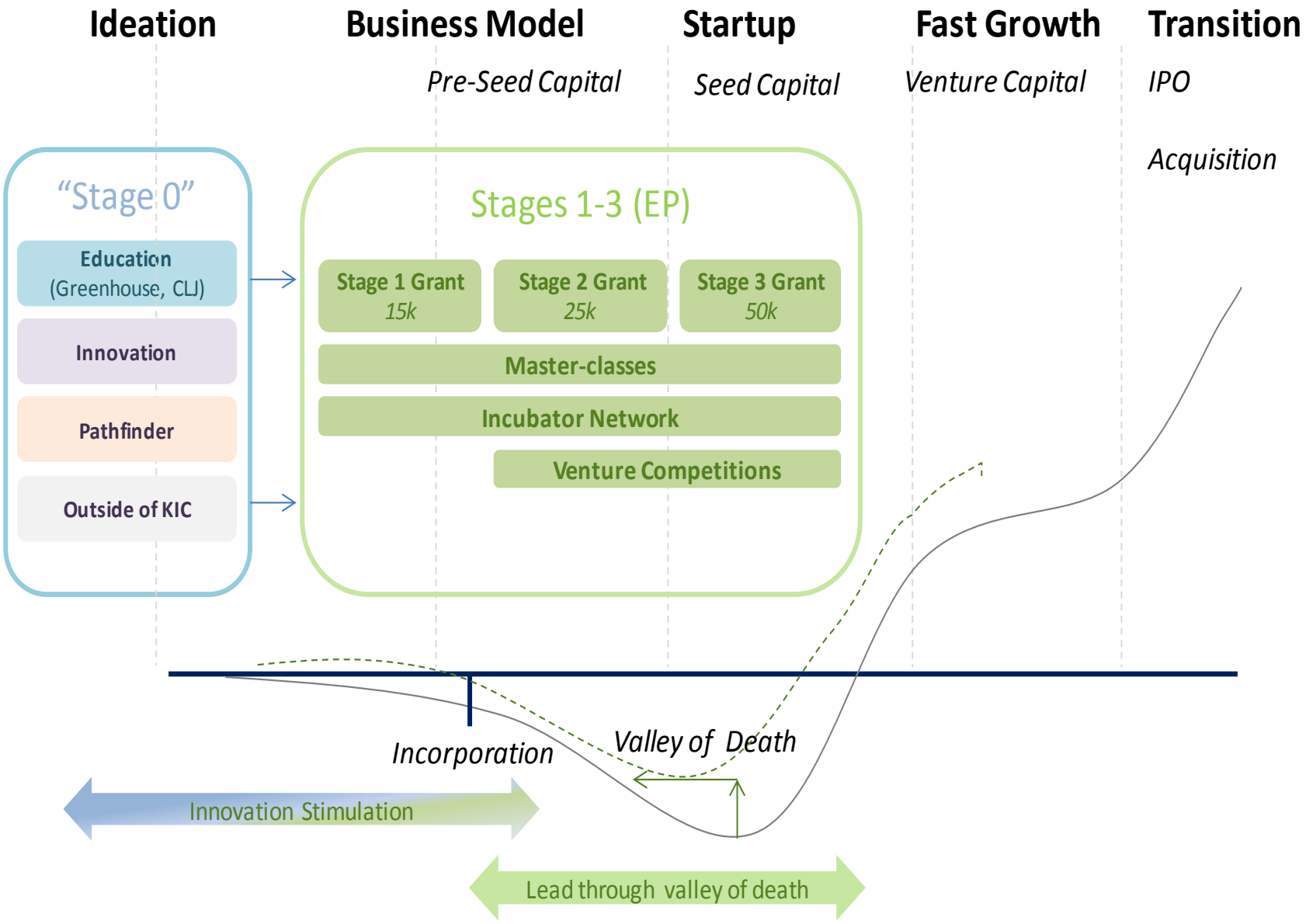
https://vimeo.com/58840897

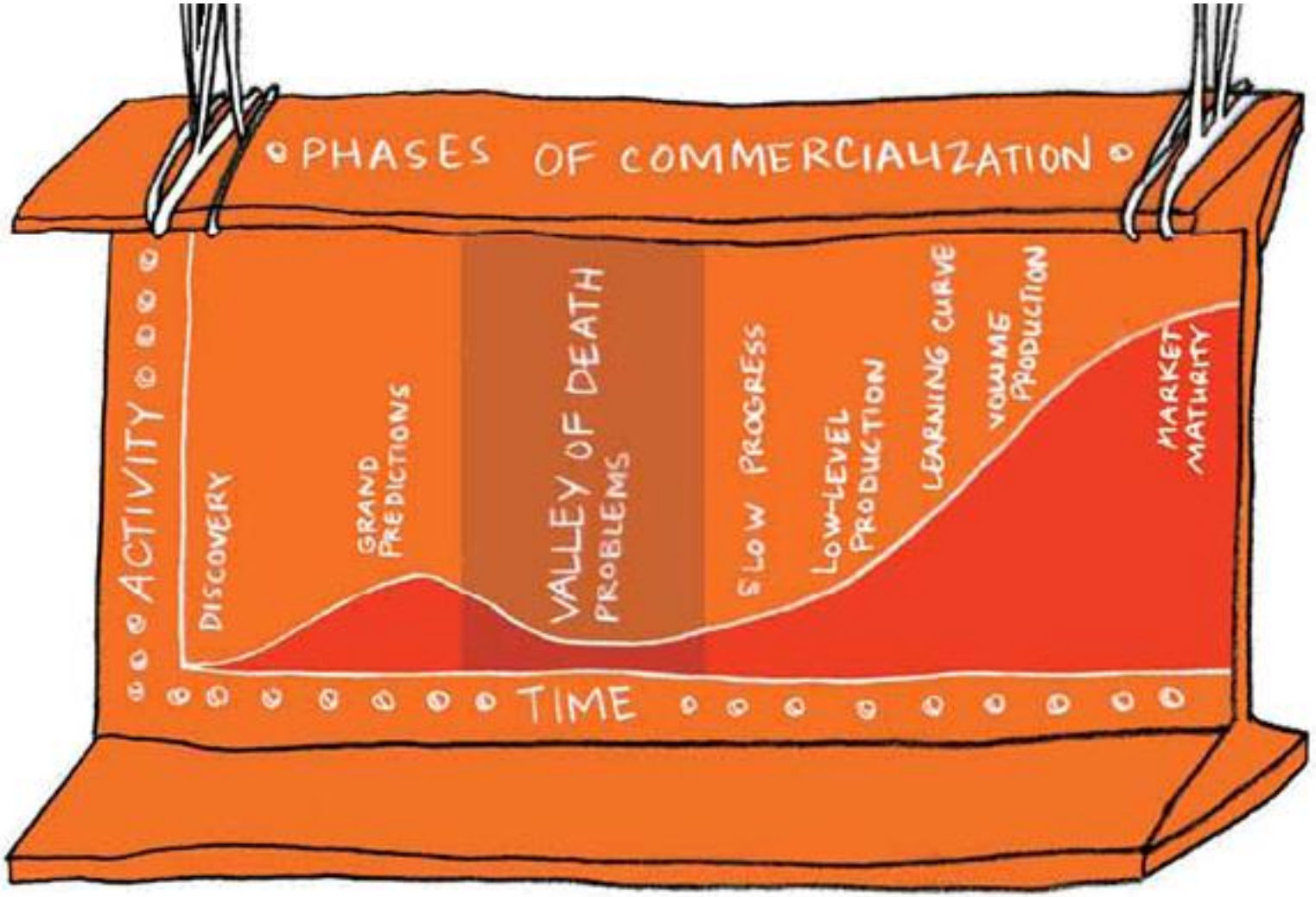
Debrecen Venture Catapult I.

Debrecen Venture Catapult II.

Gémesi Zsolt
Director
Innovation Ecosystem Center
University of Debrecen
4028 Debrecen
Kassai út 26

gemesi.zsolt@unideb.hu
+36 20 339 4760
www.unideb.hu


Ideation
Business Model
Startup
Fast Growth
Transition
Pre-Seed Capital
Seed Capital
Venture Capital
IPO
Acquisition
"Stage 0"
Education
(Greenhouse, CLJ)
Innovation
Pathfinder
Outside of KIC
Stages 1-3 (EP)
Stage 1 Grant
15k
Stage 2 Grant
25k
Stage 3 Grant
50k
Master-classes
Incubator Network
Venture Competitions
Incorporation
Valley of Death
Innovation Stimulation
Lead through valley of death


PHASES OF COMMERCIALIZATION
ACTIVITY
TIME
DISCOVERY
GRAND PREDICTIONS
VALLEY OF DEATH
PROBLEMS
SLOW PROGRESS
LOW-LEVEL PRODUCTION
LEARNING CURVE
VOLUME PRODUCTION
MARKET MATURITY

Innovation Ecosystems

Define

- Innovation
- Ecosystem

- What is the aim?
- What is the outcome?

Economics and Ecology

- Economics

  oikonomia, "management of a household, administration") from Greek οἶκος (oikos, "house") + νόμος (nomos, "custom" or "law"), hence "rules of the house(hold)"

  The science which studies human behavior as a relationship between ends and scarce means which have alternative uses. (Robbins, 1932)

  Determine choices for optimal combination of resources

- Ecology

  oikos-logos (from Greek οἶκος, oikos, "house(hold)"; and -λογία, -logia)

  Study of the interrelationships among organisms and between organisms, and all aspects, living and non-living, of their environment (Oxford Dictionary of Ecology)

  Optimal combination of resources in natural systems

Adam Smith

Ernst Haeckel