



BRETT CENTRE FOR ENTREPRENEURSHIP

RESEARCH
EDUCATION
IMPACT

Doctoral Entrepreneurial
Training (LIV.INNO) **Day 1**

Dr Zeineb Djebali



Agenda

- Introductions
- Commercialisation in research + case study (Egrist)
- What is entrepreneurship?
- Theoretical debates on entrepreneurship
- Contextualising entrepreneurship – knowledge entrepreneur
- Interactive session

Introductions

- Senior Lecturer in Entrepreneurship – Brett Centre for Entrepreneurship (Research/Education/Engagement)
- PhD - Social Entrepreneurs in later working life
- Entrepreneur in Practice – start up overseas & UK
- MBA with distinction – Barriers to female entrepreneurs
- Research: Entrepreneurship; Social Entrepreneurship (intentions/identity construction); Enterprise Education (pedagogy)
- Teaching: UG/PG/MBA
- Supervision – approx. 110 MSc +MBA projects to completion



Introductions



You – brief introduction about your research



Commercialisation in research- what is it?

Presentation 1

Commercialisation in Research

- Commercialisation is the process by which new or improved technologies, products, processes, and services are brought to market.
- A mechanism for delivering and sustaining positive impact from research, where people take an idea arising from research and development and apply it to solve a real problem or fulfil an unmet need.

Commercialisation – why is it important?

- For many researchers, the overall goal of their work is to make an impact. Setting up a business or social enterprise, or partnering with a company to exploit research outcomes, can be a way of achieving this desired, sustainable, long-term impact.
- Reason for commercialisation is not about making a significant profit, instead:
 - A powerful way to enhance and sustain research impact after funding ends;
 - Alternative funding stream to benefit research community
 - Personal recognition – achieve widespread, sustainable, positive impact on society

Commercialisation – why is it important?

- **Research Excellent Framework:**

Impact is not a new phenomenon

“Nothing is as practical as a good theory,” and “the best way to understand something is to try to change it.” Kurt Lewin (1890-1947)

But impact is now recognised as integral to research: no exception

‘...an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia’ Research Excellence Framework (REF 2021)

Commercialisation – why is it important?

- **Research Excellent Framework:**

Assessed against two criteria:

- **Reach:** Reach will be assessed in terms of the *extent to which the potential constituencies, number or groups of beneficiaries have been reached*; it will not be assessed in purely geographic terms, nor in terms of absolute numbers of beneficiaries. The criteria will be applied wherever the impact occurred, regardless of geography or location, and whether in the UK or abroad
- **Significance:** the degree to which the impact has *enabled, enriched, influenced, informed or changed* the performance, policies, practices, products, services, understanding, awareness or wellbeing of the beneficiaries.

Commercialisation – why is it important?

- **Knowledge Exchange Framework:**

Rewards excellence in knowledge exchange:

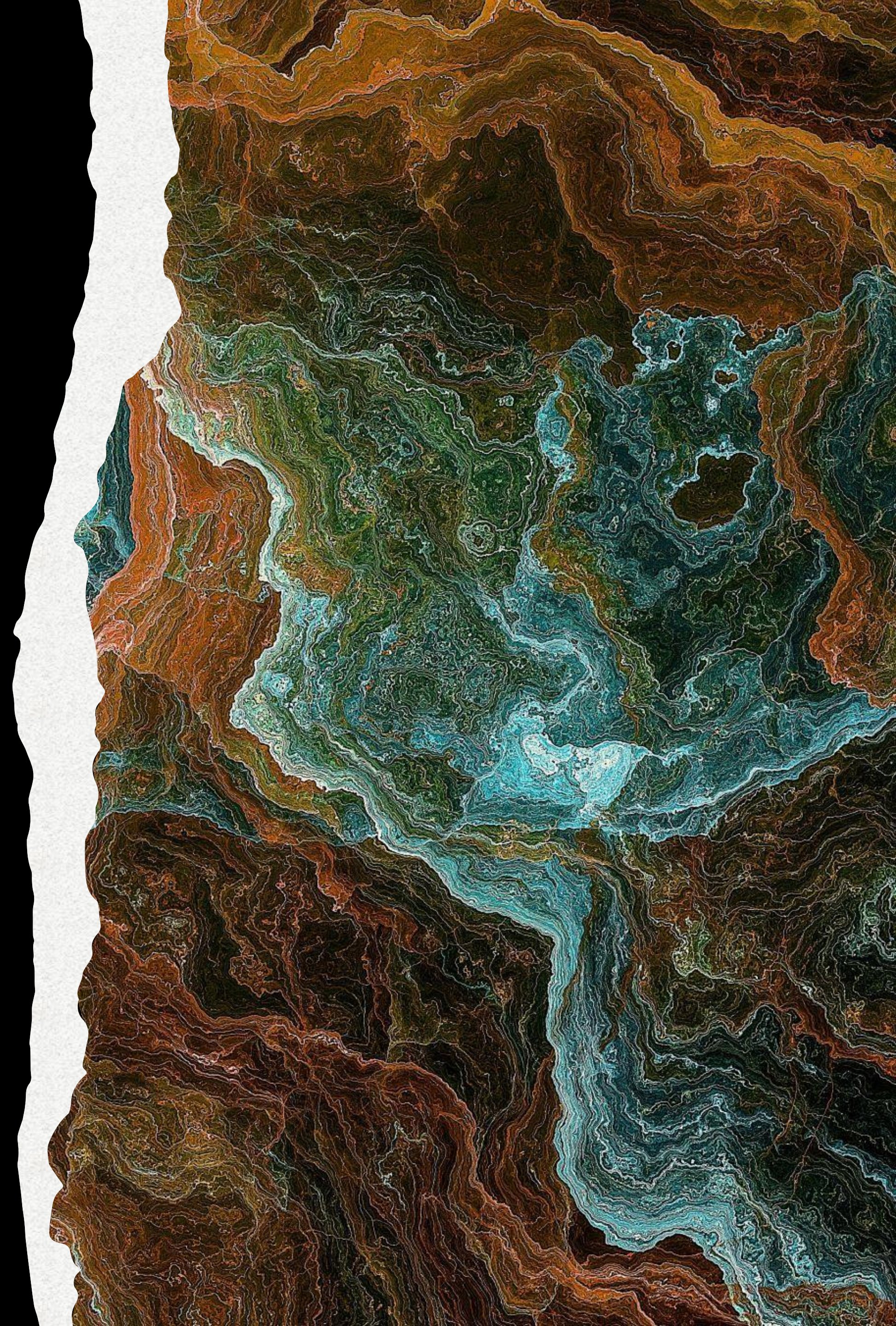
- Organisations whose researchers exploit the outputs of their research through commercialisation activities like spin-outs and licensing, among other mechanisms, can achieve higher ratings in the KEF.

Ways to commercialise

- creating spin-out companies
- licensing of technologies
- establishing social enterprises

Spin out

- Spin out new venture from public or university based institutions (RIs) i.e. Commercialising knowledge from RIs
- USOs is a start up company whose formation is on the formal transfer of intellectual property rights (IP) from the university and in which the university holds an equity stake
- USOs increasingly viewed as an attractive model of equity ownership



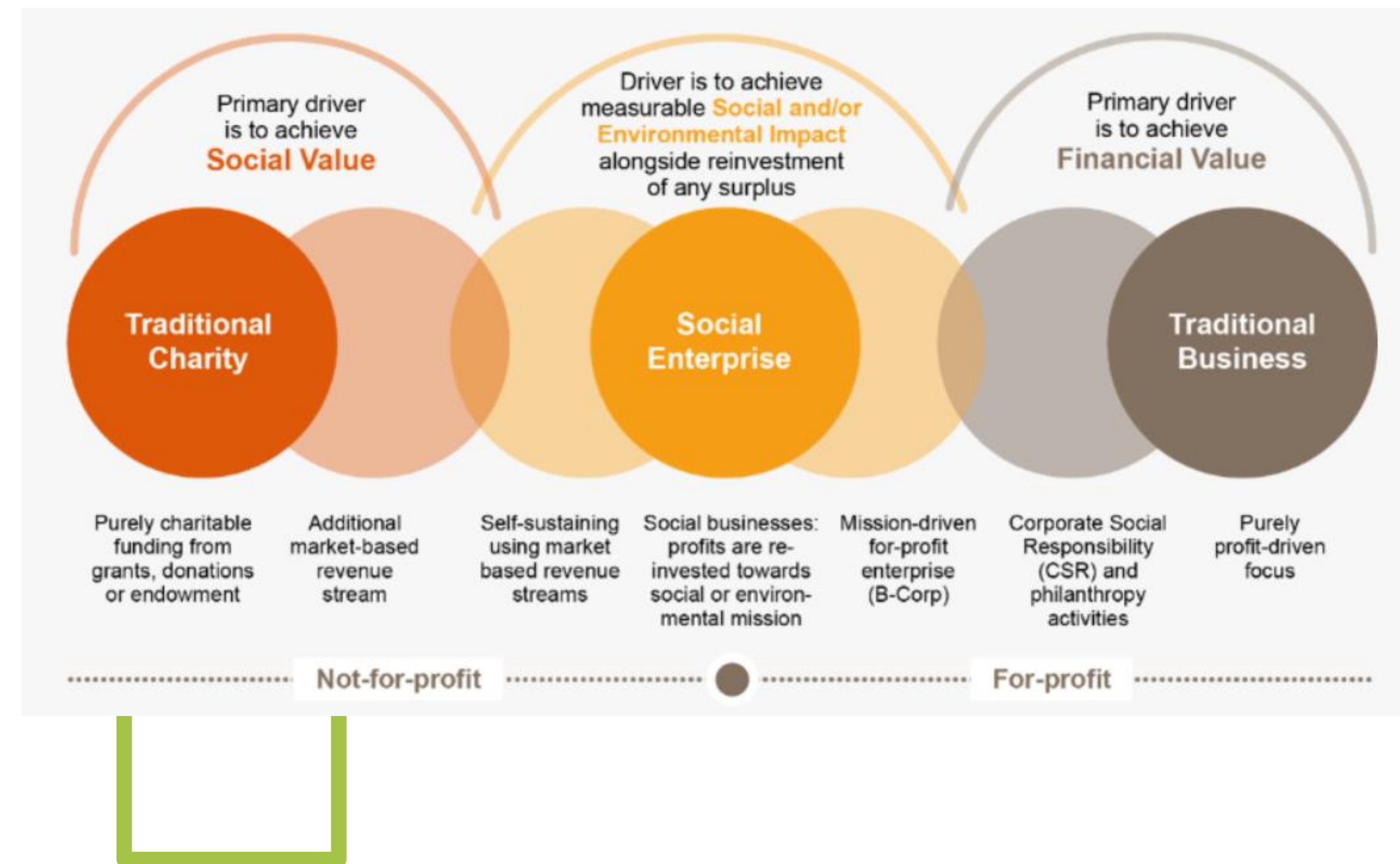
Licensing

- Universities contribute to economic growth/development by converting scientific inventions through patenting and licensing of research outputs.
- Includes patented inventions, trade secrets, copyright protected software, devices, data & research tools
- Common between universities and external organisations as a way of making use of IP created by the university
- Researcher may also work with the industry partner via formal consulting, contract research arrangements or collaborative grants (e.g. Innovate UK, or charity funded projects)



Social enterprise

- Impact led social business where the focus is on achieving lasting social value through entrepreneurialism and innovation
- Deliver a specific social and or environmental mission
- Maximising profits is not the primary goal however,
- must have the potential to generate revenue = maintain commercial viability



Case 1 Exp: Egrist

- Developed by researchers at Aston University led by Dr Christopher (Fif) Buckingham (Reader in Computer Science and CEO of Egrist)
- A software product that draws on a database of 1.5 million clinician-based risk judgements from psychiatrists, psychologists and mental health nurses, to assess and manage risks associated with mental health problems.
- On a scale of 0 to 10, it predicts the suicide risk judgement a clinician would make within plus or minus one, with an accuracy of 80%.



Dr Fif Buckingham, CEO and director of Egrist.
Credit: Ann Adams

Egrist – what issues is it addressing?

- More than 25% of the 6,000 annual UK suicides present to mental health services shortly before they die.
- Egrist addresses the problems mental health practitioners have with documenting and evaluating risks accurately.
- Uses its database of 1.5 million risk judgements to determine the challenges associated with assessments and provide advice on the most critical issues to address to reduce the risks

Egrist – commercialisation

- At first, Egrist let healthcare trusts use the software for free as part of the research funding
- Over time, it became clear that managing the system, keeping developers in post within the university with multitude of other research, teaching and administrative duties needed a steady source of income.
- And so, they began commercialisation.

Egrist – becoming an independent company

- The first step was providing annual licences, which were still issued and delivered within the university.
- Started looking for grants to help commercialise and engage more with the university's technology transfer office.
- In 2016, they won the European Institute of Innovation and Technology (EIT) Health Knowledge and Innovation Community funding. The commercial key performance indicators of the EIT Health grant led to the university's technology transfer office establishing Egrist Ltd.
- Set up a bank account so that licence fees were paid into this account rather than the university's.

Egrist – becoming an independent company

- However, still bridging commercial and academic environments - necessary for keeping Egrist's finances above water.
- Became fully independent when obtained two Innovation to Commercialisation of University Research (ICURe) grants from Innovate UK, and significant Innovate UK follow-up funding. What made this award of £297,107 unique was that it went to Egrist Ltd, meaning they were entirely separate from the university.

Egrist – Business Model



Egrist – Business Model (BM)

- **Freemium BM:**
- Free for individuals who want to self-assess their mental health/risk .
- Paying options for professional services - Two funding models:
 - Annual organisational licences based on the number of practitioners in the organisation whose jobs require making risk assessments
 - A partnership model with patient record companies (organisations that specialise in providing software solutions and systems for managing and storing electronic patient records)





Presentation 2: Entrepreneurship

Growing importance of entrepreneurship

- Important for both developing and developed countries
- Global Entrepreneurship Monitor: levels of economic development.
 - Factor driven (low-income), efficiency driven (mid-income) and innovation driven (high-income)
 - Necessity-based entrepreneurship vs opportunity-based entrepreneurship
- Risks of new business failure remain extremely high:
 - Can be as high as 90% failure rate in first year
- Obtaining the appropriate 'tools' helps avoid failure:
 - Knowledge (know how)
 - Disposition
 - Resourcing
 - Entrepreneurial mindset

Variation in entrepreneurial activity

- **Necessity-based entrepreneurship** (generally low-income economies)
 - Those who start businesses because they lack employment opportunities
 - Has little economic impact because it is a substitute for low-pay employment
- **Opportunity-based entrepreneurship** (generally high-income economies)
 - Businesses that are based on genuine business opportunities with potential for maturity and growth
- **Differences based on age**
 - 25 to 34 age group are generally most likely to start their own businesses –USA 35 to 44 age group
 - In some high income economies (Canada, Sweden) highest levels in 18 to 24 group
- **Differences based on gender**
 - In general, men much more likely than women to start their own businesses
 - Some countries from Africa and Middle East have high level of female participation rates

Economic groups and entrepreneurship

Factor-driven (low income)	Efficiency-driven (middle income)	Innovation-driven (high income)
From subsistence agriculture to extraction of natural resources, creating regional scale-intensive agglomerations.	Increased industrialisation and economies of scale. Large firms dominate, but supply chain niches open-up for <u>SMEs</u> .	R&D knowledge-intensity, and expanding service sector. Greater potential for innovative entrepreneurial activity.
Basic requirements → Efficiency enhancers → Entrepreneurial conditions		

UK context – Nb of firms

- Number of UK firms increased by 1.1 million – 2010 to 2021
 - Importantly, there were increased numbers of firms in all size-bands
- Majority of those new firms were in the smallest size-band (0-1)
 - In contrast to previous trends, the number of large firms (250+) increased
- Employee numbers also increased across all size-bands
 - Over 4.4 million new jobs created in the 11 year period
 - 896,000 in 0-1 size-band but 1.4 million in largest size-band
- Little evidence that new firms grow in size
 - The UK does not appear to encourage the growth of gazelles (fast-growing businesses that are responsible for creating large numbers of jobs)

Some definitions - entrepreneurship?

What is entrepreneurship?

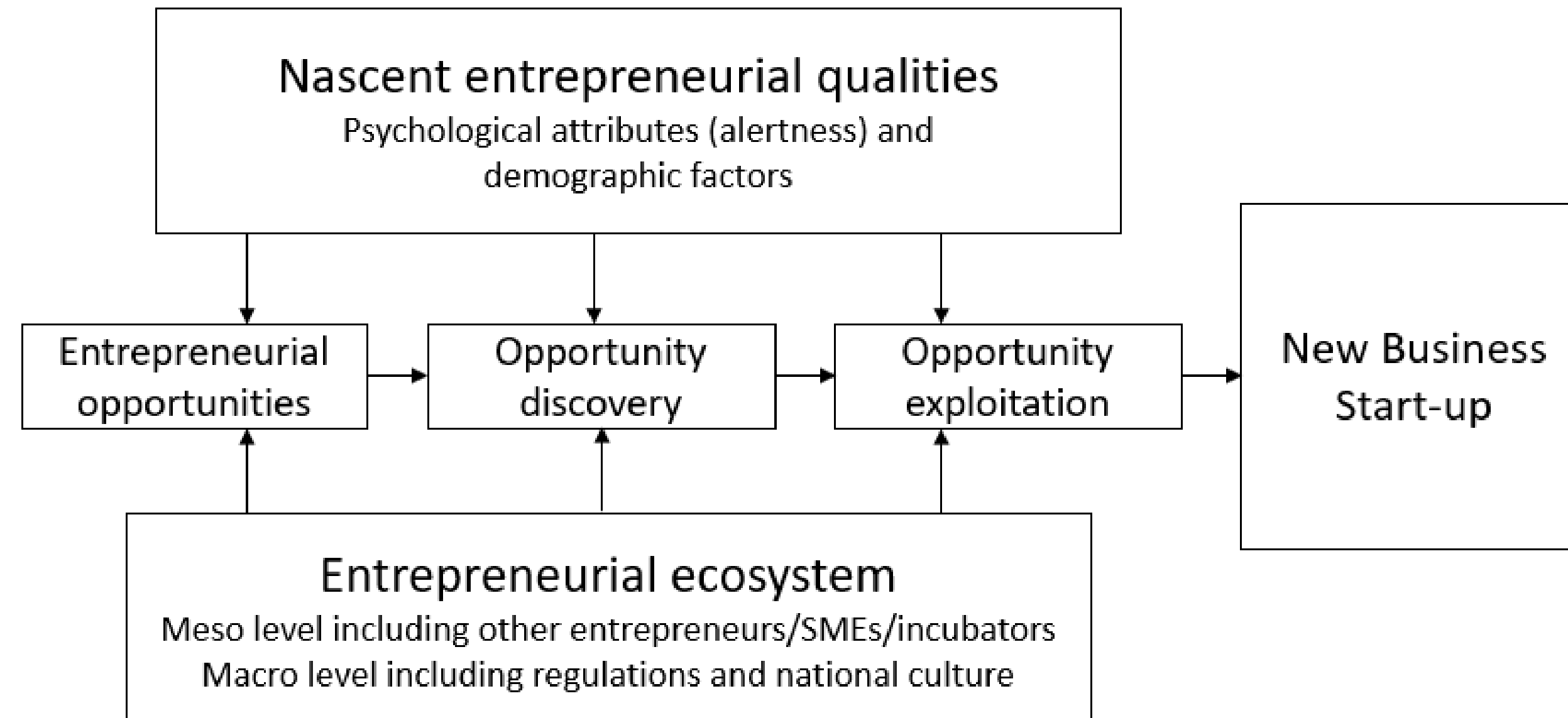
- Entrepreneurship is defined as *‘the identification and exploitation of entrepreneurial opportunities within the individual opportunity nexus (Shane and Venkataraman, 2000).*
- Entrepreneurship is presented as the nexus of opportunity and agency, whereby opportunities are not singular phenomena, but are idiosyncratic to the individual.
- Study of *sources* of opportunities, the processes of discovery, evaluation and exploitation of opportunities and the set of *individuals* who discover, evaluate and exploit them.

What is entrepreneurship?

Theoretical debates

- Past 30 years, *dominant* theories of entrepreneurship have sought to explain entrepreneurship as a function of the types of people engaged in entrepreneurship activity
- More of a **person-centric perspective** in which entrepreneurship depends on differences in traits and characteristics among people rather than other factors e.g. macro-environment, prior knowledge, role models, technology
- Much of this early academic literature attempted to explain the process of new venture creation and growth with exclusive focus on the entrepreneur's traits and personalities
- Attempted to explain how these 'heroic' figures i.e entrepreneurs with special characteristics are endowed with a unique ability and a driving force to create and nurture new businesses

Causal model to entrepreneurship



Causal model to entrepreneurship

- Much of the work in entrepreneurship has focused either on:
- The nature of the entrepreneur - entrepreneurs born or made? Traits/psychological view
- Economic views of entrepreneurship – Innovation & profit maximisation

Traits view of entrepreneurship

- Opportunistic (Smith, 1987)
- Self-confident (McClelland, 1961; Timmons, 1978; Welsh & White, 1981)
- Proactive and self-motivated (Bird, 1989; Chandler & Jansen, 1992)
- Risk taker (Brockhaus, 1980; Drucker, 1985; Knight, 1921)
- Need for independence & achievement (McClelland, 1961)
- Internal locus of control (Rotter, 1966)
- Self Efficacy: self-confidence in entrepreneurial ability to start a new business venture – plays a key role in shaping entrepreneurial intentions/actions (Bandura, 1986)
- Innovation and ability to transform markets (Schumpeter, 1934)



**GROWTH
INSTINCT**



**SURVIVAL
INSTINCT**

Flaws in the personality traits



- Assumptions that these characteristics including the environment is static
- However, the reality is that the environment is changing constantly and hence traits or characteristics alone cannot explain the behaviour of entrepreneurs (Delamar, 2020)
- Also much of the research on personality traits is conducted after the entrepreneurial event
- **Entrepreneurs tend to change their behaviour as they gain more knowledge and experience through their interaction with the external environment**

Economics view of entrepreneurship

- Austrian economist: Joseph Schumpeter's - role of the entrepreneur is to create:
 - New products
 - New production methods
 - New markets
 - New forms of organisations



Schumpeter (1883-1950)

**THE ENTREPRENEUR AS AN INNOVATOR &
PRIME MOVER IN ECONOMIC DEVELOPMENT**



Schumpeter (1934)

- Stressed the role of innovation as key in defining the entrepreneurs
- Placed less importance on role of risk because he believed there is no difference between entrepreneurs and managers in relation to being subject to risk of failure
- Suggested that entrepreneurs are blessed with an ability to wield technology/innovation as agents of market change and they are engaged in the process of *creative destruction*
- The *creative destruction* involves the use of new technology (new products/ new methods of production/ to transform markets, destroying the status quo and create a whole new wave of innovation .



Schumpeter (1883-1950)

Wave of creative destruction



Bon Jovi: Steve Jobs Killed the Music Industry

BY LESLIE HORN MARCH 15, 2011 10:34AM EST 72 COMMENTS



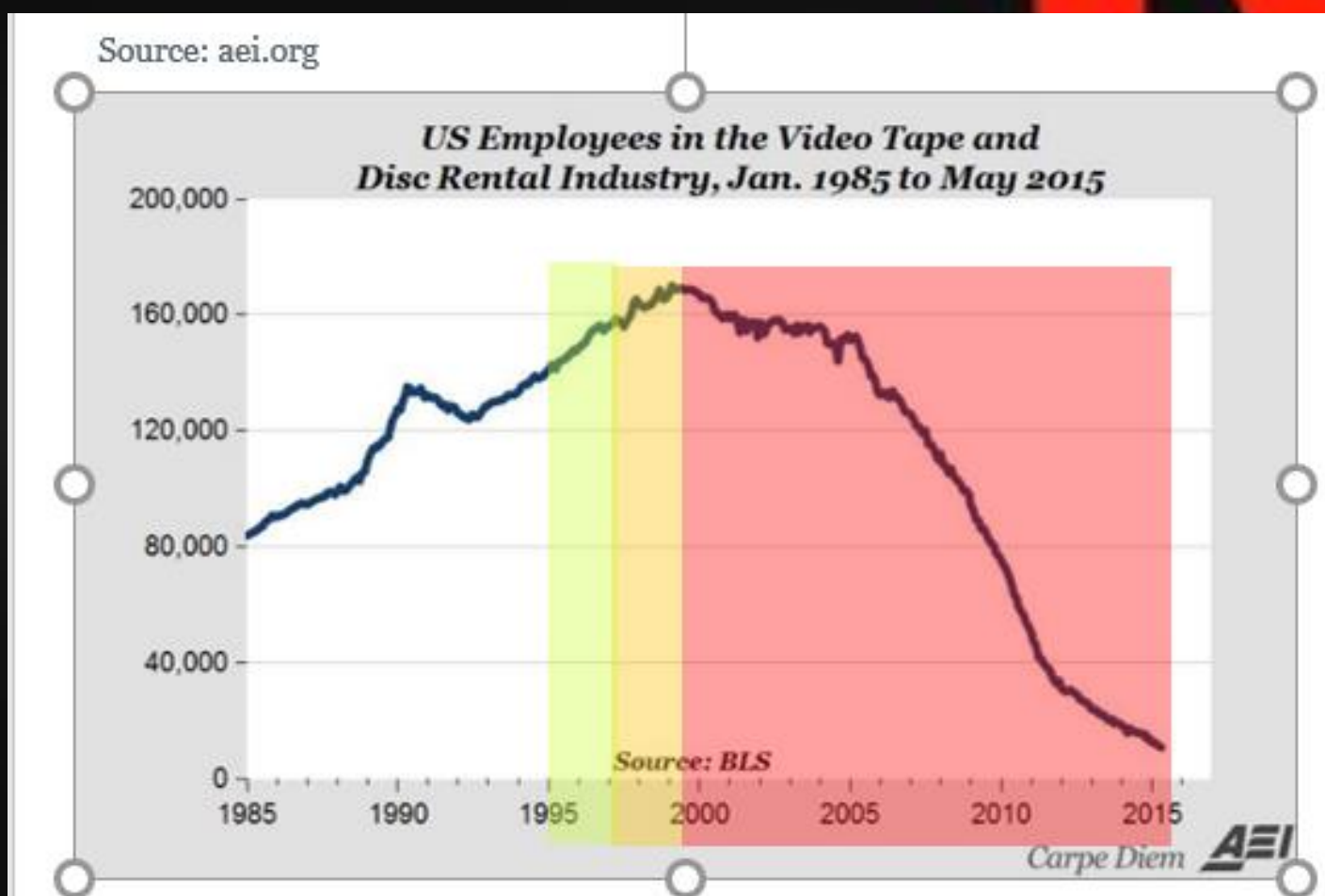
The 'Netflix effect': an excellent example of 'creative destruction'

NETFLIX

(a) Someone **spotted** an opportunity

(b) Someone **didn't** see it coming

creative destruction



Founded: August 29, 1997, in Scotts Valley, California, by Reed Hastings and Marc Randolph

Economics view of entrepreneurship

- The entrepreneur is not a doer of big things and a disruptor, but rather an observer who notices opportunities for-profit.



Kirzner (1973-1989)

*Rather than creating new opportunities, as Schumpeter describes, Kirzner sees entrepreneurs as noticing or **being alert** to new opportunities. And this alertness is not something possessed by a special few, but is an ability we all have.*

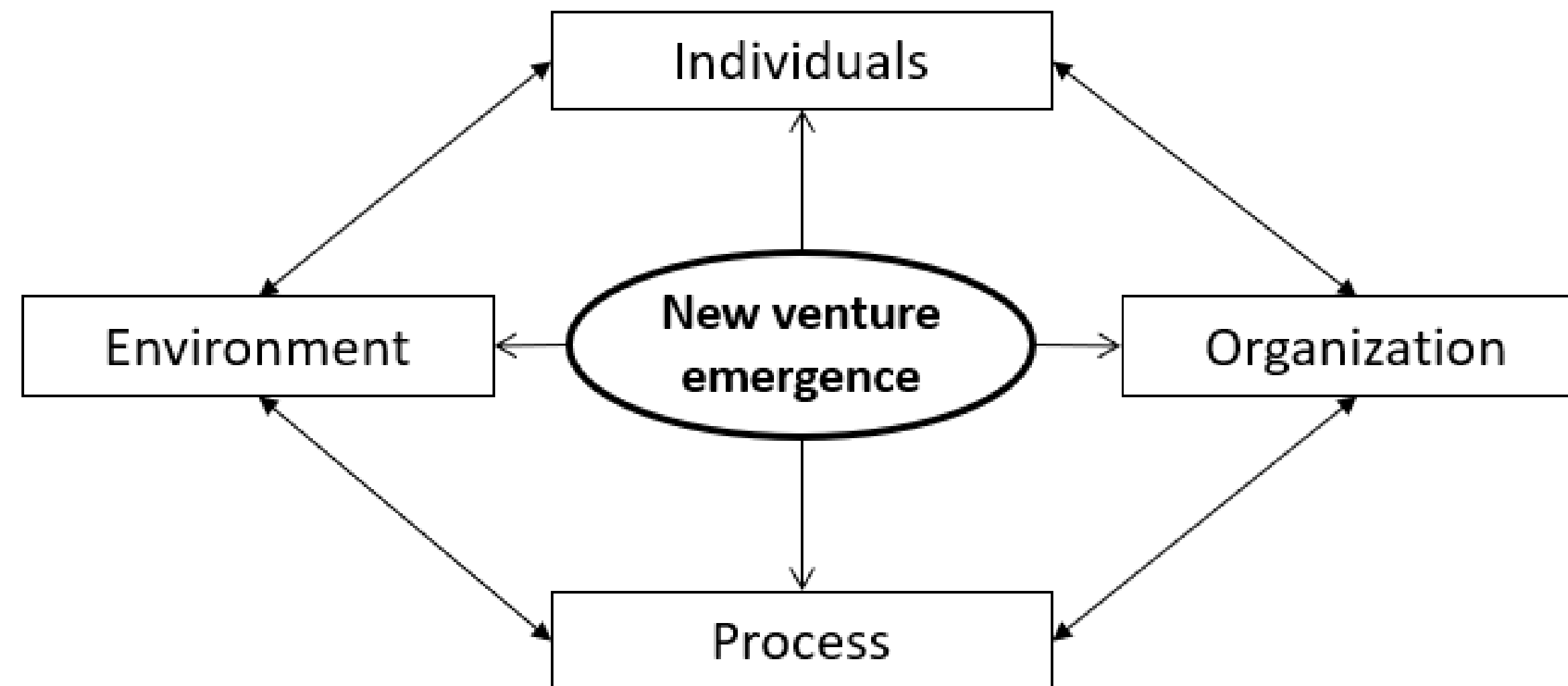
Kirzner – Alertness (1985)

- Introduced by Kirzner (1985) - defined as 'alertness to changed conditions or to overlooked possibilities';
- Alertness indicates that recognising opportunities does not necessitate active search for them but rests on cognitive capacity possessed by individuals such as intelligence/creativity. These capacities help entrepreneurs to identify new solutions to market and customer needs and to imagine new products or services that do not currently exist (Busenitz, 1996).
- Many other characteristics have been related to alertness:
 - Intelligence (De Wit, 1993)
 - Creativity (Vesalainen and Pihkala, 1999)
 - Optimism (Krueger and Brazeal, 1994)
 - Perception of risk (Stewart & Roth (2001)

Emergence of process theory

- Late 1980s and early 1990s scholars started to propose a more holistic approach to the study of entrepreneurship;
- Argument is based on the fact the process of venture creation cannot be studied without considering the firms and the founders during the start-up process;
- Gartner (1995) proposed the study of the process of entrepreneurship which involves interactions of four main factors:
 - The individual: the entrepreneur
 - The organization: the firm
 - The environment: key influencing factor in the process of new firm creation
 - The actual process of firm creation

Gartner's model



'the creation of a new venture is a multi dimensional phenomenon; each variable describes only a single dimension of the phenomena and cannot be taken alone (Gartner, 1985: 697)

Alternative theories of entrepreneurship

THEORY	MAIN FOCUS OF THE THEORY	RESEARCH APPROACH
Entrepreneurship-as-practice	Entrepreneurship is a deeply processual activity involving social creativity, dialogue and imagination.	Qualitative
Bricolage	Entrepreneurs in penurious environment make do with the resources at hand + combine resources for new purposes	Mainly qualitative
Effectuation	Using own means, entrepreneurs identify and exploit opportunities in markets with high levels of uncertainty	Mainly qualitative
User Entrepreneurs	New ventures are founded by individuals who create and commercialize solutions to problems in their daily lives.	Qualitative
Creation Entrepreneurs	Potential entrepreneurs use knowledge and experience to <i>create</i> opportunities that are endogenous to their actions and activities	Qualitative
Bootstrapping	Entrepreneurs obtain additional resources either free (sharing) or well below the market price	Qualitative & quantitative

Detoxifying the term

- **Entrepreneurs: Born or Made?**
 - No reason why anyone cannot learn the skills necessary to become an entrepreneur
 - Acquiring an entrepreneurial mindset of central importance
- **Entrepreneurial decisions are influenced by various social relations**
 - Children of entrepreneurial family members (parents/sibling) – most likely to become entrepreneurs
 - Helps establish good habits: time-keeping, self-management etc.
- **What skills and competences do entrepreneurs require?**
 - Opportunity identification or creation + social and analytical skills
- **The role of entrepreneurial identity**
 - Entrepreneurial identity is shaped by cultural influences – a community of practice help develop a theory of what works
 - Know how- know what acquired through practice

Entrepreneurs do not operate in a vacuum – context!

Detoxifying the term?

- Consider the following:

Micro level influences

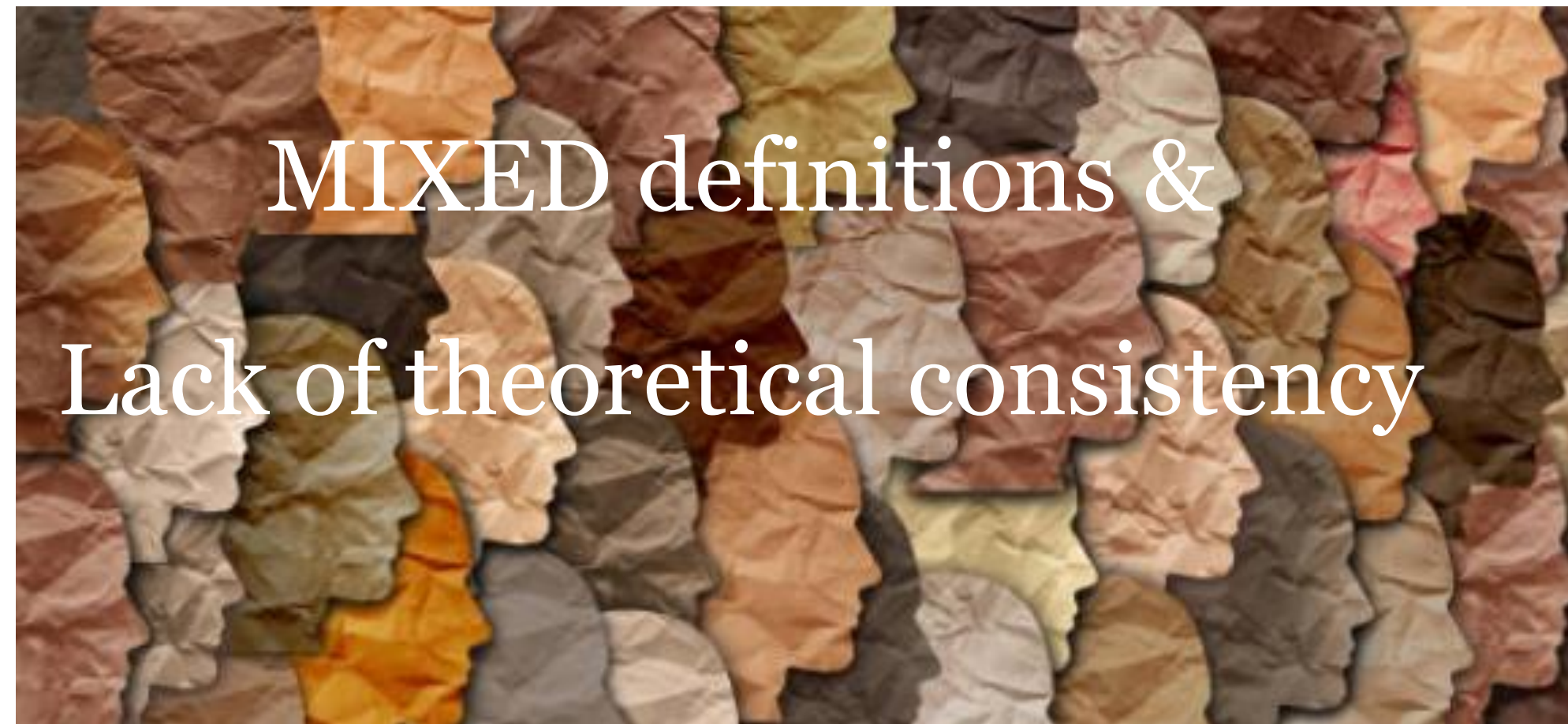
- Individual dispositions and motivations to become an entrepreneur
- Willingness to learn, building creativity, resourcefulness & resilience

Meso level influences

- Family & friends attitudes (positive/negative) towards entrepreneurship
- Various social networks to which individuals belong
- Belonging to a community of practice with other would-be entrepreneurs

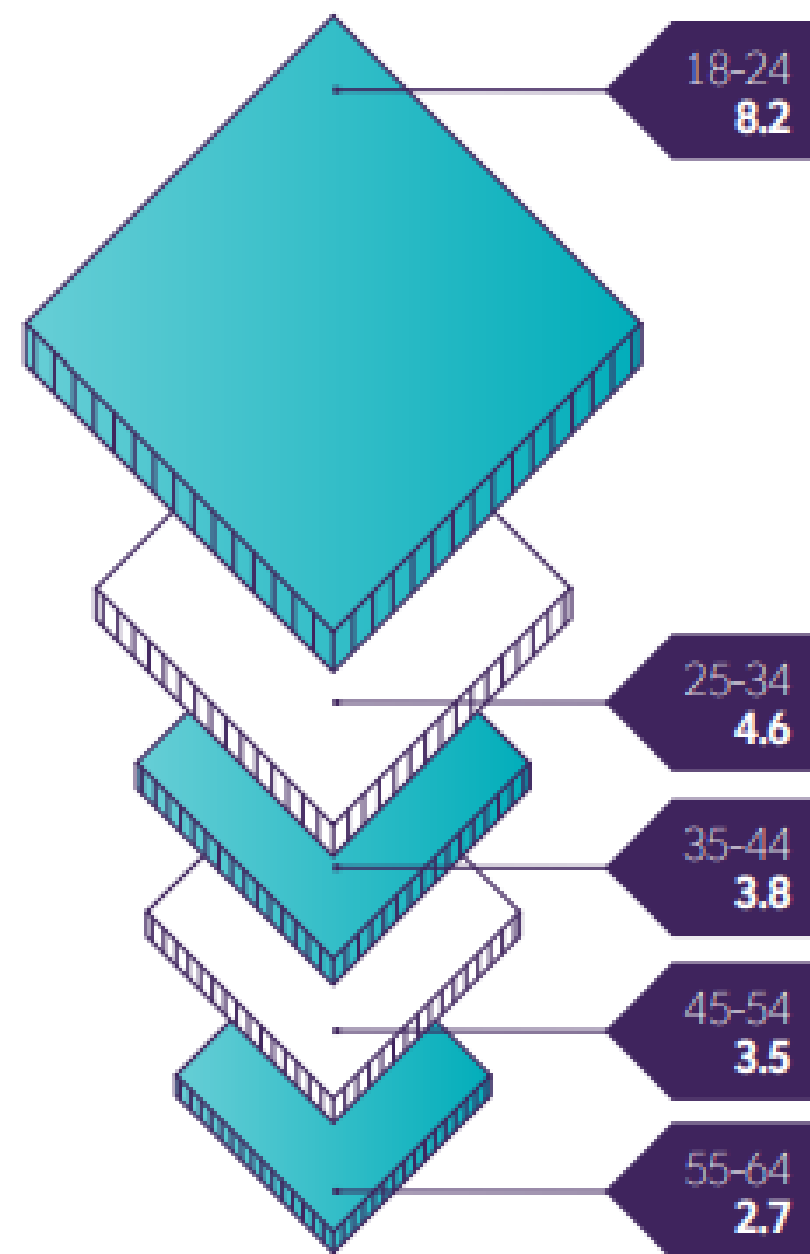
Macro level influences

- Various institutions (legal, economic, academic) related to entrepreneurship – e.g ease of forming a business and intellectual property rights (IPR)
- National cultural attitudes – towards entrepreneurship as a career
- Role of enterprise education in encouraging entrepreneurial students



Macro - Examples

Fig 1: Participation in the Gig Economy by Age Group UK



GEM 2020 Global Outlook

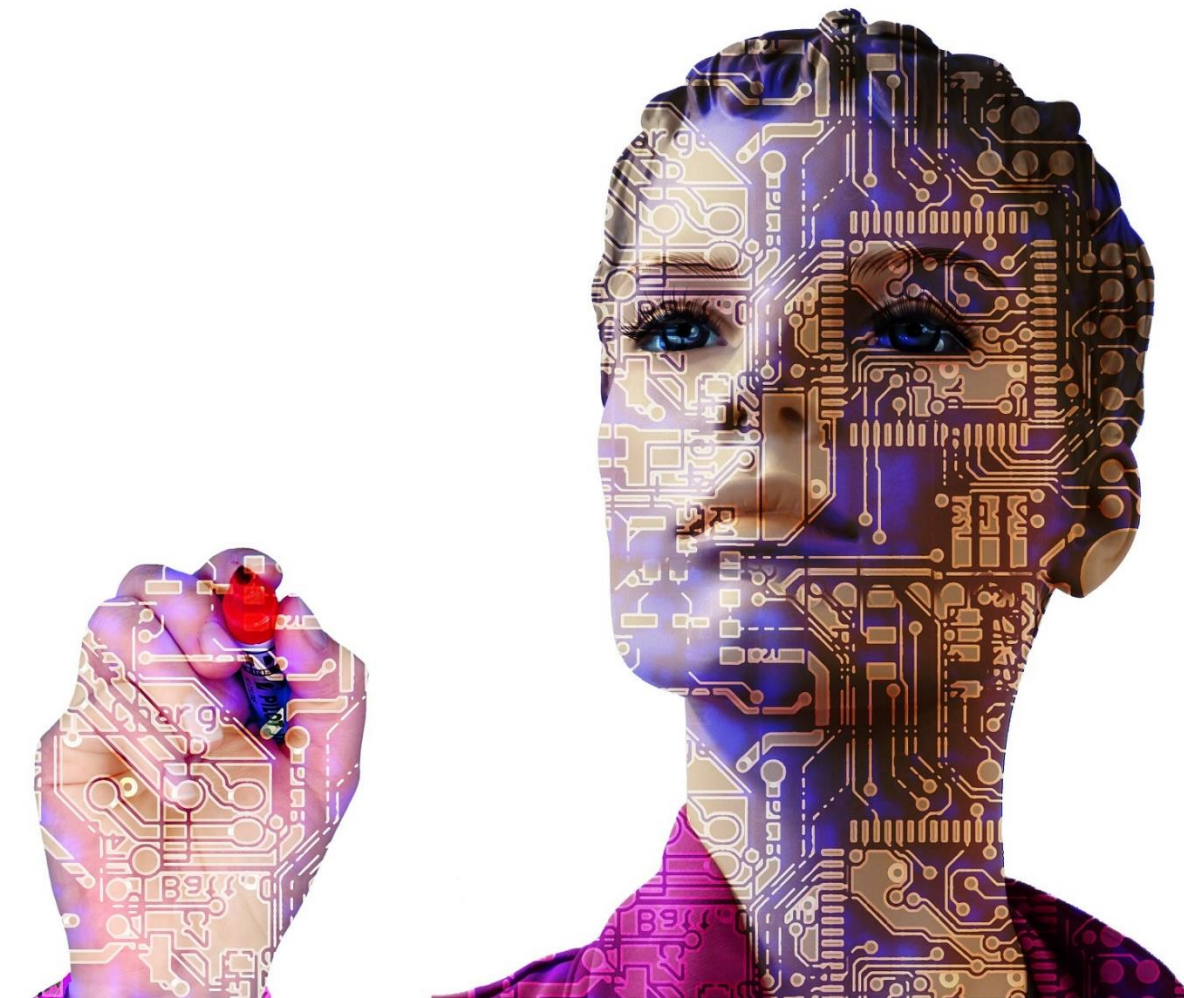
Rise in Gig Economy 'internet platform based services (e.g. Deliveroo/Uber) created opportunities for entrepreneurship/hybrid entrepreneurship



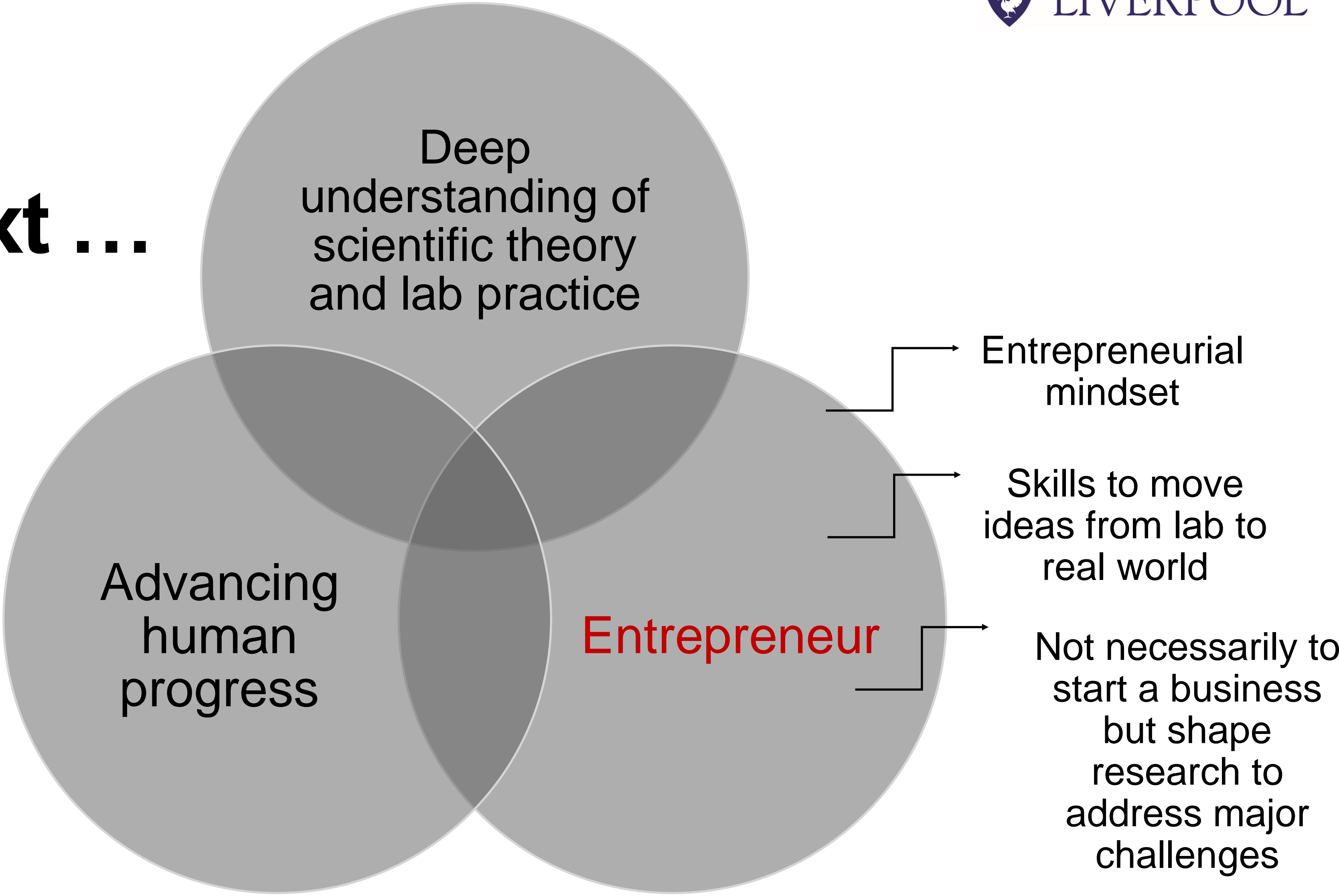
What Brexit means for the UK's small businesses

Uncertainty is unlikely to sit well with entrepreneurs and business lobbies are already calling for action

Contextualising entrepreneurship – knowledge entrepreneur ?



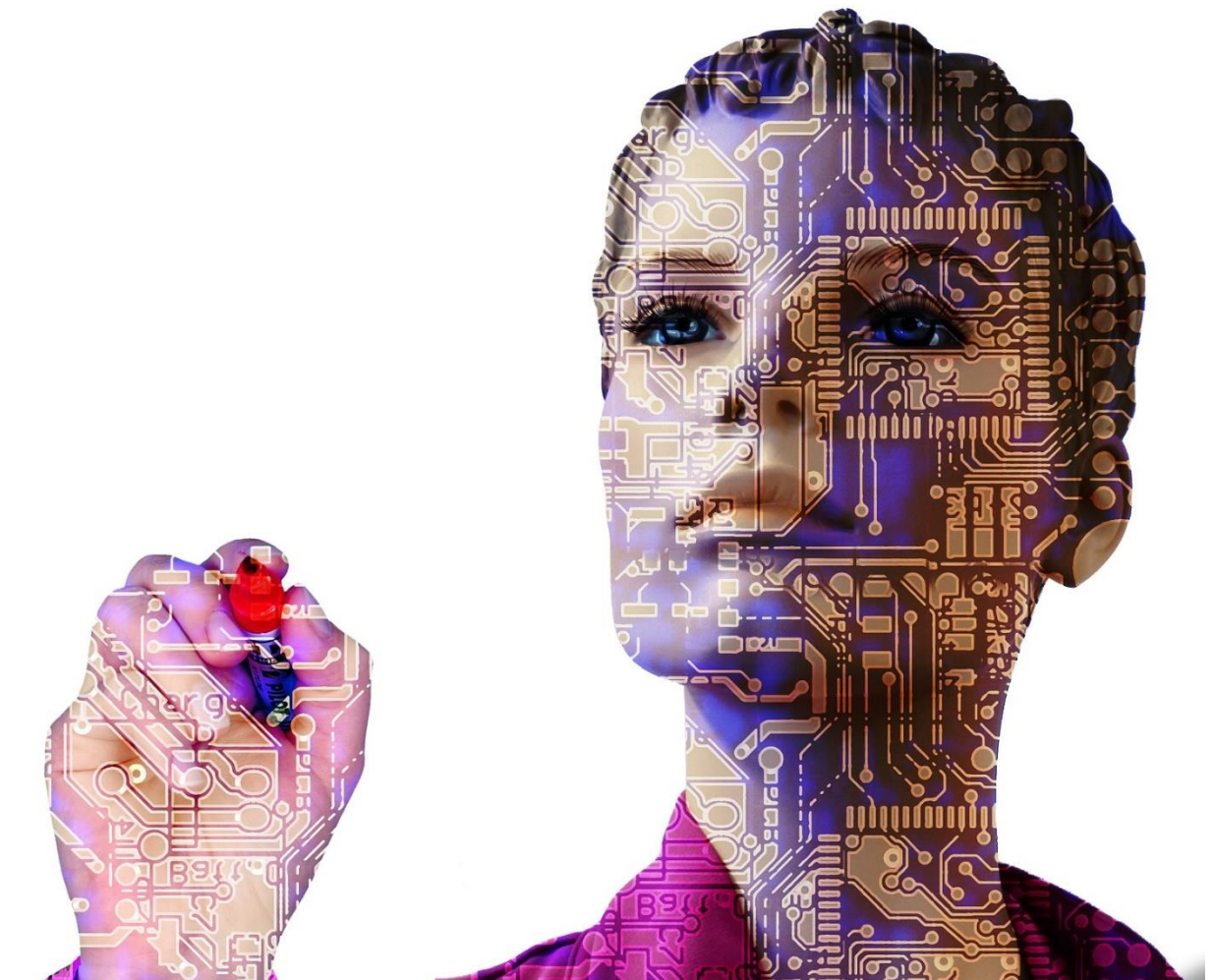
Your context ...



Interactive session 1

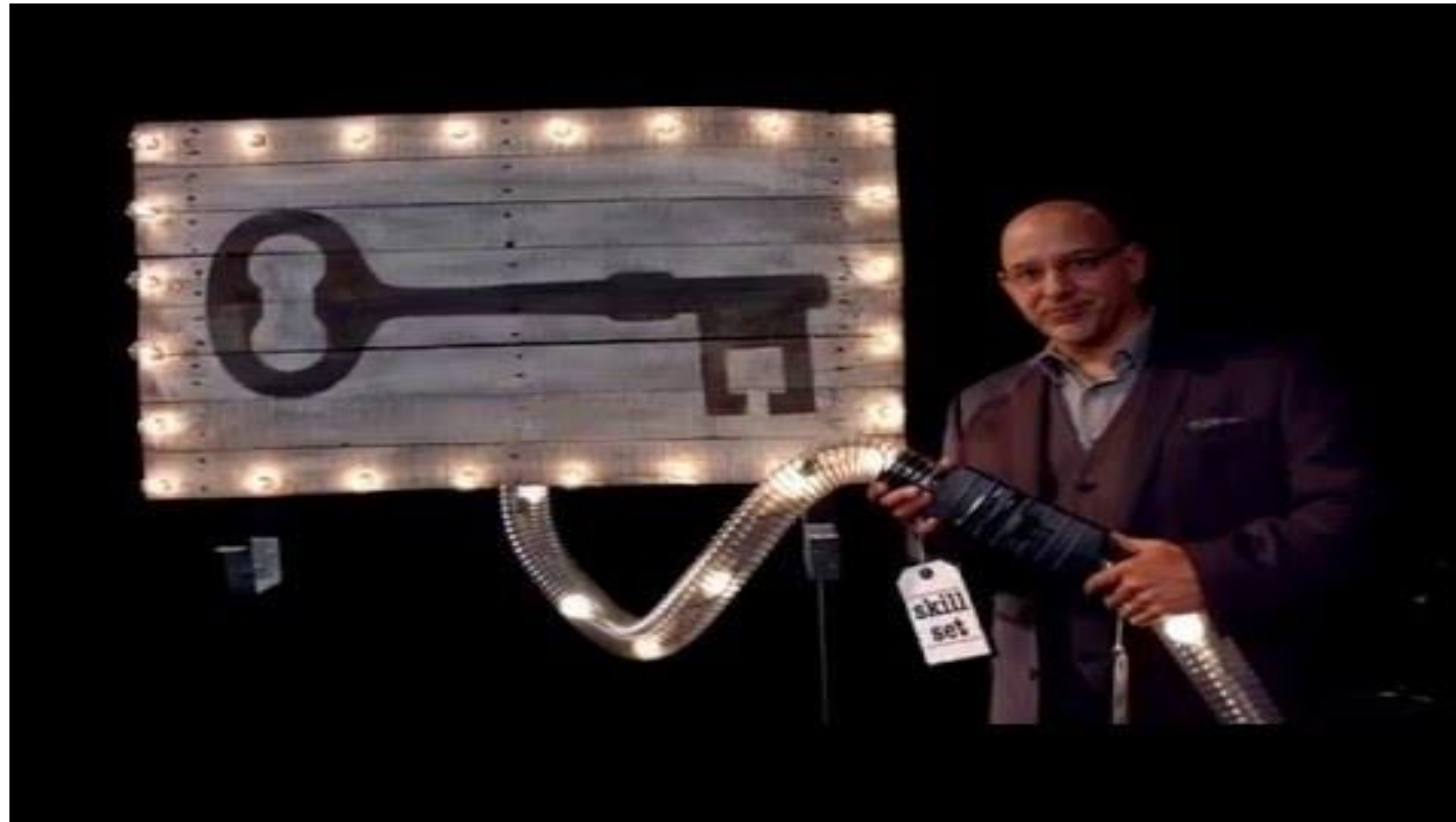
Identify a business idea stemming from your research:

- **What is your area of impact? People, organisations? Policy?**
- **What is your pathway to commercialisation?**
- **What is the potential of developing a commercial idea from your research? Insights into the problem? Potential solutions that would work?**





Having entrepreneurial mindset and tools
– help you thrive in a variety of settings:
academia, industry or government



Developing your entrepreneurial mindset

- Developing an EM is core to your journey to becoming a successful entrepreneur
 - Learning and practice can help develop a more entrepreneurial mindset
- Why are some individuals apparently more skilled at identifying opportunities?
 - High level of **creativity** in problem-solving and developing new ideas
- EM = ability to sense, act and mobilise to make judgemental decisions under conditions of uncertainty
 - Thinking like an entrepreneur is important to your future careers
- Core and meta-cognitive attributes of an entrepreneurial mindset
 - Starting to develop an entrepreneurial mindset (learning about learning)

Core element of an entrepreneurial mindset

• Cognitive thinking

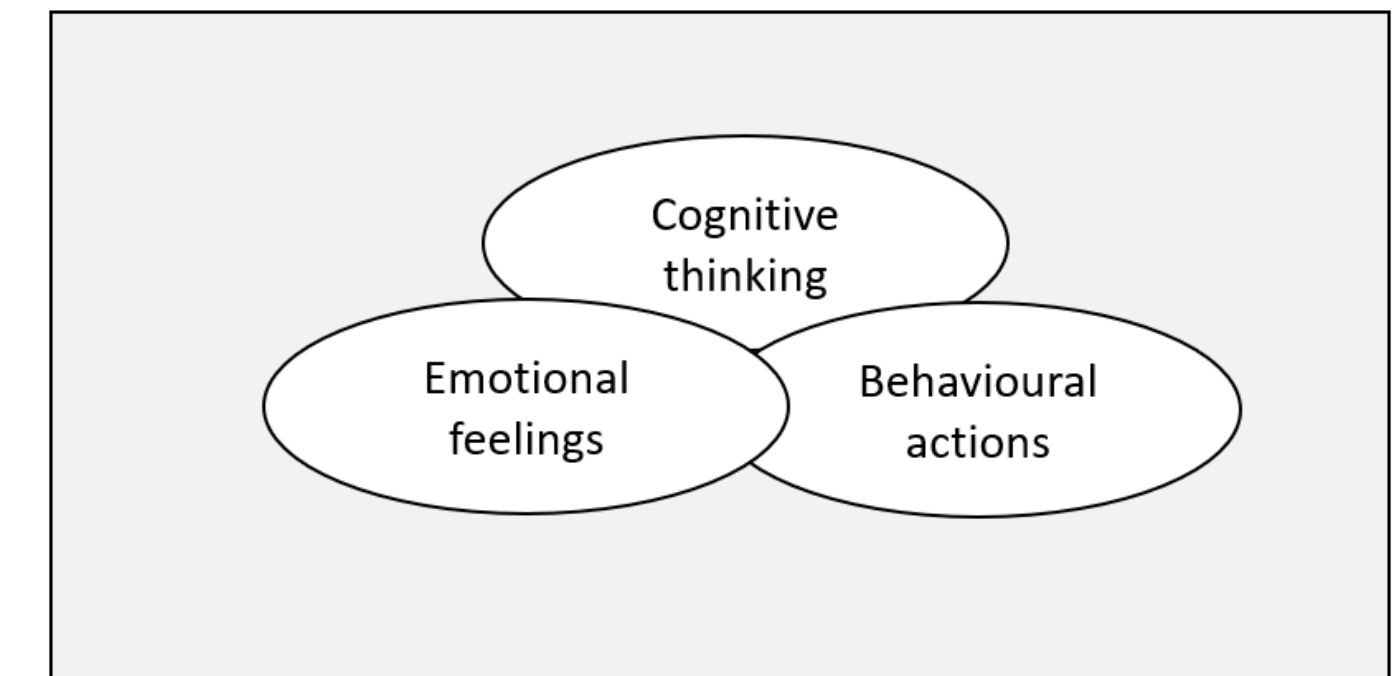
- Mental functions associated with understanding, storing and recalling appropriate knowledge
- Focusing on the ways in which entrepreneurs think when identifying opportunities and making decisions

• Behavioural actions

- Entrepreneurship involves thinking and planning (cognition)
- Must be accompanied by actions to exploit opportunities and create a business
- Those actions also help create an *entrepreneurial identity*

• Emotional feelings

- Entrepreneurship is associated with high-levels of risk and uncertainty
- Need to be proficient in a wide range of skills + different roles
- Must build resourcefulness and resilience



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