

TE 250: Week 2

Vision, Creativity & Innovation

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tec.illinois.edu

Technology Entrepreneur Center

GRAINGER ENGINEERING



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go.illinois.edu/now-hiring



WED | SEPT 20

Come pitch your ideas, find teammates to scale your startup, or just sit back and check things out at **SocialFuse!**

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TUES | SEPT 26

Silicon Valley Entrepreneurship Workshop Info Night! Learn about the week-long trip to Silicon Valley where a select group of students learn from entrepreneurs and alums. **Application deadline for the trip is Oct. 1.** go.illinois.edu/sview



WED | SEPT 27

Join us for the **Startup City Scholars Kickoff Event & Info Night**. Learn how you can build a startup with UChicago students and get course credit.

SIGN UP FOR THE TEC NEWSLETTER TO GET UPDATES: go.illinois.edu/sign-up



THURS | SEPT 28

Hear from advisers and current students and learn how the **Innovation, Leadership, and Engineering Entrepreneurship (ILEE) Dual Degree** can help you gain a competitive edge in the job market.

RSVP | go.illinois.edu/ILEE

Someone you should know...

STEM Entrepreneurship & Business

Becky Smith

Associate Professor
STEM Entrepreneurship & Business

Grainger Engineering Library Information Center

Urbana, IL 61801

becky@illinois.edu



[About STEM-E Business – STEM Entrepreneurship & Business –
U of I Library \(illinois.edu\)](#)

Week 2

Creativity and Basic Entrepreneurship



Week 1: What must come first?



Your business idea needs to
solve a problem
your potential customer
will PAY for.

An example...

<https://www.cnn.com/2022/11/17/world/raina-jain-hiveguard-honeybees-spc-intl>

Week 1 Start with:

Who are you
and
what problems frustrate you and/or
your friends/family?
(alt: what do you care about?)

I hate
carrying an
umbrella

My grandma
fell last
month and
broke her
hip.

My parents
can't afford
to put solar
panels on
our house.

I hated
having to
share a
microscope
in HS.

I hate when
restaurants
use
disposable
packaging.

Week 1

Innovation versus Invention

- Invention:

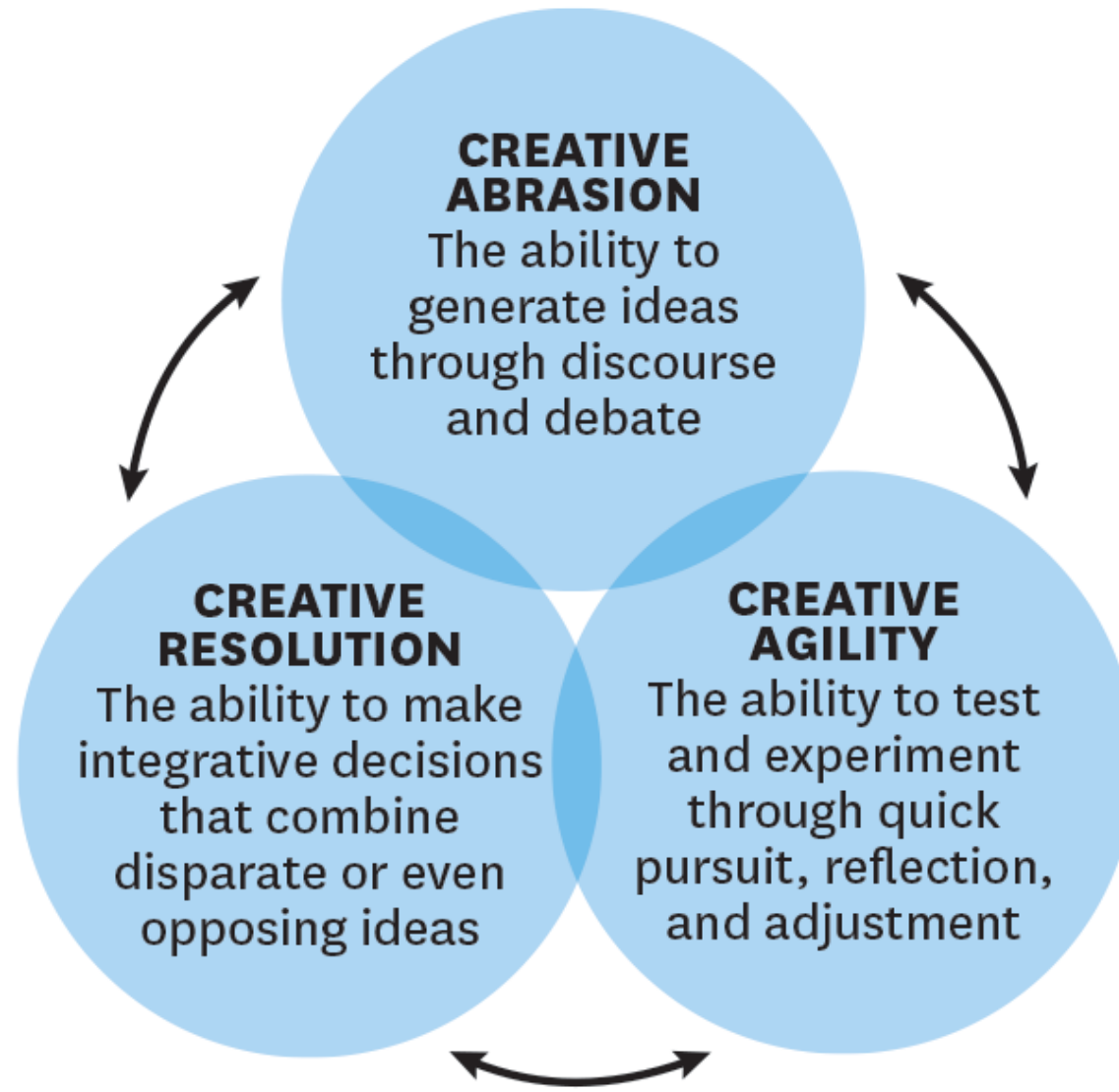
- ...unleashing the potential of the mind to conceive new ideas...
- Creating something new in the world...

- Innovation:

- ... apply resources to a solution and reap a return on investment...
 - Solves a real problem
 - Creates value someone will pay for (or derive meaningful benefit from)

Creativity and Innovation

THREE CAPABILITIES OF INNOVATION



SOURCE LINDA HILL, GREG BRANDEAU, EMILY TRUELOVE, AND KENT LINEBACK

HBR.ORG

What is Creativity?

And what role does it play?



**Imagination → Vision → Creativity → Invention
→ Innovation**

Imagination is the result of wanting more.

Vision is the ability to see the world the way you want it to be.

Creativity is the ability to use the imagination to develop new ideas, new things, or new solutions.

Can Creativity be taught?

3 groups of study participants,
each wrote an advertisement:

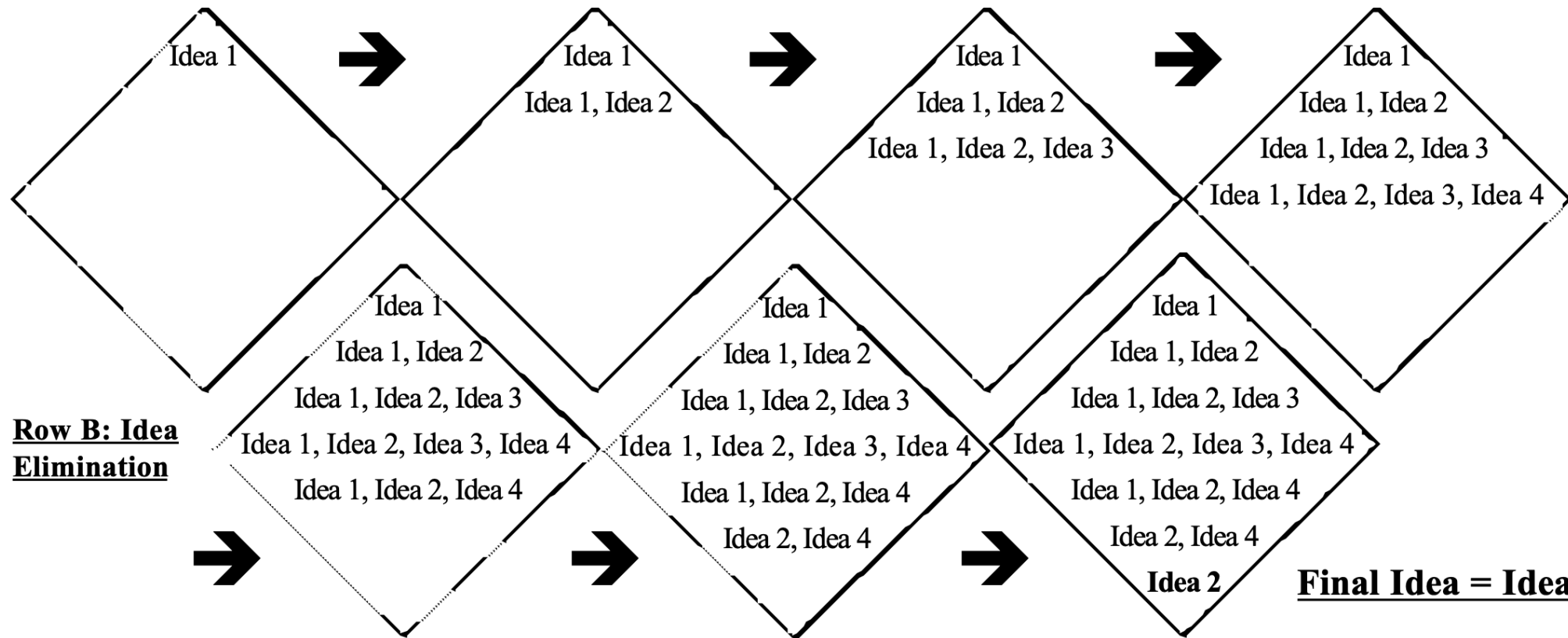
- No training = annoying
- Free association = less annoying,
no more creative
- Taught 6 templates = 50% more
creative

Group Creativity Exercises

- Brainstorming Diamond
- Reverse Planning
- **Disney Creative: Dreamer/Realist/Critic**
- Walking Meeting
- Psychological Distancing / Superhero
- SCAMPER

Brainstorming Diamond

Row A: Idea Generation

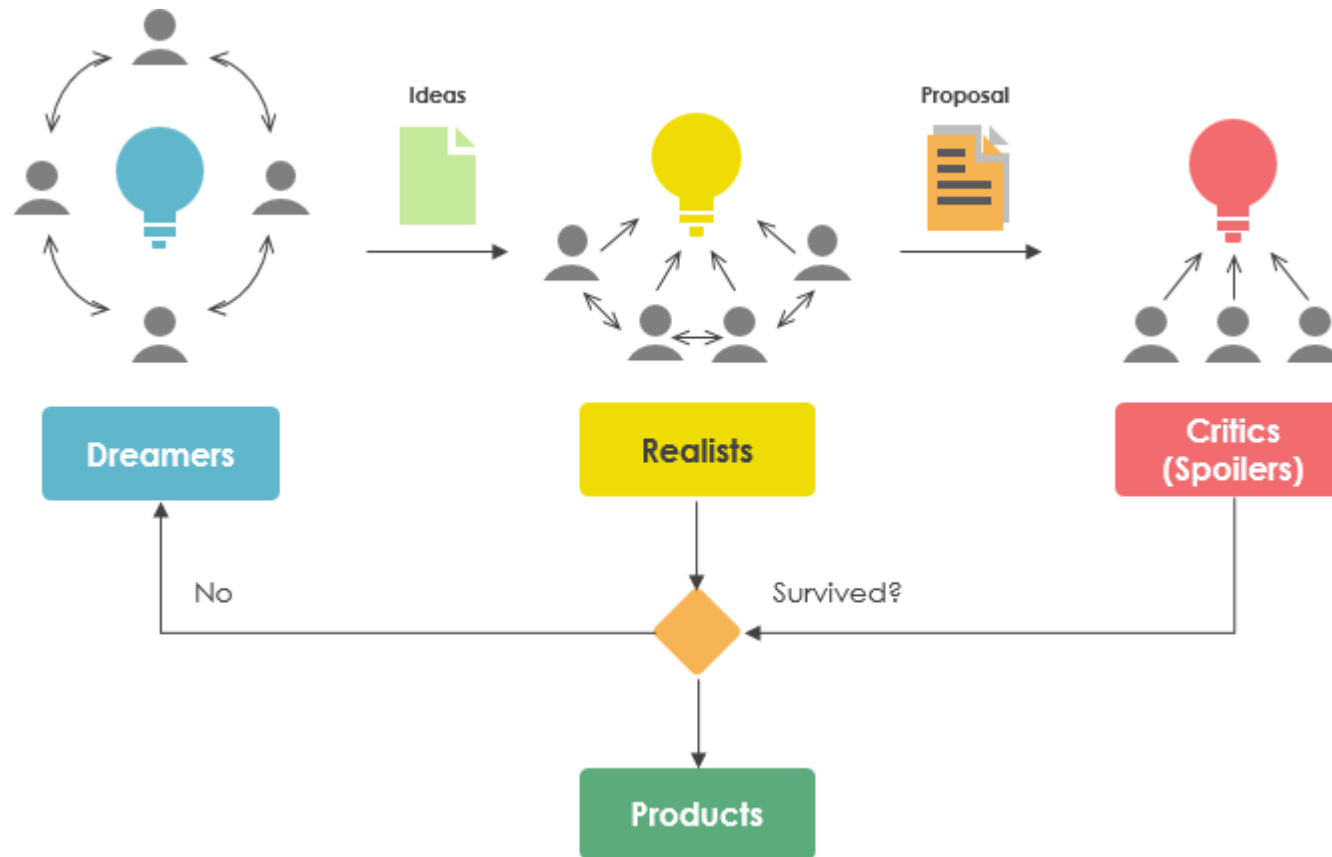


Reverse Brainstorming

- Instead of
 - How do I solve or prevent this problem?
 - How do I achieve the desired result?
- Ask
 - How could I possibly cause the problem?
 - How could I achieve the opposite of the desired result?
- List out all the ideas
- Reverse the ideas to the positive and prioritize

https://www.mindtools.com/pages/article/newCT_96.htm

Disney Creative: Dreamer/Realist/Critic



<https://online.visual-paradigm.com/knowledge/disney-creative-strategy/what-is-disney-creative-strategy/>

Walking Meeting Brainstorming

- Set up poster boards of topics
- Individuals write ideas on sticky notes for a few minutes
- Individuals apply notes to appropriate boards
- The individuals spend a block of time reading other notes, adding questions and extending ideas.



Psychological Distancing/Superhero

- Pick a superpowered alter ego
- Give yourself a name
- Think about how they would solve the problem
- Extend that back to the real world.



<https://knappily.com/lifestyle/the-batman-effect-unleash-your-superhero-269>

SCAMPER

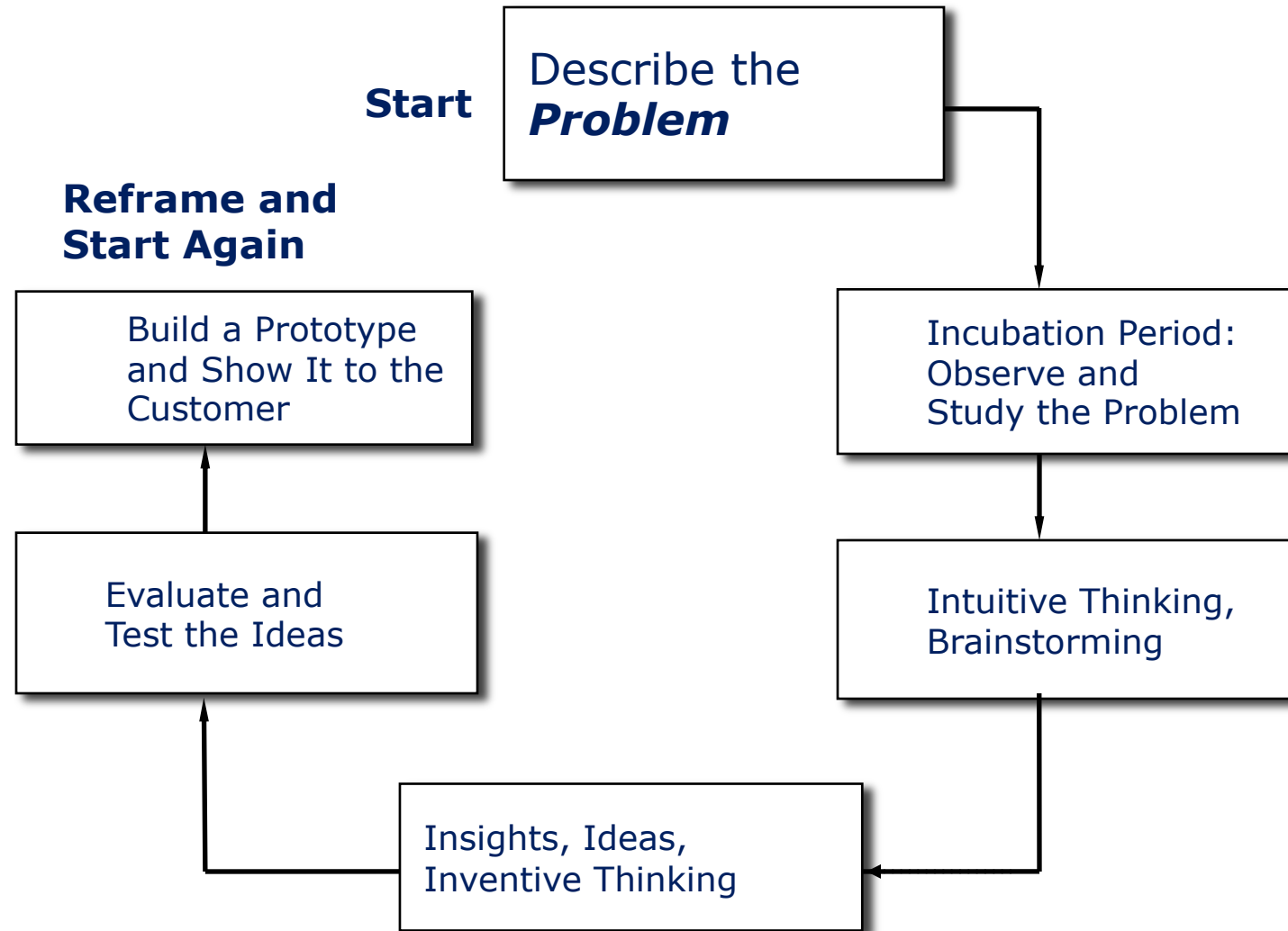


<https://www.interaction-design.org/literature/article/learn-how-to-use-the-best-ideation-methods-scanner>

Resources for a Creative Enterprise

- Knowledge in the Required Domain and Fields — knowing what is new
- Intellectual Abilities to recognize connections, redefine problems and envision and analyze possible practical ideas and solutions
- Inventive Thinking about the problem
- Motivation towards Action
- Opportunity Oriented Personality and Openness to Change
- Contextual Understanding that supports creativity and mitigates risks

Creativity Process



Where creativity is the most important

CHARACTERISTICS	TYPE OF INDUSTRY		
	Mature	Growing	Emergent
Revenue Growth	Slow	Moderate	Potentially Fast
Stability	High	Moderate	Low
Uncertainty	Low	Moderate	High
Industry Rules	Fixed	Fluid	Unestablished
Competitiveness	High	Moderate	Low or None

First Mover (Dis)Advantages

Possible Advantages	Possible Disadvantages
<ul style="list-style-type: none">• Create the Standard and the Rules• Low Cost Position• Create and Protect Intellectual Property• Tie Up Strategic Resources• Increase Switching Costs for the Producer• Increase Switching Costs for the Customer	<ul style="list-style-type: none">• Short-Lived Advantages Are Competed Away• Higher Development Costs• Established Firms Circumvent or violate patents and intellectual property• Cost of Attaining the Resources• High Uncertainty of Designing the Right Product. If vision is wrong, then large costs to switch• Customer is reluctant to buy when a large cost to switch may be incurred

Innovation

Small Group Discussion Questions

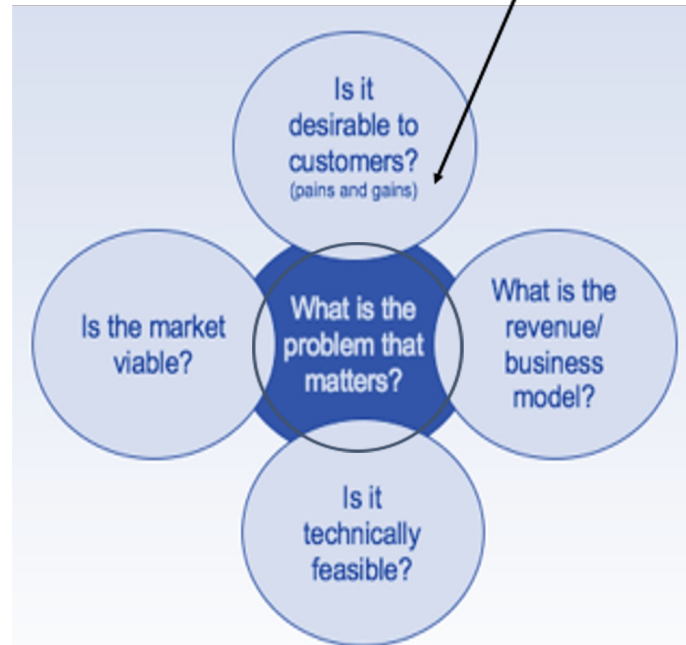
What is innovation?

Is it the same as invention?

What is innovation?

Innovation “sweet spot”

Innovators translate ideas and IP into **customer solutions** that generate **economic and/or social value**.



Week 1

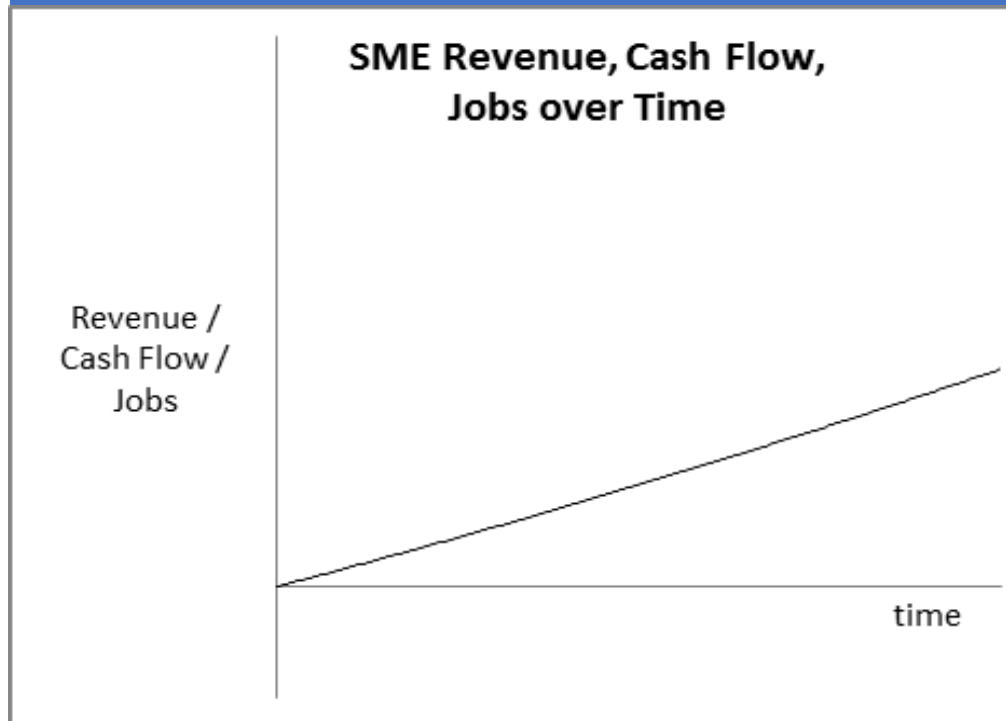
Innovation versus Invention

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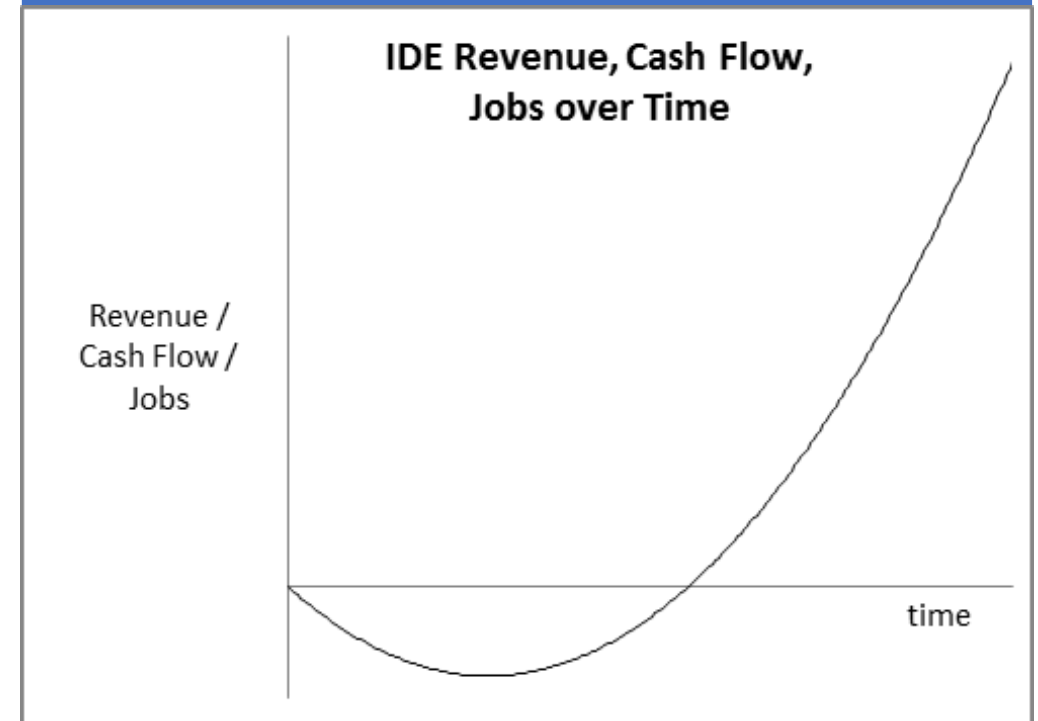
Is every new business innovative?

SME (Small Medium Enterprise)
Local Market Focus
Restaurants, Dry Cleaners, Services



- Δt is short
- Linear growth (capped)
- Less investment required

IDE (Innovation-Driven Enterprise)
Global Market Focus
Products w/ Innovation at Core



- Δt is long
- Exponential growth (uncapped)
- A lot of investment required

Entrepreneurs and Entrepreneurship

Delivering innovation to the market and getting paid for it

What is entrepreneurship?

Entrepreneurship is the act of identifying and exploiting an opportunity without being limited by resources currently under control.

What is an entrepreneur?

Entrepreneurs are people who identify and pursue:

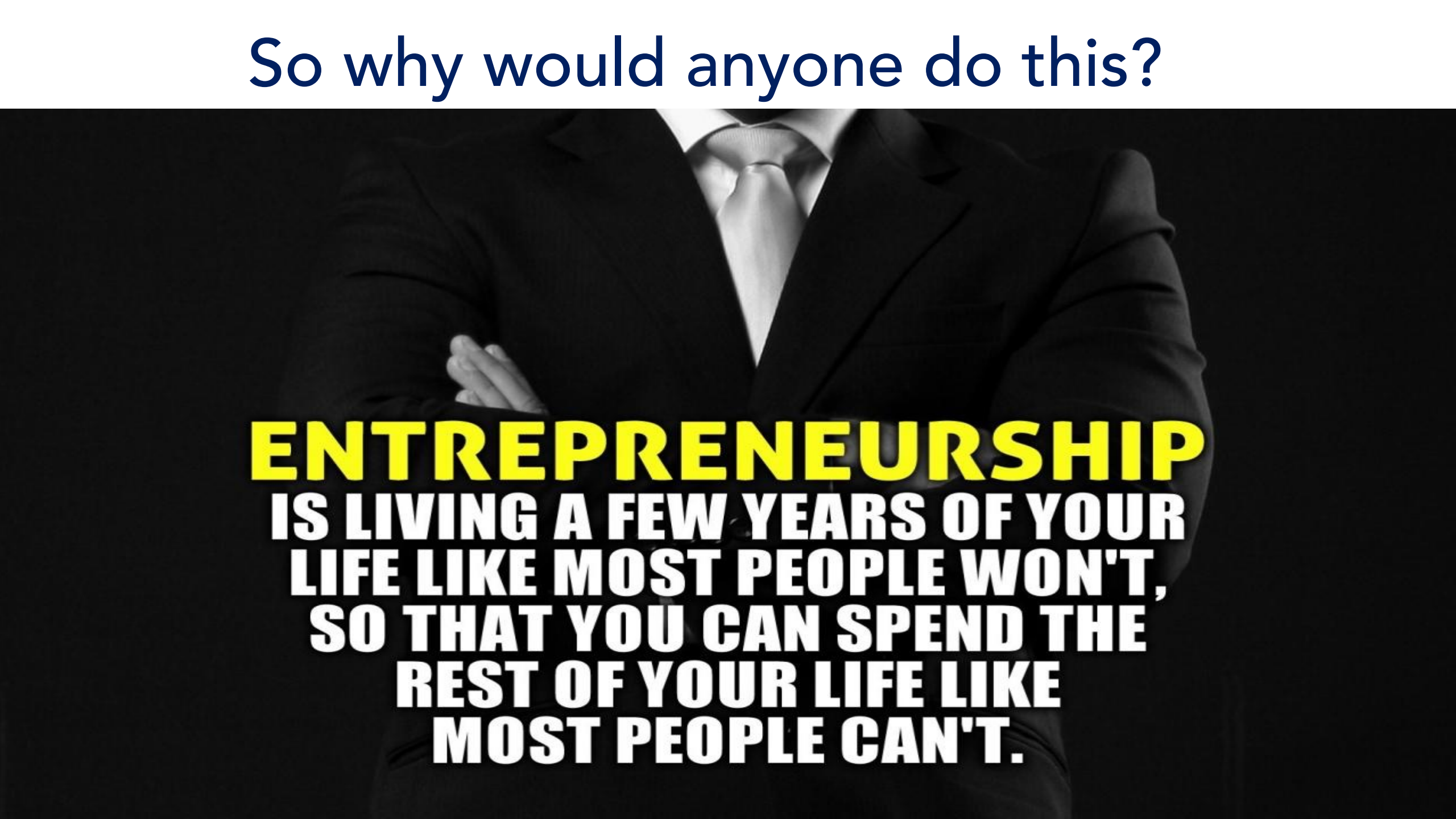
- solutions among problems
- possibilities among needs
- opportunities among challenges

The entrepreneur provides the creative force that makes free enterprise work.

Entrepreneurs strive to make a difference in our world and contribute to its betterment.

They are also motivated by achievement, independence, and the accumulation of wealth.

So why would anyone do this?

A black and white photograph of a person wearing a dark suit, white shirt, and light-colored tie. Their arms are crossed over their chest. The background is dark and out of focus.

ENTREPRENEURSHIP
IS LIVING A FEW YEARS OF YOUR
LIFE LIKE MOST PEOPLE WON'T,
SO THAT YOU CAN SPEND THE
REST OF YOUR LIFE LIKE
MOST PEOPLE CAN'T.

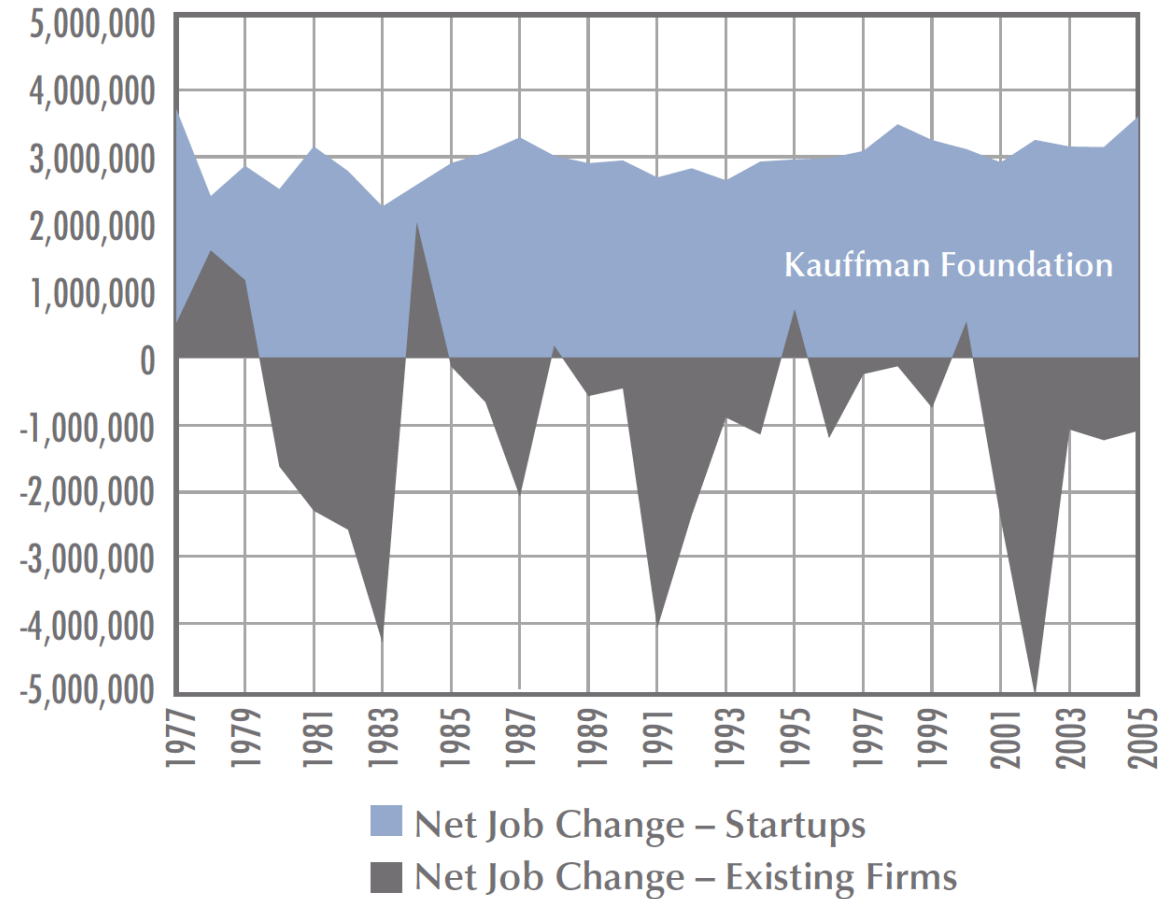
Why does it matter?

- Small firms might be more likely to produce “radical” innovations
 - Henderson (1993)
 - Anderson and Tushman (1990)
 - Tushman and Anderson (1986)
- “.. are responsible, since 1945, for:
 - Over 50% of all innovations
 - 67% of inventions
 - 95% of all radical innovations”

National Commission on Entrepreneurship, 2002 from Timmons

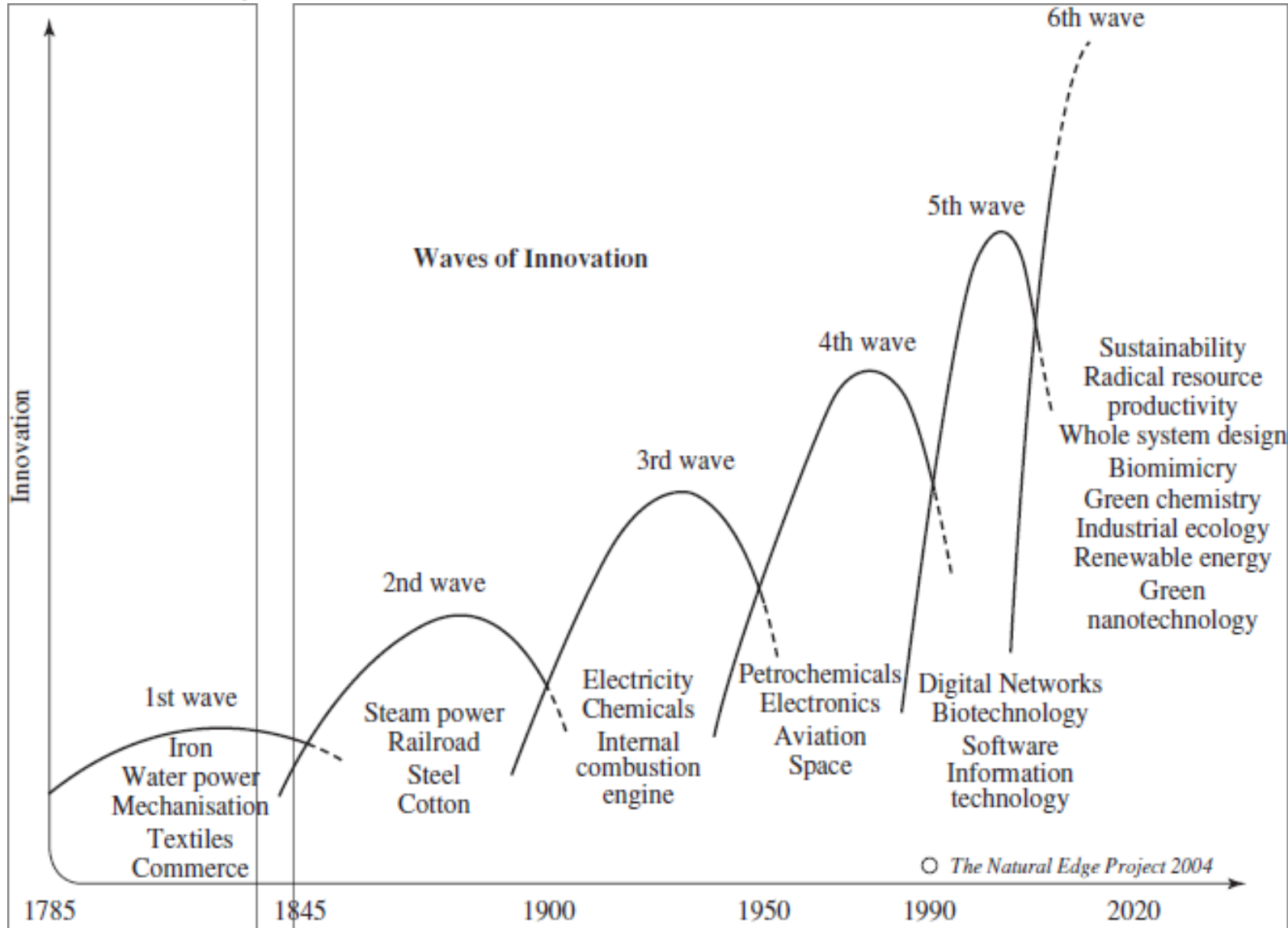
Why does it matter?

Figure 1:
Startups Create Most New Net Jobs in
the United States

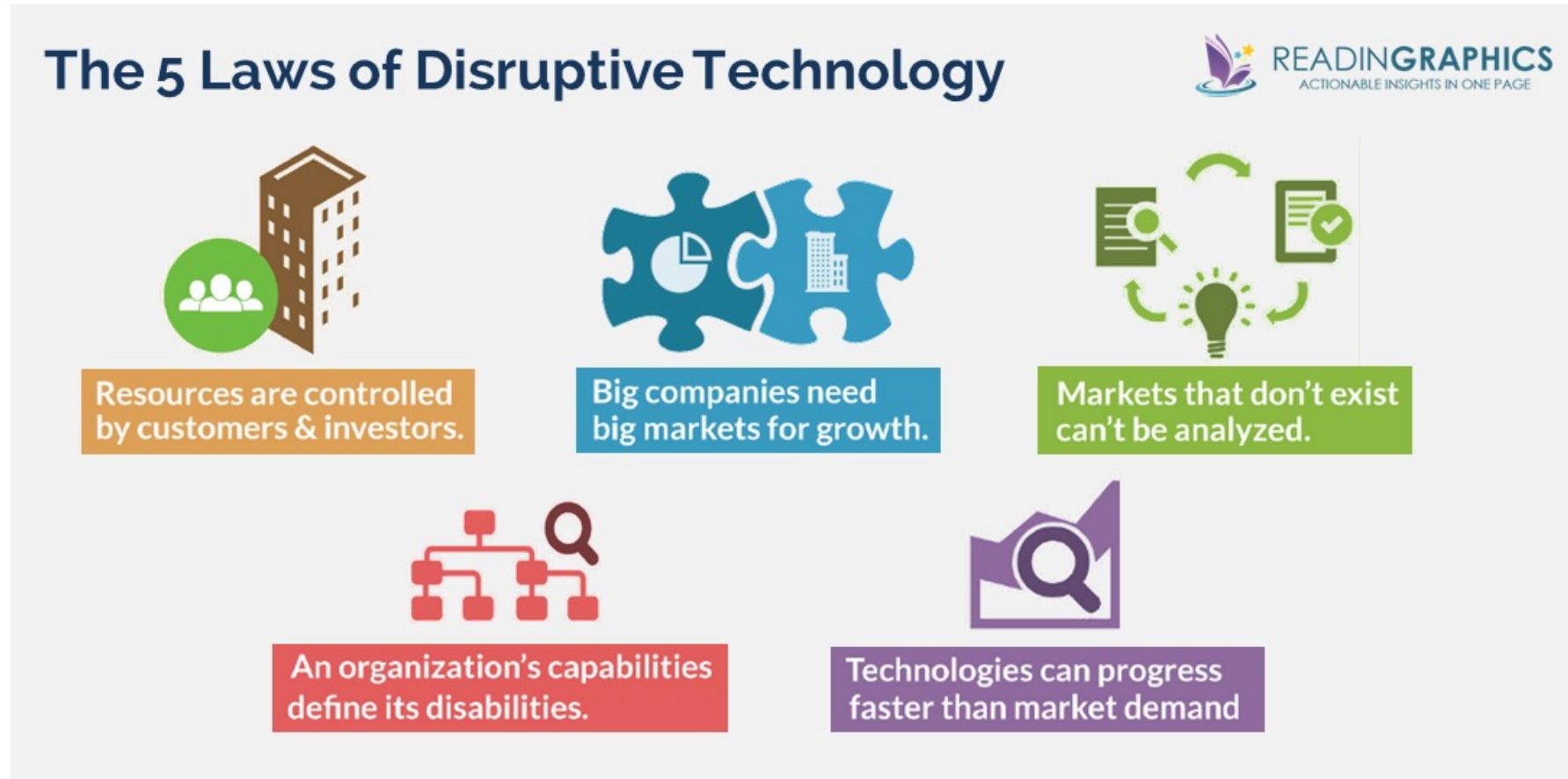


Source: Business Dynamics Statistics, Tim Kane

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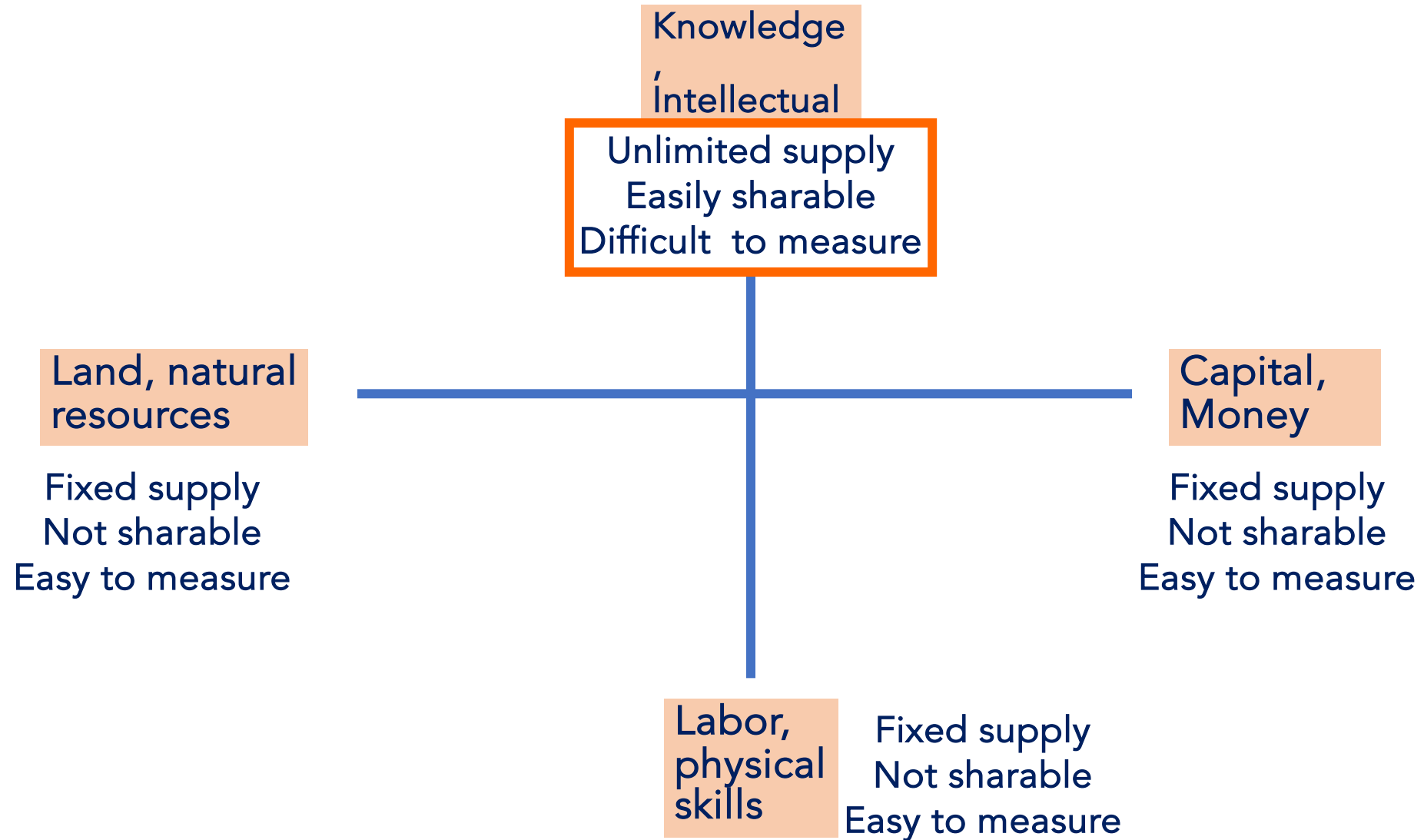


Innovator's dilemma



<https://disruptionhub.com/innovators-dilemma/>

Why TECH ventures?



Attributes of E'neurs

- Entrepreneurship is a *process*: not a single act
- Entrepreneurs are made; *not born*
- Entrepreneurs vary considerably in their *capabilities*, which can be improved significantly through experience and training.
- *Existing organizations* provide an environment that has a major—positive or negative—impact on the creative and entrepreneurial drive of their members.
- Entrepreneurs are *not* risk seekers; they are *risk managers*.

The entrepreneurship journey: Personas

Exploring	Ready-to-Go	RTG - 1	Intrapreneur	Amplifier
Interested but has no driving idea or team; is in exploratory mode; starts here but will migrate to another state or out of entrepreneurship	Chomping at the bit & just wants help to get going – has idea, tech &/or core of team	Wants to be in a start up but does not want to be a lead (at least at this time)	Wants to be an entrepreneur in an existing non-startup organization	Interested in understanding enough to successfully promote in their org (e.g., gov, corp, family business) but is not the direct venture creating entrepreneur

Summary

- Finding a problem that matters is “table stakes” for building a startup.
- Innovation = solving a problem that matters and getting paid
- Entrepreneurs are made, not born
- Entrepreneurship is a major driver of economic growth
- Entrepreneurs are not risk seekers; they are risk managers

Team Breakout: Review problem statements and select top 3

Breakout

- Each team member share the three problem hypotheses from their Week 1 individual homework assignment
- As a team, discuss each of the ideas and use one of the brainstorming approaches to select the top three candidates for the team project.
- Submit the top three problem statements for your team.

TE250 Week 3 Breakout Submission

- Team #: _____
- Names of team member present:

-
- User group selected: _____
 - Problem Statement 1:
 - Problem Statement 2:
 - Problem Statement 3:

Getting ready for Week 3

- Meet as a team to create problem statement canvases for your top three ideas.
- Individually watch the Jeff Carter video and summarize your top three takeaways from the talk.
- Watch videos for next week.