INFO4444 Computing 4 Innovation

Week 12: Organizational Culture and Structures Supporting Innovation
Judging IT Innovation

Presented by: Dr. Eman Sayed

School of Computer Science

THE UNIVERSITY OF SYDNEY

Copyright warning

COMMONWEALTH OF AUSTRALIA

Copyright Regulations 1969

WARNING

This material has been reproduced and communicated to you by or on behalf of the University of Sydney pursuant to Part VB of the Copyright Act 1968 (**the Act**).

The material in this communication may be subject to copyright under the Act. Any further copying or communication of this material by you may be the subject of copyright protection under the Act.

Do not remove this notice.

Organisational Culture that Supports Innovation

THE UNIVERSITY OF SYDNEY

Organisational culture: "Scientific Management" (Taylorism)

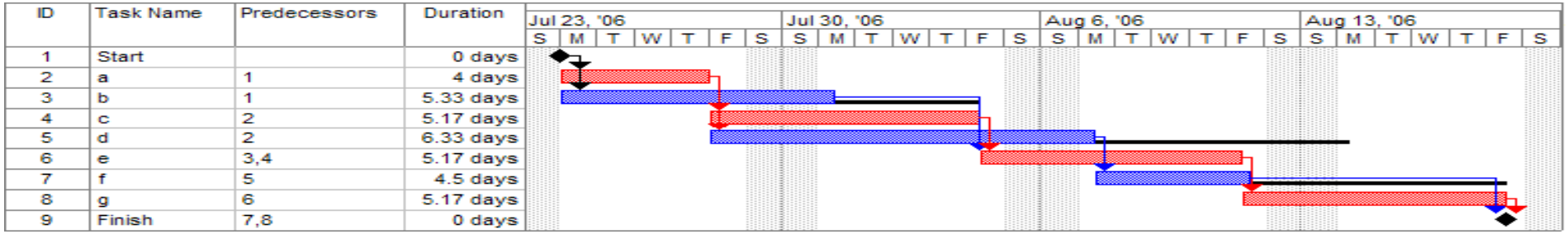
"In the past, the man was first.
In the future, the system will be first." (1911)

- **Standardise** work into separate tasks
- Scientifically study each task
- Continually measure performance of task
- Compensate workers based on performance

Frederick Winslow Taylor
Mechanical engineer
Efficiency expert
Management consultant
1856-1915

Influence of Taylorism in organisations

- Scientific management used not just in factories, but in most organizations
- Gantt charts (by Henry Gantt who worked with Taylor)



ID	Task Name	Predecessors	Duration
1	Start		0 days
2	a	1	4 days
3	b	1	5.33 days
4	c	2	5.17 days
5	d	2	6.33 days
6	e	3,4	5.17 days
7	f	5	4.5 days
8	g	6	5.17 days
9	Finish	7,8	0 days

- **Budgets for accountability and performance measurement**
- **Key performance indicators, linked to Incentives**

Taylorism and Innovation

- But designed for repetitive work with known function
  - E.g., production

- Not suitable for creative work with many unknowns
  - e.g. technological innovation

- **How good is it for startups?**

Creating a culture for generation of new ideas

- Steven Johnson
- "Where good ideas come from" (TED Talk), 2010

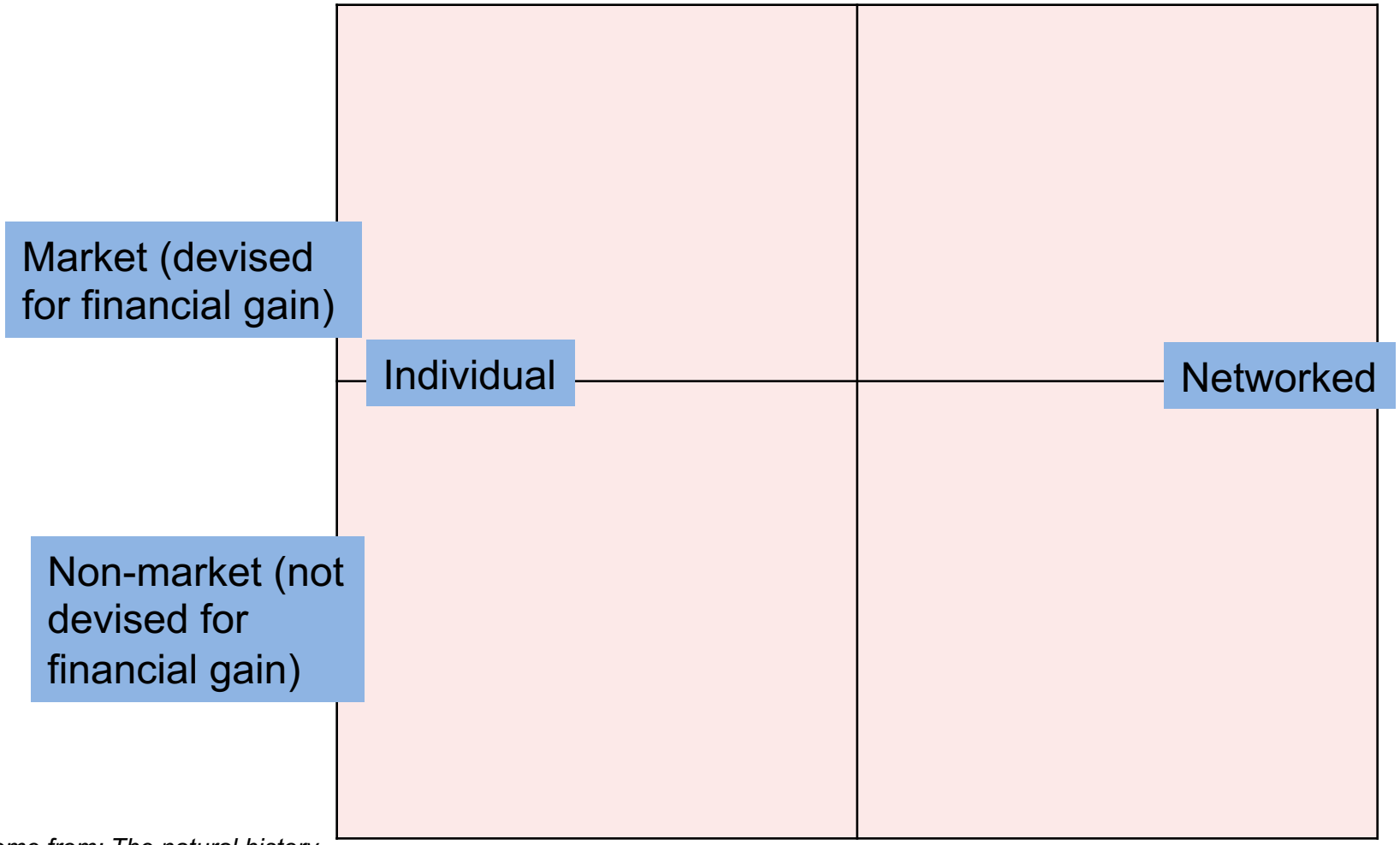
https://www.ted.com/talks/steven_johnson_where_good_ideas_come_from?language=en Starting from 7:00

Creating a culture for generation of new ideas

- **Liquid Networks**
  - Ideas bouncing between different expertise
- **Slow Hunch**
  - A great idea **slowly** fades into view over a long period of time
- **Connecting vs Protecting**
  - interaction leads to the overall best result

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

Innovations: 1800 – now



Steven Johnson, *Where good ideas come from: The natural history of innovation*. ePenguin, 2010.

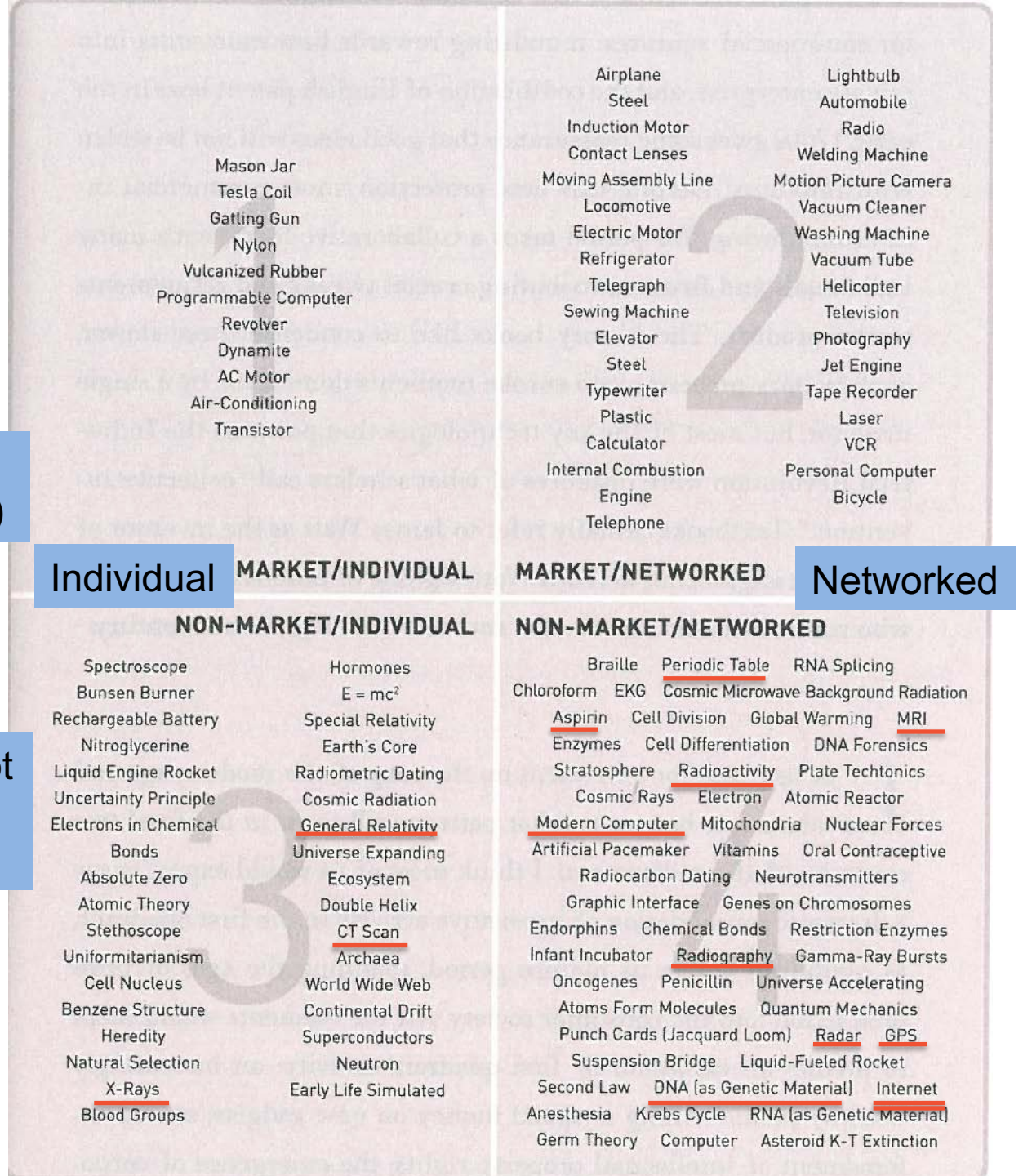
Innovations: 1800 – now

Market (devised for financial gain)

Non-market (not devised for financial gain)

Individual

Networked

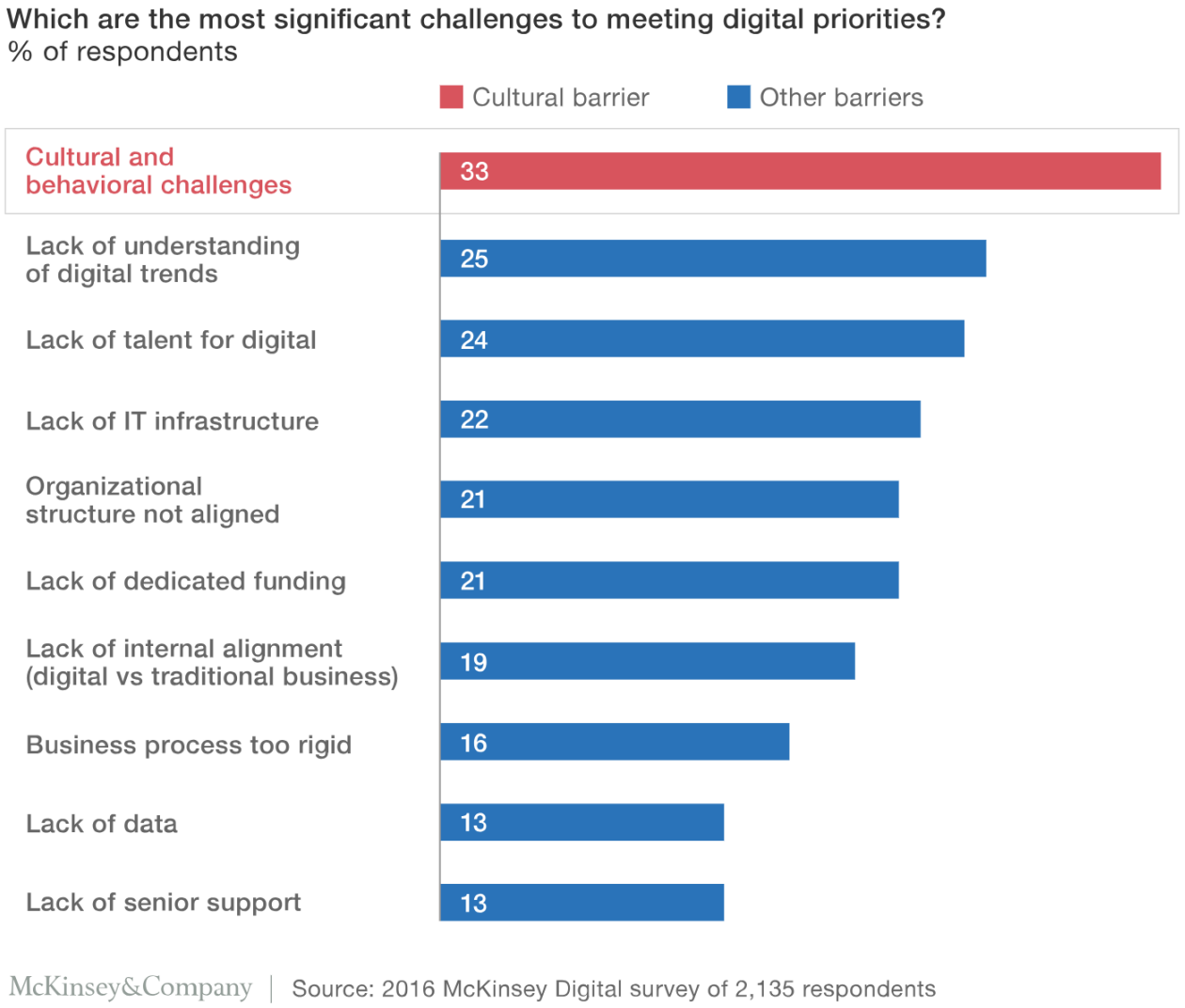


Steven Johnson, *Where good ideas come from: The natural history of innovation*. ePenguin, 2010.

Organisational culture for a digital age

THE UNIVERSITY OF SYDNEY

Culture for a digital age



https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/culture-for-a-digital-age

Cracking the digital code - McKinsey Global Survey results

Cultural intervention points 1/3

- **An appetite for risk**
  - Encourage risk culture

- **Making bold bets –** driving bold, decisive actions
  - A culture of digital aspirations
    - Amazon
  - Embracing resource reallocation

Cultural intervention points 2/3

- **A customer-centric organizational culture**
  - **E.g.,** Amazon customers tries to customize products and services seamlessly, and provide easy access to the information customers need, when they need it
  - **Data and tools**
    - Connecting the right data to the right decisions

Cultural intervention points 3/3

- **Busting silos –** workers who hesitate to share information or collaborate across functions and departments can be corrosive to organizational culture.
  - **Getting informed: Data-driven transparency**

- **Instilling accountability –** mechanisms to help support cross-functional collaboration through flexibly deployed teams

Company Structure Supporting Innovation (and Organisational culture)

THE UNIVERSITY OF SYDNEY

Size and structural dimensions of companies

- Large companies
  - Less R&D efficiency
  - More bureaucratic inertia
  - More commitments tie companies to current technologies

- Small firms
  - Flexible to change

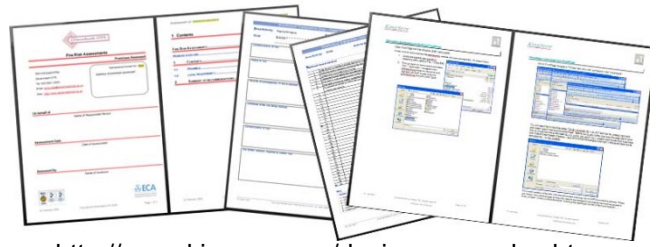
Source: Schilling (2013)

Size and structural dimensions of companies

- Many big companies have found ways of “feeling small”
  - Several subunits
  - Culture and controls in different units

Structural dimensions which influence innovation

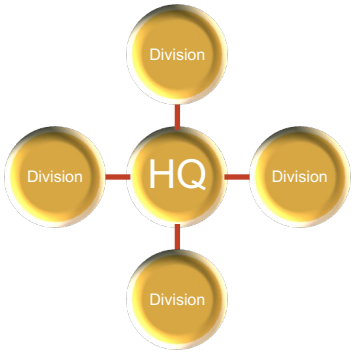
- **1. Formalisation:** rules and procedures to structure the behavior of employees



http://www.kingserv.org/design_examples.htm

- **2. Standardisation:** uniform way for activities

- **3. Centralisation:**
  - Centralised authority: top-level decision-making authority
  - Centralised activities: done at central unit



Source: Schilling (2013)

Mechanistic vs Organic Structures

- **Mechanistic Structures**
  - High formalisation and standardisation
  - Operational efficiency, reliability.
  - Minimizes variation

- **Organic structures**
  - Low formalisation and standardisation
  - Creativity and experimentation
  - Low consistency and reliability

Combining the best of small and large companies

- Organic: e.g., R&D, new product lines
- Mechanistic: e.g., manufacturing, mature product lines
- Both in different divisions
- Alternate through different structures over time
- Sometimes new product development can be quite independent of even the main R&D division

Case Studies

Successful Culture and Structure for Innovation

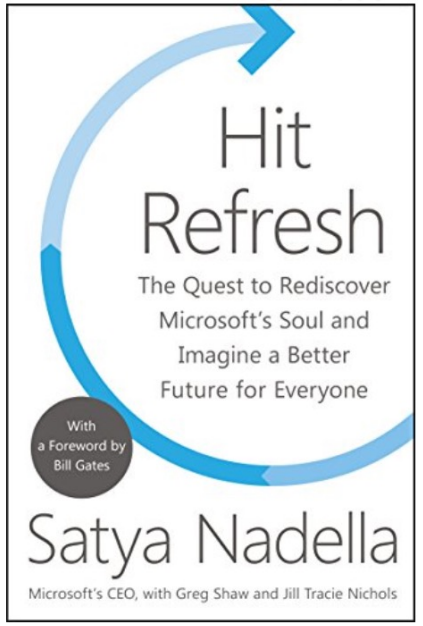
THE UNIVERSITY OF SYDNEY

Case Study: Culture and innovation in a Digital Age

- "At some point, the concept or the idea that made you successful is going to run out of gas. So, you need new capability to go after new concepts."

- ***The only thing that's going to enable you to keep building new capabilities and trying out new concepts long before they are conventional wisdom is culture.***

- When I became CEO, we were already a 40-year-old company, and I felt that it was very important for us to make culture a first-class, explicit conversation so that we could then reinvent ourselves and invent new things."



Cultural change in Microsoft

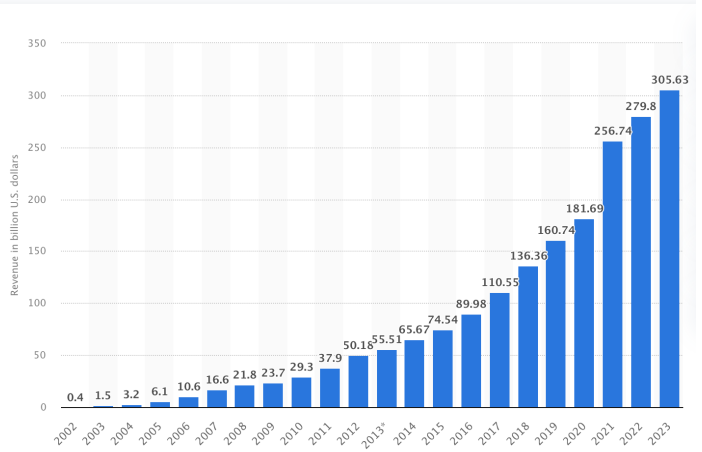
- **Annual Microsoft Hackathon**
  - Separate Windows offices were siloed and in constant
  - Employees to work together on projects (“largest private hackathon”)
    - fast-moving and collaborative organization

- **Fewer, bigger bets**
  - Future technologies (cloud and AI)

- **Partner-positive thinking**
  - Innovation through partners

Keeping benefits of a small company in a large company – Example: Google

Sergey Brin and Larry Page



Google Australia

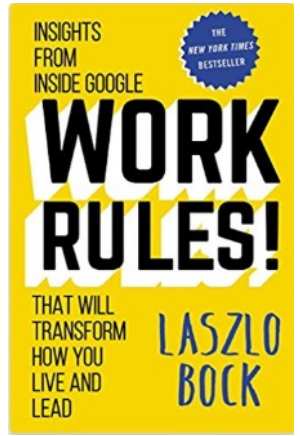
Case Study: Google – Keeping benefits of a small company in a large company

- Tried to avoid divisional structure and the business unit structure (prevent collaboration)
- People should be able to self-organize to work on the most interesting problems if they understand the company's values
- Should inform people about what's matter and build a shared value culture

Eric Schmidt, Google CEO (until April 2011)

http://www.mckinseyquarterly.com/Googles_view_on_the_future_of_business_An_interview_with_CEO_Eric_Schmidt_2229

Google's "20% time"

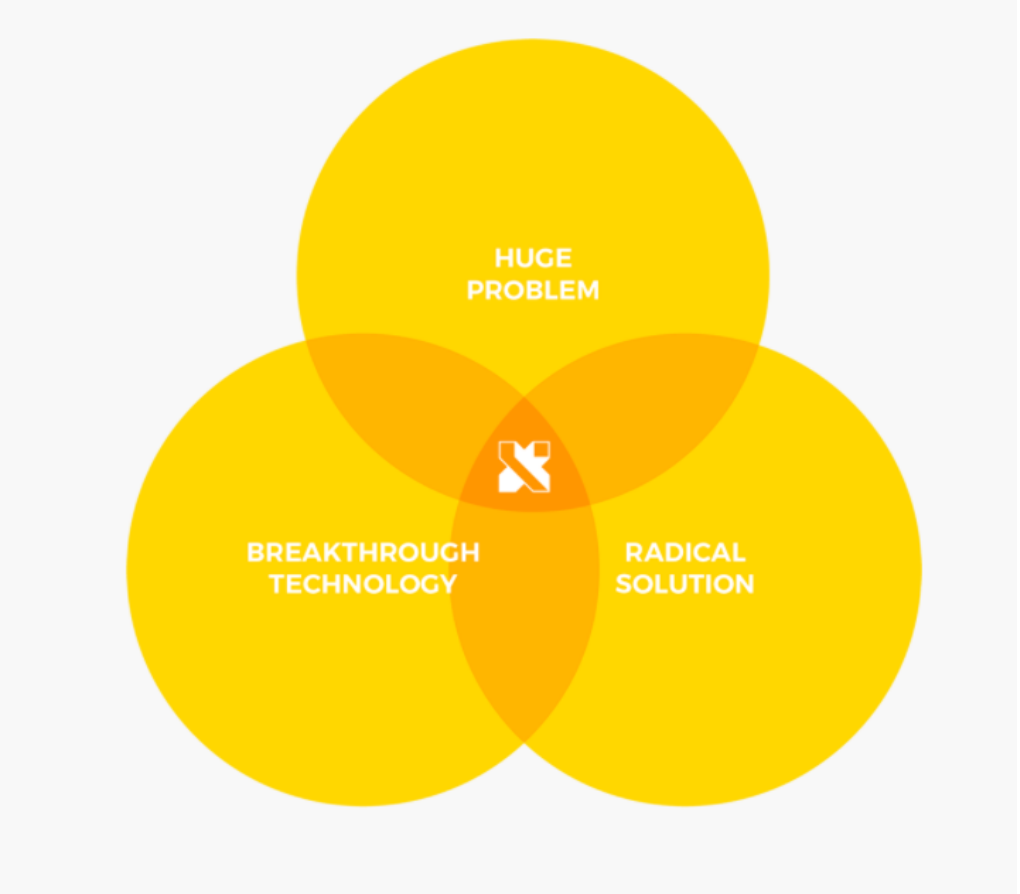


- "We encourage our employees, in addition to their regular projects, to spend 20% of their time working on what they think will most benefit Google."
- Huge 20% products include the development Google News, Gmail, and even AdSense
- Only about 10% of Googlers are using it, last time the company checked, but it doesn't really matter, as long as *the idea* of it exists, according to Google HR boss Laszlo Bock in his new book, "Work Rules!"

http://www.businessinsider.com.au/google-20-percent-time-policy-2015-4?r=US&IR=T

Google's Solve for X

- Be fast at all the hardest parts of a problem, and try to prove that something can't be done
- Enforced to learn
- Actively embrace failure



https://x.company/

Solve for X – a Moonshot factory

- Look for the intersection of a big problem, a radical solution, and breakthrough technology
- Tackle ideas that have the riskiness and ambition of early-stage research and approach them with the focus and speed of a startup
- X is a team of inventors and entrepreneurs from a wide variety of backgrounds

https://x.company/

Astro Teller:

The unexpected benefit of celebrating failure

TED2016 · 15:32 · **Filmed** Feb 2016

21 subtitle languages

View interactive transcript

Share this idea

Facebook LinkedIn Twitter Link Email Embed

1,956,472 Total views

http://www.ted.com/talks/astro_teller_the_unexpected_benefit_of_celebrating_failure

In Summary, Organisational culture….

- Culture and innovation in a Digital Age - Virtuous Cycle of success from ideas / concepts

- An appetite for risk - Building a culture where people feel comfortable trying things that might fail

- Making bold bets – driving bold, decisive actions that enable the business to pivot rapidly, sometimes at very large scale

Summary cont.

- Culture for innovation
  - The importance of networked individuals for generating new ideas
  - The importance of innovation openness

- Structure for innovation
  - The structure of an organisation influences the ability to innovate
  - Some large companies find ways to have the advantages of small companies

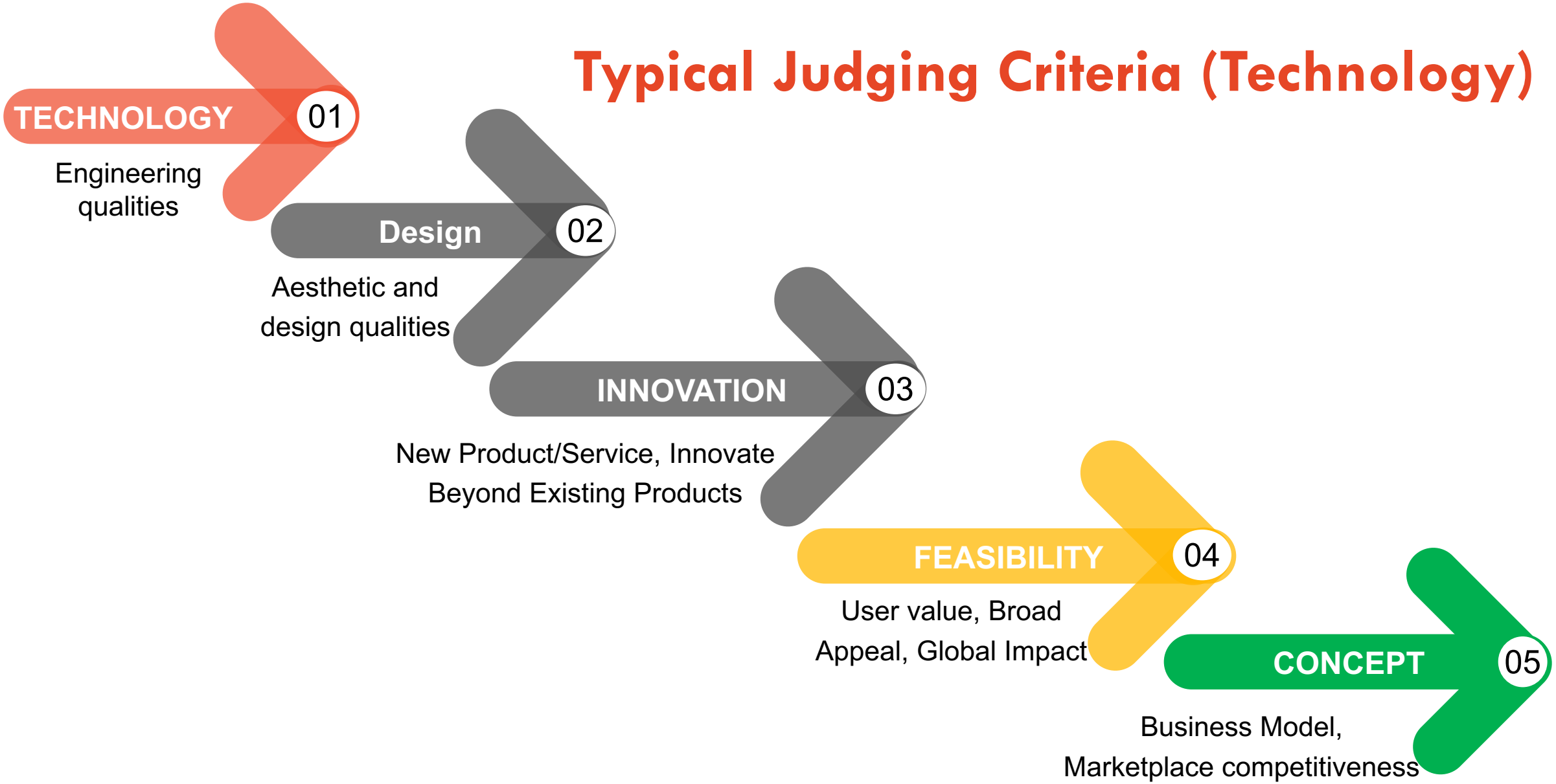
Judging IT Innovations

THE UNIVERSITY OF SYDNEY

Judging IT Innovations

- Many new innovation ideas / products / services released every day!
- Not yet evident in terms of success or how great they will/could be…
- How one can judge these innovations
  - Understand how to evaluate the values of innovations
  - **Understand our own innovations**

Typical Judging Criteria (Technology)

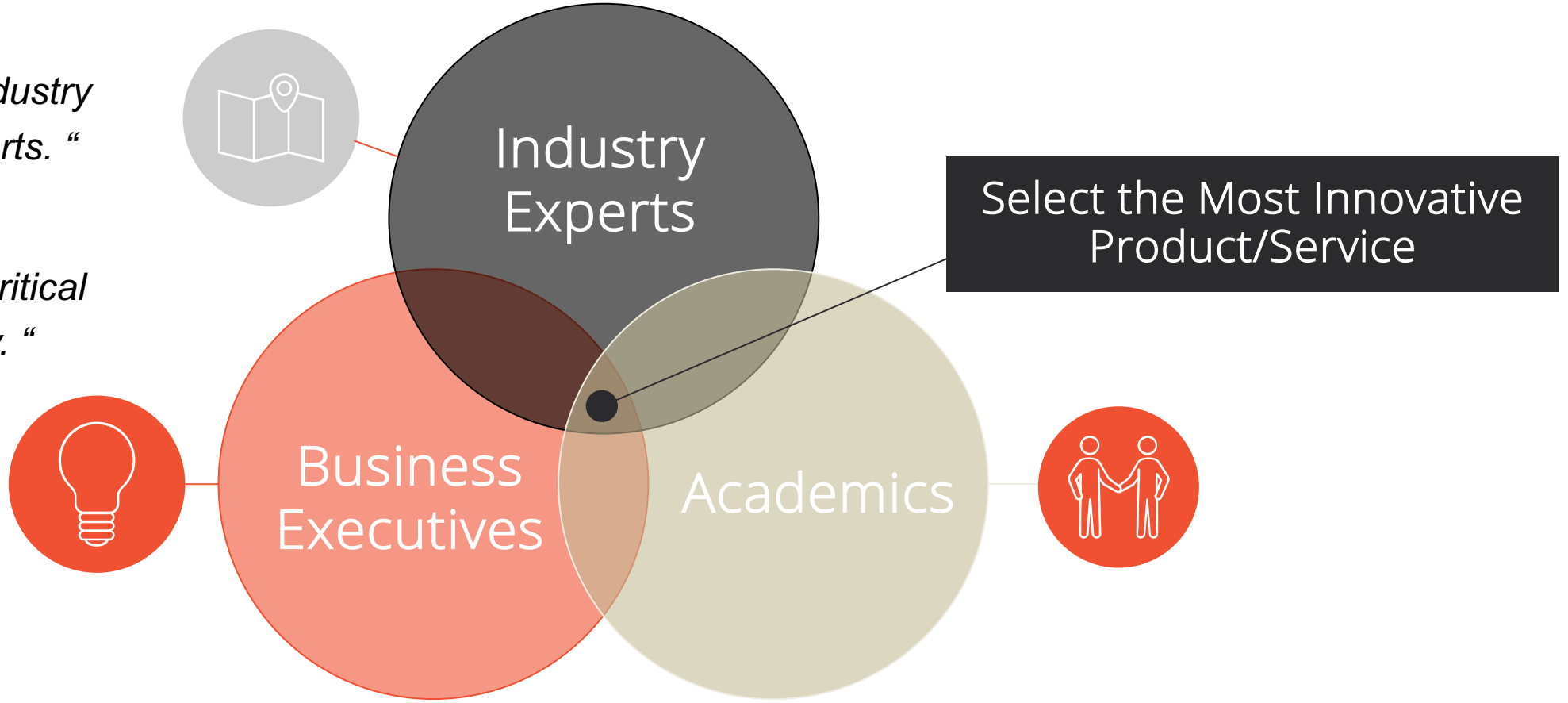


https://blogs.msdn.microsoft.com/uk_faculty_connection/2016/11/30/microsoft-imagine-cup-2017-starter-pack-get-your-teams-ready/

Judging Panel

“ Diverse pool of industry and academic experts. “

“ Judge training is critical to ensure uniformity. “



http://www.ces.tech/Events-Programs/Innovation-Awards/Meet-the-Judges
http://bigideas.berkeley.edu/toolkit-judging/
http://www.edisonawards.com/criteria.php

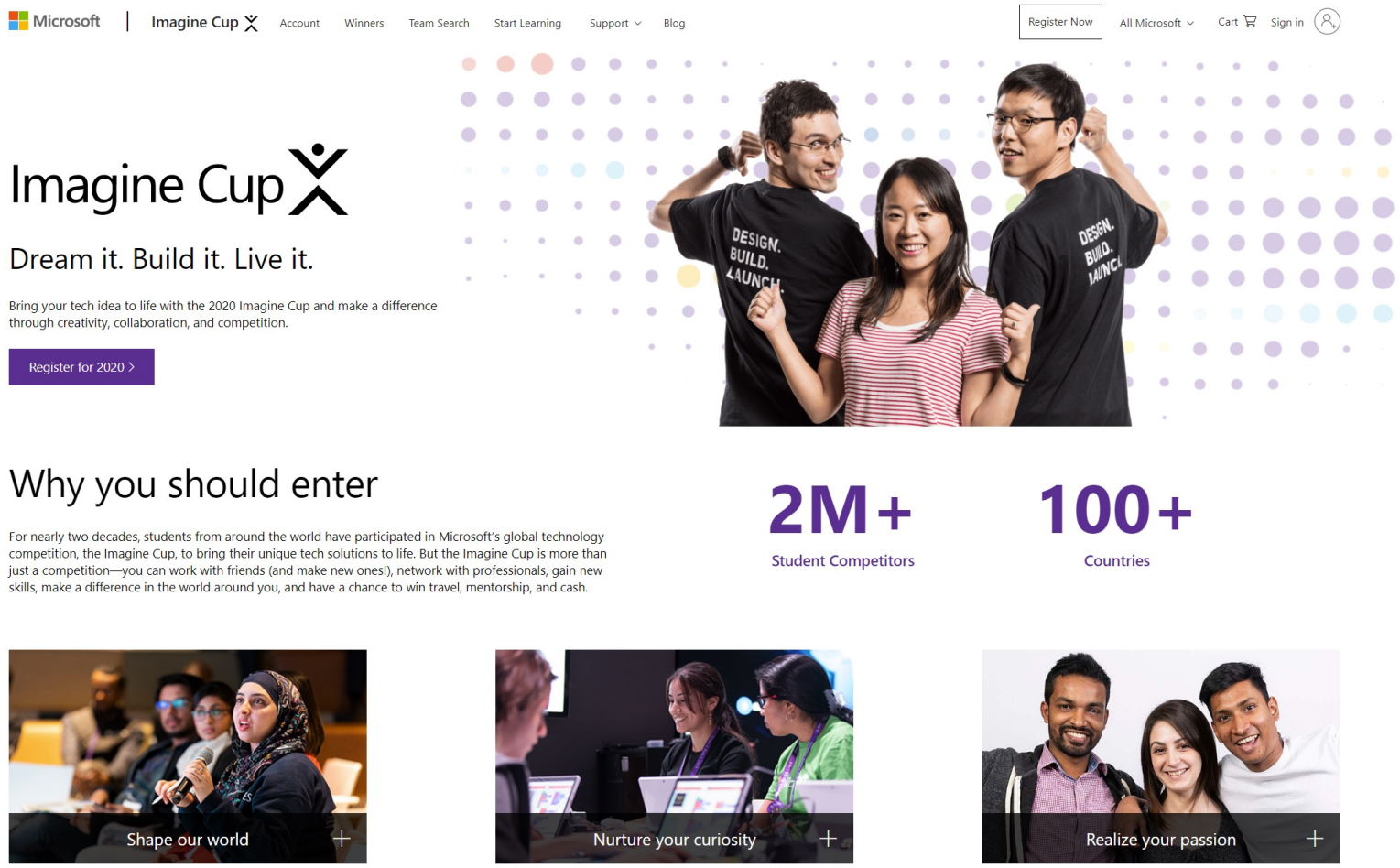
Examples: Berkeley's Big Ideas

- Two stage judging criteria:
  - Pre-proposal
    - Innovation and creativity
    - Social issue
    - others
  - Full Proposals
    - Project viability
    - Research and market familiarity
    - Social issue
    - others

Judging Item	Pre-proposal Weight	Full Proposal Weight
Innovative and creative idea	45%	5%
Addresses a pressing social issue	25%	15%
Realistic one-year budget	10%	10%
Project viability	10%	35%
Professional quality of proposal	10%	5%
Research and/or market familiarity	0%	20%
Impact evaluation plan	0%	10%

http://bigideas.berkeley.edu/toolkit-judging/

Microsoft Imagine Cup



https://imaginecup.microsoft.com/en-us/Events?id=0

Imagine Cup Judging Criteria

Criteria	Description	Weighting
Technology	• Does the project make effective and appropriate use of the major features of its chosen platform(s)? Were there significant platform features or other platforms the project could have benefitted from but failed to utilize? (20 points) • Does the project include innovations in technical design, implementation, and/or user experience? (15 points) • Does the project have a professional degree of production in terms of performance, user interface, visuals, and audio? (5 points)	40%
Viability	• Does the project create a new category of product or service? Does it clearly and meaningfully innovate beyond existing products and services? (10 points) • Does the project have a clear target market, address a clear need, problem, or opportunity? Is the solution clearly explained? (10 points) • Does the team have a credible plan with a reasonable chance of success for getting their project to market? For their business model, are any required partnerships or other factors to be considered? (10 points) • Does the team conduct any idea validation activities, leverage external reviews for their project (customer surveys, focus groups, beta-testers, subject-matter experts, or potential investors)? Are the review participants representative of their intended user base? (10 points)	40%
Inclusion	• Does the team address the needs of all users with regards to gender, ethnicity, disability segment, or other diverse characteristics to make their project inclusive and accessible? (15 points) • Has the team reviewed the features, presentation, and language used for their product to be as inclusive and accessible as possible? (5 points)	20%

Imagine Cup Judging Criteria

- Judging Criteria can be designed to suit the need of the ‘competition’
  - Encourage the use of MS technologies
  - Think blue sky – young students are best at making big claims and also in achieving them
  - Maximise student engagement – this is their core aim

CES - Consumer Electronic Show

- CES innovation award is the world's gathering place for all consumer technologies. It has served as the proving ground for innovators and breakthrough technologies.
- The annual CES Innovation Awards program celebrates outstanding product design and engineering in brand-new consumer technology products.
- Each product category has a three-member judging team composed of an independent industrial designer, an independent engineer and a member of the trade press.
- Best of Innovation awards honoree are invited to the CES exhibition, take home the innovation awards trophy and are entitled to display the CES Innovation awards logo on the product packaging & marketing materials.

https://www.ces.tech/

CES 2024 Innovation Awards

The CES Innovation Awards is an annual competition honoring outstanding design and engineering in consumer technology products. View more information about the program.

2024 | 2023 | 2022

https://www.ces.tech/innovation-awards/honorees.aspx

CES Judging Criteria

- **Engineering and functionality**
- **Aesthetic and design**
- **What makes the product unique and innovative**
- **Human Security for All**: Products in this category will be further evaluated on whether the technology helps people tackle the world's most pressing problems in one of eight subcategories including Community, Economic, Environmental, Food, Health, Mobility, Personal or Political as defined in the application..

Summary

- It is important to know the judging criteria in order to judge IT Innovation
- Although judgment is subjective, the criteria can be used to make a fair and comparative assessments
- The judgement criteria is dependent on the user / product category / event
- The judging panel should comprise of Industry Experts; Business Executives; and Academics, each having complimentary expertise and knowledge

Next weeks

Review and preparation

THE UNIVERSITY OF SYDNEY