

Trust—A Question of Anticipation/Trust – Anticipation and Survival

Some simple observations: It would not be unusual for a person living in our day and age to go to the bank and deposit one million dollars (or Euros or English pounds), entrusting this amount to an unknown cashier/teller. But it would be exceptional for the same person to execute the same transaction through the Internet. Many of us would eat some exotic meal in a restaurant (Do we eat Chinese tonight, or Thai?), but not touch a genetically engineered tomato. Some will follow a grandmother's advice and swallow a rather disgusting concoction of herbs and roots, but cringe at the thought of a recombined DNA sequence. The list of examples can go on, from e-commerce, to business-to-business transactions, to distance learning. All such examples have in common the human characteristic underlying all interactions, which is more or less expressed through the notion of trust. On American currency – notes that serve as legal tender for all debts, public and private, states the archaic inscription on the bill – appears the great seal of the USA with the explicit declaration: In God We Trust. The comments that this statement has triggered are probably more countless than the number of dollar bills in circulation today. Here, trust is connected to the highest authority accepted by the people who established the United States government. Atheists and followers of non-Judeo-Christian religions might have had problems with accepting the contract of trust written on American bills, but used them because they trusted the tangible authority supporting USA currency.

In the final analysis, trust is the expression of practical experiences – individual, collective, social, etc. – that humans had in their individual and social unfolding. Through trust, the difference between expectation and outcome is fed back into new experiences. If one transaction (at a bank, doctor's office, or restaurant) is successful, the second, or next one, is rendered possible. When trust is betrayed, the premise for future experiences can be severely undermined. There are situations in which trust reflects a psychological attraction (or repulsion). Authority and even continuity can be undermined by psychological elements, such as the aspect of rapport or human chemistry: One relates or does not relate to someone else, and this relation can or cannot be explained in rational terms. Generally speaking, we trust things that look good (the aesthetic aspect), things that we perceive as well designed, things that look healthy. We do not trust those who tend to control us, and even less those who try to please us at any cost. (Politics might be the best example here.)

Up to this point, we have identified religion, authority, continuity, psychology, aesthetics, design, sociology, and politics as elements pertinent to trust. Probably more factors are at work. Moreover, the interplay of these elements is also very important. In a political context of mistrust (as in dictatorships and corrupt societies), trust is difficult to establish even in relation to non-political transactions (relations with neighbors, currency, legal system, etc.). But my focus is not on a philosophic theory of trust, rather on the processes that impact the establishment of trustworthiness, in particular, trust in a context of rapid change. Or, to put it even more bluntly, trust in a context of fundamental change.

Essentially, trust is an anticipation. This sentence means nothing unless we define anticipation

(Nadin 1999a). Strictly speaking, to anticipate means to act according to an expectation that is assumed to be matched by the outcome. The launching of a rocket is controlled by a program that is a model of the functioning of each and every component of the rocket. This model unfolds faster than the launch itself. In other words, the time of the model is faster than the real-time operation of launching. The same model applies to the operation of entrusting one million dollars (or DM) to a teller at a bank. NOTE: does anyone hand over 1,000,000 dollars in bills and not cause some mistrust at a bank? Isn't this handled by transfers? We are motivated to do so by the model of a transaction that says that after ten days or ten years, the bank will still be around and we can recover the money (plus interest). Eating unusual foods in a restaurant, following a grandmother's advice, and so many other transactions we enter without any doubt are also based on models that we built through earlier experiences (our own or those of others we trust, explicitly or not).

But let's define anticipation even further. An anticipatory system is one whose current state is affected not by a prior state, but by a future state. The future state of a bank, the pleasure of indulging in good food, the healing to be effected by grandmother's concoction – these all affect our current state when we hand money over to a stranger, when we eat something we know nothing about in a restaurant, or when we accept advice regarding our health. Many other anticipations define human beings: love, solidarity, physical performance (in skiing, tennis, walking). As opposed to a reactive behavior, which can be easily mimicked by all kinds of machines, anticipation is creative. To design, to write poems, to paint, to compose music are anticipatory activities. A future state – the public will appreciate the design, read the poem, view the painting, hear the music – affects the current state – doing one's best in the creative act – of those expressing themselves through new works.

Having established this context, that is, the relation between anticipation and trust, we shall address the specific issues of anticipation within the framework of the fundamental change that human society is going through. We do this in order to answer an elementary question: Is trust still possible in the new stage of humankind's evolution? And if yes, what does it take to ensure that we put in place all the elements that will eventually constitute the underlying foundation of trust?

But before addressing these questions, here are some truly worrisome aspects that have led to the current crisis in trust. The criminality of net-based transactions (expressed through violations of privacy, misrepresentation, non-delivery of goods and services paid for, among other things) is tenfold higher than that of traditional transactions, i.e., not supported by digital technology. The impact of genetic engineering is of an order of magnitude that few can even imagine, in comparison to what agriculture, biology, and industrial farming methods have already made possible. In a world where malnutrition affects the life of billions of individuals and leads to high rates of infant and child mortality, the technological wonders of transgenics (the ability to mix genes of any species) are mistrusted. Humans have done well with traditional cross-breeding, but now a threshold seems to have been achieved where attempts to control nature are no longer trusted. In a spectacular case that made for headlines (Nash 2000), Peter Beyer of the University of Freiburg and Ingo Potrykus of the Swiss Federal Institute of Technology in Zurich created a so-called "golden rice," a variety that in addition to rice's nutritional qualities also has a beta-

carotene component, thus supplying the necessary vitamin A for avoiding deficiencies experienced by the almost four billion people who rely on rice as a staple.

Here is a case that transcends the doubts and mistrust associated with digital gadgets, purchasing food or cars over the Internet, entrusting one's data to a machine from which it can easily be appropriated by less than trustworthy individuals. It is no longer a matter of convenience – We can do without it! – and it is neither by any means only a question of data security.

Biotechnology is a matter of life and death. Still, from the perspective of trust, it raises many questions. Transferred genes contain instructions for making proteins, and some of the latter can cause allergic reactions. There is also the issue of genetic pollution. Transgenic contaminants will change nature as we know it. What lies ahead as nature is engineered is alarming to most people, bringing Dr. Frankenstein to mind. And for good reason. Just as alarming is the perspective of famine, disease, and death that can be approached only if the methods and means for diversifying our food supply reflect the new scale of humankind. Here anticipation comes into the picture in obvious ways. A future state – whatever good or harm will result from bioengineering – defines our current state – acceptance, rejection, trust, mistrust.

After all is said and done, the question remains: Is trust still possible today? This is a high-order question that cannot be dismissed, as it cannot be reduced to some technological answer (such as better virus control mechanisms, for software and in the biological realm). Historically, every time humans faced change, trust was questioned. Indeed, trust presumes confirmation. For trust to result, experiences have to accumulate. As the new – whatever the novelty – replaces the customary (that which we are used to), it has to establish its own trustworthiness. Once in place, that is, once accepted as trustworthy, the cybernetic loop closes through self-adaptive feedback. Reaching back only to the Industrial Age, we have a never-ending sequence of mistrust: machines (of all kinds) were not trusted. New forms of energy did not fare better. Importation of plants and animals from their native habitats for various good-sounding reasons faced skepticism. Synthetic fabrics, industrially processed foods, daring urban architecture, cultural innovation, the art of the machine age, political movements, and political institutions born of the Industrial Revolution, new labor laws, new educational methods, religious reform, and social reforms had to establish their own bases for trust. Paradoxically, today what was once the cause of fear and uneasiness has become easily trusted while everything negating it is subject to harsh criticism. This does not apply only to the computer, since the post-industrial is not reducible to the digital only, but encompasses the entire semiotic domain. The unknown makes us accept what we once upon a time hated, and thus what is trusted eliminates the basis for extending trust beyond experiences on which it is based. By way of example, industrial food processing, despite all its shortcomings, was the subject of the public's distrust at its beginning; but it is now more acceptable than genetic engineering.

Nonetheless, this discourse cannot bring us further unless we focus on what is new, in particular, how we define novelty in the current context. First, let us take the easy path and proceed with a negative definition. It is not the new machines – computers, cell phones, MRI, genetic splicers, etc. – and it is not the new genetic procedures – transgenic species, DNA-based medicine, designer drugs – or even the new materials and processing at nano-levels (nanotechnology), nor the ever-expanding networks of all kinds that make up the mistrusted “New” vs. the trusted “Old.” Were this the case, one could easily engineer procedures for making trustworthiness

happen. And some people do work at this goal under the illusion that the cosmetics of human-machine interaction will eventually generate trust. It seems that every time something breaks down – a computer, a Web application, a new medicine – we can come up with a fix. A new industry emerged parallel to the industry-based scientific and technological revolution: the fix-it industry, selling to the public anti-virus software (hot patches available through the Internet), child pornography filters, and nature-based supplements of all kinds to help in the prevention of DNA accidents (as with the condition caused by Alzheimer's disease, Parkinson's disease, or obesity). Along the line of this thought, the issue is no longer trust, but rather mistrust diminished through some forms of prevention. This is not anticipation, but expectation; even worse, it is the expression of a lack of responsibility. Things known not to work as expected are still released to the public now transformed into a mass debugging mechanism.

However, the negative definition of the new only points to superficial aspects of innovation. It tells us that we take the unknown and domesticate it by using what we already know. Someone wants to break into your safe home, so you get a stronger lock or install an alarm system. Actually, you do not face a new condition of living; rather, you preserve the old conditions. But in doing so, you literally ignore the fundamental changes that lead you from a framework of action based on trust to one that affects your own condition.

The change from industrial society to the post-industrial age is fundamental because it affects the nature of our experiences (Nadin 1999b). The practical experience of visible and tangible tools, of handling matter as it is processed, of production lines (extended to intensive agriculture), of touch-and-feel medicine is replaced by extremely mediated experiences and by virtuality. Programs, which are logical descriptions of desired actions, make things happen on a production line; virtuality replaces reality; the doctor handles not us as a body with pain, but our data; agriculture is driven by information processing procedures; genetics defines the language encoded in us; and bioengineering deals not with what nature gave us, but with our plans and designs for making plants and animals resistant to disease, weather factors, and insects. We are getting processually distanced – alienated – from what we process. At the same time, our identity (as described in personal data (biological identifiers, patterns of behavior and interaction, among others) seems to take on a life of its own and constitutes a very valuable commodity for which business is willing to pay more than what we believe we are worth as human beings.

It is clear that trust in the practical, pragmatic framework of direct transactions is quite different from trust in the new pragmatic framework of mediated actions. A person examining someone's wound, touching his skin, and applying medicine inspired more trust than a professional looking in our genetic code for a genetic switch that might (or might not) control one's physical well-being. There is a lot of psychology involved here, but even more, there is a lot of cognitive doubt. We trust what we understand, we understand what we experience (what we do). We enter into new experiences motivated by the desire to know, but also by hope. Someone grafting a twig onto another plant in order to crossbreed and let nature take its course from there was more bound to trust similar experiences than genetic mutations, cloning, or transgenic operations. Daffodils, the jaunty heralds of spring, and rice – each on its own – pertain to experiences we can cognitively understand. But the golden rice, containing beta-carotene generated within the rice kernel with the aid of a bacterium (*Erwinia uredovora*) and gene promoters, is beyond our immediate understanding. Complexity enters the picture, and our ability to cope with increased

complexity needs to be nurtured. Accordingly, trust appears to have something to do with education.

We already mentioned that the question to finally be addressed is whether we are still in an age in which trust is possible – and what it would take to establish it. Or, if trust turns out not to be possible, how will we cope with more and more innovation without the underlying trust that engages us in new experiences as innovation makes them possible? Our age is characterized by shorter cycles of innovation, faster processes, decentralization, and transitoriness. Permanence is at best a nostalgic desideratum connected to a past that for certain intervals had an appearance of stability. Our time is one of instability, higher speeds, and a human scale of pragmatic activity that has reached globality. Behind these loaded words is the simple realization, by each and every one of us, of a state of flux. Nothing is the same, nothing can stay the same. The identity of each of us, instilled by parents, school, training, social mores, religion, and law is in flux. In the succession of generations – which always implied a contract, a basis of trust – we notice discontinuity rather than the continuity once upon a time taken for granted.

There is yet another dimension to trust: wager. Humans are wagering beings, betting against the odds. The one million dollars handed over to an unknown person working for a bank is actually deposited with the hope of the highest return. Many place bets on the Internet in defiance of low odds and low trust because it is cheaper to buy a diamond, a work of art, or stocks on the Net. Day traders trust themselves more than they do brokers and want to have access to trading on the floor of the Exchange, not through the ears of a busy person serving many clients, all in a hurry and all demanding the broker's full attention. As the new economy establishes itself, trust is no longer associated with trademarks, company names, and traditions. (The illusion of branding is equal to the illusion of trust.) It is supplanted by the instinct to gamble, which corresponds to trusting one's own ability to outsmart others in a game – the economic game manifested through market processes, shopping, etc. – that has always had an aspect of betting attached to it. There will be losers and winners, as there have always been. Trust is not reinforced by losing, however, but by winning. And in this vein, the shift from the one-to-many interactions to one-to-one affects our trust expectations. When people can exchange what they have – music (Napster and MP3 technology), ideas (one Website rewards those who come up with profitable ideas), knowledge (the knowledge community we are building) – on a one-to-one relation, trust is redefined in terms of this new dimension of human interaction.

For all practical purposes, the historic notion of trust cannot be embodied in our new practical experiences. The one million dollars that someone or another might still take to a bank (as impractical as that would be, since it takes over a week of 24-hour days to count to one million) actually resides in the network of rapid and increasingly numerous digital transactions. We still carry dollar bills with us with the demagogical inscription of trusting a higher authority, as we live our lives according to the rules of other exigencies. The demand to maximize one's investment does not contradict any of the Ten Commandments, but it defines a new realm. Values succeed each other as fashion makes for the succession of shapes, colors, and fabrics. In other words, trust is slowly becoming independent of human beings, of individuals, of our identity, and becoming part of our own projection in the programs and mechanisms we put in place to increase efficiency. Necessity no longer drives us – food for survival, clothing and housing to protect us from the elements. Expectations do. As these increase with no limit in

sight, we enter the territory of risk and expediency, where trust ceases to have any meaning. What counts is not someone's morality or competence, but the interplay of the many factors that ensure the dynamics of change, of progress – our own included.

Some might be inclined to say that all the miracles of the new age of science and technology will not come to fruition unless and until trust is established. People will not buy on the Internet, will not have their health checked remotely from an expert's Website, will not enter genetically driven alliances (with doctors, nursing homes, or beauty clinics), and even less accept to be integrated in the global economy through the alter ego of their digital identity. Really? This rhetoric question means that there is no choice in the matter. We are the changes, and as we make them possible, we change ourselves. The process will be tortuous, but it is inevitable. In view of the many aspects of such a process, it is obvious that trust will imply a different understanding of what it takes to assume a minimal difference between intention and outcome. As trust is distanced from the expectation of permanence – We will take your million dollars in e-form, as e-money, and invest it, but do not expect to find it here ten years later; we ourselves might not be here, an e-banker might say – it becomes a factor in the continuous acceleration of economic, social, and political processes. It used to be that someone who said "Trust me" actually stated that he would be around tomorrow and for as long as you needed him. Today, "Trust me" means that tomorrow everything will be different. In the broader scheme of things, trust no longer pertains to individuals, but to processes in which we are but an instance.

References

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