TSSG

Disruptive Innovation

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Waterford Institute *of* Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

Research & Innovation at

TSSG

R& R Funding (1996 – 2016) – 86Million(EU, SFI, EI etc)

Leading SFI funded SRC Centre working with IBM, Cisco and Alcatel-Lucent.

We create economic impact by translating our knowledge base and innovation into leading edge products and services by continuing our engagement with Industry in collaborative R&D, knowledge generation and transfer.

Working extensively with multinationals such as IBM and Cisco through its world class research programmes, such as the Science Foundation Ireland (SFI) Connect Centre.

131 including Senior Managers, Principle investigators, PhD Students, Research Fellows, Postdoctoral Research and

One of Ireland's leaders in the EU collaborative R&D programmes (FP7/Horizon 2020) and has worked with over 450 companies across 35 countries.

Industry Engagement: 210 direct industry projects completed in Ireland over the past 5 years

Created 14 Spin Outs, including leading international start-ups such as FeedHenry Ltd, a groundbreaking mobile cloud platform company (acquired by RedHat NYSE: RHT in 2014 for €65 million)

TSSG Research Areas

TSSG

Research Unit

1 **Networks & Cloud**

2 **Mobile**

3 **Communications Services**

4 **International Professional Services**

5 **Virtual & Augmented Reality**

6 **Data Mining**

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1 **Networks & Cloud**
Network Visualisation, Software Defined, Networking (SDN) & Software Platform and Infrasturcture as a Service

2 **Mobile**
Mobile Cloud Platforms (PaaS) and advanced mobile applications

3 **Communications Services**
Communications Services Platforms (Paas) and applications e.g. Web RIC

4 **International Professional Services**
Engineering the next generation of software technologies in areas such as IoT.
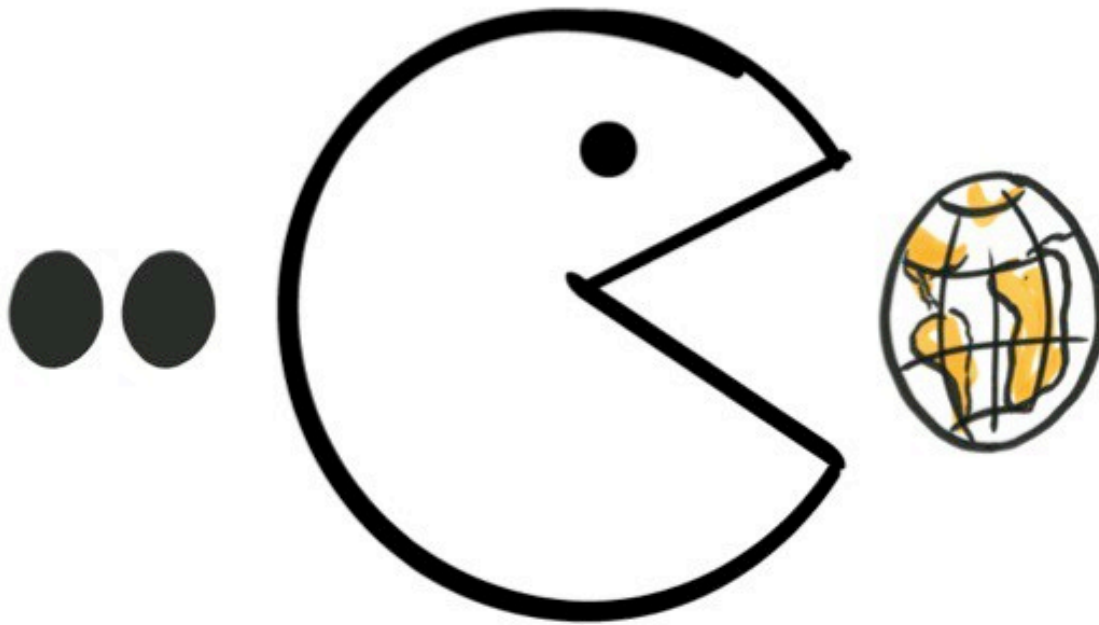
5 **Virtual and Augmented Reality**
VR / AR Communications, 3D User Interfaces Educations, Simulation and enabling hardware

6 **Data Mining**
Predictive Analytics, Social Computing and Data Security.

Software is eating up the world*

How Software is Eating the world?

"Software is disrupting across all the Industries"

Entertainment Industry

$47 B Market Value

Transportation Industry

$40 B Market Value

IoT Industry
(A Google Company)

$3.2 B Market Value

Uber, the world's largest taxi company owns no vehicles, Facebook the world's most popular media owner creates no content, Alibaba, the most valuable retailer has no inventory & Airbnb the world's largest accommodation provider owns no real estate

Travel & Hospitality Industry

$22 B Market Value

Social Media Industry

$242 B Market Value

E-Commerce Industry

$172 B Market Value

Source: angel.co as on 08/27/2015

Key Driver

Side benefits of Moore's law: cost of sensors ⇒ zero

ANDREESSEN HOROWITZ

Source: Qualcomm

New systems, not just new products

Ubiquitous connectivity and sensors enable fundamentally new approaches

Operating efficiency

Know exactly how the product is operating all the time

Product design

Knowing exactly how a product operates enables new designs

System design

Understanding everything in a system enables a new system
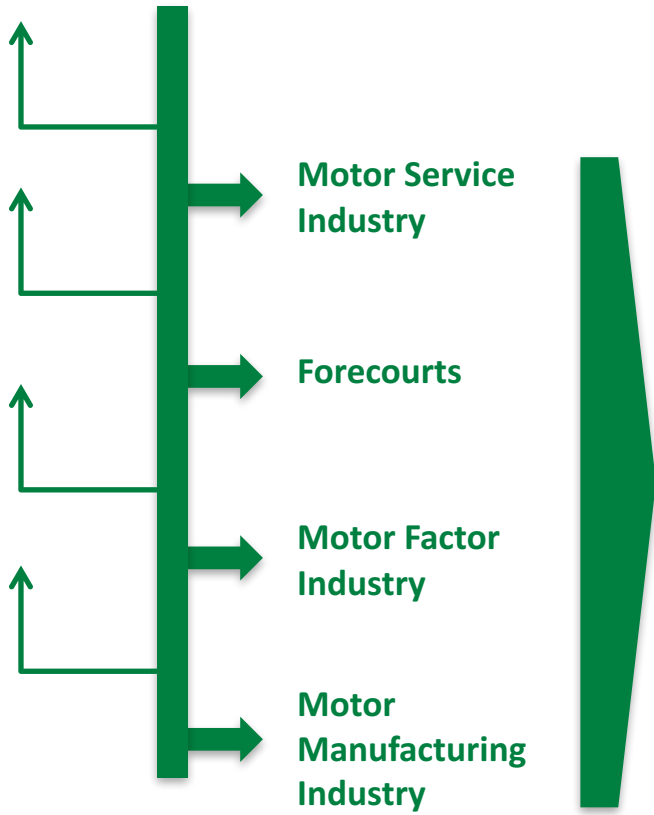
Case Study: Vehicle Telematics

What other products?

Data recorded and sent to ABC Insurance →

ABC Insurance

Information is managed in mysafedrive and reported back to partners

Motor Service Industry

Forecourts

Motor Factor Industry

Motor Manufacturing Industry

- Approved Partner
- Free Vehicle Health Check
- Schedule Servicing/Tyre Change
- Discounted Rates
- Nationwide Partner
- Marketing Support
- Brand Awareness
- Loyalty
- Branding Management
- Regular Updating and Communication.
- Games and Competitions
- Customer engagement

CUSTOMER

Case Study: Web Communications

Altocloud is a software services company that combines machine learning with real-time communications, this SaaS solution intelligently identifies the optimal online visitors and delivers tailored chat, voice, video and content so customers get the information and help they need at exactly the right moment.

altocloud
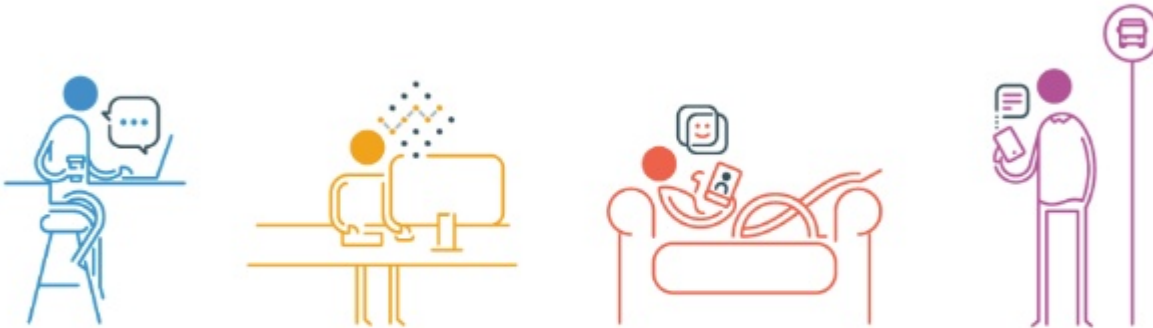
Connect with your Digital Customers

Altocloud connects your business with the right customers at the right time in their journey – improving conversions and enhancing customer experience.
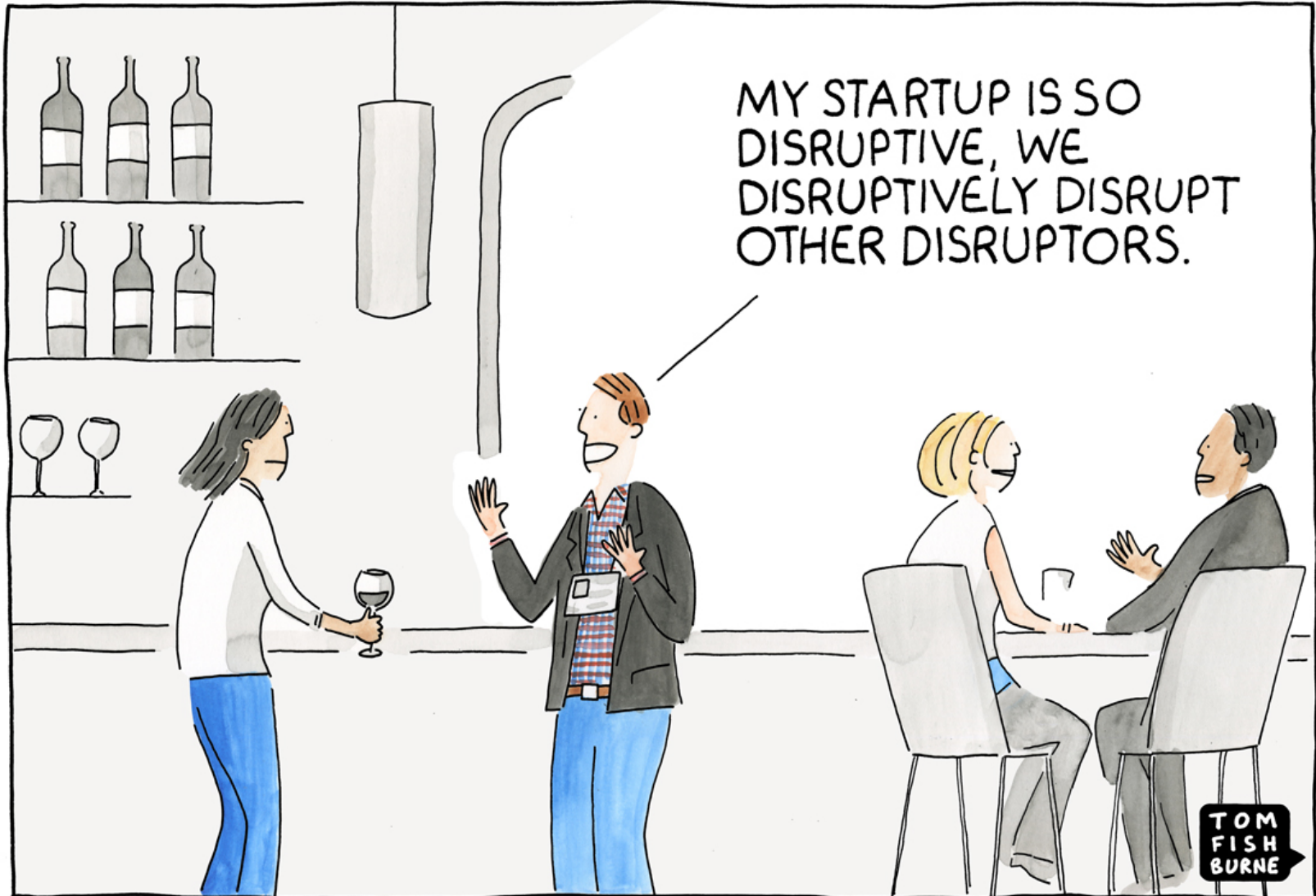
Disruption!

What is Disruptive Innovation
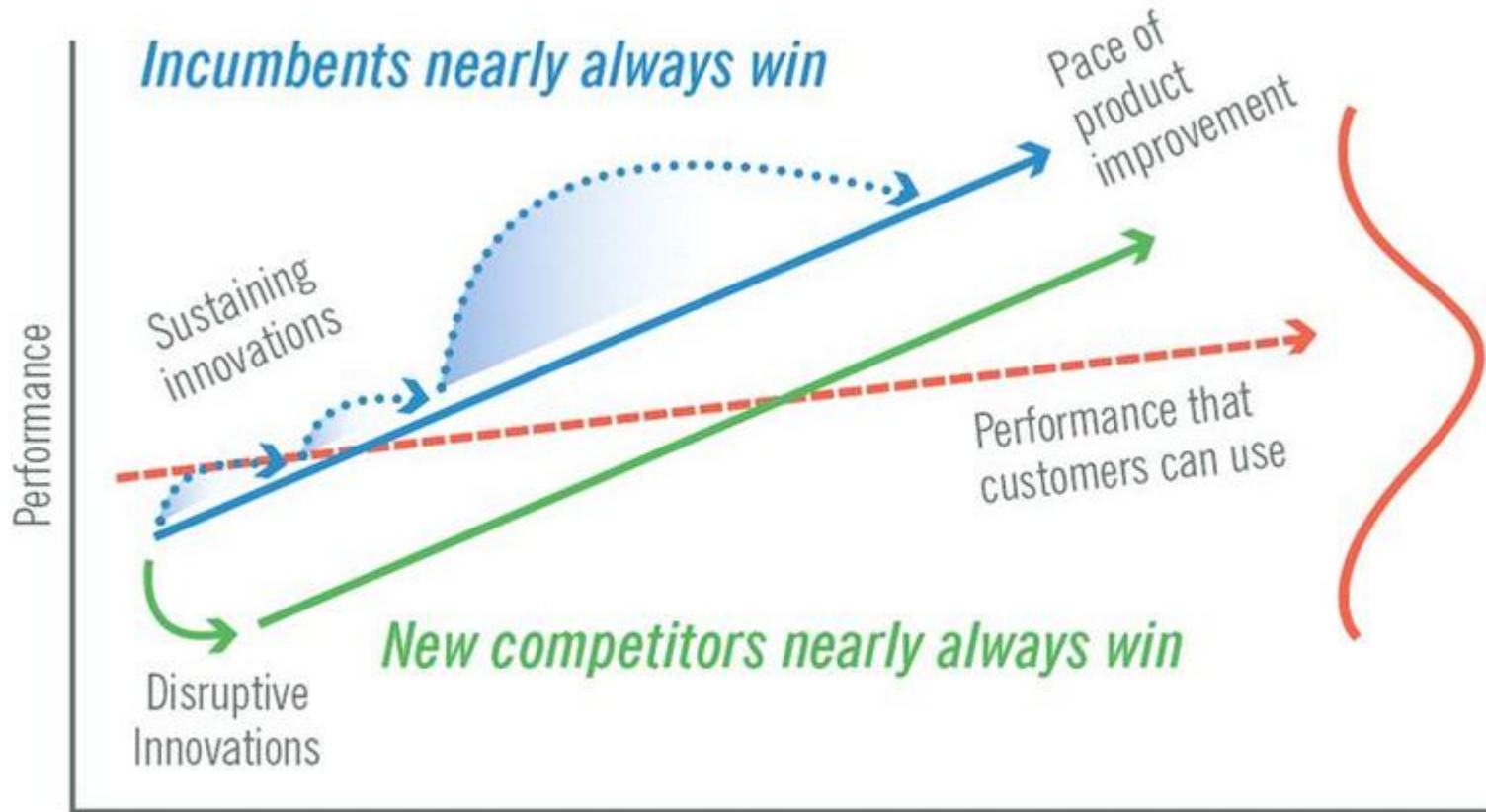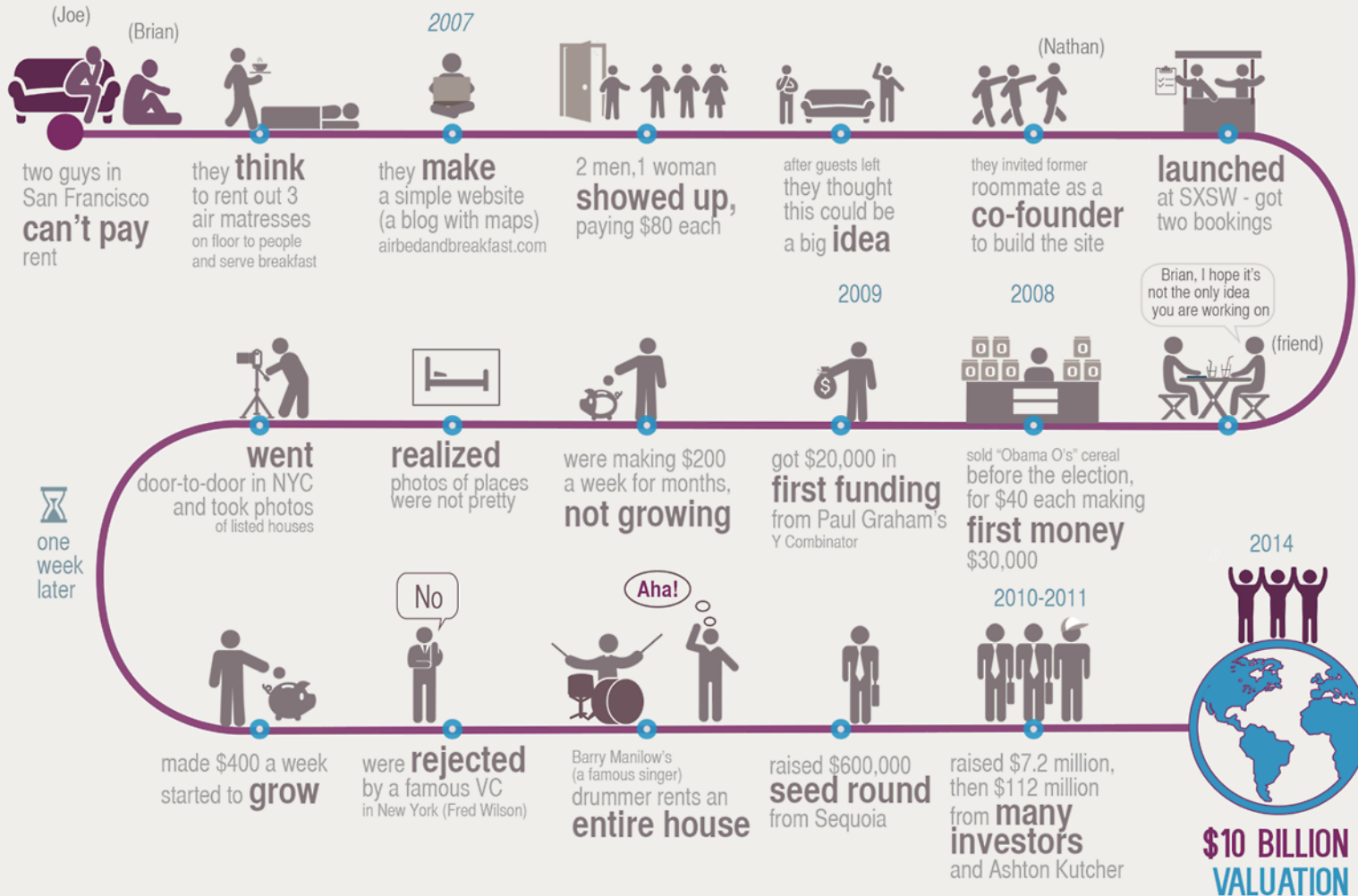

Source: Clayton Christensen, *The Innovators Solution*

The Platform Poster Child:

HOW AIRBNB STARTED

BY ANNA VITAL

Or How 3 Guys Went From Renting Air Mattresses To A 10 Billion Dollar Company

(Joe) (Brian)

2007

(Nathan)

two guys in San Francisco **can't pay** rent

they **think** to rent out 3 air matresses on floor to people and serve breakfast

they **make** a simple website (a blog with maps) airbedandbreakfast.com

2 men,1 woman **showed up,** paying $80 each

after guests left they thought this could be a big **idea**

they invited former roommate as a **co-founder** to build the site

launched at SXSW - got two bookings

Brian, I hope it's not the only idea you are working on

(friend)

2009

2008

went door-to-door in NYC and took photos of listed houses

realized photos of places were not pretty

were making $200 a week for months, **not growing**

got $20,000 in **first funding** from Paul Graham's Y Combinator

sold "Obama O's" cereal before the election, for $40 each making **first money** $30,000

one week later

2014

No

Aha!

2010-2011

made $400 a week started to **grow**

were **rejected** by a famous VC in New York (Fred Wilson)

Barry Manilow's (a famous singer) drummer rents an **entire house**

raised $600,000 **seed round** from Sequoia

raised $7.2 million, then $112 million from **many investors** and Ashton Kutcher

$10 BILLION VALUATION

FF Funders and Founders based on reports in *Telegraph, WSJ,* and *The Atlantic*

Reminder

- 4 key Assumptions that Govern Business
  - How is value created?
  - How is value consumed?
  - How is quality controlled for the value creation?
 - How does value creation scale?

AirBnB: Value Created

- Problem:
  - Rent and hotel accommodation costs were too high for a niche demographic.
- Opportunity:
  - People had spare room and a desire to use it generate additional income.

AirBnB: Value Consumed

- Challenge:
  - It wasn't common for many people to stay with a stranger in a new city. It really was a niche market!

- Non-Threat:
  - This common perception is why the hospitality industry view AirBnB is a non-threat.

- Opportunity:
  - Behavioural change – drive a 'Sharing Economy' ethos. Make it socially acceptable.
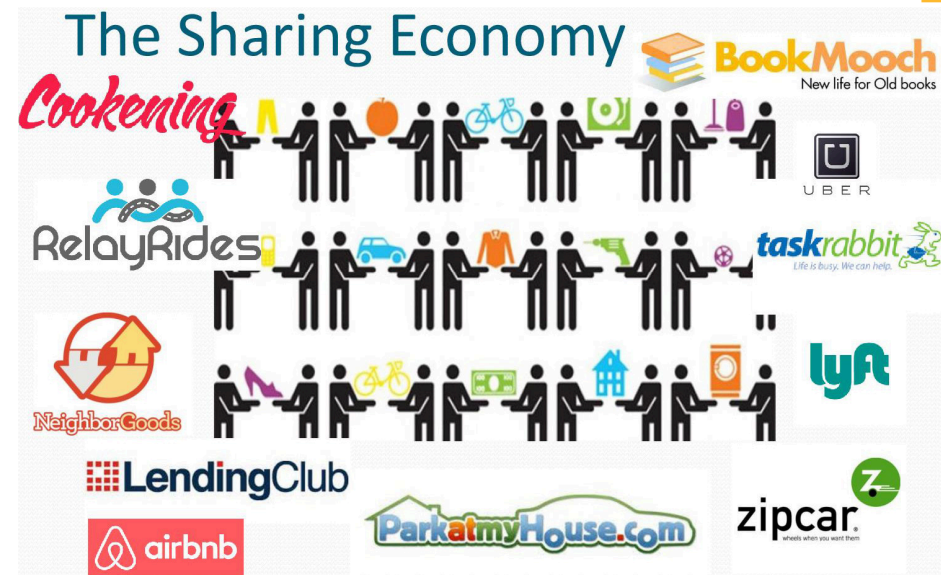
AirBnB: Quality Control

- Challenge:
  - Protect the business against bad hosts and bad guests.
- Solution:
  - Build a mutual reputation management system for the hosts and guests. Incentivise better reputation through rankings.
 - Develop hosting guides and novel marketing techniques.

AirBnB: Scale

- Challenge:
  - Consume beachhead market and then rise up the chain.
  - Internationalisation and Regulation
- Solution:
  - Prove product with target market.
  - Internationalise with product targeting low end of market. (Still not a threat!)
  - Rise up the value chain with new products.

AirBnB – a Platform Play

- The Innovation leap behind AirBnB wasn't a technology break though.
  - The technology is quiet mundane (with all due respect!).
  - The Innovation leap was firmly centred on how the product was consumed.
- In other sectors:
  - Traditional taxi offices being replaced by Uber/Lyft/Hailo etc.
    - Mobile technologies a key enabler here – however the platforms didn't require major technological breakthroughs.
  - Video rental stores replaced by Netflix
    - Netflix started with a niche low end market (mail order films) and through advances in broadband enabled them to target on-demand film customers.
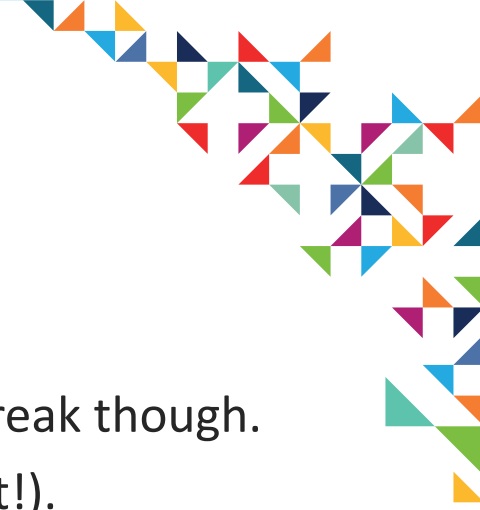
Future Sectors.

- Key Technology Enablers in the next 5 years:
  - Mobile technology and connectivity (5G/6G).
  - Artificial Intelligence – outsourcing of decision making capabilities.
  - Augmented Reality and Virtual Reality – remove the need to travel! Bring the lecture theatre to the student; the boardroom to the exec; face to face sales pitches done over AR.
- Sectors ripe for disruption:
  - Financial – insurance (health, life, motor…); investments.
  - Medical – virtual doctors.
  - Education – online MOOCs moving to personalised Learning.

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