

Why Measuring the ROI of R&D Is Critical and Urgent

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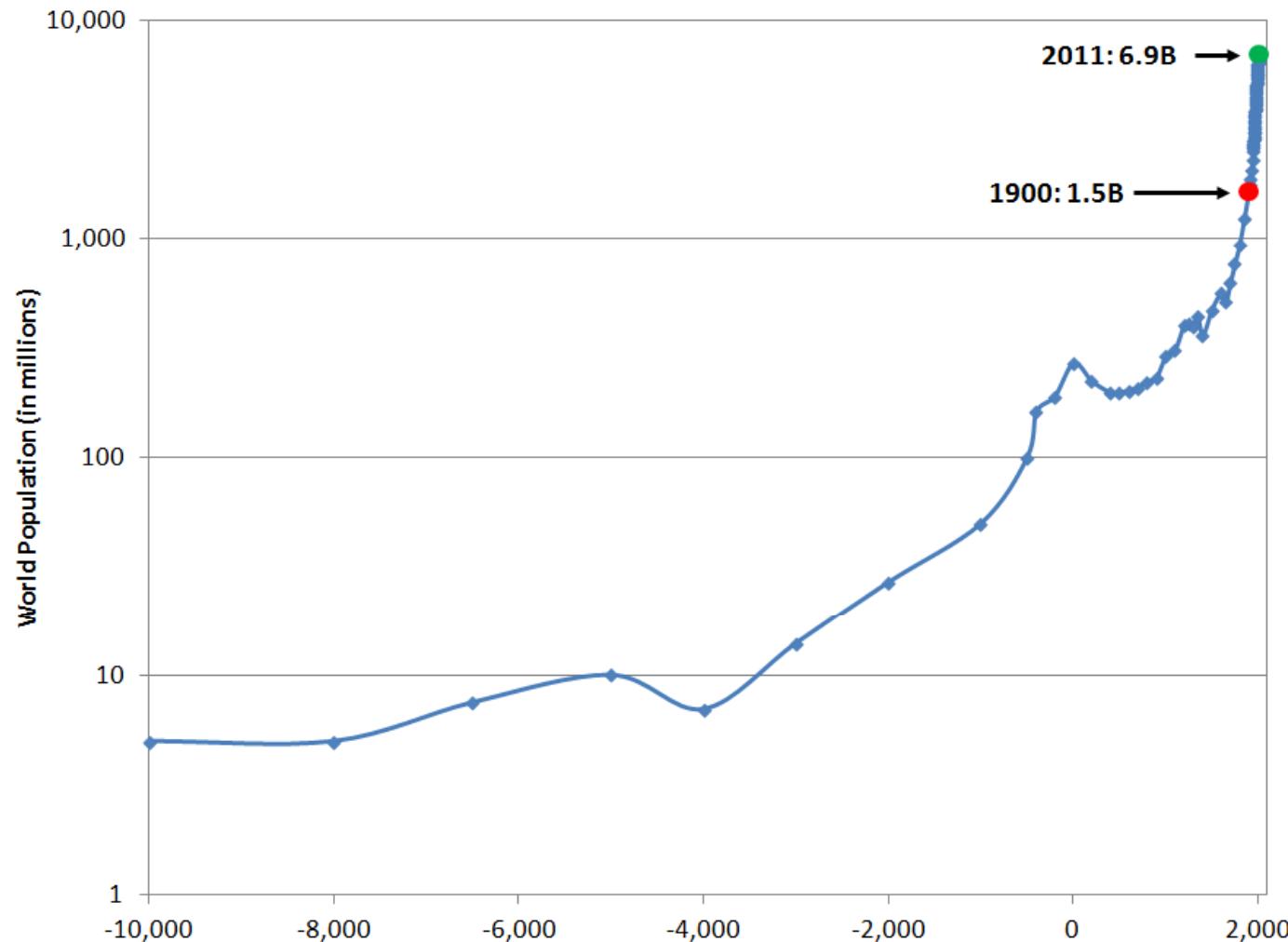
**Measuring Economic Growth: R&D Investments
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Challenges of a Successful Species

World Population, 10,000 BC to 2011 AD



Source: U.S. Census.

Challenges of a Successful Species

As society advances, the challenges get bigger

- Industrial pollution
- Flu pandemic
- Climate change
- Energy crisis
- Cancer
- Alzheimer's
- etc.

Three features in common:

1. **Highly complex and costly**
2. **Long horizons**
3. **Low probability of success of individual projects**

How do we deal with these challenges?

An Example: Cancer vs. Alzheimer's

- 1971 Nixon declared “war on cancer”
- Between 1970–2000, NCI spent \$82 billion; a total of \$300 billion including private sector R&D; NCI’s current budget is \$5.1 billion; Human Genome Project, \$3 billion
- In 2013, 12 new cancer drugs were approved
- Estimated net benefit to consumers from 1988–2000 (Lakdawalla et al., 2010): life expectancy increased 4 years, worth \$322,000, 23 million life-years, \$1.9 trillion
- The war on cancer has been a tremendous economic success!

An Example: Cancer vs. Alzheimer's

- Current annual cost to Medicare and Medicaid of treating Alzheimer's : \$142 billion
- Estimated cost of portfolio approach to Alzheimer's drug development (Lo et al., 2013): \$32 billion
- 2011 Obama declares "war on Alzheimer's" with the National Alzheimer's Project Act; 2014 budget includes \$100 million to support NAPA
- Number of Alzheimer's drugs approved between 2003–2013: **none** (only 4 drugs currently exist)
- We need much greater government engagement to deal with long-term (decades-long) projects

All Policy Decisions Involve Trade-Offs

During the Financial Crisis, we spent:

- \$250.5 billion on banks
- \$79.7 billion on the auto industry
- \$67.8 billion on AIG
- \$38.5 billion on housing markets
- \$20.1 billion on credit markets

Was it worth it? Would we do it again? What else could we have done with the funds?

You can't manage what you don't measure

Thank You!

References and Further Reading

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