

## **Where is the Boundary?**

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## The Boundary of a Business School

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**#2**  
New York's rank as the second-largest city economy in the world after Tokyo

**1 TRILLION**  
the number of sensors connecting the digital and physical worlds by 2015

**33%**  
Percentage of incoming fall full-time students who are international or dual citizens

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## The Economy as an Interdependent System



“[T]he economic system is a whole for which the parts are connected and react on each other. An increase in the incomes of the producers of commodity *A* will affect the demand for commodities *B*, *C*, etc., and the incomes of their producers, and, by its reaction will change the demand for commodity *A*.”

--Augustin Cournot, *The Mathematical Principles of the Theory of Wealth*, 1838

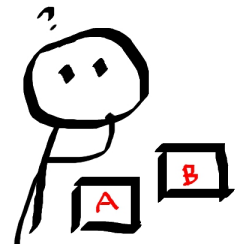
## What Does Game Theory Have to Say ...

### Prisoner's Dilemma?



Strategy A

Strategy B



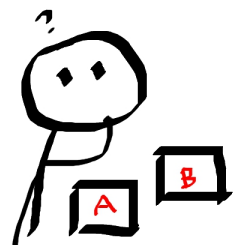
Strategy A

Strategy B

Strategy A	Strategy B
3, 3	1, 4
4, 1	2, 2

What Does  
Game Theory  
Have to Say ...  
Dr. Pangloss?

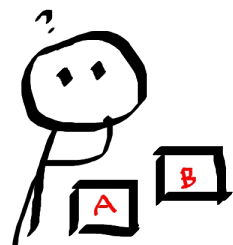


		Strategy A	Strategy B
Strategy A		3, 3	2, 2
Strategy B		2, 2	1, 1



What Does  
Game Theory  
Have to Say ...  
Coordination!



		Strategy A	Strategy B
Strategy A		3, 3	0, 0
Strategy B		0, 0	1, 1

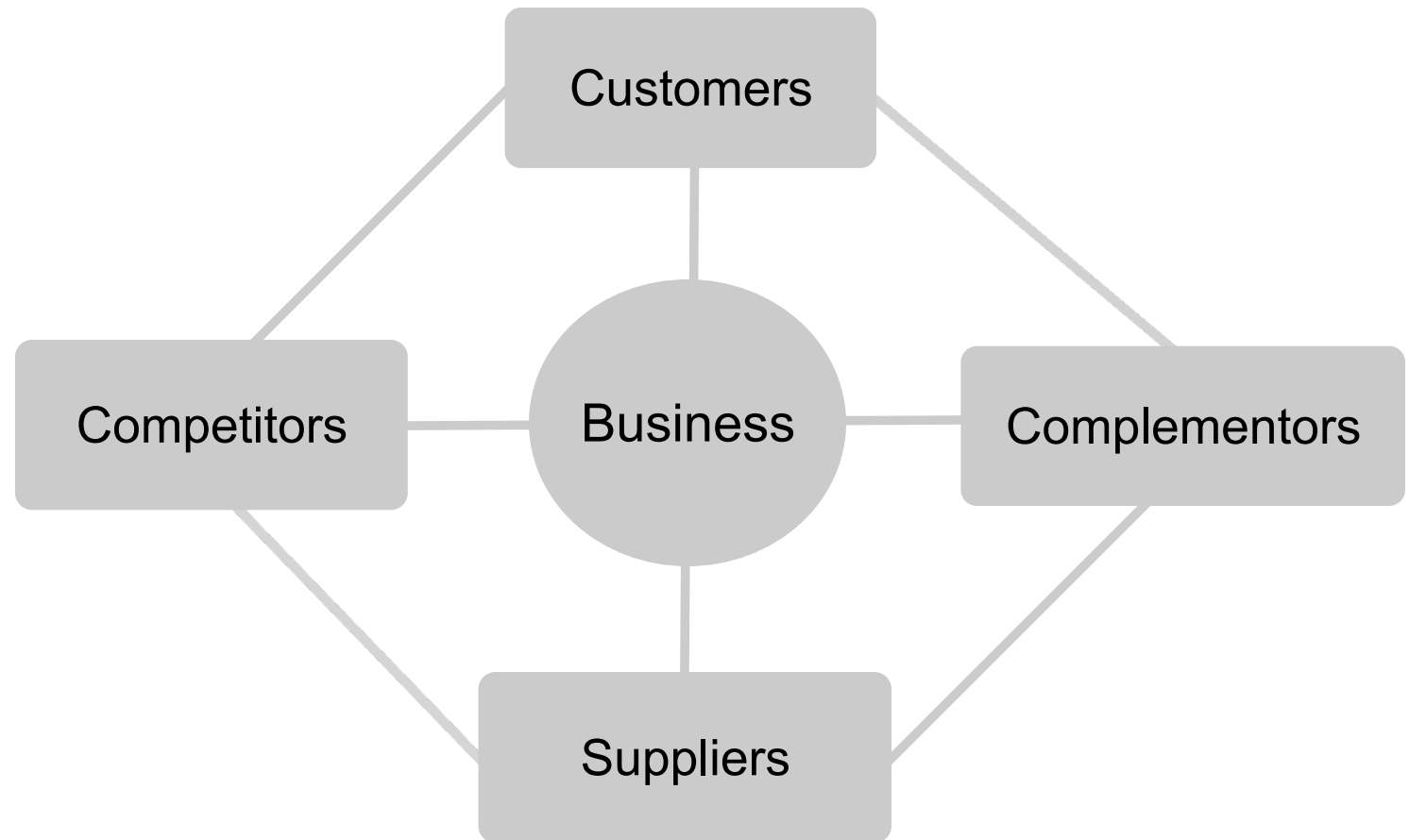
## Example of a Coordination Problem



“To find several hundred different [automobile] manufacturers ... benevolently engaged in co-operative competition, justifies ... the optimism which sees the world as growing better.”

-- H.L. Barber, *Story of the Automobile: Its History and Development from 1760 to 1917*, A.J. Munson & Co., 1917

## The Value Net



## A Theorem of Game Theory \*

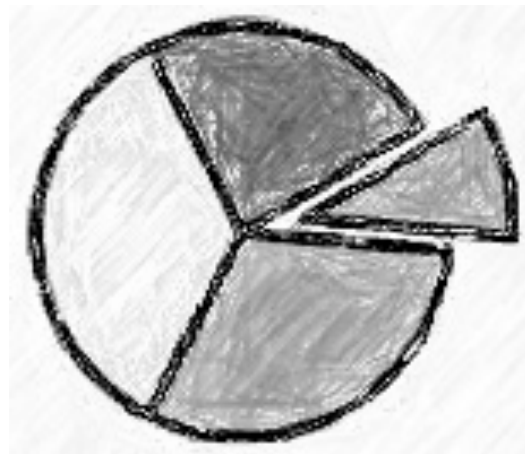
If a game exhibits

**no** coordination problems

**no** externality problems

**no** bargaining problems

then individual actions lead to the creation of the largest overall pie



\* See “Biform Games,” by Adam Brandenburger and Harborne Stuart, *Management Science*, 53, 2007, 537-549

# The Invisible Hand



[http://en.wikipedia.org/wiki/The\\_Invisible\\_Man\\_\(film\)](http://en.wikipedia.org/wiki/The_Invisible_Man_(film))



**Fortunately ...**

“Students of law, economics, and politics lack the tools to look at their own society with any objectivity. What are they going to compare it with? They rarely, if ever, consult the vast knowledge of human behavior accumulated in anthropology, psychology, biology, or neuroscience. The short answer derived from the latter disciplines is that **we are group animals: highly cooperative, sensitive to injustice, sometimes warmongering, but mostly peace loving**. A society that ignores these tendencies can’t be optimal. True, **we are also incentive-driven animals, focused on status, territory, and food security**, so that any society that ignores those tendencies can’t be optimal, either. **There is both a social and a selfish side to our species.**”

-- Frans de Waal: *The Age of Empathy: Nature’s Lessons for a Kinder Society*, Harmony Books, 2009, pp.4-5