



## Legal and ethical issues with respect to information goods

**Dr. Shana Ponelis**

Assistant Professor at the School of Information Studies at the University of Wisconsin-Milwaukee

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# Outline

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- Information as economic good
- Pricing and packaging of information goods
- Legal and technological means of protection
- Legal and ethical issues
- Way forward

## Information as economic good

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- As information has played an increasingly more important role particularly in developed economies, a separate and distinct sector of the economy, the **information sector**, has been recognised.
- When this sector becomes dominant, one can speak of an **information economy**.
  - “An information economy is based upon the premise that information has economic value and requires an information marketplace in which such value can be exchanged” (Branscomb, 1994)

# Information as economic good

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- Three non-mutually exclusive conceptualizations of an information economy:
  1. **Products produced**
  2. Domain or scope of information commodification
  3. Function where information flows are key coordinating mechanism

(Braman, 1998)

# Information as economic good

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- Information as a commodity or an **economic good**
  - Final, primary good
  - Intermediate, secondary good used in production of other goods

(Ponelis, 2014)

# Information as economic good

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- An information good
  - is everything that **can be digitized** (Shapiro & Varian, 2003, p. 49)
  - is “everything that is or can be available in digital form, and which is regarded as **useful by economic agents** [own emphasis]” (Frank & Stock, 2011, p. 24)
  - can be a product and/or a service
    - Information service usually result in an information product
    - For example, information broker searching one or more databases on behalf of client producing a report with relevant search results

# Information as economic good

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- Information has unique characteristics as an economic good:
  1. Experience good
    - An information good must be used or consumed in order to determine its value as well as the nature of the value that can be derived from the consumption.
  2. Non-rival good
    - Consumption by one person does not diminish another's ability to consume the same information good.
  3. Non-excludable good
    - Consumption by one person does not exclude another person from consuming the information.

# Information as economic good

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- Experience good
  - Potential **value** that can be derived from use of an information good:

Value	Use
Instrumental	Found in the application of information to improve the capacity of humankind to cope with the environment.
Educational	Equips successive generations of humans to improve the quality of their lives and the quality of their environment.
Accumulative	Lies in being used to build upon the contributions of others in order to create and generate new information.
Cultural	Strengthening the cohesion of communities and societies and enhancing the quality of communal living.
Transcendent	Relates to the satisfaction of aesthetic, religious, spiritual or higher needs, i.e., non-material quality of life.
Competitive	Lies in possessing information that others do not (yet) have that can be exploited to gain a livelihood or competitive advantage.



## Information as economic good

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- Non-rival good + non-excludable good = **public good**
- Production of public goods results in positive externalities that are not remunerated
- Public goods can be produced by the public sector but also by private individuals and organisations, by civil society, non-governmental organisations (NGOs) or other collective action, be available naturally or may not be produced at all.

## Information as economic good

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- Individual gain seeking in the market does not always lead to efficient results with respect to public goods.
  - Since private organisations cannot reap all of the benefits of a public good that they produce, there **may not be sufficient incentives to produce public goods**.
- Public goods can be consumed without contributing sufficiently to their creation, resulting in the so-called **free-rider problem**.
- Problems such as these may occur in the production of public goods that in turn can lead to market failure.

## Information as economic good

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- The term **market failure** refers to a situation
  - in which markets do not efficiently allocate goods and services,
  - where markets are unable to provide goods in the desired quantities, or
  - situations where market forces do not serve the perceived public interest.

# Pricing and packaging of information goods

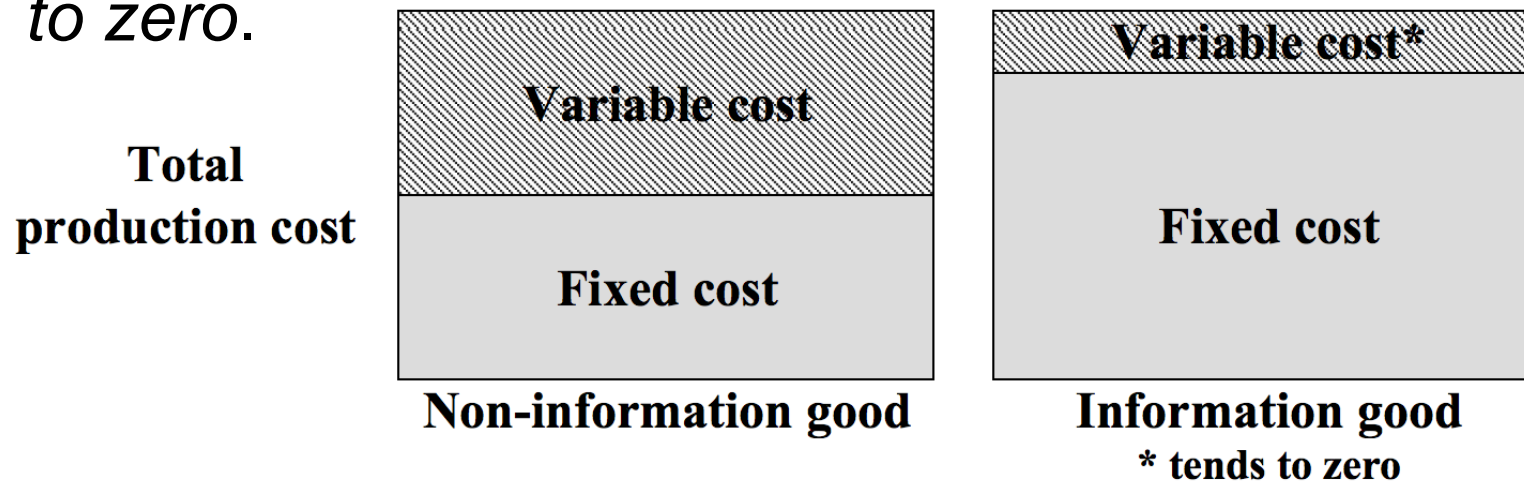
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- Price
  - a function or **measurement of the value** that a consumer places on the product or service exchanged (Du Toit, 1994, p. 162; Rowley, 1997, p. 180)
  - plays a central role in the availability and access to information products and is therefore “central to the concept of an information society” (Rowley, 1997, p. 179)

# Pricing and packaging of information goods

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- The unique characteristics of information that distinguish it from other economic goods lead to an *atypical cost structure* where the *marginal cost tends to zero*.



- Since competitive markets drive prices toward marginal costs, prices of information goods tend to zero.

# Pricing and packaging of information goods

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- From the producer's point of view,
  - creation is the phase of the information cycle of an information good where the fixed cost generally is located, the so-called 'first copy cost,' and
  - variable (or marginal cost) is largely attributable to the distribution of the information good.

## Pricing and packaging of information goods

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- Generally compensation is required to induce information creators to create new information products or goods in order to cover the costs incurred in the process.

## Pricing and packaging of information goods

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- Three main compensation mechanisms, each of which may lead to economic inefficiencies (National Research Council, 2000):
  1. *Payment of royalties*—The fixed cost is included in the final price by increasing the margin. Increasing sales leads to increased revenue. Promotional activities must also be covered by the margin. Information products will be less widely disseminated in society than economic efficiency dictates, i.e., a consumer be allowed to purchase a product when s/he is willing to pay at least the marginal cost for his or her copy.



## Pricing and packaging of information goods

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- Three main compensation mechanisms, each of which may lead to economic inefficiencies (National Research Council, 2000):
  2. *Use of grants*—Generally applicable to basic or sometimes applied research. It is based on the principle of cost reimbursement rather than on the value of the output since the form of new knowledge can obviously not be predicted. In order to manage costs, monitoring and performance is usually built in.
  3. *Combining information and ancillary products for sale*—Most prevalent with media products (bundling)

## Pricing and packaging of information goods

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- No system for compensating information creation can provide a perfect solution to the three central economic problems, namely:
  1. Adequately compensating those who create new information goods;
  2. Maximally disseminating and using information in the economy; and
  3. Selecting the most valuable information goods that will be produced.

## Pricing and packaging of information goods

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- Varian (1998) is of the opinion that real-life markets are flexible and robust enough to handle information goods.
- On the other hand, Bates (1988) is of the opinion that where **ancillary social value** is concerned, real-life markets do not seem economically efficient nor generate maximum social welfare resulting in sub-optimal markets and that this threatens the sustainability of information-based societies and contribute to the digital divide / widening of the gap between the so-called 'information haves' and 'information have-nots'.
- A possible reason for this discrepancy is the fact that Varian omits ancillary social value from his overall approach.

## Legal and technological means of protection

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- Because of the nature of information leading to sub-optimal markets, the value, and therefore also ability to charge a price for, information must be protected in order to support adequate compensation.
- How can the ability to charge a price for information goods be protected?

## Legal and technological means of protection

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- Legally this is done through **intellectual property rights** (IPR) such as copyright, patents, trademarks, plant breeders' rights, heraldic rights and performers' rights.
- IPR is technologically enabled through, for example, encryption, digital rights management (DRM) that are usually accompanied by anti-circumvention legislation such as the DCMA in the USA.
  - DRM is used to control and limit a buyer's use of digital information goods *after* a sale has taken place
    - Amazon for e-books on Kindle
    - Apple for music on iTunes

# Legal and technological means of protection

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- Intellectual property (IP)
  - incorporeal or **intangible** property that comes into existence through the **mental or intellectual activity** and creativity of a person; once created the property has an independent existence separate from and outside of the person of the creator and has commercial value and thus merits legal protection (Du Plessis, 1999)
  - For example, music, novels, medicines, computer software and products obtained from the use of indigenous knowledge.

## Legal and technological means of protection

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- IPR turns public goods into private goods
- Like any other property rights, IPR can be costly to enforce and these costs must, at least partly, be factored into the cost and therefore the price of the information good.

## Legal and technological means of protection

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- “The final result for creators in this new world is that intellectual value markets will bifurcate into
  - content assets of premium prices and high value, and
  - services and processes built around free or cheap content” (Dyson, 1995, p. 8)



## Legal and technological means of protection

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- There is a positive relationship between per capita income in a country and recognition of IPR
  - The demand for local content increases as consumers have more disposable income, which in turn requires the protection of local as well as other content in order to reward and further stimulate creation.

## Legal and ethical issues

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- **Laws** define required and forbidden behaviour with clearly stipulated consequences (Reichmann, 1998).
- **Ethics** deals with socially desirable behaviour and behavioural guidelines but without clearly defined negative consequences.
  - Ethics pertaining to information in particular comprises “all of the ethical issues related to the production, storage, access, and dissemination of information” (Weckert & Adeney, 1997, p. ix).
  - Information ethics, as all fields of ethics, therefore comprises both a descriptive theory and emancipatory or normative theory that critiques behaviour relating to information, both collectively and individually (Capurro, 2004).

## Legal and ethical issues

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- Unique cost structure of information goods leads to **propensity for monopolies** in the marketplace.
  - Major information role players at the expense of original creators, and users who need information to enable a decent livelihood (Bollier, 2003; Drahos, 2003).
  - Most countries try to prevent monopolistic tendencies since control of a market results in the very real possibility for prices to be set without much or any cognisance being taken of the market's willingness or ability to pay but such efforts are not always successful.

## Legal and ethical issues

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- For example, Apple was allowed to register broad patents with regard to the use of ‘natural’ human gestures in mobile and tablet interfaces and is now claiming patent infringement by its competitors who are seeking to follow good practice in human-computer interaction and conform to consumer and user expectations of intuitiveness (Roth, 2009; Cusumano, 2013).

## Legal and ethical issues

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- For IPR protection to be effective it must be enforced.
  - Larger companies have more resources at their disposal to do so and can rely on lengthy legal proceedings to create what is effectively a monopoly (Duhigg & Lohr, 2012).
  - Music and recording industries, and increasingly the publishing industry, are particularly concerned about piracy and have pursued legal action against copyright infringers worldwide because of the vulnerability of their business models to instantaneous and widespread sharing of the digitised information goods they produce, often at great first copy cost.

## Legal and ethical issues

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- Organisations can exploit customer data for what is termed **price customisation**, that is, charging some customers more than others.
  - In 2000 *ComputerWorld* revealed Amazon's differential pricing of a particular DVD based on customers' profiles
  - Online travel website *Orbitz*, customised prices based on, amongst others, the operating system used to access their website (Mattioli, 2012).
  - Legal – in the US – but is it ethical?

## Legal and ethical issues

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- Most people think not → negative publicity, user resistance
  - Consumers are not informed about these practices
  - Limited ability to negate effect through, for example, shopping around
- Most recently Apple patented a method to determine a customer's ability to pay based on a customer's credit rating and available credit, amongst others
  - Will they use it to target marketing to customers who can afford a product/service, or
  - to adjust price based on a customers' ability to pay?

## Legal and ethical issues

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- Sharing of information between organisations to optimise a value chain's competitive performance in the marketplace (Evans & Wurster, 1997).
  - Increasing use of and trade in integrated personal and personally identifiable data and use of data mining and analytics for targeted marketing and profiling (Ponelis & Britz, 2002).
  - “information about customers enables organizations to target their most valuable prospects more effectively, tailor their offerings to individual needs, improve customer satisfaction and retention, and identify opportunities for new products and services.” (Hagel and Rayport, 1997, p. 53)



## Legal and ethical issues

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- Digitisation of information goods can change the status quo by restricting access *more* than it was possible with information goods bound to physical media by means of DRM.
  - For example, a public library that bought a book owned it and was able to circulate the book endlessly to patrons.
  - With e-books many publishers are placing limits on the number of times it can be circulated before the license expires. Furthermore, platforms through which e-books are lent to library patrons allow for collection of user data by the publisher and/or distributor for future marketing purposes; this is of particular concern for public libraries given the traditional privacy expectation.

## Legal and ethical issues

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- Issues can arise from differing value derived from same information good:
  - Publicly funded research of instrumental, educational, and accumulative value published in copyrighted journals effectively turning it into a private good with competitive value
  - Textbook publishers
  - Resulted in the open access (OA) movement
    - Journals charge authors a publication fee for free dissemination
    - Open educational resources (OER)

## Legal and ethical issues

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- Issues can arise from differing value derived from same information good (continued):
  - Appropriating indigenous knowledge regarding medicinal properties of plants
  - Copyrighted publication of communal cultural stories of instrumental, educational and/or transcendental value
  - Retailers legally mass producing products using small creative businesses' patterns (Kozak, 2012)

# Conclusion

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- Rising tensions:
  - Whilst the Internet is empowering both individual creators and consumers of information goods it is at the same time further empowering the already powerful.
  - Several initiatives challenging traditional ‘monopolies’ created through IPR.

# Conclusion

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- Effectiveness of legal frameworks to incentivise and protect information creation are also being questioned.
  - “Stronger patents seem not to lead to more innovation ... and are used lock in incumbents’ advantages. ...”
  - “ ... The aim should be to fix the system [that is, better balance the claim of the individual and the interests of society] not make it more pervasive” (The Economist, 8<sup>th</sup>-14<sup>th</sup> August 2015, p. 9)
- Examination of ethical issues that arise from the production and use of information goods and suitable policy guidelines are much needed to guide organisations and legislators on how best to engage in the information economy and contribute in a mutually beneficial manner to the global information society.



**Thank you for your time**

**Questions? Comments?**

[ponelis@uwm.edu](mailto:ponelis@uwm.edu)

 **shanaponelis**

 <http://www.linkedin.com/in/sponelis>

 **@ShanaPonelis**

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## Some references\*

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- BRANSCOMB, A. W. (1994). *The Economics of Information—Public and Private Domains of Information: Defining the Legal Boundaries* [online]. Adapted from the keynote address presented at the 1994 ASIS annual Meeting in Alexandria, Virginia. Available WWW: <http://www.asis.org/Bulletin/Dec-94/branscom.html>.
- DYSON, E. (1995). Intellectual Value [online]. *Wired Magazine*, Issue 3.07, July 1995. Available WWW: [http://www.wired.com/wired/archive/3.07/dyson\\_pr.html](http://www.wired.com/wired/archive/3.07/dyson_pr.html).
- NATIONAL RESEARCH COUNCIL (Editor). (2000). *The Digital Dilemma: Intellectual Property in the Information Age: Appendix D – Information Economics: A Primer*. United States: National Academy Press. Available WWW: [http://www.nap.edu/html/digital\\_dilemma/appD.html](http://www.nap.edu/html/digital_dilemma/appD.html). [Box D.1 and Notes excluded]
- VARIAN, H. R. (1998). *Markets for Information Goods* [online]. Available from: <http://www.sims.berkeley.edu/~hal/Papers/japan/index.html>.

\* References not listed here can be found in

- PONELIS, S. (2014). Information as economic good: its origins, characteristics, pricing, and associated legal and ethical issues. In T. Tsiakis, T. Kargidis, & P. Katsaros. (Eds.), *Approaches and Processes for Managing the Economics of Information Systems*, pp. 1-13.