

A historical black and white photograph of a grand, ornate building with a large central archway. The building features multiple domes and intricate architectural details. In the foreground, a busy street scene is visible with many people, some on horse-drawn carriages, and others walking. The overall atmosphere is that of a bustling, early 20th-century urban environment.

# API : The “I” Stands for Innovation

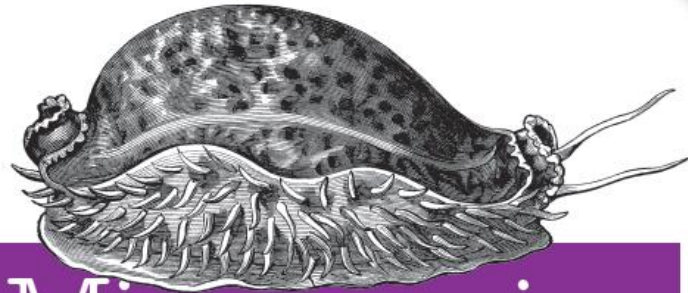
Mike Amundsen  
API Academy  
@mamund



Mike Amundsen  
@mamund

O'REILLY®

Compliments of  
**ca**  
technologies

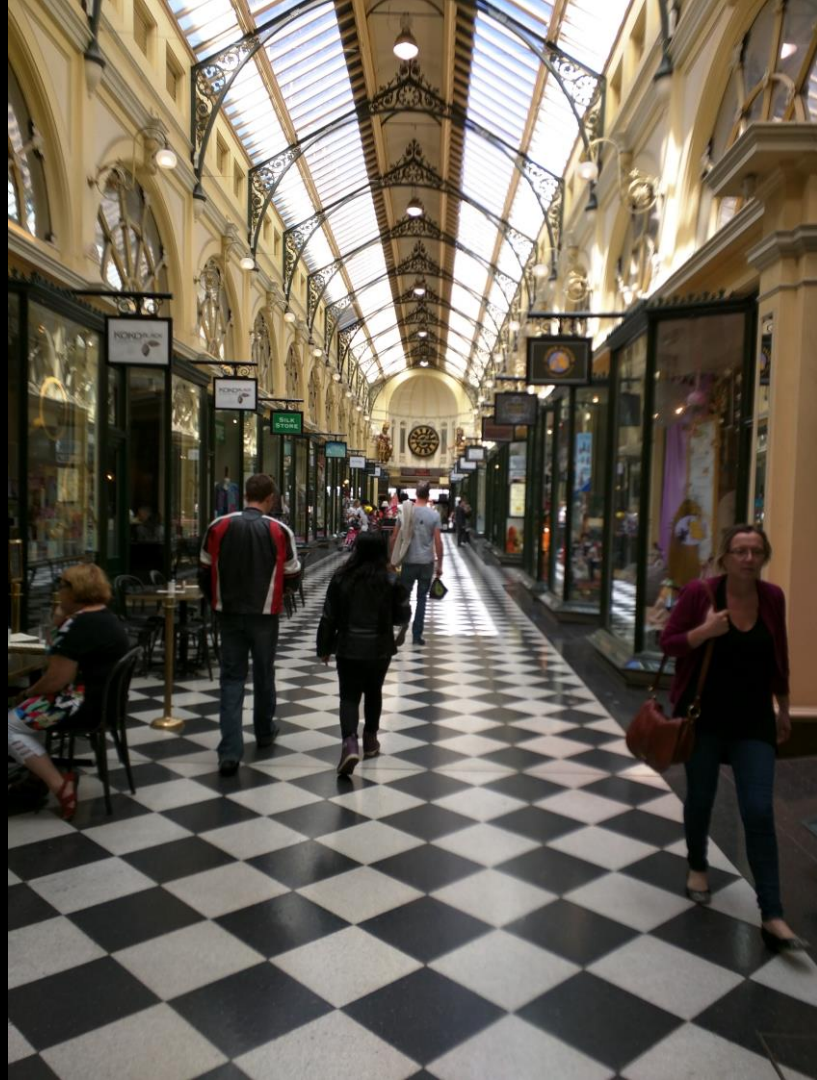


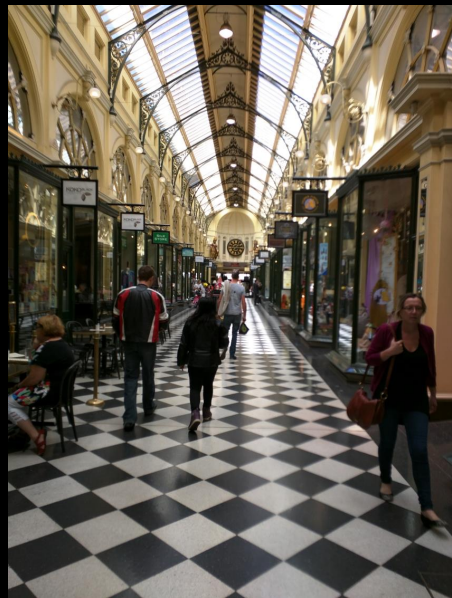
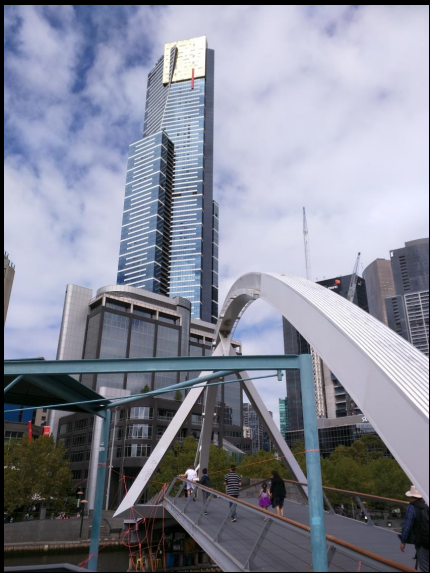
# Microservice Architecture

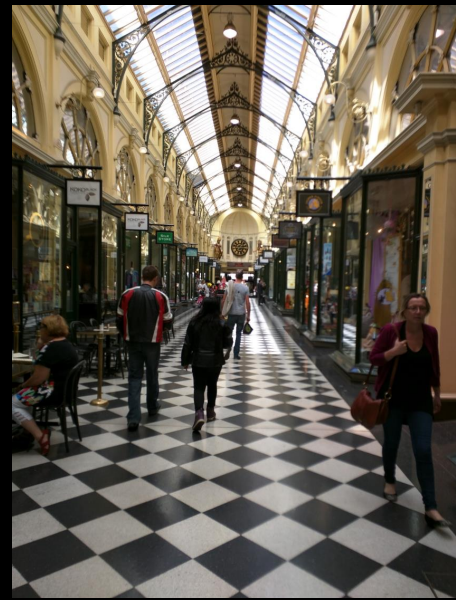
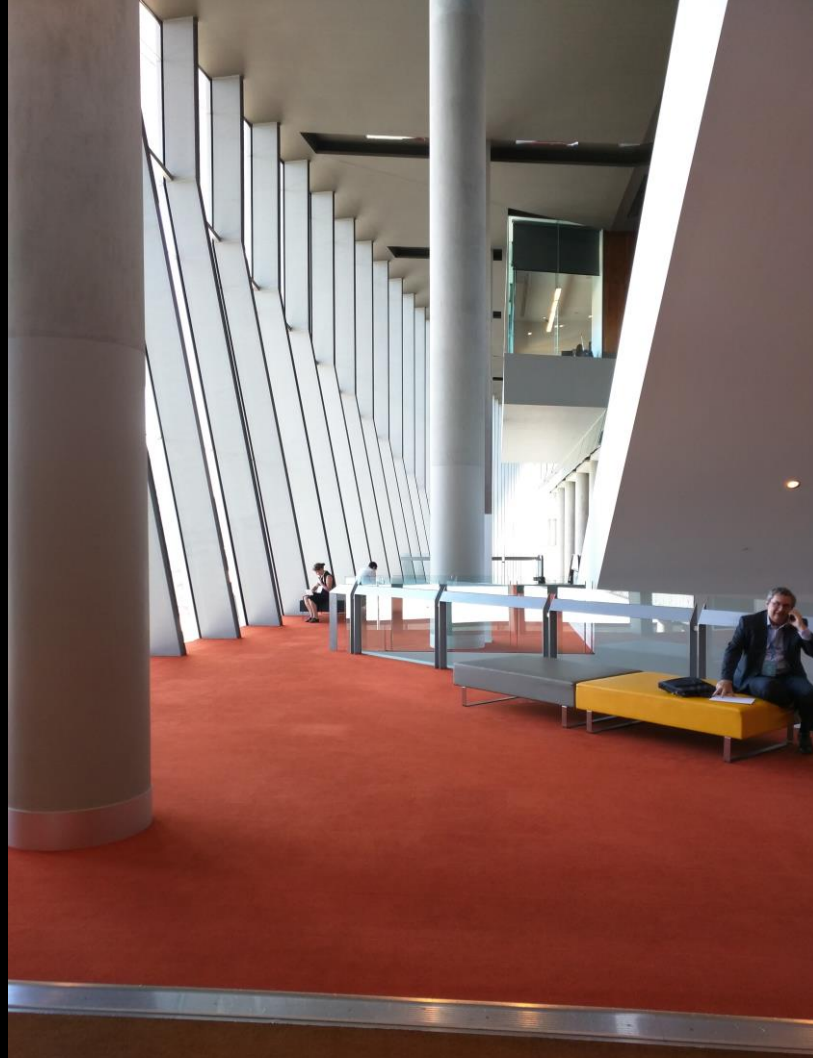
ALIGNING PRINCIPLES, PRACTICES, AND CULTURE

Mike Amundsen, Matt McLarty,  
Ronnie Mitra & Irakli Nadareishvili









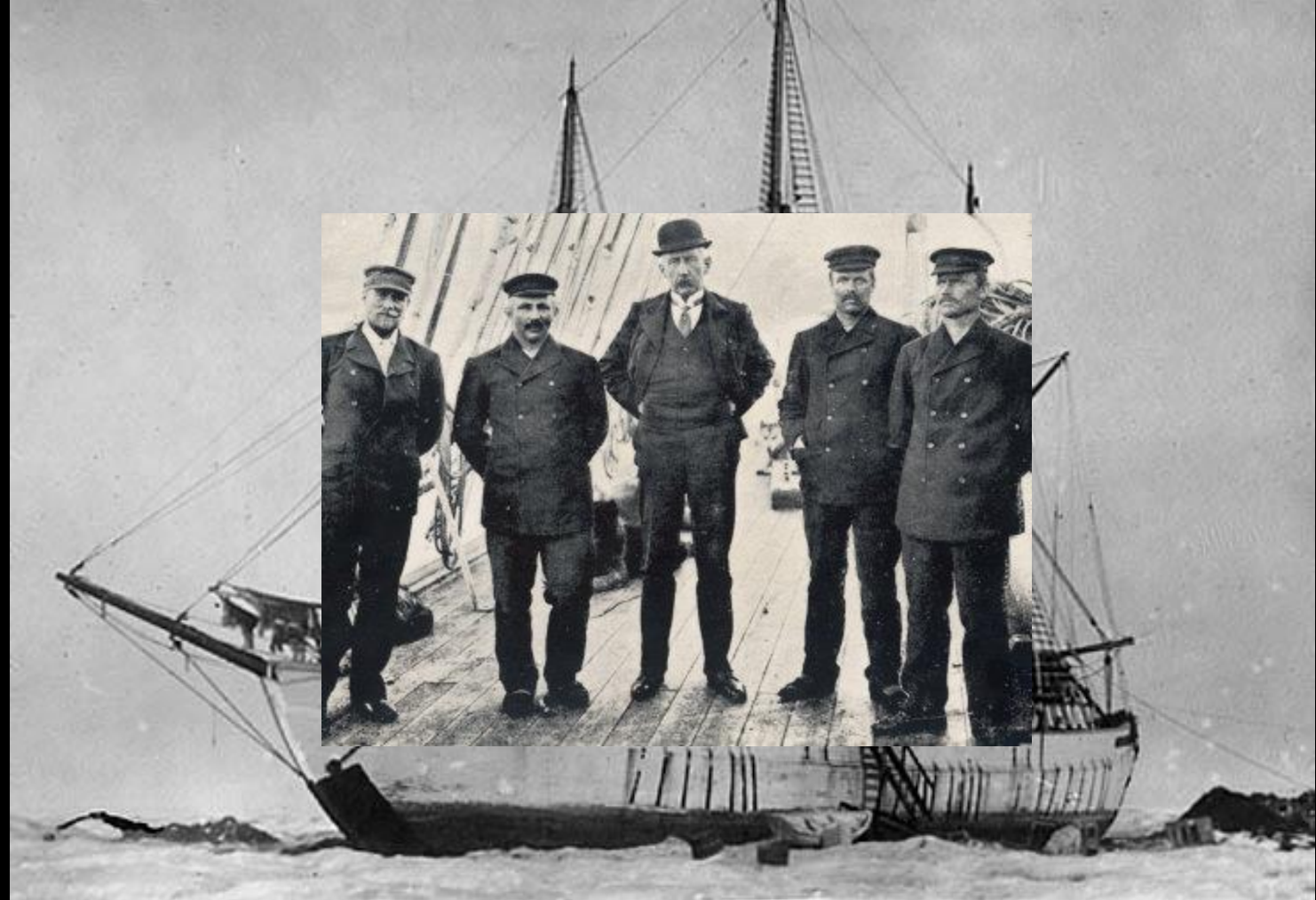


Polly Woodside, built in 1885





Polar ship Fram, built in 1893



Polar ship Fram, built in 1893







Roald Amundsen, Explorer (1872 – 1928)











# TRANSFORMING THE YARRA

Since long before European settlement, the Birrarung (Yarra) has been a place of great significance for the Kulin nation. They are the traditional owners of this area and the river was their lifeblood.

THE YARRA IN 1971

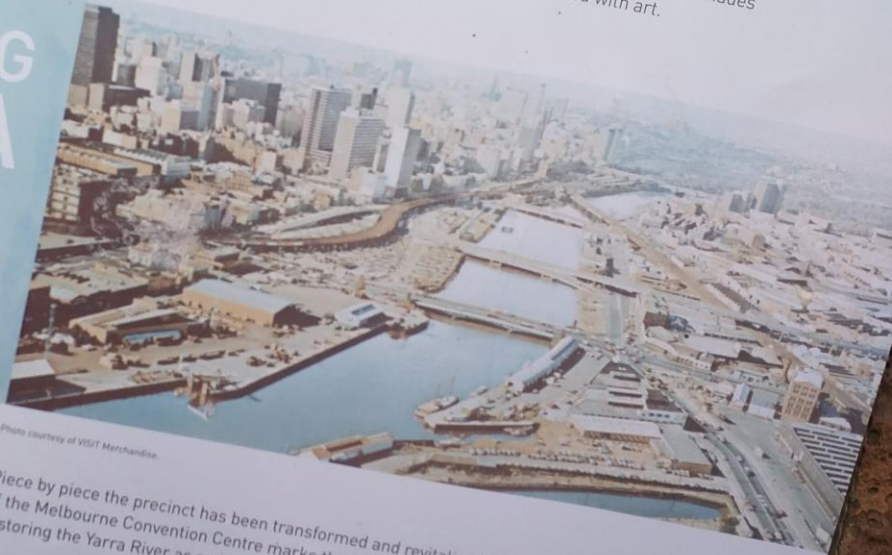


Photo courtesy of VISIT Merchandise.

Piece by piece the precinct has been transformed and revitalised. The completion of the Melbourne Convention Centre marks the achievement of the goal in restoring the Yarra River as a place of community pleasure and pride. The huge variety of activities you see today is a tribute to the vision of Evan Walker and David Yencken to make the Yarra a central focus for the city.

By the early 1980s, the business heart of Melbourne had grown up on the north bank—turning its back on the river—while the south bank was a mix of redundant factories and abandoned sites.

Professor The Honourable Evan Walker AO (Minister for Planning and Environment from 1982–1986) and Professor David Yencken AO (Secretary of the Ministry for Planning and Environment from 1982–1987) had a bold vision to restore the Yarra River as Melbourne's central focus. Their plan saw the development of Southbank and set out the strategy for landscaped promenades lined by public buildings, restaurants and open spaces filled with art.

**Innovation is everywhere**



Government  
Office for Science



# INNOVATION: MANAGING RISK, NOT AVOIDING IT

Annual Report of the Government Chief Scientific Adviser 2014

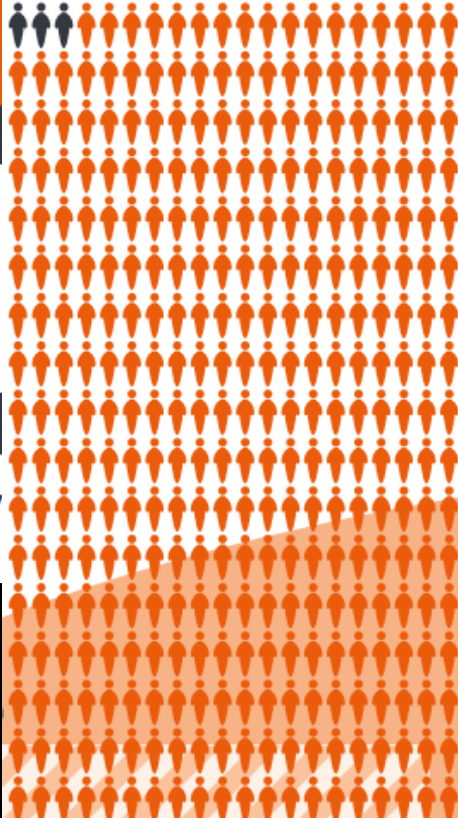




**The African continent** has twice as many phones as the United States.



**Twenty years ago**, there were fewer than 3 million people with internet access; now there are nearly 2.5 billion.





**The African continent** has twice as many phones as the United States.



**Twenty years ago**, there were fewer than 3 million people with internet access; now there are nearly 2.5 billion.



**Technological improvements** will increase productivity by as much as 25% and will generate a predicted \$3.7 to \$10.8 trillion for the world economy by 2025.





Australian Government



NATIONAL  
INNOVATION &  
SCIENCE AGENDA

# WELCOME TO THE IDEAS BOOM



ABOUT



START-UPS AND  
ENTREPRENEURS



BUSINESS



YOUNG  
AUSTRALIANS



RESEARCHERS AND  
UNIVERSITIES



INVESTORS

## THERE'S NEVER BEEN A MORE EXCITING TIME TO BE AUSTRALIAN.

The world and its economy are changing.

Australia needs to focus on innovation: turning ideas into successful products.

That's why the Australian Government is helping innovators get funding, assisting research and business to work together, and ensuring our kids learn the skills of the future.

The **National Innovation and Science Agenda** will drive a new boom to generate jobs and prosperity for all.

*'Welcome to the most exciting time in Australia's history.  
Be part of it now!'*

<http://innovation.gov.au>



*Joseph Schumpeter  
identified innovation as  
the critical dimension of  
economic change.*



Joseph Schumpeter, Economist and Political Scientist (1883-1950)

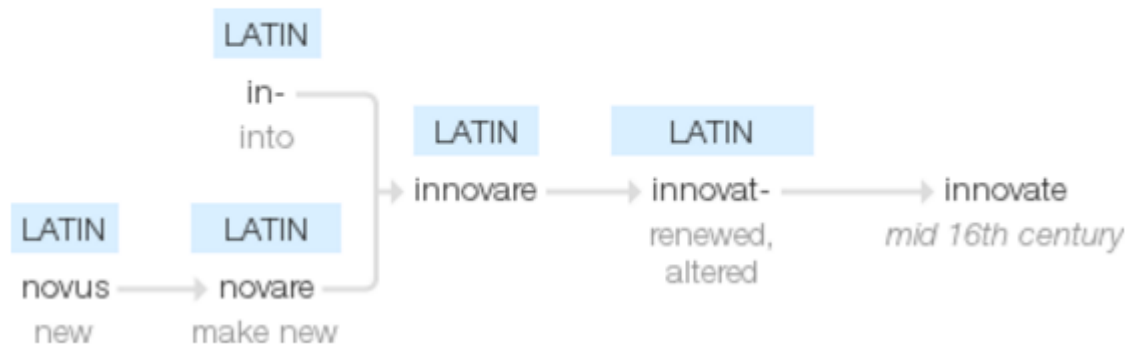
*Joseph Schumpeter  
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economic change.*



Joseph Schumpeter, Economist and Political Scientist (1883-1950)

# innovate

## Origin



***“Innovator!”***



Henry Burton, English Theologian, 1577-1648



Canterbury Cathedral, Church of England



King Charles the I of England (1600-1649 )

The House of Prayer Mat. 21.



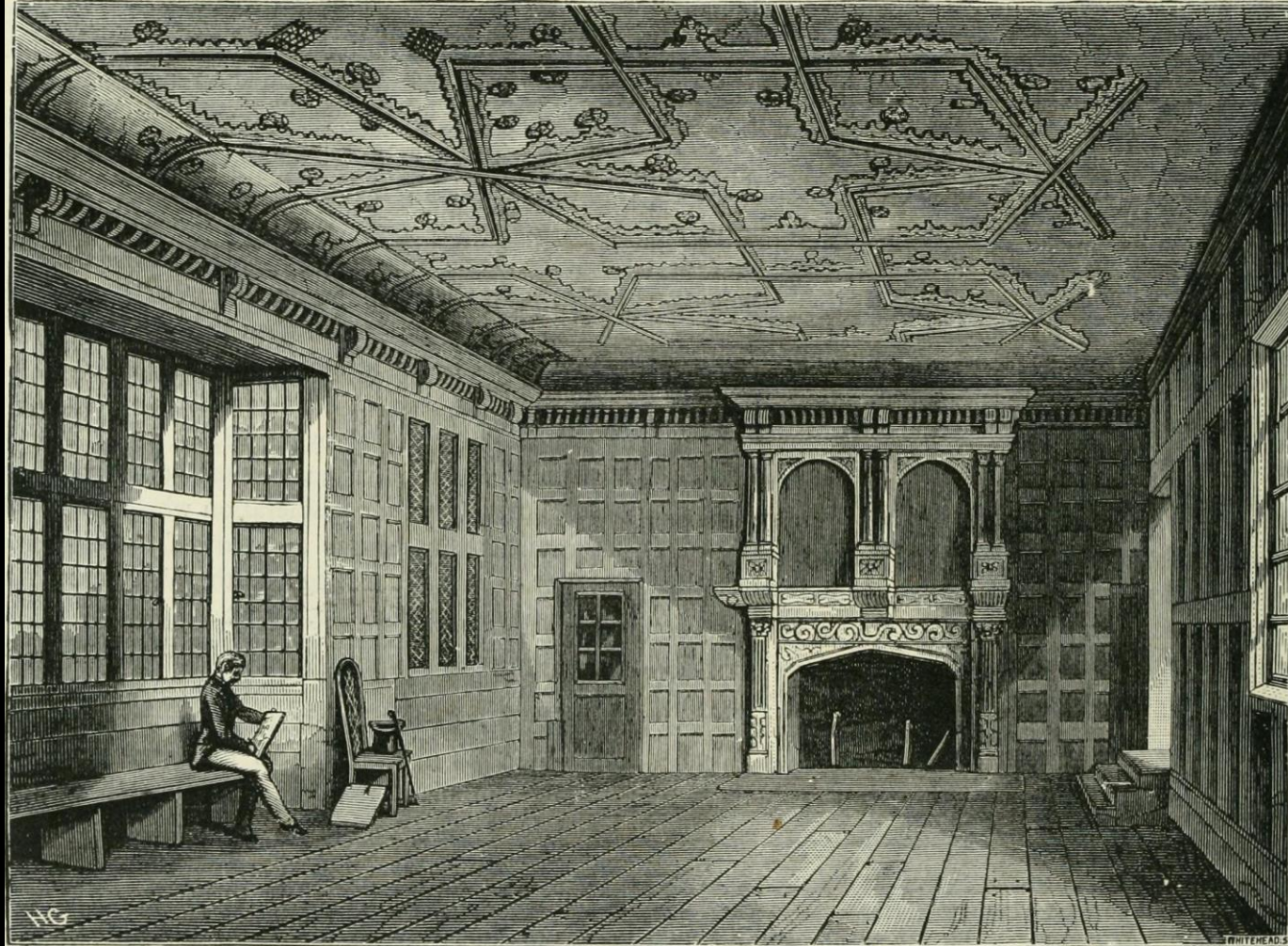
My house shall be called the house of Prayer.  
Let the Priests & Ministers of y<sup>e</sup> Lord weep  
between y<sup>e</sup> Porch and the Altar, and let them  
say— Spare thy People O Lord— Joel 2.17



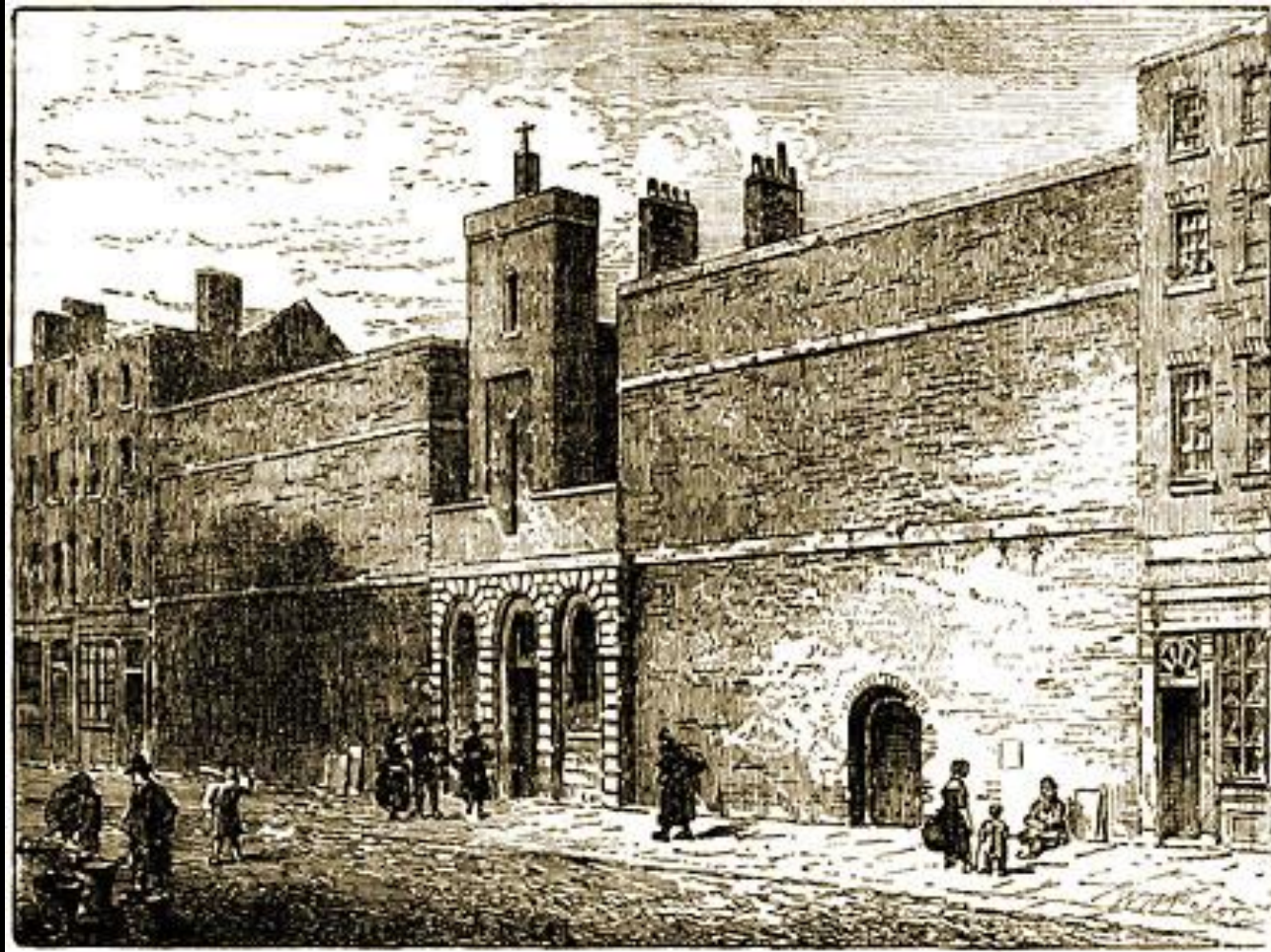


**Innovators!**





Star Chamber court as Westminster



Fleet Prison



***Innovator!***

*In 1637, Burton was convicted of sedition, imprisoned, and had his ears cut off.*



*In 1649, King Charles  
was convicted of  
treason against  
England and  
beheaded.*



***Ouch!***

**‘Meddle Not With Them That Are Given to Change’:  
Innovation as Evil**

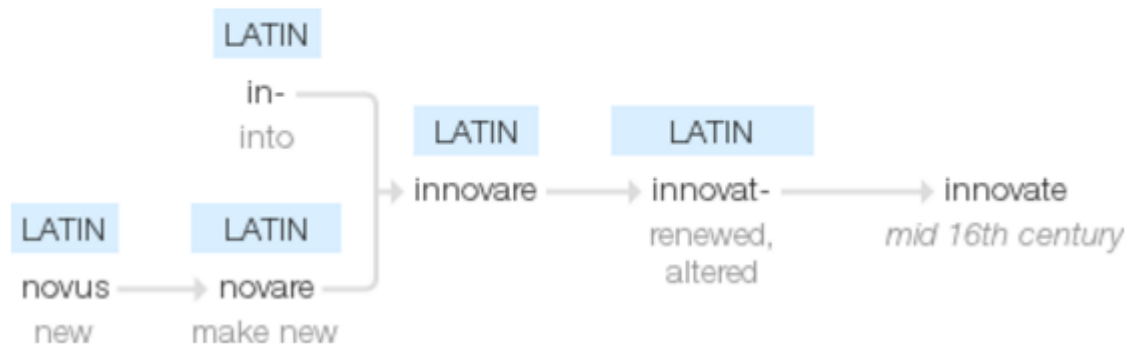
Benoît Godin  
385 rue Sherbrooke Est  
Montreal, Quebec  
Canada H2X 1E3  
[benoit.godin@ucs.inrs.ca](mailto:benoit.godin@ucs.inrs.ca)




***“Innovator?”***

# innovate

## Origin



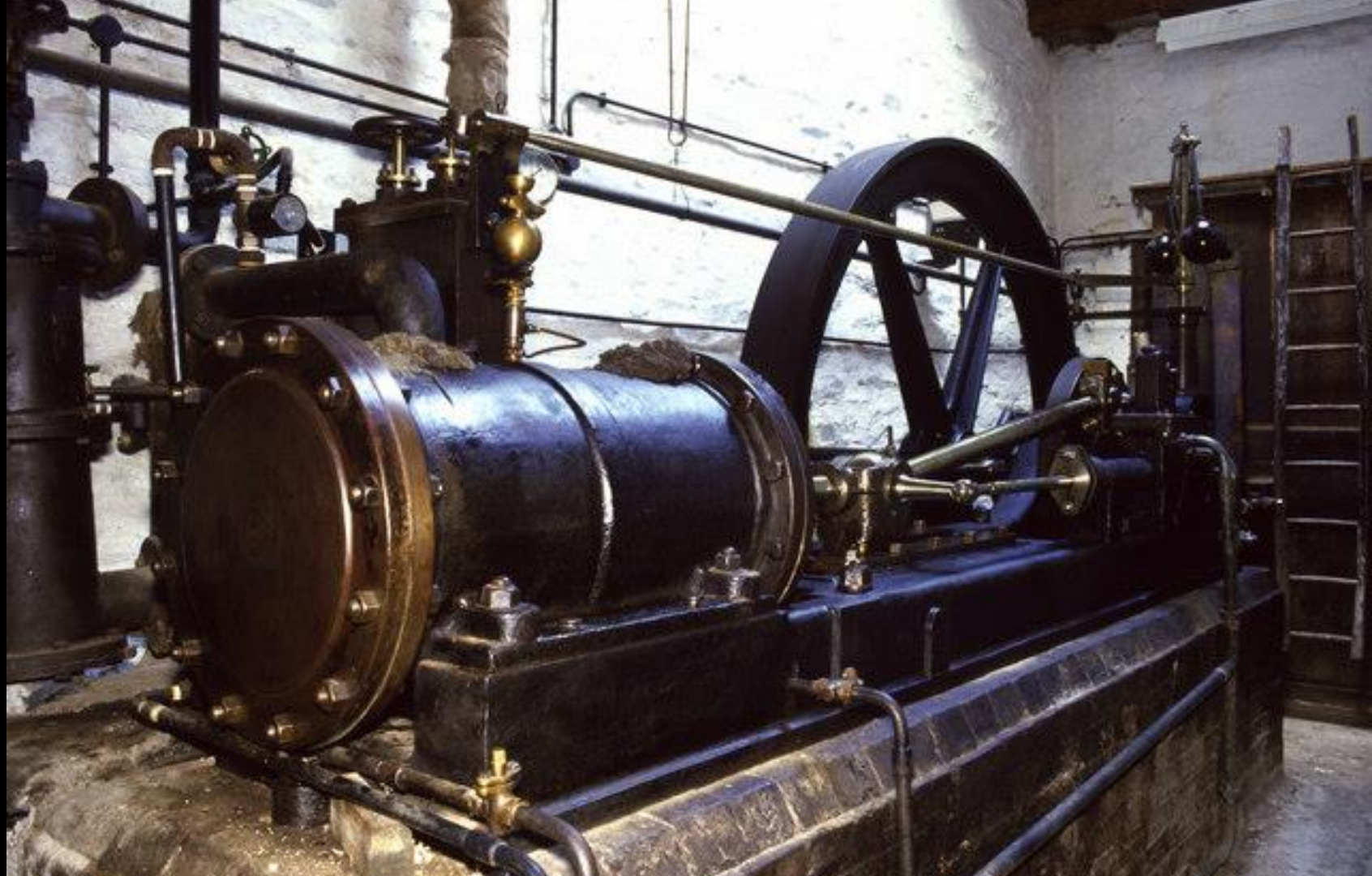
in·no·vate

*/ˈɪnəˌvɑːt/* 

*verb*

make changes in something established, especially by introducing new methods, ideas, or products.

***What does innovation look like?***







# Your Innovation Team Shouldn't Run Like a Well-Oiled Machine

by Ron Ashkenas and Markus Spiegel

OCTOBER 28, 2015



SAVE



SHARE



COMMENT



TEXT SIZE



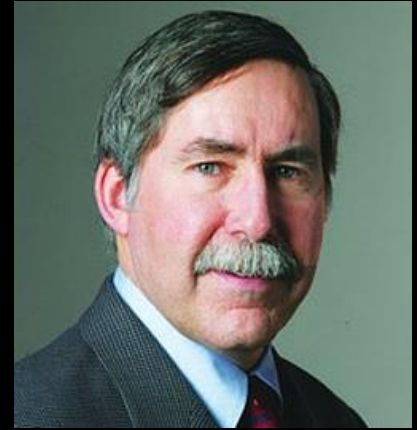
PRINT





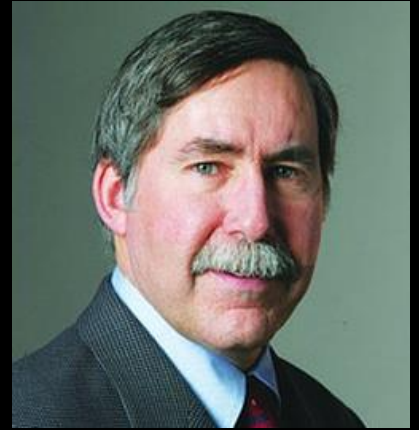
*“Managers of the most effective teams encouraged adaptive ant colony behavior, while those of less effective innovation teams expected members to abide by rigid plans and rules.”*

*Ashkenas & Spiegel,  
HBR, October 2015*



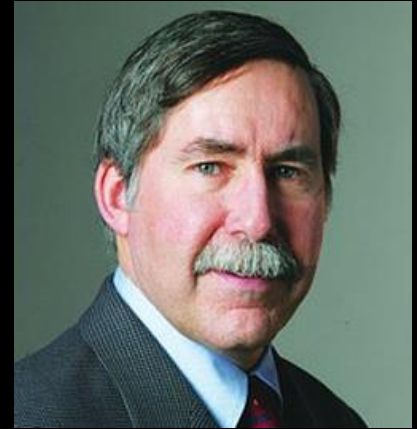
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*Ashkenas & Spiegel,  
HBR, October 2015*



# APPLICATION FORM

## PERSONAL INFORMATION

Last Name

Location	Years Attended	Degree Received	Major

Date(s) Employed to \_\_\_\_\_ Zip: \_\_\_\_\_

Efficiency, special skills or other items that may  
confirm the above mentioned position.



***Ants, not machines.***

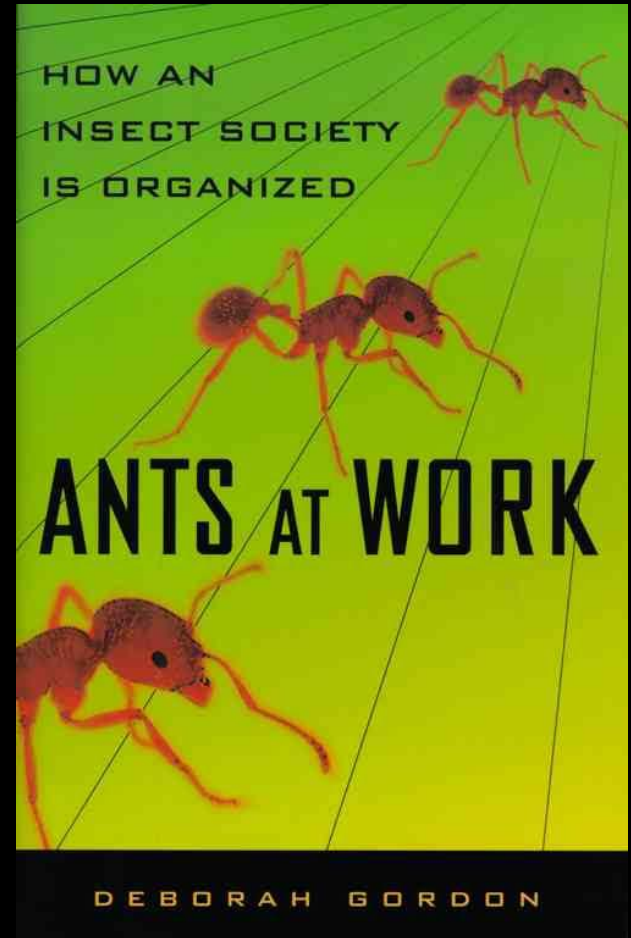
*“The basic mystery about ant colonies is that there is no management.”*

*Deborah Gordon,  
Stanford Biologist*



*“No insect issues commands to another or instructs it to do things in a certain way.”*

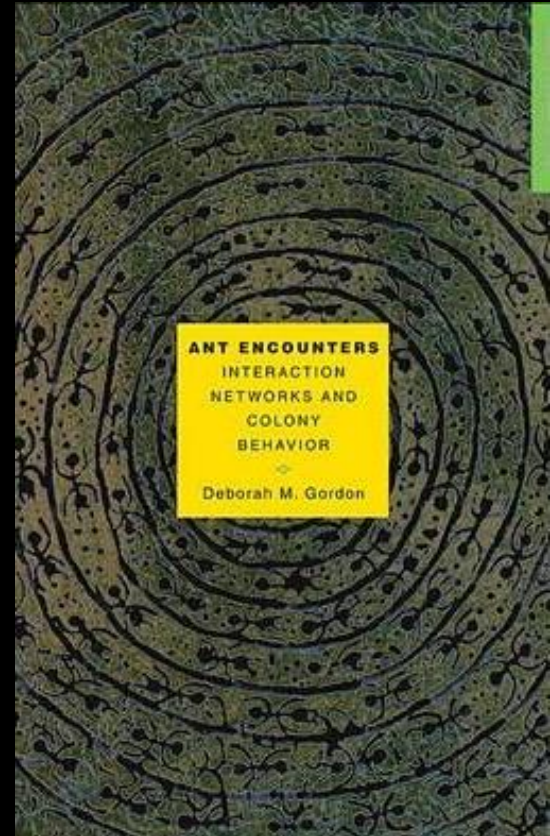
*Deborah Gordon  
Ants at Work, 1999*





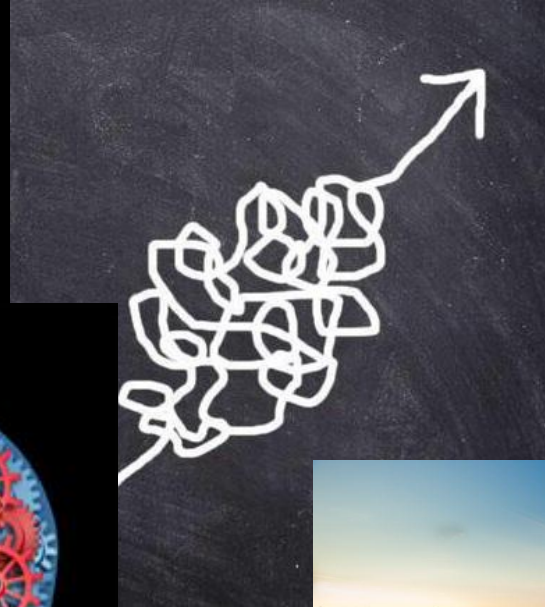
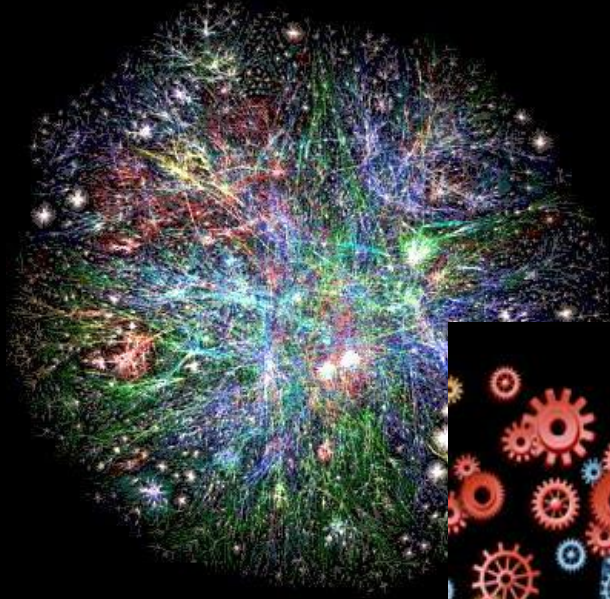
*“A functioning organization  
with no one in charge is so  
unlike the way humans  
operate as to be virtually  
inconceivable.”*

*Deborah Gordon  
Ant Encounters, 2010*

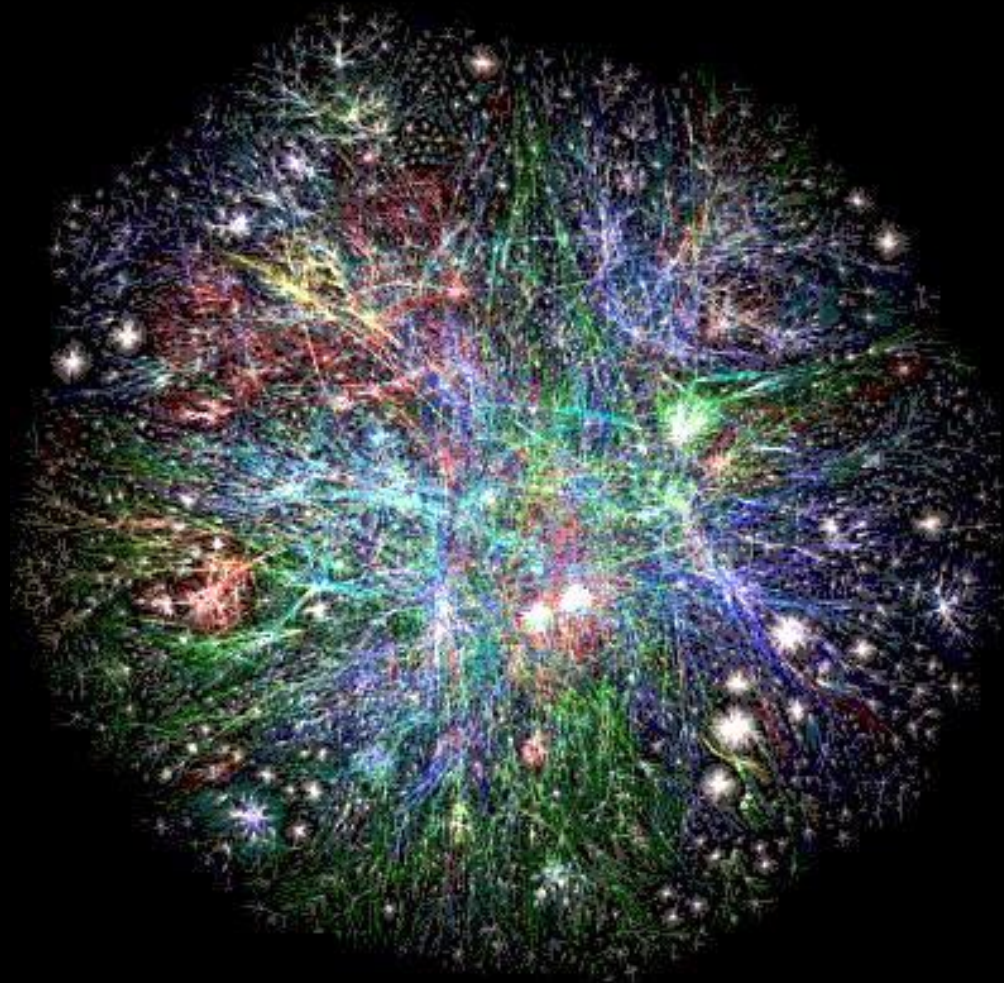


*Hmmm...*

***What conditions can  
effectively foster innovation?***



***1. A powerful central mission and a loose central structure.***



*If the Internet is the wave of  
the future, then computers  
are the surfboards.*

*-- Ted Nelson*



*If the Internet is the wave of  
the future, then computers  
are the surfboards.*

*-- Ted Nelson*





*If the Internet is the wave of  
the future, then computers  
are the surfboards.*

*-- Ted Nelson*



*Anyone, anywhere should  
be able to write anything  
about everything  
without having to  
ask for permission.*

*-- Ted Nelson*



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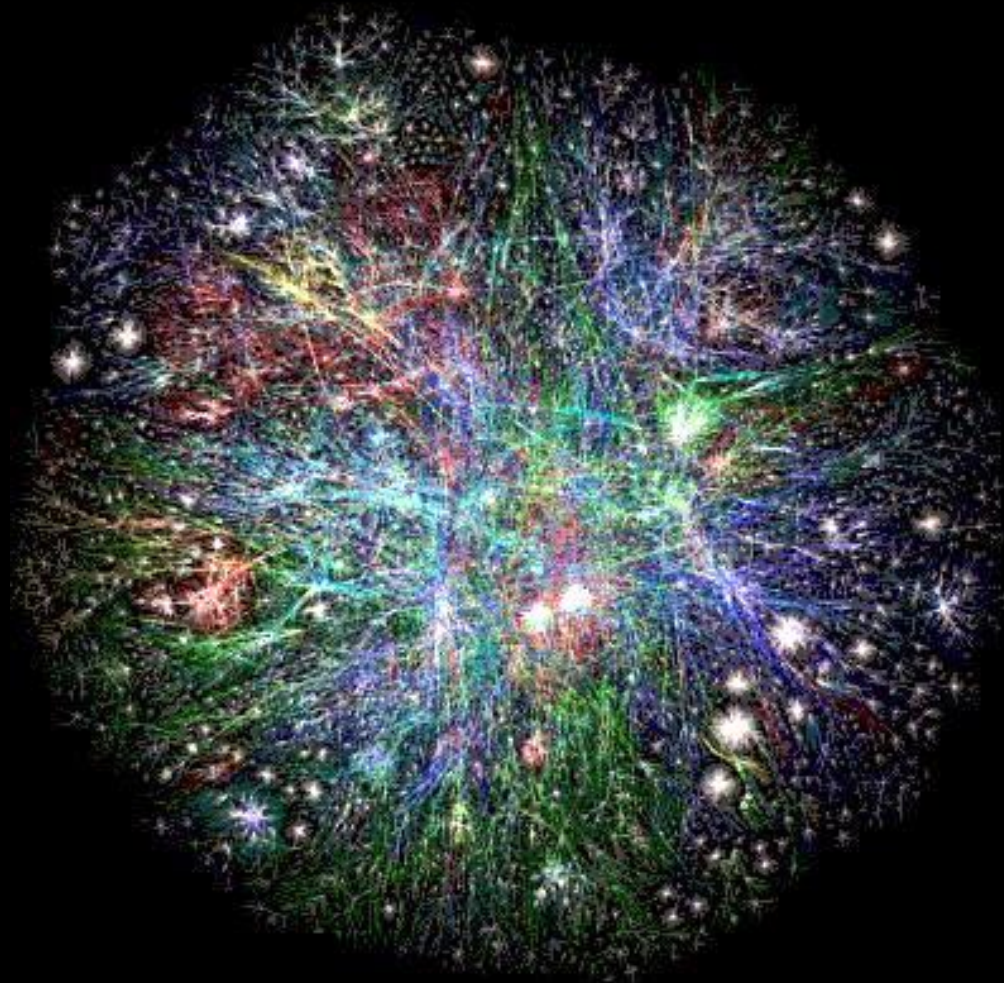
*-- Ted Nelson*



*“I have neither the place, the time, nor the desire, to micromanage or make technical decisions for [my team].”*

*Steve Urban,  
Engineering Mgr. Netflix  
August 2015*





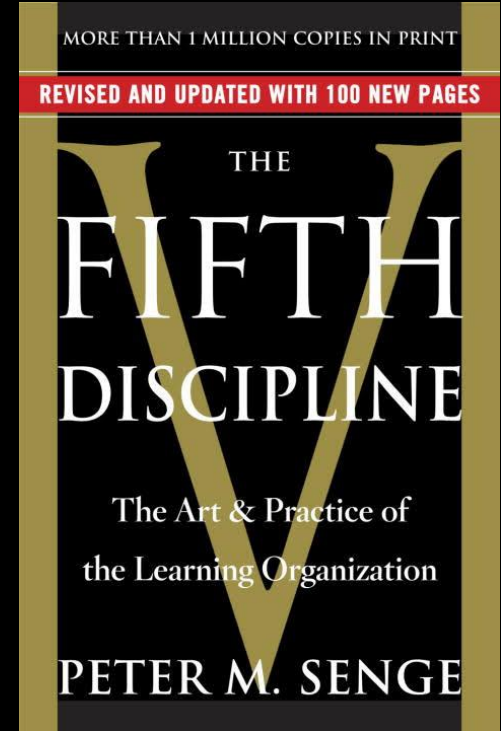


***2. Frequent interaction to  
maximize learning***



*“The only sustainable competitive advantage is an organization's ability to learn faster than the competition.”*

*Peter Senge, MIT  
Author, “The Fifth Discipline”, 2006*



*“If everything we do succeeds, then we are failing, because it means we are not taking enough risks.”*

*Deborah Bull  
Director of Partners  
King’s College, London*



TAG [SpaceX](#) , [Falcon 9](#) , [Crash Landing](#) , [Elon Musk](#) , [Twitter](#) , [Reusable Rocket](#)

# The 'No Cigar' Moment: SpaceX Releases Falcon 9 Crash Landing on Ocean Barge Video, Photos

By [James Maynard](#), Tech Times | January 17, 8:04 PM

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SpaceX has released a new Vine video showing a Falcon 9 rocket booster exploding after a crash landing on a floating platform. What is next for the company?

(Photo : SpaceX)

SpaceX has released dramatic photographs and Vine video of a Falcon 9 first-stage booster rock crashing and exploding during an attempted landing on a float barge.

Most aspects of the test flight, including successful delivery of thousands of pounds of supplies and experiments to the International Space Station (ISS), went off without a hitch. Mission engineers successfully guided the first-stage booster during re-entry through the atmosphere, but were unable to control speed or final inclination. The vehicle landed on the platform where it was targeted to touch down. However, the landing shattered the booster, causing a fireball that engulfed the area.

"Close, but no cigar. This time," SpaceX [wrote](#) in a test description included with the Vine post of the dramatic explosion.

The booster which failed on landing was part of a Falcon 9 rocket, and early analysis suggests that fins used for navigation ran out of hydraulic fluid just before landing.





**"FAILURE IS AN OPTION  
HERE. IF THINGS ARE  
NOT FAILING, YOU ARE  
NOT INNOVATING  
ENOUGH."**

**#CNBC25**

**ELON MUSK**

**IN INTERVIEW WITH FAST COMPANY  
FEBRUARY 2005**

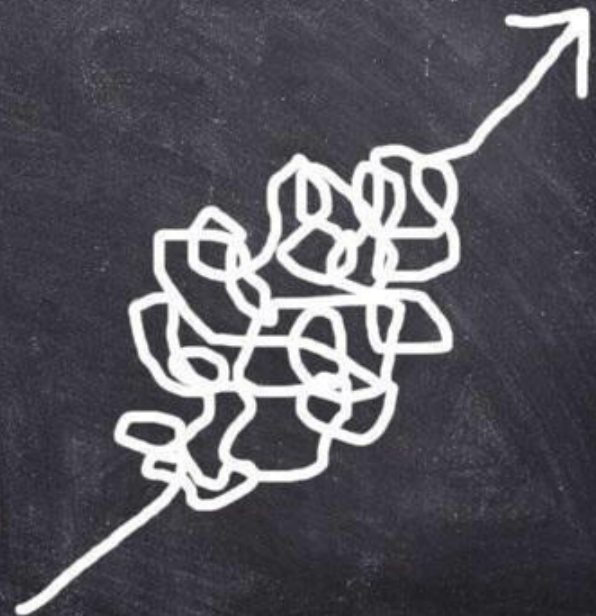
### ***3. Constant experimentation***



What People Think  
Success Looks Like:

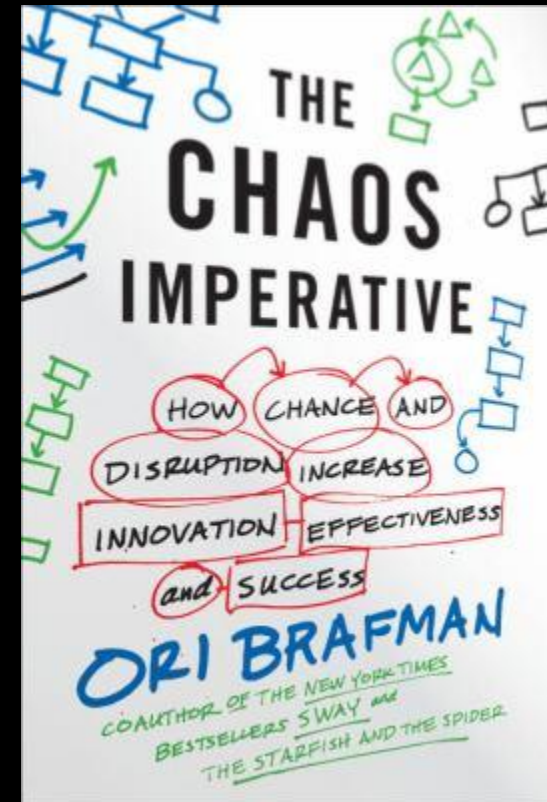


What Success Really  
Looks Like:



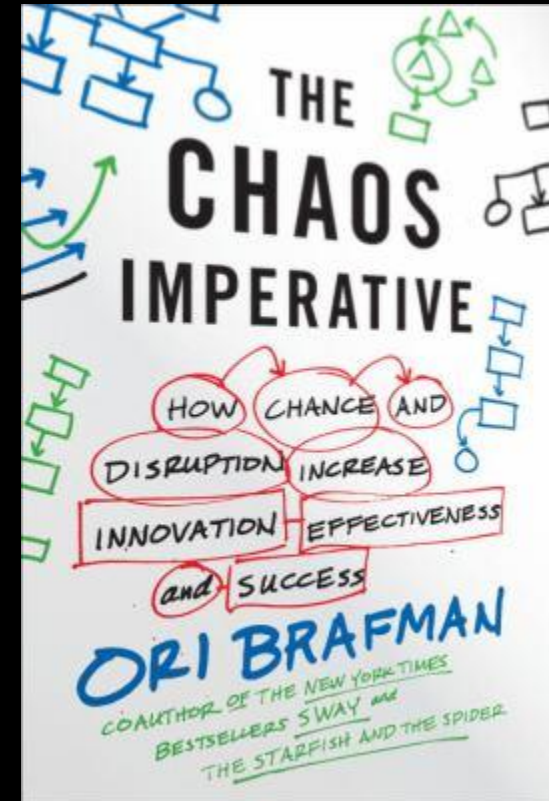
*“If the environment in which we operate is more chaotic, we’ve got to introduce chaos into the system.”*

*Gen. Martin E. Dempsey  
“The Chaos Imperative”, 2013*



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JOKER



JOKER



**40 (natural)**

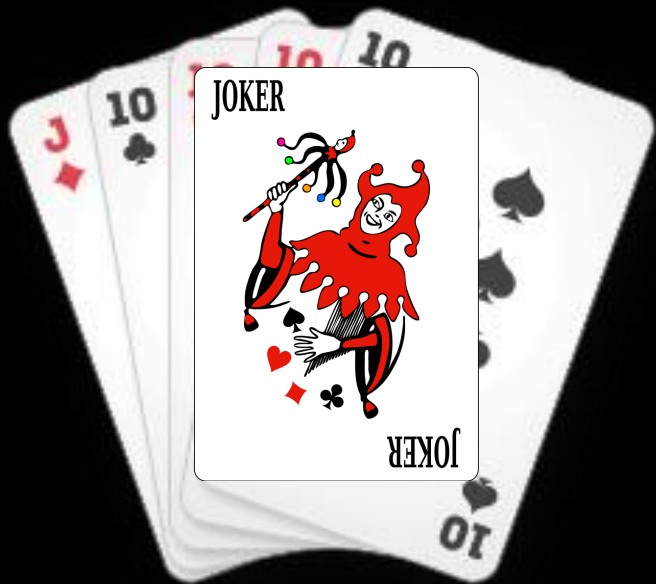


**40 (natural)**

**184 (one wild card)**



**624 (natural)**



**624 (natural)**

**3120 (one wild card)**





**A wild card  
quadruples your  
chances of a  
good hand.**

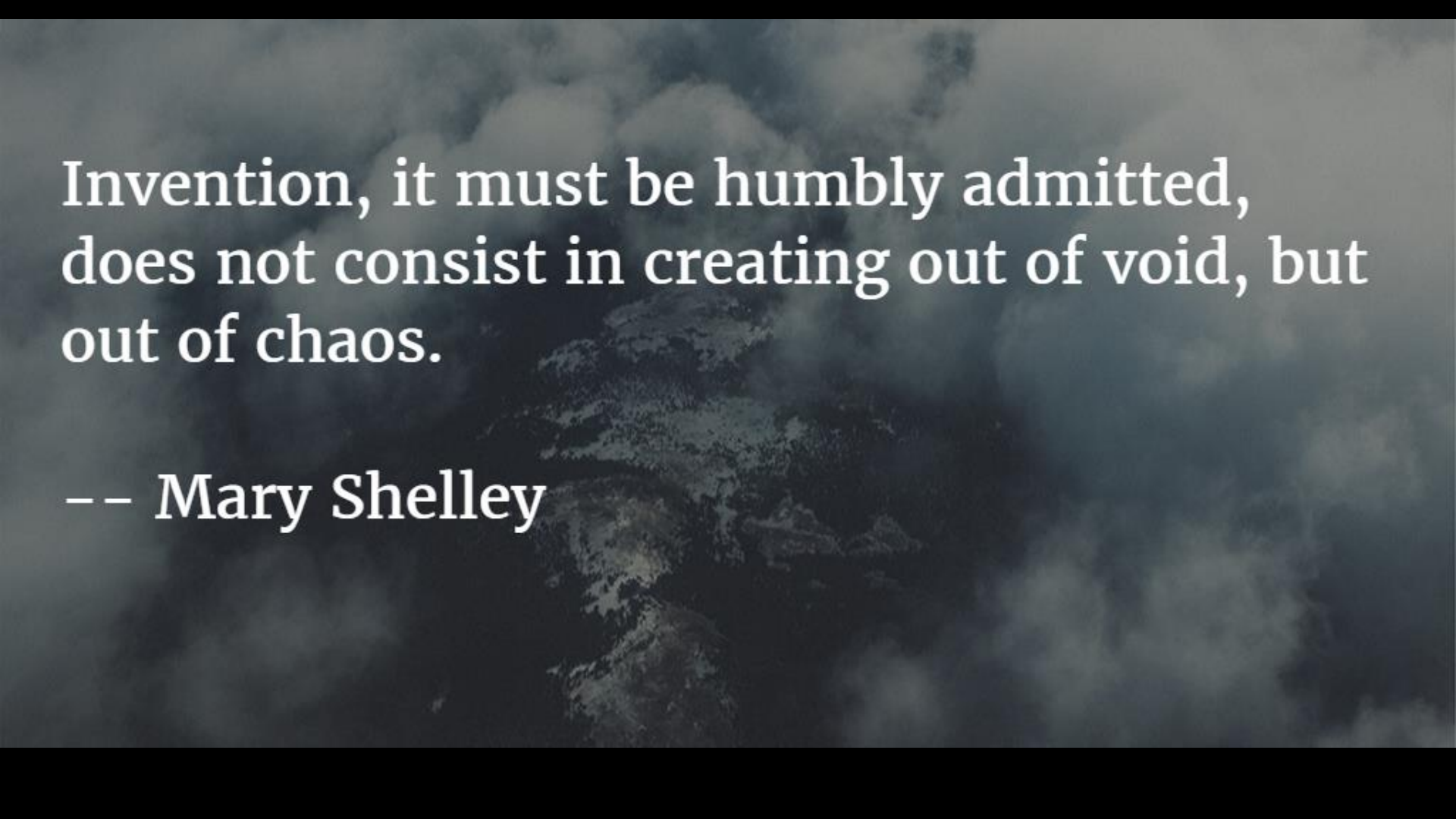




JOKER



JOKER



Invention, it must be humbly admitted,  
does not consist in creating out of void, but  
out of chaos.

-- *Mary Shelley*

***4. Freedom to look for the  
next horizon***

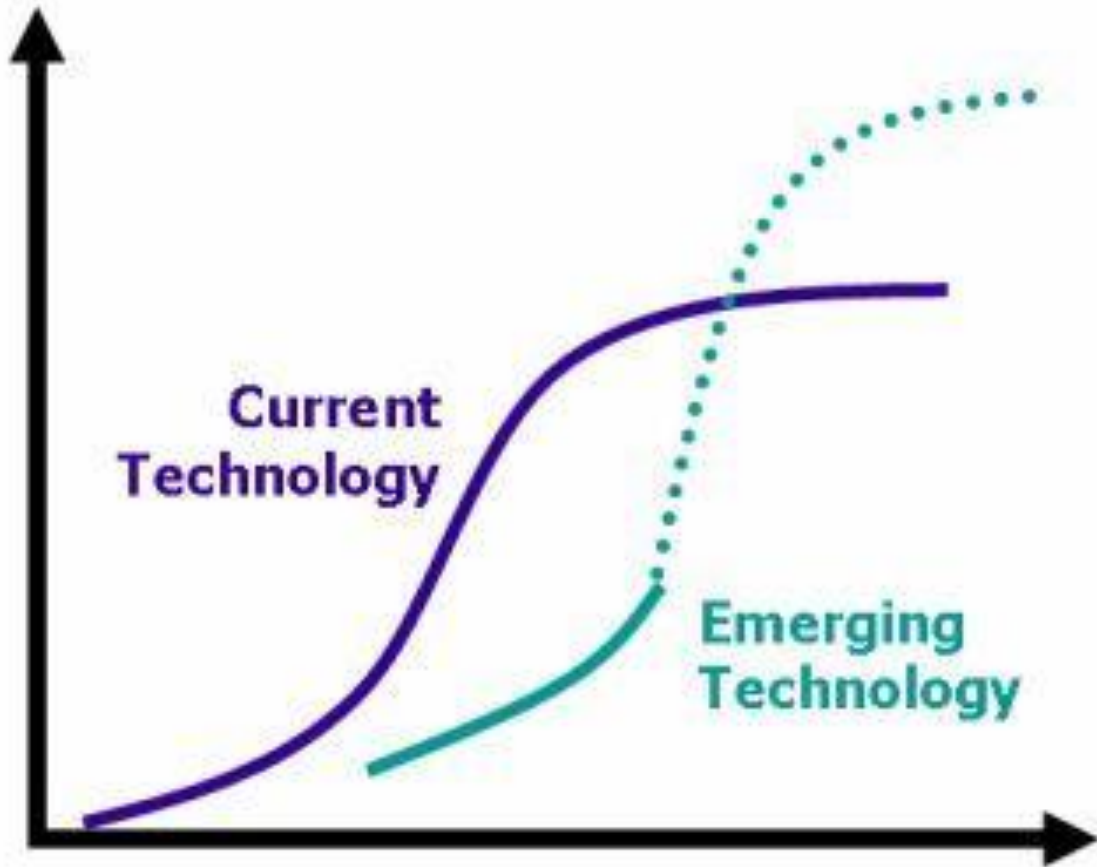


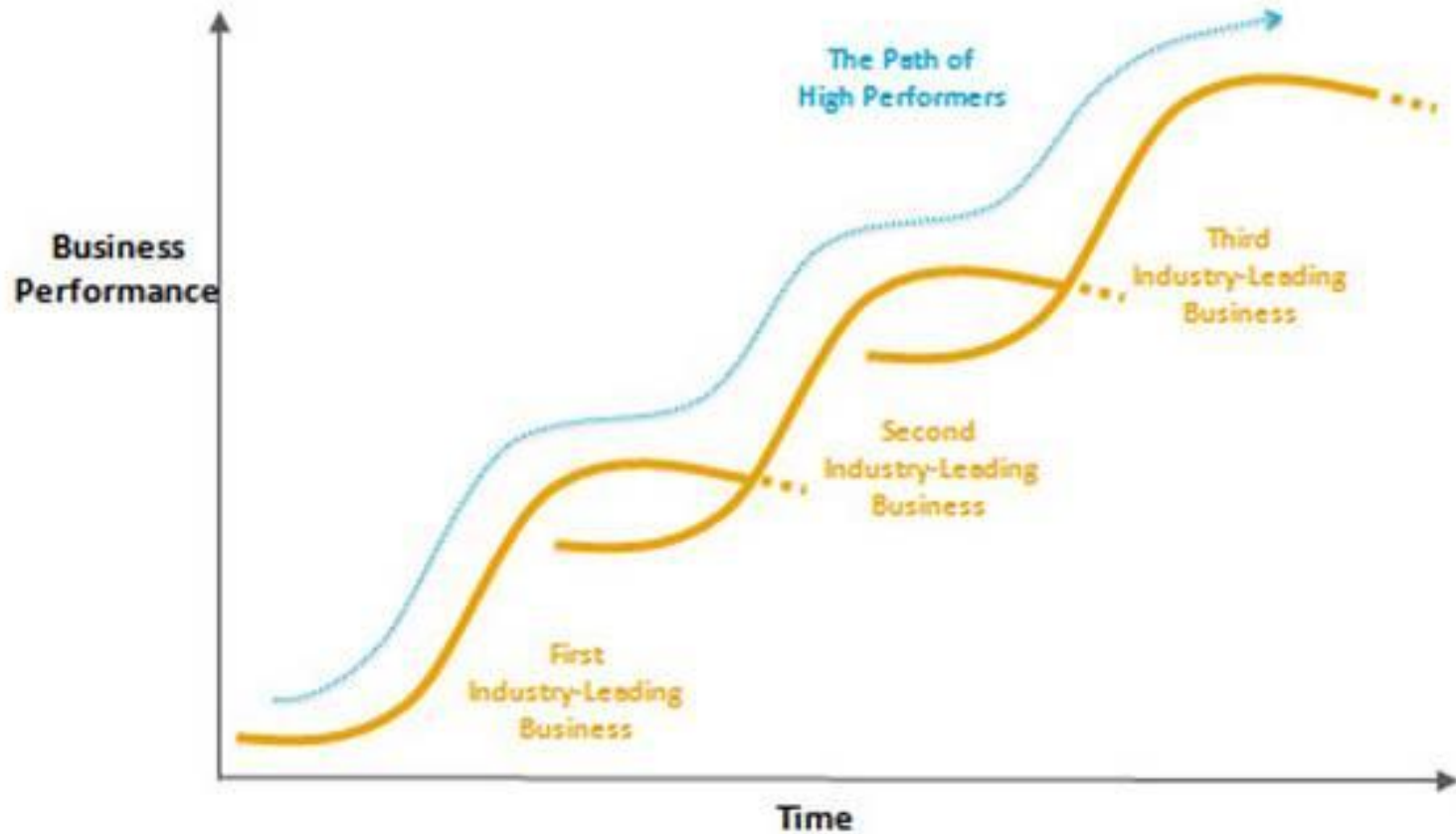
**Growth**

**Current  
Technology**

**Emerging  
Technology**

**Time**

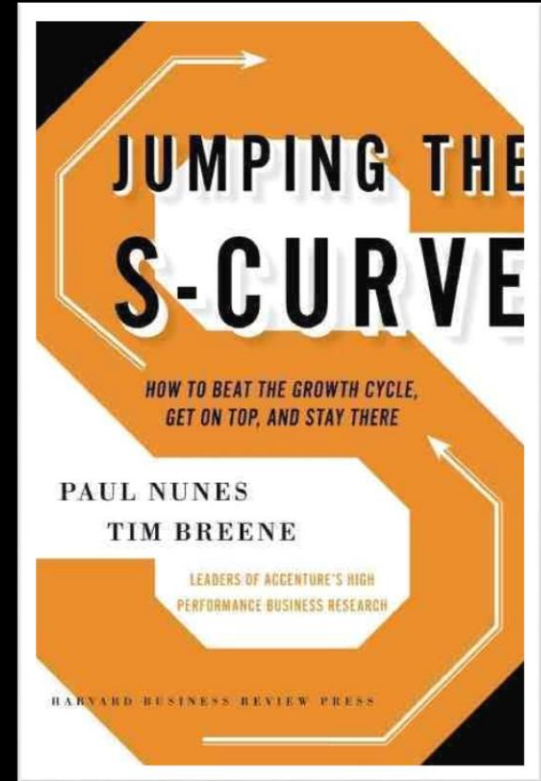






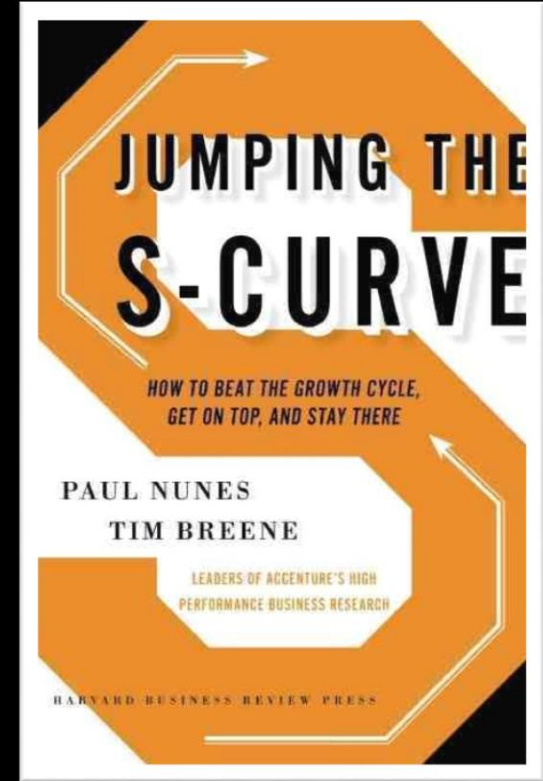
*“High performers use all kinds of means and methods to create strategy, using all of them at once in an apparently chaotic way.”*

*Paul Nunes  
“Jumping the S-Curve”, 2011*



*“High performers use all kinds of means and methods to create strategy, using all of them at once in an apparently chaotic way.”*

*Paul Nunes  
“Jumping the S-Curve”, 2011*



***However...***

# No Big Bets



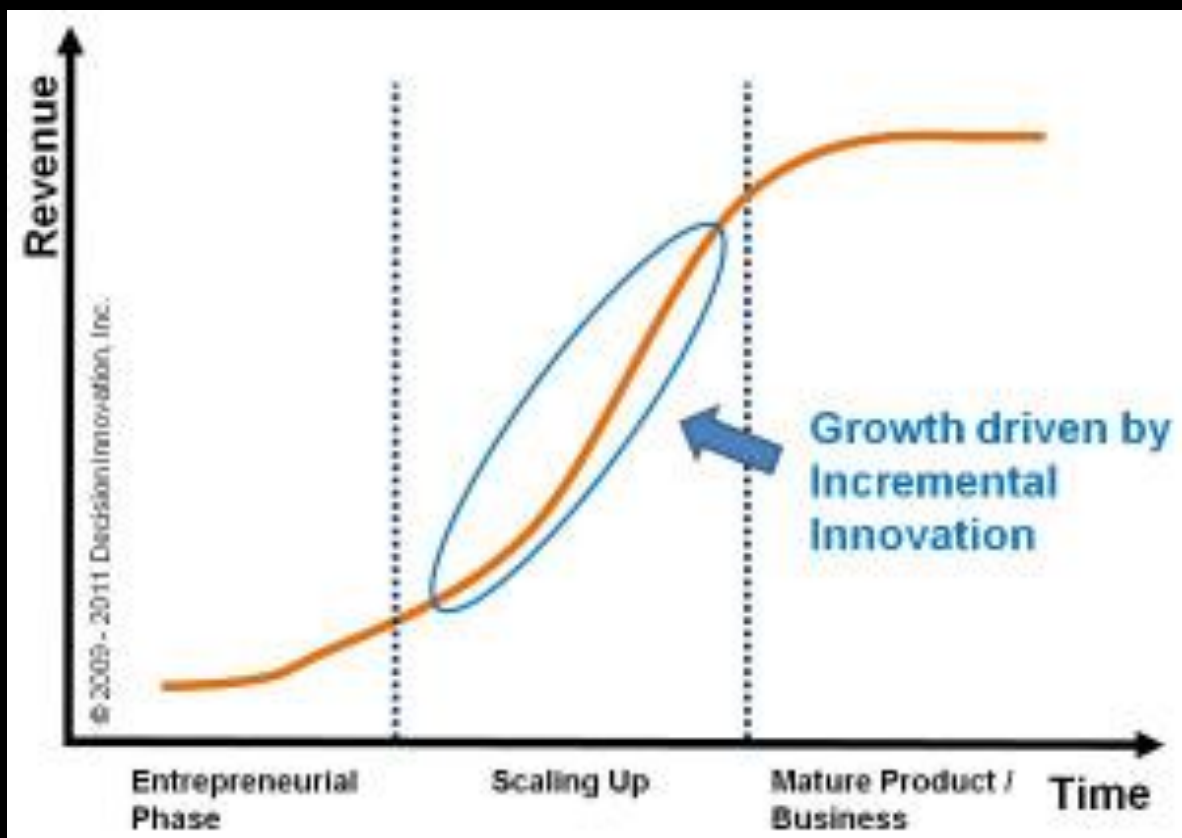
**No Big Bets**



# ***Incremental Innovation***



**Incremental innovation** is a series of small improvements or upgrades made to a company's existing products, services, processes or methods.





*"Innovation is an evolutionary process,  
so it's not necessary to be  
radical all the time."*

*- Marc Jacobs, fashion designer*

Image source: [http://img.timeinc.net/time/2012/fashionicons/jacobs\\_marc.jpg](http://img.timeinc.net/time/2012/fashionicons/jacobs_marc.jpg)



# Establish a safe zone – a Laboratory



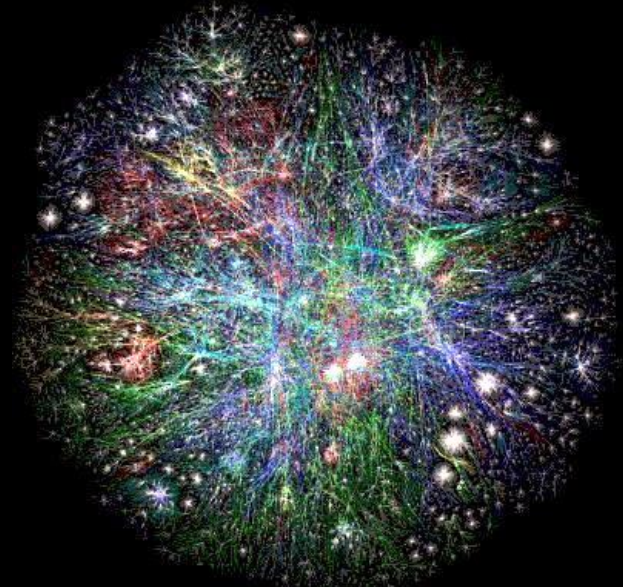
# Enable unplanned innovation

IF YOU WANT TO ACHIEVE GREATNESS  
STOP ASKING FOR  
PERMISSION

**So...**

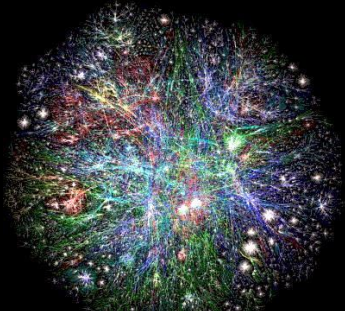
# Summary

## 1. Central Mission, Loose Structure



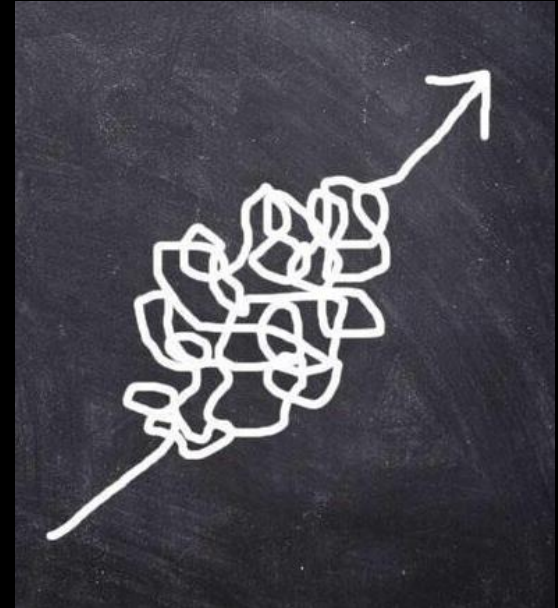
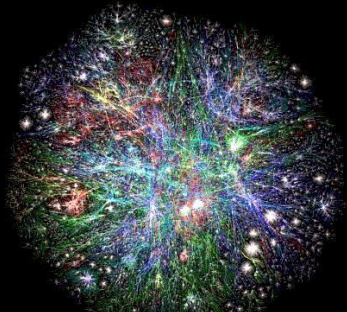
# Summary

1. Central Mission, Loose Structure
2. Maximize Learning



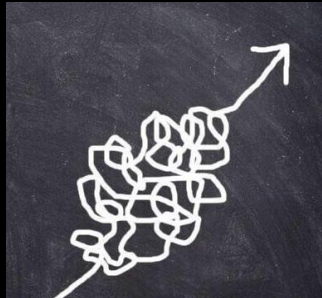
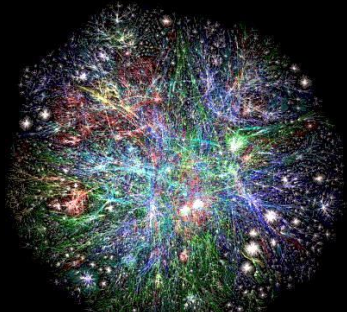
# Summary

1. Central Mission, Loose Structure
2. Maximize Learning
3. Constant Experimentation

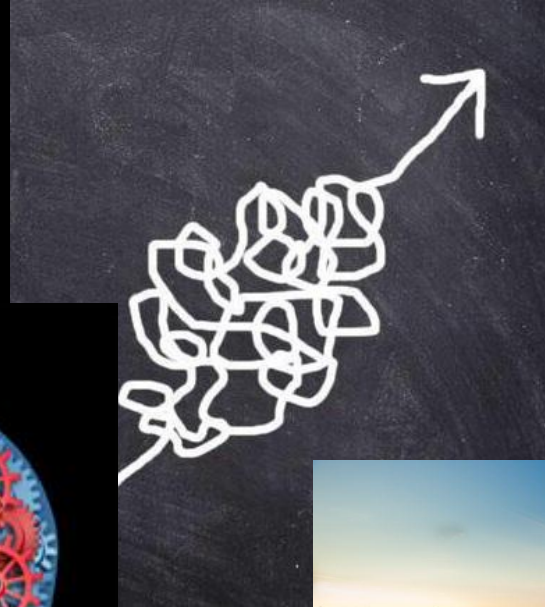
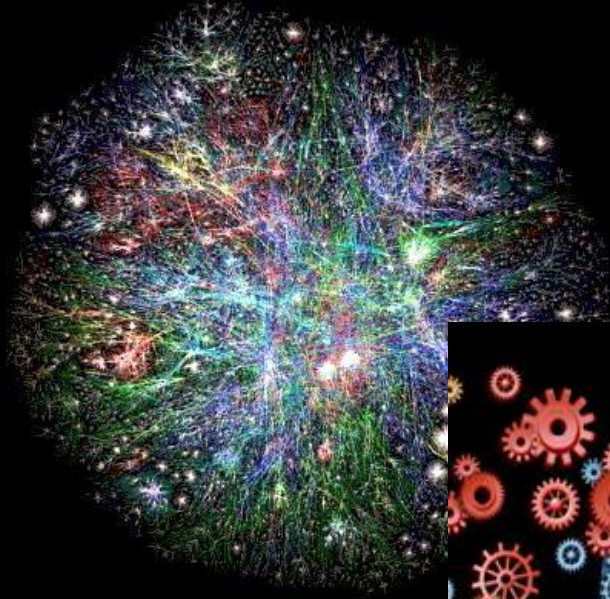


# Summary

1. Central Mission, Loose Structure
2. Maximize Learning
3. Constant Experimentation
4. Look for the Next Horizon





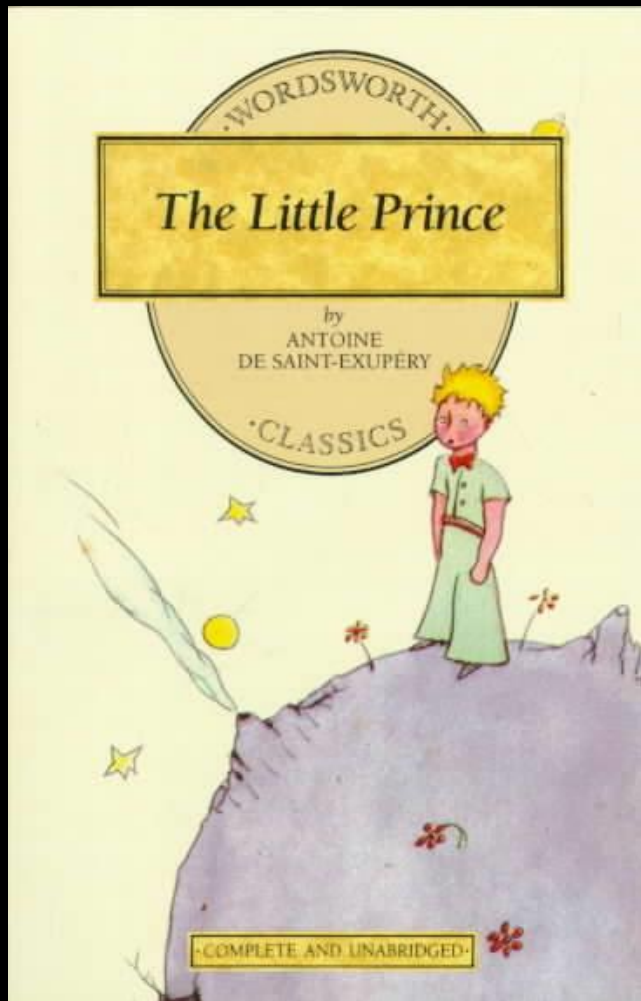


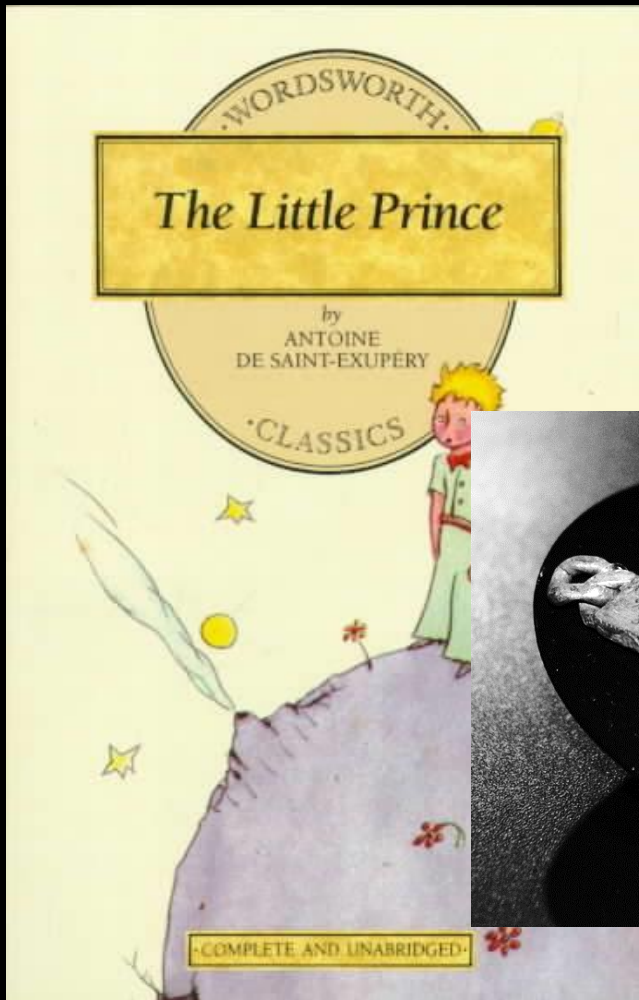
***One last word...***

***Inspiration.***

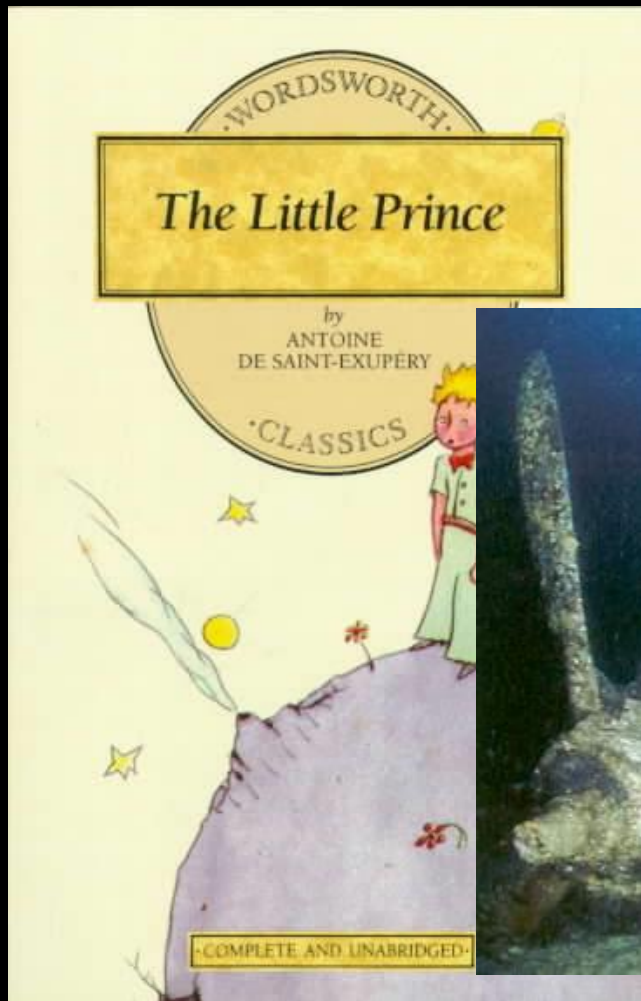


Saint-Exupéry in Toulouse, France, 1933





© Lino von Gartzten



**NETFLIX**



*“If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea.”*

*Antoine de Saint-Exupéry*  
*1900-1944*



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*Antoine de Saint-Exupéry*  
1900-1944





TEACH THEM  
TO LONG FOR THE  
ENDLESS IMMENSITY  
OF THE SEA.

-ANTOINE DE SAINT-EXUPERY







# API : The “I” Stands for Innovation

<http://g.mamund.com/2016-03-apidays-aus>

Mike Amundsen  
API Academy  
@mamund