

The way we work is our most important innovation[©]

Innovation for Impact

*Making value creation an
increasing U.S. advantage*

Curtis R. Carlson, Ph.D.

Founder and CEO, Practice of Innovation, LLC

President and CEO, SRI International: 1998–2014

email: curt@practiceofinnovation.com

website: www.practiceofinnovation.com

October 16, 2018

Summary

- We won't thrive on talent and hard work alone
- A paradigm shift in innovative impact is needed and is possible
- We must move from a focus primarily on entrepreneurship to a focus on value creation
- Improvements of 2-10 times in innovative output are often possible

Our Perspective



Value Creation Workshops



Innovation is a Mystery to Most

"Every leader will at least give lip service to the idea that the world is moving faster and that we need to do a better job at innovation.

But if you go into an enterprise and ask people to describe their innovation system, you get blank looks.

They have none." *Gary Hamel*



What Is Innovation?

Invention: Something novel
reduced to practice

< 3% used



Innovation: Creation and delivery
of new customer value for society
with a model for sustainability

NSF's
artificial
retina



Innovation generically: Creation
and delivery of new, lasting
knowledge to societal

$$E=MC^2$$

All significant innovations are surprising at first

Global Innovation Economy

- Exponentially advancing technologies
- Exponentially increasing competition
- Transformational new business models
- Abundant major opportunities



Unlimited Important Opportunities



Internet



Mobile devices



Social media



Intelligent services



Robotics



Quantum computing



Additive manufacturing



Blockchain



Media: ultra-3D



Digital education



Regenerative
medicine



Synthetic biology

Unprecedented Markets & Competition



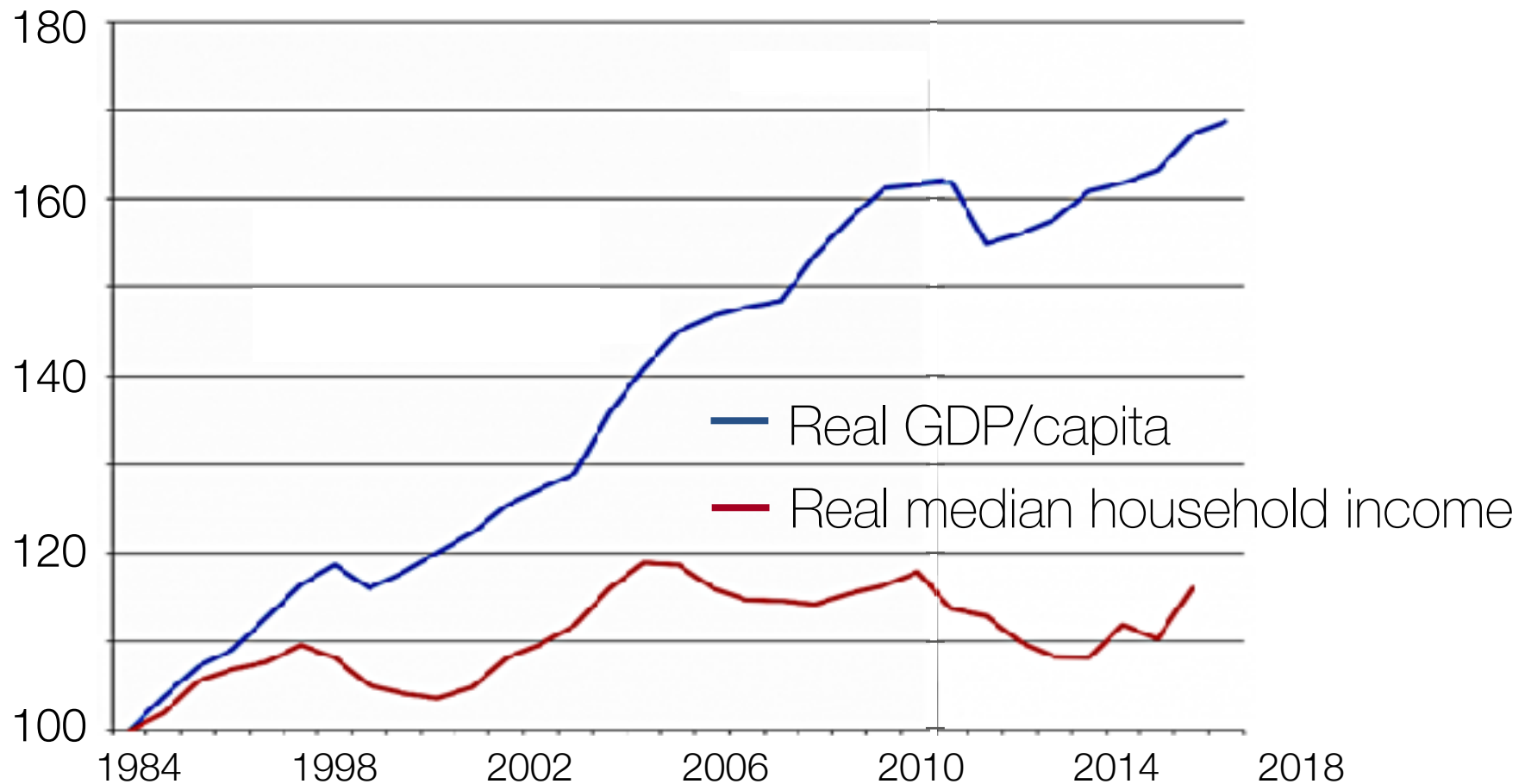
How Much Can We Improve?



- Companies: <15 years
- University R&D
- Gov't RD&I agencies
- National labs
- Venture capitalists

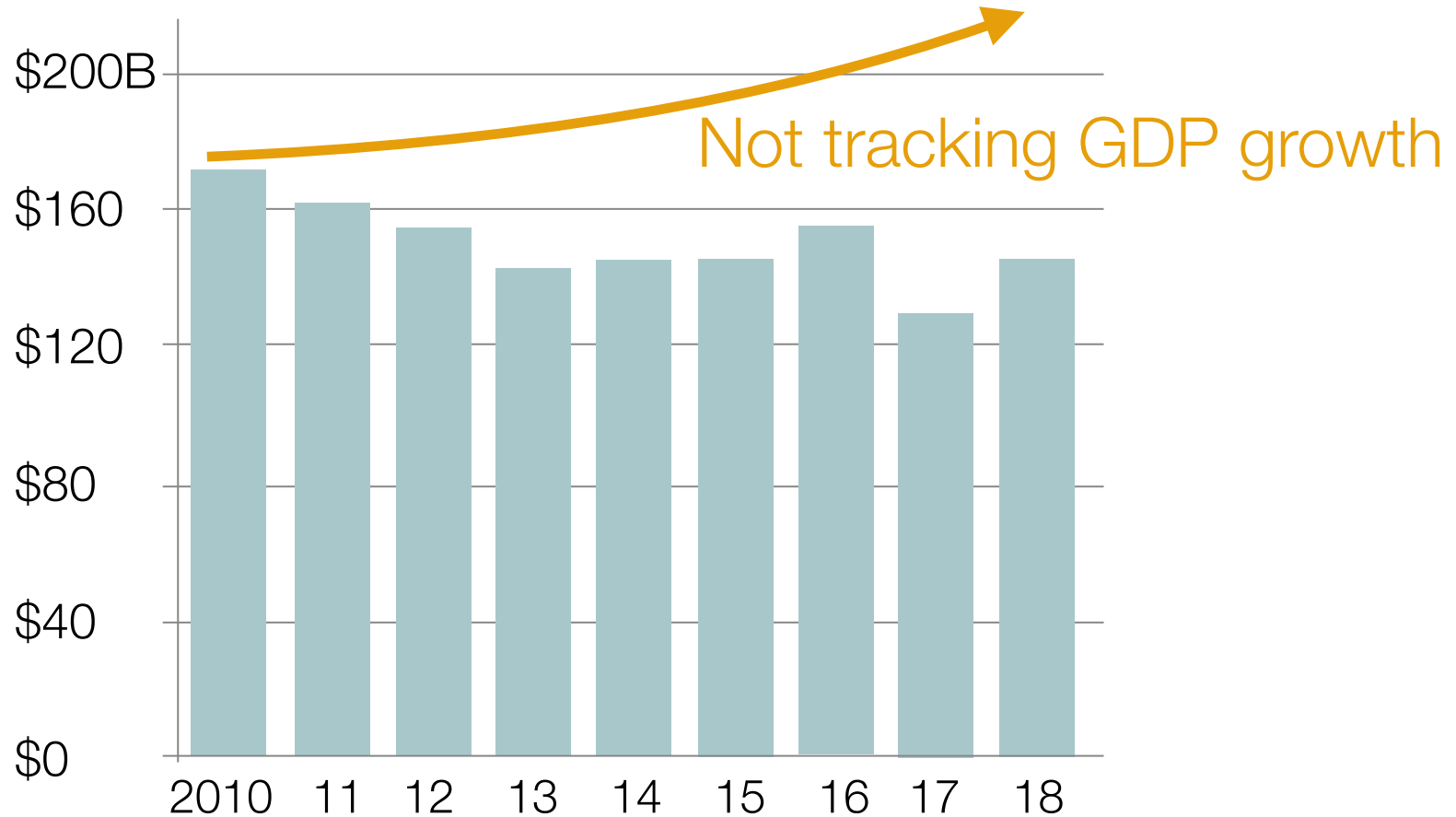
2-10 times

Median Income Not Growing



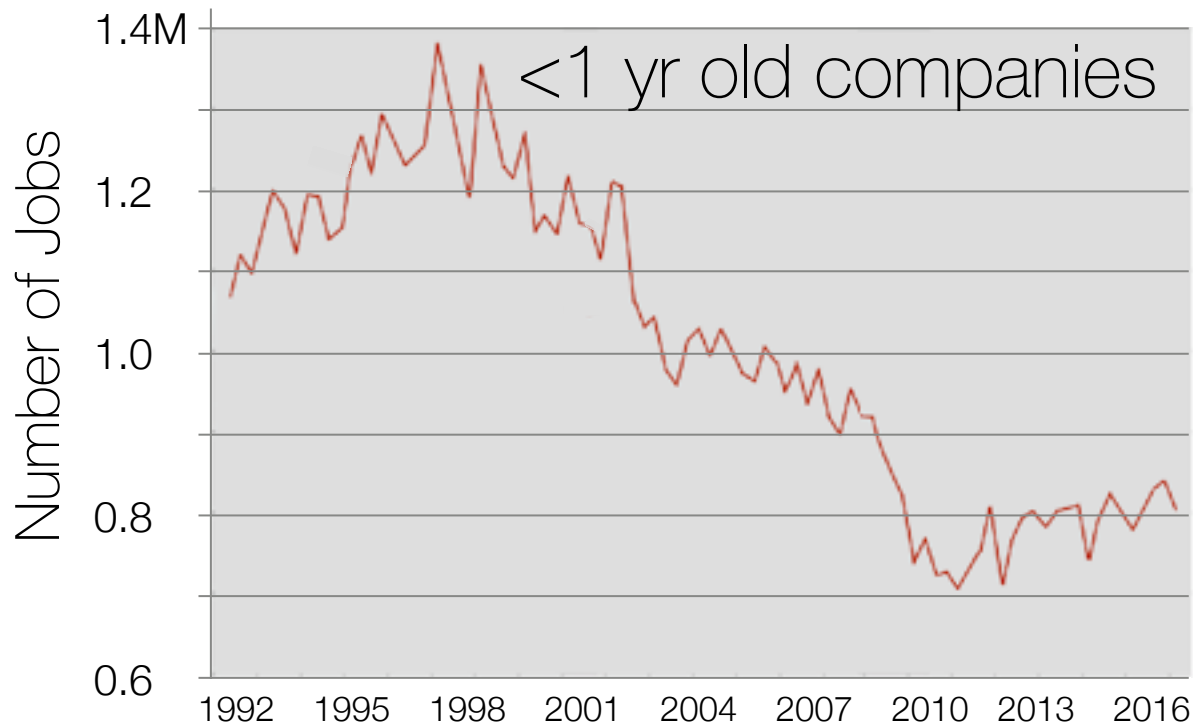
The challenge is not just jobs: it is *meaningful* jobs

Gov't R&D Funding Falling Behind



Response: be much smarter at value creation and innovation

Is Entrepreneurship the Right Focus?



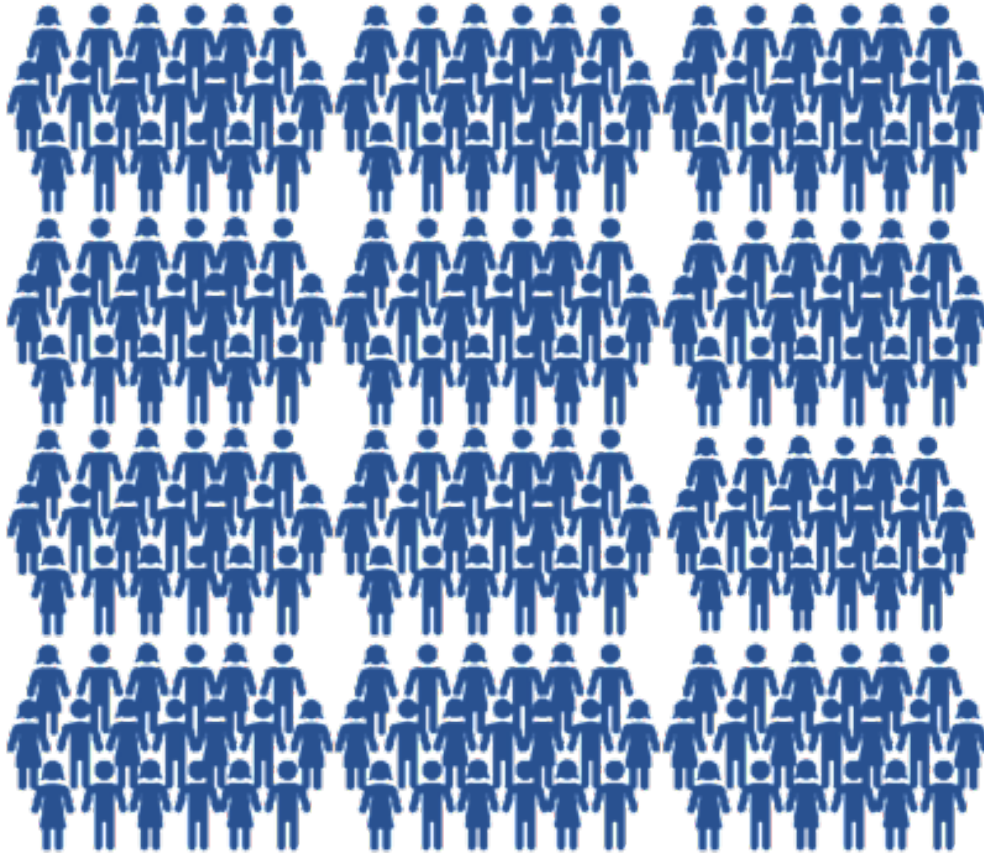
- 300 university I&E programs
- \$Bs/year on gov't programs
- 6,000 professors
- 1,600 incubators

But 700K new ventures in 1980 and 500K in 2016

Value Creators Versus Entrepreneurs: Gallup

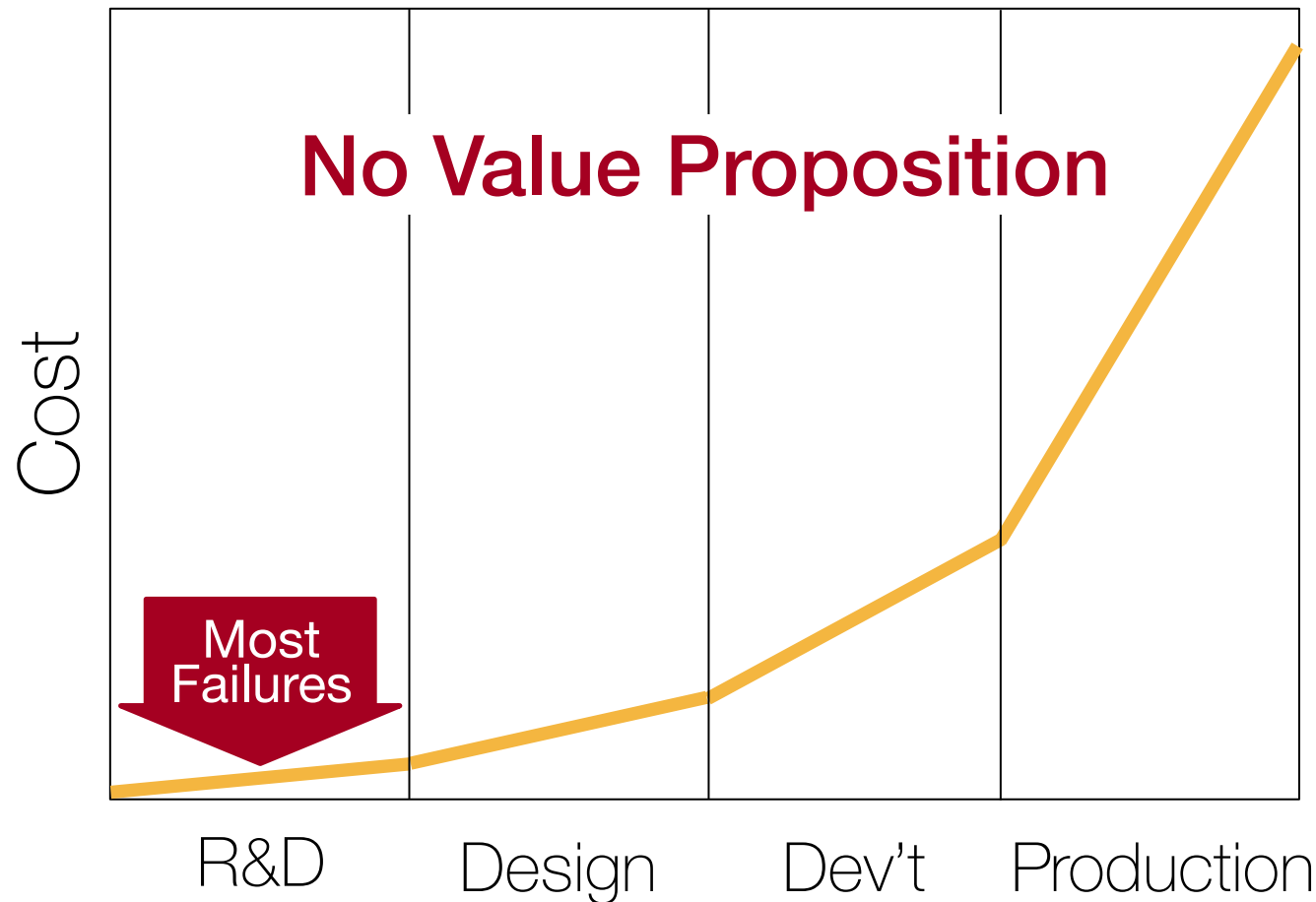
200

1



Professors and professionals

Most Failures Start at the Start



< 20% of R&D has any value for stakeholders

New Perspectives Required

~~Fail fast to succeed early~~

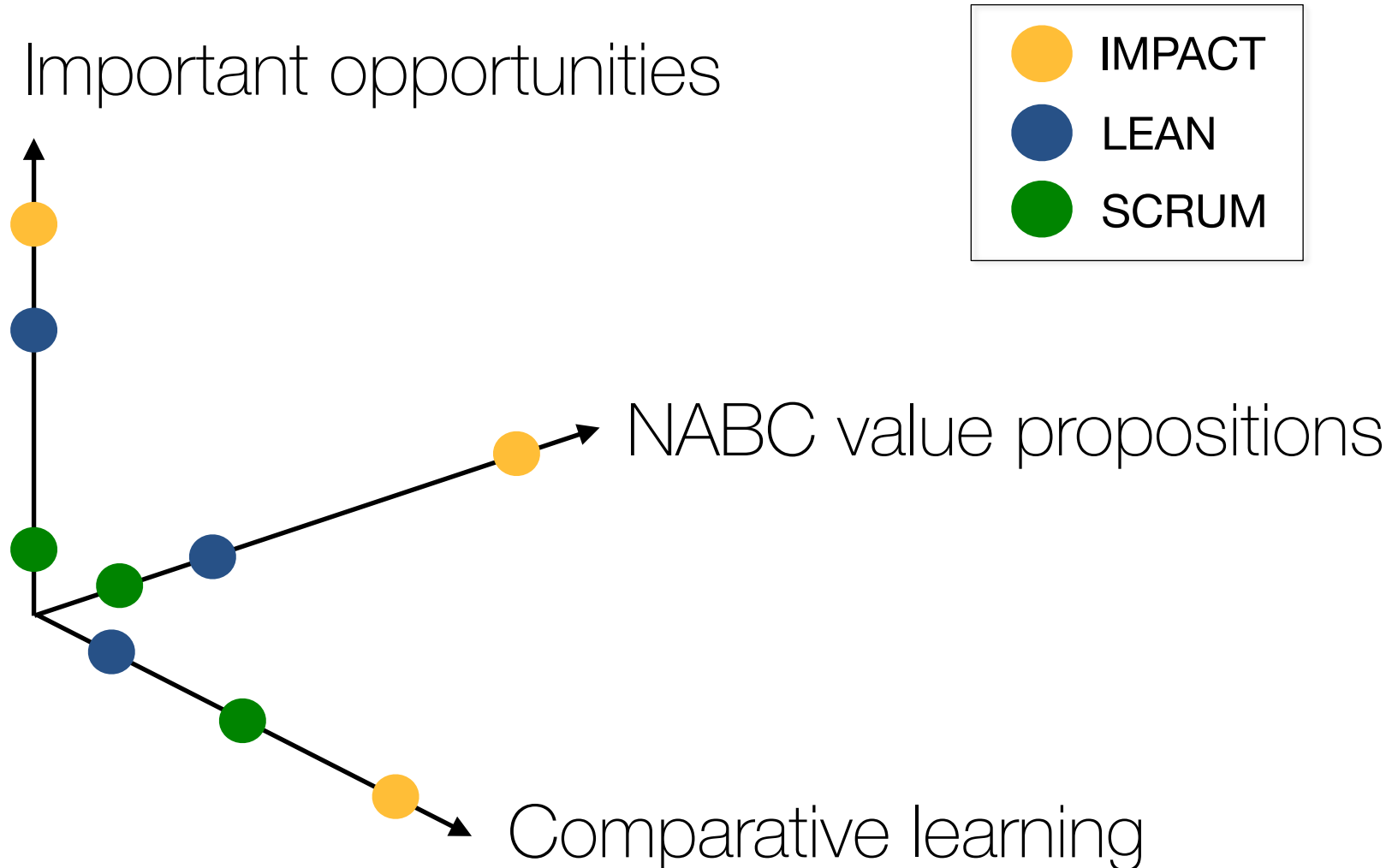
Learn, search, and create
fast to succeed early

NAE Report: Value-Creation Practices

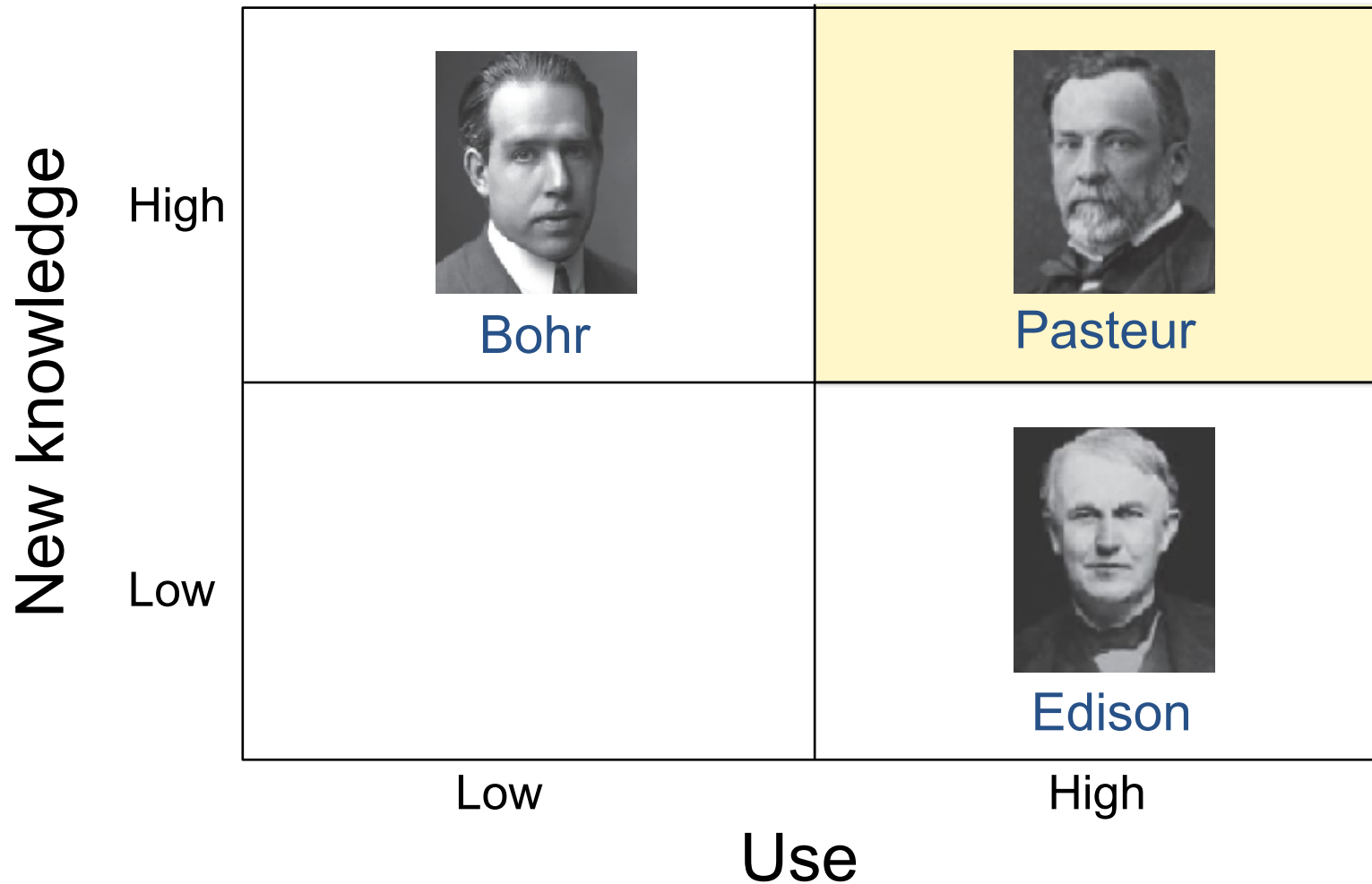
- 2-yr study on proven practices & NSF Eng. Centers
 - Current practices are often outdated
 - A paradigm shift in societal impact is possible
- Use of a Value-Creation Playbook



The 3 Big Ideas of Value-Creation

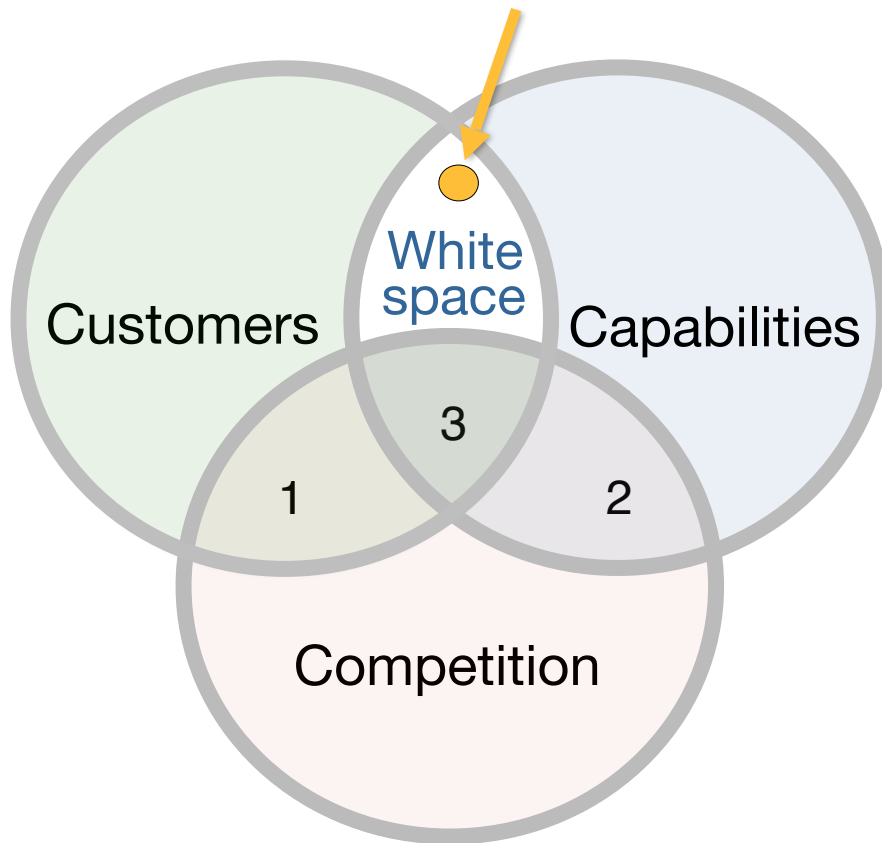


Important Opportunities



“3-C” Positioning

Beach-head users or customers



1 to 3 key insights

#1 Why not solved before

#2 Solution & business model

Example: Augmented Mobility

1. Important need:
millions of people
with limited mobility



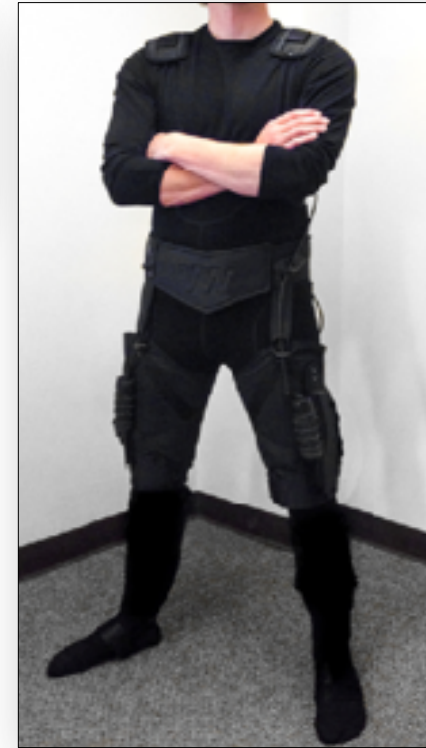
2. Key insight—
how to attach to
the body?



3. Key insight—
flexible coupling



4. Approach:
wearable
augmentation



Definition of Customer Value

$$\text{Value} = \frac{\text{Customer benefits}}{\text{Customer costs}}$$

Benefits & costs perceived by the customer: not us

Core Framework: Value Proposition

Need

Approach: offering & sustainability model

Benefits / costs

Competition & alternatives

- Complicated systems *don't* work
- Start with the basics to simplify learning, search, and creativity

The Most Common Failure



- 95% of presentations are like this
- If you can't describe your value proposition, you don't yet know what you are doing

Critical Importance of NABC

Need
Approach
Benefits/costs
Competition

Siri
10 yrs.



Value-Creation Forums

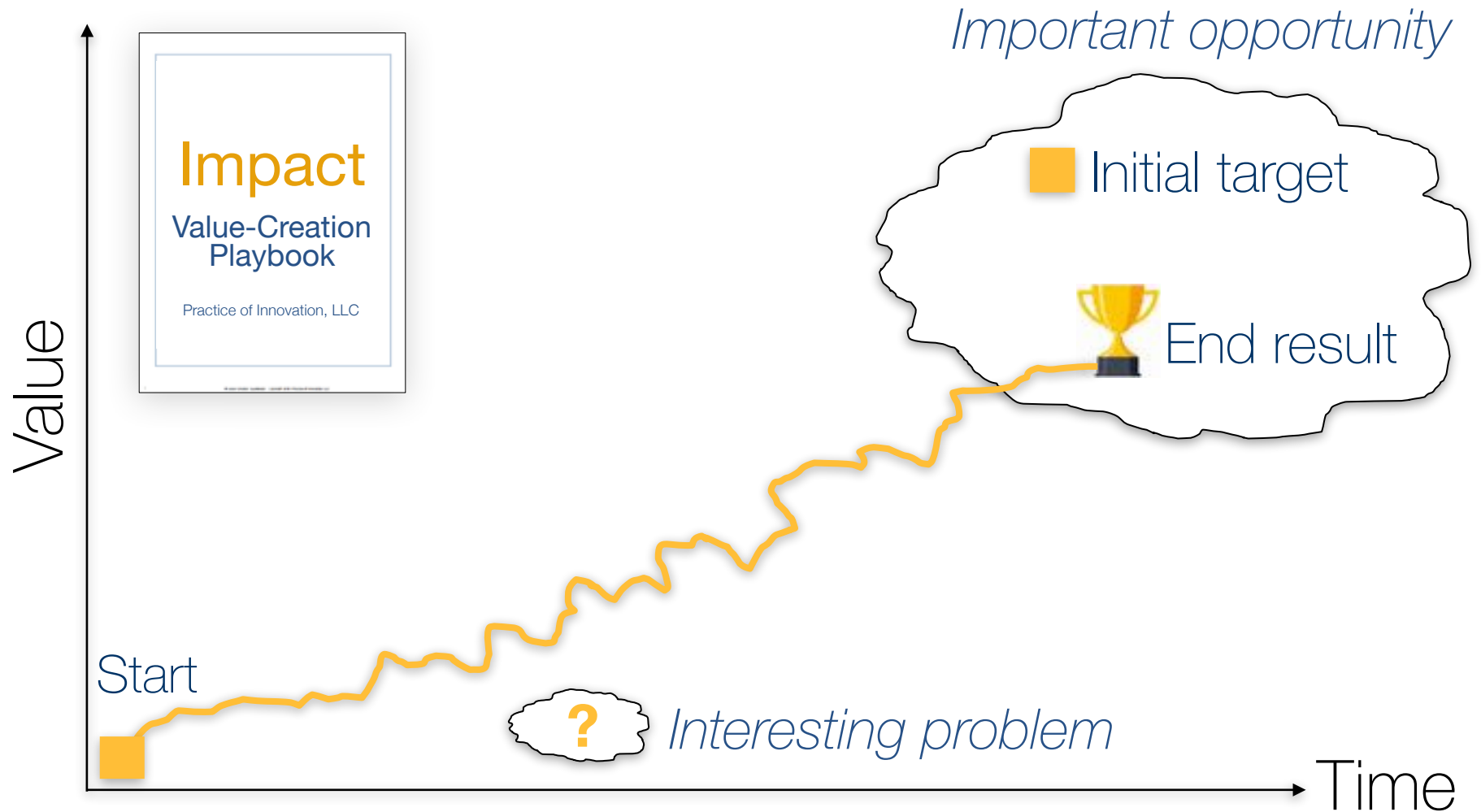
Comparative learning for “exponential” improvement



“Which is better, A or B?”

- Recurring, multidisciplinary, and facilitated meetings
- 4-6 teams, 2-10 minute NABCs with feedback
- Presenters listen: no arguing
- Learn risk-reduction, IP, “bring-it-to-life”

How High-Value Innovations Develop



Suggested NAE Implementation for NSF



Kick off

Working hypothesis for the value proposition



Workshop

Team alignment on value creation



Value-Creation Forums

On-going collaborative value creation



Summary

- We won't thrive on talent and hard work alone
- A paradigm shift in innovative impact is possible
- We must move to a focus on value creation
 - Important opportunities
 - NABC value propositions & Value-Creation Playbook
 - Comparative learning
- Improvement possible: 2-10 times
- Example: team projects at WPI



The way we work is our most important innovation ©

Thank You: Discussion

Curtis R. Carlson, Ph.D.

Founder and CEO, Practice of Innovation, LLC

President and CEO, SRI International: 1998–2014

email: curt@practiceofinnovation.com

website: www.practiceofinnovation.com

October 16, 2018