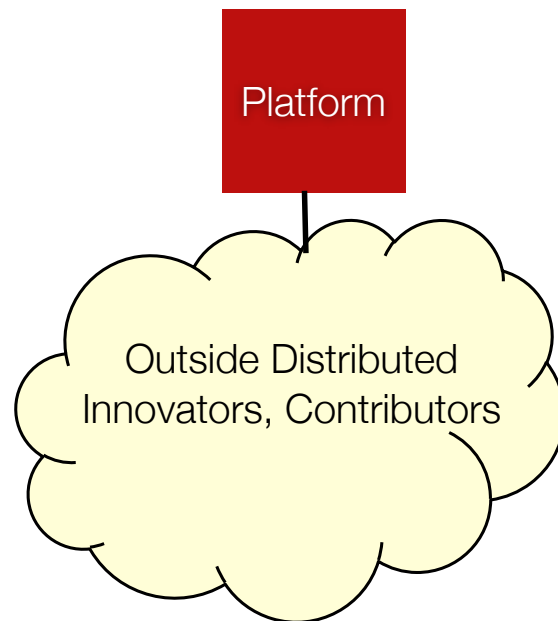


Some Concepts and Examples of Platforms & Distributed Innovation

Prof. Kevin Boudreau
London Business School, Strategy
Harvard University, Institute of Quantitative Social Science
Chief Economist, NASA Tournament Lab



Moving from Products to Platforms!



MY RESEARCH: Which design approach?

- Open platform marketplace (iTunes)
- Community contributions (F/OSS)
- Contests (Kaggle)
- System Integration (Renault)
- Multi-Sided Platforms (Amazon)
- Crowdfunding (Sellaband)
- User-generated content platform (Youtube)

...and Hybrid designs



4 Design Concepts & Examples of my Projects



Concept (1) of Distributed Talent



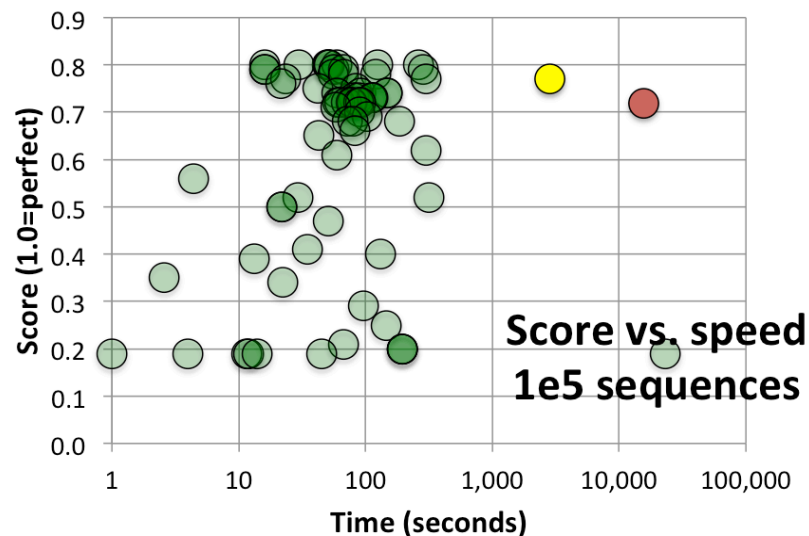


Harvard Medical School “Big Data” Genomics Problem (Boudreau, Lakhani, Guinan)

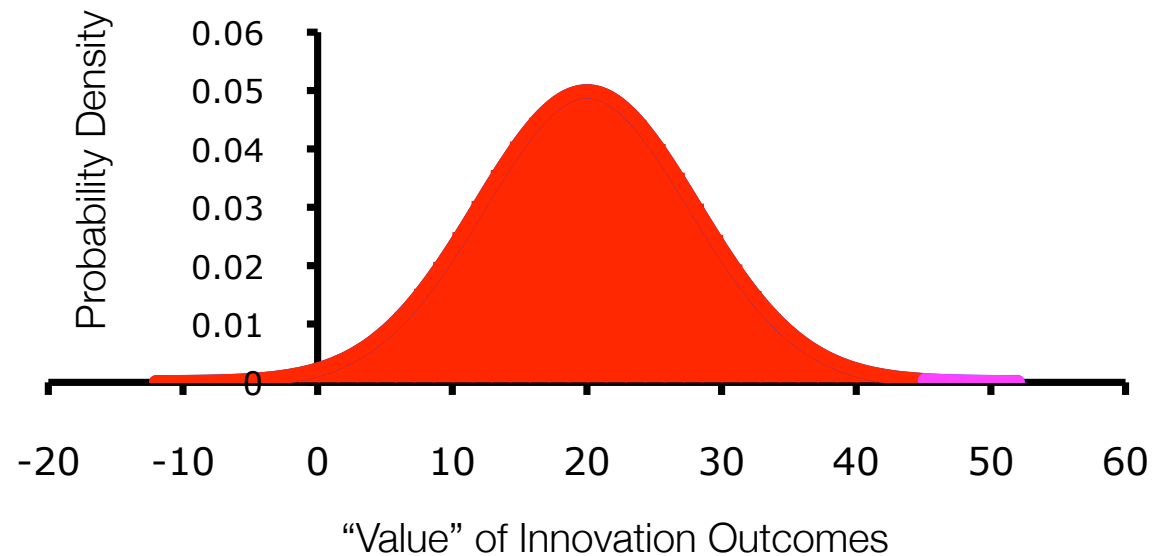
- ❑ Objective: Improve on NIH MegaBlast algorithm for nucleotide sequence alignment
- ❑ Experiment: Generate and evaluate external solver participation in development of gene-sequencing tools applied to immunoglobulin and antibody genomics
- ❑ Two week long competition - \$2000 prize pot x 3 on TopCoder.com

Contest Results Shows the Discovery of Extreme Value Outcomes Relatively Quickly

- 733 coders registered; 122 submitted 654 submissions
- 34 coders exceeded state of the art by $10^2 - 10^5$
- 10 different approaches to solve problem identified
- Winners from Russia, France, Egypt, Belgium & US

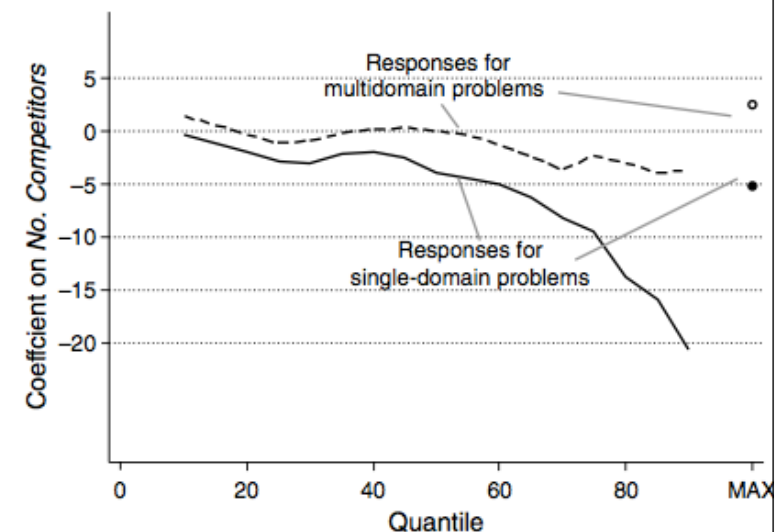


Concept (2) of “Large Numbers” lead to “Extreme Values”



Tradeoffs Between Incentives and “Extreme Value” Outcomes in Software Builds >9,000 contests (Boudreau, Lacetera & Lakhani 2011)

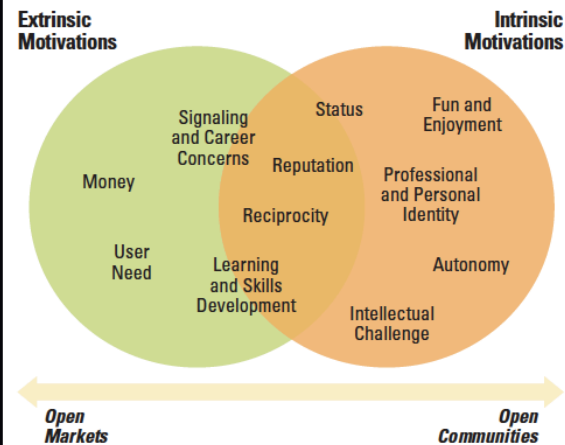
- Key question in contest design is about how many competitors should enter?
- Lots of entry means lower probability of winning - less incentives to work hard
- But this could be offset by finding an outlier response as more people come on
- Problem uncertainty moderates outcomes



Concept (3) of “Harnessing Motivations”

WHAT MOTIVATES EXTERNAL INNOVATORS?

The wide range of motivations that draw outside innovators to participate in a project can be classified into two broad categories: extrinsic and intrinsic. As a simple approximation, markets tend to favor the former, and communities are more oriented toward the latter.



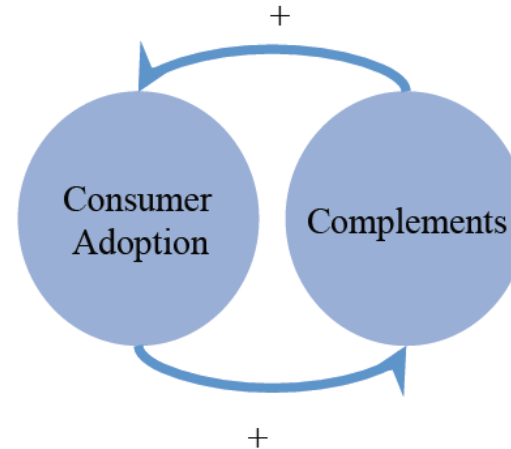
Sorting on Preference Major Driver of Effort and Performance

Dependent Variable = <i>HoursWorked</i>					
Model:	Competitive Regime				
	1	2	3	4	5
Explanatory Variables:	Two-Way Correlation	Linear Skills Control	Skills-Level Dummies	Ordered Pair Diffs	Prize Control
<i>SortedonPreference</i>	8.33*** (1.75)	8.33*** (1.75)	8.36*** (1.76)	8.71*** (1.79)	8.32*** (1.71)
<i>CashPrize</i>					9.14*** (1.85)
<i>SkillRating</i>		-1.09 (1.59)	-4.87 (4.30)		-3.60 (4.19)
Skills Dummies			Yes		Yes
Constant	6.60*** (.84)	8.07*** (2.28)			
R-Squared	.04	.04	.05	.55	.09

Notes. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively; heteroskedasticity robust standard errors reported.

Concept (4) of Fostering Network Effects

CANONICAL CROSS-
PLATFORM NETWORK
EFFECT





Managing Network Effects in Mobile App Platforms

Organization Science

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Let a Thousand Flowers Bloom? An Early Look at Large Numbers of Software App Developers and Patterns of Innovation

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It is often presumed that bringing more members on board a multisided platform will stimulate value creation. Here, I study the case of thousands of software producers building applications (“apps”) on leading handheld computer platforms from 1999 to 2004. Consistent with past theory, I find a lockstep link between the numbers of producers and varieties of software titles that are generated. Furthermore, the evidence suggests that it is the heterogeneity and diversity of producers,