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Corporate Life Cycle as a Tool to Solve Technological Unemployment just as to Lift out of Poverty

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Abstract

This article has to find out connections between the technological unemployment and the corporate life cycle and also to prove, that the technological unemployment is not just a threat, but also a tool to lift out of poverty. The companies in the phase of growth or stabilisation should substitute the labour with machines, but they should prevent going the dismissed employees out to competitors, that are in the phases of foundation and decline. Keeping these people in the companies during phases of growth and stabilisation is possible after previous cooperation with multilevel marketing companies, or issuing employee shares.

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1. Introduction

The technological unemployment is an actual problem for more than 200 years. Till the 18th century, the people either worked in manufactories, or they made one's living by doing their small business. The most dominant sectors were agriculture, crafts and trade. The first factories, where the machines were used at the production, were based in the late 18th century. But shortly after that, in the early 19th century, the employees thought that machines steal them their job and the machines are the cause of their poverty. So there was formed activist group of textile workers called Luddites, who tried to smash all these machines. But this solution of technological unemployment was proven to be

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as very bad and it is nowadays called as Luddite fallacy, because the only effect was a high damage on the smashed machines. There were put also some more reasonable suggestions, as mentioned in the next chapter, to solve the technological unemployment, but this economic phenomenon still occurs and it will be even more serious.

There is evident, that the automation of production is suitable for routine operations, that are done periodically especially by low skilled employees. On the contrary, the middle and high skilled workers implement the more creative operations just as innovations. These human activities either cannot be substituted by machines at all, or they can be substituted at the moment, when they are becoming routine.

The automation of production is related very close to the corporate life cycle. Buying machines is a large investment for the company and it is connected with risk. So the company should implement this investment, when there was already reached a high market share and simultaneously the sales are stable or growing. Furthermore, the innovations are necessary especially in the earliest and latest phases of the corporate life cycle. In the phase of foundation the company is not time-proven from the side of potential customers and so the only way to obtain a market share and to raise the sales is to offer a new or better product compared to competitors. This recommendation is valid also for the company in the phase of decline, because if the company wants to start up a new corporate life cycle, then the innovation of products is necessary, too.

So the potential employees can find the job mostly in such companies, that are either in the phase of foundation, or decline, because in these companies they are needed the most. And there is well known, that the dismissed workers are trying to find a similar job, that means a job in the same sector or market. And the situation, when all the companies are in the phase of growth and stabilisation, cannot occur in any sectors or markets. So the companies in the phases of growth and stabilisation substitute the labour with machines and the dismissed workers can go over to the competitors, that are in the phases of foundation or decline. Nevertheless, the companies, who automatize their production, should prevent this effect anyhow, which would consist in promotion of competitors indirectly. Putting a solution to this problem is the main aim of this article.

2. Theoretical background

There are described the most important findings about the corporate life cycle. The emphasis is put especially on the innovativeness and personal management during the corporate life cycle. There are briefly presented also some suggested recommendations to solve the technological unemployment.

2.1. Corporate life cycle

Each company goes through its life cycle, which is analogous to all living organisms. But in the case of the company, the lengths of phases are not set strictly and there is possible to start up a new life cycle, so the corporate life cycles can be repeated. There were suggested some tens of models of the corporate life cycle and each of them uses different number and different names of phases. In this article, there will be mostly used the classification by Reiners (2004), who distinguishes four phases in total, namely foundation, growth, stabilisation and decline. Authors Lester and Parnell (2008), who used their own model of the corporate life cycle for the research, found out, that in the phases of existence and decline the companies are mostly small, whilst in the phases of success and revival mostly big companies are situated. Both small and big companies can switch to the phase of survival.

According to Jawahar and McLaughlin (2001) the company puts during its life cycle a different importance to individual stakeholders. In the phase of foundation and decline the interest of shareholders, creditors and customers is the priority for the company. On the contrary, in the phases of growth and mature the company tries to satisfy the requirements and expectations of its employees. According to Chawla, Pullig and Alexander (1997) the knowledge and abilities of company's owners and trends in industry are the critical success factors during early phases of the corporate life cycle. This finding is valid especially for manufacturing companies. In later phases of the life cycle the knowledge about the market is the decisive factor for the success. That is more important for retailing companies than for manufacturing companies in the same phase. Liao (2008) mentions, that in every phase of the life cycle the companies use a different strategy, according to the Porter's generic strategies, which is derived from their competitive advantage. The companies in the phase of foundation choose mostly the differentiation strategy, in the phase of growth the strategy of cost minimization, in the phase of stabilisation the focus strategy of cost minimization and in the phase

of decline they use the focus strategy of product differentiation. Furthermore Liao (2007) distinguishes strategies focused on results and strategies focused on reaction from environs. In the phase of foundation the companies are concentrated especially on results, on the contrary the phase of growth is typical with behavioral strategies. In the phase of mature there is used a mix of both these approaches. The strategy aimed at reaction from environs raises, according to Liao (2006a), the corporate performance more in later, than in early phases of the corporate life cycle, whilst the strategy aimed at results slows down the corporate performance more in later than in early phases. According to Elsayed and Paton (2009), the financial performance subsequently influences the environmental policy of the company and this impact will be the highest in the phase of mature and the lowest in the phase of growth.

Authors Koberg, Uhlenbruck and Sarason (1996) came to the conclusion, that the companies in early phases of their life cycle are more innovative and compared to mature companies use various impulses rather than financial sources in the form of equity for supporting innovative activities. These findings are confirmed also by authors Lester, Parnell and Menefee (2008), who record, that the companies in the phase of revival are more innovative than in the phase of success and decline. Furthermore, these authors found out, that the companies perceive the entrepreneurial environment as the main threat in the first and the last phase of the life cycle (so the phases of existence and decline). Authors Gupta and Chin (1993) tend to the conclusion, that in growing phases the companies implement more analyses and innovations to face challenges from their entrepreneurial environment, than the companies in the phase of mature, too. Authors Dodge, Fullerton and Robbins (1994) contribute, that companies in early phases of the life cycle, which can be termed as innovators, suggest solving all problems independently, whilst companies, which are just imitators in early phases, tend to follow the steps of competitors by solving problems. Liao (2006b) researched the impact of the strategic and financial management, implemented during the corporate life cycle, on innovations. There was found out, that the strategic management facilitates innovations implementing more in late phases, whilst the financial management supports innovations especially in early phases of the corporate life cycle.

Chen and Hsieh (2005) mention, that in the phase of foundation getting competent employees is the main priority for the company. In the phase of growth the company takes care of them and tries to raise their abilities. And finally, in the phase of stabilisation the main aim is to keep these employees in the company in the long term period. There are connected criteria of remuneration with it. In the phase of foundation the employees are remunerated according to their abilities and knowledge. In the phase of growth their wages are derived from their productivity. And in the phase of stabilisation the decisive criterion is their social position in the company and number of years, when they worked in the company. Ciavarella (2001) found out in his research, that in companies in the phase of growth there is recorded a high rate of improving employees and working processes compared to the phase of foundation and in the phase of mature this rate is the highest. There was also found out, that companies, that switch from the phase of mature to the phase of revival, show higher rates of improving employees and working processes than companies, that switch from the phase of mature to the phase of decline. Authors Balkin and Montemayor (2000) proved, that companies in the phase of foundation do not remunerate their employees according to results of working team so much. But in the phase of growth and especially stabilisation the remuneration according to results of working in the team is used even more. In the phase of decline this approach is just seldom used in companies. According to Masarel and Montfort (2006), in the phases of foundation, growth and stabilisation the differentiation in labour force and also the rate of labour productivity increases. On the contrary, there is recorded a decrease in values of both these indicators during the phase of decline.

2.2. Suggested solutions to technological unemployment

Capital goods are being used through the production since ancient times. But the thought of substituting labour with machines was first realized by Ricardo (2001). This economist identified the capital with wage fund. So when the company raises the capital in the form of machines, some employees are dismissed. And these people have to search the job in other sectors or they must wait, till the marginal product of capital allows the capitalists to create a wage fund again. But the term “Technological unemployment” itself was first mentioned more than 100 years later by Keynes (1963). According to this economist, the people in the 21st century will work just 15 hours per a week and nevertheless they will satisfy all their needs. But this prediction did not come true. The main reason is the fact, that

the consumption of households has been increasing rapidly and so the people must work 40 or even more hours per a week to satisfy their needs.

There is evident, that the substituting labour with machines should be more efficient and the final price of goods or services should be lower. And when the customers will pay less for the goods or services, then a part of their income will remain them and these customers can raise their demand for other goods or services. Subsequently, the dismissed employees can find a new job because of this raised demand. But Samuelson and Nordhaus (2009) mention, that when the income increases, than the people do not raise their consumption considerably. They rather raise the savings and thus they support indirectly the substituting labour with machines. So there is possible that the demand for new goods or services will be insufficient and so some dismissed workers will not find a new job.

From the previous text there can be derived that the technological unemployment intensifies the differences between rich and poor people which can lead to a total collapse of monetary and also the economic system. So there is necessary to solve the technological unemployment, anyhow. In the following subchapters there are mentioned the most interesting solutions to technological unemployment.

Banning or refusing innovations – This is the easiest and simultaneously the worst solution. If there would be implemented no innovations, the national economy would start to stagnate and the economic growth would be quite suppressed. The innovations are necessary to start up a new economic cycle and thus the economic growth, as mentioned by Schumpeter (1912). Furthermore Schumpeter (1939) sees the main cause of business cycle just in innovation waves and distinguishes three types of business cycle. The short-term cycle is called as Kitchin cycle, which is caused by inventory and work in progress and whose length is approximately three years. The medium-term cycle is called as Juglar cycle, it takes approximately ten years and is caused by investing in fixed assets. And the long-term cycle called as Kondratieff cycle has its length approximately 50 years and is caused by changes in technologies.

Basic income – This solution consists in government transfer payments to the dismissed workers. But these people get such payments for free and so it could be disincentive both to work and to save up the money. It is very similar to the solutions of marxian economists, who suggested the nationalization of capitalist property.

Public works – This is an alternative solution to basic income. In this case, the people are motivated to work, but the main question is, if all these works are really useful and if their automation is not possible. So the problem of this solution consists in the birth of false employment.

Higher education – This solution is based on the thought, that especially the routine operations are automatized and so the low-skilled workers will be dismissed. Furthermore Becker (1993) recommend to invest in human capital, because high-skilled workers will get a higher wage or salary than low-skilled workers. And the high-skilled workers, who invested more in their education, would invest in their health to capitalize their higher qualification as long as possible. But the main problem of this suggestion is the lack of dynamics. The technical progress causes substituting labour with machines, because many operations, that were still made by middle- and high-skilled workers, are becoming routine and so they are automatized.

Shorter working hours – The basic idea leading to this solution is the fact, that when the employee will work less hours per week, than the company must employ more workers to get the current amount of production. But if the monthly wages remain the same, there will be reached a quite opposite effect. The costs increase and so the company must dismiss some workers.

Abolition of money and ownership – This suggestion, recommended by the activistic movement called Zeitgeist, takes into account the idea, that some subjects will become producers and all the other subjects will borrow these products, when they will need it. But there can be occurred some problems, because there will be an insufficient motivation to produce anything and the subjects, who borrow, will handle uneconomically with the borrowed products. Furthermore, there can be borrowed just some goods and the services cannot be borrowed at all.

Broadening the ownership of technological assets – This approach seems to be the best solution, because it can reduce not just the technological unemployment itself but also the differences between rich and poor people. But the main problem is the fact, that most employees do not have enough money to participate in the ownership of technological assets and thus of the whole company.

To solve this problem, there can be used the approach by Kiyosaki and Lechter (2000) to lift out of poverty. The first way to earn enough money, which is more recommended by these authors, is the so called multilevel marketing, which consists in broadening the net of customers and thus in developing an existing company. There is evident, that

this subject, who distributes the products, should use this product and should be satisfied with it. And the second way to lift out of poverty is investing the surpluses of the income. Nevertheless, they can be invested either in financial assets, which is termed as savings in economics, or in real assets.

3. Objectives

This article has its main aim to prove, that the technological unemployment comes into being and simultaneously ceases to exist thanks to the corporate life cycle. Furthermore, there is showed that the technological unemployment does not have to be just a threat but also an opportunity to lift out of poverty for the employees. To fulfil this main aim there are set these partial aims:

1. Determination the most suitable situation to substitute labour with machines just as the most suitable situation and the way to prevent going dismissed workers to the competitors
2. Using a model example, where just two companies figure on the market, to demonstrate the practical applicability of the suggested solution to technological unemployment

4. Methods and characteristics of data

There are mostly used methods based on the thought process. There are analyzed the existing characteristics of the corporate life cycle and of the solutions to technological unemployment. Furthermore, the findings about the corporate life cycle are putting into connections with the technological unemployment.

The practical applicability of elimination the technological unemployment using the corporate life cycle relies on model data. The method of modelling consists in precondition, that there are just two companies on the market. In the first period, the market share just as the sales growth is the same for both companies. And in next periods, each company is developing in a different way.

The phase of the corporate life cycle is determined according to the methodics by Konečný and Zinecker (2015). So the individual phases are characterized as follows:

1. Foundation – the sales growth in the company is higher than the sales growth on the market and simultaneously the market share is lower or equal to the share of assets related to the market
2. Growth – the sales growth in the company is higher than the sales growth on the market and simultaneously the market share is higher than the share of assets related to the market
3. Stabilisation – the sales growth in the company is lower or equal to the sales growth on the market and simultaneously the market share is higher than the share of assets related to the market
4. Decline – the sales growth in the company is lower or equal to the sales growth on the market and simultaneously the market share is lower or equal to the share of assets related to the market

So there are set the data about the sales and assets for each of two companies and for all periods. A simplifying prerequisite for this model example consists in ignoring the rate of inflation on the market.

5. Research results

This chapter includes an approach to find out the most suitable moment for automation of production on condition that the dismissed employees become shareholders of the company and will not go over to competitors. Its practical applicability is subsequently demonstrated on a model example.

5.1. Approach to consider advantageousness of substituting labour with machines related to the corporate life cycle

From the existing findings there can be derived, that investments in automation of production should be implemented especially in the phase of growth. Substituting labour with machines is possible and suitable also in the phase of stabilisation. The common characteristics of both these phases is the high market share, which decreases the riskiness of this investment considerably. The sales of the company should raise more significantly than the sales of the market, which is typical for the phase of growth, but this condition is not necessary. The other two phases, namely

foundation and decline are not suitable for automation of production, because of the necessity of innovations and of impossibility of doing creative operations by machines.

But the actual phase of the corporate life cycle must be considered not only for one year but within a time interval of lasting several years. The reason for determination the prevailing phase within this long-term time horizon comes from the fact, that the market share and the sales growth, and thus the phases of the corporate life cycle, can oscillate considerably and simultaneously the lifetime of machines lasts some years or even tens of years. Furthermore, the employees should save enough money to become shareholders of the company, otherwise they would go over to competitors after their dismissal from employment, and this can last many years, too.

So there can be used the periods of Kitchin, Juglar and Kondratieff cycles, termed by Schumpeter (1939). If the market share and also the sales growth was high in each of three previous years, than the company is steadily in the phase of growth and the managers should plan the automation of production to the future. But in this moment most employees of the company do not have enough money to become minority owners of the machines and thus of the whole company. If they would be dismissed, they could go over to the competitors, because the wage is their only income or at least their dominant income. So the managers can choose one of two possibilities how to arrange making passive income for the employees. They can co-operate with some MLM company, where the employees will get a passive income. In my opinion, the managers should choose a MLM company trading in healing substances, because these employees will not just get the passive incomes but they will also use these products and thus they will invest in their health, which is in agreement with Becker (1993). And the second alternative way to hold the employees is setting a part of the wage aside into a capital fund or issuing employee shares. Kiyosaki and Lechter (2000) do not recommend becoming an investor as the first step to grow rich, but in my opinion, the employees have got practical experiences through working in the company and therefore this investment is not so risky for them. This time of preparation for automation of production can last approximately ten years, which is the period of one Juglar cycle. If the company was mostly in the phase of growth or stabilisation within this ten-year interval, then there is suitable to substitute the labour with machines in this company. After the automation of production the company should implement just reproduction investments to hold the value of fixed assets. But the managers, or owners, should monitor the changes in technologies through the long-term Kondratieff cycle, even if the company is steadily in the phase of growth or stabilisation.

5.2. Application of the suggested approach on a model example

The approach to find out the most suitable moment for substituting labour with machines is demonstrated on a model example. There is considered one market or sector with two companies, whose assets and sales are the same in the first year. A development of both companies is monitored for 15 periods in total. On Table 1 there are recorded the model data and determination phases of the corporate life cycle till the year, when one company comes in the phase of growth or stabilisation steadily.

Table 1. Determination the corporate life cycle of both companies till coming in the phase of growth or stabilisation by one company steadily. Source: own research

Period	Company A			Company B		
	Market share	Sales growth	Phase of the corporate life cycle	Market share	Sales growth	Phase of the corporate life cycle
0	Low	–	–	Low	–	–
1	High	High	Growth	Low	Low	Decline
2	Low	Low	Decline	High	High	Growth
3	High	Low	Stabilisation	Low	Low	Decline
4	High	High	Growth	Low	Low	Decline
5	High	High	Growth	Low	Low	Decline

There is evident, that in every period one company reaches a high and the other company a low market share. The situation, when the market share of both companies is equal to 50%, which is still characterized as a low market share as mentioned in the period 0, is practically unreachable. But the situation when both companies reach a low sales growth is possible, because the sales of both companies and thus the sales on the market can decrease, which occurred in the period 3.

The company A reaches a high market share in combination with a low or high sales growth steadily from the period 3 to the period 5, which is one Kitchin cycle. So the managers should plan the substitution labour with machines till the period 5. They should set employees up for this automation of production financially, either in the form of cooperating with some MLM company, or issuing employee shares. But there is necessary to monitor the actual phase of the corporate life cycle for next ten years, which is the length of one Juglar cycle. The development of the market share, sales growth and thus the corporate life cycle is described on Table 2.

Table 2. Determination the corporate life cycle of both companies till decision about automation of production by one company. Source: own research

Period	Company A			Company B		
	Market share	Sales growth	Phase of the corporate life cycle	Market share	Sales growth	Phase of the corporate life cycle
6	High	Low	Stabilisation	Low	High	Foundation
7	Low	Low	Decline	High	High	Growth
8	High	Low	Stabilisation	Low	Low	Decline
9	High	High	Growth	Low	Low	Decline
10	High	High	Growth	Low	Low	Decline
11	High	Low	Stabilisation	Low	High	Foundation
12	Low	Low	Decline	High	High	Growth
13	Low	Low	Decline	High	Low	Stabilisation
14	High	High	Growth	Low	Low	Decline
15	High	Low	Stabilisation	Low	High	Foundation

The company A was in 7 of 10 periods in the phase of growth or stabilisation. So till the next period 16 this company can automatize the production. The dismissed employees become new minority owners of this company, so they will get no more wage but a dividend, whose amount should be approximately the same as the wage. Till this moment the company should implement just the reproduction investments, but the managers or owners should monitor the changes in technologies through the long-term Kondratieff cycle to adjust the company to them.

6. Discussion and conclusions

Substituting labour with machines belongs to the most responsible and simultaneously most risky managerial decisions and so the managers should put it a high importance. First of all, there is necessary to monitor the actual phase of the corporate life cycle for previous several years, because both the input quantities for identifying these phases, namely the sales growth as well as the market share, can oscillate considerably. Furthermore the lifetime of bought machines lasts many years and these fixed assets are difficultly saleable, so a wrong managerial decision cannot be withdrawn.

The labour should be substituted in such phase of the corporate life cycle, when there is reached a market share steadily. It is not needed to reach a high sales growth simultaneously. So the ideal phases for automation of production are growth and stabilisation because of a high market share. When the company was in each of three previous years, which is one Kitchin cycle, in one of these two phases, then the managers should plan the process of substituting labour with machines. Before buying new machines, there is necessary to prepare all the employees, who will lost their job, for the purpose of buying a minority share. There is necessary to emphasize, that these employees have got

many practical knowledge and experiences and after their dismissal, they would go over to competitors. These dismissed workers will get a new job in competitive companies, that are in the phase of foundation or decline. During these phases the innovations are necessary and so the competencies of the dismissed workers will be utilized the best in these companies. So the managers of the companies in phases of growth or stabilisation should prevent this indirect promotion of competition. They can enable employees to do multilevel marketing in some companies trading in healing substances, or they can enable them to buy employee shares or put a part of their wage into a capital fund periodically. This preparation for substituting labour with machines should last approximately ten years, which is a length of one Juglar cycle. If the company was in most periods of this time interval in the phase of growth or stabilisation, then there is suitable to buy new machines and thus to automatize the production. In the other case, the company should wait for a suitable moment for automation of production or the managers can decide about disbursement the saved amount of money to the employees. Nevertheless, the managers should monitor the trends in new technologies during one Kondratieff cycle, which lasts approximately fifty years, and they should adjust the company to these trends. The reason is that the entrepreneurial environment is dynamic and so the reproduction investments can be insufficient. If the company would implement just the reproduction investments in a changeable entrepreneurial environment, then this company could lose a high market share soon and so the company would switch from the phase of growth or stabilisation to the phase of foundation or decline.

So the technological unemployment has its origin in the corporate life cycle, because substitution labour with machines is suitable just in certain phases. And according to the used methodics by Konečný and Zinecker (2015) for identification phases of the corporate life cycle, the situation, when the automation of production is suitable in all companies at the same time, is impossible. That means, that some companies reach a high market share, whilst other companies lose it and their market share becomes low, of course. Therefore, the corporate life cycle is not just a cause but also a solution to technological unemployment. But there is evident, that the owners of the companies, where the production is automatized, would be glad, if the dismissed workers would not go over to competitors and they would rather tolerate, if the dismissed employees become new owners of the company. It does not mean, that these new owners will influence the decision-making process in the company considerably. They can own just a minority share or they can become holders of preferred stocks without voting power, but it is important to pay them some passive income periodically.

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