

INNOVATION: the 4th factor of production

g dan hutcherson

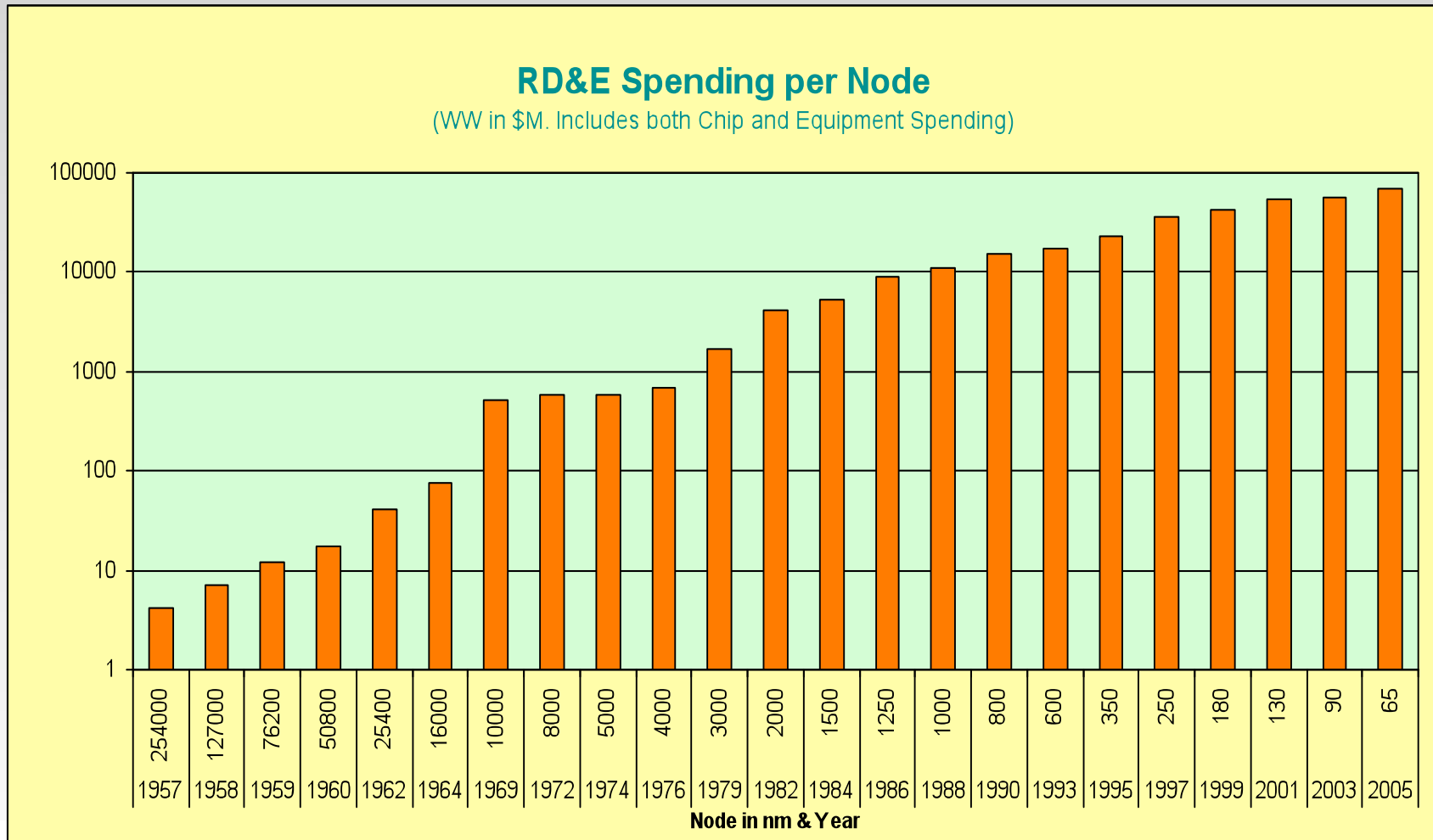
May 2009

weSRCH
Internet networking for Professionals

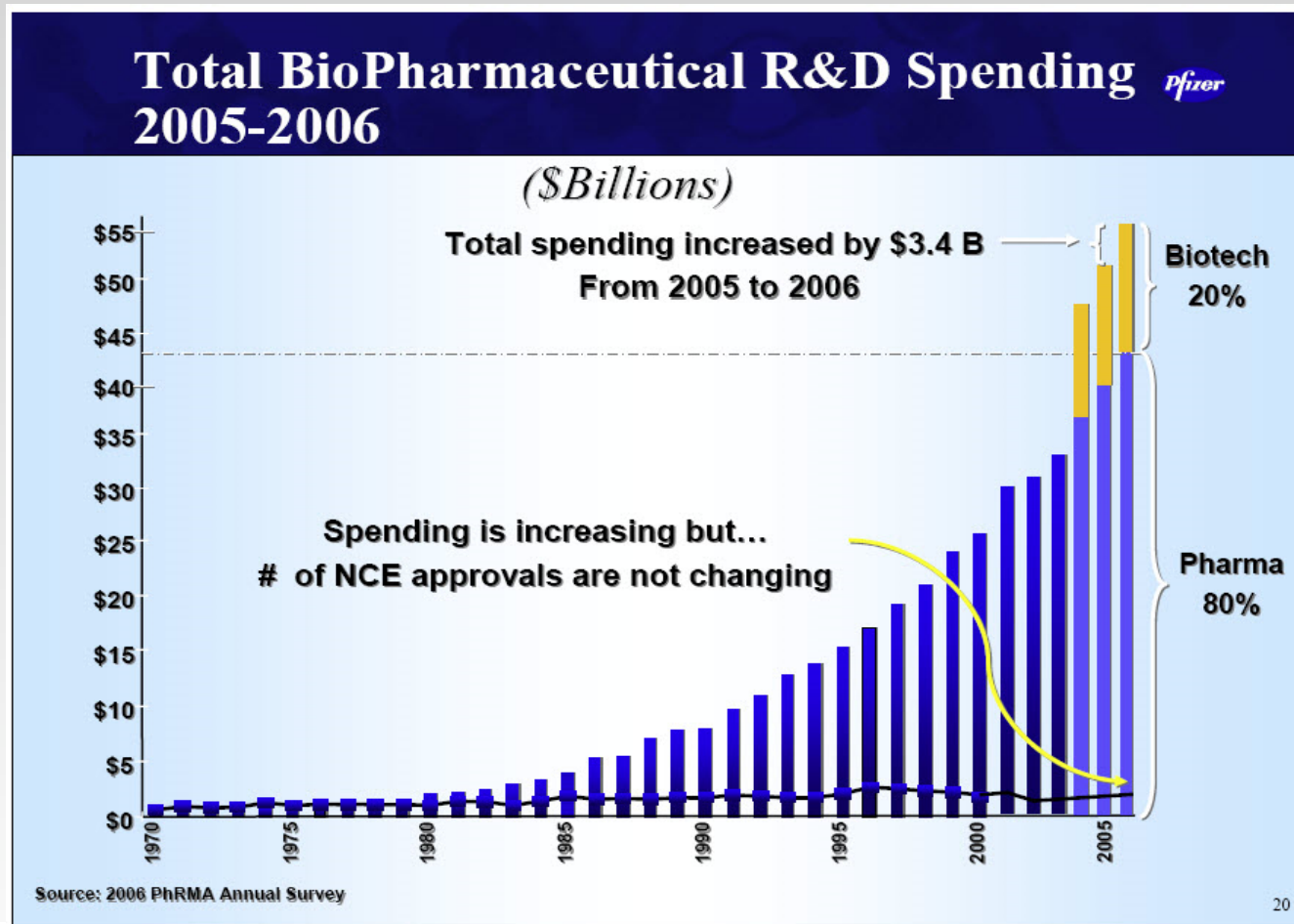
High Tech
Medicine
GreenTech

weSRCH.com
VLSIresearch.com
ChipHistory.org

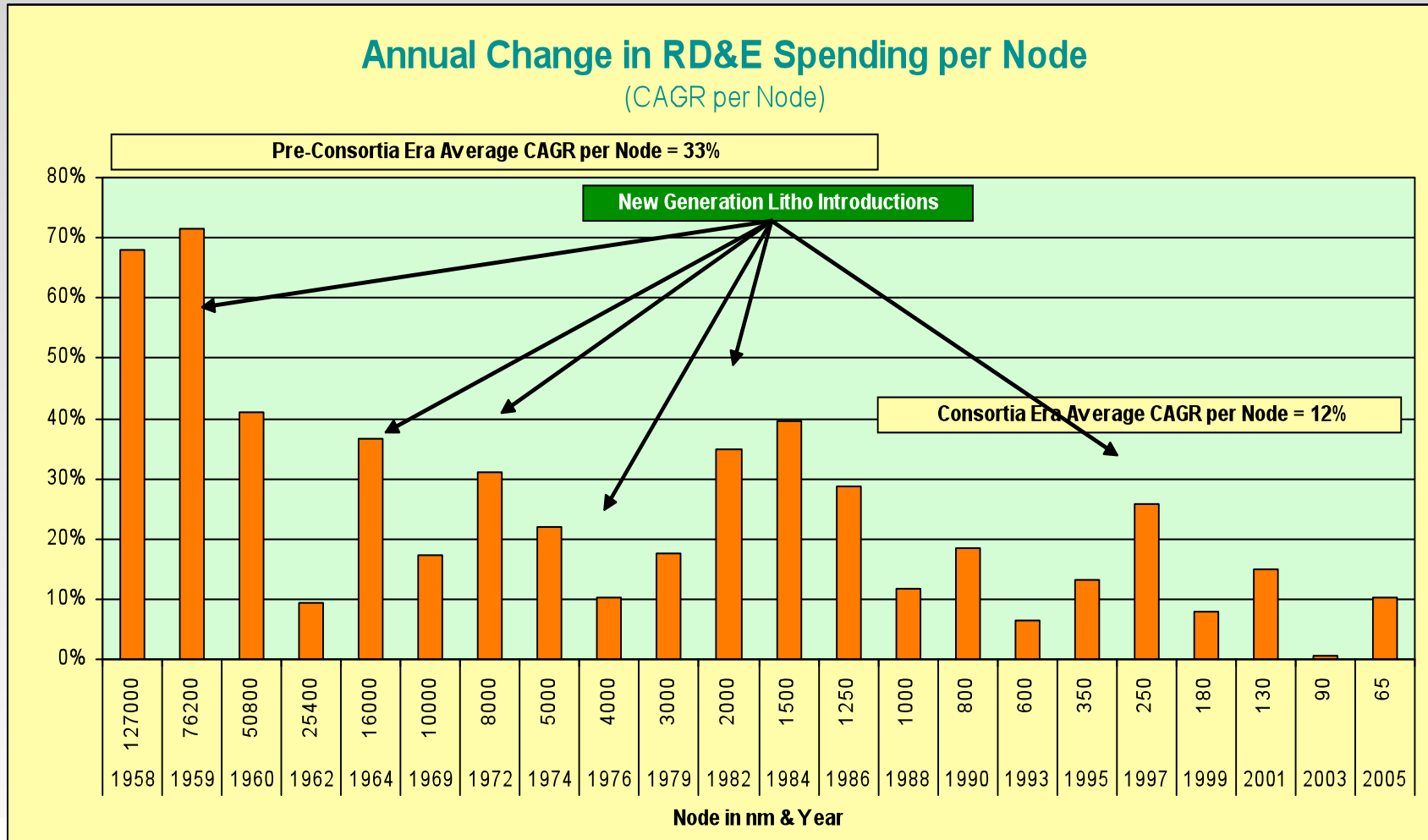
Some time ago I noted that R&D was getting Incredibly EXPENSIVE



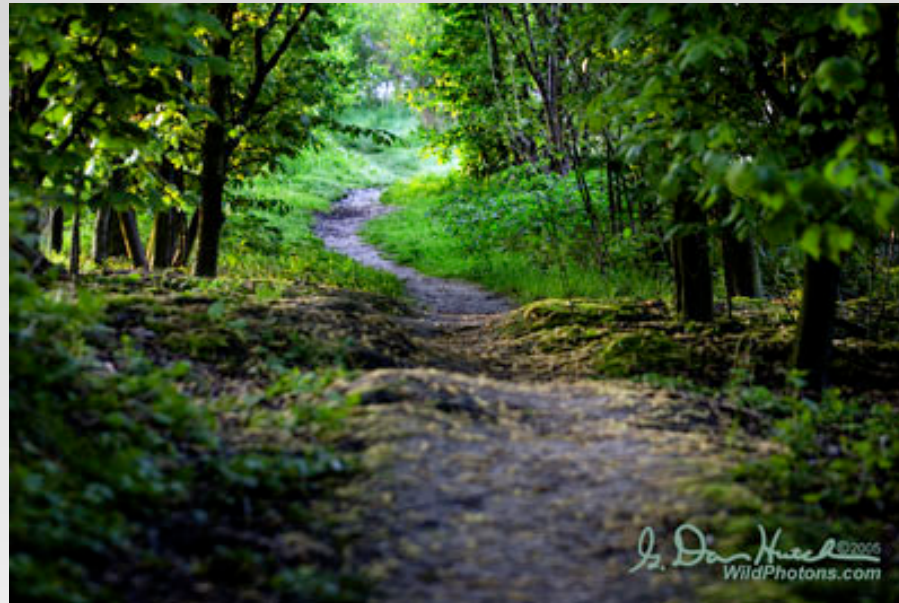
And it was becoming Incredibly
EXPENSIVE in other fields as well



We Learned in the 90's that the Open Model is the Right Model



New Development Paths

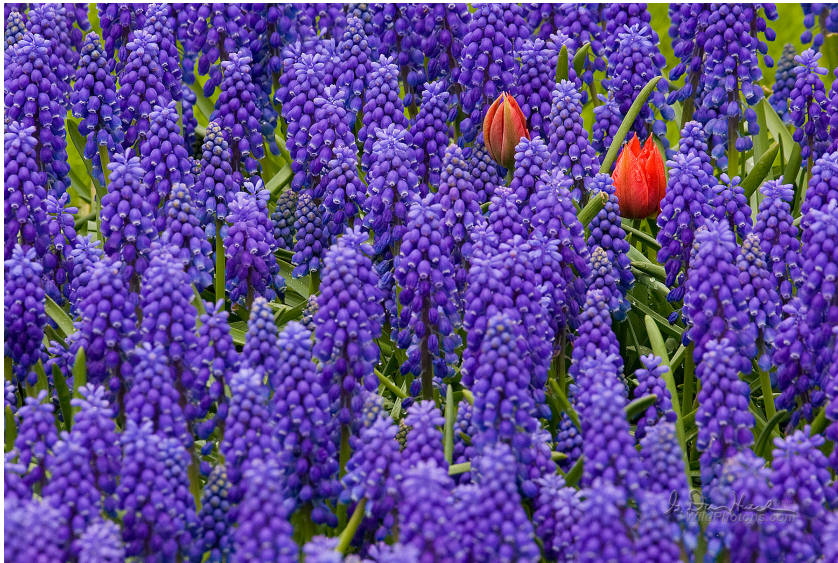


- A Business Model for R&D
- Social Media and Science 2.0



The Return On Invested Capital Business Model: **What's Wrong With ROIC?**

- The numerator, **Return**, is hard to raise
 - This is especially true for the financial side of the organization
 - Entails the risk of developing new strategies and products
 - Something the financial side abhors and has little control over.
- It's much easier to lower the denominator:
Capital.
 - You can variablize it
 - Leads to fab-lite strategy
 - Which leads to outsourcing strategies and loss of National Competitiveness in Technology



ROIC ignores the inherent **Value of R & D**

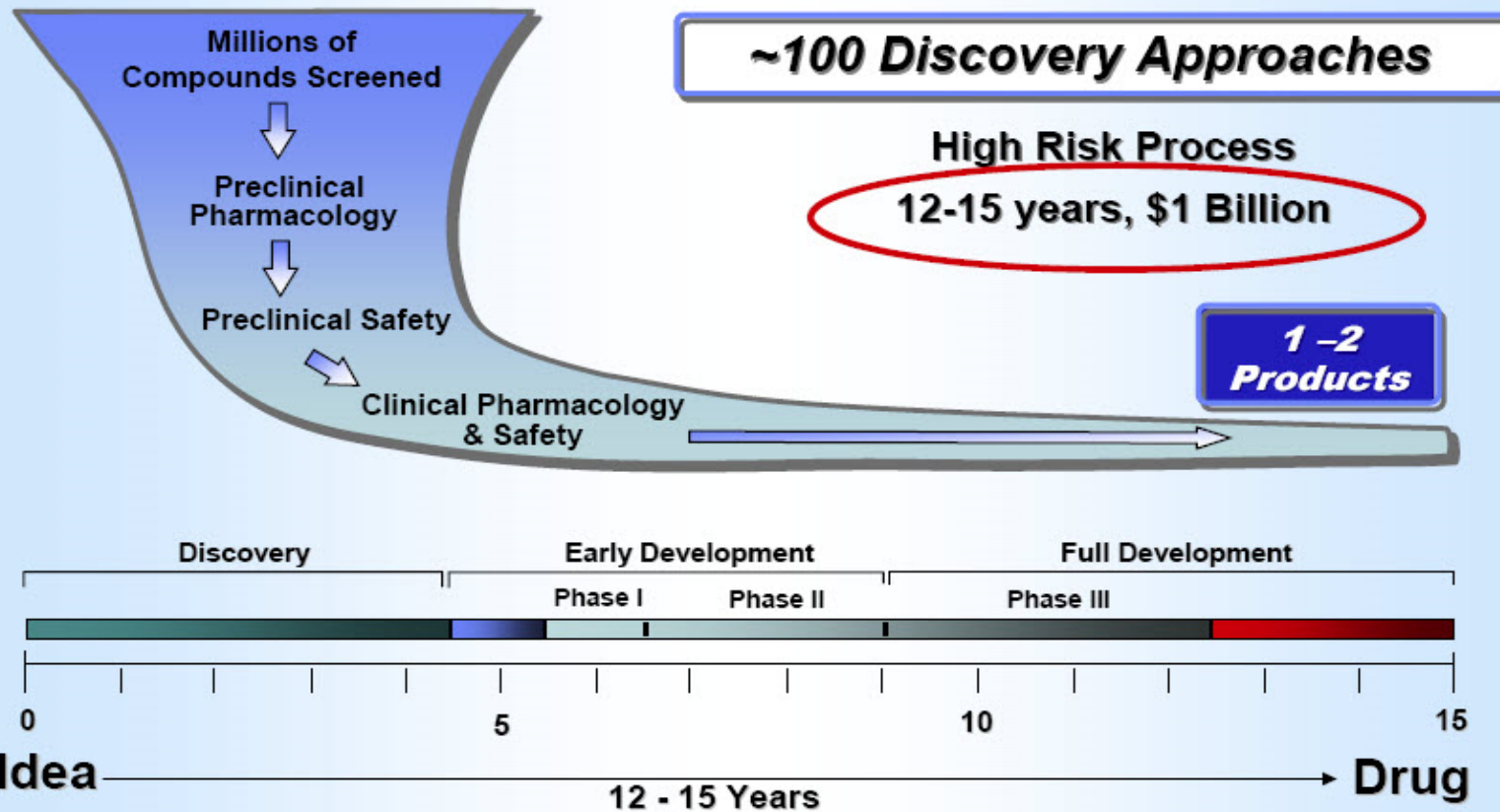
- R&D are the Seeds of Differentiation
 - Problems are markets
 - Solutions are products
- Research enables Development
- Development enables Differentiation
- Differentiation enables pricing power
 - It's the only way to Raise Return

A New Financial Metric to Drive Revenue Growth: **RonR**

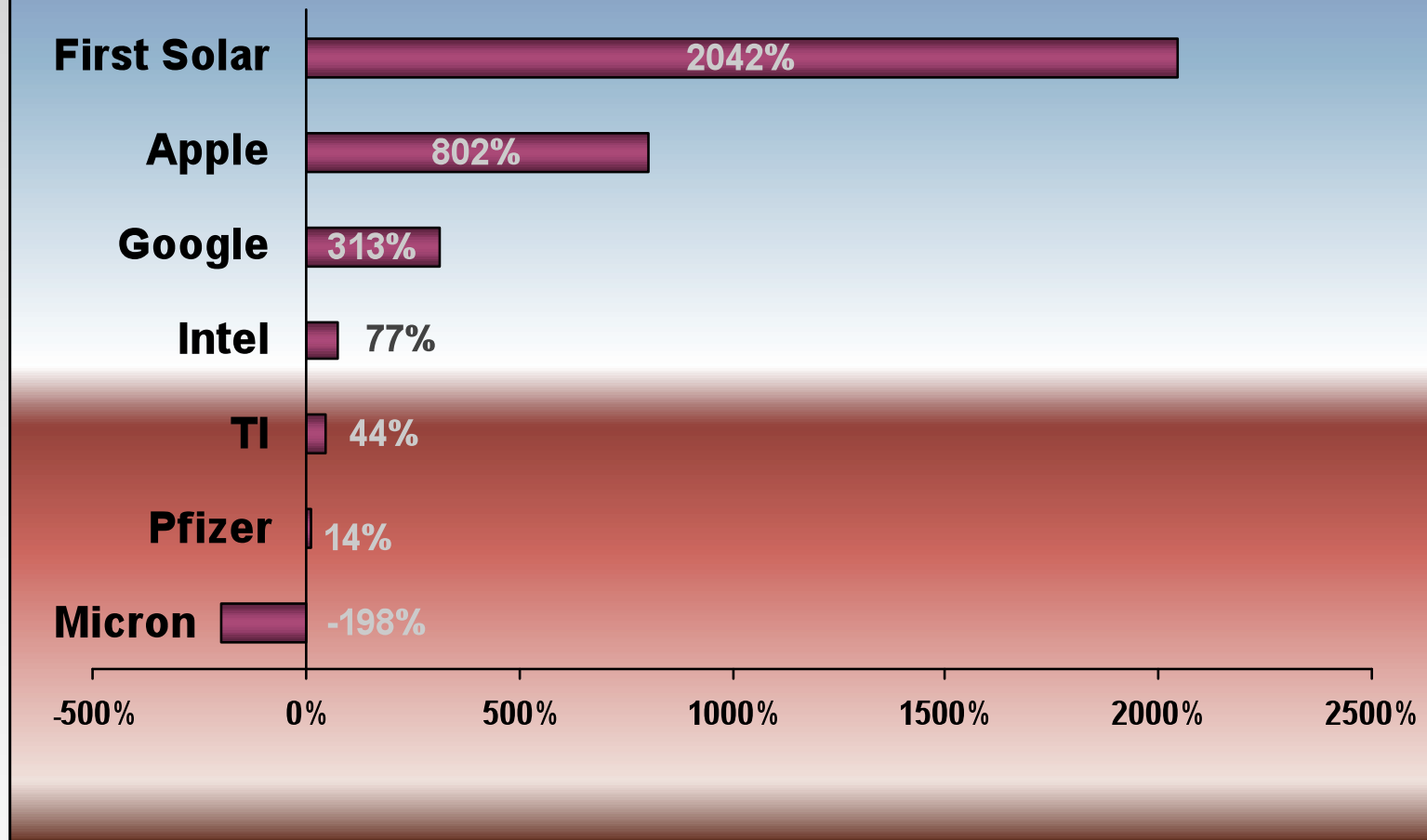


- RonR: **R**eturn **o**n **n** years of **R**,D, & E
 - A year's **R**eturn divided by Cumulative **R**&D over **n**
 - **n** equals the length of the Development Life Cycle.
- Examples:
 - Each semiconductor development node is 2 years
 - A electronic design is about one year
 - Pharmaceuticals are > 10 years

Attrition is the Name of Game



RonR: Return on n years of R&D in 2008

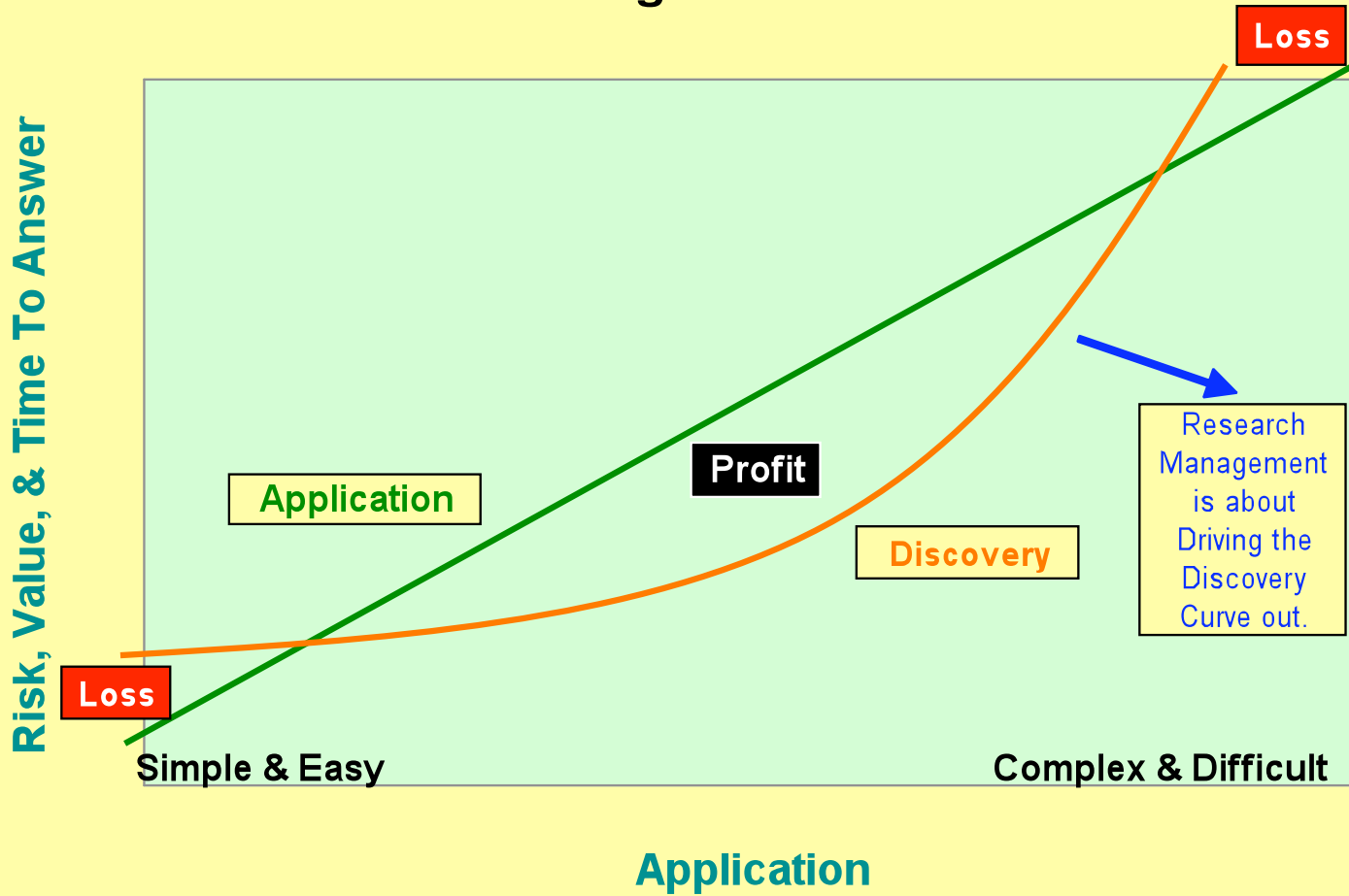


So, how do you improve RonR?

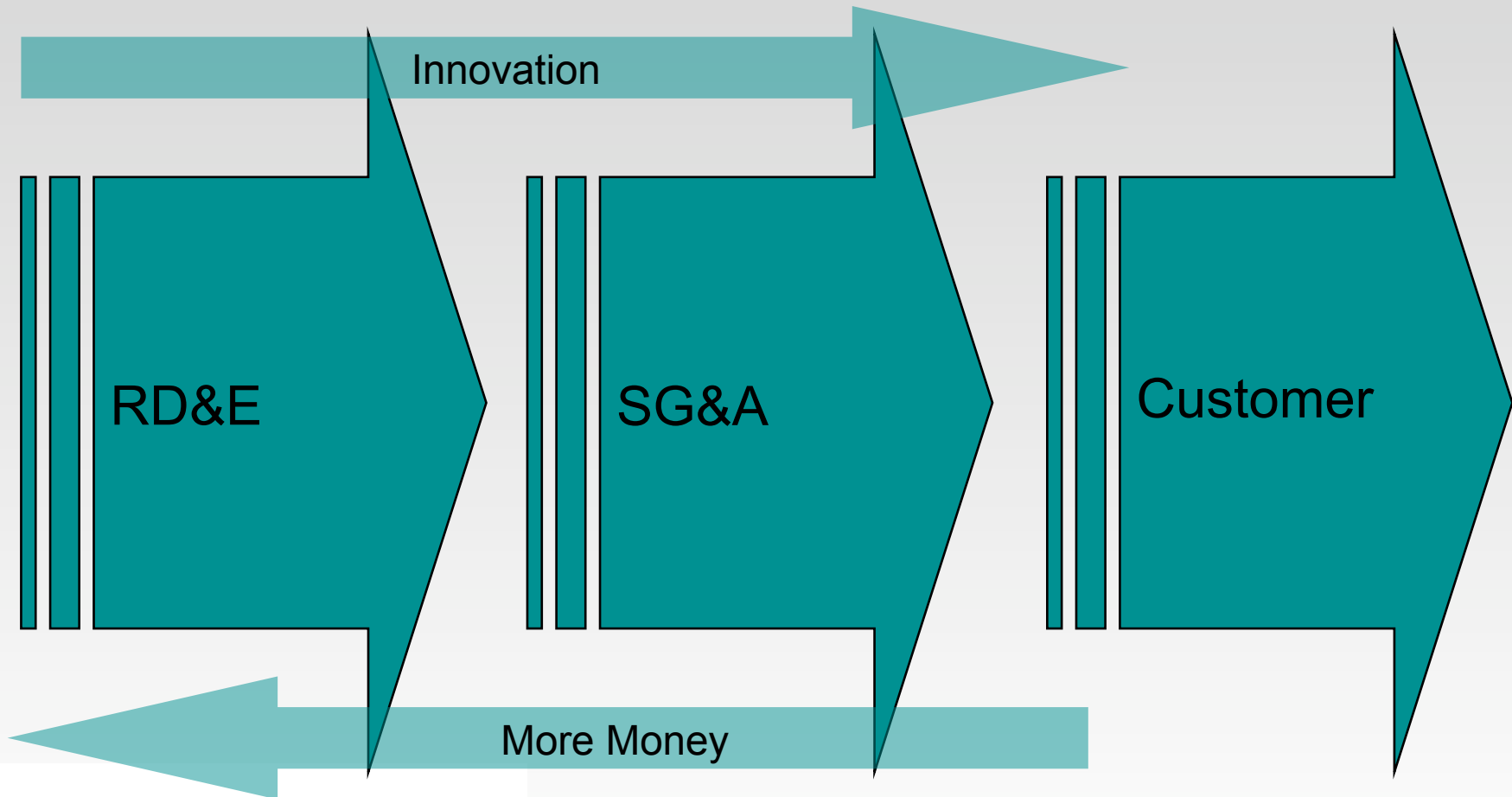


In a systematic and manageable manner.

Maximizing Research Assets

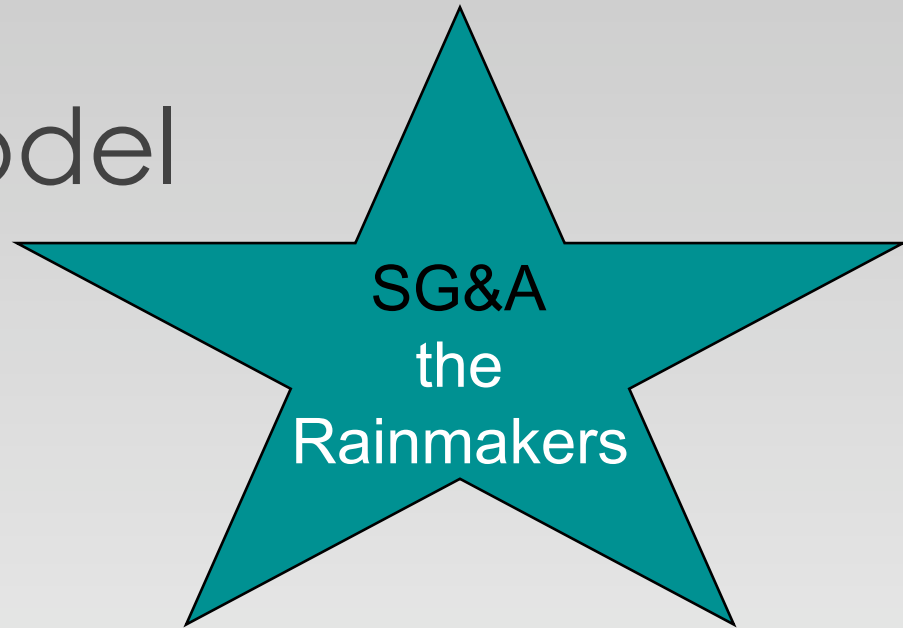


RonR, RoS and the chain of Differentiation



R&D:

The Old Model

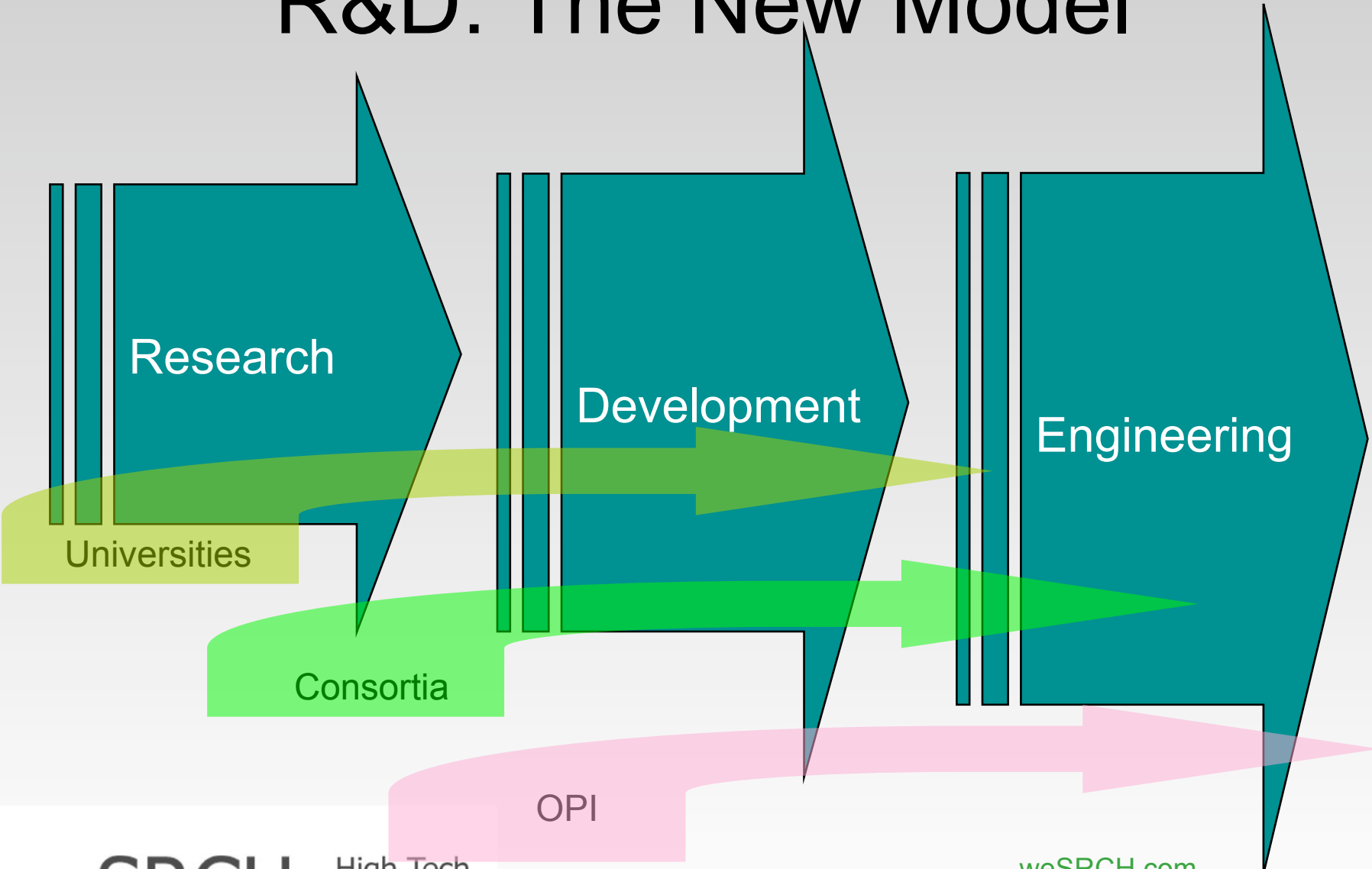


The History of Corporate R&D is pretty incomprehensible

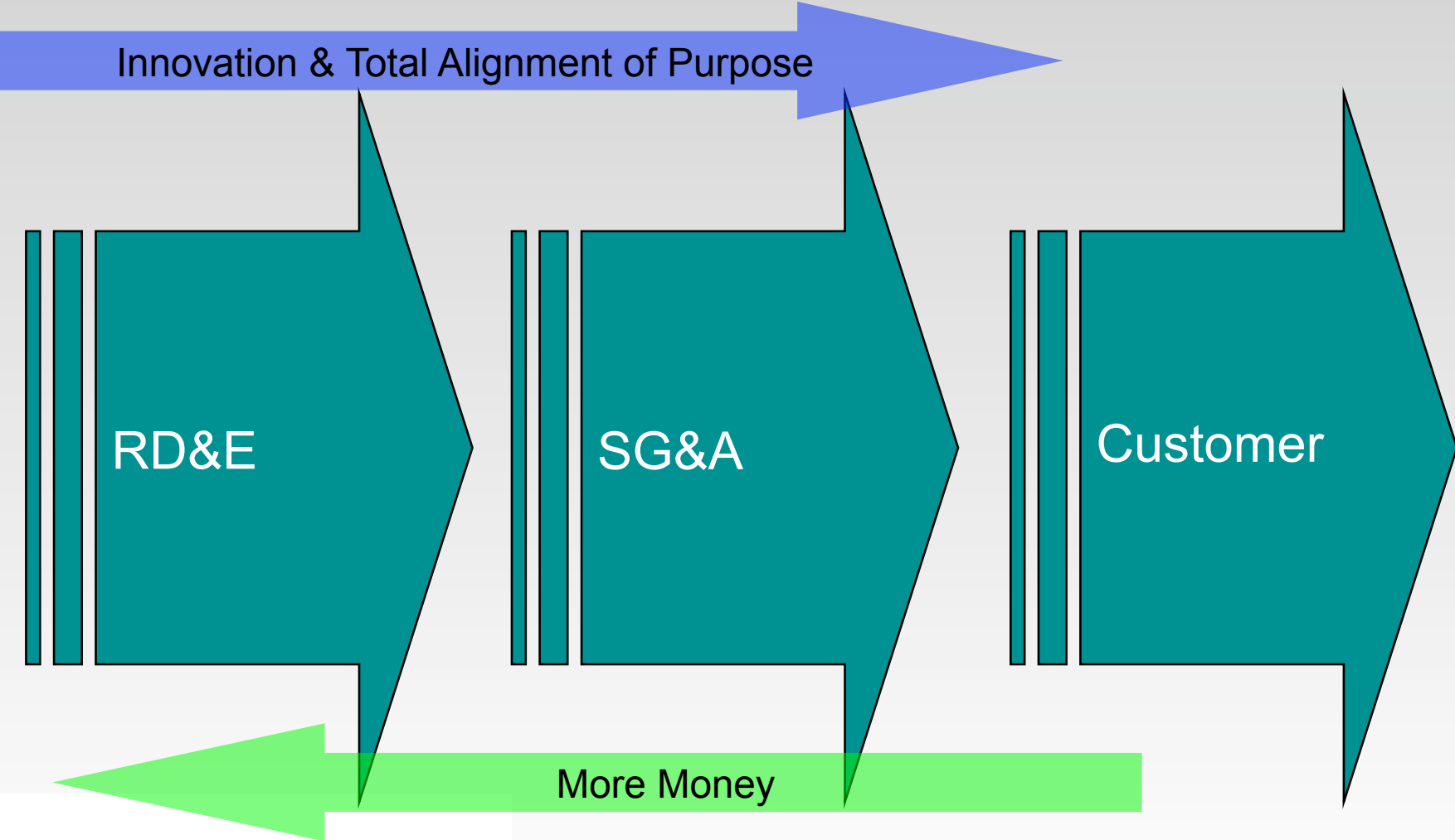


- Edison started the 1st Corporate Research Lab
 - Idea was that product came from innovation
 - Innovations come from research
- AT&T, a regulated monopoly, created Bell Labs
 - Need to burn money defocused research from customer

R&D: The New Model



R&D: The New Model



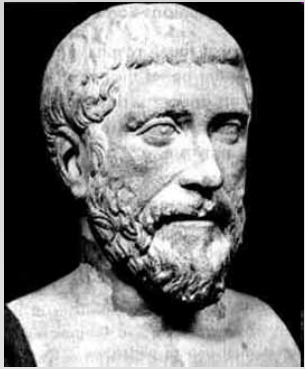
People make it all Possible

- Ideas only come from people, which are the result from the viral effects of. . .
 - **Community**
 - **Collaboration**

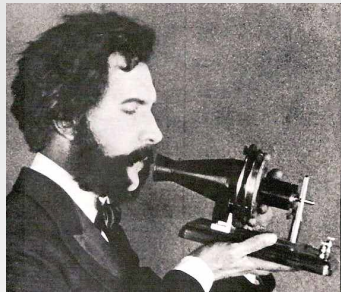
People make it all Possible

- Small teams are important
 - Throwing money at research does not spur innovation
 - People are less competitive in large groups
 - Large groups result in
 - More group think
 - More challenge to out-of-the box ideas
 - More conformity to peer group pressure

What Tools do we use?



Pythagoras



Alexander Graham Bell

- **Conferences**

- Before 400 BC?

- **Scientific Journals**

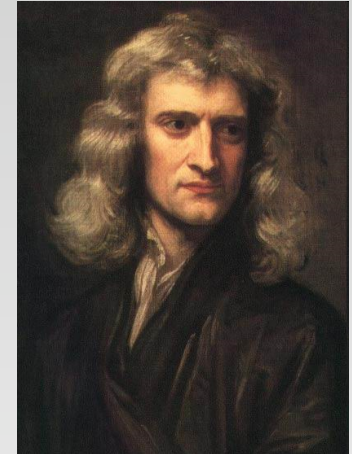
- 17th Century?

- **Telephones**

- 1876

- **e-mail**

- 1971



Sir Isaac Newton by
[Godfrey Kneller](#)



Ray Tomlinson

The calculation for science

— Rhoten's Law

$(\text{Moore's Law} + \text{Scientific Complexity}) \times \text{Digital Culture} =$

Science 2.0

- Diana Rhoten, Program Director
Office of Cyberinfrastructure,
National Science Foundation

New tools: Social Media/Science 2.0

- **Google**

– 1999



Larry Page and Sergey Brin

- **LinkedIn**

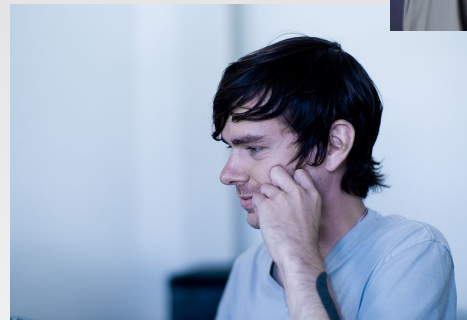
– 2003



Reid Hoffman
Also: Allen Blue
Jean-Luc Vaillant
Eric Ly
Konstantin Guericke

- **Twitter**

– 2006



Jack Dorsey

- **weSRCH**

– 2007

Dan Hutcheson
Manjesh Singh
Risto Puhakka

Why is Twitter Important?

- Not Spamable
 - You control who can talk to you
- It's Mobile:
 - 3 things you always have nearby:
 - keys, wallet, & cell phone
- Actively searchable
- Keyboard diarrhea not possible
 - Only 170 characters

Twitter, I don't get it?

- Largest user base is 35-45 year olds
 - Then 25-35, then 45-55
- Some things you need to know:
 - Listen first, talk later
 - RT: retweet
 - TinyURL
 - Tweetdeck
 - Twazzup

Follow me on Twitter @WildPhotons

Why is weSRCH.com Important?

The screenshot shows the weSRCH.com homepage with several callout boxes pointing to specific features:

- Easy Access to Each Professional Field:** Points to the left-hand navigation menu listing various fields like High Tech, Business, Consumer, Displays, IT, Mobile, Photo, Semiconductors, Medicine, Green Tech, and Ask weSRCH.
- Easy Access by Activity Interest:** Points to the top navigation bar with categories like Conferences, Papers, Jobs, News, Press Releases, Communities, Wiki, Upload, and myweSRCH.
- Available in 7 Languages:** Points to the Language dropdown menu in the top right corner.
- Fast & Easy Login for Members:** Points to the Member login form on the right side of the page.
- Video Interviews with the Key Thought Leaders:** Points to the weVISION section featuring video thumbnails of industry leaders.
- Meet and Contact Peers:** Points to the weSRChers section displaying profiles of recent members like Larry Sunney, Adele Hars, du bo, and Chris Hayden.

Other visible features on the page include:

- Latest Papers, Latest News, Editorial Blog, Latest Press Releases:** A row of buttons at the top center.
- Hot Papers:** A section featuring articles like "Nanomedicine" by Raj Bawa, PhD, "Prosthetics" by Dr Margrit R. Meier, and "Energy Resources" by Hans Müller-Steinhagen.
- Most Recent Papers:** A section listing recent publications such as "M2M Connectivity", "What the Future Holds for Nuclear", and "Ovarian Cancer: 'The Silent Killer'".
- Siemens Answers:** A featured article titled "Digital engineering for more flexibility and lower costs."

At the bottom of the page, there is a footer with links for About us, Advertising, FAQ, How to use WeSRCH.com, Contact us, Terms of Services, Copyright, Feedback, Privacy Notice, and Links, along with the copyright notice: Copyright © 2009 weSRCH. All rights reserved.

Why **we**SRCH? Because it's directly relevant to your career

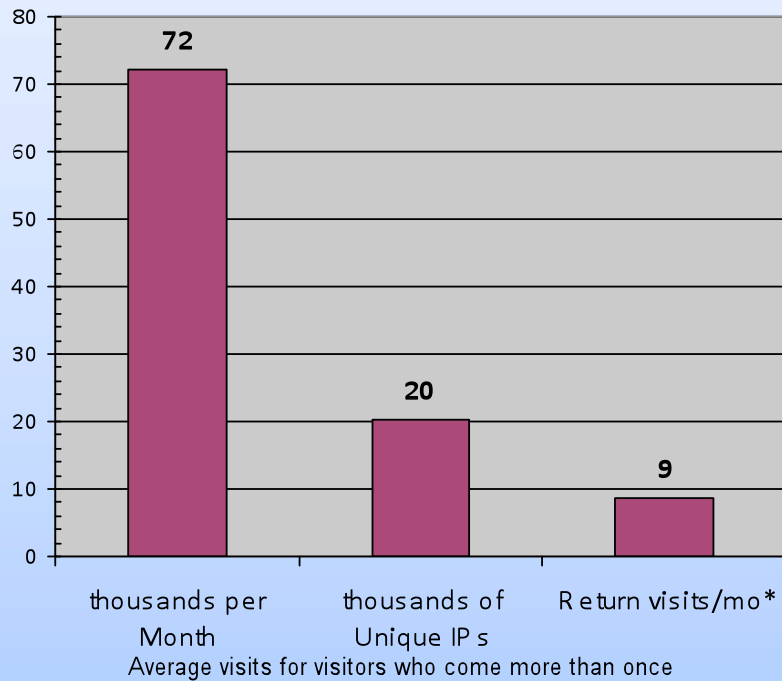
- Find Jobs
- The most relevant content distilled to their specialty *from multiple sources*
- Read & Upload technical papers, press releases
+ *a great news search & display engine*
- Search our Data Wiki for 3D decision making
- Find the relevant conferences
- Create brainstorming communities

Member's Personal Spaces

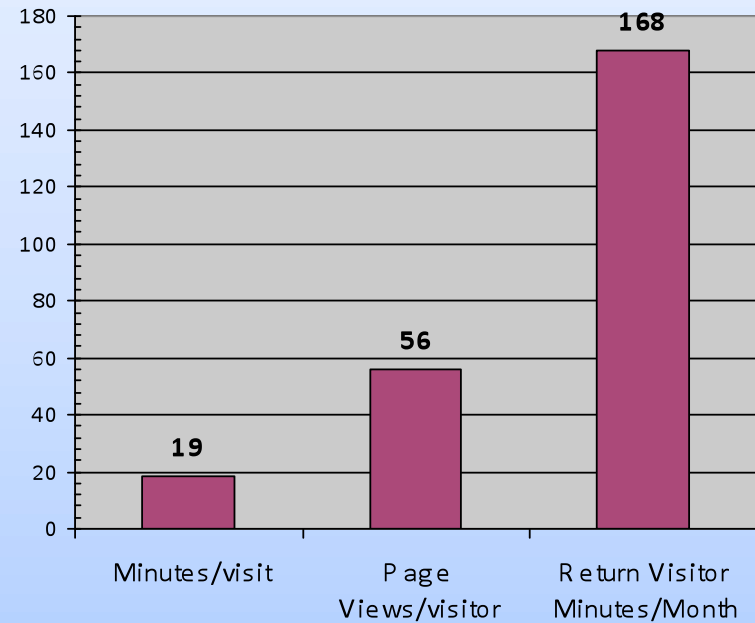
- **myPROFILE** is a place to manage their resume and give it full visibility for career-marketing.
- **myCONTACTS** is for networking directly with peers.
- **myALBUM** is for storing & managing photos.
- **myweSRCH** is a place to manage their uploads.
- **myLIBRARY** is for storing & managing the content they need to refer to again and again.
- **myNEWS** is for storing & managing the news links to which they need to refer.
- **mySEARCH** is for storing & managing searches they've made.
- **myALERT** let's them make a search active. They get an e-mail alert whenever search criteria finds something new. myALERT also stores & and lets them manage alerts.

Do professionals really use weSRCH?

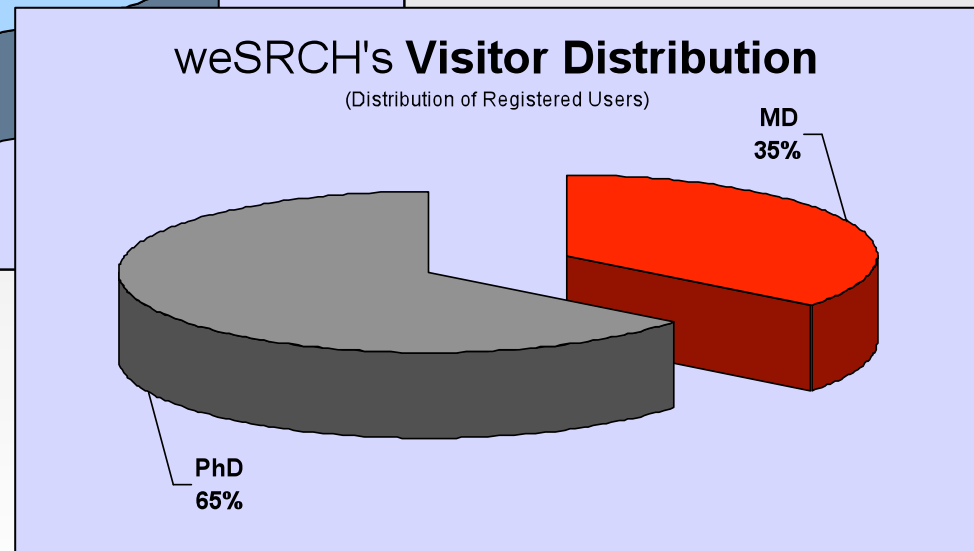
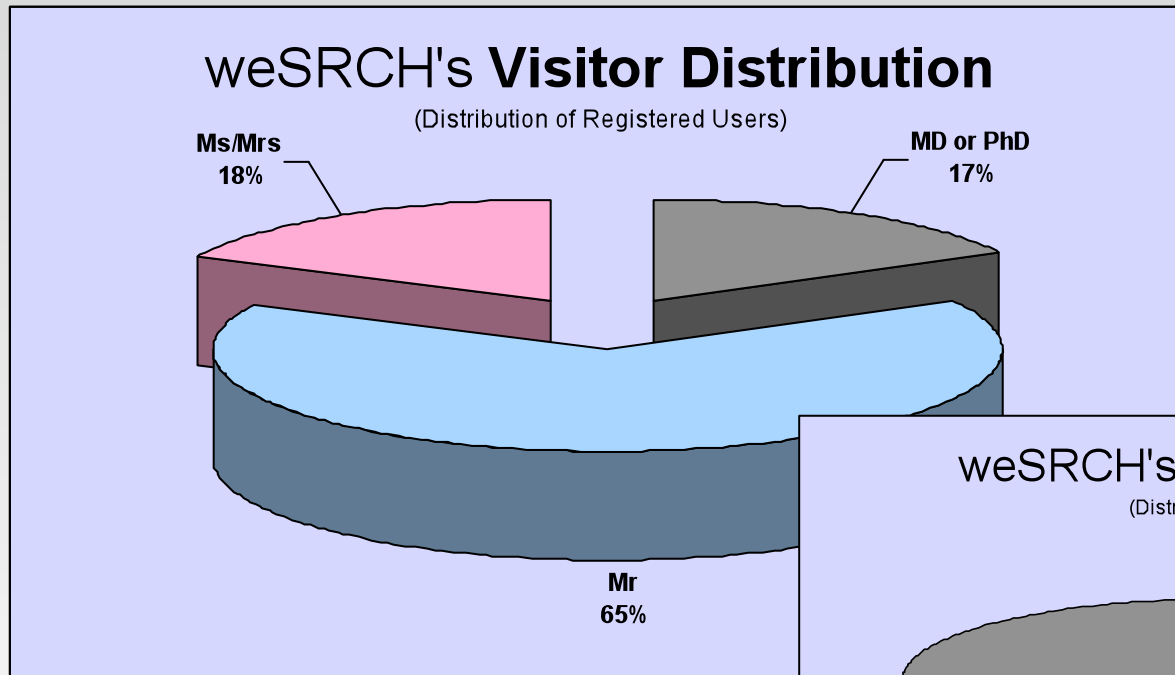
Visitors



Sti ckiness



Large Number of Advanced Degrees



We Clearly have our Challenges

- But, we are up to it
- All we need to do is make R&D more productive
- Apply a proven business model
- Use the new tools available to us

