
PROPOSAL OF AN EFFECTIVE TIME MANAGEMENT SYSTEM

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Abstract

In this study, we review studies on time management and propose an effective time management system. We introduce an algorithm for identifying time management problems in the form of a decision support system, which allows a consistent review of problems in this area and can be used by individuals and teams. We have proposed and described a series of actions and measures to address each of the five identified problems, i.e., procrastination, inability to achieve long-term, medium-term and short-term goals, and a permanent lack of time (personal or professional).

Possible applications of this system include a preliminary description of one's time use during the day, tracking spent time, analysis of results, "bottlenecks" identification, setting rating points, repeating the study, and summarizing. The presented effective time management system has a theoretical basis and practical application in personal and working time organization.

Keywords: *time management, time management problems, procrastination, effective time management system*

1. INTRODUCTION

Time has become a valuable asset and a limited resource in a volatile world that never sleeps. Thus, the issue of effective time management is of particular importance. Thomas (2020, p. 4) explains that *"time management is about managing your time with a focus on achievement: of doing and completing those things which you want to do, and which need doing."*

Regardless of the activity's field, every personnel manager looks at the employee's professionalism, qualifications, stress resistance, and ability to work effectively as part of a team. However, it is essential to distribute responsibilities and organize the work properly once the right person is found. At this point, we want to emphasize that time management is not a rigid daily routine or a

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narrow framework into which a person fits but rather a set of practical techniques that can optimize time and achieve significant results in their activities.

Excessive work overload leads to inefficient task completion, an accumulation of unfinished work, and a general decrease in quality. At the same time, skilled workers frequently do not know how to manage time wisely and put off important tasks until the last moment.

2. LITERATURE REVIEW

In modern times, the ideas of effective time management have gained popularity. In recent years, in particular, sought-after works on management have been published for a broad audience, including Daft & Marcic (2019), Shove et al. (Eds.) (2020), Helms (2021), and Griffin (2021).

The problem of proper time management often arises in both general and higher education. After all, teachers and students have to process large amounts of educational data on a daily basis, which must be organized in such a way as to maximize understanding, processing, and assimilation in secondary long-term memory. In this regard, some papers should be pointed out. Wang (2019) studied leisure time management in the context of Internet addiction among undergraduate students in Taiwan; Agranovich et al. (2019) studied the self-organized academic activity of future teachers of elementary schools in Kazakhstan based on time management technology; Huang et al. (2020) showed the relationship between school context, principal time use, school climate, and student achievement; Wolters & Brady (2020) evaluated a self-regulated learning perspective for college students; Khiat (2022) showed how the use

of automated time management enablers could help to improve self-regulated learning; Wright & Lee (2022) investigated the characteristics of time management and its influence on students' baccalaureate work.

Lifelong learning requires managers at different levels to constantly improve their knowledge and skills related to organizational work and human resource management skills and to increase their resilience, critical thinking, and time management. Davison (2020), based on his personal experiences as a researcher, teacher, administrator, and editor, researched disruptions in this context. The author examines the nature of these disruptions and looks for ways to deal with them. Wang (2020) explores school administrators' perceptions of their work intensity in British Columbia to develop this idea. The author exudes job challenges and obstacles that need to be overcome.

The global coronavirus pandemic has changed everyone's lives and radically altered the organization of personal and work time. The compulsion to study and work remotely simultaneously has opened up additional opportunities. However, quarantine restrictions against the backdrop of severe disease in various countries worldwide have significantly increased stress, negative emotions, and foreboding and have added to the need for quality time management. Some characteristics of recovery from the COVID-19 pandemic were investigated by Morrow-Howell et al. (2020). In this paper, the authors emphasized the opportunity to improve one's time management in an aging society. Naujoks et al. (2021) formulated a concept of self-regulated resource management in the COVID-19 pandemic distant learning. Von Keyserlingk et al. (2022) compared students' stress before and after campus closure due to the COVID-19

pandemic. Their study emphasized the need to improve self-regulation and time management skills. Aldhahi et al. (2022) conducted research from a different perspective. The authors examined the relationship between students' learning satisfaction and their self-efficiency during the pandemic. In this context, time management was highlighted as a critical feature.

Malaysian scholar Samaden (2021) identifies the effectiveness of leading through efficient time management, as the leader must perform the appropriate task management to allocate their time. In addition, today, some factors affect time management - they lead to direct time savings in the performance of various activities. These include informatization, digitalization, and electronic public services. These issues were mainly studied by Van Tonder et al. (2020) and Danyliuk et al. (2021).

Another group of studies was dedicated to time management strategy. For example, Ahmad Uzir et al. (2020), Oyarzun et al. (2020), Pérez-Sanagustín et al. (2021), and Andrade et al. (2019) use actual project schedule data to compare the time forecasting capabilities of earned schedule and earned duration management and Aguinis & Bakker (2021) improve the conceptualization and measurement of time.

Scientific interest has been devoted to the subject of procrastination. Here, the most exciting papers include Zhang & Wu (2020) – investigating the impact of the smartphone on bedtime procrastination; Hooshyar et al. (2020) and Limone et al. (2020) – studying procrastination behavior; Hong et al. (2021) – answering the question of how procrastination predicts self-regulated learning; and finally, Hailikari et al. (2021) and Pinke et al. (2022) placing the understanding of procrastination in its

close relationship with the time management concept.

We can conclude that time management is on the agenda of scientists worldwide; building effective time management provides opportunities for work and personal life.

3. METHODS

The need for a detailed study of the principles and features of building an effective time management system arose from the study of the sociological and statistical reviews of the problems in this area among various countries. This specifically applies to:

- work-life balance,
- time spent on social media and YouTube
- setting goals and achieving them,
- wasting time on inefficient tasks at the office,
- daily interruptions and “time eaters,”
- procrastination,
- lockdown time-wasting,
- using time audits,
- general use of time management system.

This helped us formulate the study's goal: to develop the concept of an effective time management system considering modern realities and needs. In addition to scientific literature, statistical and sociological information, and personal practical and empirical experience, we used various general and industry-specific research methods.

In our study, we used the method of algorithm construction in the form of a decision support system, which was used,

for example, in Danyliuk & Dmytryshyn (2021). The algorithm was also developed based on the system approach method, which allows studying the object as a specific system consisting of interdependent and interconnected elements. In identifying time management problems, we used the method of comparison, induction, deduction, and scientific dialectics. We also used graphical and tabular methods to create figures and tables.

4. RESULTS AND DISCUSSION

The time management concept is based on the goal, namely focusing on its achievement. Furthermore, it depends, in turn, on the tasks (priority and non-priority), the

desire, and the ability to complete them. The employee's efficiency largely depends on their ability to maintain a work-life balance. Finally, recreation, family, sports, health, nutrition, and the ability to focus the attention on individual intellectual or cultural development. In addition, the global COVID-19 pandemic has further complicated the separation of personal and professional spheres during remote work. For example, 60% of employees reported experiencing a disrupted balance during the first wave of the coronavirus (Pellikaan, 2020). The overall time management concept (see Figure 1) is based on the well-known principles of Adair (2011).



Figure 1. Adair's ten time management principles

Source: Authors, based on Adair (2011)

We provide an algorithm (Figure 2) to identify the time management problem, which can improve personal time

management and increase the productive activities of the team.

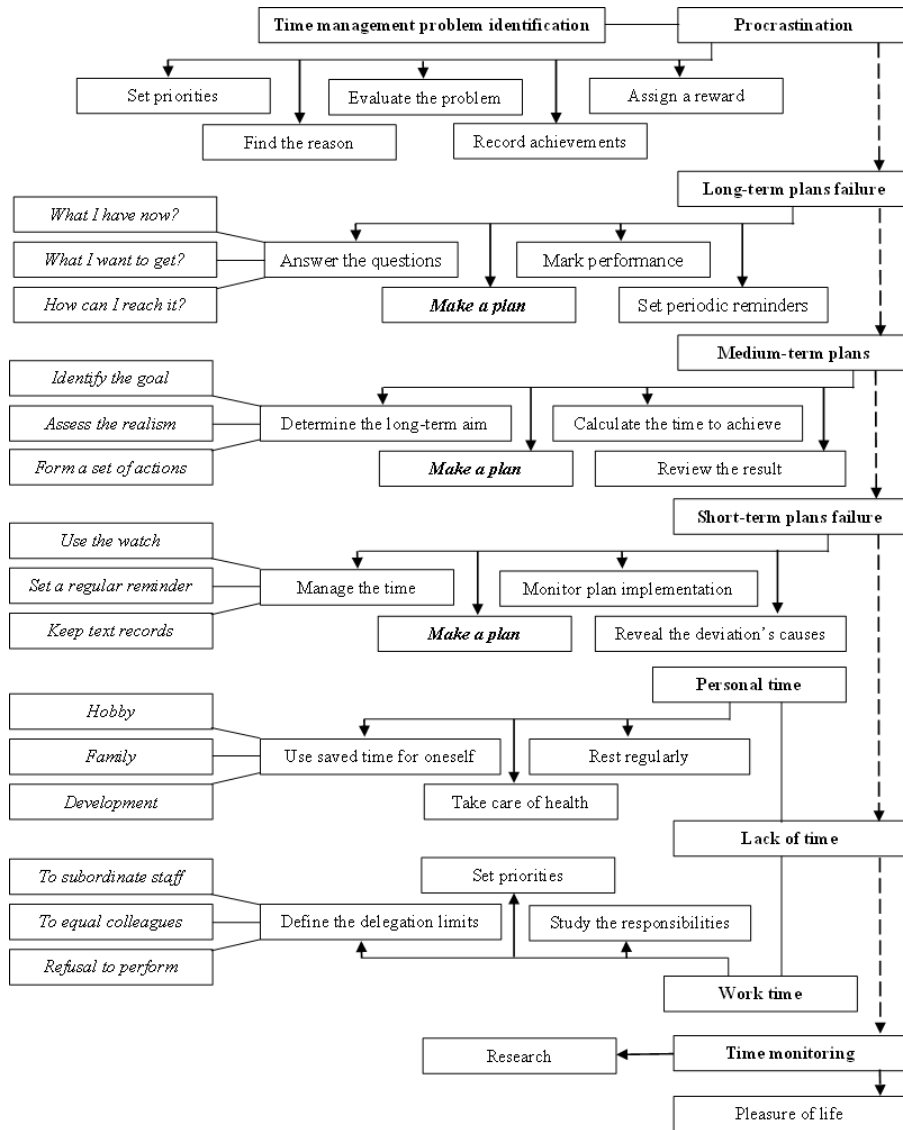


Figure 2. Time management algorithm

Source: Authors

The following points indicate problems with time management:

- lack of goals,
- lack of case planning for the day, week, month,
- work in multitasking mode,

- frequent distractions from important matters that need immediate attention, etc.

The algorithm includes the selection of the alternatives “yes” and “no” and the usual transition to the next stage. Thus, an alternative diagnosis of a particular problem

is proposed. The first stage is procrastination. Procrastination as a conceptual category is defined as *“the voluntary delay of an intended and necessary or important activity, despite expecting potential negative consequences that outweigh the positive consequences of the delay”* by Klingsieck (2013, p. 26).

The survey conducted across the UK in 2020 (How much time are your employees spending procrastinating?, 2020) showed that average full-time employees spend an average of 2 hours and 11 minutes each day procrastinating, costing them over GBP 21 billion each year. A closer look at the sector shows that employees in the beauty industry procrastinate the most (4 hours 57 minutes), while employees in the agriculture and environmental sectors procrastinate the least (57 minutes). On the other hand, child care and education, law, politics, and administration employees were relatively productive and still procrastinated for 1 hour, 16 minutes, and 1 hour 34 minutes, respectively.

Popular ways to procrastinate at work were (How much time are your employees spending procrastinating? 2020):

- texting, which takes up 28 minutes per day,
- daydreaming, which takes up 20 minutes,
- gossiping, which takes up to 18 minutes.

If a person feels the presence of this problem, then there is a transition to the arrow “yes” to the list of actions that will identify the sources of the problem and eliminate them in the future.

The next problem of effective time management is related to achieving the planned goals. The latest statistics on time

management (2021) show that 88% of people who do not set goals do not achieve better academic results. At the same time, two out of ten people who set goals notice an improvement (College students struggle with organizational skills, 2021).

In an unstable economy, with uncertainty about the future and other psychological aspects, many people may find themselves in a situation where most goals are not achieved. Furthermore, this is possible not only in the long run but also in everyday life. In such conditions, it is essential to formulate goals clearly and correctly and to set priorities. Each goal must be specific, relevant, and correspond to real-time conditions because only then will time management bring a positive result.

Thus, the user of the algorithm (Figure 2) goes through three successive stages of non-fulfillment of long-term, medium-term, and current plans. The decision support system allows us to consider all the above problems or go directly to the right one.

The last problem we highlighted is the lack of time. Time is a limited resource in its essence. Everyone has many plans and wishes, and not all can be realized. However, suppose one constantly has the feeling of not being able to keep up with what has been planned or even the impression of having no time. In that case, this can be a significant psychological and physical burden for the person concerned and significantly limit their productive activities.

In this context, a survey of college students found that (College students struggle with organizational skills, 2021):

- 48.4% say they lack time to complete their coursework;
- 87% believe better time management and organizational skills would help them achieve better grades;
- 88% want to improve their ability to manage their time.

The problem of time scarcity is divided into two subcomponents related to personal time and working time. Accordingly, various optimization methods are proposed for them. One of the leading causes are the so-called chronophages (“time eaters”), which people often ignore because they do not see any danger in them. It should be noted that the main “time eaters” are psychological addictions. In the rapid pace of informatization and digitalization, a person of the 21st century cannot imagine life without a phone. US researchers have called the smartphone a “pacifier for adults,” highlighting the psychological comfort it provides. Studies have also shown that people always look for their phones during stressful times, making them feel secure (Melumad & Pham, 2020).

A lack of personal time is often associated with excessive time spent on unproductive entertainment, such as social networking or YouTube browsing. For example, an average user spent 2 hours and 24 minutes daily on social media in 2020; YouTube takes an average of 40 minutes daily (Deyan, 2020). Due to the COVID-19 pandemic, the average time spent watching videos increased to six and a half hours per day (Media Nations 2020, 2020).

Office workers and managers at all levels also often find that they waste considerable time on small tasks. Moreover, in the context of globalization, large companies that want to remain competitive in the recruitment process pay attention to the multitasking of potential employees. However, psychologists have shown that multitasking is not a panacea but is detrimental to productivity and efficiency, forcing a person to switch between tasks or leave unfinished tasks. In other words, the human mind and brain can perform only one task (Madore & Wagner, 2019). Available research suggests that the consequence of switching between tasks is a decrease in the speed of their completion.

Executives spend up to 23 hours per week on meetings, which is over 1,000 hours per year. In a survey of one hundred eighty executives, 72% said the meetings they attended were unproductive and inefficient. In addition, 40% of working professionals said they are interrupted by chat messages, emails, and conversations more than ten or more times per day (6 scary facts about time wasting (and how to fix them), 2021).

On average, 26% of an employee’s day is wasted on avoidable administrative tasks, unnecessary tasks, and outdated work methods (How inefficient processes waste nearly a third of employees’ time, 2019) :

- 42 minutes are spent on unnecessary administrative tasks,
- 36 minutes engaged in unproductive work conversations,
- 28 minutes spent unnecessarily attending meetings,
- 26 minutes spent on outdated technology tasks.

Once the user has gone through the algorithm for all four problems and found none, we propose to examine the time consumption (Figure 3). It will reveal the “bottlenecks” and reserves to improve time management efficiency, even in successful people. The methodology of public opinion polls and their analysis were used,

particularly in Dmytryshyn et al. (2021) and Dmytryshyn (2022). Indeed, the goal of proper time management is not necessarily to do more and create an excessive burden, as to create a lightning-fast world. On the contrary, the goal may be to find peace of mind and have more time for enjoyable activities, hobbies, and family.

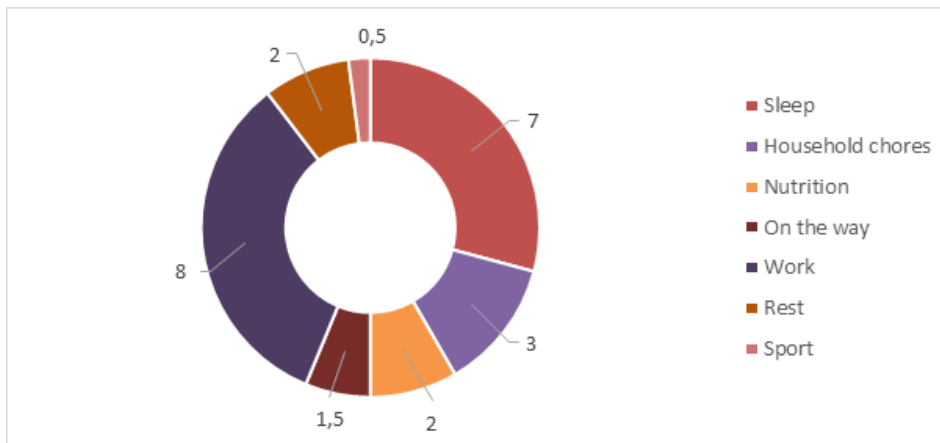


Figure 3. Time spent per day structure example

Source: Authors

If the monitoring has been done, and no problems have been found, it can be assumed that at this stage, the person has achieved sufficient efficiency in their time management and can lead a well-organized life. However, for some successful people, it is crucial to understand this at the stage of excessive stress resulting from the desire to have time for everything.

Everyone has ideas about how they want to spend their time. At the same time, even without ever having done any research, we all know what we spend it on. Therefore, in the first stage of the study, we propose to describe the components of the “time spent” category and define the amount of time spent on these activities for each category. For example, the dataset could be structured as follows (Figure 4).

Only 20% (1 in 5) of people carry out a monthly time audit to review how they spend their time. Moreover, 49% of people have never conducted a time audit (Richardson, 2021). It is suggested to plan the next day to the smallest detail and record the time spent on each category in the next stage, which can be done in any form convenient to the person: notepad, phone, or computer program. It is also appropriate to note here the periods of higher and lower activity (see example in Table 1). It is essential to leave time for spontaneous matters that may occur even with perfect planning. It should also be considered that the actual time spent may differ considerably from the imaginary one.

Table 1. Daily time check

Period	Activity	Time	Pace
Night	Sleep	00:00-07:00	Minimum
Morning	Sports (exercises)	07:00-07:15	High
	Housework	07:15-07:30	Middle
	Breakfast	07:30-07:45	Low
	Going to work (driving)	07:45-08:30	Middle
	Work (with documents)	08:30-10:30	Middle
	Rest (coffee, watching the news)	10:30-10:45	Low
Day	Work (meetings, conferences)	10:45-13:00	High
	Lunch	13:00-13:30	Low
	Rest (social media)	13:30-14:00	Low
	Work (communication)	14:00-17:30	High
	Going home (driving)	17:30-18:15	Middle
Evening	Dinner	18:15-19:00	Low
	Housework	19:00-19:30	Middle
	Rest (jogging in the park)	19:30-20:00	High
	Household chores	20:00-20:30	Low
	Rest (phone calls)	20:30-21:30	Low
	Watching a film	21:30-23:30	Low
	Rest (social media)	23:30-24:00	Low

Source: Authors

In the next step, the Eisenhower matrix can be applied to divide the cases by significant degrees. However, it is only effective if it is very detailed. The Eisenhower Matrix is named after Dwight David Eisenhower – the 34th President of the United States (from 1953 to 1961). He had

to make difficult decisions about which of the many tasks he should focus on each day, eventually leading him to invent the world-famous Eisenhower Method, which helps us prioritize urgency and importance (The Eisenhower Matrix, 2022).

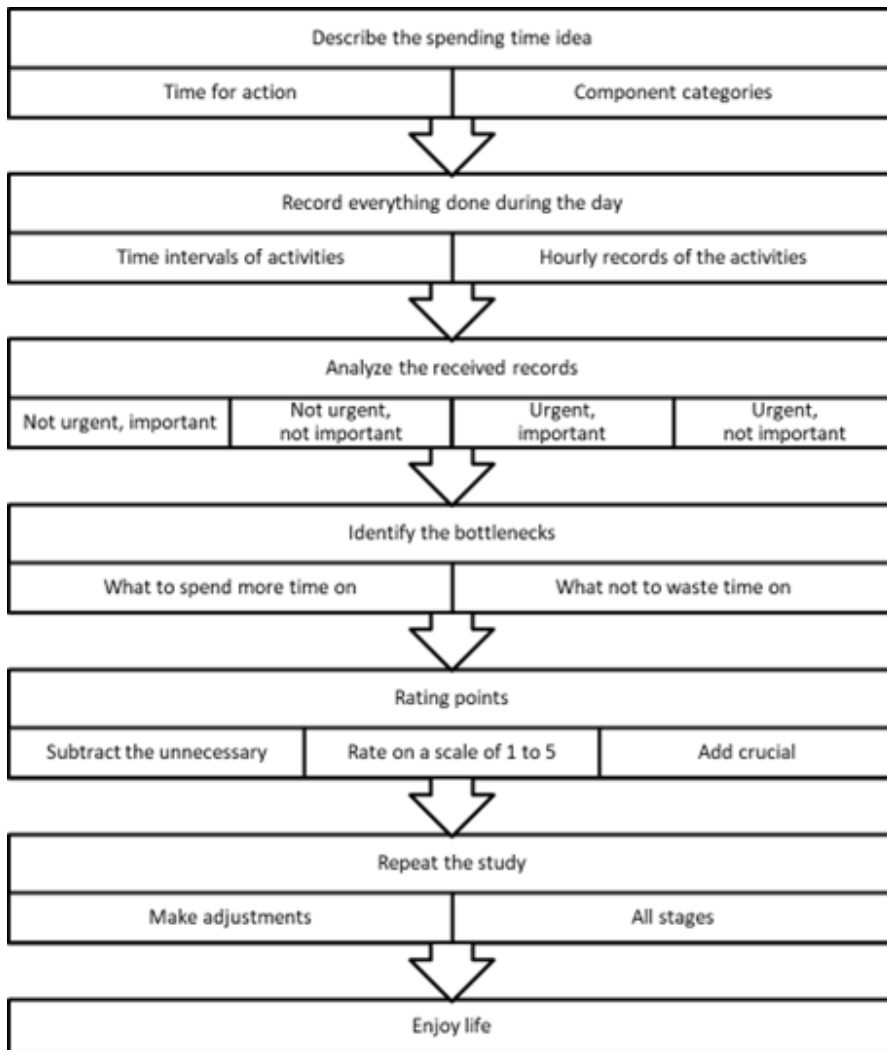


Figure 4. Time consumption study

Source: Authors, based on The Eisenhower Matrix (2022)

Next, the person determines the categories on which they want to spend more time and which they consider a waste. There will be detailed categories to optimize - for example, the workday length (although the work can be changed if desired). In addition, depending on the health condition, the person may need more sleep or exercise.

On the other hand, browsing social networks may be considered a waste of time. However, there can be no universal evaluation criteria for these categories, as they are very subjective and individual.

It will also be helpful to break down the work done by category. Then you can grade it and evaluate it by performance and waste

of time. Everyone prioritizes the use of their time. Finally, the occupation and position characteristics should be considered, as well as the list of functions and activities. Nevertheless, specific patterns lead to wasting time:

- duplicating the functions of another employee’s tasks, performing someone else’s work,
- unwillingness to delegate authority and to burden oneself with

unnecessary work that another employee can do effectively,

- performing unproductive and ineffective activities,
- spending personal time at work or vice versa.

Understanding the priorities requires setting specific goals. However, long-term goals will be pushed out to 3, 5, or 7 years. Therefore, we propose compiling goals by categories (Figure 5).

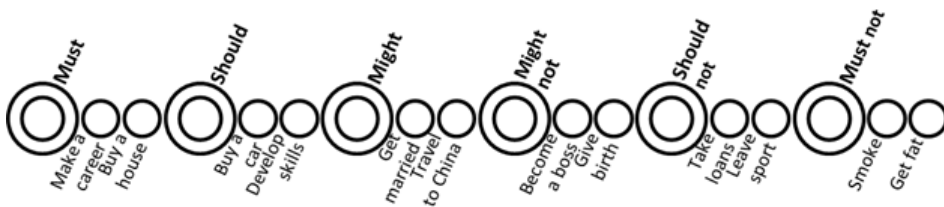


Figure 5. Goal categorization example

Source: Authors

We believe such a plan gives a person a vision of the future. It also helps to remember the essentials. Nevertheless, unfortunately, long-term plans usually require a lot of money, time, and effort to be spent over the years.

5. CONCLUSION

The modern concept of building an effective time management system is a global trend. Its application allows one to improve productivity, successfully organize time, and achieve short- and long-term goals. A well-thought-out personal time management helps to avoid postponing important matters until tomorrow, to control the periods of different activities, and to maintain the necessary balance between activities and rest periods. In the professional context,

on the other hand, time management enables us to complete tasks, identify and eliminate “time-eaters,” synchronize teamwork, and much more.

The idea of time management is based on Aida’s well-known principles, the practical application of which enables effective time organization. In turn, the Eisenhower matrix allows us to divide tasks by the degree of importance and urgency and identify those that can be delegated or rejected and those that should be emphasized.

Our time management algorithm is suitable for personal purposes as well as for managing working hours. It is designed to identify a problem step by step and includes ways to eliminate or solve it. In addition to identifying previously unknown problems, the algorithm user can formulate their goals

and set priorities more clearly. Our decision support system takes into account the impossibility of achieving goals. An obligatory element in each of the three stages is the elaboration of an action plan, which can be perfected, made more flexible, and adapted to the specific situation through the answers to the proposed questions. The study draws attention to a common problem that makes efficient and productive work impossible: lack of time. It is crucial to identify the “time eaters,” called “non-urgent and non-important tasks,” to solve this problem. Taking into account the basic principles of time management when creating the plan, we consider the possibility of adjusting all stages of the algorithm and its adaptation to individual characteristics. Separation of cases by importance and urgency, detailed description of the tasks to be done, evaluation according to criteria of time wasting, and taking into account the specifics of a particular person or situation allow one to have more time, feel confident, and achieve better results in the long run.

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PRIJEDLOG SUSTAVA ZA UPRAVLJANJE VREMENOM

Sažetak

U ovom radu dajemo pregled studija o upravljanju vremenom te predlažemo algoritam za identificiranje problema upravljanja vremenom u obliku sustava za potporu odlučivanju, koji omogućuje dosljednu provjeru problema, a kojeg mogu koristiti pojedinci i timovi. U radu također donosimo prijedlog i opis aktivnosti i mjera za rješavanje pet identificiranih problema, a koji se odnose na: odugovlačenje, nemogućnost postizanja dugoročnih, srednjoročnih i kratkoročnih ciljeva te stalni nedostatak vremena (osobnog ili poslovnog). Ukoliko korisnik algoritma među predloženim problemima ne može pronaći onog koji je specifičan za njega, predlažemo praćenje vremena prema opisanom postupku. Mogućnosti korištenja ovog sustava uključuju: preliminarni

opis korištenja vremena tijekom dana, praćenje utroška vremena tijekom dana, analizu rezultata, identifikaciju „uskih grla“, postavljanje bodova za ocjenjivanje, ponovnu analizu i sažetu prezentaciju rezultata. U radu se također daje primjer strukture utrošenog vremena po danu, dnevna provjera vremena (uključujući tempo aktivnosti) i primjer kategorizacije ciljeva. Predstavljeni sustav upravljanja vremenom ima teorijsku osnovu i praktičnu primjenu, kako u organizaciji osobnog, tako i radnog vremena.

Ključne riječi: *upravljanje vremenom, problemi upravljanja vremenom, odugovlačenje, učinkovit sustav upravljanja vremenom*