

Could a virus save our software?

Some reflections on post-coronavirus management

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This paper is dedicated to my friend Professor Claudio Bacarani with whom the ideas expressed in it have oftentimes been discussed over a glass of wine.

Abstract: The corona virus crisis has been a turning point for management principles and practices. The classic model of the firm, already challenged over the last years, appears to be no longer tenable. A new philosophy of management is then needed to meet the challenges posed by the crisis. Barring a change in the ways and means of management, business organizations are doomed to wither away and be eventually wiped out of the scene. This paper proposes some historical and philosophical reflections to help and grasp the need for a rethinking of the purpose of management in three steps. In a first part the classic foundation of management is examined, in a second part the effect of the corona virus crisis on management, and in a third part how management should evolve to be regenerated by this crisis instead of being annihilated.

Methodology: rationalism

Findings: The classic theory of the firm based on the maximization of profit mainly founded on the division of work, specialization and productivity is no longer workable in the new environment that is emerging from the corona virus crisis. Management must transform itself and operate on the basis of a renewed conception of work and a purpose aiming at maximizing the well-being of firms' members and consequently of society as a whole.

Type of paper: historical and philosophical

Keywords : division of work, specialization, productivity, maximization of profit, purpose of work, maximization of well-being

Introduction:

In November 2019, in the city of Wuhan in China, a new virus, until then officially unknown, surfaced under the name of SARS-CoV-2, that was to affect the health of more than 450 m people (March 2022 figure), nearly 6% of the world population, a figure certainly underestimated and causing the death of more than 6 m people. Though the pandemic has subsided in the last months, it is not over, and the figures will continue to increase.

The virus is not only responsible for one of the most acute and lethal pandemics in human history but also of social and societal upheavals. It seems that not a single niche of human activity has been exempt from its impact.

We would like here to express some reflections on the consequences that the coronavirus has already had and can have in the future on our conception of management.

In a Schumpeterian way, the virus has been disruptive and destructive, but has also spurred a re-thinking of the nature and *raison d'être* of management which is being reengineered in a straightforward Cartesian-like way for some of its tenets or in a more dialectic Hegelian way for others.

So, we may say in the years to come that a virus has saved our software.

In a first part, entitled 'The day before', we will reflect on management's foundations and practices before the emergence of the coronavirus. In a second part entitled 'The crisis', we will examine how some well-ingrained beliefs about management have been shattered by the virus. In a third part entitled 'The day after', we will contemplate what management could look like in the coming years.

Part 1: The day before

Since modern economics and, in its wake, modern management were invented, the key to success has been the notion of efficiency, that is the ratio between inputs and outputs. Quite simply, we have three possible results, either the value of the inputs is superior to the value of the outputs or the value of the inputs is equal to the value of the outputs or the value of the inputs is inferior to the value of the outputs. In the first case, there is a destruction of value; in the second case, no creation of value, and in the third case a creation of value, meaning that the production system is efficient; the bigger the difference between the two values, the more efficient the system is.

$V_i > V_o \rightarrow$ destruction of value, no efficiency

$V_i = V_o \rightarrow$ no value created, efficiency is zero

$V_i < V_o \rightarrow$ value created, efficiency

Since Adam Smith, the means for being efficient has been composed of two actions: the division of labour and its corollary specialization. And there is no economic or management theory since then that has challenged this foundation.

The division of work increases labour productivity, a correlation that Adam Smith demonstrated with his pin factory and which was pushed to its extreme by Henry Ford and Frederik Taylor when they set up the assembly line for building cars.

Specialization is a corollary of the division of work as, automatically, when work is broken down, especially to its irreducible elements (cf. the WBS tool), tasks become utterly specialized. Then, work is organized on the basis of one man, one task (Taylorism).

But specialization in itself does not ensure an increase in efficiency. If I am an electrician and I specialize in plumbing, I will not be efficient and not create any value. Hence the idea expressed by Adam Smith and then developed by David Ricardo that specialization must take place where we are best (Smith) or better (Ricardo) at doing things. If I am an electrician, I specialize in electricity, and I leave plumbing to plumbers. Then, it is this specialization based on an absolute or comparative advantage that gives the firm a competitive advantage in the market. This competitive advantage can be exploited within a national economy or in the global (world) economy, which is what Smith and Ricardo advocated. And this is how we arrive at the notion of free trade as a system where everybody benefits. Since Smith's fight against the Mercantilists in the 18th century, free trade has been the basis of the reality of international economic relations, with highs and lows of course and in spite of the theoretical renewed attacks of protectionists and actions of a number of politicians.

The increase in labour productivity thanks to the division of work is the fundamental drive for the creation of value. So, it is no surprise that for more than 250 years, and it is continuing today, the measure of labour productivity has been a key indicator of 'progress'.

What is the purpose of creating value in this context? It is the creation of value which permits to make a profit from one's economic activities. It is only when V_o is higher than V_i that the firm can make a profit. So, efficiency and profit are correlated. When efficiency increases, profits increase.

The value at stake here has got a restrictive meaning. It is only a monetary value the creation of which is the result of the combined use of two factors of production; labour and capital. So, there is the productivity of labour of course, which is the factor taken into consideration when we simply talk of productivity, but there is also the productivity of capital, which is as important, and even more for the 'capitalist' in a literal sense. The productivity of labour and the productivity of capital are of course closely related and they, so to say, help each other in the creation of value. But there is a fundamental difference in that the productivity of labour is measured in something tangible whereas the productivity of capital is measured in something intangible. Labour productivity has been commonly measured since Ricardo in units per man-hour, which naturally applies to physical products, but can also apply to services (e.g., how many haircuts a hairdresser performs in one hour). Capital productivity is measured as a return on the use of capital (ROCE, return on capital employed), so that labour produces a tangible product or provides a service which is detached from itself, whereas capital produces capital, so it is a self-reproduction, although we often say that we 'make capital work', as if it were a person. Labour cannot create any value without capital, and capital cannot create any value without work (even in purely financial markets).

So, work and capital are at the same time the best friends and the best enemies. Karl Marx argued that capital robbed or cheated work by confiscating the value created by work to increase the productivity of capital. The easiest way to do it was to keep wages as low as possible. But this cannot last for ever, hence the idea of diminishing returns and the creation of a vicious circle; the capitalist bites its own tail. And there is a moment when it kills itself. In order to solve the conflict between labour and capital which is inherent to the functioning of the

production system, Karl Marx called for the abolition of capitalism. But this abolition does not solve the question of capital, it is not because you break the thermometer that you recover your health. When a number of countries, starting with the USSR, tried this recipe, capital did not disappear, it moved from the hands of individual persons into the hands of the State, which proved itself to be a worse user of it.

Economists and managers have tried for centuries now to make this infernal couple come to terms, a Sisyphean task, sometimes with appreciable success, sometimes with abysmal failure, but have not seriously succeeded in breaking the circle. Breaking the circle certainly means redefining what value is and get inspiration anew from the ancient Greek philosophers, and the Buddha.

Management, previous to the advent of the coronavirus, was heavily dependent on international, globalized supply chains. In his wildest dreams, Adam Smith would not have thought of such an extreme division of work. These globalized supply chains are characterized by a huge number of participants and consequently of stakeholders, scattered all around the world. When a customer buys an i-phone for example, more than 100 companies have been involved in the production process, most of them accomplishing a narrow, hyper-specialized task. The intricacies of these supply chains mean that they are very long, with overlapping (a number of companies operate in different supply chains) and fragmented. As the number of links in the chain increases, the risk of having weak links increases and consequently the risk of a break-up. As stated by Edward Murphy, 'when something can go wrong, it will go wrong'. And this is what happened with the coronavirus crisis.

The purpose of these long, hyper-specialized, intricate supply chains is basically Smitho-Ricardian: to take advantage of comparative advantages. Where there is the highest potential value creation for an activity in the chain, this where the activity takes place. You have the brain to design the product in the USA or South Korea or Japan or Europe, the design will take place there. You have the raw materials to make the hard part of the product (e.g., rare earths in China), the first step in the transformation (production) process will take place there. You have comparatively low or very low wages for the workers in India, Bangladesh, Pakistan, Vietnam, Indonesia, etc., the fabrication or assembly of the product will take place there. For example, the unit cost of labour in Germany is about 60 times higher than in Bangladesh. So, why would you sew shirts in Germany? This is what is elegantly stated at the back of every i-phone or i-pad in a *raccourci*: "Designed in California, assembled in China" (though the latter is no longer quite true). And when the comparative advantage shifts, the production also shifts. This is for example why there has been a shift of textile production these last years from Asian countries, starting with China where the cost of the labour factor has become too high for certain industries, to East African countries (e.g., Ethiopia). In this production system, the management of the human resource remains fundamentally based on the cost of labour whose comparative low level boosts the total return on the factors of production.

Another, not always obvious, justification for this type of supply chain, is to reduce waste. Waste is a loss of value (and it is accounted as such in international accounting standards), therefore there is a hunt for waste. Here, waste should not be understood in its environmental sense, but in a financial sense. Of course, there was and still is, but decreasingly, waste of materials in the production processes of middle- and low-income countries (but there is also waste in high income countries). But in the search for a maximized creation of value (i.e.,

financial profit), the international division of work and (hyper) specialization, waste lies in the non-optimum use of the factors of production. If I make a product X with a worker A in one place and a worker B in another place, the cost of the former being lower than the cost of the latter, I will choose worker A, otherwise I waste value. Similarly, if Firm A offers a return on capital higher than Firm B, I will invest in Firm A, otherwise I waste capital.

This assumes that the product made, or the service offered, is equivalent whether it is made by worker A or worker B. To tackle this problem, this is where quality management surreptitiously was called to the rescue. Quality Management was first invented (Shewart, 1931, Deming, 1986) to reduce and, if possible, eliminate product non-conformities in industrial processes, this being about done, it moved to the satisfaction of customers (TQM, Baldrige model, EFQM model, etc.). But from the point of view of the 'capitalist' (holder of capital), Quality Management is a good way of increasing the productivity of the factors of production, that is the Return On Investment (ROI) which is the main concern of the 'capitalist'.

It all started in Japan; not because the Japanese are genetically gifted for quality, but because the conditions were favourable. As the production apparatus had been completely destroyed by the war, Japan had to start again from scratch, so was not encumbered and hindered by bad habits (something similar under a different disguise in fact took place in West Germany). Ironically, the re-building of Japan's industrial complex was monitored by Edward Deming, who was not listened to in the USA with the consequences that we know, and then by Joseph Juran.

Globally, the ingraining of quality in production processes was given the name of 'Toyotism' as it was largely developed in Toyota factories. This quality can be qualified as 'hard quality'. The prime goal is to eliminate product non-conformities. It is quality defined as 'conformance to requirements' (Ph. Crosby, 1979). It resorts to the already then classic tools of quality control (statistical techniques) and quality assurance (pre-determined requirements) and process control to ensure the result is conforming. To that was added the notion of 'continuous improvement' labelled *kaisen* in Japanese, dear to E. Deming but already stated by his father-in-law, with the Japanese invention of 'quality circles' (Ishikawa, 1972). Many Japanese companies also adopted the so-called JIT (Just In Time), permitting to tend toward zero stock and to shorten lead times thanks to an integrated supply chain. Then emerged 'lean management' insisting on using just the resources that are needed. This approach of quality and all its techniques were formalized in a number of standards, particularly the ISO 9000 series (ISO 9001, ISO 9002, ISO 9003) which was published in 1987, for international use.

Looking at Quality Management with the eyes of Smith and Ricardo, it is obvious that it greatly contributes to increasing the productivity of the factors (labour and capital). And it is along those lines that international management has functioned since the surge in globalization in the mid-1980s.

Then entered the coronavirus.

*'Good, speak to the mariners: fall to't, yarely,
or we run ourselves aground: bestir, bestir.'*

(W. Shakespeare, *The Tempest*, Act I, Scene 1)

Part 2: The crisis

‘Ils ne mouraient pas tous, mais tous étaient frappés’

(Jean de La Fontaine, *Les animaux malades de la peste*, Fables, Livre VII, 1)

And suddenly the Corona virus appeared supposedly in a market in the city of Wuhan in China some time in November 2019 and spread like wildfire through the city first, then the whole of China, and finally the whole world causing a pandemic not seen since at least the Spanish flu in 1918.

Very quickly the sanitary catastrophe also became an economic and social tsunami, and the word ‘crisis’ spread as fast as the virus.

We can really here take the word ‘crisis’ in its original Greek sense. ‘κρίσις’, quite aptly, is used by Hippocrates with the meaning of ‘a decisive phase in an illness’, Plato as a ‘judgment’ and ensuing ‘decision’ and Aristotle as a ‘choice’. This signifies that a crisis is what is called a ‘moment of truth’ in Quality Management, when we have to make decisions to avert the peril and change the order and course of things.

We will not here discuss the decisions made by political authorities of which we do not know what Plato or Aristotle would have thought. We shall focus on the challenges that this crisis has created for management and how it has been a catalyst for changes in management thinking and practices.

The disruption caused by the virus has questioned the tenet of pure efficiency as described in the first Part.

The extreme division of work and specialization stops being an advantage and becomes a handicap when the flow of work is disrupted by an exogenous factor. The lack of flexibility in the organization of work brings the sequence of activities to a standstill. It only needs the stoppage of a very small number of activities in a process, sometimes just one, to cause the whole process to break down. The extreme specialization makes it impossible to by-pass the failing activity due to the rigid concatenation of activities in the process, and, if the operators for one activity are disabled, there is no one to replace them. Let us imagine for example a process made up of 5 activities, which has been designed to have the most efficient structure, meaning that, if the sequence of activities is modified, there is a loss of efficiency, and where each operation can only be performed by specific operators (specialization). If one activity in process is impaired for some reason, what happens? The process stops. Or, if the operators in one activity cannot perform their task, the process is also halted because nobody else is able to perform the task.

What was an advantage, in terms of quality assurance for example, and more generally in terms of productivity becomes a hindrance. Consequently, if the firm wants to continue operations, it must reconsider its organization of work, its operators’ competencies and the structure of its processes.

The pre-crisis organization of work was founded on the notion of productivity, as we have seen. This productivity is measured in purely quantitative terms. A worker has to come to work at a pre-determined time, spend a pre-determined number of hours per day at work and produce a set number of units. If the worker produces less, labour productivity decreases, and as a

consequence capital productivity decreases (there is under-employment of capital); if the worker produces more, labour productivity increases and capital productivity increases. With the corona crisis this work organization has been shattered due to the fact that many people could no longer *go* to work. However, many activities could continue to be accomplished, and even new ones emerged, thanks to a ‘flexibilization’ of work, but one quite different from the one pressed for by classic company bosses.

When looking at the supply chain, what did the corona crisis reveal?

We saw that the pre-corona supply chain is characterized by its internationalization, complexity, extreme division of work and specialization. This structure yields positive results when all the cog wheels are well oiled and operate smoothly together, especially in terms of cost of production and then eventually of purchasing price for consumers. But as soon as there is a disturbing element that interferes with the planned chain(s) of activities, the whole construction gets jammed, breaks to pieces and collapses. The corona virus was a huge disruptive element in the system.

What happened inside a particular firm also happened at the global level with more dire consequences. When a link in the chain breaks, the whole chain stops operating. Relations are so intricate that every participant in the supply chain is affected even if they may think they are immune from contamination. The ‘management virus’ spreads just like the ‘biological virus’. When there are dozens of companies part of a globalized supply chain, the failure of even the smallest one causes the halt of the whole chain.

This risk had been identified before the coronavirus crisis. For example, some years ago, a Honda factory in England had to stop operations, not because anything went wrong in that factory, but because some small parts were coming from Thailand, and stopped to be supplied. And the stopping of the supply was not due to anything going wrong in the Thai factory. Everything was under quality assurance. The reason, in fact a minor ‘accident’, was torrential rain in the region where the factory was located in Thailand, the plant was flooded and had to stop production. What was done? Nothing. When the rain stopped, the factory was cleaned and production resumed. The assembly line in England was merely stopped for a few weeks. But in case of a major ‘accident’, the supply chain can collapse for good. In such a case, the JIT organization of the supply chain is seriously challenged. Applying JIT over long distances across several countries is bound to increase risks of rupture with Taguchi like consequences (1976).

The moral of the story is that the corona crisis urges managers to re-consider the structuring of their supply chains.

Part 3: The day after

‘All changed, changed utterly:
A terrible beauty is born.’
(William Butler Yeats, *Easter 1916*)

Several of the management risks blatantly revealed by the coronavirus crisis had already been identified, but hardly anything, except some wishful thinking, had been done to try and mitigate

those risks. The reason was that the classic notions of productivity and efficiency, almost unchanged since Smith and Ricardo, were so ingrained in management thinking that no manager seriously thought of reviewing them in the light of the new international organization of work that was put in place with the phenomenon of increased globalization from the end of the 1970s. They were taken for granted. As long as this organization of work produced benefits for about everybody, there was no reason for managers, consumers and capital holders to challenge them. Not only economic benefits but also social benefits were found in it. The international division of work pleased managers who could reduce their production costs, capital holders would could increase the return on their capital, consumers who could increase their consumption with the same income, and even a lower income, thanks to lower prices, and the ‘little hands’ in Asia, especially in the Far East, who could lift themselves out of poverty. ‘Don’t worry, be happy’ (Bobby McFerrin).

In the aftermath of the corona virus crisis, the shortcomings of this type of globalization have appeared in the limelight. Consequently, two broad attitudes have emerged. Some people are advocating the end of globalization and a return to a pure localism, if it ever existed, in a sort of idealized Rousseauist ‘state of nature’. Some even claim, preposterously, that globalization is dead; and they are immediately proved wrong. We just have to look at the evolution of international trade after the 2008 financial crisis, or with the corona virus crisis: trade decreased in the first half of 2020 but picked up as soon as the 3rd Quarter of 2020 and has been on the way up throughout the year 2021. We can also mention the fact that trade between the USA and China increased during the Trump presidency.

Others more wisely and reasonably acknowledge that globalization cannot be rolled back. Indeed, since the time when the Phoenicians roamed the Mediterranean to sell and exchange goods, there has been a regular trend towards globalization, albeit with hiccups for sure. Action then lies in a reengineering of the supply, which has timidly started for some aspects.

We have seen that the crisis has revealed that supply chains are too long and intricate as a result of the extreme division of work to become almost impossible to trace (what company knows all the suppliers of the suppliers of the suppliers of the suppliers – *ad libitum* – of their direct suppliers?), and to control, and then prone to break particularly under the shock of an exogenous event, even if it is not a *black swan* (Nassim Taleb, 2007). Logically, then, there should be an effort to shorten the supply chain when possible by localizing closely related operations in a reduced geographical area. At present, the manufacturing of some small components go almost around the world to be made; and this travelling is sometimes the case of big ones (A Rolls Royce car, a big thing, moves a few times between England and Germany to be built). A reduction of the number of participants in the chain, meaning a review of the division of work, obviously reduces the risk of breakdown. True cooperation, on an equal footing, between the different actors in the supply chain (B2B relationships) should be encouraged and developed. Today, the more you move upstream in the supply chain the more unequal is the relationship between the customer and the supplier (in a principal-agent type of relationship) (March, Simon, 1958). The supplier is pressed to reduce its prices as much as possible, that is its costs, which at one moment or another results in degraded working conditions and an increase in product defects; otherwise, the customer company will kick out this supplier out of its pool of suppliers.

We can take up again the case of JIT to see how this management method has been perverted. Originally JIT operates in star like organizational structure where the final actor in the fabrication chain is the 'centre' and its suppliers are 'around' at a distance permitting supplies to be delivered fast in regular small quantities at low cost, thus almost eliminating the need to keep inventory. Close cooperation between all the actors is essential with constant two-way communication to make the system effective. The customer must inform in real time the supplier of what is needed (with Ohno's *Kanban* system, 1988), and the supplier must provide what is needed, no less no more, in real time. Hence the famous formula: "just what is needed, when it is needed." If JIT can work smoothly within a limited geographical area, though still submitted to harmful events outside control (e.g., 2011 Tohoku earthquake in Japan), the probability that it would work without glitches when supplier and customer are 6,000 miles apart is very significantly reduced.

A more compact supply chain can also optimize the use of resources (less transport for example) reducing environmental impacts and contributing to sustainability.

In fact, we should go back to the fundamentals of Toyotism.

In a regenerated conception of management, the place of labour has to be reconsidered thoroughly and be seen beyond a simple factor of economic production. For a long time in fact, there have been theories and attempts at uprooting labour from pure economic efficiency but still with limited practical implications. Accounting is a good and straightforward illustration of this in the way it treats the value of labour. A company's balance sheet lists the assets the company owns. Where do you find labour in these assets? Nowhere. Labour appears in the company's income statement; and how? As a cost, that is something that eats up value. Is there not a contradiction in considering labour as a factor of production, that is a source of value creation, and then treating it as a cost?

It is not just in accounting that labour has an ambiguous status. When looking at labour, or work in a more common language, with a sociological eye, we realize that it has a Janus character. It is both a curse and a blessing.

Work did not exist in the Garden of Eden. Work was invented by God to punish man for having broken the law: "In the sweat of thy face shalt thou eat bread" (Genesis, 3, 19). However, 'later' it can also be a blessing: "For thou shalt eat the labour of thine hands: happy shalt thou be, and it shall be well with thee." (Psalms, 128,2). For the Romans, work (*trepalium*) was a torment or torture. It may be a simple reason for which (rich) Patricians had so many slaves. For many Greeks, work was a degrading activity. The citizens of Sparta did not work. Work was left to non-citizens (Aristotle, IV cent. BC). And indeed, very often it is associated with some painful activity (*toil*). The word *labour* itself was associated with *hardship* (Middle-English), like the French *labeur* until today. But at the same time, according to sociologists, work gives a purpose to human life. Humans can hardly conceive life without work. According to a McKinsey study (2021) about 70% of people define their purpose through work (meaning that 30% do not). That may be the fundamental reason why economics has been so interested in the question of employment (or unemployment) and management has tried to give 'meaning' to the employees' work. But the corona crisis has revealed that a sizeable number of people has not come back to work or has been reluctant to go back to work in the previous conditions. One significant example that can be given, because it concerns people with relatively low-paid routine jobs, hence without much 'meaning', is that of Vietnam where around 20% of the factory

workers that had returned to their 'home towns and villages' as their factories had closed down because of the Covid-19, did not return to work when operations resumed. Already in May 1968, students stormed the streets of Paris shouting 'perdre sa vie à la gagner'. Consequently, because of workers' changing sentiments to work and the evolution of the place of human work in firms, managers need to revise their conception of management, and societies their very nature in order to avert social upheavals which could become uncontrollable.

So, let's pick up again the question of labour in the post-corona context. Taking into account that people with the experience of the corona crisis want to work differently or even no longer work in the traditional sense, that is locked in a straightjacket of rules giving them no or little autonomy and freedom, management has to find ways to reorganize production processes to give leeway to workers.

One solution was found long ago and has been practiced more and more extensively for about three decades now. It is automation of production. But it has been done within the classic framework of labour productivity. Automation or robotization as it is more commonly called reveals the paradox of productivity.

When a robot replaces a worker, this worker loses his or her job and becomes unemployed. The robot, which is classified as capital (it appears in the fixed assets of the company, whereas, remember, the worker does not), increases labour productivity. When pushing the economic calculation to its limit, we ultimately find ourselves in a situation where there is no human worker in the production process (it already exists), men suffer the same fate as horses at the end of the 19th century (Leontief, 1986); so then, how do we calculate labour productivity? We would have to divide the volume of production by zero, which is a mathematical impossibility (Martin, 2017). Hence, the very notion of labour productivity becomes meaningless. But labour has in fact not disappeared, it is accomplished by robots. However, robots are not accounted for as labour but as capital. Because we have equated work with human beings, hence with jobs, for 270 years, the confusion between work and job is extremely common, although work and job are two different things. As André Siegfried (1875-1959) said, work is illimited, but jobs are limited (for a variety of reasons). Indeed, when someone loses her or his job, she or he becomes unemployed; and unemployment is calculated as the number of people who have lost their jobs; when a worker loses her or his job because she or he is replaced by a robot, this job disappears but the work does not. Every time a human being loses her or his job to a robot, we find ourselves in a situation that Keynes (1963) labelled 'technological unemployment'. If we assume a situation where all human jobs are accomplished by robots, there are no more jobs available for humans, and technological unemployment becomes the rule. In such an extreme situation, the very notion of unemployment becomes obsolete. Unemployment can only exist with reference to employment. If there is no more employment, there is no more unemployment. Then, for the firm, the creation of value, in fact wrongly, only comes from capital.

Now, what do we do with these unemployed people? In many countries, especially in the higher income ones, they receive unemployment benefits. In blunt words, they are paid for doing nothing. But what if this unemployment becomes eternal?

One way or another, the issue of providing an income for people whose jobs (not work) have disappeared because of robotization, must be raised.

This is where we come to the idea of instituting a universal basic income. Strictly understood, this income is granted to everybody from the cradle to the grave (universal) and is set so as to ensure a set minimum standard of living (basic). The idea is far from being new. It seems we find it for the first time in Paine (1797). It was then aired by a

number of different economists (James Tobin, Paul Samuelson, John Kenneth Galbraith, Milton Friedman or Friedrich Hayek). Some real implementations have taken place in Finland and Alaska, and the idea is discussed in a number of countries under one guise or another.

There is a lot of technicalities of course which our purpose here is not to go into, but to consider the foundation of the reasoning which is that a share of the economic value created by economic activities is equally distributed among the people living in a determined economic space.

In fact, some sort of universal income already exists in a piecemeal way in a number of countries. If we take the example of France, known for its extensive 'welfare state', there is a minimum pension guaranteed to all, whose amount is at present €906.81 per month, there is also a solidarity income called *Revenu de Solidarité Active* (RSA) guaranteed to all, whose present amount is €550.93 per month, an amount that could serve as a basis for a universal basic income. And there is a plethora of tax breaks and allowances which are conditional. A common economic argument against a UBI is that it would be too costly. This argument does not really hold if we look at the situation with a critical eye. In many countries the proportion of people living on an income that is not derived from their work is more than 50%. Let us take some examples: in France, 41.9% of the people are in employment, meaning that 58.1% live thanks to an income which does not come from their work; in the United Kingdom, 48% are in employment, so 52% live on outsourced income; in Italy, 38% are in employment (of course moonlighting is not uncommon), so 62% (officially) live on someone else's income (this includes government); even in Germany, usually seen as the land of work, 49.7% of the population is in employment, so 50.3% live on an income not coming from their work. Another way of having an idea of income transfer is to look at the public spending-GDP ratio. It is (2020 figures) 62.4% in France, 50.2% in the UK, 57.2% in Italy, 51% in Germany, even in the USA, the land of 'wild capitalism', it is 46.17%.

Streamlining the jungle of existing non-earned income would certainly be close to financing a UBI (Peirera, 2017).

Management needs to move from an organization of work founded on 'economic productivity' (the robots will take care of that) to one founded on 'social productivity'. Many people already do some work without expecting some income from it. This is the case of volunteering where the purpose of work is not economic but social. With the assurance of a minimum income, volunteering can but develop; for example, in the UK it already represents about 50% of paid work. Management can allow for a place given to social work, whether inside or outside the organization. The flexibility mentioned above would be a flexibility permitting a cocktail between economic work, whose share is bound to decrease with the automation of production, and social work. This flexibility would affect the number of hours worked, the schedules, the use of telework. There has been a downward trend in working hours in Western countries in fact since the late 19th century, and this trend can but continue, willy-nilly, with automation, something noted by Keynes. This decline can make room for other (non income producing) activities giving (again) sense for people: leisure activities (Russell, 1932), cultural activities, and of course social activities.

Management (and self-management) needs to revise the 'production function' or 'efficiency equation' by introducing into it social, societal, psychological, hedonistic parameters; a move from 'hard management' to 'soft management'.

At a global level this implies a corporate governance shifting from the classic maximization of economic profit to the maximization of well-being profit along sustainable lines (Baccarani, Brunetti, Martin, 2020; J.S. Mill, 1848).

Crossing economic efficiency and social concern, we can summarize the characteristics of production in 4 general models (Figure 1):

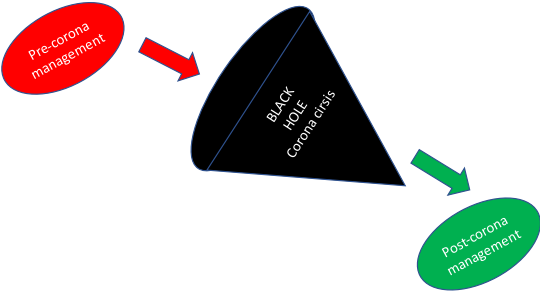
Production models

HIGH ECONOMIC EFFICIENCY LOW	(Classic) INDUSTRIAL Painful working conditions Low wages Rigid organization Maximization of return on capital	WELLNESS Automation Autonomy Flexibility Maximization of well-being
	FEUDAL Low productivity Low income Hard working conditions Serfdom	CHARITY Non-profit Social relief Philantropy
	SOCIAL CONCERN LOW HIGH	

Conclusion:

Throughout the coronavirus crisis, the dominant discourse has not been one advocating a rethinking of management principles and practices along the lines proposed in this paper. The dominant discourse has been a return to or resuming of the life of the day before, labelled the ‘normal life’. Even without discussing this idea of ‘normal life’, life after the crisis cannot be ‘normal’. ‘Normal life’ has become abnormal, whatever the craving for it and the denial of a new reality. The conservative, in its etymological sense, attitude of, still, a majority of people, including managers and politicians, is simply the manifestation of the well-known natural as well cultural risk aversion of man. The crisis has been a maelstrom engulfing beliefs and habits into a black hole that has not yet been realized by most. The corona crisis is a point of no return, which is precisely what a crisis is, as has been seen. It has triggered a metamorphosis of management (Baccarani, Brunetti, Martin, 2020), even if we do not know how long it will take.

Fig. 2: Management metamorphosis



In the coming years, we might really be able to say that ‘a virus has saved our software’.

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