ITR5 Information Usage

Lecture 13

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Reading

Shapiro and Varian, chapter 4 & 5

lower reproduction costs: history

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For example: the photocopier has probably increased the total production of printed material.

There are two other examples of the opportunity created by lower reproduction costs.

example: the library

18th century, only wealthy people could buy books. 80,000 regular readers in England at start of 19th century.

1741: Pamela, racy tale of a young girl's life.

Demand for rent increases, circulating libraries "slop shops of literature" are developed by book shops. By 1850, there were 5 Million readers. People buy books.

example: video

1980 VCR cost more than $1000, and tape more than $90.

Video rental store brings video to the masses. First Hollywood objects

Later Hollywood sells videos.

Far from being a death knell, videos were Hollywood's savior.

attaching terms and condition

Fundamental tradeoff between control and customer value.

A product that can only be accessed by one person, once, under certain conditions, is less valuable than a product that can repeatedly accessed, shared, rented out.

As the conditions become more relax, fewer people will buy but it becomes more valuable.

Example: divx, site license for software, NY-times license to a whole organization.

Lock-in

Lock-in is a very common phenomenon that comes with the usage of information.

Compare a change from one computer system to another with a change from one car to another.

Example: Bell Atlantic

In the 80s, invested $3,000,000,000 in 5ESS switches from AT&T. Useful lifetime of these devices is 15 years.

Trouble: 5ESS ran on an operating system that was proprietary to AT&T. Each new feature needed AT&T's consent.

At the introduction of 888 number as toll free, AT&T ask for $3,000,000 for software, for voice dialing $10,000,000 for software. Annual software cost $100,000,000.

In 1995, Bell Atlantic sued AT&T.

Example: Computer Associates

Many companies are locked into IBM mainframe computers that run software that is specialized to their needs. Many companies rely on Computer Associates, who are making big $$$ out of it.

Lock-in occurs at two level:

- systems level
- software level

small switching costs

Can also add up to a lot of money when there are large numbers of people involved.

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Lock-in occurs at two level:

- phone number portability
- email addresses
- domain names

Lock-in is not the exception, but the norm in the information industry.

total switching cost

Information companies make a large part of their money from locking people in.

The power they have over the locked in costumers can be measure by the total switching cost that the costumers face.

These costs are the cost per costumer times number of costumers.

The cost per costumer is the cost to the costumer leaving the installed supplier PLUS the cost for a new supplier to take them over.

Origins of Lock-in

- Contractual commitments
- Durable equipment purchase
  - technology lock-in
  - vendor lock-in
- brand-specific training
- hardware and software complementarity
- specialized suppliers
- search cost
- loyalty program

ways out of lock-in

In the information industry, one important way out of lock-in is through formal standards and open source software.

Open standards are those produced by

- IETF
- W3C

Example: XML

Open source software to be discussed now

Software anatomy

Basically, software can be distributed in two ways.

- "binary" code
- "source" code

Binary code

looks like this, for example

```
^?ELF^A^A^A^@^@^@^@^@^@^@^@^B^@^C^@^A^@^@^@p<9A>^4^@^@^@X=
^G^@^@^@^@^@4^@ ^@^F^@(^@^_^@^\^@^F^@^@^@4^@^@^@4<80>^4<80>^
^@^@^@^@^@^@E^@^@^@D^@^@^@^C^@^@^@^@^@^@<80>^<80>^^S^
@^@^@^S^@^@^@D^@^@^@^A^@^@^@^A^@^@^@^@^@^@^@^@<80>^^@<80>^
^B^@^B^@^E^@^@^@^@P^@^@^A^@^@^@^B^@n^n^^K^@^@^@^@
^F^@^@^@^@P^@^@^B^@^@^@$^B^@$x^$x^^@^@^@^@^@^@^F^@^@^@^D
```

It will run on a compute with one OS, may not run on a computer with another.

It can not be modified.

It is difficult to find out what it does.

Source code

```
/* For now, don't try to include termcap.h.  On some systems,
   configure finds a non-standard termcap.h that the main build
   won't find.  */

#if defined HAVE_TERMCAP_H && 0
#include <termcap.h>
#else
extern void tputs P_ ((const char *, int, int (*)(int)));
extern int tgetent P_ ((char *, const char *));
extern int tgetflag P_ ((char *id));
extern int tgetnum P_ ((char *id));
#endif
```

This is human (geek) readable code.
May be understood by humans.
Can be changed.
Needs a compiler software to translate it to translate it to

A jammed printer

Early 80s, MIT lab get a printer as a shared resource, but with faulty driver software that leads the printer to be jammed.

Richard Stallman tries to get the source code to change the driver software, but can not get it.

Resigns from MIT AI lab to work on a free replacement of UNIX. Decides to work for software freedom. Founds Free Software Foundation FSF

free speech and free beer, according to FSF.

Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software.

- The freedom to run the program, for any purpose (freedom 0).
- The freedom to study how the program works, and adapt it to your needs (freedom 1).
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits. (freedom 3).

Access to the source code is a precondition for freedom 1 and 3. For that reason, some people refer to free software as open source software.

free speech and free beer

- "Public domain software", not copyrighted, but modified copies may not be free.
- "Copy-lefted free software", comes with the permission to use and modify, but prohibits adding further restrictions to the distribution.
- "Non-copylefted free software", comes with the permission to use, modify and add restrictions of distribution.
- "Semi-free software" comes with permission for individuals to use, copy, distribute, and modify (including distribution of modified versions) for non-profit purposes.
- "Proprietary software", is not free or semi-free.
- "Shareware", comes with a permission to share but users have to pay a fee.
- "Freeware" has no agreed meaning.
- "Commercial software" is software written to make a profit from its use. There is such a thing as commercial free software.

Important free software projects

GNU

Linux and FreeBSD

compilers: gcc

scripting langages: perl, python

apache, mozilla, mySQL, putty etc

These pieces of software allow (almost) any kind of digital library be constructed without software cost.

Difference between commercial and free software

Free software is

- less GUI in orientation
- more configurable
- much more secure
- much more stable

than commercial software

Library community vs free software movement

There is a geek culture of sharing structured information.

There is currently no direct equivalent in the library world. The library world is still dominated by organizations that sell data or costly intermediation.