Borderless Net Business

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Abstract

For centuries there were three principal resources of value: land (and associated minerals), labor, and portable goods such as food and merchandise. Through commerce, money became an abstraction of these resources that provided a means of exchange among them. More recently, energy and information have become recognized as additional resources of value. Through machines, energy can substitute for some kinds of labor, and information can substitute for the physical tokens that represent money. In addition, some kinds of information is valuable in itself, either for business purposes or for entertainment (music, movies, games). Information is a rather different commodity from land, merchandise, labor, or energy. Information is easy to copy and is not tied to one particular physical representation (these two facts are related). As a result, it is more difficult to control and it is more difficult to guarantee its authenticity. Governments are organized primarily around geography, that is, the control of land; laws and the various institutions that control resources rely primarily on controlling the flow of merchandise and labor among geographical regions. The Internet is also, to some extent, organized and controlled in this same way, and each country makes some decisions about what information it will allow to flow into and out from its own geographical region, with mixed success, because information is particularly easy to smuggle.

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Computer networking had its origins about four decades ago, in a community that was fairly small and placed emphasis on making technical information available fairly freely. It was so difficult to find information at all that the emphasis was on making information transfer easy, and relatively little thought was given to protocols for protecting or restricting information on computer networks, or for requiring payment for information transfers. This worked in the early days because the community was small and had a set of more-or-less shared goals, and the costs were mostly subsidized by research grants.

But nowadays the Internet is used by many groups of people with competing purposes and with different ideas about the proper use of computer networks, stemming from different ideas about how to organize human communities. I think that in order to answer questions about the ethical use of the Internet globally it is necessary to try to find universal principles about the use of information in human communities. I suggest that the following is perhaps the most important candidate principle:

People want to know whether information is true and reliable

There are several ways to assess whether information is true and reliable. One is to have a way to verify the information intrinsically. Perhaps the information is accompanied by a proof, such as a mathematical proof. Perhaps the information is guaranteed by a friend or an authority; this does not solve the problem completely, but does reduce it to the problems of whether the authority can be trusted and whether the claimed authority did in fact issue the guarantee.

In my own (American) culture, the proverb "Honesty is the best policy" is taught to every schoolchild, and it is so familiar that most people are confused about its origins; for example, many attribute it to William Shakespeare, despite the fact that a simple search finds it nowhere in his works in that form (though he does have the line "No legacy is so rich as honesty" in *All's Well That Ends Well*, Act 3, Scene 5). The proverb, in this English form, does appear to go back to Shakespeare's time, however. Other Americans mistakenly attribute the proverb to Benjamin Franklin, who published so many proverbs in his *Poor Richard's Almanac*. Alexander Pope wrote "An honest man's the noblest work of God" in his *An Essay on Man*, Epistle IV. The idea in this proverb is of course made clear in the fable of "Mercury and the Workman" attributed to the Greek writer Aesop in about 550 BC. I do not doubt that other cultures have similar proverbs and stories, and I would be interested to hear of them.

There is a concern for honesty in the Bible as well, including honesty in commerce: "The LORD said to Moses, 'Do not use dishonest standards when measuring length, weight or quantity. Use honest scales and honest weights, an honest ephah and an honest hin. I am the LORD your God, who brought you out of Egypt.'" (Leviticus 19:35-36, NIV) "Do not have two differing weights in your bag, one heavy, one light. Do not have two differing measures in your house, one large, one small.

You must have accurate and honest weights and measures, so that you may live long in the land the LORD your God is giving you. For the LORD your God detests anyone who does these things, anyone who deals dishonestly." (Deuteronomy 25:13--16, NIV) "Honest scales and balances are from the LORD; all the weights in the bag are of his making. ... Kings take pleasure in honest lips; they value a man who speaks the truth." (Proverbs 16:11,13, NIV) "An honest answer is like a kiss on the lips." (Proverbs 24:26, NIV)

Perhaps most interesting of all is Jesus' injunction in the Sermon on the Mount: "Again, you have heard that it was said to the people long ago, 'Do not break your oath, but keep the oaths you have made to the Lord.' But I tell you, Do not swear at all: either by heaven, for it is God's throne; or by the earth, for it is his footstool; or by Jerusalem, for it is the city of the Great King. And do not swear by your head, for you cannot make even one hair white or black. Simply let your 'Yes' be 'Yes,' and your 'No,' 'No'; anything beyond this comes from the evil one." (Matthew 5:33--37, NIV) American schoolchildren learn from their teachers that "Honesty is the best policy"; but they also learn from each other (not their teachers!) the supposed rule that a promise is not binding if spoken with one's fingers crossed (see http://en.wikipedia.org/wiki/Crossed_fingers). Perhaps this is a useful game, because they quickly learn that they must demand to see their friends' hands before relying on a promise, and then just as quickly learn that if their friends demand to see hands when a promise is made, then the "trick" is no longer useful. So perhaps it is a child's exercise in what one must do to develop trust. Some Bible commentators point out that oaths of the type enumerated by Jesus are regarded as not binding by at least some commentators in the Mishnah, so perhaps in Jesus' day such oaths were the equivalent of crossing one's fingers – an attempt to mislead the hearer into believing a promise when the speaker had no intention of following through on the promise. Jesus' injunction to "let your 'Yes' be 'Yes,' and your 'No,' 'No' " is not merely a command to give a factually correct answer in a simple manner but a command not to mislead others as to your intention.

From at least a North American point of view (I think I can safely speak for the U.S. and Canada, but perhaps not for Mexico, for I have no experience in that country), I think many of the problems of network commerce and borderless commerce appear to be questions of whether information can be trusted and whether merchandise has the characteristics claimed of it. I think we are not so much worried about whether software or music is "legitimate" or "pirated" as about claims that accompany manufactured goods. Stories that have made news headlines in the last year raise such questions as: Are drugs manufactured in other countries safe? Are toys manufactured in other countries free of lead paint? Is foreign toothpaste safe to use, or does it contain harmful chemicals? We might also be concerned about the integrity of financial information when investing in foreign corporations, but such matters are mostly left to professionals. (Yes, there is spam email with false offers of getting rich quickly if you will only invest in a foreign corporation, or help an individual

sneak money out of an African country, but by now most network users have learned to ignore such "obvious lies.")

Now, it must be said that we have the same problems when dealing with companies or individual persons in our own country. There have been massive scandals in the U.S. involving corporations that have lied to investors and to the government. There have been problems with tainted food, such as spinach, and defects in manufactured goods. But my feeling is that most Americans are less uncomfortable with that situation because they believe that such problems will be dealt with properly by their government, the one they elect and which passes the laws that govern their own behavior, so they have an idea of what to expect in the way of law enforcement. I would like to believe that the government of another country such as China or India would have and enforce laws against chemical contamination of products, for example, but I have to admit that I am ignorant of the laws in those other countries and do not know anything about the people who make and enforce those laws and what they have done in recent years about such problems. So I have not had the opportunity to develop an appropriate level of trust. How, then, can trust be built in a (relatively) borderless, Internet-based global economy?

One way is trade agreements and mutual support of law enforcement, and indeed this occurs already. Another is inspections when goods cross geographical borders; this is also done, but the costs are large, so it is not done in all cases. But another way is for those involved in commerce to establish a reputation.

To me, the most remarkable thing about eBay is not that it has created a large-scale database to support millions of auctions, or that it has so quickly built a large business around many relatively small transactions. No, the most remarkable thing is that eBay has managed to create a community where, to a remarkable extent, you can carry on commerce with individual strangers with a reasonable level of trust – not 100% trust, but enough to be willing to engage in buying and selling small goods and sometimes even expensive goods. I have purchased items from strangers in England and Germany and Australia and Singapore, and have been completely satisfied and unafraid. Why? Because eBay has established a feedback system so that buyers and sellers can comment on each other. Every participant has a reputation to maintain, and you can avoid commerce with members who have a bad reputation. Now, this system is not perfect, and it can be corrupted, but it works well enough. One of the reasons it works is that eBay itself more or less guarantees the integrity and availability of the feedback comments and statistics; in this limited respect, eBay functions as a government over its limited domain. So users come to trust this feedback information, and through that develop trust in other buyers and sellers.

Now, sometimes it is necessary to hide information: because of fundamental privacy concerns (and these may vary from culture to culture), because of the need to maintain confidences (if I promise to protect someone else's information, for example), or because it is desirable to prevent temptation.

For example, a fundamental flaw of most banks is that every account has a single account number, and in order to allow a third party to deposit money into an account you must provide the same identification number that is used to withdraw money from the account. If two separate numbers were used, one for deposits and one for withdrawals, it might provide greater security and less temptation for fraud. In the same way, one of the weaknesses of the international credit card system is that a single number is used both to identify an account and to authorize each transaction. Some banks have built an improved procedure on top of the existing system by providing "one-time-only" credit card numbers: a customer can go to a website, identify himself to the bank with his primary credit card number, and receive a fresh credit card number, tied to his existing account, that is good for exactly one transaction. Such a system likewise reduces opportunities for fraud.

Besides "Honesty is the best policy", we have another saying: "You can't cheat an honest man." Some kinds of Internet scams depend on lying to someone in such a way that they also see an opportunity to lie and cheat, and thereby hope to profit. Questions of interest when considering ethics in a global economy are: How can we structure commerce to avoid temptation? How can we make it so that honesty truly is the best policy – that is, can it truly be in everyone's best interest to be honest? Honesty might (at least on balance) be in the best interest of wealthy nations, but I have to admit that, as the world's economy is currently structured, it might not appear to be in the best interest of poorer nations. If not, what adjustments could be made so that everyone will find honesty and trust desirable? Trust requires community, a knowledge and understanding of the lives of others, and coming to care about those lives.

Guy Steele *was born in Missouri and graduated from the Boston Latin School. He received a BA from Harvard University, a MSc and PhD from MIT in Computer Science. He then taught and researched in the area of computer science at Carnegie Mellon University and Tartan Laboratories. Next he joined the supercomputer company Thinking Machines, where he helped to define and promote a parallel version of Lisp called Connection Machine Lisp). In 1994, Steele joined Sun Microsystems and was invited by Bill Joy to become a member of the Java team after the language had been designed, since he had a track record of writing good specifications for existing languages. He was named a Sun Fellow in 2003. Steele has published several papers on the subject of the Lisp language and its implementation, the design of the programming language Scheme, and a series of technical work related to compilers, parallel processing, and constraint languages. He has served on accredited standards committees of ECMA TC39, X3J11, and X3J3 (Fortran), the IEEE and Sun Microsystems. At Sun Microsystems his work included research in parallel algorithms, implementation strategies, and architectural and software support. More recently, he has been working on a new programming language named Fortress. He edited The Hacker's Dictionary, C: A Reference Manual, Common Lisp the Language, The High Performance Fortran Handbook, and The Java Language Specification , among other publications. He is a member of the National Academy of Engineering of the US and very active in his local community.*