

## THE ROLE OF FLEXIBLE WORKING TIME AS A FACTOR FOR WORK CONDITIONS

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**ABSTRACT.** In recent years, the topic of introducing flexible working hours and teleworking is increasingly finding its place in search of modern effective methods to increase productivity, and their direct connection with employee safety and satisfaction. Remote work and flexible part-time work are possible owing to the use of modern technical means, the Internet environment, and the development of information and communication technologies. This principle is at the heart of Industry 4.0 - in order to combine industrial production with modern technology which will fundamentally change various aspects of people's lives, such as life, work and leisure, working hours. These trends require considerable flexibility in the known forms of employment and are the reason for the introduction of adequate changes in labor law that are associated with the creation of new and different forms of jobs. The paper presents an overview of current trends in the choice of working hours for countries around the world and Europe.

**Key words:** (working hours, safety, employment trends, flexible working hours)

### РОЛЯ НА ГЪВКАВОТО РАБОТНО ВРЕМЕ КАТО ФАКТОР ЗА УСЛОВИЯТА НА ТРУД

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**РЕЗЮМЕ.** В последните години темата за въвеждане на гъвкаво работно време и работа от разстояние започва все повече да намира своето място в търсене на съвременни ефективни методи за повишаване на производителността на труда, и пряката им връзка с безопасността и удовлетвореността на служителите. Дистанционната работа и плаващото работно време са възможни благодарение на използването на съвременните технически средства, интернет средата и развитието на информационните и комуникационни технологии. Този принцип е залегнал и в основата на Индустрия 4.0 – с цел да се обединят промишленото производство с модерните технологии, което ще промени основно различни аспекти на живота на хората, като бит, труд и почивка, работно време. Тези тенденции налагат значителна гъвкавост при познатите форми на заетост и са причина за въвеждане на адекватни промени в трудовото право, които са свързани със създаването на нови различни форми на работни места. Статията представя обзор на съвременните тенденции при избора на работно време за страни от света и Европа.

**Ключови думи:** (работно време, безопасност, тенденции при трудова заетост, гъвкаво работно време)

### Introduction

Flexible working hours and teleworking are key factors in the development of modern economy. Most people understand what flexible working hours mean, but the term is still the subject of much discussion and its exact definition causes confusion. Flexible employment in practice refers to any work schedule that is outside the normal generally-accepted work model. This may mean that an employee has variable job characteristics, such as working hours, type of work, or even workplace. The process concerns employment arrangements in an enterprise or organisation in terms of working hours, workplace, and working and rest conditions. "Flexible employment is a way to help people work effectively and businesses and organisations to achieve their goals," said Simonetta Manfredi, Director of the Centre for Policy Research and Development, Oxford Brookes University. "It's about balancing service delivery and meeting individual needs. Flexible employment is a model through which both are applicable and possible", said in an interview Helen Gibbs, senior personnel consultant, London Borough, Sutton. Flexible

working hours can have different forms and applications that are not mutually exclusive and can be categorised as follows:

**The concept of a "flexible" labour market** - The European Commission identifies flexible working hours as one of the most effective methods of combating unemployment and changing economic conditions through high employment levels, low inflation and unemployment, as well as the steady rise in real incomes. Flexible working hours are a response to pressure from employers to meet the needs of their customers and employees.

**Numerical flexibility** - Flexibility in the staffing schedule is one of the strongest weapons in the hands of the employer in a dynamically changing economic environment. The ability to change the number of staff depending on business requests or busy periods is an extremely important approach in order to help meet the needs of employers and a method of preserving jobs when the workload decreases in specific periods.

**Functional flexibility** - The economic crisis, as well as the increasingly applicable methods for optimising staff and striving to increase their productivity, naturally lead to updating employee training programs so that they are able to perform a

wider range of tasks. Such flexibility leads to proven financial results and is a powerful tool for motivating and developing staff.

Flexibility in the workplace is a trend that is emerging, according to studies which increasingly show that the best employees consider flexibility a priority and link it to commitment and productivity in the company. A 2019 survey by FlexJobs (Boulder, Colorado) shows that 80% of the 7,300 workers interviewed will be more loyal to employers who offer flexible employment opportunities - a rising trend from 75% in the 2018 survey. These results show that flexibility is also an increasingly important factor in the prospects of staff retention and turnover reduction (Ashley Dunn, 2021).

### Specifics in the application of different working hours around the world

Historically, workers today work 20 to 30 hours less per week than in the 19<sup>th</sup> century. In developed countries, the average working time on an annual basis dropped from 3,000 hours in 1870 to between 1,500 and 2000 hours per year in 1990. This long-term trend (fig. 1) is slowing down in almost all member countries of the Organisation for Economic Co-operation and Development (OECD) and is sometimes reversed (Charlie Giattino et al., 2020).

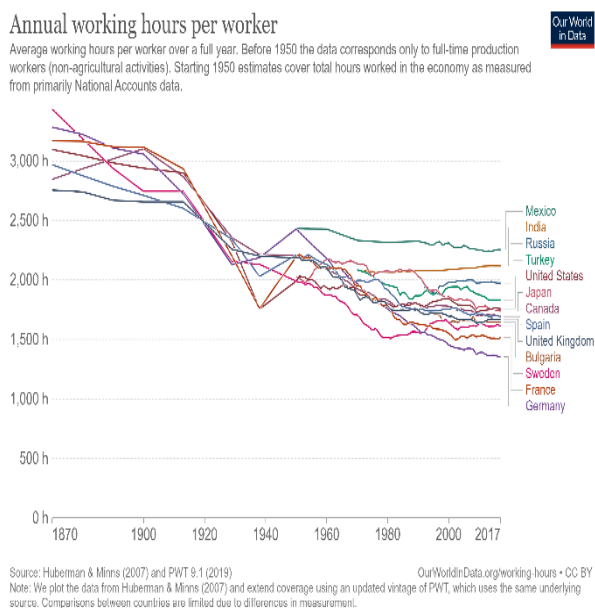


Fig. 1. Change in the duration of work

It is interesting to note that in primitive hunter-gatherer societies, working hours are much shorter than in more developed agrarian societies. Table 1 summarises the average length of the working week in a number of countries around the world. Moreover, hourly and weekly pay varies widely across countries –per hour-from \$ 8.25 to \$ 46.87; per week-from \$ 338.34 to \$ 1320.78) (Mihai-Alexandru Cristea, 2021).

According to latest ILO data, Asia is the continent where a higher percentage of people work longer: most countries (32%) do not have a universal national limit for a maximum working week, and another 29% have a high threshold (60 hours per week or more).

Table 1. Average number of working hours per week worldwide

Country	Number of working hours/week	Country	Number of working hours/week
Mexico	41	Canada	32,1
South Korea	37,8	Latvia	31,9
Greece	37,4	Japan	31,6
Chile	36,8	Lithuania	31,4
Israel	36,5	Slovenia	30,6
Poland	34,7	Belgium	30,4
Czech Republic	34,3	Switzerland	29,9
New Zealand	34,2	England	29,5
USA	34,2	France	28,9
Ireland	34	Luxembourg	28,9
Hungary	33,1	Austria	28,8
Italy	33	Iceland	27,9
Portugal	33	Sweden	27,9
Australia	32,9	The Netherlands	27,5
Estonia	32,9	Germany	26,6
Slovakia	32,5	Norway	26,6
Spain	32,4	Denmark	26,5

Only 4% of countries follow ILO recommendations and comply with international labour standards for a maximum of 48 hours or less. In the Americas and the Caribbean, 34% of countries do not have a valid working week limit, the highest share of all regions. Among the countries without such a limit are the United States. The absence of such country-wide regulation of the maximum working week duration allows it to reach 68 hours in a number of countries in Asia and the Middle East. Africa is the place where, in most countries, over a third of those employed in the labour market work more than 48 hours a week. In Tanzania alone, for example, the share of those working for over 48 hours/week is 60%. Surveys also identify trends for the working week duration by city. In 2016, the Swiss bank UBS published an analysis of 71 cities, where leaders are Hong Kong with an average of 50.1 hours of work week, Mumbai (43.7 hours), New Delhi (42.6 hours), and Bangkok (42.1 hours).

### Current trends in working time in Europe

Labour law in the European Union limits working hours to 48 hours per week. The average full-time employee in the European Union works 37.1 hours per week (main job). In 2019, the longest working hours were reported in Romania (40.5 hours per week) and Bulgaria (40.4 hours per week). Figure 2 shows the average working time per week in all EU member states and the United Kingdom, three EFTA countries (Iceland, Norway and Switzerland), and four candidate countries (Montenegro, Northern Macedonia, Serbia, and Turkey).

In terms of working hours, Europe continues to be the best place for workers - all countries on the continent have a regulated maximum working week limit, with only Belgium and Turkey having a statutory working week of more than 48 hours. Flexible work arrangements, such as opportunities to switch between part-time and full-time work, flexibility in working hours and teleworking, usually give employees a greater ability to control how much, when, and where they can work.

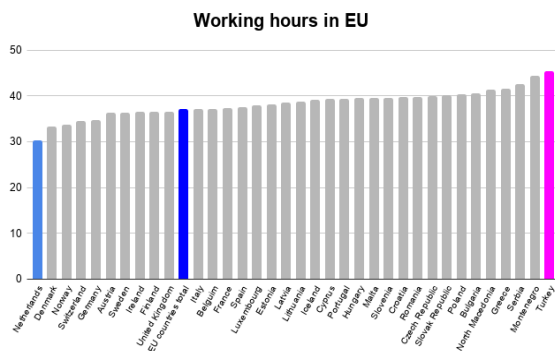


Fig. 2. Weekly workload in the EU 2019.

However, in 2019, only 18% could fully determine their working hours (Fig. 3), with more women (57%) than men (54%) in the EU unable to change their working hours (EIGE-Work-life balance, 2019); (<https://clockify.me/working-hours>).

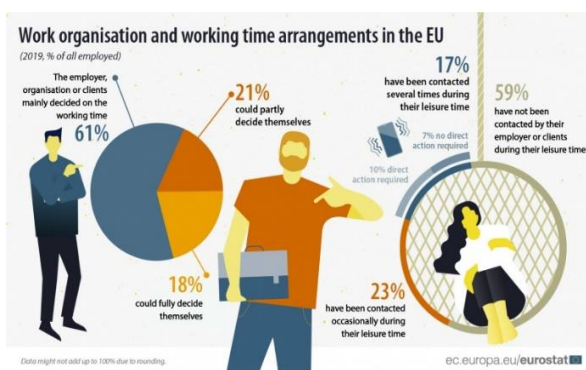


Fig. 3. Organisation of working time in the EU 2019 (Eurostat)

## Overview of flexible working practices – Europe

The review of good practices in the field of flexible working hours and places in the EU member states shows a different approach to legal regulation. While in some countries there is a detailed legal framework, in others only basic principles and guidelines are regulated. Almost all European countries have introduced opportunities for late start and end of working hours. There are differences regarding the requirement for mandatory presence at the workplace at certain time intervals according to the specifics of the respective countries. An additional element that can contribute to greater freedom of employees in determining their working hours is the possibility of the established number of working hours per week/month to be unevenly distributed between working days. Thus, employees can adjust their work schedules to personal commitments, in compliance with the required number of hours worked for the period. Such an approach would allow additional flexibility by establishing, in addition to variation in the number of hours worked per day, a different number of working days per week for individual employees. (<https://www.ipa.government.bg>).

The following is an overview of the practices for regulating the work process in EU countries.

**Malta** - The practices of flexible working hours are considered a measure towards improvement of the balance between work and personal life of public administration employees, which is why they have been introduced as a

general principle for all employees. Late start and end of the working day are allowed. Teleworking is also seen as an approach to employee incentives. According to the current legislation, an employee is allowed to work 90% of the working time each month from a distance.

In **Italy**, the principles of flexible working hours are regulated in national law as well as in collective agreements. For full-time employees, it is mandatory to work 5 days each week. The possibility of working remotely has been set forth in the Italian civil service regulations since 1998.

**France** - Officially regulated working hours in the French administration are 35 hours per week. The maximum number of hours worked may not exceed 10 hours per day and 48 hours per week (excluding overtime). Two main models of flexible working hours have been adopted:

- Obligation to work for a minimum of 4 hours a day;
- Opportunities for postponed start and end of the working day with mandatory periods in which they should be at work.

**Spain** has introduced a trial four-day work week. The Spanish government has regulated a 32-hour work week for three years, without a reduction in workers' compensation. The pilot program, similar to what Scotland is doing, aims to reduce the risk to employers by obliging the government to compensate for the pay gap when workers move to a four-day schedule.

**Scotland** launches a four-day trial week, fulfilling the pre-election promise of the ruling Scottish National Party. Workers will have reduced hours by 20%, but will not suffer a loss in compensation. The program will be funded by the SNP with £ 10 million (\$ 13.8 million).

Between 2015 and 2019, **Iceland** implemented test programs for a 35 to 36-hour work week, without a commensurate reduction in pay. A survey of 2,500 employees was performed, as a result of which nearly 90% of the working population already has reduced working hours. There is an improvement in the work-life balance and a reduction in stress. (<https://www.dw.com/>).

In 1991, a 37-hour work week was introduced in **Denmark**. In recent years, the prevailing trend is for a more individual approach to reducing working hours and increasing annual leave. There is also a growing demand for telework. According to a 1997 study, 14% of men and 5% of women worked remotely from their homes at least one day a week.

In **Germany**, the principles of flexible working hours are regulated by the Working Time Ordinance which is applicable to all employees in the administration. According to said Ordinance, employees can benefit from late start and end of the workday as well, with period of mandatory presence at the workplace is between 9 a.m. and 3 p.m. Remote working is not explicitly regulated so each administration has the option to establish its own rules ([https://www.ipa.government.bg/analiz\\_na\\_dobri\\_praktiki\\_i](https://www.ipa.government.bg/analiz_na_dobri_praktiki_i)).

Part-time work in Germany can take many forms. Of interest is the "Mini-job" - a special form of employment, which is characterised by lower incomes or time constraints. Employees can be assigned to Minijob in several places. This form of employment leads to greater professional satisfaction and allows more freedom in personal life (Fig. 4). Among those who work 40 to 47 hours a week, only one in four is dissatisfied, while those who work 60 hours or more are dissatisfied with the lack of work-life balance.

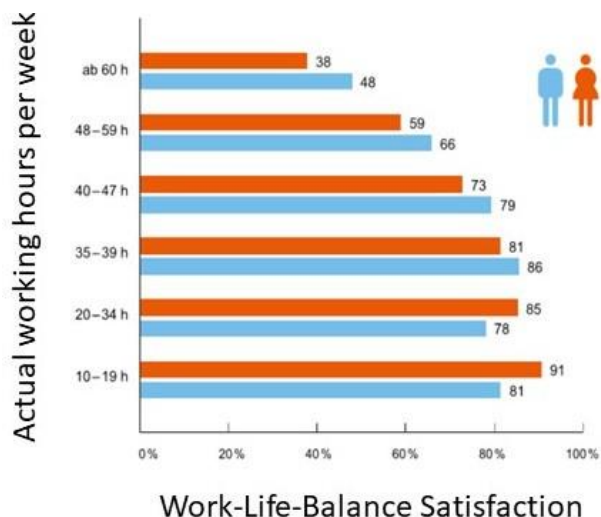


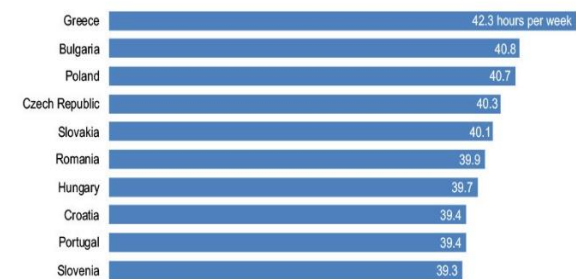
Fig. 4. Satisfaction with work-life balance according to working hours and gender (Figul, 2018)

### Central and Eastern Europe

In Greece and Bulgaria, the working week is the longest of all the other countries in the European Union. In Greece, Bulgaria and Poland, people work more than 40 hours a week on average, according to Eurostat, the European statistical service. In Central and Eastern Europe (CEE), the working week for the Slovenes is 39.3 hours. It is less than 40 hours in Romania, Hungary and Croatia as well (fig. 5).

#### These EU countries have the longest working weeks

Data based on average hours worked by full- and part-time workers



Source: Eurostat

Fig 5. Duration of the working week for CEE -2018. (<https://www.weforum.org/agenda/2018/02/>)

The data shows that for the entire EU, full-time employees work 40.3 hours per week on average. Men work more - 41 hours, and women - 39.3 hours. The longest working week is for employees in the mining and quarrying industries, and the shortest one - for those in the education sector.

Beside the forms of flexible working hours already mentioned, there are others, summarised in fig. 6.

### Implementation of flexible working hours in Bulgaria

According to Eurobarometer data, Bulgaria ranks last in Europe in terms of flexible working arrangements. Only 39% of the employed people in our country have access to non-fixed working hours, part-time work or work from home. According to 86% of Bulgarian companies that participated in the Regus survey, flexible working arrangements stimulate performance.

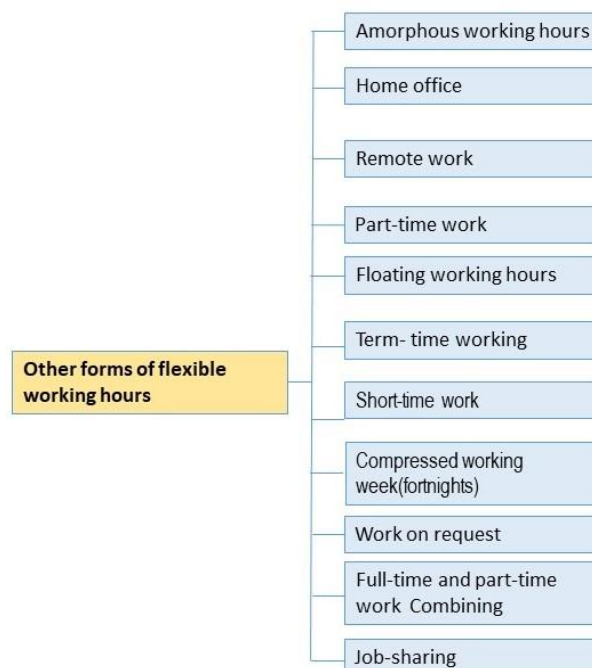


Fig. 6. Other forms of flexible working hours

At the same time, 74% of Europeans, who do not currently work, agree that flexible working conditions would give them a better opportunity to start paid work, and only 1 in 10 disagree that this way of working is better (<https://www.investor.bg/>).

In Bulgaria, part-time work is rarely used as a flexible form of employment. Thus:

- Women are more willing to work part-time;
- By age groups - young people between 15 and 24 years and people between 50 and 64 years are most willing;
- By sectors - agriculture and services;
- By educational degree - the share of persons working part-time increases with the decrease in educational degree.

In the survey, in which Bulgaria also participated, 81% of the respondents confirmed that they managed to hire and retain key personnel owing to the flexible working forms. According to 86% of the surveyed Bulgarian companies, flexible work solutions stimulate employee productivity. Bulgarian labour law regulates various forms of working hours in order to provide more flexible employment opportunities and opportunities for several jobs. For jobs carried out under specific conditions and risks to life and health, which cannot be eliminated, limited or reduced, regardless of the measures taken, workers benefit from: reduced working hours; additional paid annual leave; free food and/or supplements (Ilieva D., 2018).

### Contemporary public attitudes and social processes related to the work process

The main approach to developing a part-time procedure is the applicability, both from the point of view of the organisation and of the employee. The approach to implementing part-time work can be modified according to the specifics of the functions and activities - part-time, reduced number of full

working days per week, part-time working week (less than five days), or a combination of all options.

In addition to the statutory rules of operation, various companies also apply forms of flexible working hours. A good example is the well-known company GOOGLE - an American multinational corporation specialising in the Internet business. When it comes to flexible working hours, people usually associate it with Google's 20% policy. The company allows its employees to spend one-fifth of their time working on innovative, even crazy, projects of their choice. This feature has long been considered a source of innovation at Google, contributing to some of the most significant products such as Gmail, Google News, and AdSense. This rule is a sign of respect for the pursuit of personal development, regardless of position in the hierarchy. Work flexibly allows for adjustment of the work regime to the personal biological clock (Chalkiti, Carson, 2010). Such flexibility increases self-control, responsibility, satisfaction, and employee commitment; lower levels of absenteeism are achieved and late comings are virtually eliminated (Baltes, 1999).

The benefits of introducing flexible working opportunities may be summarised as follows:

- Improved productivity as a result of increased satisfaction;
- Increased commitment of employees to organisational activities;
- Improved work-life balance leading to stress reduction;
- Employee motivation increases (Trifonova, B., 2020);
- Opportunities for training and qualification of the staff are increased;
- Migration of employees in different locations within the enterprise is facilitated, as well as the remote work option;
- Saving time to travel to work and easing traffic in big cities; reducing environmental pollution.

## Disadvantages of flexible working hours

A person's professional activity is carried out in a certain environment and under certain conditions, which in case of non-observance of prescribed hygienic requirements can have adverse effect on the working capacity and health of the workers. It has been proven that longer working days also carry many risks. Working on a regular basis for 12 hours a day or 60 hours a week leads to risk to human health. The idea of a four-day work week is not new. It emerged in the late 1970's, with the average weekly load not decreasing. Employees prefer to work more hours a day in exchange for a longer rest. The short work week has advantages, but it also carries risks. Workplace maintenance costs are reduced, as the experience of Amazon, Google, Deloitte, and a number of small businesses shows. Amazon reports that they are experimenting with a 30-hour work week for certain employees. However, they receive 75% of the salary they would receive for a full-time job. Despite the shorter working week, the volume of work obligations remains unchanged. The consequences for employees working longer hours (over 10 hours a day) are different. Physical and emotional fatigue and stress accumulate and rest time is reduced until the next working day (Vassileva-Ivanova S., 2021). This increases the risk of accidents at work by 37% for employees working more

than 12 hours a day and there are a number of health-related consequences (Nikolay Savov et al., 2019; Iliev, Zh. 2021). Workload remains unchanged. According to psychologists, people are not as productive when they are tired or stressed. This is especially true for older employees. Prolongation of the daily work process has a negative impact on the social aspect and the work-life balance.

## Normal working hours (eight hours per day) – the optimal working hours in terms of mental health

Normal is the duration of working hours that is established for work under normal (usual) working conditions, normal intensity, and without specific risks to the life and health of employees, as well as in the absence of harmful effects of the working environment.

A study by sociologists from Cambridge and Salford undertaken over concerns that automated technology could require massive reductions in working hours found that the optimal working time for mental health is eight hours a day. The study was conducted in the period 2009-2018 in order to analyse how the change in working hours affected mental health and life satisfaction.

It is important to note that, with the onset of the global pandemic crisis in 2019-2021, rapid changes in the way the work process was organised were necessary (Getova, Igljika et al. 2021; Vessela Petrova et al., 2021). New forms of work were being introduced, which had the characteristics of both traditional jobs and flexible and non-standard approaches. Such trend could be defined as “WorkMix”. An interesting phenomenon is being observed, to the effect that even after returning to the usual rhythm of life, workers and employers continue to apply a combination of different forms of work - a hybrid form of duration and organisation of the work process.

The upward trend in the share of employed people practicing their profession from home has risen sharply from 15% to over 22% in the last 2-3 years and is due to the constraints imposed by the global pandemic crisis (Fig. 7).

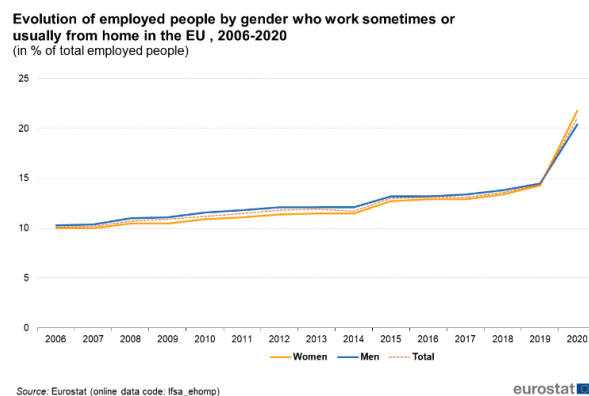


Fig. 7. Working from home 2006 -2020 (Eurostat)

The authors have conducted a survey in an electronic environment for attitudes and preferences regarding the organisation and duration of the work process. The survey was conducted in early 2022, with 246 respondents from various professional sectors in Bulgaria. Some of the results are

presented in fig. 8 and 9. Over 38% of the participants prefer an 8-hour workday, but the large share (27.6%) who want to have flexibility in determining the distribution of their weekly workload should also be taken into account.

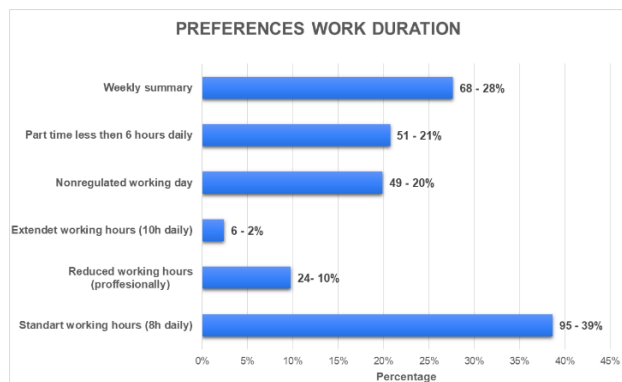


Fig. 8. Duration of working hours - survey 2022

In summarising the results regarding the organisation of the work process (fig. 9), it is seen that 59% of the respondents prefer a standard workplace. The choice of home as a home office is desired by over 35%. These results are also related to the professional realisation, age, and gender of the respondents. The authors will present full results and analyses of the survey in an upcoming publication.

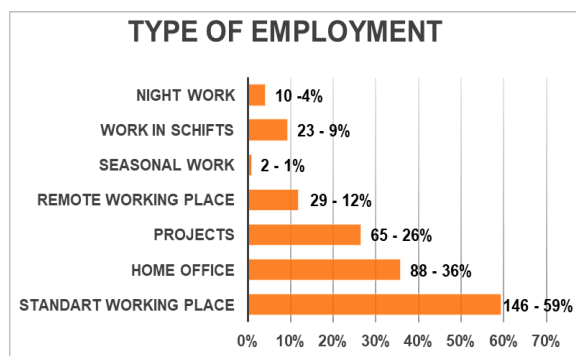


Fig. 9. Preferences for workplace organisation

## Conclusion

Working time management is becoming an increasingly important element of companies' competitive strategies. Adapting to consumer demands and the dynamic environment requires a more diverse distribution of production time. As a result, new forms of flexible working hours have been introduced, and will continue to be, to allow for organisational flexibility and the adoption of flexible working schedules. Protection of the health and safety of workers must continue to be regarded as the primary task of any working time regulation. Flexibility of working hours is also important for individual workers to be able to better adapt their work schedules to each stage of their lives and to their individual preferences.

## References

Average Working Hours (Statistical Data 2021), <https://clockify.me/working-hours>

Baltes, B. B., Briggs, T. E., Huff, J. W., Wright, J. A., & Neuman, G. A. 1999. Flexible and compressed workweek schedules: A meta-analysis of their effects on work-related criteria. *Journal of Applied Psychology*, 84(4), 496–513. <https://doi.org/10.1037/0021-9010.84.4.496>, Copyright: © 2012, Pages: 27

Boulin, Jean-Yves, Michel Lallement, Jon C. Messenger and François Michon. 2006. Decent working time New trends, new issues, Copyright © International Labour Organization 2006, First published 2006, ISBN 978-92-2-117950-4; DOI: 10.4018/978-1-60960-783-8.ch614

Chalkiti, Kalotina (Charles Darwin University, Australia) and Dean Carson (Charles Darwin University, Australia)- Knowledge Cultures, Competitive Advantage and Staff Turnover in Hospitality in Australia's Northern Territory, January 2009 DOI: 10.4018/978-1-60566-790-4.ch010, In book: *Cultural Implications of Knowledge Sharing, Management and Transfer* Publisher: IGI Global

Cristea, Mihai-Alexandru. Which EU Countries Have the Longest Average Working Week? 02/06/2021, <https://business-review.eu/future-of-work/which-eu-countries-have-the-longest-average-working-week-220545>

Dimitrov A., N. Ivanova, R. Nesheva, N. Yanev. 2021, Preparation of industrial data for implementation in big data, *Annual of the University of Mining and Geology "St. Ivan Rilski" – Sofia*, ISSN 2738-8808 (print) ISSN 2738-8816 (online), Volume 64, p. 151-155

Dunn, Ashley: „2021 Trends: flexibility in the workplace“, <https://www.workdesign.com/2020/12/2021-trends-flexibility-in-the-workplace/>

Employment outlook, CHAPTER 5, Working hours: latest trends and policy initiatives pp153-158, Organisation for Economic Co-operation and Development (OECD)

European Institute for Gender Equality (EIGE) Work-life balance (2019) / Flexible working arrangements in European Union <https://eige.europa.eu/gender-equality-index/thematic-focus/work-life-balance/flexible-working-arrangements>

Figul, S. 2018. *Masterarbeit*. TU – Sofia.

Getova, Iglia & Anastasova, Yordanka & Yanev, Nikolay & Trifonova, Mariana. 2021. Results and trends in e-learning of students, conducted during a lockdown, p. 4938-4943, *14th annual International Conference of Education, Research and Innovation*, DOI: 10.21125/iceri.2021.1130.

Getova, Iglia & Yanev, Nikolay & Anastasova, Yordanka & Trifonova, Mariana. 2021. Study and analysis of students' attitudes to their training in an electronic environment, *13th International Conference on Education and New Learning Technologies*, p. 3842-3849, DOI: 10.21125/edulearn.2021.0812.

Giattino, Charlie, Esteban Ortiz-Ospina and Max Roser. Working Hours, First published in 2013; most recent substantial revision in December 2020.

Global Employment Trends for Youth 2020: Technology and the future of jobs International Labour Office – Geneva: ILO, 2020 ISBN 978-92-2-133505-4 (print) ISBN 978-92-2-133506-1 (web pdf)

Hoepner, Stefani. Where they work only four days a week 17.02.2022, <https://p.dw.com/p/47B5s>

Iliev, Zhivko. 2021. Simulation modal analysis of the driving sprocket of a scraper-chain conveyor", *XVI International Conference of the Open and Underwater Mining of Minerals*, Varna, Bulgaria. ISSN 2535 – 0854, pp 304-309

- Ilieva D. 2018. <https://otgovori.info/vidove-rabotno-vreme>  
Institute of public administration (ИПА), <https://www.ipa.government.bg> (in Bulgarian)
- Institute of public administration (ИПА), <https://www.ipa.government.bg>, Analysis of good practices and preparation of proposals for the introduction of flexible working conditions, 2017, <https://www.ipa.government.bg/bg/analiz-na-dobri-praktiki-i-izgotvyane-na-predlozheniya-za-vvezhdane-na-gvkavi-usloviya-na>, (in Bulgarian)
- Organisational Learning and Knowledge: Concepts, Methodologies, Tools and Applications, ISBN-13: 978-1609607838, ISBN-10: 160960783X, SciTech Book News Book News Inc., December 2011
- Petrova, Vessela, Borianna Trifonova, Borislava Galabova, Emil Dimov. 2021: Challenges in human resources management in the context of the covid-19 pandemic, *International Scientific and Practical Conference Sustainable development and socioeconomic cohesion in the 21st century: trends and challenges*, Svishtov, 8th - 9th November 2021, ISBN 978-954-23-2069-2 (print) ISBN 978-954-23-2070-8 (online), pp 34-42
- Savov, Nikolay, Teodora Hristova, Petya Gencheva, Exploring possible accidents and recommendations for biological waste treatment installations, *Quality-Access to Success*, 20(SI), January 2019, p. 195-200, ISSN 15822559, [https://www.srac.ro/calitatea/en/arhiva/supliment/2019/Q-asContents\\_Vol.20\\_S1\\_January-2019.pdf](https://www.srac.ro/calitatea/en/arhiva/supliment/2019/Q-asContents_Vol.20_S1_January-2019.pdf)
- Smith, Rob. This country works the longest hours in Europe 20 Feb 2018. <https://www.weforum.org/agenda/2018/02/greeks-work-longest-hours-in-europe/>
- Trifonova, B. 2020. Committed employees – innovative competitive advantage of mining companies, *Journal of Mining and Geological Sciences*, 63, MGU “St. Ivan Rilski”, p.344-347
- Vassileva-Ivanova S.: "Preconditions for Ergonomic Working Places '2021" in *FDIBA Conference Proceedings*, vol. 5, Nov. 2021, pp. 37-40
- World Economic Forum, 2022, <https://www.weforum.org/agenda/2018/02>