



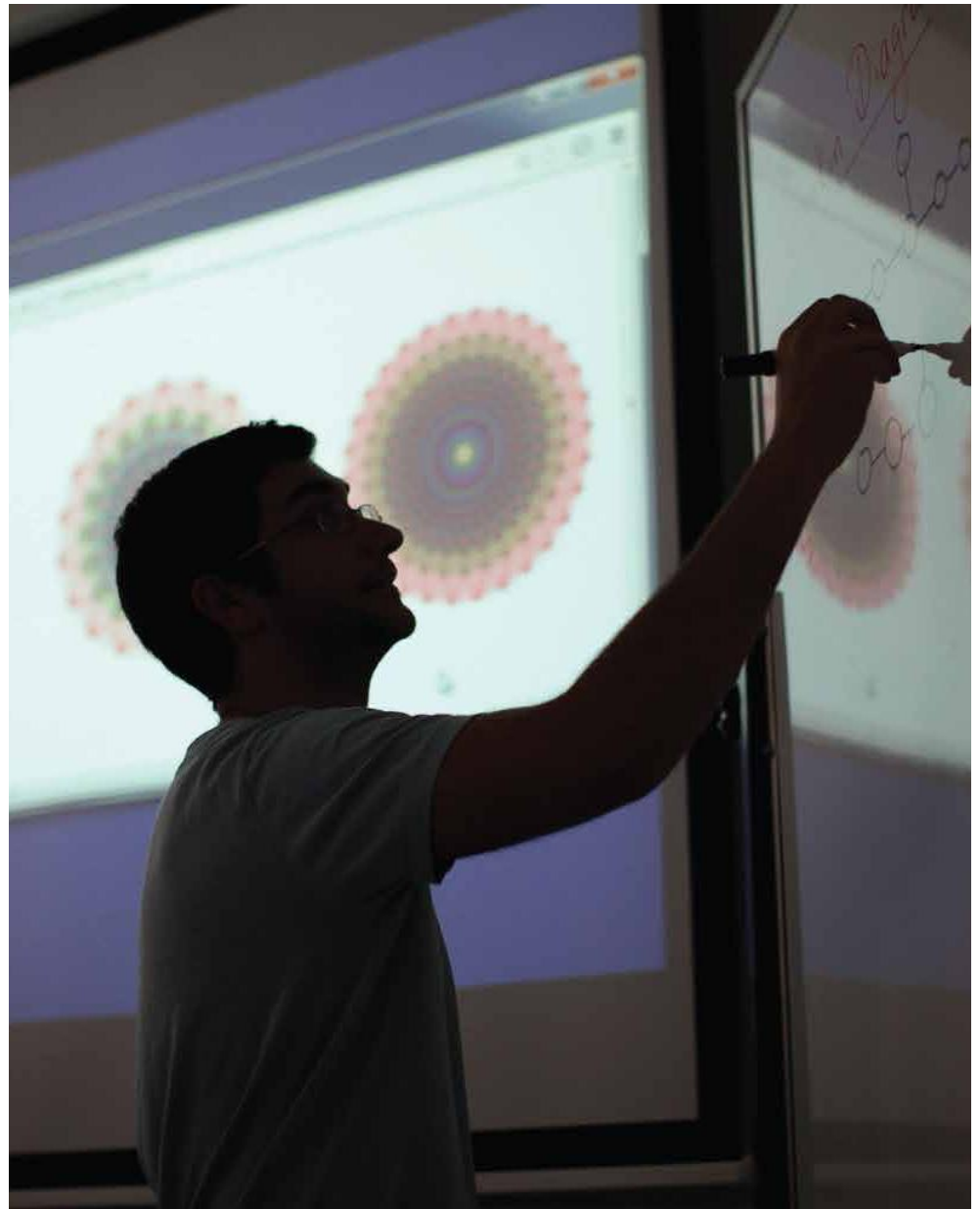
**Maynooth  
University**

National University  
of Ireland Maynooth

# INNOVATION: Important & Interesting

**Professor Anne Huff**  
**Tor Vergata**  
**28 April 2016**

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# Introduction

Anne Sigismund Huff

Professor for Research Development  
& Strategic Innovation

School of Business

Maynooth University, Ireland

- Research and teaching foci: open innovation, strategic change
- Recent publications include
  - *Leading Open Innovation* (MIT Press)
  - *Writing for Scholarly Publication* (Sage)
  - “Project Innovation: Evidence-Informed, Open, Effectual, and Subjective” *Project Management Journal* (April-May 2016)



## **Course emphasis: Innovation & Communication**

Innovations all around us – essential to our lives

Complex interactions over time (from use of fire & the wheel to nanoscience and space exploration)

Innovations intend to improve conditions for some actor(s) but almost always have mixed results

Individuals everywhere, rich and poor, have ↑ opportunities to participate, and ↑ responsibilities to participate (as innovators, consumers, citizens, family members, etc.)

Communication is central to understanding & responding

**↑ KNOWLEDGE OF THE WORLD AND OURSELVES NEEDED**

# Primary goals for course

- ↑ your interest in innovation
- ↑ knowledge of the great range of innovations
  - Over time, for different purposes, in different contexts
- ↑ Critical thinking [and informed action] about the consequences of innovation
- ↑ The likelihood that you see yourself as an innovator

Improve society by your attention to innovation

- Your choices as a citizen, at work, in your networks

# Agenda 28-29 April

- **Nature of important innovations?**
- **Innovation is interesting & important for you**
  - Student, citizen, consumer, employee, entrepreneur
- **You have the <sup>5</sup>creativity to be an innovator**
- **Definitions: invention ↔ innovation**
- **What environments promote innovation?**
- **Where are we now? Frontiers?**
- **Importance of Communication**
  - Sending, Receiving [an important life skill]



# How to learn from this course?

Take notes – most people  
remember more if they write

# Suggestions for this class

WRITE DOWN:

Definitions

What surprises you? [who to tell?]

Where do you agree? Disagree?

Possible negatives of an important innovation?

Questions to ask speaker?

# Assignment

Choose one innovation from *The Atlantic* reading.

Write a 2-3 page report to your classmates that:

- a) describes the chosen innovation,
- b) identifies 1-2 resulting innovations, and
- c) considers both positive and negative consequences of this chain of events.

Internet sources should be used (in moderation, this is a short report) and clearly footnoted. Provide your name and student number on the first page of the report.



# Comments on your responses

- Impressive overall – not just for 1<sup>st</sup> year course
- Many provided all requested information

Some not. Writing advice: Start with an outline that clearly indicates all points required  
Then add something relevant if possible

- I like the energy and ‘voice’ [often personal, which makes sense when talking to classmates]

I think both come from the opportunity to choose your own topic – important motivator to think about in choosing a job, being a boss, being a parent, planning a group event. Note: there are limits!

# Early Innovations

- Morganti – alphabetization
- Mazzarotto & Tromba – compass
- Sparagna – gunpowder
- De Juliis – paper money
- Pezzoli – printing press

# Notes on Innovation

- Innovation takes time
- Evolution often involves simplification
- That makes knowledge more accessible
- Interesting result of each early innovation discussed: led to cohesion of larger groups



# Other important early places for innovation?



# Other important early places for innovation?

<http://www.timemaps.com/history>

<http://www.ancienthistorylists.com/ancient-civilizations/10-oldest-ancient-civilizations-ever-existed/>

**1. Mesopotamian Civilization 3300 BC – 750 BC.**

**[agriculture, animal domestication, wheel, irrigation, sail boat, plow, maps, mathematics, city, 1<sup>st</sup> writing,**

Example of more detail – <http://www.aztec-history.com/aztec-inventions.html>

A blue scroll graphic with a dark blue border and rounded corners. The scroll is partially unrolled, with the top and bottom edges showing a lighter blue inner layer. The text is written in white on the dark blue background.

Epochs [time periods] of Innovation  
Places of Innovation

Duplications & Rediscovery

## Some Italian Examples

<http://www.onuitalia.com/eng/2016/04/09/fighting-climate-change-sharing-italys-innovative-technologies/>  
<https://www.youtube.com/watch?v=9TlspgTbLM>

<http://www.eltis.org/discover/case-studies/milans-plan-sustainable-efficient-and-innovative-mobility-italy>

Short inspirational overview:

<https://www.youtube.com/watch?v=ms9Ud2EpZXU>

# Italian Innovations?

<http://www.ranker.com/list/list-of-italian-inventions/wayne-szalinski>

**Top ten?** <http://www.lexiophiles.com/english/ten-italian-inventions-that-changed-the-world>

**Telephone:** invented by Manzetti (1844) and Meucci (1871)

**Plastic:** yes, the one we use every day in many shapes and colours, it was created by Natta in the 60's and sold as Moplen

**Piano:** musical instrument invented by Cristofali in 1698 (in its modern form)

**Battery:** Volta was the father of this invention (1799). **Glasses:** ...born during the 14th century

**Bank:** a system created in Northern Italy in 1462, during the Renaissance

**Radio:** invented by Marconi and the Spanish Cervera in 1895

**Highway:** the first proper motorway was the one connecting Milan and Laghi, built in 1923

**Microchip:** Faggin created this...important component of every electronic device during the 60's

**Helicopter:** invented in 1930 by d'Ascanio



# Health - Penicillin

Kjartansson

Koci

Vo

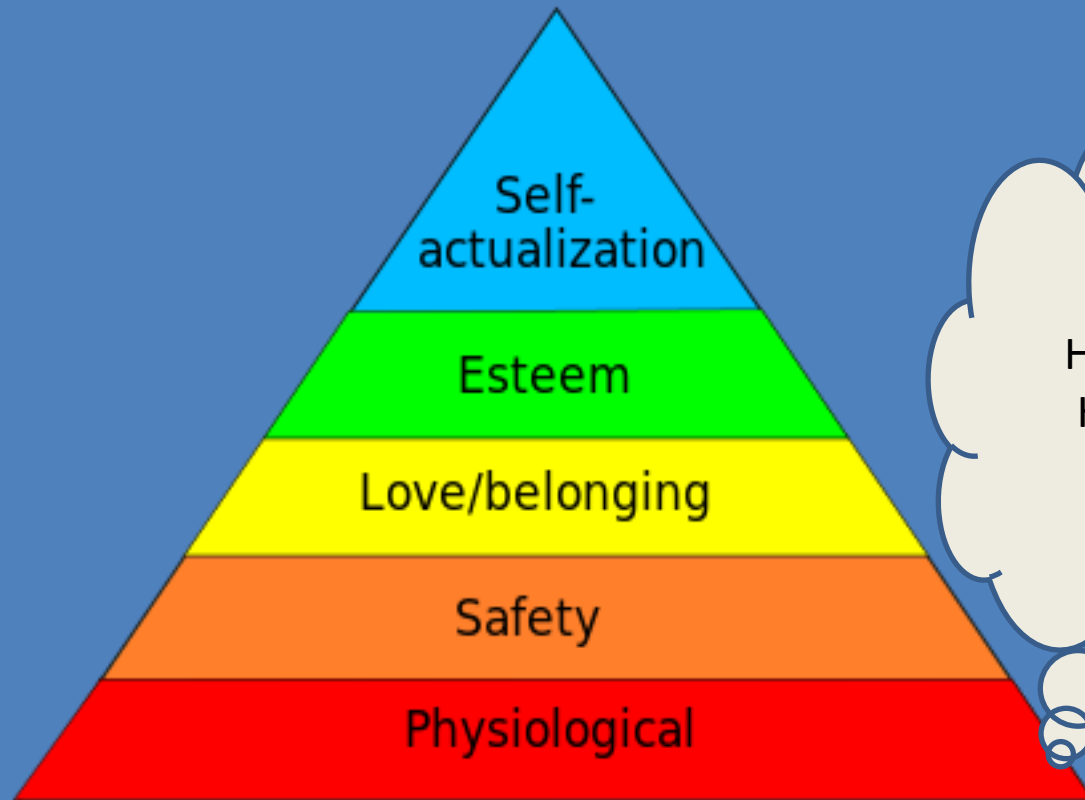
Andriani

Basaran

## Notes on Innovation

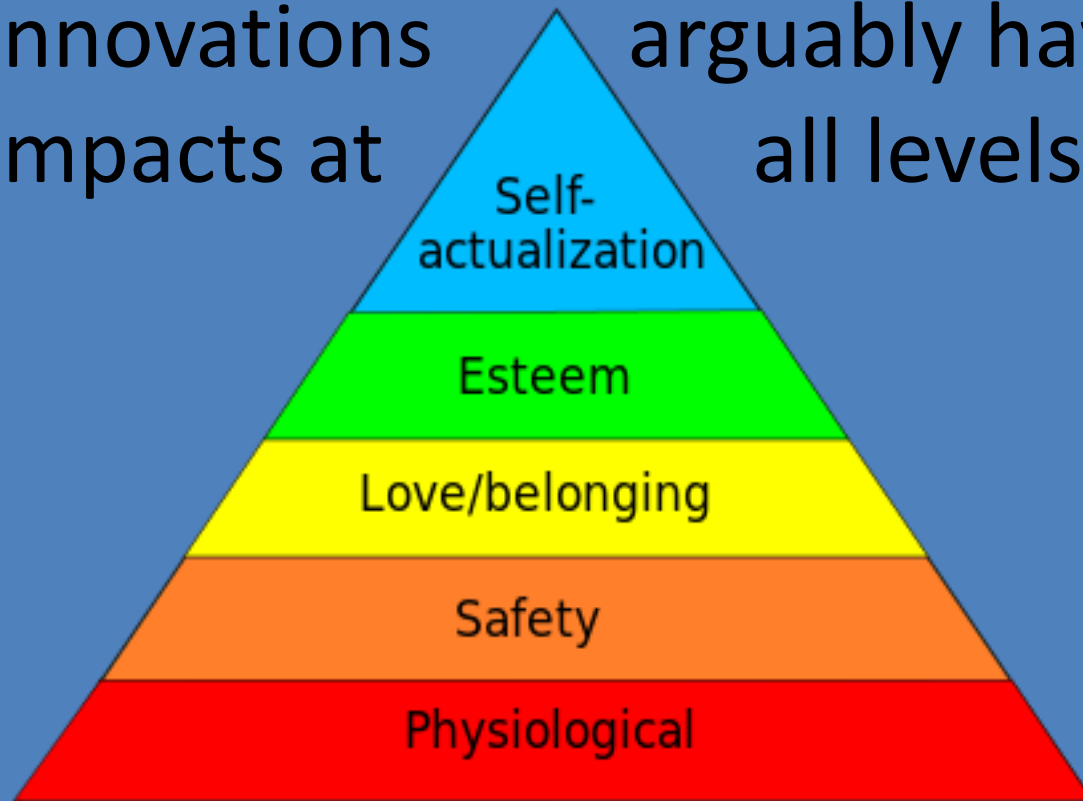
- Significant # of innovations by accident
- As noted for early innovations
  - diverse unexpected consequences
- Some negative consequences of innovation though overuse

# Maslow's Hierarchy of Needs



HEALTH  
HERE?

“The Pill” and other health innovations arguably have impacts at all levels



# Communication

## Early innovations

Electricity – Balistreri

Telegraph – Pacini, Zaynalov

Telephone –Alberto

Radio – Pancotti

Photography -- Jafarova

“Meliorism”  
the belief that the world can be  
made better by human effort

<https://www.quora.com/Is-the-world-Getting-Better-the-Same-or-Worse>

# Innovation is Important for YOU

Matthew Taylor on The Power to Create

[https://www.youtube.com/watch?v=IZgipuFGb\\_8](https://www.youtube.com/watch?v=IZgipuFGb_8)

## CRITICAL THINKING

Where do you agree?

Where is Taylor enthusiastic?

Possible negatives of increasing  
power to create?

# Taylor: The Power to Create

- Definition of creative life
  - Meaningful, free, access to resources, unique contribution
- Requires: Skills, Confidence, Opportunity
- Why increasing power now?
  - Growing demand for creativity
  - Sharing via social web & internet
  - Great need (aging population, inequality, climate change...)
- Not just individuals—organizations, regions, society
- Barriers to creativity?
  - Assumption that only some are creative
  - Institutions that support ELITISM
  - Resources focused on the few



# Critical Thinking

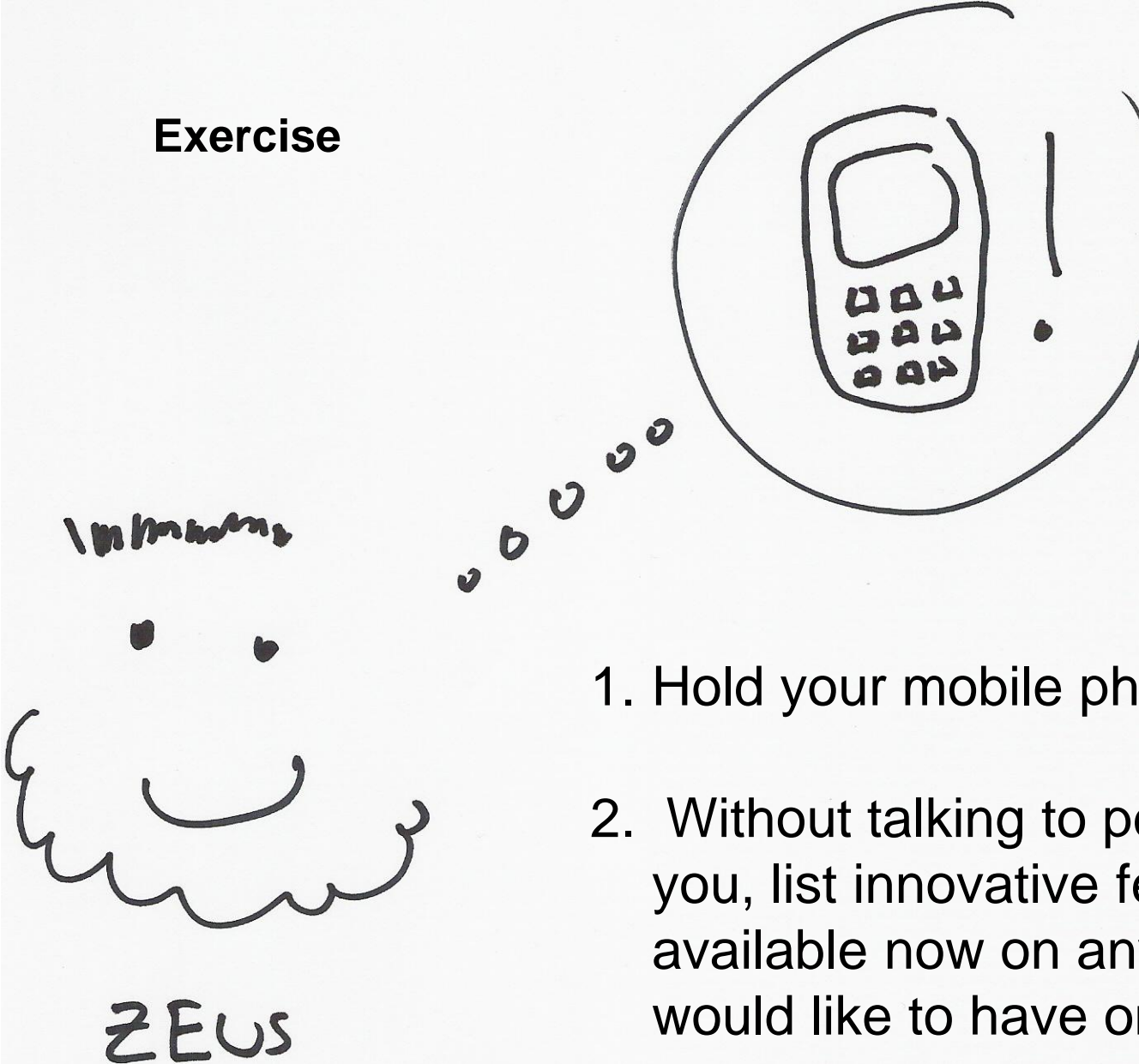
Where do you agree? Disagree?

Is Taylor too enthusiastic?

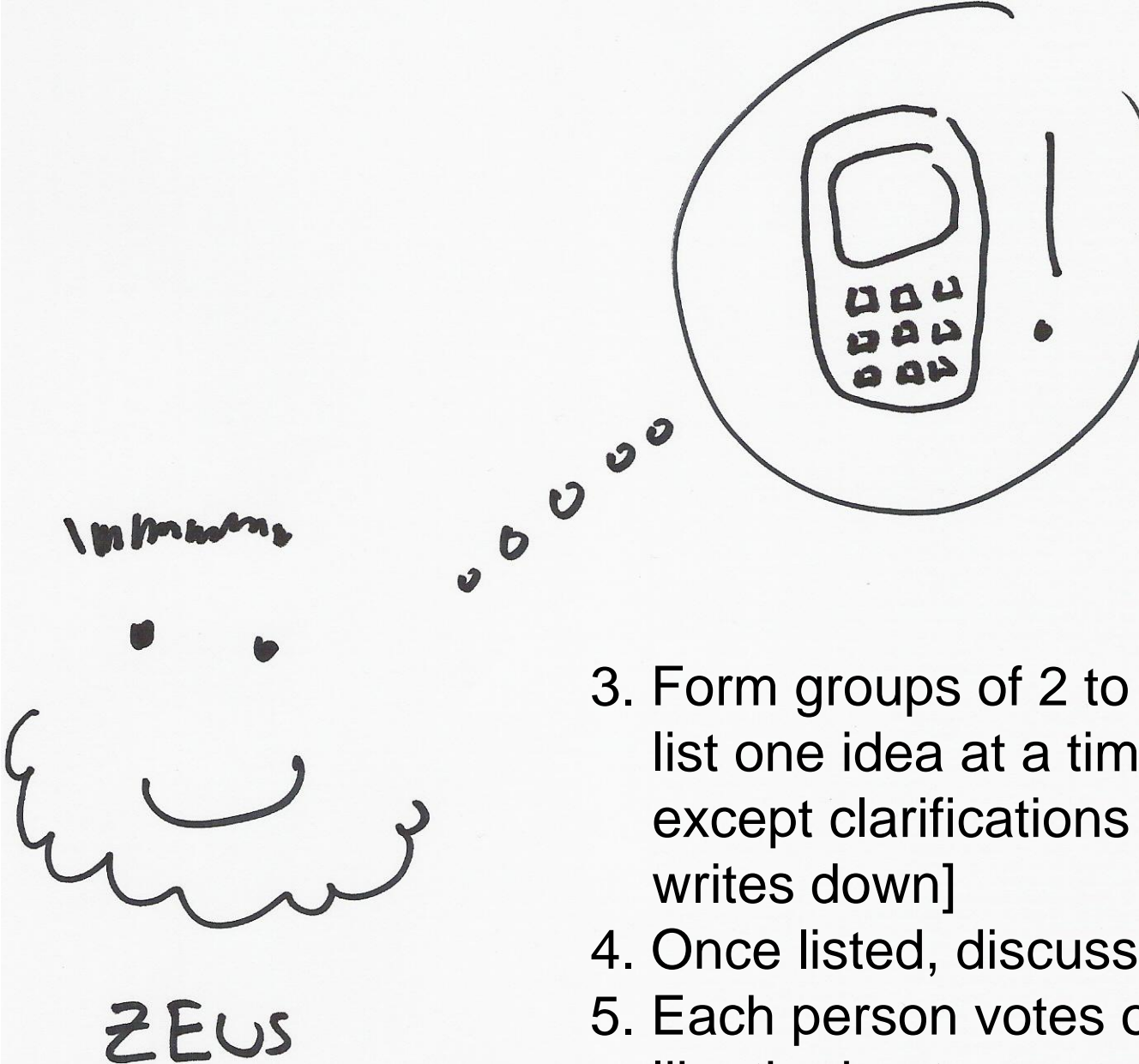
Possible negatives of increasing power to create by

- individuals
- companies
- regions
- societies

## Exercise



1. Hold your mobile phone
2. Without talking to people around you, list innovative features (not available now on any phone) that you would like to have on your phone



3. Form groups of 2 to 4. Each person list one idea at a time - no comments except clarifications [one person writes down]
4. Once listed, discuss and develop
5. Each person votes on 3 ideas they like the best
6. One person reports top ideas back

# Basic Brainstorming Process

1. Hold your mobile phone
  - ★ best thinking often done close to subject
2. Think individually of new features (not available now)
  - ★ many and diverse ideas needed for innovation
3. Quickly list ideas one at a time going around the group with no comments except clarifications
  - ★ early criticism limits the solution space
  - ★ listing helps separate proposer & idea
4. Once listed, discuss and develop
  - ★ new ideas are developed, synthesis expected
5. Each vote three that you like the best
  - ★ groups can evaluate as well as generate ideas
6. Further development in larger group
  - ★ many more ideas, more piggyback & editing

# Another view of CREATIVITY

Cédric Villani on the 7 Ingredients of Creativity

<https://www.youtube.com/user/theRSAorg>

1. Documentation – “ideas come from somewhere”
2. Motivation – critical&elusive, can come from anywhere especially early education  
[AH: out of school too! Villani is example of elitism]
3. Environment – especially cities
4. Communication – needed to pursue projects
5. Constraints
6. Illumination
7. Meticulous systematic work  
[AH: often true, but not necessarily]
8. LUCK AND TENANCITY

# Summary – Part I

# Innovations

- Central to our lives
- Connected in complicated, interesting ways

# Innovation

- Processes
  - Involve many people, varied skills
  - Response to MANY situations
  - Planned
    - Universities
    - Government programs, non-profits etc.
    - Companies
  - Also unplanned
    - Need
    - Fun, curiosity, etc.
- Content
  - Incredible range



# Barriers to Innovation, Negative Outcomes

- Barriers
- - Universities
  - Government programs, non-profits etc.
  - Companies
  - Also unplanned
    - Need
    - Fun, curiosity, etc.
- Content
  - Incredible range

# YOU can be an inventor/innovator

- Young
  - Energy and enthusiasm
  - Less influenced by the past
  - Today's and tomorrow's consumer
- University trained
  - Increasingly important cutoff for employment
  - ❖ In a good position to learn helpful frameworks and tools to address new situations
- You are in Italy – a setting with a long history of invention & innovation



# More interested in innovation?

- 1) choose a category that interests you,  
sign up for Google alerts on that topic
- 2) Find a blog/website etc. that interests you  
and follow <http://www.improvides.com/2014/12/21/top-25-innovation-blogs-experts-2014-winners/>



# Upload – 28 April

<http://www.timemaps.com/history>

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## **Matthew Taylor on The Power to Create**

[www.youtube.com/watch?v=IZgipuFGb\\_8](http://www.youtube.com/watch?v=IZgipuFGb_8)

## **C. Villani – 7 ingredients of creativity**

<https://www.youtube.com/user/theRSAorg>

## **Top 10 inventions thought up by kids**

– <https://www.youtube.com/watch?v=aO8X40p2LMA>

## **Maya Penn – Ted Talks**

[https://www.ted.com/talks/maya\\_penn\\_meet\\_a\\_young\\_entrepreneur\\_cartoonist\\_designer\\_activist?language=en](https://www.ted.com/talks/maya_penn_meet_a_young_entrepreneur_cartoonist_designer_activist?language=en)

## **Techno idealism can and should be challenged**

- <https://www.youtube.com/watch?v=Uk8x3V-sUgU>
- <http://www.evgenymorozov.com>

– [https://www.youtube.com/watch?v=\\_9TIspgTbLM](https://www.youtube.com/watch?v=_9TIspgTbLM)