МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ
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ДИПЛОМНА РОБОТА

на тему: «Обґрунтування напрямків забезпечення ефективності управління робочим часом працівників підприємства»

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Харків – 2022 рік

АНОТАЦІЯ

бакалаврської дипломної роботи на тему

Обґрунтування напрямків забезпечення ефективності управління робочим часом працівників підприємства

Робота містить 44 сторінки, 12 таблиць, 6 рисунків, список літератури з 31 найменувань (на 4 сторінках), 1 додаток (на 8 сторінках).

Метою дипломної роботи є розвиток теоретичних основ та практичних рекомендацій щодо підвищення ефективності управління робочим часом на підприємстві.

У роботі розкрито сутність поняття «управління часом» працівників, визначено особливості застосування різних моделей підвищення ефективності управління робочим часом на підприємстві. Проведено комплексний аналіз діяльності ТОВ «Модус ЛТД». Техніко-економічний аналіз діяльності ТОВ «Модус ЛТД» показав, що діяльність підприємства в цілому є ефективною, проте показники прибутковості мають тенденцію до зниження. Визначено, що одним з напрямків підвищення прибутковості підприємства може бути запровадження ефективної моделі управління робочим часом працівників. У роботі застосовано метод фотографії робочого часу, який дозволив виявити проблеми в організації робочого часу виробничих та офісних працівників. Запропоновано провести оптимізацію робочого процесу для офісних працівників, що дозволить ТОВ «Модус Лтд» отримати соціальний та економічний ефект – знизити витрати та підвищити мотивацію працівників.

Ключові слова: оптимізація, робочий час, продуктивність роботи, управління часом, прибутковість.

Рік виконання роботи – 2022, **рік захисту** – 2022.

ABSTRACT

Bachelor's thesis

Substantiation of directions of ensuring the enterprise employees' working time management efficiency

The thesis consists of 44 pages, 12 tables, 6 figures, 31 references (on 4 pages) and 1 appendix (on 8 pages).

The goal of the thesis is to develop theoretical foundations and practical recommendations for increasing the effectiveness of working time management at an enterprise.

In the thesis the essence of the concept "time management" of employees was revealed, features of implementation various models of employees' working time management efficiency at an enterprise were defined. A comprehensive analysis of the activities of "Modus Ltd" was performed. Technical and economic analysis of "Modus Ltd" activity has shown that in general the company's activity is efficient, but profitability indicators tend to decrease. It was determined that one of the directions to increase the enterprise profitability may be the introduction of an effective model of employees' working time management. In the thesis the method of working time photography was used, which allowed to reveal problems in the working time organizing of production and office workers. It was proposed to optimize the production process for office workers, which will allow "Modus Ltd" to get a social and economic effect, that is to reduce costs and increase employee motivation.

Keywords: optimization, working time, labor productivity, time management, profitability.

Year of performance – 2022**, year of defense** – 2022.

CONTENT

INTRODUCTION

According to statistics, developed by Clockify, the world's biggest time tracking application, in 2021 a lot of employees face a problem with proper working time management. They report that only 36% of workers take care of their time management: 18% developed a proper time management system, 12% use a diary or a planner, another 6% use a special or a specifically unique technology. They also report that there are several reasons why people can't take proper care of their time at work and have to work on weekends. This includes such reasons as:

1. Lack of time audit (only 20% of employees conduct it on regular basis).

2. Lack of a time management system or a list of must-do objectives (82% of employees don't do it).

3. Lack of proper sleep at night. A sleep is considered proper when a person sleeps between 7 to 9 hours at night (depending on a country, people sleep on average from 5 hours (Japan) to 7 hours 5 minutes (Finland)).

4. A high level of stress (over 40% of employees report to face a major stress during the work day on a regular basis) [31].

As we can see, managing working time is a big problem for most workers, but first of all for a company itself. Workers who can't manage their own time complete times less tasks every day than they could complete with a proper working time management, and, as the result, provide company with less profit.

The problems of improving the efficiency of the working time management were considered in the works of foreign and domestic scientists such as S. Cottrell, B. Claessens, O. Berkman, D. Ross, D.S. Kennedi. Among Ukrainian scientists, there are such scientists as K. Krivobok, T. Lepeyko, I. Grysina.

The goal of this thesis is to develop theoretical foundations and develop practical recommendations for increasing the effectiveness of working time management.

To perform such a goal, tasks were performed:

analyse the meaning of "time management";

study the working week model as a way of the working time management improvement;

perform the research of “Modus Ltd” activities;

analyse the current working time management model at the enterprise;

develop the recommendation on proper implementation of working time management and new working time models in the enterprise activity.

The object of the research is working time management ay an enterprise.

The subject of the research is models of working time management as a tool of working time management improvement.

The methods that was used in the research: analysis of information from both scientific literature and open Internet resources; analysis of current enterprise’s data; statistical analysis for evaluating the level of the company effectiveness; the comparison analysis for evaluating the results of either prove or disprove a hypothesis; the Gantt chart for presenting the efficiency of suggested time management model; the analysis of employees’ working time.

The hypothesis of the thesis that if company switches to 4-days working week model, its productivity and profit will increase compared to a 5-days working week model. This also includes a hypothesis that production organizations will gain more profit if switched to a 4-days working week model. At the same way it works for other types of organizations (offices, services, etc.).

The base for the research is “Modus Ltd”, the production enterprise which is located in Kharkiv.

1. THEORETIAL ASPECTS OF WORKING TIME MANAGEMENT

1.1. The meaning of the working time management

Before discussing such an issue as working time management, it is important to focus on a general time management. So, let's start from defining the main term (tab. 1.1).

Table 1.1

Morphological analysis of the term "time management"

Definition	An author	Key words
Time management is the process during which a person plans and executes a conscious control of time, which is spent on specific activities	Stella Cottrell [12]	A process, control of time, specific activities.
Time management is the practice of using the time that you have available in a useful and effective way, especially in your work	Cambridge Dictionary [14]	The practice, available time, useful and effective way.
Time management is a self-management with an explicit focus on time in deciding what to do; on how much time to allocate to activities; on how activities can be done more efficiently; and on when the time is right for particular activities	Britannica [13]	A self-management, efficiently, the right time for particular activities.
Time management is the coordination of tasks and activities to maximize the effectiveness of an individual's efforts	WhatIs [15]	Coordination of tasks, maximize the effectiveness, individual efforts.
Time management is about behaviors that aim at achieving an effective use of time while performing certain goal-directed activities	Brigitte J.C. Claessens et al [10]	Behaviors, effective use of time, goal-directed activities.

Now, let's take a more detailed look at each definition to define the one which will be used as a main one in this text.

The first definition belongs to Stella Cottrell, a former director for Lifelong Learning at the University of Leeds and a pro-vice-chancellor for Learning, Teaching, and Student Engagement at the University of East London, United Kingdom. Her works are strongly dedicated to education methods and personal development planning. The term of time management is taken from her work "The Study Skills Handbook", published in 2013 [9].

According to Stella Cottrell, time management is not an action, but a process during which an individual plans the control of time and also consciously executes it. This definition is complex, and it works for a working process as well.

The second term belongs to Cambridge Dictionary. This organization is a well-known source of definitions for all kinds of words in English. According to this platform, time management is a practice of how to use the available time, especially working one, effectively and usefully. This definition is short and has a lack of details on a term. That is why I believe that it shouldn't be used during this research.

The definition offered by Britannica platform is broader and full of details. Here we can see that time management is a self-management, first of all. The next important thing is that an explicit focus is on what to do and when, how much time a person needs to complete different tasks. So, based on this definition, time management is a lot about actually planning how to do something and how long. The definition presented by this organization consists of enough details to be used during this research.

The next definition belongs to a WhatIs platform. It is an online platform which presents definitions for all sorts of words or phrases. According to it, time management is about coordinating your tasks and activities in order to maximize the effectiveness of personal efforts of every person. This definition is short and specific; however, it lacks academic support, compared to other definitions.

The last definition belongs to Brigitte J.C. Claessens and other professors who worked with her on an article for Research Gate platform called "A review of time management literature". Back in 2007, this article was dedicated to studying how time management is reflected by different authors and scientists. In order to avoid plagiarism, I will stick only to a definition created by an author of an article. It says that time management is a sort of behaviour that aims to achieve a usage of time, which is effective and occurs while completing important goal-directed activities. This definition is interesting, as it views time management not as a system, but a special type of behaviour. I find this exact aspect really interesting and important in order to form a definition for this research.

Concluding this morphological analysis, I would like to merge definitions of Britannica and Professor Brigitte J. C. Claessens. As the result, it sounds like this: “Time management is behaviour with a characteristic of self-management which focuses on defining how much time is required for what activities and completing these goal-directed activities effectively”. Taking it into account, we can say that working time management is a behaviour with a characteristic of self-management which focuses on defining how much time is required for what work-related activities and completing these activities effectively during a work time.

Now, when the main definition is formed, let’s dig into how working time management works, its forms, and how broad its usage is in 21st century.

Working time management deals with how workers divide their working time to complete certain goals. Working time itself is presented as time a person spends on a paid labour. Important to mention that home activities, such cooking, taking care of home, or taking care of pets or children is not a paid labour, and, therefore, is not a working time [11].

A duration of a working day differs in every country the same way as a number of working days. In some countries people work based on the rules of their major religion. For example, from Sunday to Friday noon (Israel), or Monday to Saturday, except Friday and with frequent breaks to pray (Muslim countries). If we take an average image of working week for all countries, we can see that a most dominant model it 9-5, which means 9 hours for 5 days. This creates a 40 hours per week work standard. This is a standard Ukraine uses as well [2].

According to Ukrainian Ministry of Justice, no one can work more than 40 hours per week. If it needs to be made, a company needs to submit documents which will prove a need to expand a working week for several hours [8]. However, it is not the same everywhere. For example, people in Mexico work on average up to 45 hours per week. And Japan is applying a full-scale governmental program against overworking. Currently a worker can work no more than 40 hours per week, 44 hours per week if a company can prove such a need in court. At the same time, there are

overwork limits, such 15 hours per week, 23 hours per two weeks, etc. If a worker works more than that, he/she will get a fine and a potential reduction of salary [30].

Such a fight against workaholism in Japan has its reasons. The main one is Karoshi, or a death due to the overwork. According to Statista platform, in 2012 almost 2500 people commit karoshi – basically a suicide due to inability to copy with overwork and stress and health problems it leads to. However, in 2021 this number decreased to 1935 people [21]. How exactly Japanese government and companies fight this social problem? We will talk about it in detail in the next chapter of this research. Now, let's focus on different models of working time management and how people already manage their working time successfully.

First of all, it is important to mention that some working time management techniques can be conducted by every person individually, as it is common to usual time management [1]. Other models can be introduced and conducted only by the company itself. For example, a change in a number of working days per week or a number of hours to work per day. Let's start with individual working time management models:

1. Pomodoro Technique.

Developed by an Italian consultant Francesco Cirillo, this technique is popular for both work and home activities. It is flexible and easy to apply to any person. Firstly, an individual needs to pick a project or a task he/she wants to focus on. After that he/she needs to set a timer for 25 minutes. During this time period a person can't focus on anything else or touch a smartphone. When time is up, he/she can take a 5 minutes break. This 30-minutes period is called a Pomodoro. After four Pomodoros an individual can take a longer break, note what was completed and how much time in total was spend [24]. On fig. 1.1 you can see an illustration of this process.

2. Time Management Matrix.

It is also called the "Eisenhower method" after its creator Dwight D. Eisenhower. This method helps to divide tasks based on how important and urgent they are. Based on this principle, all tasks can be divided in four groups:

Important + Urgent = tasks that need to be done immediately and by an individual himself/herself;

Important + Not Urgent = tasks that can be dome later, but require individual's attention;

Unimportant + Urgent = tasks that can be delegated, but need to be completed fast;

Unimportant + Not Urgent = tasks that should be dropped [16].

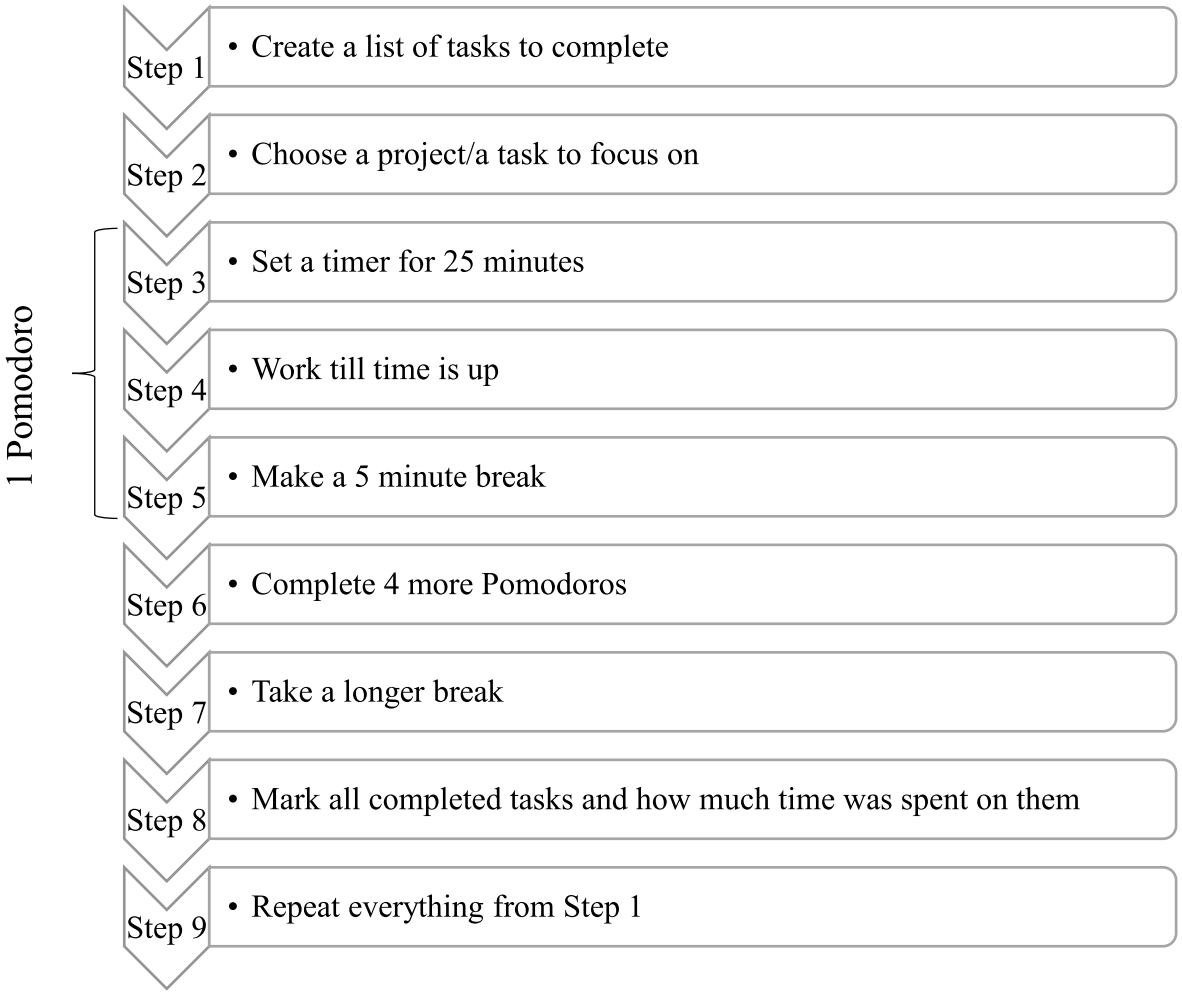

Fig. 1.1. An illustration of a Pomodoro technique

On fig. 1.2 it is represented the illustration of the Time Management Matrix's for all groups.

	Urgent	Not Urgent
Important	A project deadline An injury A fire in an office building	A hobby A meeting with family members A trip
Not Important	Meetings Interruptions Calls	All “time wasters”

Fig. 1.2. An illustration of a Time Management Matrix

3. ALPEN Method. Developed by Lothar J. Seiwert, ALPEN method is supposed to help people manage both work and usual daily routine tasks.

It consists of five steps, a first letter of which creates an ALPEN abbreviation in German. Here how it sounds and looks like in English [26]:

Step 1. Write down tasks, planned activities and appointments.

Step 2. Estimate the length of each activity listed.

Step 3. Plan a buffer time – extra time which you can use if it takes you longer than you thought to complete a task.

Step 4. Make decisions on what to do.

Step 5. Conduct a follow-up inspection to see when you were right and when not.

Despite all of the presented models being effective and usable, they still mostly depend on a self-organization of an individual. However, there are kinds of models in working time management that can have a direct influence on a whole department or a company. By saying this, changes in a number of working days or hours per week are meant. We study how it works, its pros and cons, and what countries test or have already fully implemented this type of working management in the next chapter of this research.

1.2. Experiments on implementation of a shorten working week model as a tool of working time management improvement

A tendency to shorten a working week is not a new concept. Humanity has already done that several times. Our usual 40 hours working week is also not something to be taken as granted. It is a result of a change of a working environment, technologies used, and a society itself.

An idea to shorten a working week appears first of all after an Industrial revolution. Machines do all major job, making no sense for people to work too long, and for employers to keep them and pay a salary for such a long working week [3]. Experiments which start after that lead to a further development of a standard 40 hours working week. It was legally decided to do that on a governmental level in USA in 1938. It was a result of a Great Depression and a solution to solve major economic problems, including unemployment [30]. However, USA government was not the first one to popularize this concept. Back in 1905 American entrepreneur Henry Ford saw that people who work less are actually more productive and energetic, then people who work a lot. He conducted his own experiments to prove that a shortage of a working week or working hours per day can proved both employees and a company with a positive income. An important feature of his experiment was the fact that despite workers working less, he paid them the same amount of money as before [28]. As we can see, Ford was right, it proved to be more effective for everyone. Plus, many companies, who considered Ford's decision to pay workers the same salary for a shorter working week not smart or not logical enough, also implemented it years later.

Currently we are facing the same situation. The same way 40 hours working week was seen as a bad idea over 150 years ago, the same way some researches see 4 days working week since 1970s. However, new COVID-19 reality made many companies reconsider, and some countries started full-scale experiments on implementing 4, or even 3, days working week [4].

One of the biggest misguides in a modern world is an opinion of shortage working week will lead from 9-5 model to 4-10, making it the same 40 hours per

week. This thought is completely false, as it is not how this working time management concept works. While developing this model, scientists recalled a previously mentioned Henry Ford's experiment, when people who work less were more productive. A change to 4 days working week leads to a total shortage of working hours to 32 hours. On fig. 1.3 it is represented how working week standards change in time and how it changes nowadays.

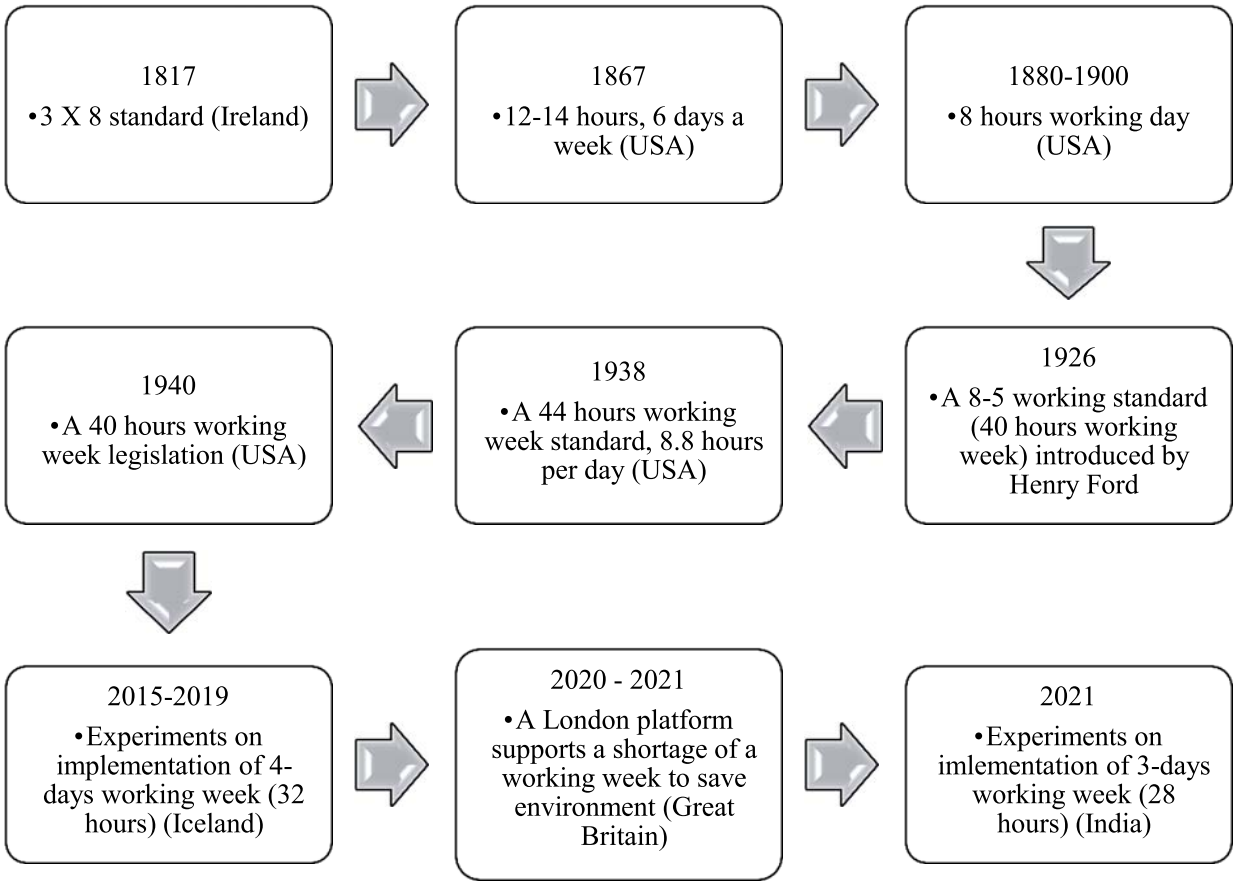

Fig. 1.3. An illustration of a change of a working time since 1817 to nowadays [5, 17, 18]

Before we talk about countries that have already implemented 4 days working week standard, let's analyse why so many companies switch to it currently. Here are some major reasons for that:

1. An increased productivity of workers.

Back in 2019 Perpetual Guardian, a New Zealand-based company, conduced an experiment on applying 4 days working week with no salary reduction. At the end of the experiments, it was reported that an average stress mark decreased from 45% to 35%. It also appeared that workers became more productive, got a higher job satisfaction, maintained a life-work life balance better, and took a more active part in teamworking processes [20].

It is also important to mention that the most productive countries in the world prove to have a short working week. According to Times, such countries like Germany, Norway, Netherlands, and Denmark work on average 30 hours per week. And on a contrary, Japan, a country with a high percentage of workaholics got a 20th position in a list [29]. As we can see, working more doesn't equal producing more. But working while taking care of yourself proves to be more efficient for both workers and companies.

2. Employees get more engaged in a working process.

In order to prove that a shorter working week will make workers not only more productive, but also more engaged in a working process, Swedish government conducted a two-years experiment (2015 – 2017). During this time period, nurses in one of Swedish hospitals worked only 6 hours per day, 5 days a week. It may look like not a lot, just a two hours reduction of working time. However, it appeared to be effective. It was reported that during the trial nurses took fewer sick days, reported a better mental and physical health, and felt more energetic and engaged in a working process, completing 85% more activities than before [7].

3. An opportunity to decrease human influence on environment.

It may sound like totally unrelatable things – working time and climate change. However, one has a great influence on another. According to BBC report, a shortage of working days from 5 to 4 days will reduce a carbon footprint for around 30%. Also, it means that offices and production sites will consume less electricity and natural resources. If applied globally, working time shortage can help to decrease a human influence on an environment and slow climate change [18].

Now, it is time to see what countries have already successfully applied 4 days working week model.

In May 2021, Spanish government announced a trial, which will continue till 2024. Its goal is to see how productive and effective a 32-hour working week will be. Important to mention, this experiment is conducted with a rule that companies can't cut their workers incomes [27].

It was already mentioned before that Iceland has not just conducted an experiment, but also plans to fully implement 4 days working week for all sphere of business and governmental organizations. An experiment lasted 4 years (2015 – 2019). Over 2500 workers, which is over 1% of the whole population of the country, from both private and governmental organizations took part in the experiment. Its results managed to convince government that a shorter working week is an efficient solution nowadays. Participants reported that they felt happier and healthier. They also felt more energized at the workplace and stopped counting when weekends are [6].

In order to see how popular these experiments are, they are already occurring in Japan. It was have already mentioned that an extreme workaholism of Japanese workers leads to a set of negative outcomes. As the result, Japanese government decided to introduce a plan to reduce a number of working days to 4. Since 2021, Japanese government contacted the biggest companies in Japan in order to negotiate with them on this. Most agreed that it is necessary. For instance, Panasonic offered its workers a 4-days working week plan. However, it is still a mystery if a new governmental initiative will manage to get rid of Japanese overworking habit [23].

As we can see, a shortage of a working week is a positive trend in a modern working time management. Now it is time to see how does it work on an enterprise selected for this research. We will also see if it is a profitable and effective decision for this enterprise to implement a 4-days working week instead of already existing one.

2. COMPREHENSIVE ANALYSIS OF "MODUS LTD" ACTIVITIES

2.1. General characteristics of "Modus Ltd", analysis of its organizational structure

Before analysing a potential impact of a change of a working time management model, it is important to overview the enterprise itself.

"Modus Ltd" is the largest supplier of materials for advertising and construction in Ukraine, a unique manufacturer of sheet plastics for advertising and construction in Ukraine. Currently it employs over 1500 people. Here is an overview of the history of an enterprise and its development through years:

1988 – creation of the team, which marked the beginning of the emergence of the all-Ukrainian network;

1991 – 1997 – establishment of the company, which includes expansion of the team and an increase of the work space. The first Roland PNC 1200 cutting plotter is being purchased;

1998 – an opening of the store "The Center of Advertising Technology". Division of the direction of retail trade and production of advertising and information products. An opening of the offset printing area. Creation of a design office;

2000 – 2009 – expansion of the company within Ukraine began with the opening of the first branch in Donetsk, East Ukraine. Then a branch was opened in Kyiv, capital city. Opening of the full-color printing area, purchase of the first plotter and printing of the first banner. Opening of the site of gas (neon) advertising. Launch of the first 3-meter printing plotter in Kharkiv. Creation of the Aluprom composite panel brand. Installation of a unique engraver with a working field of 2x3 m. Opening of branches in Sumy, Dnepropetrovsk, Simferopol, Odessa, Ivano-Frankivsk;

2008 – construction of own office and production premises in Kharkiv. Opening of the site of production of metal-plastic windows. The total staff in all branches is over 350 people. Purchase of new trucks. Partnering with Israeli suppliers of plastic sheets such as Polygal, Plazit and Palram. Establishing a partnership with the manufacturer of self-adhesive films Avery Dennison, becoming their official

distributor in Ukraine. There is a new position - single LEDs PromoLED. Opening of a new direction "Autostyling". Together with Avery Dennison holding the first in Ukraine practical master class on car restyling. Opening of the section of electronic-LED products. Opening of own laboratory for testing of LED and electronic products;

2010 – 2011 – opening of a branch in the city of Kryvyi Rih. A new service has appeared in the Kharkiv department of full-color printing - full-color wide-format UV printing on any rigid and flexible material. Obtaining a certificate of compliance with the ISO 9001 Quality Management System. We have become the official representative of the South Korean supplier of UV printing equipment company Dilli. Opening of the 10th anniversary branch in Luhansk;

2012 – an important event of this year was the launch of their own production of such a popular material in the advertising industry – two types of PVC – foam PromoFoam and solid PromoPlast. Our goal is high-quality and affordable material with a wide range of denominations and, most importantly, made in Ukraine! Our company has grown by two branches, opening offices in the cities of Western Ukraine – Lviv and Rivne. At the same time a company increases its fleet by several trucks;

2013 – “Modus Ltd” became the official distributor of Roland DG equipment in Ukraine, which is confirmed by the dealer certificate;

2014 – the company launched a new production line – transparent PVC, offering a quality domestic product to the Ukrainian market;

2017 – thanks to successful work in the PVC market, the company continued to develop and develop new markets, and bought a line for the production of polypropylene and polyethylene sheets. Many years of experience in extrusion, professionalism of our technologists and engineers, high quality equipment and raw materials – all this helps us to produce a high-quality product that competes with leading manufacturers of sheet plastics and other analogues. Acquisition and reconstruction of own warehouse and office premises in Odesa takes place at that year;

2018 – acquisition and reconstruction of own premises in the city of Kyiv;

2019 – acquisition and start of reconstruction of own premises in the city of Lviv;

2020 – reconstruction of the warehouse in the Dnieper. Acquisition of the site and the beginning of construction of new warehouses, production and office space in Kharkiv;

2021 – relocation of the Lviv branch to new own premises. Acquisition and launch of a line for the production of styrene group plastics. Completion of the construction of the first line of office, production and storage facilities in Kharkiv.

Mentioned above, “Modus Ltd” mostly produces different kinds of plastic materials which are used broadly in an advertisement business. This includes such kinds of products as [22]:

Polyvinylchloride (PVH);

Polyethylene sheets;

Polypropylene sheets;

Polyethylene and polypropylene rods;

Hight Impact Resistant Polystyrene (HIPS);

ABS plastic (acrylonitrile-butadiene styrene-copolymer plastic).

The next important aspect of “Modus Ltd” is its organizational structure. This enterprise has a single lined organization structure, where all branches and department answer directly to the director. Every branch conducts its own internal reporting and presents it to the director. Production division is separate from branches, as it conducts an independent reporting. There are also extra divisions, such as logistics, external economic activities, HR, finances, and warehousing.

On fig. 2.1 the organizational structure of “Modus Ltd” is presented.

“Modus Ltd” is not only produces different sorts of plastic, but also provides other companies with extra services they may require. This aspect of company’s work consists of three main services, such as:

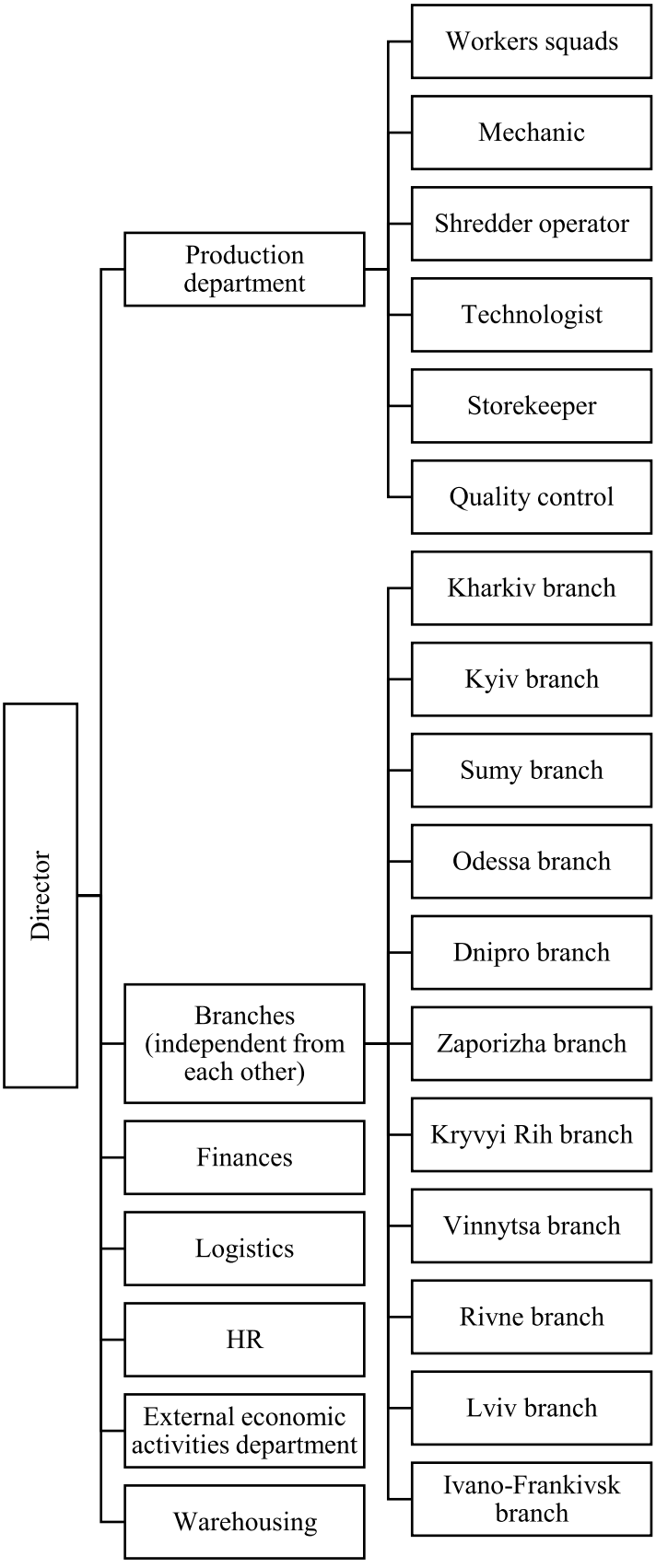

Fig. 2.1. “Modus Ltd” organizational structure

1. Thermoforming.

Thermoforming is the process of production of complex plastic products, such as three-dimensional letters with a complex surface relief, three-dimensional light logos, end sign elements and more.

Creation of moulded elements involves two stages of production:

Stage 1. Manufacture of equipment through which thermoforming will be carried out. The equipment is made on a high-precision CNC milling machine.

Stage 2. The plastic for moulding is softened by heating in the moulding machine, after which it is placed on pre-prepared equipment and air is pumped out between the plastic and the equipment, giving the plastic the desired shape.

2. Laser cutting and engraving.

“Modus Ltd” makes laser cutting and engraving on modern laser engraving equipment of various materials up to 25 mm thick.

The use of high-tech laser cutting equipment allows companies to solve any design and production problems, as well as to achieve significant savings in consumables through the use of optimal cutting. Laser cutting of plastics is carried out with a field of 1.5x1.1 m and a thickness of up to 15 mm. Laser cutting of metals is carried out with a field of 1.5x3 m up to 5 mm thick (black steel) and up to 10 mm (stainless steel).

In addition, an enterprise carries out plasma cutting of steel and aluminium with a field of 1.5x3 m and a thickness of up to 40 mm. Laser cutting and engraving greatly facilitates the production of outdoor advertising, and also significantly expands the possibilities of manufacturing various types of signs, POS-products (stands, numbers, souvenirs, accessories), interior elements and more.

3. Rectilinear cutting of various types of plastic.

“Modus Ltd” provides services for rectilinear cutting of various types of plastic (polypropylene, polyethylene, acrylic, PVC, polystyrene, polycarbonate, etc.), as well as cutting and milling of aluminium composite sheets.

Format-cutting machines for Striebig plastics are installed in Kharkiv (2 machines), Kyiv, Dnipro, and Odessa. It provides fast and high-precision cutting of

large batches of any materials. Permissible cutting area 4600/2200/60 mm (if necessary, milling of sheets longer than 6000 mm is possible). This equipment is able to perform significant volumes of work on cutting and milling of various sheet materials in the shortest possible time, as well as greatly simplify the process of manufacturing composite facade panels.

The V-grooves obtained by means of a disk mill allow to make bends of composite panels under 90° and 45° manually, without resorting to the help of the flexible machine.

Summing up everything mentioned above, it can be said that “Modus Ltd” is a big enterprise with over 400 workers, which produced a broad spectrum of products and services proposed for customers to purchase. Being the biggest plastic-based products’ producer, it sells its products to both domestic and international markets. In the next part of the research, it will be studied how productive and profitable it is according to the analysis of their financial data.

2.2. Analysis of the current working time management at “Modus Ltd”

Now when we are already familiar with what “Modus Ltd” does and how, it is time to analyse its activities through a prism of a topic of this research. First of all, let’s take a look at its profit and profitability indicator through technological and economic analysis. In order to do that, there are two tables presented: the first one with company’s financial report information (tab. 2.1) and the second one with profit and profitability indicators (tab. 2.2). Important to mention that all data presented was collected and later calculated in thousand UAH.

Table 2.1

Data from “Modus Ltd” financial report

Indicator	2020	2021
1	2	3
Sales revenue, thousand UAH	314,3	382,8
Cost of goods sold, thousand UAH	230,1	286,9
Sales expences, thousand UAH	0,2	0,4
Administrative expences, thousand UAH	14,7	18,2

End of the tab. 2.1

1	2	3
Other operational incomes, thousand UAH	0	0
Other operational expences, thousand UAH	31,8	35,9
Other incomes (including financial), thousand UAH	0	0
Other expences (including financial), thousand UAH	0	0
Financial incomes, thousand UAH	0	0
Financial expences, thousand UAH	16,7	12,6
Depreciation and amortization, thousand UAH	20,8	27,2
Income tax rate, %	18	18
PPE, thousand UAH:		
Opening	532,1	513,7
Closing	513,7	487,5
Current assets, thousand UAH:		
Opening	1015,7	944,9
Closing	944,9	796,9
Equity, thousand UAH:		
Opening	1,2	2
Closing	2	1,8
Long term liabilities, thousand UAH:		
Opening	0	0
Closing	0	0
Short term liabilities, thousand UAH:		
Opening	1546,5	1456,7
Closing	1456,7	1282,7

Before using these numbers for further analysis, let's take a look on what they already show us. The first number is sales revenue, which represents an amount of money earned directly from selling products. As we can see, it has increased by 21,7% in 2021, compared to 2020. At the same time, a cost of goods sold has also increased, as well as sales expenses. The same happened with administrative expenses, which increased by 23% since 2020. Talking about other reported expenses, there are operational expenses, which increased by 12% in 2021, compared to 2020, and financial expenses which decreased slightly during the year.

It is important to mention that such data as other operational incomes, financial incomes, other incomes, and other expenses are equal to 0, as company doesn't put this kind of data in its financial statement. Also, "Modus Ltd" has no long-term liabilities to report in both periods.

An amount of expenses due to depreciation and amortization also increased in 2021 from 20,8 thousand UAH to 27,2 thousand UAH. An income tax rate stays stable at 18% point, as stated by the law of Ukraine. PPE (Property, Plant & Equipment) indicator decreased by the end 2021 till 487,5 thousand UAH. Compared to an opening in 2020, it is a 9% decrease. What makes situation worse is the fact that current assets also decreased (by 26,47%). Talking about equity, it has slightly increased by the end of 2021, compared to beginning of 2020. Short-term liabilities, on the other hand, showed a decrease by 17,1% between 2020 and 2021.

As we can see, the primary analysis of the financial data of "Modus Ltd" shows that company's expenses have increased during the last year, while incomes have decreased. Now, let's use this data to conduct a further analysis (tab. 2.2).

Table 2.2

Profit and profitability indicators

Indicators	Formulas	2020	2021	Change	GR, %
1	2	3	4	5	6
Profit					
Gross profit (Pg), thousand UAH	Pg = SR - Cost of Goods Sold	84,2	95,9	11,7	14%
Profit on sales (Ps), thousand UAH	Ps = SR – TC	69,3	77,3	8	12%
Operational profit (Po), thousand UAH	Po = Ps + OOI – OOE	37,5	41,4	3,9	10%
Profit before Tax (EBT), thousand UAH	EBT = Po + OI – OE	37,5	41,4	3,9	10%
Net profit (Pn), thousand UAH	Pn = EBT - IT = EBT * (1-ITR)	30,75	33,948	3,198	10%
Earnings before interest taxes (EBIT), thousand UAH	EBIT = EBT + FE – FI	54,2	54	-0,2	0%
Earnings before interest taxes + depreciation and amortization (EBITDA), thousand UAH	EBITDA = EBIT + D&A	75	81,2	6,2	8%
Profitability					
Return on Sales (ROS), %	ROS = Ps / SR * 100%	22,0%	20,2%	-1,9%	-8,4%
Gross margin (GM), %	GM = Pg / SR * 100%	26,8%	25,1%	-1,7%	-6,5%
Net Margin (NM), %	NM = Pn / SR * 100%	9,8%	8,9%	-0,9%	-9,4%

End of the tab. 2.2

1	2	3	4	5	6
Product profitability (Pp, ROTC), %	Pp = Ps / TC * 100%	28,3%	25,3%	-3,0%	-10,5%
Enterprise profitability (Pe), %	Pe = Po / (PPE average + CA average) * 100%	2,5%	3,0%	0,5%	21,0%
Return on Assets (ROA), %	ROA = Pn / A average * 100%	2,0%	2,5%	0,4%	21,0%
Return on Equity (ROE), %	ROE = Pn / E average * 100%	1921,9%	1786,7%	-135,1%	-7,0%
Return on Investments (ROI), %	ROI = Pn / (E average + LTL average) * 100%	1921,9%	1786,7%	-135,1%	-7,0%

In table 2.2 two sets of indicators are presented: profit indicators and profitability indicators. As we can see, profit indicators prove to be mostly positive, however an increase is nothing but slight. Talking about profitability, we can see that most indicators show a negative tendency. There is no return on investments or equity to report. A product profitability has also decreased, compared to 2020. Negative net margin, gross margin and return on sales also show a negative tendency, decreasing by 6% to 9,4%, based on an indicator. The only increase we see is in enterprise profitability (0,5%) and return on assets (0,4%).

The success of the company is depended on different reason. One of them is efficiency of working time using. This has an impact on the labor productivity of the personnel and finally of the output of the company. So, it is needed to analyse the current working time system at “Modus Ltd”.

First of all, it is important to explain how does a company work from within and how its work is organized. During these explanations and further calculations, only an activity of Kharkiv production department will be taken into account.

In production department over 40 people are working. This includes mechanic, technologist, etc, as well as 3 squads of 10 workers. There are also office people (around 30 people) who take care of warehousing, finances, human resources management, logistics and transport departments. Office workers have a stable income of 12000 hryvnas per month. Production workers, on the other hand, have a

salary per working session. One working session lasts 12 hours. 3 squads switch each other by principle “day – night – day off”.

In order to produce plastic products, “Modus Ltd” uses big machines. The enterprise has 5 machines, each of which is able to produce different sorts of product, based on orders available. However, two machines are working on a daily basis. They usually work on 24/7 basis and are stopped once every 10 days to clean it and check for potential repairs. When a machine is stopped, it will have to be restarted. This process can take on from 2 to 6 hours. It is important to mention that in this case productivity of a company is not related to a productivity of one person, but to production capacities of machines themselves. A machine which produces 2500 tons of plastic sheets daily can’t produce more, no matter what. But it can produce less if a human factor becomes an issue (lack of repairing, wrong usage, etc.).

In order to see how a production site operated now, let’s analyse a set of activities of a production division (tab. 2.3.) and its photo of a working day (tab. 2.4).

Table 2.3

A list of activities of production workers of “Modus Ltd”

<table>
<tr><th rowspan="2">Number of activities</th><th colspan="5">Members of a production squad</th><th rowspan="2">Type of time</th></tr>
<tr><th>Shift supervisor (extruder)</th><th>Mixer operator</th><th>Mixer operator assistant</th><th>Packer #1</th><th>Packer #2</th></tr>
<tr><td>1.</td><td>Getting a job for a shift</td><td>Workplace preparation</td><td>Inventory preparation</td><td colspan="2">Preparation of inventory and workplace</td><td rowspan="3">Tbp</td></tr>
<tr><td>2.</td><td colspan="5">Launch of the production line (the whole team is busy)</td></tr>
<tr><td>3.</td><td>Equipment setup</td><td>Trial batch</td><td>Transportation of raw materials</td><td colspan="2">Assistance with setting up equipment</td></tr>
<tr><td>4.</td><td>Break</td><td>Mixing of raw materials</td><td>Break</td><td>Break</td><td>Finished product packaging</td><td rowspan="3">Tp</td></tr>
<tr><td>5.</td><td>Release of finished products</td><td>Break</td><td>Transportation of raw materials</td><td>Finished product packaging</td><td>Break</td></tr>
<tr><td>6.</td><td>Transfer of a shift from a squad to another squad</td><td>Mixing of raw materials</td><td>Transportation of raw materials</td><td colspan="2">Finished product packaging</td></tr>
<tr><td>7.</td><td>Line stop</td><td colspan="4">Workplace cleaning</td><td>Tep</td></tr>
</table>

Table 2.4

A current photo of a working day of production sector of "Modus Ltd"

Type of time	Beginning	Ending	Duration of a type of activity
Tbp	8.00	14.15	6 hours 15 minutes
Tp	14.15	07.00	232 hours 45 minutes
Tep	07.00	08.00	1 hour
Total			240 hours

There we can see how it usually works and what processes includes. In order to describe what activities are completed when, they will be separated in three categories: Time before production, when machines need to be turned on and prepared for work (Tbp), Time of production, when an actual product is produced (Tp), and Time of ending of a production, when machines are turned off (Tep). Some activities are repeatable, because they are completed by the same person or people who hold the same position on a production site. Activities represented in a table, specifically Tp activities, are the longest and repeat one another every few hours.

As we can see, a working week of production workers is tough and full of activities. However, it is important not to forget about office staff mentioned before. As already mentioned before, there are 30 people who do non-production activities. This includes finances, sales, general management of a division, secretaries, warehousing, and HR. Here is a list of activities these people usually complete (tab. 2.5).

Table 2.5

A list of everyday activities of an office staff of "Modus Ltd"

Period of a working day	Activity
Morning	Beginning of a working day, hygiene procedures
	A working process using a PC
	A regulated break for eyes to relax from PC
	Hygiene procedures, coffee break
Middle of the day	Lunch time
	A working process using a PC
	A regulated break for eyes to relax from PC
Evening	An end of a working day, hygiene procedures.

As we can see, there are not big differences in the office staff activities. But also it is necessary to make the analysis of the no required works during the working time.

So, it is possible to understand the common problems which “Modus Ltd” is meeting within it activities. These are problems connected to efficiency of working time using (fig. 2.2).

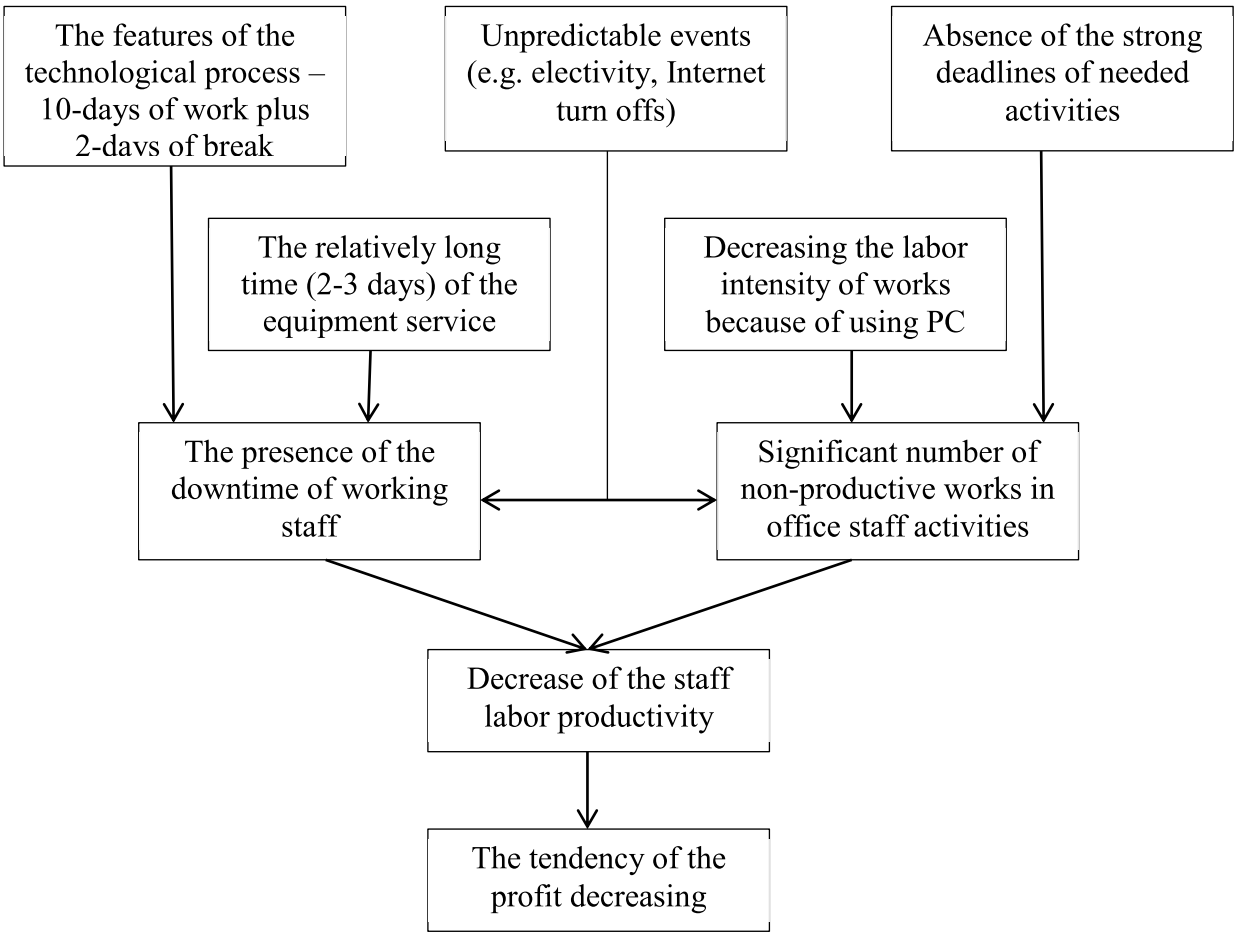

Fig. 2.2. The problem map of “Modus Ltd”

So, let’s describe the main problems. The biggest problem of each company is decreasing of the profit. Analysis of the current activities of “Modus Ltd” shows that company has not big decrease of the profit. But this tendency is actual. So, what are the reasons of this? There are different causes but we’ll focus the attention on one of possible reasons. This can be decreasing of the labor productivity of both working and office personnel.

The analysis of the working time using shows that the technological process at “Modus Ltd” is very specific. It means that equipment is working 10 full days (30 shifts) without breaks. So, the workers who are used this equipment work these days for shifts. But after ending the technological process the equipment is stopped for the service time. Thus, workers have downtime. In this case, it is possible to say, that optimization of time using possible only in the way of decreasing time for equipment service. On the level of labor productivity also have influence some unpredictable situations – problems with electricity, Internet etc. The same reasons for decreasing labor productivity of the office staff. Also, there are other reasons.

As we can see from the list of common activities of the office workers, they have significant number of non-productive activities that is hygiene procedures, coffee break etc. also, it is possible to say, that working process is not clearly organized – employees are not have the strong list of tasks which should be performed. From the one hand, this illustrates democratic leadership style, but from another hand – lead to the wasting of the working time. Sure, the employees are performed all of the required tasks but the question is – is it needed to have 5^{th} day in working week for do everything? One more moment is that all of the tasks are made using the PC. It means that all of tasks are automatized.

So, we can see the potential for optimizing the working time of the office workers.

3. RECOMMENDATIONS TO IMPROVEMENT THE WORKING TIME MANAGEMENT AT "MODUS LTD"

3.1. A measures for optimizing the working time management model at "Modus Ltd"

One of the ways for improvement efficiency of the working time management in the company is optimization of working time using. As a solution, it is proposed to try to implement a shorter working week mode, a 4-days one to be specific. It will help company safe money on utilities and sustain the building. To see how helpful it is, it is important to calculate if an implementation of a shorter working week (4-days model) will be effective and lead to an increase in employees' productivity.

As we can see, "Modus Ltd" production department works not just as 8-5 but as 24/7 one. In order to calculate if a 4-days working week becomes an effective solution with positive income, I would like to propose to use such a model:

$$Tpp=Tbp+Tp+Tep, \quad (3.1)$$

where Tpp is a Time of production process, a total time of production;

Tbp is a Time before production, a time required to start a machine. It includes a time to check the machine, to warm the machine, and to start it. It ends when the machine produces the first good-quality product;

Tp is Time of production, a time during which machine produces good high-quality products;

Tep is a Time of the end of production, a time when machine is turned off, when it cools down and go through another check.

In order to see how a total productivity of machines changes, let's apply two equations, where we can see a change in total productivity, when machines work 10

days before scheduled checks (formula 2.2) and if the production switches to a 4 days model (formula 2.3):

$$240=x+y1+z, \quad (3.2)$$

where 240 is a current Tpp, when machines work 10 days without a stop;

X and Z represent Tbp and Tep;

Y1 represents Tp.

$$96=x+y2+z, \quad (3.3)$$

where 96 is a Tpp, when machines work 4 days a week;

X and Z represent Tbp and Tep;

Y2 represents Tp.

Now let's see how these two equations correspond with one another:

$$\frac{y1}{y2}=\frac{240\text{-}x\text{-}z}{96\text{-}x\text{-}z}=\frac{240}{96}=2.5 \text{ times}$$

This formula is based on a position that Tbp and Tep are stable and equal to zero. Even in this case, productivity of enterprise decreases 2.5 times compared to a full 10 days of work. In tab. 3.1 we can see how changes in Tbp and Tep can shape the total productivity.

Table 3.1

An influence of an increase of Tbp and Tep on decrease of productivity

Tbp, hours	Tep, hours	Tp, times
1	1	2.53
2	1	2.54
6	2	2.63
10	1	2.7

As we can see, the higher is time before production, the less productive a machine is and, as the result, a lower number of products is produced. Like that we can see that such a concept of working time management is not an ideal solution for the production department.

In order to illustrate a further difference between an already existing working schedule of production division (10 days) and a new one (4 days), using a Gannt chart. Fig. 3.1 illustrates a working process for a 10-days work period, fig. 3.2. – for the same period, but with a 4-days working week.

As we can see, the Gannt chart illustrates the previously presented mathematic model well enough. Comparing figures 3.1. and 3.2, we can see that a total amount of Tbp and Tep increases 2.5 times, while the production period, in proportion to a number of working hours, reduces. This is another proof that a change of time management model won't be able to become a profitable or effective solution for a production division of a company.

Still, there is a human factor that needs to be taken into account. According to the head of a production crew, there are three major reasons why the production may be not as productive as it should be, such as:

1. A lack of required materials (which, as he mentions, is very rare).
2. A lack of electricity resources to support the work of a machine.
3. A human factor.

It is needed to mention that most of the issues (including the two at the beginning of the list) occur because of a human influence or a mistake. It includes such issues as mixing wrong ingredients, due to what a final product doesn’t have a quality it requires, or a machine itself requires be stopping, cleaning up and repairing not due to schedule. In order to avoid such kind of inconvenient actions which workers may accidently complete, it is important to implement extra measures, such as regular meetings, during which all production site workers will be informed on current activities of a production and how much was already produced, etc. It is also wise to implement training and meetings which will help to decrease an influence of a human factor on a work of machines.

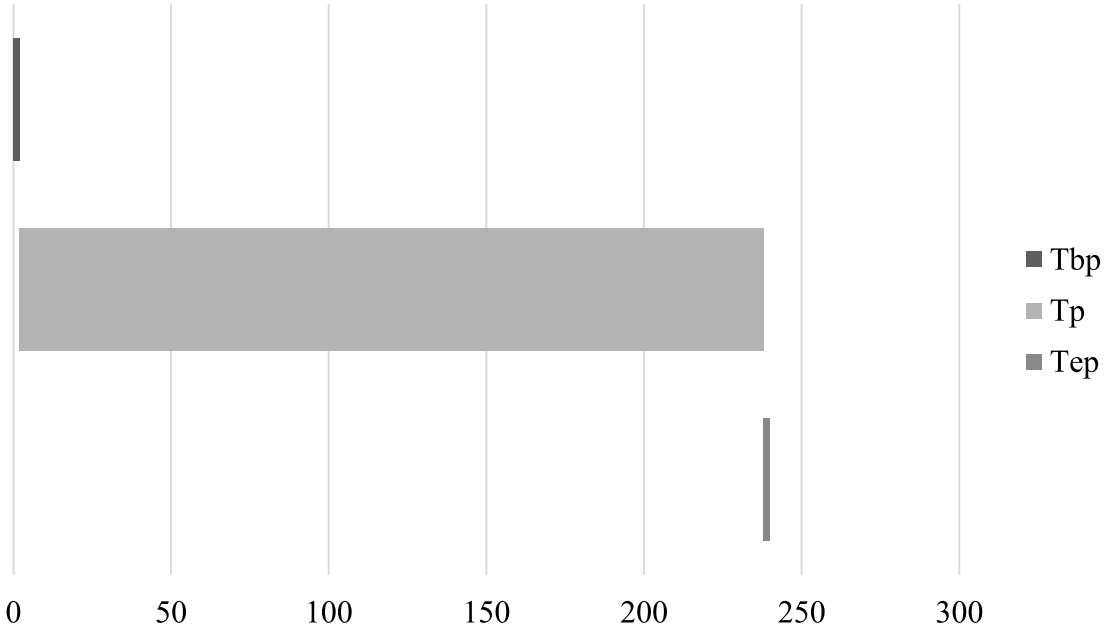

Fig. 3.1. A Gannt chart for 10 working days period of production process (240 hours)

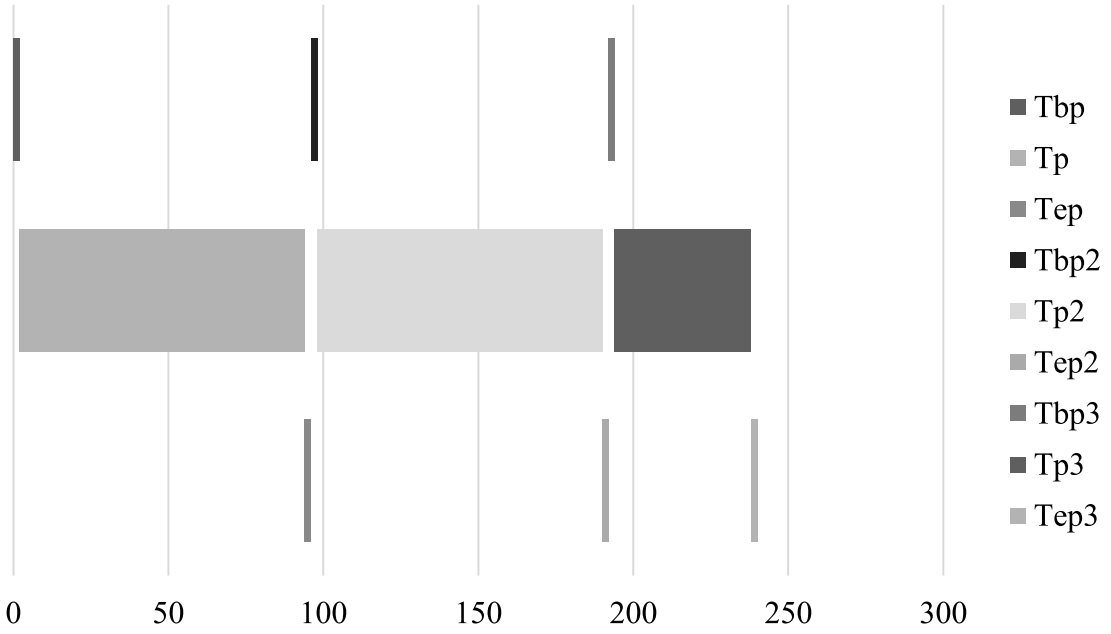

Fig. 3.2. A Gannt chart for 4 working days period

A company “Modus Ltd” can also add extra time to make a beforehand measurement of ingredients for different products. In such a way, workers won’t need to mix it on a place and risk miscalculating anything, as beforehand measurements will be the right ones.

So, there are some managerial solutions of optimization the working time of workers in production division. But the implementation of the model connected with changes of the number of working days in a week is not effective.

However, a shorter working week model may be a solution for office workers who work in “Modus LTD”. They can be easily switched to a 4-days working week with no losses. To prove it, let’s take a look at a photo of a working day of an office worker which is represented on tab. 3.2, where we can see how much time workers usually spend on different activities and how it may be optimized.

Table 3.2

A photo of a working day of office workers at “Modus Ltd”

Activity	Beginning of an activity	End of an activity	Duration (minutes)	Time type
Beginning of a working day	9.00	9.15	15	Tbp
A working process using a PC	9.15	11.15	120	Tp
A regulated break for eyes to relax from PC (regulated standard by Ukrainian government) and other hygiene procedures	11.15	11.30	15	Thp
Coffee break	11.30	11.45	15	Tr
A working process using a PC	11.45	13.45	120	Tp
A regulated break for eyes to relax from PC (regulated standard by Ukrainian government) and other hygiene procedures	13.45	14.00	15	Thp
Lunch time	14.00	15.00	60	LT
A working process using a PC	15.00	17.00	120	Tp
A regulated break for eyes to relax from PC (regulated standard by Ukrainian government) and other hygiene procedures	17.00	17.15	15	Thp
A working process using a PC	17.15	17.45	30	Tp
Ending of a working day	17.45	18.00	15	Tep
Total			480+60	

As we can see, there are some activities which don't relate to a working process. This means that they can be optimized in order to transform into a new weekend. For example, Coffee break take 15 minutes, however, people can easily use their regulated break time to complete these activities or that time which is used for regulated break for eyes to relax from PC (regulated standard by Ukrainian government). Also, it is not necessary to make the regulated break for eyes before the lunch time. Also, 5 minutes is more than enough time for preparing and finish the work (generally, turn on and turn off of PC). We can also make a lunch break shorter, from 1 hour to 45 minutes. If we optimize these activities for the whole working week, we will get that it will save us extra 8 hours – enough to give people an extra weekend and transfer office to a 4-days working week model. As the result, an optimized photo of a working day of office staff, acceptable for a new working time model (tab. 3.3).

Table 3.3

An optimized photo of a working day of office workers

Activity	Beginning of an activity	End of an activity	Duration (minutes)	Time type
Beginning of a working day, hygiene procedures	9.00	9.05	5	Tbp
A working process using a PC	9.05	11.05	120	Tp
A regulated break for eyes to relax from PC (regulated standard by Ukrainian government) and other hygiene procedures	11.05	11.20	15	Thp
A working process using a PC	11.20	13.20	120	Tp
Lunch time	13.20	14.05	45	LT
A working process using a PC	14.05	15.45	100	Tp
A regulated break for eyes to relax from PC (regulated standard by Ukrainian government) and other hygiene procedures	15.45	16.00	15	Thp
A working process using a PC	16.00	17.40	100	Tp
Ending of a working day, hygiene procedures	17.40	17.45	5	Tep
Total			480+45	

As presented above, a little optimization and getting rid of useless usage of time may bring workers an opportunity to work more intense, and it can give the extra free day.

3.2. The economic effect of using the four-days working time management model

Concluding everything mentioned above, it can be said that a switch to a new working time management model won't be effective for a production crew. However, an implementation of meeting to talk about common problems on an enterprise or mixing ingredients beforehand may prove to be effective to reduce an effect of human factor on machines' productivity. It can be also concluded that a switch to a shorter working week is a good idea for an office and administrative staff. By reducing their working week by one day, "Modus Ltd" may be able to reduce utilities costs, and also will have a more motivated and energized workers, as the result.

Let's consider the difference in the time types' distribution made in the previous paragraph. Firstly, the time distribution before the optimization is presented in tab. 3.4.

Table 3.4

Time distribution before optimization (5-days week)

Time type	Duration in a day, minutes	Duration in a 5-days week, minutes
Tbp	15	75
Tp	390	1950
Tep	15	75
Thp	45	225
Tr	15	75
LT	60	300
Total	480+60	2400+300

As we can see from the table 3.4 during the working week 75 minutes employees spent for the coffee break which we can identify as a non-productive time. in the working day people have enough time for performing hygiene procedures,

drink coffee and so on. All of these it is possible to do during the regulated break for eyes to relax from PC (regulated standard by Ukrainian government is 15 minutes every 2 hours worked on PC). Again employees spend too much time for beginning and ending the working day. Before optimization the Time of production is taken 81.25% of the total Time of production process of the office staff for a working week. At the same time the lunch time (LT) is taken for 300 minutes in a week.

The distribution time after the optimization is given in tab. 3.5.

Table 3.5

Time distribution after optimization (4-days week)

Time type	Duration in a day, minutes	Duration in a 4-days week, minutes
Tbp	5	20
Tp	440	1760
Tep	5	20
Thp	30	120
Tr	-	-
LT	45	180
Total	480+45	1920+180

It is possible to conclude, that in this model the Time of production is taken 91.67% for a working week. The lunch time in this case is shorter – 180 minutes in a working week. This gives opportunities for employees to finish their working day early for 15 minutes. It means that the share of the Time of production in the Total time of the production process will increase by 10% (from 81.25% in 5-days working week model to 91.67% in a 4-days working week model).

So, let's consider the differences between time types before and after optimization (tab. 3.6).

So, the results show that all of the times decreased. And this is normal situation because we proposed to decrease total time of the production process by 1 day (20%). But the suggested model and measures lead to big decreasing of all additional and non-productive times – time for beginning and ending work by 73.3% both, time for regulated break for eyes to relax from PC (regulated standard by Ukrainian

government) and other hygiene procedures by 46.7%, fully avoid time for coffee break.

Table 3.6

The differences between time types before and after optimization

Time type	Duration in a 5-days week, minutes	Duration in a 4-days week, minutes	Difference, minutes	Change, %
Tbp	75	20	-55	-73.3
Tp	1950	1760	-190	-9.7
Tep	75	20	-55	-73.3
Thp	225	120	-105	-46.7
Tr	75	-	-75	-100
LT	300	180	-120	-40
Tpp	2400	1920	-480	-20

At the same time the decreasing of Time of productive work decreased only by 9.7% (190 minutes or 3 hours and 10 minutes).

However, it is of ultimate importance to explain the workers, especially office ones, why a change of a working time management model is important and what they will get from it. It is important to remember that workers won't work without a proper motivation to do so. And getting an extra free day and working less in total, but getting the same salary sounds like a good motivation to do all work more intense and spend less time in toilet room or on lunch and day-to-day office talks. In addition to that, "Modus Ltd" will be able to save money which they usually spent to sustain office during the fifth work day. Plus, having a longer weekend will make people feel healthier and happier, which will lead to an increase of their personal productivity.

So, we suggest to implement the 4-days model in the work of the office staff but once in a month to give them one extra day (on Friday or other day) for finishing all of the not fully performed tasks (for reports and other activities which are not daily). This gives company cover difference in Time of production in 4-days working week model versus 5-days working week model and to save money for energy, electricity and other costs.

Now, it is time to talk about spheres of business which could get some benefits from a switch from a usual 5-days working week to 4, or even 3-days working week.

First of all, on an example of “Modus Ltd”, we could already see whom it doesn’t suit – production workers. Their effectiveness and total productive has a very little impact when it comes to working with machines or other equipment, which can’t work beyond its capabilities.

We also saw that office workers and administrative staff can be easily switched to a new model with saving a previous level of salary. This includes such positions as HR, finances, logistics, secretaries, managers, etc.

Another category which would use this concept is sales. Their salary mostly depends on a number and a size of orders they conduct. As the result, what is a point for a worker to stay on a working place for 5 days if he/she can sell the same number of products/services in 4 days? Such a change will motivate people to spend less time chatting with their colleagues, and more to do their job effectively.

Another big sector of modern labour market to benefit from a shorter working week is IT-sector. Their main goal is to finish a specific task till a deadline. So, a decrease of a working work for one can’t be a big problem. However, it will save company a fortune, as one fifth part of electricity bills will disappear. Taking into account an amount of electricity required to supply an IT company, we can say that one day difference really matters, as it may be able to save company a fortune in a year perspective.

It can also be concluded that such organizations as financial institutions, tax control, recruitment agencies and advertisement agencies can also be switched to a new model with step-by-step changes. Of course, some customers may find it inconvenient that their bank, for example, won’t work for one extra day. However, it is a first reaction of every client. In a few weeks they get used to a new work schedule and a negative reaction disappears. It will disappear even faster if a shorter working week model will be implemented broadly around different professions, so people could feel an effect of it.

Auto salons, which sell new cars, can also switch to a new model. They work on the same principle as sales managers in offices. So, the percentage of their payment depends on sales they make. As the result, a shorter working week will motivate them to work more efficiently, and an extra free day will let them relax, spend time with family members, or spend some time on favourite activities.

The last category of people who will benefit from a 4-days working time model are those whose payment depends on a quality of work. This includes such professions as: designers; engineers; SMM-managers; content managers; PR-managers; copywriters.

These people get money firstly for the quality of their work. If it doesn't suit client's needs, then they will have to spend more time and change it. A longer weekend will let them relax and come to work more energized and ready to do what they need to do with high-quality.

Now, it is important to say that implementation of a shorter working week as a working time management technique needs to be done carefully to not get a negative outcome. It is a complex process, which requires step-by-step implementation in an already existing style of work of an enterprise. There are issues which will require extra attention, such as:

1. Analyse if a change of working pattern really suits needs of an enterprise. As we saw today, not every enterprise can operate normally if it changes a working time mode. Sometimes the productivity of a whole company depends on other issues than a working time or an activity of workers. "Modus Ltd" has become a great example of this.

2. Before a full implementation, it is important to conduct a trial. All countries who use 4-days working week model now started with nothing but trial. It is never possible to know how people will react when something new appears. That is why conduct a trial, from three month to one year, is a good practice which can show weak points of a company and provide an upper management with potential solutions.

3. A 4-days model implies a 32-hours working week, not the same 40 hours. A lot of companies interpret the term “4-days working week” in a wrong way. An implementation of a shorter week is not equal people working each day 10 hours instead of 8 usual. If it is applied like that, it makes no clear sense or change. A shorter working week implies that people work 8 hours less, but complete the same number of tasks and get the same salary.

4. It is vital to explain it to workers. Some workers may need no explanation or meeting to understand an essence of their new working reality. However, it doesn’t mean that everyone understands it. It is of extreme importance to let people know how it works and announce a change of a working time management model beforehand.

All methods and models presented above are bright example of usage of an intensive type of economic growth. According to economics theory, there are two main types of economic growth:

extensive type of economic growth - a way to increase production due to the quantitative growth of all elements of productive forces, especially factors of production at a constant level of technical basis of production. Extensive development can be combined to some extent with intensive. In order to move to a predominantly intensive path of development, it is necessary to qualitatively improve all elements of the economic system;

intensive type of economic growth (intensification of production) - the process of social production, based primarily on the use of more efficient elements of productive forces and more advanced forms of development (technical and economic, organizational, economic and social).

Intensification of production, in contrast to extensive development, has an anti-cost direction, as it is accompanied by a reduction in the cost of living and tangible labor per unit of output. I believe that intensification of production by implementation of new technologies, new ways of work, and new working time management models have a broad usage possibility, which may bring a company not only highly motivated workers, but also an increased profit in the nearest future.

CONCLUSION

Now it is time to conclude everything presented and analysed in this bachelor thesis work. First of all, it can be said for sure that the main goal of this work, which is to study what styles of working time management exist and what strategies and models of working time structure companies use to make their workers manage their working time and, as the result, increase their productivity, effectiveness, and profits, was completed.

In order to accomplish this goal, the term “time management” was analysed as a fundamental one, form a definition of working time management, relevant to this research, studied what style of working time management exist, analysed a 4-days working week model. It was also studied the experiments related to its implementation around the world, conducted research on an enterprise – “Modus Ltd”.

To do that we calculated how profitable and effective it is for “Modus Ltd” to implement a 4-days working week model, analysed what potential positive result an implementation of a new working time models may bring to an enterprise. At the end, the recommendation on proper implementation of working time management and new working time models have been presented.

It is also important to say if my hypothesis presented in an introduction was right or wrong. It stated that if “Modus Ltd” switches to 4-days working week model, their productivity and profits will increase, compared to a 5-days working week model. This also includes a hypothesis that production organizations will gain more profit if switched to a 4-days working week model the same way it works for other types of organizations (offices, services, etc.).

Taking into account all collected and analysed information, it can be said that my hypothesis appeared to be wrong. It was proved that a change of working model of a production organization will bring more harm to an enterprise than good, as the main source of productivity on a production site is not a worker but a machine, an equipment company uses to produce goods.

At the same time, it can be concluded that a switch to a new working time management model, such as a shorter working week, may be a good idea for an administrative staff, office workers, which includes finances, HR, logistics, etc. An implementation of a new time management model for these kinds of jobs may proof to be an effective solution which will increase a total productivity of workers, make them happier and healthier, and, as the result, decrease a number of sick days. It will also help company to save money on all services required to make an office operate. This includes electricity, water supply, air conditioning, and other important utilities.

Based on the thesis results, the scientific article was prepared for publication in the scientific journal (appendix A).

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APPENDICES

APPENDIX A

Scientific article

A HISTORY OF A SHORTAGE OF A WORKING WEEK AND ITS POSSIBLE SHORTAGE IN THE FUTURE

UDK 349.2

Vorobiova Y. Y.

Annotation: The article reveals the historical, social and economic reasons which led to a step-by-step shortage of a working week till todays 40 hours standard. A goal of this article is to analyze these reasons and propose a possible further shortage of an already existing working week in the future.

Аннотація: У статті розкриваються історичні, соціальні та економічні причини, що призвели до поетапного скорочення робочого тижня до сьогоднішньої норми 40 годин. Мета цієї статті — проаналізувати ці причини та запропонувати можливе подальше скорочення вже наявного робочого тижня в майбутньому.

Key words: working week, shortage, efficiency, profit, working hours.

Ключові слова: робочий тиждень, скорочення, ефективність, прибуток, робочий час.

A usual standard of a working week (40 hours per week, or a 5X8 model) was not always a broadly accepted working time standard. For a long time, a shortage of an already existing working week (in 19th century – 12 hours 6 days a week) was considered an inappropriate action which would lead to a reduction of an efficiency and general productivity of a company.

One of the first to propose a shortage of a working week was an Irish entrepreneur, Robert Owen. Back in 1817 he made a statement which contained a scheme of a work-life balance “8 hours for work, 8 hours for sleep, and 8 hours for recreation”. He considered that people who kept up with this working time model became more energized and productive during the working time.

However, back in 19th century this model wasn’t able to find many supporters. Still, a century later, it became a subject of talks among experts and businessmen again. As industrialisation extended through Europe and USA, some companies were supposed to fire their workers. They believed

that in such way they could reduce expenses on salaries and get more money. However, some people looked for other, more socially acceptable and efficient ways to fight this problem. Among them was an American entrepreneur, Henry Ford. He saw that people who work less are actually more productive and energetic, then people who work a lot. He conducted his own experiments to prove that a shortage of a working week or working hours per day can proved both employees and a company with a positive income. An important feature of his experiment was the fact that despite workers working less, he paid them the same amount of money as before [1]. As we can see, Ford was right, it proved to be more effective for everyone. Plus, many companies, who considered Ford's decision to pay workers the same salary for a shorter working week not smart or not logical enough, also implemented it years later.

As the result of Henry Ford's empirical experiments, it was later decided by government of the USA to make 40 hours a week a general standard for the whole country [2]. In the next few years, many countries with a well-developed economy will follow this new trend.

Still, a big problem was an influence of socialist parties through Europe and USA on local governments. Socialists also found an idea of a shorter working week better and more productive. For example, Karl Marx, a well-known socialist, wrote in his biggest text, "Capital", about how a shorter working week would make people's lives easier and better. This idea is not bad; however, it completely differs from ideas of Ford or Owen in a fundamental thought core. For entrepreneurs, such as Ford and Owen, a shortage of a working week was a way to increase a productivity of a company and increase its profit without increase of expenses. For Karl Marx and other socialists who supported this idea, it was more about oppressing capitalistic way of live and proving that only with socialism people can live a better and fuller life. Looking at it from a prism of today's world, we can see that the ideas and thought of both socialists and capitalists weren't too different from each other. However, as they had different idealistic fundament, socialism fell, and a shortage of a working week continued to exist and develop till nowadays.

Talking about Ukrainian reality, as a country with socialistic background, it can be seen that there is not a lot of difference between it and other countries which followed other regimes. For instance, Ukraine also officially has a 40- hours working week standard, which is applied in most spheres of work [3]. However, this standard is changing step-by-step not only in Ukraine, but also in other countries.

For instance, currently a number of countries test or already apply a 32-hours working week model (or a 4-days working week). This includes such countries as:

Iceland;
Spain;
Sweden;
Germany;
India;
Denmark;
Austria;
Australia;
New Zealand.

Some countries not only use a 4-days model, but also test a 3-days model as well, like India for example, which decided to test how well an IT-sphere will adapt to an even shorter working week.

Such a desperate desire of a list of countries to reduce a number of hours workers spend in their offices can be explained logically.

Firstly, it makes people more productive, motivated, and energized, as they had an ability to spend time with their families at home longer.

The second reason is expenses on utilities. This includes general electricity, water, canalisation, heating during the winter and other services required to keep office building running on everyday basis.

The third reason may be considered as an action against a climate change. According to BBC report, a shortage of working days from 5 to 4 days will reduce a carbon footprint for around 30%. Also, it means that offices and production sites will consume less electricity and natural resources. If applied globally, working time shortage can help to decrease a human influence on an environment and slow climate change [4].

As we can see, there is a trend existing right now, which many countries may follow and fully implement in the next few years. However, there is still one open question: what will happen after that?

The answer may be pretty simple. To find it, it is important to recall why did a shortage of a working week started at all? It officially started in 19th – 20th century, when industrialisation appeared. This led to machines replacing people on a workplace, and getting rid of a need to stay longer at work, as everything was done faster and better by machines.

Today we are living in a pretty similar situation, when technologies progress and change several times faster than we, people, are able to learn how to use it. As the result, there is a high possibility that in the next few years we, as humanity, will enter the Fourth Industrial Revolution, which will ultimately lead to a creation of Basic Income Guarantee.

Basic Income Guarantee is an economic theory which suggests that as some point of human development, machines themselves will produce so much income that it will be enough to pay people salaries without work. It may look like a monthly payment from government. This theory also suggests that, due to the development of machines and technologies, there will be an increase of a level of an unemployment. However, with companies being able to produce profit and pay taxes from it, it will be enough to provide every citizen of a country with such a payment [5].

Some countries have already conducted research on what people would do with such money. During the experiment in Finland, for example, 20 people of different age, background and profession were provided with the same sum of money every month for half a year. At the end, it appeared that 10% of people invested in their education, another 10% - in starting a new business, another 15% - in their hobbies. Other people didn’t invest in anything and just continued to live as before.

This experiment was supposed to provide a government with an understanding on how people would spend these monthly payments, and, to say at least, the results were disappointing, as it was expected that most people will spend these money for education or business.

Despite Basic Income Guarantee being an interesting and partly realistic system, some experts are afraid that it may be a fundament for a

return of socialists in an economic field, as this theory itself is partly socialistic. However, it is still a little bit too early to predict who may appear and when, as even an application of this economic theory is nothing but a talk right now.

Concluding everything mentioned in this article, it can be concluded that a shortage of a working week is a logical process, which has started as a way to increase profits, but developed in a partly fight against unemployment and climate change. It can be also said that it is not over, as a step-by-step shortage of working week will continue in the nearest future, leading to a potential decrease of working hours till zero point.

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