



<https://doi.org/10.23939/shv2022.02.054>

## ВАС ЛЯКАЄ РЕІНЖИНІРИНГ ЛЮДСТВА?<sup>1</sup>

(Огляд книги Б. Фрішманна та Е. Селінджера “Re-engineering Humanity”.  
Cambridge, United Kingdom; New York, NY: Cambridge University Press, 2018. 235 p.)

**Павло Сьомко**

Національний університет “Львівська політехніка”  
ORCID: 0000-0002-1913-1823  
pavlo.somko.pz.2020@lpnu.ua

**Анастасія Данько**

Національний університет “Львівська політехніка”  
ORCID: 0000-0001-5422-848X  
anastasiia.danko.pz.2020@lpnu.ua

(Отримано: 01.08.2022. Прийнято: 27.09.2022)

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Здійснено огляд праці “Re-engineering humanity” Б. Фрішманна, професора права, бізнесу та економіки Університету Вілланова, та Е. Селінджера, професора філософії в Рочестерському технологічному інституті. Показано необхідність людського контролю над розвитком технологій. Донесено всю відповідальність, яку ми маємо усвідомлювати, демонструючи неймовірні приклади реінжинірингу людства. Ця книга переконає вас, чому так важливо вбудувати технології в людські цінності, перш ніж вони впровадять у нас свої власні.

**Ключові слова:** реінжиніринг, людство, штучний інтелект, свідомість, вибір, суспільство.

## ARE YOU SCARED OF HUMANITY RE-ENGINEERING?<sup>2</sup>

(Review of : Frischmann, B., Selinger, E. (2018). Re-engineering Humanity. Cambridge,  
United Kingdom; New York, NY: Cambridge University Press. 235 p.)

**Pavlo Somko**

Lviv Polytechnic National University  
ORCID: 0000-0002-1913-1823  
pavlo.somko.pz.2020@lpnu.ua

**Anastasia Danko**

Lviv Polytechnic National University  
ORCID: 0000-0001-5422-848X  
anastasiia.danko.pz.2020@lpnu.ua

(Received: 01.08.2022. Accepted: 27.09.2022)

**In the book “Re-engineering Humanity”, the authors show how strongly we should hold the development of technology and humanity in our hands. They convey all the responsibility we should be aware of, showing**

<sup>1</sup> Огляд підготовлено під керівництвом д-р. філос. наук, доц. І. Карівця.

<sup>2</sup> Review is prepared under the supervision of Assoc. Prof. I. Karivets.

**incredible examples of re-engineering humanity. This book will convince us why it's so important we embed technologies with human values before they embed us with their own.**

**Key words:** *reengineering, humanity, artificial intelligence, consciousness, choice, society.*

From the very beginning, authors plunge readers into a problem of the fear of modern technologies and personal data preservation. For this they use an excellent story about an experiment carried out at Oral Roberts University in 2016. The scientists offered students to wear special bracelets "Fitbits" in order to have all the information, which was recorded and saved automatically. However, the most mind-blowing dissonance was the fact students who were scared of having a tiny "recorder" on their hand, at the same time wrote the same information into the report after PE lessons without any objection. Even a little bracelet can cause strong suspicion and fear of every day habit! [Frischmann, Selinger 2018: 49]<sup>3</sup>.

Actually, the root of the problem might have been a wrong presentation of this technology or a wrongly chosen audience. In our case, students might not have liked the bracelets not only due to the lack of confidence, but also because of the fact that earlier they could lie in the report for getting a higher mark. However here arises another serious question about human attitude to numbers, ethic and esthetic feelings. Example about students and bracelets lays only in the beginning of the story. By the way, after 18 months of using these bracelets they were proved to be effective.

One of the chapters of the first part is called "Bedtime and Bathtime Surveillance", which sounds creepy. Author's son, young boy, won a watch at school. His parents and he were happy. When father read a letter from the school, he was disappointed though. "We ask that students do not take off the watch once it's on their wrist. They should sleep, even shower with the watch in place." [p. 58] Seriously, bath-time and bedtime surveillance! Here many questions arise: who will save this data, how will they use it, how long will the data be saved, who can reach it?

These questions are always on your mind when you are about to send e. g. your passport data for registration on some kind of platform etc. People are getting used to it, although we still give our personal information with caution. Such problems will always be up-to-date for humans, because manufacturers will want to get more information about their clients in any way.

Just like in the previous case, in order to get parents' approval, they are manipulated with their own children's smiles and happiness from winning the watch. Situation is becoming even worse, because of the tension from a happy child and also the tension from the child's friends, who may judge refusal from the free and modern gadget.

Perhaps Frishman and Selinger's biggest problem is their radical stance on the click-to-contract process. They propose to eliminate third-party preferences for click-to-contract deals. This would outlaw data mining. This would make the business models of once-monopolistic firms like Facebook, Google and Palantir effectively illegal. Data mining – the massive collection, analysis and use of information about our every online interaction – is the most profitable engine of the online economy.

Second part is, without exaggeration, almost an encyclopedia about the history of human reengineering. It makes you open your eyes to the technical development of society and even things that seem banal and obvious to you make you think or even scare you. So let's skip long introduction and analyze this part of the book in more detail.

Where does the human re-engineering begin? What might prompt you to behave like a machine during your time on the Internet? Of course, there can be a multitude of answers, but in chapter 5 "Engineering Humans with Contracts", the author explains the essence of contracts in detail.

In fact, this chapter makes you think globally about how much time we spend online each day, how many different service providers we interact with during that time, and what percentage of those interactions are governed by contracts. Nowadays, everything is designed so that we accept contracts as soon as possible and as often as possible, and even more work is done by designers to improve this. Crafty designers use short phrases instead of long speeches to get contracts accepted faster. The same cookies are now used almost at every turn.

It is clear that the author fully understands how modern contracts work. We usually enter into contracts by pressing a virtual button, be it a mouse, touch pad, touch screen or remote control. As a matter of fact, there is simply a price and a service according to which we accept a contract, and this price is not measured in

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<sup>3</sup> Henceforth, references to the book will be abbreviated, namely: only pages, without the surnames of the authors and year of publication.

money – this is exactly the essence that the author conveys to us.

Despite our frivolity in accepting contracts, when an ordinary user is told that his data from a web page goes to third parties, he at least dislikes it. This thought goes far beyond Facebook and Google. Apple App Store, Amazon, Microsoft and many other online services work this way. As a product, the user describes much of the digital networked environment, and thus much of our daily lives.

Our current system of online contracts is a compelling example of how our legal regulations, combined with a particular technological environment, can make us behave like mere stimulus-response machines – perfectly rational, but also entirely predictable and ultimately programmable. Environments put us on autopilot and likely help create or reinforce dispositions that will affect us in other areas of life that involve similar technological environments. Isn't this part of the reengineering of humanity?

The fifth chapter “Engineering Humans with Contracts” actually makes us understand that we mistake the illusion of choice for the real thing. However, the important point is that the authors understand that we have been behaving in this way for a long time, so that automatic consent is neither new nor unique to online contracts. Most people do not read the terms and conditions of insurance contracts, mortgages or the vast majority of offline contracts. We probably stopped reading and signing contracts a long time ago, especially in the business and consumer context.

That is, when the consumer is aware of price or quality of the product or service being purchased, the consumer is likely to consider both online and offline. But, as noted earlier, such discussion is absent in many electronic contracts precisely because the apparent price is zero, and the hidden price consists of unread terms, data sharing, and weakened and sometimes difficult relationships created through the mediation of various third parties.

Thus, the electronic contractual environment is another illustration of the techno-social human engineering. The only thing that can be added is that it was worthwhile for the authors to add an example of geolocation tracking to this part. After all, in many contracts, we allow tracking of our location, Google maps generally build our route of movement, with precision to the establishment where we dined. Doesn't this thought frighten?

Chapter six “On Extending Minds and Mind Control” tells the readers how using digital appliances

for making human life more convenient can effect human mind, e. g. enlarge it. By “enlarge” not making people's brain bigger is meant, quite the opposite – in order to use any personal technologies human mind extends its sense and perceives gadgets as parts of itself or a body in general. For instance, when using a computer, people often say: my keyboard, my mouse etc, they start to strongly associate parts of the computer with themselves.

Let us now talk about our way to a smart techno-social environment. First of all, the authors make us understand the reasons for this optimization. One of the reasons why society generally does not aim to optimize specific values, such as efficiency or happiness, is that people are often committed to plenty of different values. Another reason is that these values are often disproportionate, making prioritization conflicting and trade-offs inevitable. Another reason is that the tools used for optimization are highly and probably inevitably imperfect. J. Weizenbaum put forward a good guess concerning this: “Assuming we continue on the path we are on, in the near future we will rely even more on technology to guide our behavior intelligently ...” [p. 206].

What is the first thing that comes to your mind when we talk about the formation of our modern environment? Most likely, you will say culture. The cultural environment provides, shapes and reflects us, and, at the same time, we create, shape and reflect it. An important part of the cultural environment is the media, which the authors tell us about in detail further. It is great that they choose to focus on the media as a tool of techno-social engineering and not discuss market structures.

The peculiarity of the media is that: “Each communication channel codifies reality differently and thereby influences, to a surprising degree, the content of the message communicated” [Carpenter, McLuhan, 1956: 49]. It is important to understand what typical consumers are like. They are shown to us as people who believe in everything and want to be entertained on TV. Where do such people come from? The answer is simple: television has turned many consumers into couch potatoes. Research shows that watching TV takes up many people's lives, but it is hard to quantify the consequences.

Mass media shape our cultural environment. Similarly to the clock from the first chapter and other tools, our perception and understanding of reality changes gradually as we become accustomed to the availability, power, and utility of the tools. The authors explain that media intervention in our environment can

be abrupt or gradual, contradictory or harmonious. For example, radio has long been acceptable in many environments, provided it remains unobtrusive and creates a background atmosphere. Television, on the other hand, was the most appropriate in selected environments, such as the living room or tavern, but inappropriate in others, such as automobiles [p. 220].

Noam Chomsky and Edward Herman took a slightly different tack in their book “Manufacturing Consent: The Political Economy of the Mass-Media” [1988]. They proved emphatically that the mass media serves as a powerful tool of propaganda. Their argument was not that propaganda was new, it had been around for millennia. Rather, their argument was that the scale, scope, and influence of the profit-driven mass media gave elites more powerful control over the minds of mainstream audiences.

In fact, the topic of propaganda in the media could be developed much more widely if the authors wrote this book in 2022. Then they could describe the real re-engineering of people with propaganda in Russia. Too bad it’s more about turning people into zombies than re-engineering.

In addition, in the seventh chapter “The Path to Smart TechnoSocial Environment”, the authors are introduced to the topic of intranet media space. To evaluate the Internet as a tool for the techno-social human engineering, we need to consider an additional factor: the scale and scope of data collection. For example, according to IBM: “Every day we create 2.5 quintillion bytes of data – so many that 90 % of the data in the world today was created in just the last two years” [p. 226]. It is obvious that with such amounts of data, the government of the whole world spies on us on the Internet.

People can be conditioned to perceive the advertising scattered throughout our digital culture, and as a result, many ads can serve as cover for ongoing surveillance efforts that pursue a number of goals, including political ones. We highlight two ways in which surveillance is related to techno-social engineering. First, surveillance itself can demonstrate disciplinary power and thus constitute techno-social engineering. Second, the collected data can be used as input to a variety of other techno-social engineering tools.

Facebook’s experiment of emotional re-engineering, described in this book, cannot be neglected. Briefly, this experiment manipulated the degree to which people were prone to emotional displays in their news feed. It turns out that emotional contagion exists and can be deployed by Facebook. People who received more positive posts

tended to post more positive posts compared to control groups, with similar results regarding the effects of negative posts.

In fact, the re-engineering of humanity is manifested in such experiments, but there are a lot of questions about them. Imagine you are negotiating an individual contract with Facebook. What exactly would you agree to? Will it be enough to click the “Agree” button when signing up for the service?

The next basis for reflection, which the authors give us, causes mixed emotions. Let us say you live in an environment where Facebook successfully programs your emotions. Maybe you gave your consent and even chose the setting, or maybe your parents did it on your behalf long ago. Facebook provides a complete set of (emotionally contagious) stimuli that elicit a predictable, predetermined set of emotional responses. Who is emotional? You? Facebook? Your parents? Does it matter?

The authors want to convey to us that technological giants are able to program even our emotions. On the other hand, they realize that this is not a new thing. For example, when you read a novel, who feels the emotions? You? Author? Publisher? We hardly believe that when you read a novel and feel happy or sad, anyone but you feels the emotion. It can be said that the author communicates and, perhaps, shares emotions together. From a certain angle, the author is engaged in techno-social engineering.

We probably have no idea how much work goes into techno-social engineering. Under the hood, Facebook makes a mood schedule. When we choose emoji as a tool of communication, we give the company a clear and coded representation of our emotions. Similar problems are likely to arise in other areas, including smart cars. Car manufacturers are increasingly interested in the perception and classification of drivers’ emotions.

Next, we smoothly move to the topic of relationships between people. Communicating with others often involves reciprocity, and this includes letting people who treat us well know that we value their thoughts and feelings. In this book the authors focus on techno-social engineering and the problem of engineering determinism, rather than natural or biological determinism.

Although it might be better to say that we are moving to the topic of relationships between humans and robots or digital companions. In order to become a good partner, the machine must have strong social skills and the ability to communicate. If it can really keep up with us as we jump from topic to topic and alternate between factual questions and sarcastic jokes, it might understand

our way of life as well as other people. And if so, the computer deserves credit for exhibiting social intelligence.

What is known about the successes of technology in the social sphere? For example, there is an interesting project on the ETER9 platform – software with artificial intelligence learns users' personality by analyzing what they publish; and artificial agents apply this knowledge and create high-quality new content on behalf of the user, even after their death. If ETER9 succeeds, digital doppelgangers will relay estimates of our thoughts while our bodies decompose.

Ash and Martha's story is a revealing story about the relationship between man and machine. Ash died in a car accident, maybe even because he was surfing social networks. Martha, after initial apprehension, decides to recreate Ash's personality and voice using computer data, it was initially something similar to Siri. But Marta decided not to stop and order an upgrade. She gets a full android that looks, sounds and acts just like Ash. At first everything was cool, sometimes he was even better than Ash. Over time, Marta becomes disillusioned. She is dissatisfied with Android Ash's endless desire to please and his subtle mistakes. It even went so far as to ask Android Ash to jump off a cliff.

This story proves to us that our technologies are not yet ready to fully replace people. And even if they are, what is next? If your loved one died, would you order the Android version if it was available? If so, what would you do with it? The authors give us freedom to think about all these questions.

After all, Android Ash had no real autonomy. It cannot determine its own intentions. Thus Android Ash is nothing more than an animated slave. It cannot leave Martha or grow and develop in a way that Martha does not like. Android Ash is the embodiment of what the philosopher I. Kant calls "heteronomy": the lack of self-determination and fundamental submission to an externally imposed will.

It only remains to add that autonomy is an important distinguishing feature that sets humans apart from robots now and in the near future. Perhaps, this is the main point that delays the full integration of machines into our society.

In chapter 9 "#RelationshipOptimization" the authors show us another story of a similar nature. At one point Ramit Chawla, founder of mobile app development company Fueled, became too busy to acknowledge his friends' photos of kids, vacations, and food on Instagram. He created an app to like and comment on friends' photos instead of him. Suddenly, his popularity skyrocketed. Friends gave him high fives on the street, etc.

This story reminds us of integrity, a virtue closely related to compassion, empathy, and altruism. When we care deeply about someone, we adopt a conscientious attitude. For example, if you know someone is worried about finding a job after college, you can ask ahead of time if they need help making connections. Many of us would like to be more conscientious. We would feel better. But doing all the practical everyday things in life can prevent us from living up to this ideal more fully.

We have to make hard choices about whether to use artificial communication technologies now and whether to be upset when other people use them against us. Even in ancient times, the philosopher Aristotle distinguished three main types of friendship: incomplete based on mutual usefulness, and full based on mutual benevolence and virtue. Aristotle proclaims that we cannot live well without complete friends who are unconditionally devoted to our well-being. Using such technology, where do we get full-fledged friends?

Take the case of programmer J. Long and his app Tinderbox. Basically, the app finds profiles of people on Tinder who look like they fit the user's "type", initiates three rounds of automated communication with potential dates, and then finally invites Long to take part in the conversation in person. The authors make us think whether we would like an automatic selection of partners and how much we would be happy if a machine selected us instead of a real person?

Many technologies could improve your life and relationships with others. The authors tell us about a digital wall in the kitchen that uses lines of colored light to display the trends and mood patterns of your loved one. Perhaps they learn about their affairs from their posts on social networks, etc. In the book "Enchanted Objects: Design, Human Desire, and the Internet of Things" [2014], author and innovator David Rose argues that this is an amazing device we should all want. If we could know more about what is happening to those we love, we could change our behavior in response.

Frischmann and Selinger are very insightful in many of their analyses, but fall short on this matter of our absurdity, because they take it for granted so intuitively that they don't analyze it. At one point, for example, they describe an actual product development proposal from a Silicon Valley company to embed sensors in people's legs so that a GPS system can navigate customers' own bodies so that they can respond to work-related emails and phone calls while jogging or getting other outdoor exercise [p. 187]. If Terry Gilliam were to read of this, he would envy that young startup executive for having thought of such a deranged idea before he did.

B. Frischmann and E. Selinger wrote “Re-Engineering Humanity” as a guide to show the readers how modern technologies apart from being convenient and easing human lives, also affect people’s choices, decisions or even thoughts. Gadgets are not only taking root in society, they are becoming a part of human mind! In the book’s final paragraph, they say “Doc Searls’ dream of customers systematically using contract and related tools to manage their relationships with vendors now seems feasible. It could be an important first step toward flipping the scientific-management-of-consumers script we’ve become so accustomed to” [p.560]

The book “Re-Engineering Humanity” brings a pragmatic if somewhat dystopic perspective to the technological phenomena of our age. Humans are learning machines and we learn from our experiences.

This book made us ask ourselves whether the experiences we are providing to our societies are in fact beneficial in the long run.

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