

Artificial Intelligence, Big Data and the Distribution of Wealth

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*Is the free market is still able to control the production and distribution of goods and services so sustain a peaceful society?
Or will the free market economy be replaced by an economic system that is controlled by algorithms and big data?*

IN THIS ARTICLE, I USE SOME TERMS IN my own way. AI (artificial intelligence) I would rather call it great intelligence because it is not so much the artificiality that matters, but rather the fact that it outsmarts people. Great intelligence, which already has defeated humans in games like chess, Jeopardy and Go, of course, can not be misled by man. The irrational behavior of people in the economy, for example, will be revealed immediately.

Big data in my opinion has an emphasis on lots of data, particularly because quantity of data matter in analysis. Moreover, there should be used much more data than hitherto (selective) gathered big data. The data stored in the physical environment of nature should be considered as well.

Finally, I suggest to relativize the, in the economy as high excited, social connectedness of human beings and also to look at the biological connection to our physical world, nature.

INTELLIGENCE

Let's start with the great intelligence, which I will further refer to as AI. In the commercial application of AI is often thought in a client oriented approach. The entrepreneurs want to make money in the current economic system, but they forget that their AI will radically change the current economic setting.

Take for example the AI of the speech technology user interface Viv, a further development of Siri. Viv understands what you are asking and gives answers based on a profile of your earlier questions. Viv learns your preferences and therefore always knows what you want. That brings us to the next question.

Must AI rely on information about what we (customers) desire most? Or should AI help us in understanding the laws of reality around us? Do we want information adjusted to our wishes and conduct, aimed at presenting attractive offers in an effective way (such as Facebook, Google, ViV, etc.)? Or do we want information that reflects reality correctly and helps us to better understand the world

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¹Ten Dutch universities and research institutes have joined forces in a national center for nanoscopy, the Netherlands Centre for Electron Nanoscopy (NeCEN)

²ASTRON, Dutch Institute for Radio Astronomy is actively involved in the future of radio astronomy in Europe and building the next generation radio telescope, the Square Kilometre Array (SKA).

³The film *Mysteries of the Unseen World* offers stunning time-lapse and high-speed recordings 'Mysteries of the Unseen World[1]'

(such as scientific computer simulations based on nanoscopy¹, radio astronomy², time-lapse en high-speed shooting³, or simply Google earth)?

With AI machines certainly learn to model the reality as well as possible, but they are also used to please people with information that is customized to their needs and wishes.

It's as if someone who obstructs your view by positioning himself before the window, tells you what there is to see outside.

That's pretty much the definition of manipulation. In this way, AI takes thinking and judgment out of your hands in exchange for convenience and instant gratification.

If through deep learning⁴ AI learns to behave with customer focus instead of unlocking the world for us, we are far from home. The marketing based on customer focus has until now the natural order of things in the world to already heavily disrupted, let alone if it accelerates with AI. To clarify this, I need to explain a bit of the economy. What is economics anyway?

ECONOMICS

"The economy is the science that deals with the distribution of scarce resources (goods and services) in a society. It focuses on the creation of products and the distribution of these products. The concept of scarcity plays in the economy a big role."⁵

Having read that, I immediately thought, are non-scarce goods and services then

considered not to be within the focus area of the economy? There are quite a few. All information produced by IT products that can be reproduced without diminishing returns and no loss of quality at virtually no cost, such as music, movies, books, knowledge and data are not scarce goods? And would not be part of the economic system?

According to the theory, our economic system focuses on in a free market matching of demand and supply of scarce goods and services produced in society by primary production factors nature and labor and secondary production factor capital. But that's theory, the reality is different.

The economic system is controlled by social systems. Through marketing, advertising, social media and inequality, the needs of the people are manipulated. Demand and supply are adjusted through a market mechanism, which is again manipulated by creating and sustaining scarcity. This happens largely digital, visible through Facebook, Google and others, but also obscured by algorithms that change the results and show ads based on your profile and big data.

The economy is based on the idea that wealth is created by our hard work and accordingly distributed according to social conventions. 'There is no such thing as a free ride' is the expression. The more efficiently we work, the more we can achieve, but "Who does not work shall not eat"⁶.

The role of labor

In production we have introduced division of labor⁷ and in the distribution of

⁴Deep learning is a more current name for a neural network, which is able to learn from observation large amounts of information and therein to recognize patterns and to supplement and improve.

⁵Bron: <http://www.ensie.nl/definitie/Economie>

⁶A passage from this book reading "For even when we were with you, this we commanded you, that if any would not work, neither should he eat", (2 Thess. 3:10), was later adapted by Vladimir Lenin as an adage of the Soviet Union, "He who does not work, neither shall he eat".

⁷Division of labor is splitting tasks or work. This makes specialization possible, thereby achieving greater productivity.

(scarce) goods and services we use trade on the open market.

Trade and division of labor are building blocks of our society in which we work in many different occupations, where each does what he can best. And thus the whole functions better. A social construction. Great, but there must be work in all kinds, to realize the division of labor and there must be income, to have trade.

Because, what will remain of the community, if labor and thus the division of labor disappears? Will social interaction still be a solution, when the economic system fails and it will no longer be possible to earn money with labor? Should we fight to distribute the scarce labor, while meanwhile AI can produce in abundance? And even when abundance is being created by machines, does it make a difference whether we behave socially, or not?

Now it is said to the unemployed, it is important to 'get involved', so the likelihood that you will find new work will raise.⁸ This reasoning is based on the old work ethics.

As jobs disappear due to automation, it does not matter if you are applying through networks, write letters, updating LinkedIn, or other social media. It is not so that the communication on the labor market does not work. The market simply stagnates as demand for labor drops.

The economic system will not work as the intended distribution mechanism whereby the money runs opposite to the flow of goods, but begins to degenerate into a money pump, which hunts the money into one direction. The economic system is broken.

With the disappearance of labor as a factor of production, also disappears the basis for the division of labor and thus the structure of our socioeconomic system.

The economic system will need to evolve towards a system where scarcity and abundance are distributed in a technological way. Using renewable resources such as solar and cyclic use of materials from renewable resources, as nature does.

Ecological context

We have overrated people in their social context too long. It is now time to see man in his biological and ecological⁹ context.

We are much more connected with each other, then just as dolls, which play a game together. We are one with the ecosystem of the cosmos [2]. We eat our environment, breathe our environment, walk through our environment, shit in our environment, die in our environment and are eaten by our environment, yet we still do not see our environment!

We think it's a nice decor, offered by God with cupboards filled with raw materials. At best, we feel responsible for the management, if God has appointed us as His stewards.

What arrogance! We are just a part of the whole. No less and no more than any other combination of energy and matter.

A 'people-thing'

We thought that the economy was a "people-thing", but it is much more. The distribution of scarcity and abundance is not limited to people alone. Moreover, there are already active many distribution mechanisms, which we hardly know and, due to the limit of human thinking not see, let alone be able to control. Our mortality is one of them. "Ashes to ashes, dust to dust", the Phoenix is the symbol of death and rebirth in order to evolve.

⁸Dutch social security act, called 'participatiewet'

⁹Ecology is one of the main directions of biology (study of living organisms or organisms such as plants, animals and humans) and is studying functional relationships between organisms and the environment, the external living conditions.

Likewise, technology evolves by generations, as the S-curves that follow each other in the big S-curve of technology development[3].

The production factors

The economic system revolves around the production factors nature, labor and capital. Each of these factors of production has an internal rate of return.

Capital grows herself. With money you earn money. Technology is a capital good and ever originated from natural sources and labor. Technology now develops further through investment of capital, labor (especially knowledge) and the application of previously developed technology. Through the use of technology in the development of technology (machine learning), the progress is exponential.[4] The share of labor in the development of the technology is getting smaller.

Labor has the internal rate of return, of acquiring experience and knowledge, giving more results with the same amount of labor. Who gets paid for a result, gets the benefits of his own experience. But someone who works on an hourly basis just has to wait and see if he gets a salary increase based on the accumulated experience.

Natural resources have an internal rate of return in the form of recovery within the ecosystem. If the natural balance is not disturbed, refresh the natural resources within a given cycle. Knowledge of the life cycles and how to close them, are very important to prevent the depletion of natural resources.

Transformation to capital asset

Despite the essential differences between the production factors they are in the course of history, gradually transformed into a capital asset.

- The nature has been made a capital asset long ago by owning land. Because of the scarcity, caused by the depletion of natural resources, the value of the yield of the capital asset also grows. At the same time everyone can see that the value as a natural resource decreases. More recently as a consequence of genetic engineering also varieties of crops became a capital asset. Farmers may not themselves use the seeds of crops to sow new. The crop and the seed are owned by a company¹⁰, which has been entitled to a portion of Nature, on the basis of the genetic engineering.
- Labor is a capital asset because the optimization of production processes usually involves the replacement of people by machines which can perform the processes faster, more reliable and under unsuitable conditions for humans. The share of employment in manufacturing is thus superseded by the share of technology. There is nothing wrong with that. We learn more and work smarter, with better technology (tools) we can achieve more. But technology is a capital asset and is owned by an investor and not in the hands of the person who works better. Productivity improvement is a yield for the owner of the technology and not for the person who does the job.
- Technology is a capital asset, originated from natural resources, labor and previously developed technology. In whose hands is this gradually encompassing capital asset? Is the economic system then exclusively about capital assets? Then indeed we live in the world of finance, where algorithms (technol-

¹⁰The US chemical company Monsanto is the world leader in the field of genetic modification of seeds.

ogy) are used to multiply money without any relation to the real economy.

A SHARE IN THE PRODUCTION FACTORS

Since people are part of the living earth, they are entitled to a share in the wealth of the earth. But they are also required to take responsibility and fulfill their role in the ecosystem of the earth. Similarly in the economic system.

Everyone would be entitled to a share of nature, a share in capital and a share in labour. Not the one right to work, the other the right to possess the riches of nature and another right at the historically accumulated capital and its growth. And every human being should have the duty to contribute to each of the three.

- Capital originated from nature and labor and must continue to serve the production of goods and services. It should not jam the hands of a small group of people who do not know better than just subsidize some charities.
- Technology should play a role in nature, not at the expense of nature to create capital, but with nature as part of the evolution (Biomimicry¹¹, Singularity¹²) The proceeds of the technology are therefore the proceeds of nature. In which revenue sharing everyone belongs.
- If labour is no longer required, then thinking must be done to increase the knowledge, in order to better understand Nature and in order to advance technology. Which can be done through research, development of ideas, art, self-chosen work

and getting involved with nature. The current economic system provides benefits to the owners of the technology at the expense of the suppliers of labor, who are forced out of the economic system by the very same technology.

TECHNOLOGY AND LABOR

Sharing the shrinking demand for labor will eventually not work. If the right to work can not be fulfilled, then it may be time for the right to a share in the technology.

A share in technology?

The idea of a share in the technology for all of us is not so farfetched, because we already get free apps in exchange for feedback on the evolving technology. The technology is trained through use by the people. Technology learns and can do more.

Development of image recognition software for example is possible by making use of all the photos that people upload free of charge in exchange for the free use of a handy photo app.

You could say that "AI learns at the expense of the customer"

A good example is the use of 'free' staff for training the Natural Language Generation Software, called Quill of Narrative Science. Quill has two faces, commercial and idealistic. The commercial face presents the opportunity to write computerized items on the basis of collected data. This means that newspapers and websites can use Quill to do the work of journalists. Quill is capable to write a message based on facts on the internet in such a natural

¹¹Biomimicry[5] is the science and art of imitating the best biological ideas from nature to solve human problems. Source: Biomimicry NL

¹²In 1993, Vernor Vinge wrote an essay on the technological singularity in which he argues that the exponential growth of science and technology for 2030 will lead to the creation of entities with an intelligence that is greater than that of humans.

¹³<http://www.forbes.com/sites/narrativescience>

language that the average reader will not notice the difference with a text written by a man, for example at Forbes¹³.

'Over the past three months, the consensus estimate has sagged from \$1.25. For the fiscal year, analysts are expecting earnings of \$5.75 per share. A year after being \$1.37 billion, analysts expect revenue to fall 1% year-over-year to \$1.35 billion for the quarter. For the year, revenue is expected to come in at \$5.93 billion.

A year-over-year drop in revenue in the fourth quarter broke a three-quarter streak of revenue increases.

The company has been profitable for the last eight quarters, and for the last four, profit has risen year-over-year by an average of 16%. The biggest boost for the company came in the third quarter, when profit jumped by 32%. '[3]

The idealistic vision of Quill offers a free application for education to better teach writing. Allows pupils and students to improve their writing skills by finding and correcting mistakes in texts in interaction with Quill. The student learns to write better and the AI of Quill is trained to work better, so the commercial application can replace more professional writers. A painful detail is, that the for free initiative for education is supported by the Bill & Melinda Gates Foundation, which thus contribute their bit to improve the world.

In the field of AI, we also see open source developments, such as the spectacular announcement that openAI¹⁴, 'the most transformative technology of the 21st century' is given away for free. Via free apps harvested big data and feed-

back from the users play an important role in the learning process of artificial intelligence. The technology learns by mass use. So therefore users are fulfilling their share in technology already. The proceeds of the technology are so at least in part to benefit the users.

Knowledge and technology are increasingly blended with each other in the course of the years. We stand on the shoulders of giants. We benefit from the thinking of our ancestors. Some of those ancestors have put the decisive step at the right time in an invention that earned them a lot of money. Their children belong to the rich. Other ancestors were the critics who have contributed to the maturing of new ideas. Their children do not belong to the rich. There also were just farmers, workers and police officers who did their work so that the society could survive peacefully and knowledge could be further developed. And there were ancestors, who fell for our freedom.

To cut a long story. The current state of development of knowledge and technology is to the credit of everyone. The proceeds of that knowledge and technology are also to be shared with everyone. Because everyone who is online, contributes to the further development of the technology, it is fair to pay them more than the pittance of the free app.

Dividend from technology

Because in the long run it is not possible for anyone to acquire an income by selling labor, an income must be provided for in a different way. This could be funded by in the other two production factors. The proceeds of nature and technology. If anyone has a share in nature and the technology, the technology could pay a dividend as basic income.

If such an independent labor income

¹⁴An initiative by Elon Musk, Sam Altman and their company to bring AI within reach of everyone who wants and can deepen the application of AI.

is not provided for, then there will appear a problem on the demand side. These people are next to labor also consumers.

ROL AS A CONSUMER

I expect that the role of consumers in the future is more important than the role of labor. Companies can replace people with machines and artificial intelligence, but they still need customers.

If labor no longer fulfills its role as a source of income than the redundant employee can no longer fulfill its role as a consumer. If this happens on a large scale, the affluent consumers will be scarce and we are faced with structural underspending.

Then it will therefore become difficult to make money with money. Where must the return on an investment come from, if the product or service is not sold? Eventually all returns on investments, directly or indirectly must be created by the production and sales of value to customers. No customers, no sales and no sales, no profit and no profit, no return on investment.

At a time when the extremely rich get richer at the expense of large numbers of people in the middle group, the time is getting closer that spending has dropped so, that investments yield no more return. Meanwhile it has been so far, that more than half of all the wealth on earth is in the hands of the 1% richest people¹⁵. Pretty soon they will have to hand out money to keep enough customers for the companies in which they have invested their money. Even the extremely rich are in need of the existence of customers because their capital grows through the real economy.

If the real economy would not grow due

to structural underspending and the 1% rich would nevertheless succeed to get 5% return on their capital, they would also own the other half of the earth within fourteen years. By then the other people will have become their 'pets', for which you may hope they will take care.

If you have won a game of Monopoly, you put the money back in the box and the game starts all over again. If the winner keeps the money, it's finished with the game.

THE 'FREE' MARKET

The free market is generally regarded as the best (for some least bad) naturally fair distribution mechanism for adapting production to needs in today's society.

For years, the prevailing view was that competition would boost innovation and competitive prices. Value for your money. But is that so? We get a choice of many similar looking products that look attractive, low cost and quickly go broke again to make room for new needs. But are these the products that we need? Do we get a chance to find out what we really need, before the next offer already pops up?

Customer focus

Commercial people talk about customer focus, customer first, to us the customer is number one, but they pay little attention to what the customer says. The customer is facing a frenzied segmentation of products that all look alike. Once you as a customer want something different, it is not to be found, and so probably not for sale. Try to find a product on the Internet. An endless stream of almost identical products with the same endorsements ap-

¹⁵In the Netherlands, the richest 1% owns nearly a quarter of all abilities.

¹⁶Long tale is the phenomenon that can be sold over the Internet products, which would be uneconomic in a physical store, due to the required shelf space. Since shelf space and virtual store is virtually free and unlimited.

pears. Where is that long tale¹⁶? I see only more of the same.

Numerous brands and products vying for the same consumer income.

BIG DATA

Marketers have high expectations of the role that big data can play in this. Big data provides information on the (spending) behavior and the needs of people (consumers) and thus offers a tool to listen to the customers, fantastic!

But most marketers rather than listening see the opportunities it provides to direct a message to the right customer as by controlling the placement of ads by Google. This is aimed to influence consumers choice when spending his income.

But that's a pity, as we can now listen to the customers directly with big data, it is no longer necessary to influence them to to desire the large-scale production of (almost) identical products.

STEERING THE ECONOMIC SYSTEM

If AI is capable to analyze which ad needs to be presented to each customer based on big data, then with the same intelligence it also can steer the production and distribution of goods and services directly. The technology can learn to work along with the earth systems rather than just rely on the wishes of customers.

A free market competition and costly marketing is no longer necessary. Not competition to earn Euros, but the information about the behavior of the people and ecosystems forms the basis for controlling the economic system. No plan economy, lead by the government, but an intelligent system based on big data.

Collecting big data would then not be limited to data on the (manipulated) human behavior and the economic system, but also extend to data in the ecosystems.[2]

Algorithms

Where profit was the incentive for the functioning of the market, now information becomes the basis for making decisions in an economic system controlled by artificial intelligence. Financial markets are already controlled by algorithms, so why not for the distribution of scarcity and wealth? It just depends on the purpose for which the algorithms are written. The algorithms of the financial world are written to maximize investment returns. Algorithms for the marketing analyze big data with the aim of influencing the potential consumer.

There may equally well be developed algorithms which directly establish the most effective adjustment of production and distribution to meet the needs of people.

Information rules the world, so why not the economic system?

Intrinsic needs

With a technology can be earned as much as with the yield of its products that can be sold. Therefore the technology must produce what people can and want to buy with the income from their income from their share of the technology.

No products formed on the basis of marketing by being influenced needs, but products that meet the intrinsic needs of man as part of the ecosystem Earth.

"We now know what detergent customers want, but what detergent want the river?"[6]

Products and services realized using intelligent technology using natural sources, that provide people with a healthy life in a healthy environment.

Since we are increasingly successful in performing labour with machines and further developing technology with learning intelligence, we may come to the stage that we can let nature work for us with

the technology.

A perpetual motion machine? No, everything will be driven by the energy of the sun.

EMPATHY

All not by technology services, such as raising your kids, taking care of your parents, helping others with your experience and knowledge and the giving and receiving of attention to your fellow man (not via Facebook) will remain to be done by people. Voluntary carried out on the basis of empathy. If the technology ensures sufficient income and prosperity for all, there is plenty of time and opportunity to be human, and to care about others.

Money will then only be of interest as a means of regulating freedom of choice, such as 'time of life', which you also can spend only once.

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