

# 9 Influence of a global epidemic on future ICT use

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Covid-19 is a fact. The virus exists and can be detected. It can trigger more severe and lighter clinical pictures and even lead to death. None of this is new and applies to all viral infections. Medicine has to deal with this. Politics too. But what does that have to do with ITC?

The previous computer usage mainly deals with short numerical values. This has cultural roots because the arithmetic tasks mainly operated with short numbers. Recently, however, the focus is on pattern processing tasks and these are based on long numbers.

One of the most important basic techniques in computer technology and natural number theory is parsing. By this we mean the breakdown of a (binary or multibasic) long number into individual blocks. Generally speaking, the universe can be understood as a continuously counting number according to the Peano axioms, which aims at the state of the Champernowne number but never reaches it. A Turing machine "cuts" out any short pieces (blocks) with the read / write head in relation to the joke juxta posed long number and concatenates them.

This process is called parsing. In the computer, the first parsing takes place in the compiler or interpreter. This parsing is strictly a syntactically and algorithmic part of every programming language. Unfortunately, the phenomenon of parsing is far too little covered in ITC education. There were no disadvantages as long as IT worked almost exclusively with short data strings in well-defined fields. The switch to biological-based data processing, as it is being used more and more in connection with Covid-19, also requires a reorganization of the training content.

Every natural number has a set of symbols and a juxtapose length. In everyday language we say: "This number has so and so many places". At each point there is a symbol from the symbol stock (e.g. the symbols 0 to 9 in the familiar decimal system) and the totality of the symbols results in the unique and unmistakable number. This reading of the number is called a concatenation. All arithmetic we learned in school is based on the natural numbers. But all computers and smartphones also work on this basis.

The interplay between joke and concatenation of a number is one of the most important and, at the same time, least known human cultural techniques. It seems so natural and natural to us that we never talk about it or teach it in schools (with the exception of theoretical computer science or certain areas of mathematics). That could also be a reason that we all allow ourselves to be so easily led behind the light with numbers.

The aim here is to show that parsing is not limited to computers and mathematics, but also takes place constantly in daily life. We divide texts, images and amounts of money into smaller parts every day and put them back together in our heads to form new wholes without worrying about the underlying cultural technique of parsing and re-parsing. The so much politically discussed "redistribution" is also based on parsing and re-parsing. As in a gold refinery, we constantly "pour" the "bars" as if they were made of gold.

Let's take any book as an example. It starts with lots of spaces and then continues with a large number of letters, punctuation marks, digits and symbols. Everything according to strict syntactic rules. In the computer this is standardized in the so-called ASCII code and results in a very, very long bit stream.

As we read a book, we begin to recognize the signs from left to right, to decipher them and to think together into more highly organized groups. In words, sentences, thoughts. This is parsing with the brain. At the end of the process, we say we have read and understood the book. We make an overall judgment. Positive or negative.

The transition from syntactic to semantic parsing takes place somewhere between the deciphering of the individual symbols and the sense-recognizing perception.

If it was an interesting book, we will read individual passages over and over again later. That is then re-parsing. This is the norm with specialist books. These are seldom read like a novel from front to back in one go.

Usually, you mark the most interesting places in such books with a colored marker pen. This is, for example, the re-parsing of a physics book carried out in our experiment. If you concatenate the marked text, i.e., read it in one go, you have the whole book in front of you in condensed short form. However, through the glasses (aspect) of those who did this re-parsing. Journalists and opinion leaders are good at the art of re-parsing in order to distill their view of things from outside sources. Teachers and popular educators use this to shape the worldview of their students. The advertisement uses the technique for framing the products it works for. Politics does this to generate power.

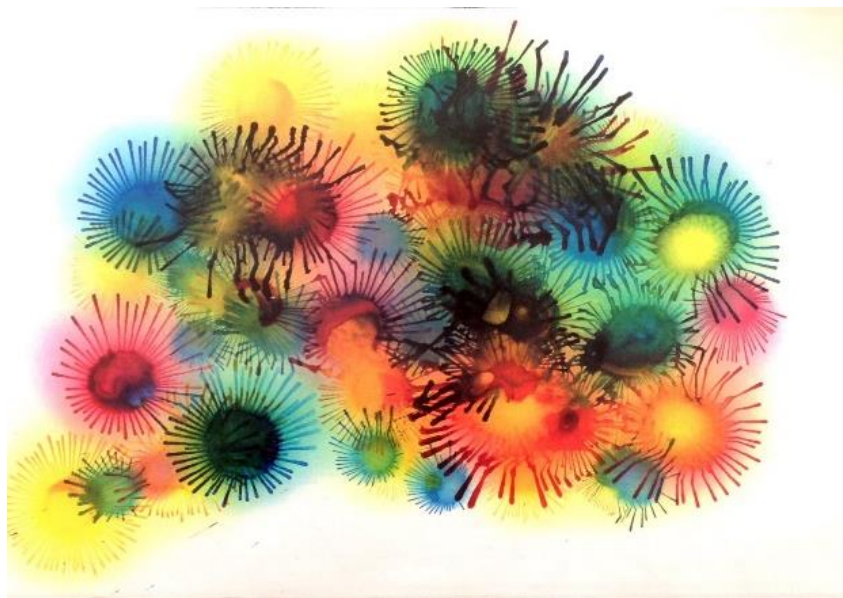
However, the same book can be read completely differently through a different re-framing. Some readers do that too and then, instead of an introduction to physics, for example, have a treatise on the historical development of natural philosophy. You will get to know personalities in science from many centuries and their reflections on God and the world. You will read exciting anecdotes about experiments made.

But there is a much more dramatic aspect of re-parsing (note: aspect dynamics). Right now we are experiencing a complete re-parsing of our monetary system. In the course of the consistent enforcement of epidemic law, as it is currently practiced all over the world, the cycle of money is not only inflated enormously but also reversed. How can we imagine that?

Let's look at the following figures, they show a section of a gigantic Jordan curve, which is bounded on the outside by a circumference and on the inside by an inscribed circle. This geometric shape has mathematically precisely defined properties.

It is compact, unrestricted and unlimited. It is closed. The sum of all partial curvatures is always  $2\pi$ . It has a reading direction.

A rich literature on the geometry of the Jordan curve can be found in Google, so this mathematics will not be elaborated on here. We are interested in the Jordan curve as a geometric metaphor. The spatial counterpart to the Jordan curve is the Jordan sphere, a structure that is currently haunting all media as the (fictional) form of the Covid-19 virus. (This picture was generated with the BEKO robot painting machine (CALSI) as early as 1987).



*Figure 1: Jordan sphere*

Back to the Jordan money curve:

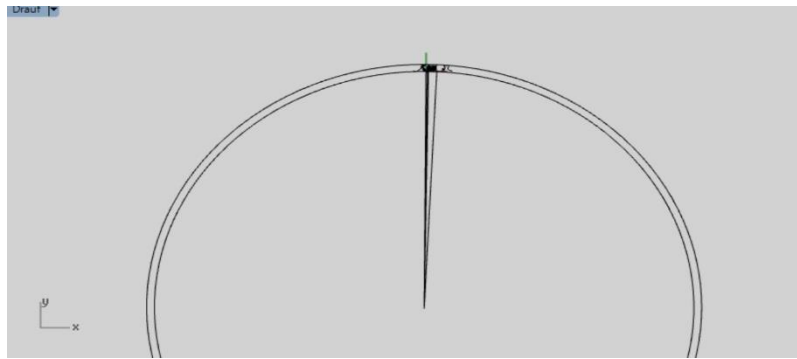


Figure 2: Jordan curve

The entire money supply can be imagined as a huge Jordan curve, where every unit of money (value) (e.g. euros, gold bars, land, shares, Bitcoin, dollars, etc.) is virtually symbolized as a point group of this curve.

This curve is closed and unevenly curved. The curvature symbolizes the aggregation of the money (value) units. Money tends to accumulate, as has been known for ages. This money-Jordan curve acts like a Turing machine. There are "read / write heads" that act on the Jordan curve and change the attribution of the monetary units. Each of us is such a "read / write head" in this picture, we can "read" our money stocks to a certain extent by counting them and crediting others by transferring or physically handing over our money. For example, we could buy a piece of land by handing over a gold bar. In an orderly economy, however, it will be done by overwriting a state-recognized currency (EUR) (with a click of the mouse).

This constantly changing money-Jordan curve is only circular in the theoretical ideal case. In reality it is dented locally because the ability to dispose of amounts of money by overwriting is extremely unevenly distributed. There are centers of gravity for money, as can be observed in physics with gravity. This inequality is currently growing because the centers of gravity are becoming fewer and fewer in number but increasingly gigantic in terms of amount.

The Jordan curve also has a writing direction. This is formed by causal time sequences. You cannot reverse money flows at will. So, taxes always flow from the citizen to the state. But civil servants' salaries always go from the state to a special class of citizens, the civil servants. Banks act on both sides. Markets too.



The geometry of the Jordan curve also helps us to better understand a phenomenon that has recently become so dramatic that is happening right before our eyes. For the first time in human history, it was technically and geometrically possible for fear of real danger to arise can spread globally faster than the danger itself. The hysteria of the Covid-19 fear is forcing one country

leader after the other to put whole countries in a prison-like state due to a slight increase in the overall mortality rate.

Fearful people and those who benefit from fearfulness, grows and spreads much faster than the real danger itself. Regardless of how dangerous the virus itself is, economic disasters are "managed" that will probably end up killing more people than the virus. However, one cannot assign these victims. All professional political actors know this and therefore always give in to mass hysteria or even sit at its head to collect votes. They know that when people are afraid, they cannot think logically. Even a dynamic curvature clumping in the Jordan curve cannot be assigned to a single cause clearly enough. Here the individual aspect dynamics in connection with synchronization effects play a central role. Just like in the monetary system.

And what is happening with our money right now? So far (the last thousand years) money has been generated by land through the work of people (and animals / plants) and redistributed upwards. The farmer produced food, the artisan tools and the officials order. The money generated migrated from below via taxes and levies upwards and down again via acts of grace and favor from the rulers. But also very much through market-dependent exchange acts. In addition, there was always voluntary renunciation and gifts. The money was always covered by the availability of things. Over land, houses, soldiers, farmers, food, equipment and farm animals. The machines and (salable) knowledge were added later. Later, the credit balance was added through the banking system. The rulers pledged their future tax revenues to bankers, who lent the rulers money for their luxuries and wars. The modern states do the same, but under new titles such as people's welfare or redistribution.

The new money economy now seems to run differently. If you believe the politicians, the money will soon be generated by the government in the central bank and distributed to the citizens through distribution organizations (ministries, banks, chambers, NGOs, state-affiliated corporations, etc.). In this context one speaks of "helicopter money" or "Modern Monetary Theory MMT". The state is not limited in its money creation (at least according to the supporters of this theory) in its ability to lengthen the money-Jordan curve. In this way, the "direction of flow" of the money tilts in the other direction. From bottom-up to top-down. This is what we call the "pole shift" hypothesis.

However, the state has little influence on the micro-curvatures of the money-Jordan curve, which are determined by the individual cash holdings. This is where the individual acts. The cash holding period determines the viscosity of the money (known as the cantillion effect). The state as a source of money is inherently viscous. This is called bureaucracy. Oligarchic centers of influence emerge (persons and institutions such as ministries, chambers, trade unions, regional authorities). The money channels can be variably wide or narrow, so the flow of money will be very different from one sector to another. We have heard sums of money from our politicians lately that take our breath away. Astronomical sums of money are generated every day from nothing, as in the physics book above in the vacuum fluctuation ("excitations of the vacuum"). The state is visibly falling in love with the possibility of controlling the economy centrally via liquidity management. Monetary planned economy is becoming more and more fashionable. New money distribution programs are constantly being announced.

Nobody knows how this radical global experiment of the MMT (Modern Monetary Theory) will turn out. What is certain, however, is that there will be winners and losers in this process. Those, like financial professionals, who better understand the geometric game of money flows, will position themselves in places of the higher curvature zones and be among the winners. Those who passively wait to see what happens and fail to grasp the curvature of the money-Jordan curve will lose. Therefore, in the opinion of the IHI, it is worth researching and understanding the geometry and re-parsing of the Geld-Jordan curve. It takes time and it is imperative to be in a hurry! "Those who come too late are punished by life."

This famous finding by Michael Gorbatschov brings us to the epidemic problem that currently affects mankind the most. An epidemic event is always very vague and complex. The ITC is just an auxiliary science for collecting data and facts about all related observations, assumptions and findings. The main application of modern ITC is primarily the link between

biological data and money flows. But the output of the ITC is the basis of almost all political decisions.

Data in biology, especially the structures of giant molecules, are a rapidly growing proportion of the strings (binary long numbers) processed in global computer networks. Such biomolecules are molecules of organic substances that occur in living things. They mainly consist of carbon and hydrogen, which form chemical compounds with oxygen, nitrogen, phosphorus or sulfur. A special genus of such biomolecules are the perforins, which play a central role in the development of an RNA vaccination against Covid-19. Such strings (molecule representatives) are preselected in simulation calculations in the computer, which then leads to great time savings in the real laboratory, which makes a decisive contribution to the faster development of vaccines. From an information-theoretical point of view, the lipid cell membrane is also a Jordan curve in two-dimensional space on which the perforin household can be simulated.

The parsing and re-parsing of long strings (= Blockchamper long numbers) is the most important tool for handling long data strings. Recently, a certain application of this technology has been penetrating more and more into our consciousness: the Covid 19 crisis and how to overcome it. A special aspect is the fact that Bill Gates dominated this topic with the announcement of the development of a special vaccine and apparently initiated a billion dollar business with it. One speaks of a potential of 7 billion vaccine units per virus. The EU had already pre-ordered 400 million units, although there was still no vaccine. This has been discussed highly controversially in the media and on the Internet. At IHI, we are primarily interested in the bioinformatics aspect. In addition, the IHI has the knowledge and the means to research there.

The CRISPR / Cas method (from "Clustered Regularly Interspaced Short Palindromic Repeats" - "grouped short palindromic repetitions with regular intervals") is standard in applied genetic engineering and virology. It serves as the basis for constructing designer genes and profitable testing procedures. This makes it the focus of the IHI. For BEKO, a cooperation and / or investment with / in relevant IT companies should be considered.

The FASTA data format is a text-based format for displaying and storing the primary structure of nucleic acids (nucleic acid sequence) and proteins (protein sequence) in bioinformatics. The nucleobases or amino acids are represented by a one-letter code. Each letter can be transformed into a number on the computer. Theoretically, every gene sequence is therefore a subset of the Champerowne number, and thus (like the money geometry) is the subject of ongoing IHI research.

Sequence data can be viewed in public databases such as NCBI.

"FASTA format is a text-based format for representing either nucleotide sequences or peptide sequences, in which base pairs or amino acids are represented using single-letter codes. A sequence in FASTA format begins with a single-line description, followed by lines of sequence data. The description line is distinguished from the sequence data by a greater-than (">") symbol in the first column. It is recommended that all lines of text be shorter than 80 characters in length.

An example sequence in FASTA format is:

```
>gij186681228|ref|YP_001864424.1| phycoerythrobilin:ferredoxin oxidoreductase
MNSERSDVTLYQPFLDYAIAYMRSRLDLEPYIPTGFESNSAVVGKGNQEEVTTTSYAFQTAKLRQIRA
AHVQGGNSLQVLNFIPLNYDLPPFGADLVTLPGGHIALDMQPLFRDDSAYQAKYTEPILPIFHAHQI
QHLSWGGDFPEEAQPFSPAFLWTRPQETAVVETQVFAAFKDYLKAYLDFVEQAEAVTDSQNLVAIKQAQ
LRYLRYRAEKDPARGMFKRFYGAEWTEEYIHGFLFDLERKLTVVK"
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(Zitat Wikipedia)

FASTA and BLAST are the algorithms that are most commonly used for sequence comparison. In bioinformatics, BLAST is an algorithm and a program for comparing primary biological sequence information, such as the amino acid sequences of proteins or the nucleotides of DNA and / or RNA sequences. They are trimmed for speed so that you can quickly search

through the large sequence databases. It is therefore very important to understand the algorithms, but also their limitations. Since the sequence comparison serves to prove the homology of proteins, one must be sure in the evaluation of the results.

The current IHI experiments with parts of the Champernowne

Number and Jordan curves have a new current long number in

Focus on the four-base number system: the complete gene sequence of the currently rampant Covid-19 virus, which completely rules our lives and politics.

A concrete experiment was the transformation of the complete genome of the Covid-19 virus 2 Wuhan-Hu-1 from the database of the US National Center for Biotechnology Information into a decimal BlockChamper number with the concatenated size of  $3.300022 \times 10^{29902}$  defined by the IHI. Juxtaposing and semantic linking of this number resulted in 29.94% adenine, 18.37% cytosine, 19.61% guanine and 32.08% thymine in the Covid-19 virus. For reasons of competence, the IHI did not evaluate whether this structural peculiarity has a biological meaning and what it could be. Only the number-theoretical facts were the subject of the investigation.

For a better idea, a tiny piece (10 of 426 lines) of this gigantic BlockChamper number is shown here (Drosten also used the same technique for the development of the PCR test named after him for Covid-19):

First the FASTA notation:

```
ATTAAGGTTTATACCTTCCCAGGTAACAAACCAACCAACTTTTCGATCTCTTGTAGATCTGTTCTCTAAA
CGAACTTTAAATCTGTGTGGCTGTCACCTCGGCTGCATGCTTAGTGCACTCACGCAGTATAATTAATAAC
TAATTACTGTCGTTGACAGGACACGAGTAACCTCGTCTATCTTCTGCAGGCTGCTTACGGTTTTCGTCCGTG
TTGCAGCCGATCATCAGCACATCTAGGTTTCGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTC
CCTGGTTTTCAACGAGAAAACACACGTCCAACCTCAGTTTGCCTGTTTTACAGGTTTCGCGACGTGCTCGTAC
GTGGCTTTGGAGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGG
CTTAGTAGAAGTTGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTTCATCAAACGTTCCGGAT
GCTCGAACTGCACCTCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTACGTACGGTC
GTAGTGGTGAGACACTTGGTGTCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCT
TCTTCGTAAGAACGGTAATAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTA
```

Each of the letters here denotes a nucleotide.

And now the transformed decimal IHI BlockChamper notation:

```
0330002233303011331110223001000110011001333120313133230203132331313000
1200133300003132323221323101312213210321330232101310121023030033003001
3003301323123320102201012023001312313031331321022132133012233312311232
3321021120310310210103130223331231122232320112000223002032202021133231
1132233310012020000101012311001310233321132333301022331212012321312301
2322133322020131123220220223133031020221012310010313300020322101332322
1330230200233200000221233332113100133200102111303232331031000123312203
2131200132101131032231032330322332021322302102001312002210331023012231
2302322320201013322323113323111310323222120003011023221330112100223313
3133123002001223003000220213223221103023301221211203130002310333201330
```

You can clearly see that this is now a familiar number spelling, which we can use our parsing tools without knowing the biological / chemical background to work out structural properties.

Structural properties such as palindromes (CRISPR) or accumulation phenomena can be investigated very well with the means of number theory at the IHI, even without deeper knowledge of biology and genetic engineering. Contact virologists or pharmacologists should be sought for further conclusions or even products. However, this is a risk capital issue.

To conclude and to illustrate, an interesting example from the gene databases. A comparison with the sequence of an orchid plant and an influenza virus:

>Seq3 [organism=Phalaenopsis equestris var. leucaspis]

```
CCTATACCTAATTTTCGGCGCATGAGCCGGAATGGTGGGTACCGCTCTAAGCCTCCTCATTCGAGCAGAA
CTAGGCCAACCCGGAGCCCTTCTGGGAGACGACCAAGTCTACAACGTGGTTGTCACGGCCCATGCCTTCG
TAATAATCTTCTTTATAGTTATGCCGATTATAATCGGAGGATTTCGAAACTGACTAGTCCCCCTAATAAT
CGGAGCCCCAGACATAGCATTTCGCGAATAAACAACATAAGCTTCTGACTACTCCCACCATCATTCCTC
CTCCTCTTAGCATCCTCCACAGTGAAGCAGGCGTAGGTACAGGCTGAACAGTGTATCCCCACTAGCTG
GCAACCTAGCTCATGCCGGGGCCTCAGTCGACCTCGCAATCTTCTCCTTACACCTAGCTGGTATTTCTC
AATCCTCGGAGCAATTAACCTTCATTACAACAGCAATTAACATGAAACCTCCTGCCCTCTACAATACCAA
ACCCCACTATTCGTCTGATCAGTGTTAATTACTGCAGTCCTCCTTCTCCTTTCCCTTCCAGTTCTAGCTG
CAGGAATCACAATGCTCCTCACAGACCGCAACCTCAACACCACATTCTTCGACCCTGCCGGAGGAGGAGA
TCCCGTCTATATCAACATCTTCTGATTCTTCGGCCACCCAGAAGTCTACATCCTAATCCTC
```

>Seq5 [organism=Influenza A virus]

```
CCTATACCTAATTTTCGGCGCATGAGCCGGAATAGTGGGTACCGCCCTAAGCCTCCTCATTCGAGCAGAA
CTAGGCCAACCCGGAGCCCTTCTGGGAGACGACCAAGTCTATAACGTAGTTGTCACGGCCCATGCCTTCG
TAATAATTTTCTTTATAGTTATGCCGATTATAATCGGAGGATTTCGAAACTGACTAGTCCCCCTAATAAT
CGGAGCCCCAGACATAGCATTCCCACGAATAAACAACATAAGCTTCTGACTACTCCCACCATCATTCCTT
CTCCTCCTAGCATCCTCCACAGTGAAGCAGGCGTAGGTACAGGCTGAACAGTATAACCCCCACTAGCTG
GCAACCTAGCTCACGCCGGAGCCTCAGTCGACCTCGCAATCTTCTCTACACCTAGCTGGTATTTCTC
AATCCTCGGAGCAATCAACTTCATTACAACAGCAATTAACATAAAACCTCCTGCCCTCTACAATACCAA
ACCCCACTGTTTCGTCTGATCCGTCTAATCACTGCAGTCCTCCTGCTCCTTTCCCTTCCAGTTCTAGCTG
CAGGAATCACAATACTCCTCACAGACCGCAACCTAAACACCACATTCTTCGACCCTGCTGGAGGAGGAGA
TCCCGTCTATATCAACACCTTTTCTGATTCTTCGGCCACCCAGAAGTCTACATCCTAATCNTC
```

Do you see the difference? You have to look for a long time to see the tiny difference. Although these are two very different organisms. A pathogen and a popular ornamental plant. The difference is easy to determine from a number theory point of view (according to IHI there is an approx. 96% agreement). Such statistical / mathematical sequence comparisons have long been standard in genetic research. For example, the comparison pair human / chimpanzee is around 99%, human / mouse around 90%, human / horse around 50% and human / banana also around 50%.

How strongly e.g. Microsoft, as a leading global IT company, is already involved in bio-informatics, should the following quote underline:

Microsoft even has a programming language for DNA computing that can help make DNA computing practical once the technology of bio-processors progresses to the point that it can run more sophisticated algorithms. In fact, Microsoft is planning on introducing DNA computing to its cloud services by 2020 and actively developing a DNA data storage to integrate into its cloud services.

Quelle: <https://amp.interestingengineering.com/what-is-dna-computing-how-does-it-work-and-why-its-such-a-big-deal>

The link provided provides further information about this development.

What does it all mean for the ITC?

1. Bio-informatics is one of the fastest growing IT business fields.
2. Virus and vaccination with genetically modified RNA is cutting edge.
3. The announced RNA-based Covid-19 vaccination is genetic engineering in humans.
4. Every DNA and thus CRISPR is geometrically a Jordan curve.
5. Microsoft Azure is heavily involved in CRISPR.

6. Bioinformatics has become an important branch of the pharmaceutical industry.

The world star among historians, about whom Bill Gates writes the following on Facebook: "Historian Yuval Noah Harari will always have a place on my bookshelf (and in my book bag)." Wrote this sentence in his most recent book:

"If governments and corporations succeed in cracking the human operating system, we will be exposed to a whole flood of precision-controlled manipulation, advertising and propaganda." (Harari, Yuval Noah. 21 Lessons for the 21st Century (German Edition) (p. 85-86). CHBeck. Kindle version.)

Who in the world knows more about the operating systems business than the creator of Windows? So why is everyone wondering that Bill Gates of all people is jumping into this business field?