From Improvement to Innovation: Raising the Bar

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The Global Voice of Quality™

Objectives

- Learn how high-performance organizations define, integrate, and balance their innovation and improvement programs for best outcomes

- Understand how organizations 'raise the bar' to innovation by building on their QMS

- Review models and tools for managing improvement and innovation towards higher performance

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Wearable Technology

- 'For wearable technology to take off it must:

- Make life more convenient

- Easily fit into everyday life

- Look like something you'd want to be seen wearing'

  – *Hayley Tsukayama, Washington Post, Feb 26 2014*

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Seiko RC-1000 Wrist Terminal

- 'Computer watch' released in 1984
- Advanced from their quartz technology
- Featured 6 buttons; day/date/time; alarm; illuminated screen; 12 x 2 character screen size; 2 KB RAM
- Data loaded through cable attached to computer

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Pebble Steel Smart Watch

- Start-up company
- Second generation (2014)
- Stylish; wireless
- Heavy (1.97 ounces)
- Growing selection of apps

Apple Watch

Series 1

Series 7

"I like it better than my iPhone" –*Apple Watch wearer*

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Luxury Market

- Classic style
- Premium materials
- Designed for comfort
- Curated selection of apps
- 'Exudes refined taste'

The Mont Blanc Summit 2

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Is it Innovation or Improvement?

Smart Watch	Pros	Cons	Improvement	Innovation
Seiko Wrist Terminal	Wearable, computer technology	Cabled, limited functionality		
Pebble Watch	First true smart watch, wireless	Clunky, limited apps		
Apple Watch, Series 1	Sync with iPhone, fitness tracking	Expensive, limited battery life, limited compatibility		
Apple Watch, Series 7	Continued design and feature enhancements	Expensive, limited battery life, limited compatibility		
Mont Blanc Summit 2	Stylish and elegant	Expensive, some limitations on features		

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Definitions (and Similarities)

Improve: to make or become better

-Oxford Dictionary

CI: The ongoing improvement of products, services or processes through incremental and breakthrough improvements.

-ASQ Website Glossary

Innovation: The conversion of <u>new</u> knowledge and information into products, processes, and services that provide <u>new</u> value in the marketplace

-ASQ Innovation Technical Community

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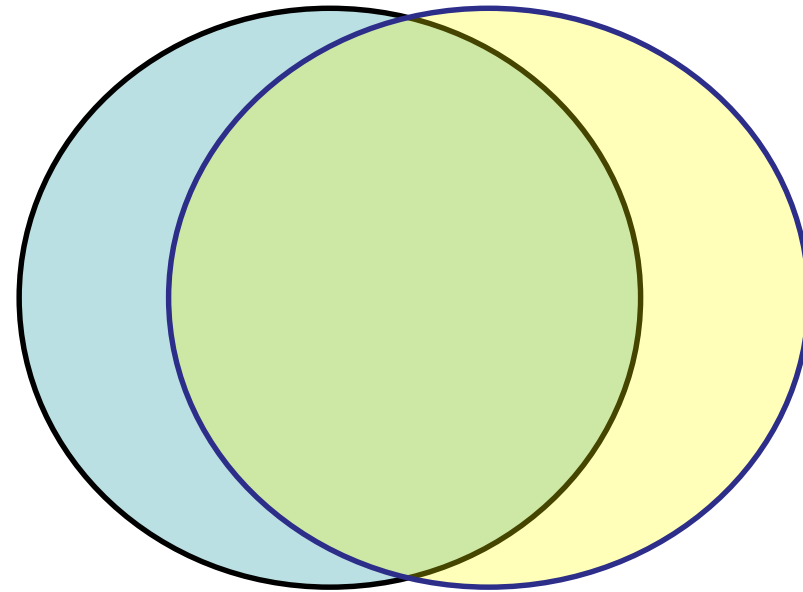# How are they different?

People often think of innovation as…

…radical, disruptive, inventive

People think of improvement as…

…incremental, minor, imitative

Are these perceptions accurate?

Overlap

Innovation   Both   Improvement

Executive Guide to Innovation ©2014

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Innovation Spectrum

- Breakthrough
  - Disruptive innovation
  - Breakthrough improvement

- Incremental
  - Sustaining innovation
  - Continuous improvement

- Improvement

Seiko RD-1000

Pebble Steel

Apple S1
Apple S7
Montblanc

Battery
Replacement

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Why Raise the Bar?

- Organizational success depends on it
- Revolutionary new technologies
  - Quantum computing, AI, energy storage
- New fields
  - Nanotechnology, genomics, robotics

"It will no longer be enough to simply move fast, we will have to develop a clear sense of where we're going, how we intend to get there, and what role we will be able to play."

-Greg Satell, Mapping Innovation

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Known Success Factors

- Build on a mature QMS
  - Improve understanding of user needs
  - Become problem identifiers as well as problem solvers
  - Increase speed and usefulness of data analyses
  - Adapt quickly to new information

- Execute innovation management systematically

ISO 56000 Series on Innovation Management

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Innovation Leadership

- Understand the organization's context

- Expand capabilities that drive innovation, e.g., creativity

- Establish a culture that thrives on innovation

- Provide resources and tools needed to innovate successfully

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Understanding Pain Points

- Spend more time on customer listening and market patterns and trends
- Figure out what would make them happier
- Apply creativity tools to find 'pain relievers'

"Your customers are the judge, jury, and executioner of your value proposition. They will be merciless if you don't find fit!"

— **Alexander Osterwalder,** *Value Proposition Design: How to Create Products and Services Customers Want*
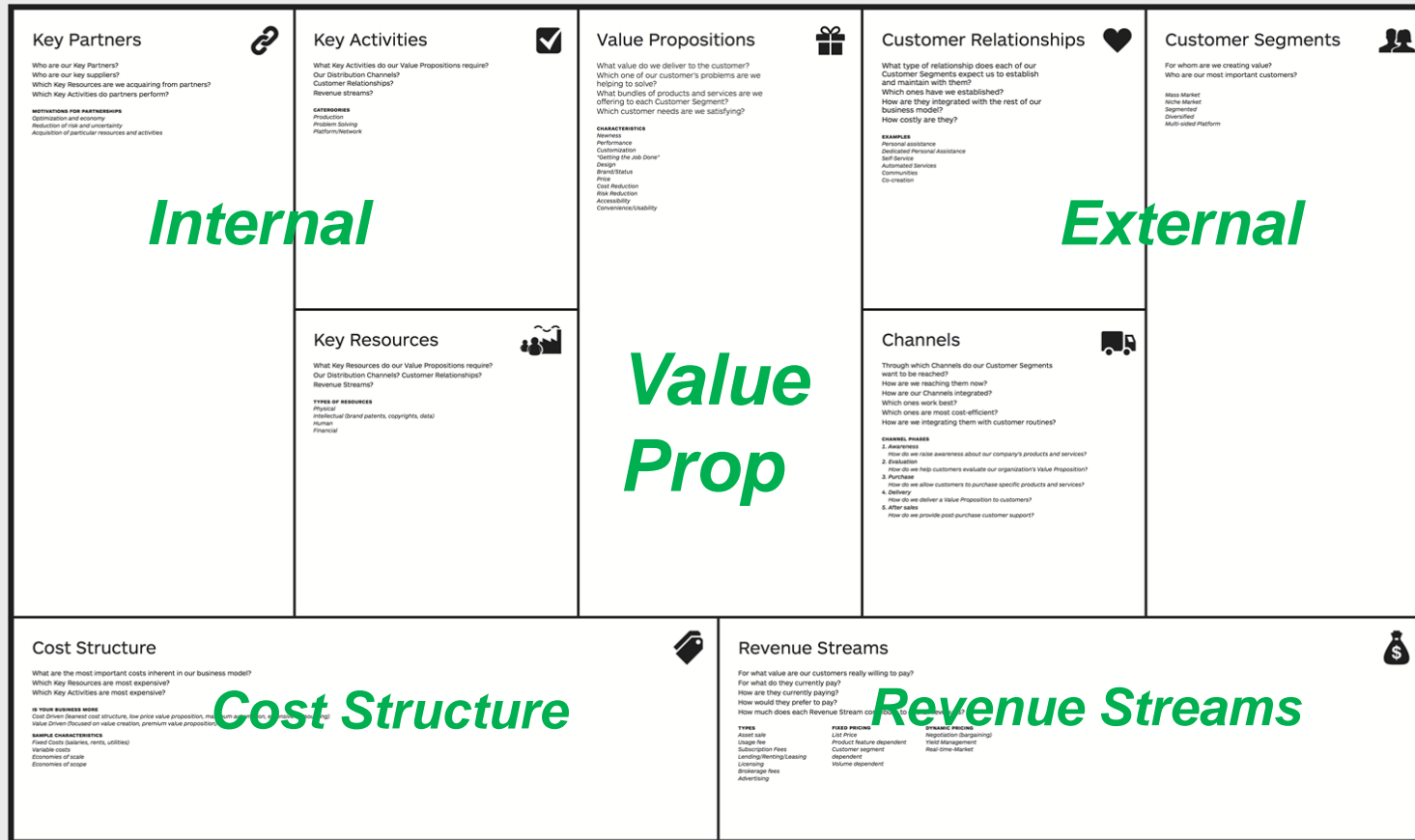
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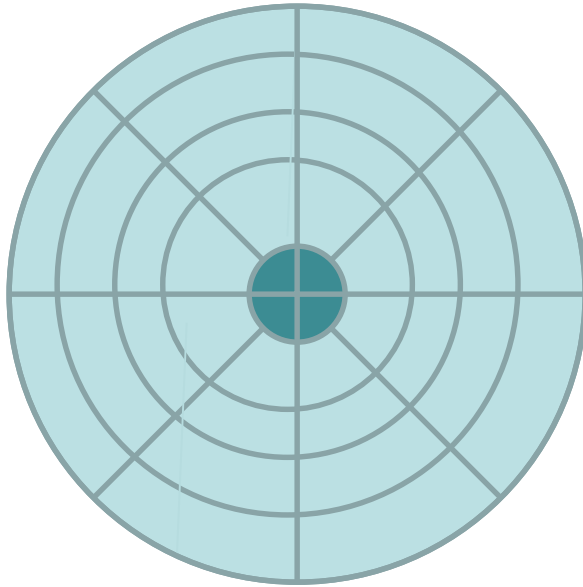# Business Model Canvas

Lean modification

- Problem

- Solution

- Key Metrics

- Unique Value Proposition

- Unfair Advantage

- Customer Segments

- Channels

- Cost Structure

- Revenue Stream

Maurya, A; Running Lean; O'Reilly ©2012
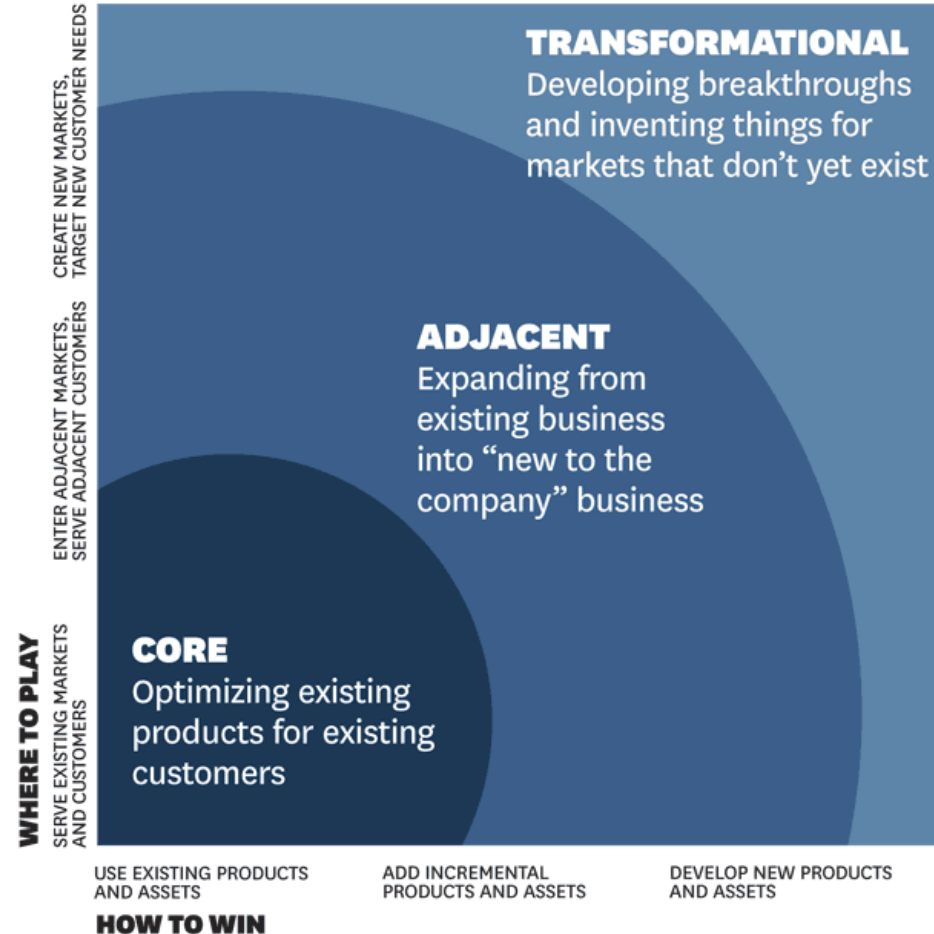
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Innovation Planning

- Adapt risk management approaches for innovation
- Set goals that drive innovative solutions
- Structure the organization or team for success

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Innovation Ambition Matrix

Strategic risk based on:

- New product
  - (How to Win)
- New market
  - (Where to Play)
- Both

From: Nagji, Bansi and Geoff Tuff. "Managing Your Innovation Portfolio." *Harvard Business Review* May 2012.

Networked Teams

- Fluidity and adaptability

- Purpose

- Trust

- Contact points with other teams

- Individual accountability

"We have to think of companies like Hollywood movies – people come together and bring their skills and abilities to projects and programs, they build and deliver the solution, and then many of them move on to the next movie.."

-Josh Bersin

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Innovation Operations

- Understand innovation from learning and creativity to solution development and deployment – and back again
- Raise the bar on available tools, technologies and measures
- Continuously improve the IMS
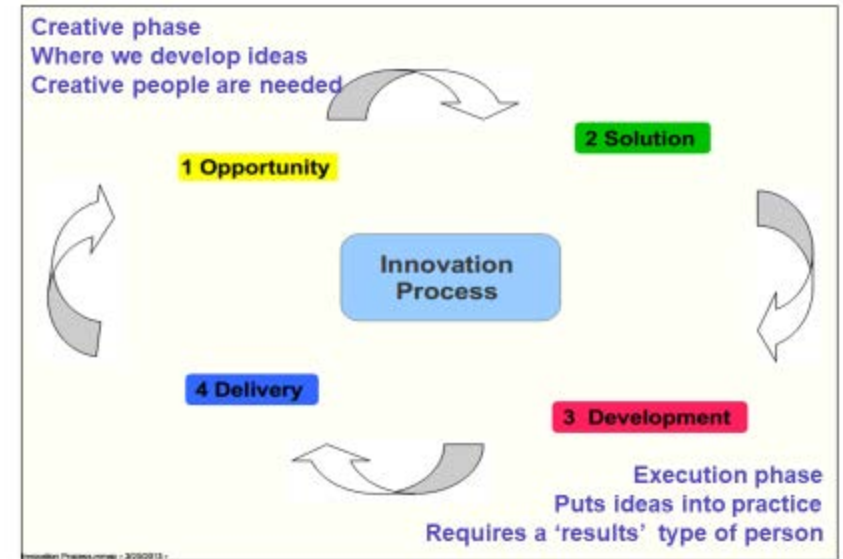
P Merrill, 2020

Quality 4.0 Features

- Digitization and adaptive learning
- Greater focus on design controls over process controls
- Machine learning
- Humans focus on system design and integration over production
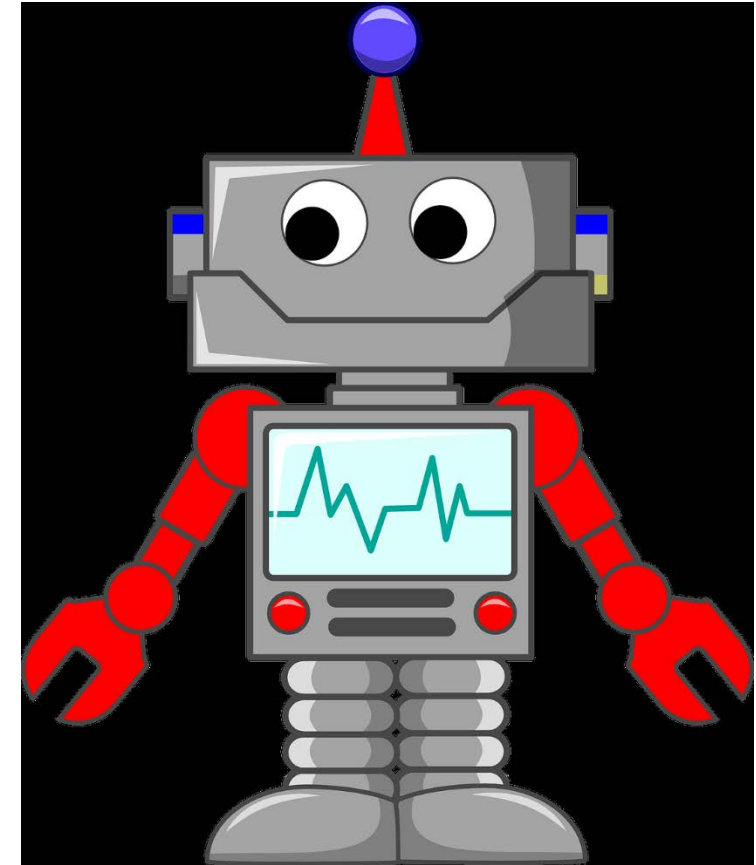
        – *Gregory Watson, 2019*

Q4.0 – Pharma Industry Considerations

- Opportunities to maximize value of large amounts of manufacturing and clinical data

- Partnering with cloud-based service providers

- New analytical models that expand knowledge and information

"Even the most fundamental quality improvement methods will be enhanced and accelerated using connected, intelligent, and/or automated digital technologies."

-N Radziwill

Raising the Bar

- Take a systematic approach
- Use new knowledge, information, and tools
- Be persistent and adaptable
- Move the needle towards the 'Disruptive' end of the Innovation Spectrum

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Questions?

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Related Publications

- *Structuring Your Organization for Innovation*; Keathley and Harrington; Quality Press ©2020

- *ISO 56000: Building an Innovation Management System*; P Merrill; Quality Press ©2020

- *Connected, Intelligent, Automated*; N.M. Radziwill; Quality Press ©2020

- Innovative Organizational Structure, Chap 15, J Keathley; *Total Innovative Management Excellence (TIME);The Future of Innovation*, CRC Press ©2020

- *2020 Annual Research Report and Association Highlights,* ASQE

Reference Publications - 2

- The Ascent of Quality 4.0; G Watson; Quality Progress 2019; 52:3, pp 24-30

- Knowing When You've Added Value; J Keathley, Quality Progress 52:3 Mar 2019

- Getting Ready for Pharma 4.0; Manzano, T and Langer, G; Pharmaceutical Engineering, Sep/Oct 2018

- *Mapping Innovation,* G Satell, McGraw Hill Education, ©2017

- Is it Innovation or Improvement, Webinar; J Keathley: *https://www.youtube.com/watch?v=Si9RxTPwp1k*

- *The Executive Guide to Innovation*; Keathley, et al., Quality Press ©2014