

VALUE WITHOUT PRICE

or Value Theory Redux

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A Cultural Economics Essay

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Introduction

Since the late 19th century Price Theory has dominated Economics. It follows Jeremy Bentham's assumption that the willingness to pay Market Price reflects the Value or Utility received (or perceived) by a consumer. It is at the intersection of Demand and Supply Curves, where 'X' marks the spot, that we find the Value of a good or service, its Market Price. At that Price the Market clears creating, again following Bentham, the greatest good for the greatest number.

Nonetheless even Price Theory yields Value without Price. On the downward sloping Demand Curve, above Market Price, reside consumers who would have paid a higher Price. Instead they paid the lower Market Price. The difference between what they were willing to pay and what they paid is their consumer surplus – Value without Price.

Labour Theory of Value

Prior to Price Theory economists from Aristotle to Thomas Aquinas to William Petty to Adam Smith through Karl Marx and Eugen von Böhm-Bawerk struggled to define 'the just price'. Is it scarcity? Is it usefulness? Is it input cost? Is it whatever the Market will bear?

Previous generations, in general, accepted the Labour Theory of Value according to which the Value of a good or service is the accumulated human labour embodied in it, *i.e.*, the more labour, the greater the Value. If it takes one hour of labour to produce one good and ten hours to produce another then the latter is ten times more valuable than the former.

Two assumptions serve as the theory's foundation. First, the Value of capital plant and equipment is assumed to be nothing more nor less than the accumulated labour required, through time, to produce it.

Second, it is assumed, following Locke, that natural resources have no implicit Value. It is only the human labour required to transform them into inputs in production or as final goods & services that creates Value. They are 'found' goods incurring no cost of production except that of extracting them.

The Labour Theory, however, faces insurmountable hurdles in testing. First, what is the unit of account? How does one measure hours of varying grades and talent of labour? How does one allow for changing wage rates over time? Not everyone works by the clock and where are the hourly punch cards?

And if one uses the wage bill how does one account for what Petty called 'past labour' required to produce capital goods in current use? Furthermore, if past labour is to be measured how far back does one go? One, two or three generations or back to *homo habilis*, the first tool making human who lived 1.6 to 2 million years ago?

Furthermore, natural resources are now seen as having implicit Value. For example, Government in the late 19th century began and continues to establish international, national, regional and local natural and historic parks restricting resource development to maintain natural beauty, biodiversity and/or cultural continuity. All are deemed, by Law, to have implicit Value.

In the case of renewable natural resources Government has shifted from Locke's 'hunting' paradigm to a 'farming' paradigm. It did this by creating property rights, for example, marketable quotas for fish and carbon dioxide as well as stumpage fees for trees to ensure sustainability (an ecological paradigm). Even non-renewable natural resources are subject to Government legislated property rights. For example, exploitation of deep sea mineral deposits in international waters, under the Law of the Sea Convention, requires distribution of a share of profits to land-locked countries reflecting the shared human inheritance of Earth's bounty.

Price Theory: Market Value

The greatest obstacle confronting the Labour Theory, however, was the explosive growth of the Market Economy from the mid-19th to the present early 21st century. More and more traditional Non-Market activities, most recently housework and daycare, have become industrialized marketable services, *e.g.*, Molly Maid. Compared to the non-quantifiable Labour Theory, Price Theory offers a quantifiable, standardized measure of Value expressed in dollars and cents. And by the mid-20th century, the

System of National Accounts (SNA) and its high order metric, Gross Domestic Product (GDP), became the accepted measure of Value - a Nation-States' productive capacity of marketable goods & services. To many, perhaps to too many, GDP per capita became the generally accepted measure of national wellbeing.

By the turn of the century, the Labour Theory of Value had all but faded into economic history becoming, perhaps as Dooley suggested, a question of Ethics not of Economics. However, the inherent limitation of the SNA, as a measure of national wellbeing, was recognized at its birth, *i.e.*, it does not account for Value produced by Non-Market activities, exchanges and transactions.

Social Indicators: Non-Market Value

The Social Indicator Movement of the 1960's sparked ongoing search for Non-Market Value. Current efforts include the World Economic Forum's *World Competitiveness Report*, Bhutan's *Gross National Happiness Index*, the *UN Development Index* and the *OECD Life Index*. All rely on a spectrum of metrics, each metric is different. Collectively they yield no single indicator of Value. This is unlike the SNA that actually compares apples to oranges by their Market Price.

The Social Indicator Movement compliments the SNA capturing much traditional Non-Market Value. It is then left to one's judgement as to the net sum of Market and Non-Market Value, *e.g.*, between a high U.S. GDP per capita *versus* a high infant mortality rate

Arguably this was the situation until 1995. The Market Economy was absorbing more and more traditional Non-Market activities while Social Indicators increasingly accounted for traditional Non-Market Value. One then 'judges' net Value, *i.e.*, Market plus or minus Non-Market Value.

Knowledge-Based/Digital Economy (KB/DE)

Arguably the world changed in 1995 - the World Trade Organization was established and Microsoft launched Windows '95 with its GUI (graphic user interface) and subsequently its free web browser, Internet Explorer. 1995 marks the beginnings of what I now call the Knowledge-Based/Digital Economy or KB/DE.

Then, in 1996, the Organization for Economic Cooperation & Development (OECD) published *The Knowledge-Based Economy* (KBE) followed in 1997 by *National Innovation Systems* (NIS). In effect, the OECD advised its Member States - the advanced industrial democracies of the First World - to shift from mass production to a post-industrial economy of invention and innovation. As one sage argued: Would you rather your daughter be a seamstress or a fashion designer? The menial job of

manufacturing with attendant externalities like pollution was to shift to low wage emerging democracies of former Second World command economies and developing Nation-States of the Third World.

In the following two decades the Anglosphere experienced de-industrialization of its manufacturing base, the Dot.Com Bubble of 2001 and the Great Recession of 2008 caused by financial innovations that were and still are seen by many as a leading edge of the KBE. Nonetheless it also successfully innovated a global KB/DE driven by mass consumption and production of knowledge that, for our purposes, is defined as: *organized, systematized and retrievable information*. As will be seen below, what is commonly called ‘Big Data’ is but one form of knowledge in the emerging KB/DE.

In this regard, the former CEO of IBM, Sam Palmisano, notes in his article “The Global Enterprise”, *Foreign Affairs*, October 14, 2016, there has been:

... an explosion of data, and with it a recalculation of economic value - asset values - affiliated with this data-rich environment.

Tangible assets, which are characteristic of the physical world, are being subjected to the economic headwinds of slow global growth. But intangible assets, which are characteristic of the digital world, are finding their value increasing and economic wind at their back.

The KB/DE generates two principle outputs: Content (commercial and user generated) and Big Data. Production of both is dominated by this generation of American digital giants – Facebook (2005), Amazon (1995), Netflix (2007 streaming) and Google (1998), the so-called ‘FANGs’ - together with the previous generation including Microsoft (1975), Apple (1976) and Oracle (1977).

Payment for many digital goods & services or so-called ‘apps’ does not involve a monetary transaction. These include Google Search and Maps, Facebook, Instagram, Amazon and a myriad of others available at various App Stores. They have no Market Price. Nonetheless, they generate Value to intermediate and final consumers. For example, Google Maps reduces transportation cost; Google Search reduces search and transaction costs; Facebook reduces the cost of community formation and maintenance. Yet this Value is not included in GDP. Nonetheless, their implicit social and economic Value has been used by some hi tech companies to excuse the low rate of taxation paid to national governments around the world.

Such Apps in fact have a price – personal information. Consumers willingly provide their personal information with a click on the box reading ‘End User Licensing Agreement’ or EULA. As will be seen below, protection of personal information varies dramatically between Common Law countries specifically the Anglosphere and Civil Code countries especially Member States of the European Union (excepting Malta, after Brexit). As will be seen below, personal information is arguably becoming, under both Common Law and Civil Code, a form of intellectual property with associated property rights.

The commercial use of personal information is highlighted in Jacob Weisberg’s “They’ve Got You, Wherever You Are”, *New York Review of Books*, October 27, 2016 where he notes:

Facebook’s vast trove of voluntarily surrendered personal information would allow it to resell segmented attention with unparalleled specificity, enabling marketers to target not just the location and demographic characteristics of its users, but practically any conceivable taste, interest, or affinity. And with ad products displayed on smartphones, Facebook has ensured that targeted advertising travels with its users everywhere.

Some argue that Value created by social media and other web platforms might be measured by advertising revenues earned by the likes of Google and Facebook. However, my reading is that such earnings mainly reflect displacement from tradition media - print, radio and TV including cable TV. To my knowledge there has been little if any real increase in total advertising budgets but rather a displacement to web-based social media and other platforms.

Unlike Weisberg’s “would allow it” of 2016, I assume Facebook and other web platforms do in fact resell personal information to third parties who consolidate the data from different platforms. I also assume social media and other platforms themselves use such data internally.

As the recent Facebook/Cambridge Analytics scandal demonstrates psychographic profiles of citizen/consumers are one critical output of data mining personal information. Beyond commercial use, however, there is its public security applications. In a sense social media platforms play Little Sisters to Big Brother, the Nation State. They act, like the 17th century Stationers’ Company of London and the Sellers and Printers of Paris protecting their copyright monopolies by serving as public censors - think paedophilia, racism and terrorism – and, as informants providing personal information for legitimate public security purposes. Accordingly beyond commercial Value there is the public security

Value generated by such organized, systematized and retrievable personal information as well as the costs associated with an emerging Surveillance State.

Measurement of such Value, as with the Social Indicators, will require a spectrum of indicators, one size will not fit all. In an effort to advance their development I offer two research probes – the Attention Economy and the Knowledge Economy. The first offers the possibility of calculating monetary Value potentially to be added to the SNA; the second offers a thicker definition of knowledge, the primary input and output of the KB/DE.

The Attention Economy

The first probe involves time use or attention paid to non-marketed digital goods & services. In the digital industries this is called ‘capturing eye balls’. Consumers, to use Michel Polanyi’s phrase, *indwell* in their digital tools and toys. They are increasingly designed to interactively hold one’s attention while advertising spots penetrates one’s peripheral consciousness. They are what McLuhan called a ‘cool’ medium requiring interaction by the user, *e.g.*, video games and puzzles. In this regard traditional advertising media – magazines, newspaper, radio and television – are all, relatively speaking, ‘hot’ media’ requiring limited if any interaction by the user.

The term ‘Attention Economy’ was coined by Thomas Davenport and J.C. Beck based on insights of Herbert Simon who, perhaps anticipating things like web-based news feeds, argued:

...in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.

To estimate the Value of non-marketed digital tools and toys one could take time spent using or playing with them multiplied by an opportunity cost wage rate. Determining time spent would require access to proprietary information or an estimate thereof as well as estimation of an appropriate opportunity cost wage rate. Estimating either is problematic. Nonetheless such an approach would generate a monetary Value that could be added to the SNA. Such an addition would also be problematic.

The Knowledge Economy

The second probe involves thicker definition of knowledge, the prime input and output of the KB/DE. The problem with measuring knowledge was summed by Kenneth Boulding in 1966 when he observed that information can be quantified and manipulated by 'bits & bytes' but knowledge has no unit measure. He suggested, sardonically, 'a wit'. He gave the example of two messages of equal 'bit & byte' size, one a telephone conversation between two teenage girls and the other between the Presidents of the United States and Russia. Quantitatively they are the same; qualitatively they are very different. Knowledge is qualitative and contextual.

My work has generated a number of definitions of knowledge drawn from a range of disciplines. These are from:

Biology: orientation of an organism in an active environment;

Comparative Terminology:

Information: data, facts, bits or bytes. With commercial innovation of the computer in the 1950s there began the 'Information Revolution' generating huge quantities of information threatening to overwhelm decision-makers;

Knowledge: organized, systematized and retrievable information. With the development of relational data basing in the 1960s the information explosion was gradually tamed as was the Internet in the late 1990s with innovation of search engines;

Understanding: valuing the meaningfulness or usefulness of knowledge; and,

Wisdom: exercising sound judgement in applying knowledge to choose between alternative means and ends.

Etymology: the verb 'to know' in English hides four different ways of knowing by: the senses, the experience, the mind and the doing. In German there are separate verbs for each.

Yet in economic theory a KBE is a contradiction in terms - an oxymoron. Knowledge is a public good, a good for which a natural market does not and cannot exist. A contrast with a private good is in order.

A private good is excludable and rivalrous in consumption. If one owns a car one has lock and key to exclude others from using it. And when one drives the car no one else can drive it, that is, driving is rivalrous. A gross example is an apple. I buy it excluding you from that particular apple and you cannot eat it after I have - rivalrous.

A public good, on the other hand, is not excludable nor is it rivalrous in consumption. Consider knowledge. Once something is known it is hard to exclude others from learning it and if another does it does not reduce the knowledge available to you.

How can you have a market if the good being sold can be easily appropriated and its appropriation does not reduce one's inventory? As will be seen below it is only through Law – contract and statutory – that a market and therefore a knowledge-based economy can exist.

Furthermore in mainstream Economics no distinction is made between the sources, forms and types of knowledge nor its varying legal status as property. Rather technological change is summarily defined as the impact of new knowledge on the production function of a firm or Nation-State.

In what follows I summarize my work to define the sources, forms and legal types of knowledge in a global knowledge-based economy.

Sources

There are three primary *knowledge domains* and their associated Practices or 'praxis', *i.e.*, the self-regulating professions such as accounting, architecture, dentistry, engineering, law and medicine. Coined by the alchemist, metaphysician and subsequent saint, Albert Magnus, about 1255 C. E. the word derives from the Greek meaning "doing, acting, action, practice." It was re-coined by Cieszkowski in 1838 to mean "the willed action by which a theory or philosophy... becomes a social actuality." It was then adopted by Marx in 1844 for whom technology was the *praxis* explaining how knowledge becomes power. The three knowledge domains are the:

Natural & Engineering Sciences (NES) – the hard experimental sciences governed by the immutable Laws of Nature. Proof is by replication;

Humanities & Social Sciences (HSS) – what Herbert Simon called the 'sciences of the artificial' subject to mutable human laws, customs, experience and tradition. Proof is by prediction; and,

Arts – literary, media, performing & visual arts as culturally and historically varied technologies exploring and exploiting the human heart, mind and spirit. Proof is by audience response – past, present and future.

To begin, the word 'technology' derives from the Greek *techne* (art) and *logos* (reason), meaning reasoned art. When applied for utilitarian purposes, the NES generate Physical Technology (*P*),

i.e., the ability to manipulate matter/energy to satisfy human wants, needs and desires.

When applied for utilitarian purposes, the *HSS* generates Organizational Technology (*O*), *i.e.*, the ability manipulate personalities, communities, economies, enterprises, institutions and societies, *e.g.*, just in time inventory systems. In effect, the *HSS* provide the epistemological basis for governance of humanity.

When applied for utilitarian purposes the Arts generate:

on the supply side, educational and entertainment content and artifacts produced in each and all principal artistic disciplines – literary, media, performing and visual. In this regard, the second largest export of the United States is entertainment programming; and,

on the demand side, Design Technology (*D*) in advertising, architecture, interior & product design as well as the aesthetic of the entire human built environment – the clothes we wear, the homes, communities and cities we inhabit. Design Technology involves the emotional, sensual and/or sensuous manipulation of the citizen/consumer. In this sense, Art is the technology of the human heart, of emotion, not reason.

D is much more sensitive to culture, custom and tradition than Physical and Organizational Technologies. The economic implications of Design Technology is the root of Cultural Economics, as I define it:

Constrained maximizing behaviour, *a.k.a.*, economic behaviour, takes place in the context of culture and law. Ignore the culture and you end up in the cannibal's cooking pot; ignore the law and you end up in jail. These are not maximizing outcomes.

Functional Forms

Form, according to Francis Bacon, is “the real or objective conditions on which a sensible quality or body depends for its existence”. There are three material forms or matrixes into which knowledge is fixed. These include:

Codified: meaning fixed in matter/energy;

Tooled: function fixed in matter/energy; and,

Personal: thought, memory and reflexes fixed in neurons, nerves and muscles of a flesh and blood Natural Person.

Codified knowledge is fixed, as noted by Carl Sagan, in an extra-somatic, *i.e.*, out-of-body, matrix as meaning. He called it humanity's second genetic code. Sender and receiver must share the code if the message is to convey meaning from one human mind to another.

Tooled knowledge is also fixed in an extra-somatic matrix but as function. Unlike a work of art that is appreciated for what it is, a device or process is valued for what it can do, *i.e.*, the matrix into which knowledge is fixed has utilitarian function. That knowledge is tooled into matter/energy is demonstrated by reverse engineering

As noted by the zoologist Antone Martinho-Truswel, echoing both Polanyi and Sagan, humanity is the only species that offloads physical and mental effort. In the case of physical effort we use both Physical and Organization Technology. In the case of mental effort we use the Arts, reading, writing and arithmetic as well as picture, dance and song. To be human is to automate matter/energy to serve human purpose:

The goal of automation and exportation is not shiftless inaction, but complexity. As a species, we have built cities and crafted stories, developed cultures and formulated laws, probed the recesses of science, and are attempting to explore the stars. This is not because our brain itself is uniquely superior – its evolutionary and functional similarity to other intelligent species is striking – but because our unique trait is to supplement our bodies and brains with layer upon layer of external assistance. We have a depth, breadth and permanence of mental and physical capability that no other animal approaches. Humans are unique because we are complex, and we are complex because we are the beast that automates.

Personal knowledge is fixed in a Natural Person as neuronal bundles of memory and reflexes of nerve and muscle, *e.g.*, of the athlete, brain surgeon, carpenter, dancer, sculptor or technician. In this case, the matrix is a Natural Person. As noted by Polanyi, some personal knowledge can be codified; some tooled; but some inevitably remains 'tacit', *i.e.* inexpressible. Ultimately, however, all knowledge is personal. Without a Natural Person to decode a work or push the right button codified and tooled knowledge remain sterile artifacts without meaning or function. And, of course, books, computers and Legal Persons such as corporations can't 'know' - only the Natural Person.

In economic and business literature tacit knowledge is considered the most valuable input to the KB/DE. One reason for its high Value is that it cannot be pirated. Knowledge that is codified can be copied; knowledge that is tooled can be reversed engineered; tacit personal knowledge can only be gained by employing (or coercing) the individual Natural Person.

Legal Types

Unlike the NES governed by immutable natural laws, the Law is a human construct, a science of the artificial, governed by mutating human custom, experience and tradition. It is a cultural artifact that varies over time and space.

The two dominant branches of contemporary Law are Common Law & Equity in the Anglosphere and the European Civil Code in one form or another everywhere else in the world. Legal treatment of knowledge as property varies significantly between these traditions and varies yet again between Nation States adhering to the same tradition, *e.g.*, Canada, the UK and USA or France and Germany.

Common Law & Equity evolved in England beginning with the reign of Henry II in the 12th century. Common Law essentially deals with questions of guilt or innocence, right or wrong based on precedent according to the principle of *stare decisis*. In this sense it is the law of precedent. It conducts trial by jury and/or magistrate. One precedent is that Natural Persons and Legal Persons, *i.e.*, bodies corporate, enjoy the same rights.

In the constitutional monarchies of the British Commonwealth this legal fiction flows from the concept of the Crown. The State is thus fictionally represented as the monarch, a human personality. In the United States it was affirmed in the 2010 US Supreme Court decision in *Citizens United* that extended freedom of expression under the 1st Amendment to corporations as 'persons'. This squashed federal limitations on political fund raising by corporations. Similarly in 2013, in *Hobby Lobby*, both the Court of Appeals and the Supreme Court extended freedom of religious expression to a corporation under the 1st Amendment.

The Civil Code emerged out of the French Revolution. It is rooted in Natural Rights. It is the law of principle. Trial is by magistrate known as the inquisitorial system. One of these principles is imprescriptible moral rights of the citizen and of the author/creator. It distinguishes between economic and moral rights. Anglosphere countries do not recognize imprescriptible moral rights of the author/creator, especially the USA today. The Civil Code also makes a clear distinction between the rights of the Natural Person or Citizen and the rights of Legal Persons.

As will be seen, differences in the treatment of knowledge between these two legal traditions is most evident with respect to

personal information and copyright, or rather author's rights in the Civil Code tradition.

In economic theory, IPRs today are justified by market failure, *e.g.*, when market price does not reflect all benefits to consumers and all costs to producers, *e.g.*, pollution costs. These are known as external costs and benefits, *i.e.*, external to market price. In effect, IPRs provide the legal foundation for the industrial organization of the KB/DE.

IPRs, in this view, are created by the State as a protection of, and incentive to, the production of new knowledge which otherwise could be used freely by others (the free-rider problem). After all knowledge is a public good. In return, the State expects creators to make new knowledge available and that a market will be created in which it can be bought and sold. But while the State wishes to encourage creativity, it does not want to foster harmful market power. Accordingly, it builds in limitations to the rights granted to creators. Such limitations embrace both Time and Space. They are also granted only with full disclosure of the new knowledge, and only for:

a fixed period of time, i.e., either a specified number of years and/or the life of the creator plus a fixed number of years; and,

fixation in material form, i.e., it is not ideas but rather their fixation or expression in material form (a matrix) that receives protection.

Eventually, however, all intellectual property (all knowledge) enters the public domain where it may be used by anyone without charge or limitation. In other words a public good first transformed by law into private property is transformed back into a public good. Growth of the public domain is, in fact, the historical justification of the short-run monopoly granted to creators of intellectual property.

While all knowledge eventually enters the public domain some of it, in effect, is nationalized to become 'cultural property', *i.e.*, part of national or even global patrimony. It then becomes subject to domestic and international market restrictions as well as export and import controls of varying severity in the form of cultural property rights (CPRs). It is important to note that it is not the content or function of a work that becomes cultural property but rather the 'original' matrix in which it is fixed, *e.g.*, a Gutenberg Bible or Faraday's first electric motor of 1821.

It is important to note that justification for the protection of cultural property, like the Civil Code, emerged out of the French Revolution. That justification is the Kantian principle that a created work is an extension of an individual personality and therefore is subject to imprescriptible moral or what today are called human

rights. This principle applies not only to works of living creators but also the works of their predecessors. Thus the signs and symbols of an *Ancien Regime* are to be preserved, not for the sake of the regime, but in respect for the creative genius and artisans who created them.

Even while IPRs are in force, however, there are exceptions such as ‘free use’, ‘fair use’ or ‘fair dealing’ under copyright. Similarly, national statutes and international conventions permit certain types of research using patented products and processes. And, the Nation-State retains the sovereign right, under the 1994 WTO/TRIPS Agreement, Article 31b, to waive all IPRs in “situations of national emergency or other circumstances of extreme urgency”, *e.g.*, following the anthrax terrorist attacks in 2001 the U.S. government threatened to revoke Bayer’s pharmaceutical patent on the drug Cipro. Statutory IPRs include:

Copyrights - protect the expression of an idea but not the idea itself;

Patents - protect the function of a device or process but only after disclosure of all knowledge necessary for a person normally skilled in the art to replicate the device or process;

Registered Industrial Designs – protect the aesthetic or non-functional aspects of a device; and,

Trademarks – protect the name, reputation and good will of a Maker, Legal or Natural, as well as Marks of Origin such as Okanagan Made.

Contractual rights to knowledge include Know-How and Trade Secrets. These take the form of non-disclosure, non-compete and/or confidentiality clauses in commercial contracts as well as contracts of employment.

Arguably the same Kantian justification is fostering a new form of intellectual property rights (IPRs): Personal Information Rights. It is an IPR that flows naturally from the Civil Code tradition but, at least until the recent Facebook/Cambridge Analytics scandal, barely concerned Common Law & Equity in the Anglosphere.

This clash of legal systems has profound implications for the KB/DE and is most evident in the European Union’s General Data Protection Regulation (GDPR) 2016/679 that comes into force on May 25, 2018 and the public response of Facebook.

The GDPR concerns data protection and privacy within the European Union. It also treats export of personal data from the EU. Restrictions on exporting EU personal information is a continuing irritant between the EU and the US, the so-called ‘Safe Haven’ controversy.

The objective of the GDPR is to give control to citizens over the use of their personal data and standardize the regulatory environment for business across the EU and beyond. And what is the EU's definition of personal information?

Personal data is any information that relates to an identified or identifiable living individual. Different pieces of information, which collected together can lead to the identification of a particular person, also constitute personal data.

Personal data that has been de-identified, encrypted or pseudonymised but can be used to re-identify a person remains personal data and falls within the scope of the law.

Personal data that has been rendered anonymous in such a way that the individual is not or no longer identifiable is no longer considered personal data. For data to be truly anonymised, the anonymisation must be irreversible.

And what is Facebook's response to the GDPR? One pundit describes the response as "[Zuckerberg says Facebook will extend European data protections worldwide — kind of](#)". Another notes: "[Facebook to exclude 1.5 bn users from GDPR protections](#)".

In my reading it appears that within the EU Facebook will comply but outside it will minimize damage to its basic business model: collection and sale of personal information to advertisers and other third parties. It will fall back on the Anglosphere legal tradition that makes personal information corporate property with the click on the app's EULA. In the Civil Code tradition personal information is subject to imprescriptible moral rights and GDPR will significantly limit commercial and other exploitation of personal information collected by social media and other online platforms.

Quite simply the future of the KB/DE will be determined, at least in part, by which legal tradition wins globally. For example, will Civil Code countries like Brazil adopt the GDPR? The commercial business model currently supporting social media platforms would then be effectively restricted to the Anglosphere? Or, will Anglosphere countries change their protection of personal information statutes perhaps as a matter of Equity?

Conclusion

The dictionary define Value as:

1. Worth or quality as measured by a standard of equivalence.
 - a. The material or monetary worth of something; the amount at which something may be estimated in terms of a medium of exchange, as money or goods, or some other similar standard.

The Labour Theory tried to measure Value by hours of human labour. The System of National Accounts tried to measure it by Market Price. Social Indicators tried using a spectrum of indicators of Non-Market Value but without ‘a standard of equivalence’.

With emergence of the KB/DE a new range of digital tools and toys provide Value without Market Price. Instead we pay with personal information. How much are they worth in dollars and cents? Advertising revenue does not seem an appropriate measure because much is simply displaced from traditional media with little real increase.

In the case of the Attention Economy it is theoretically possible to convert time spent on such digital tools and toys using a minimal wage rate to calculate their opportunity cost. Potentially such Value could be added to the SNA.

In the case of the Knowledge Economy we have, as noted by Boulding, no ‘wit’, no “standard of equivalence”. At least in the short run the most we can do is more thickly define knowledge, its sources, forms and legal types. I hope that this essay will further refine understanding of what knowledge is in the KB/DE.

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