

Factors that Foster Application Innovation

Barbara van Schewick
Stanford Law School

FCC Workshop on
„Innovation, Investment, and the Open Internet“
January 13, 2009

Story 1



eBay

The End-to-End Arguments (Broad Version)

Network to provide only general services
of broad utility across applications

Network not optimized in favor of specific applications

All application-specific functionality at end hosts

Network is general

Innovators decide independently

Network is general

Users decide independently

Low cost of innovation

Many different people can innovate

Innovators decide.

Users decide.

Low costs of innovation,
very large and diverse group of innovators.

Story 2





The End-to-End Arguments Broad Version

Network only general services of broad utility across applications

Network not optimized in favor of specific applications

All application-specific functionality at end hosts

Consequence: Network is application-blind

Network is application-blind

Network can't control

Today network can control

Increase profits

Unwanted content

Manage bandwidth

Network can control.

Innovators don't innovate.

Investors don't invest.

Story 3







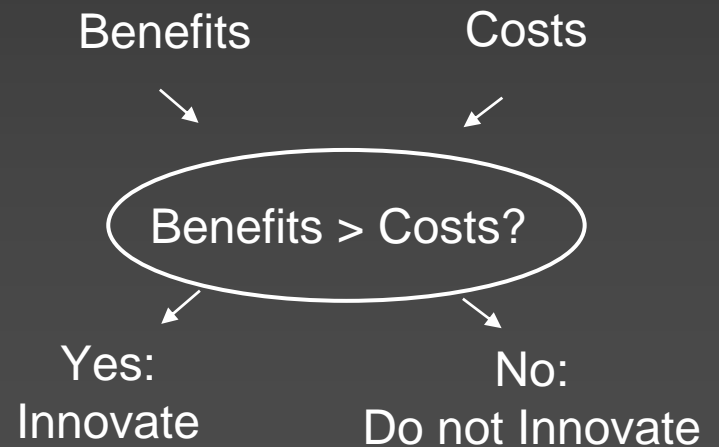
Google™
Video BETA

You Tube

The Impact of Changes



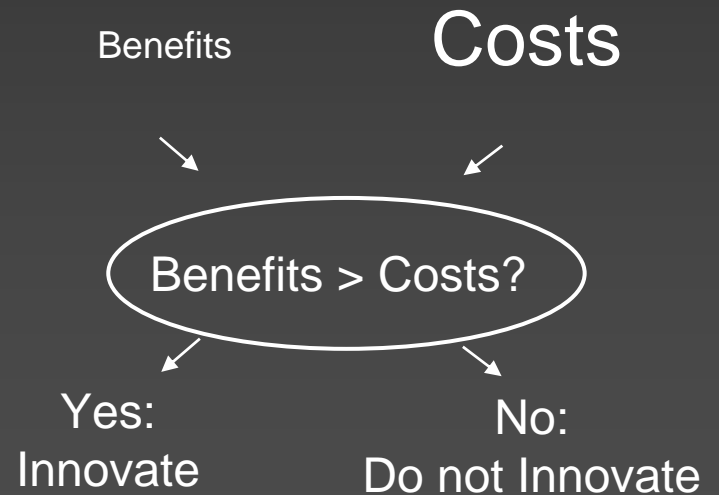
Potential Innovator



Economic Theory



Potential Innovator



Economic Theory

Many different innovators decide.

User decide.

More and more diverse
vs.
Fewer and less diverse

Under uncertainty or user heterogeneity

More and better innovation
that better meets user needs

More and more diverse innovators

More and more diverse ideas

More ideas realized

Less and less diverse innovators

Less ideas realized

Users choose
vs.
Network providers choose

Innovators decide.

Users decide.

Network can't control.

Low costs of innovation,
very large and diverse group of innovators.

Why care?

For more ...

David P. Reed, Jerome H. Saltzer, and David D. Clark.
Comment on Active Networking and End-to-End Arguments. IEEE Network, Volume 12, Issue 3 (May/June 1998), pp. 69-71. Available online at <http://web.mit.edu/Saltzer/www/publications/pubs.html>

Barbara van Schewick. *Internet Architecture and Innovation*. MIT Press, Forthcoming 2010.