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Autonomous subordination and technological subordination as new concepts of subordinate work – in search of a new regulatory model

Podporządkowanie autonomiczne oraz podporządkowanie technologiczne jako nowe koncepcje dotyczące pracy podporządkowanej – w poszukiwaniu nowego modelu regulacji

Abstract
The article presents considerations on employee subordination, analyzed from the autonomous and technological subordination perspective. The concept of autonomous subordination is already known in the case law and the Polish labour law doctrine. The idea of autonomous subordination was formulated by the Supreme Court in the judgment of September 7, 1999, I PKN 277/99 and was maintained in the Supreme Court's case law for years to come. Technological subordination, on the other hand, is an entirely new global phenomenon originating from algorithmic management. For the purposes of this article, it is assumed that technological subordination - also referred to (with some necessary simplification) as algorithmic subordination – means that, thanks to the latest technologies and appropriate algorithms, employers have acquired entirely new and previously unknown tools for exercising authoritative influence over employees. The article's authors attempted to examine how employee subordination is currently shaped, considering autonomous subordination and technological (algorithmic) subordination, and to determine whether these two concepts of subordination can coexist or are opposed to each other. Conducting in-depth analyses in the outlined research area (also beyond the scope of this text) is important for several reasons. Firstly, there is a lack of clear

Streszczenie
Artykuł prezentuje rozważania na temat podporządkowania pracowniczego, analizowanego z perspektywy koncepcji podporządkowania autonomicznego oraz podporządkowania technologicznego. Pojęcie podporządkowania autonomicznego jest już znane zarówno w judykaturze jak i w doktrynie polskiego prawa pracy. Koncepcja podporządkowania autonomicznego została bowiem sformułowana przez Sąd Najwyższy w wyroku z dnia 7 września 1999 r., I PKN 277/99, a przez kolejne lata była podtrzymywania w orzecznictwie Sądu Najwyższego. Natomiast podporządkowanie technologiczne jest zupełnie nowym zjawiskiem, o charakterze ogólnoświatowym, mającym swoje źródło w zarządzaniu algorytmicznym. Na potrzeby niniejszego artykułu podporządkowanie technologiczne, stosując niezbędne uproszczenie, określane tutaj także jako podporządkowanie algorytmiczne, sprowadza się do tego, że dzięki najnowszym technologiom (odpowiednim algorytmom), pracodawcy zyskali zupełnie nowe, nieznane dotąd narzędzia władczego oddziaływania na pracowników. Autorzy artykułu podjęli próbę zbadania jak obecnie kształtuje się podporządkowanie pracownicze z uwzględnieniem koncepcji podporządkowania autonomicznego oraz podporządkowania technologicznego (algorytmicznego) oraz ustalenia czy te dwie koncepcje mogą współistnieć ze sobą, czy też wyklu-

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regulations about employee subordination as the most important structural feature of the employment relationship. Secondly, the understanding of employee subordination changes due to dynamic socio-economic changes. Thirdly, due to the fact that the concepts of autonomous subordination as well as technological subordination can be considered not only in employment relationships, but also in non-employment work relationships. In the summary of the conducted research, the article's authors included *de lege lata* conclusions and proposed considering the introduction to the Polish Labour Code of an intermediate category between an employment relationship and non-employment civil-law work.

Keywords
employment relationship; employee subordination; autonomous subordination; technological subordination; algorithmic management

czają się. Przeprowadzenie pogłębionych analiz w zakreślonym obszarze badawczym (wykraczających także poza ramy niniejszego tekstu) jest istotne i to z kilku powodów. Po pierwsze ze względu na brak jednoznacznych regulacji normujących, *de facto* najważniejszą, cechę konstrukcyjną stosunku pracy, jaką jest podporządkowanie pracownicze. Po drugie z uwagi na fakt, iż pojmowanie podporządkowania pracowniczego zmienia się w wyniku dynamicznych przemian społeczno-ekonomicznych. Po trzecie, ze względu na okoliczność, że koncepcje podporządkowania autonomicznego, jak również podporządkowania technologicznego można rozważać nie tylko w stosunkach pracy, ale także w stosunkach zatrudnienia o charakterze niepracowniczym. W podsumowaniu przeprowadzonych badań autorzy artykułu zamieścili wnioski *de lege lata* oraz zaproponowali rozważanie wprowadzenia do polskiego kodeksu pracy kategorii pośredniej pomiędzy stosunkiem pracy a stosunkami zatrudnienia niepracowniczego.

Słowa kluczowe
stosunek pracy; podporządkowanie pracownicze; podporządkowanie autonomiczne; podporządkowanie technologiczne; zarządzanie algorytmiczne

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Initial remarks

According to Article 22 § 1 of the Act of June 26, 1974 – the Labor Code (consolidated text: Journal of Laws of 2023, item 1465; hereinafter referred to as the "Labor Code"), "by establishing an employment relationship, the employee undertakes to perform work of a specified type for the employer and under the employer's direction, as well as at the place and time designated by the employer, while the employer undertakes to employ the employee for remuneration." The characterization of work as performed "under the direction of the employer" was introduced into the Labour Code in 1996. This amendment to Article 22 § 1 of the Labour Code, which emphasized the principle of employee dependence on the employing entity, was not substantive in nature, as performing work under conditions of organizational subordination was always considered by doctrine and jurisprudence to be inherent to the essence of the employment relationship (the so-called non-codified principle of the employment relationship) (Bury, 2006; Raczyński, 1930; Sissle, 1930). The amendment to the Labor Code in 2002 expanded the normative content of the employment relationship regulation to include the elements of place and time of work designated by the employer. The employee is obliged not only to perform work under the direction of the employer but also at the place and time designated by the employer.

The literature emphasizes that "although Polish labour law does not define the concept of employee subordination nor specify its determinants, doctrine, and jurisprudence frequently refer to this term and generally assign it a paramount place in assessing a given legal relationship as an employment relationship" (Musiała, 2015). In the judgment of November 25, 2005, I UK 68/05, the Supreme Court confirmed that subordination constitutes a feature that is structural for the existence of an employment relationship. Unfortunately, there is a divergence of views in jurisprudence and science regarding what "employee subordination" essentially is; similarly, the relationship between the concept of "direction" and the term "subordination" is a subject of dispute in the doctrine (Bury, 2006).

It should be noted that at the turn of the 20th and 21st centuries, the concept of "autonomous subordination" was developed in jurisprudence (Supreme Court judgment of September 7, 1999, I PKN 277/99). According to the Supreme Court, "the concept of employee subordination to the employer evolves with the development of social relations" (...) "in place of the former system of strict hierarchical subordination of the employee and the obligation to follow the employer's instructions even in the technical aspect of the activity, a new autonomous subordination emerges, consisting of assigning tasks to the employee by the employer without interfering in the manner of performing these tasks."

Certainly, the approach to employee subordination is also changing (evolving) with the progressing socio-economic transformations (Duraj, 2015). The direction of these changes aims at increasing the autonomy and

independence of the employee (Tomaszewska, 2022), although there are also different concepts according to which the development of new technologies may significantly increase the element of employer control over the employee (e.g., through so-called technological subordination), (Bąba, 2022a). Technological, or algorithmic (as a necessary simplification[1]), subordination means that thanks to the latest technologies (appropriate algorithms), employers have gained completely new, previously unknown tools of authoritative influence on employees. This applies not only to employment relationships but to all, broadly understood, work relationships.

The prevalence of the employment relationship, the lack of regulation that would precisely norm the most significant structural feature of this relationship, as well as dynamic socio-economic transformations, justify conducting in-depth theoretical research on the legal aspects of employee subordination.

The article's authors attempted to examine how employee subordination is currently shaped, considering autonomous subordination and techno-logical (algorithmic) subordination, and to determine whether these two concepts of subordination can coexist or are opposed to each other. The hypothesis of this study is that autonomous subordination and techno-logical (algorithmic) subordination, while conceptually distinct, are not necessarily mutually exclusive; rather, their coexistence depends on the degree of algorithmic control implemented by the employer and the nature of the work performed.

Conducting in-depth analyses in the outlined research area (also beyond the scope of this text) is important for several reasons. Firstly, there is a lack of clear regulations about employee subordination as the most important structural feature of the employment relationship. Secondly, the understanding of employee subordination changes due to dynamic socio-economic changes. Thirdly, due to the fact that the concepts of autonomous subordination as well as technological subordination can be considered not only in employment relationships, but also in non-employment work relationships.

The concept of autonomous subordination

The literature emphasizes that "subordination permeates all the duties of an employee, leaving a mark on the employment relationship, and therefore (...) it can be considered one of the main principles of labour law, helpful in interpreting its provisions" (Musiała, 2015; see also Salwa 1957). According to M. Święcicki, employee subordination is a particular characteristic of labour law (Święcicki, 1968). The role of employee subordination also extends far beyond the rigid framework of individual labour law. The employment relationship is part of the broader concept of employment or remunerated work, and the law does not presume an employment relationship in every situation where an individual performs work organized by an employer, even under their control and direction. Thus, the legal definition of the employment relationship does not preclude work based on civil law contracts. According to established views, within the boundaries defined by the agreed type of work and the needs of the employer, the employee is obligated to follow the employer's instructions that specify their duties. This constitutes a significant distinction in the employment relationship compared to other civil law obligation relationships (Święcicki, 1957). At the same time, the current interpretative doubts and new concepts concerning the conceptual scope of employee subordination certainly complicate the correct understanding of the legal construction of the employment relationship.

Over the years, the Supreme Court has consistently supported the concept of autonomous subordination, first presented in the aforementioned Supreme Court judgment of September 7, 1999. However, in the judgment of September 22, 2020, the Supreme Court did not negate the previous understanding of autonomous subordination but emphasized that "(...) even in relation to autonomous subordination, it must be accepted that the employer retains the right to issue binding work-related instructions to the employee. This right of the employer is recognized by the doctrine as a fundamental manifestation of employee subordination. (...) Following instructions is the foundation of the mutual relationship between the parties to the employment relationship. In other words, the essence of contractually subordinated work is the ability to daily specify the employee's duties, particularly the activities falling within the agreed type of work and how to perform them. The characteristic availability of the employee in the employment relationship is expressed precisely in the obligation to undertake tasks according to the employer's indications, and the obligation to follow the supervisors' instructions is highlighted in Article 100 § 1 of the Labor Code. Employee subordination should not be equated with the supervisor's permanent oversight (observation) of the manner or proper pace of performed activities; it is sufficient to specify the task and set a deadline for its completion, followed by the quality and timeliness control of the work done. What is important, however, is that the employee does not have the autonomy to determine ongoing tasks, as this belongs to the employer's domain organizing the work process (see Supreme Court judgment of May 10, 2018, I PK 60/17, LEX No. 2486218)" (Supreme Court judgment of September 22, 2020, I PK 126/19).

It is worth noting that discrepancies in understanding autonomous subordination exist not only between the views of the doctrine and jurisprudence but also within the Supreme Court's own case law. For example, in the aforementioned judgment of September 22, 2020, the Supreme Court's position remains ambiguous. While

characterizing autonomous subordination, the Supreme Court on one hand supported the inalienable right of the employer to issue binding instructions to the employee, as cited above. On the other hand, it leaned towards the concept that in some cases, "managerial powers of the employer are not (...) exercised by issuing direct instructions to the employee in the work process but are expressed in defining tasks and conditions under which they are to be performed." According to the Supreme Court, such cases concern individuals managing a given economic entity ("The new subordination called autonomous, consisting of assigning tasks to the employee by the employer without interfering in how they are performed, applies particularly to managerial staff holding the highest positions in a given economic entity (...). This includes, for example, members of the management boards of commercial companies, directors, and top management executives. In this subordination system, the employer specifies working hours and assigns tasks, while the way of accomplishing these tasks is left to the employee. (...) The essence of such employee subordination is that the employee does not have autonomy in determining ongoing tasks, as this belongs to the employer's domain organizing the work process. (...) An employee working under conditions of autonomous subordination organizes their work themselves and is not under constant and direct supervision of a person acting on behalf of the employer" (Supreme Court judgment of September 22, 2020, I PK 126/19).

The views presented by the Supreme Court in the judgment of September 22, 2020, differ, for example, from the concept of autonomous subordination outlined by the Supreme Court in the judgment of March 7, 2006 (I PK 146/05). This concept goes much further, proposing a broader understanding of autonomous subordination ("a person holding an independent, managerial position may work within the so-called autonomous subordination, where the employee independently shapes their working time, place, and the manner of performing the assigned tasks" – Supreme Court judgment of March 7, 2006, I PK 146/05). In the judgment of April 13, 2016, II PK 81/15, the Supreme Court advocated for a broad interpretation of the subjective scope of the concept of autonomous subordination. Specifically, the Supreme Court indicated that autonomous subordination could apply not only to persons (employees) holding managerial positions with the employer or even managing the workplace or its part but also to creative professions, as well as to individuals employed under task-based working time, teleworkers, and mobile employees. According to the Supreme Court, the constant issuance of instructions to these groups of employees would be illusory (see Supreme Court judgment of April 13, 2016, II PK 81/15). It is, therefore, essential to bear in mind that the Supreme Court's jurisprudence regarding the understanding of autonomous subordination is diverse[2].

Discrepancies in understanding the concept of autonomous subordination are also evident when comparing the views of the judiciary with those of the doctrine. While the Supreme Court's rulings demonstrate approval of the concept of autonomous subordination, the doctrine does not lack critical voices against this legal construct. For example, A. Musiała points out that with such a broad understanding of subordination as desired by the Supreme Court, almost any legal relationship involving the remunerated provision of work for another could be classified as an employment relationship (Musiała, 2009, p. 103). T. Duraj, on the other hand, believes that the universal "core" constituting any employee subordination should be the employer's right to specify employee duties through binding instructions (Duraj, 2015, p. 176). Consequently, labour law scholars rightly emphasize that *de lege lata*, autonomous subordination is unacceptable because "it does not account for the employer's right to specify – through binding instructions – employee duties, which is a sine qua non condition for the existence of employee subordination in any employment relationship" (Duraj 2014). Thus, as seen from the above, the so-called concept of autonomous subordination (developed by the Supreme Court) is widely criticized in the doctrine. It is believed that the Supreme Court, in its judgment of September 7, 1999 (I PKN 277/99), and in subsequent rulings that replicate or expand on the theses concerning "autonomous subordination" exceeded its competencies by engaging in law-making activities and disrupting the balance between the managerial powers of the employer and the guarantee of employee independence and autonomy (e.g., Duraj, 2014; Musiała, 2009).

The concept of technological subordination contrasted with the concept of autonomous subordination

In contrast, technological subordination arises from algorithmic management and is inherently linked to it. Algorithmic management is defined as "[t]he use of computer-programmed procedures for the coordination of labour input in an organization. (…) Algorithmic management is associated with many key digital technologies: big data analytics, machine learning, geolocation, connected mobile devices, wearables, etc. It should be understood as a specific way of combining and using those technologies to automate or at least support some of the functions previously carried out by human management for the coordination of work. In this sense, algorithmic management is a socio-technical process" (Baiocco et al. 2022, 5, 8). Algorithmic management involves automatic systems that simulta-neously direct, evaluate, and discipline employees, reducing the role of human managers to appropriately respond to system requests for intervention (Wood, 2021, p. 12). In practice, algorithmic management means that

"[w]orkers accept tasks and schedules automatically assigned to them; direction in how they carry out their work by computer software that also dictates the timeframe that they have to complete it. It also involves the real-time and continuous evaluation of work performance generated from data points such as customer satisfaction ratings and behavioral, emotional, and biological metrics" (Wood, 2021, p. 13). Thus, we are dealing with a phenomenon where "(...) instead of supervisor instructions, there is a state of permanent and continuous control and constant supervision by software. This involves the requirement for employees to stay connected to devices, sensors, scanners, and applications, which can be linked into a closed data loop through algorithms. (...) Continuous observation makes each employee visible, while the employer becomes omniscient and omnipresent. The employer's power starts to focus on supervision, not instructions, in maintaining its continuity and its permanent presence. (...) Constant supervision ensures continuous, uninterrupted interference without the need to issue any instructions regarding the place, time, and manner of performing work. (...) Therefore, employee subordination is no longer solely determined by law; it is also defined by technology. (...) Technology begins to overshadow the legal construct of subordination, embedding itself into its structure, thereby becoming a technology organizing power over employees" (Bąba, 2022a, p. 88–89, 99). Such a strong influence of technology on the work process also leads to a change in the traditional nature of employee subordination. As M. Bąba emphasizes, subordination becomes homogeneous, its distinctiveness disappears, and autonomous subordination loses significance[3]. Algorithms do not distinguish between autonomous and traditional subordination. All employees, even those who previously had significant operational autonomy, are equally subjected to algorithmic control through the information they generate (Bąba, 2022a, p. 90). Of course, in the claim of homogenization of employees in technological subordination, one should keep in mind the differences in the algorithms used by different systems and the ability to take individual parameters into account when assigning tasks. The new phenomenon of technological subordination currently does not apply to every type of work and all employees. However, the ongoing digitization of the economy leads to the expansion of algorithmic management to more traditional work environments, such as factories, offices, hotels, and retail and wholesale warehouses (Baiocco et al. 2022, p. 5). Algorithmic management and the resulting technological subordination have thus ceased to be the domain of work through digital platforms and are now in a phase of intensive proliferation.

Comparing the well-known autonomous subordination with the emerging technological subordination raises the question of whether these conceptual constructs are entirely opposed to each other or, on the contrary, whether it is possible for them to coexist harmoniously and complement each other. A superficial look at both conceptual constructs might lead to the conclusion that it would be difficult to identify common features between these institutions, and thus, they are oppositional. However, answering this question requires in-depth research. Therefore, it becomes necessary to compare the characteristic features of each of these two types of subordination. It should be noted, however, that in both analyzed types of subordination, a common goal can be identified, which they are intended to serve. In both cases, this goal is the highest possible work efficiency, translating into tangible benefits for the employer. However, autonomous subordination and algorithmic subordination use completely different means to achieve this goal. These means also determine the characteristic features of each of these two types of subordination.

Moving to a direct comparison, it should be noted that in the case of autonomous subordination, individualization comes to the forefront, which can be defined as bringing out the unique characteristics of an individual. The employer thus grants the employee considerable autonomy[4], expecting in return the employee's creativity and innovative actions. The employer aims to extract the maximum potential from the individual (specific employee). The result is expected to be higher work efficiency, requiring conceptual, unconventional solutions, improved compared to those previously known and used by other employees. By limiting their authority over the individual (specific employee), the employer hopes to ultimately gain a benefit greater than what could be expected using standard solutions (traditional subordination).

In the case of algorithmic subordination, the situation is entirely different. While the goal remains the same (maximizing efficiency), individualization as a means to achieve this goal is hard to find. On the contrary, in algorithmic subordination, there is a maximal restriction of the individual's (employee's) autonomy in favor of rational control based on impersonally implemented, encoded principles. Moreover, in algorithmic management, the principles must be unambiguously encoded to allow for their automatic (algorithmic) implementation. Consequently, deviations from the established principles are not permissible, and all decisions made algorithmically are impersonal. Researchers of this issue emphasize that impersonality is not synonymous with fairness. This means that the established principles can be biased and unjust, and consequently, decisions made by algorithmic systems will be biased and unjust, despite still being impersonal (Baiocco et al. 2022, p. 9).

Simultaneously, a distinguishing feature of algorithmic subordination is its focus on the collective rather than the individual. As M. Bąba highlights, through algorithmic management, the employer directs attention to the collective of employees, which they manage and subordinate. Technological subordination

is based on massification and addresses "[n]ot a specific employee, but employees as recursive sets, algorithms organized according to mathematical methods, whose functioning is based on a certain specified pattern of information, on some single principle organizing every form of work. Employers, in essence, manage a set of processes defining the scope of their authority, focusing solely on the issue of efficiency. The collective thus becomes subject to processes controlled entirely by technology" (Bąba 2022a, p. 100).

From the employers' perspective, this is significant as they are oriented towards so-called collective efficiency. It is easy to demonstrate and model using mathematical methods, capturing and correcting even the smallest irregularities that may occur within the collective of employees. In this "[s]ystem of work organization, employees become almost identical, interchangeable, averaging their characteristics, and they almost cease to exist as individual objects. (...) [T]he perspective of the individual disappears – in the world of work dominated by technology, the individual is not the reference point" (Bąba, 2022a, p. 101).

Given the above, traditional employee subordination loses its significance as it does not align with the strategy of collective efficiency. Employers utilizing algorithmic management lose interest in individually assessed efficiency because it is "[a] phenomenon to some extent random and not entirely predictable, unfriendly to technology, as it is largely influenced by human factors (thus non-algorithmic factors)" (Bąba, 2022a, p. 100). However, through algorithmic subordination, employers gain a new type of authoritative influence over employees. This influence involves not only organizing the work process but also "ultimately ensures that employment can continue despite the accompanying continuous layoffs and the temporariness of the legal relationships under which work is performed (fixed-term contracts, temporary employment through agencies)" (Bąba, 2022a, p. 101).

The individualization characteristic of autonomous subordination and the maximal restriction of employee autonomy, impersonality, and massification distinguishing technological subordination thus situate themselves at two opposite poles. It seems, therefore, that the occurrence of autonomous subordination excludes the existence of technological subordination and *vice versa*. However, it should be noted that the above conclusion primarily concerns the potential offered by the algorithmization of the work process. Algorithmic management equips employers with the ability to minimize the autonomy of individual employees while simultaneously increasing their efficiency and lowering labour costs. The existence of such potential does not, however, equate to its utilization. The decision on whether and how to apply algorithmic management rests with the employer. This means that, in practice, we will not always encounter a form of algorithmic management that involves the employer exercising absolute control over the employee.

Research conducted by Alex J. Wood et al. shows that in the practical model of algorithmic management, employees were provided with considerable autonomy and freedom of action. As the researchers emphasize, "[W]hat is notable about this algorithmic system of control in terms of job quality (…) is that control operated at the end of the labour process rather than during it. This afforded workers freedom to work however they wished as long as the end product was accurate or satisfactory to the client. (…) This is echoed in our survey, where 72% of respondents felt able to choose and change the order in which they undertook online tasks, and 74% were able to choose or change their methods of work" (Wood et al. 2019).

Therefore, if algorithmic management in practice can take a flexible form, it must be stated that in such a model of work process management, algorithmic (technological) subordination does not exclude the coexistence of autonomous subordination and is not opposed to it. In practice, everything will thus depend on how strictly or flexibly the employer uses algorithmic systems. Two elements will also be significant in this area. Firstly, the type of work performed: intellectual or physical. Secondly, reducing labour costs. The phenomenon of the algorithmization of the work process has the potential to spread rapidly, as it allows for the reduction of labour costs, among other things, through algorithmic subordination. Algorithmic management mobilizes masses of employees performing repetitive, physical tasks who quickly enter production cycles and can be equally quickly deprived of employment (Delfanti, 2021). Training for new employees is swift and aimed at teaching them a specific work process. In the case of algorithmic management, the demand for employee knowledge, which would otherwise be necessary to perform the work, simultaneously decreases (Wood,2021, p. 9–10). Employees operate within a strictly defined framework, which cannot be violated or modified. As a result, researchers highlight that algorithmic management may reduce the need for employers to invest in employee skill development. Simultaneously, it will foster an increase in the number of temporary employees and the expansion of cooperation with self-employed individuals to reduce the costs of replacing employees (Wood, 2021, p. 10).

The above primarily relates to physical work (e.g., work in Amazon distribution centers), which is inherently susceptible to standardization and which, for achieving the highest productivity, essentially does not require the application of autonomous subordination. The situation is different for intellectual work that requires creativity, conceptualization, and the search for non-standard solutions. Such work is less susceptible to the process of algorithmization and technological subordination, which in its most restrictive form[5] could have the opposite effect to the intended one (demoti-

vating employees, fear of constant monitoring, lowering the level of diligence). However, even in this area, there is progress, including the use of algorithmic management to automate tasks that were previously key management functions. This reduces the demand for lower and middle-level managers, allowing for the reduction of labour costs (Wood, 2021, p. 9–10).

It is also worth noting a phenomenon that can be described as apparent autonomous subordination, which is a result of algorithmic management. This involves granting employees the freedom to decide how and in what order to complete their assigned tasks. However, the constant pressure that employees feel due to continuous monitoring of their work by various algorithmic systems causes them to impose stricter standards on themselves, which theoretically are not required by the employer. This can manifest in increased work intensity, extended working hours, and experiencing higher levels of stress and uncertainty (Wood, 2021, p. 10).

Concluding remarks

Modern digital technologies compel a redefinition of employer authority. In an era when control over employees is increasingly exercised through impersonal, algorithm-driven systems, the traditional association of power solely with a human employer becomes insufficient[6]. Instead, it is crucial to reconsider what autonomy entails and on what foundations rights and obligations are established when technology itself shapes the dynamics of subordination. This reorientation calls for a fresh interpretative framework of employment relations, in which digital mechanisms are understood as integral components of both authority and control.

Concluding this discussion it can be initially stated that neither autonomous subordination nor technological subordination are optimal phenomena from the perspective of both parties in the employment relationship (both employees and employers). Rigorous technological subordination is decidedly unfavorable for employees. It harms both their mental and physical health (Wood, 2021, p. 13). From the employer's perspective, the assessment will likely be different, but it may not be a long-term view. Subjecting employees to absolute technological subordination will lead not only to a breakdown in employee well-being but, paradoxically, also to a decrease in their efficiency. In such a situation, employers rely on the mass and impersonal nature of the work process under technological subordination. However, the question arises whether continuous employee turnover will be sustainable in the long term.

Conversely, autonomous subordination might seem optimal from the perspective of both employees and employers. The former have greater freedom in performing their assigned duties compared to traditional subordination. The latter, by applying autonomous subordination, aim to unleash their employees' creativity, which ultimately serves the employers' interests. However, the negative aspects of autonomous subordination should also be considered. Extensive employee autonomy may lead to a situation where, during work, the employee does not receive specific instructions from their supervisors but is expected to achieve a specific result for the employer. In the case of autonomous subordination, caution must be exercised to ensure that the employment relationship, which is a legal relationship of diligent action, does not excessively resemble legal relationships focused on results. Another important argument raised in the doctrine is that *de lege lata*, autonomous subordination is not acceptable as it violates the employer's right to issue specific instructions regarding employees' duties (Duraj, 2014).

It is necessary to conduct in-depth studies not only on issues already known to doctrine and jurisprudence but also on unresolved issues and entirely new problems arising from progressive algorithmic subordination. The literature emphasizes that "technology directly affects employees without the need for issuing orders, conversations, establishing relationships, or punishing for offenses. (…) We are dealing with technology that will always guarantee every employer an advantage, introducing procedures of domination characteristic of a new type of subordination – technological subordination" (Bąba, 2022a). This new, previously unknown form of subordination is developing very dynamically and has the potential to significantly impact not only labour relations but also broadly understood work relations and the entire work process. Investigating the phenomenon of algorithmic subordination and the interactions between auto-nomous and algorithmic subordination is therefore particularly important not only from the perspective of the present but also – and perhaps most importantly – from the perspective of the future of work and employment relations. This extensive reference to the above-mentioned issues in this justification is thus warranted.

Of course, the new phenomenon of technological subordination currently does not apply to all types of work and all employees. However, the progressing digitization of the economy is leading to the expansion of algorithmic management into more traditional work environments, such as factories, offices, hotels, and retail and wholesale warehouses (Baiocco et al., 2022, p. 5). Algorithmic management and the resulting technological subordination have thus ceased to be the domain of work through digital platforms and are now in a phase of intensive dissemination. This process accelerated significantly during the COVID-19 pandemic (Baiocco et al., 2022, p. 5). In all of this, of course, it is important not to forget the concept of the "worker" developed in the case law of the Court of Justice of the European Union: Judgments of the Court of Justice of 3 July 1986, Deborah Lawrie-Blum v Land Baden-Württemberg, C-66/85, ECLI:EU:C:1986:284;

14 October 2010, Union Syndicale Solidaires Isere v Premier ministre and Others, C-428/09, ECLI:EU:C:2010:612; 9 July 2015, Ender Balkaya v Kiesel Abbruch- und Recycling Technik GmbH, C-229/14, ECLI:EU:C:2015:455; 4 December 2014, FNV Kunsten Informatie en Media v Staat der Nederlanden, C-413/13, ECLI:EU:C:2014:2411; and 17 November 2016, Betriebsrat der Ruhrlandklinik gGmbH v Ruhrlandklinik gGmbH, C-216/15, ECLI:EU:C:2016:883.

It is crucial to clearly emphasize that the research objective extends beyond the employment relationship and also includes determining the relationship of employee subordination concerning organizational and economic dependence in civil-law work relationships, as well as in other forms of non-employment work[7]. Autonomous subordination and algorithmic subordination are phenomena (cited here as examples) that also permeate non-employment work and can decidedly be identified as common elements for both employment relationships and non-employment work relationships. From this perspective, it is important that currently, according to the Supreme Court, a civil-law contract underlying non-employment work (outside the employment relationship) may also exhibit features of management and subordination, although not the same as the dependence characteristic of the employment relationship (judgment of September 11, 2013, II PK 372/12). Similarly, in the judgment of January 21, 2021 (III PSKP 3/21), the Supreme Court emphasized that "subordination is not a condition unique to the employment relationship. Even within employment relationships, there are numerous situations where such an element of employee dependence is absent. (...) As indicated, even a contract of mandate does not exclude certain control and subordination to the contractor (cf. Supreme Court judgments of September 11, 2013, II PK 372/12 and March 28, 2017, II PK 15/16)." A. Sobczyk also points to certain categories of work which, although performed under conditions of subordination, do not constitute employment. This group includes, for example, post-graduate traineeships (Sobczyk, 2011)[8].

In this context, it should be remembered that the protective function of labour law stems from the need to establish certain guarantees and benefits for employees on a normative basis, as the employee, being the weaker party in the employment relationship (subordinate), is unable to independently secure their professional and social interests. Labour law defines the minimum rights and maximum obligations of the employee. Since it is necessary to strengthen the employee's position to balance their factually weaker position relative to the employer, perhaps this need arises in a relationship probably even more unequal. Therefore, it should be considered whether the Labor Code should directly and comprehensively regulate employment relations as a reference point for regulating other work relationships based on features of subordination and management (though not the same as in the case of an employment relationship). A detailed analysis should be conducted, also through the prism of international law and the axiological foundations of labour law, to assess the need to introduce an intermediate category (a kind of bridge between employment based on an employment relationship and non-employment civil-law work) into the codification of individual labour law, which would include relationships from other agreements of a similar nature.

Notes/Przypisy

[1] For the purposes of this article – and in view of its intended scope – we adopt a deliberate simplification by treating the terms "technological subordination" and "algorithmic subordination" as synonymous. While we acknowledge that a more granular conceptual distinction exists between the technical functioning of algorithms and the broader socio-normative role of technology, this simplification enables a focused analysis of their normative implications without unduly complicating the discussion. However, it should be made clear that the author of the concept of technological subordination (M. Bąba) does not claim in any of his texts that technological subordination results from algorithmic subordination (Bąba, 2024a). It is raised in the literature that technological subordination is more than just a problem of algorithms, it is something other than just subordination to an employer. What conditions the being of what is technical is the essence of technology, which is nothing technical (Bąba, 2024b).

[2] See also: Judgment of the Supreme Court of 9 September 2004, I PK 659/03, OSNP 2005 No. 10, item 139; Judgment of the Supreme Court of 12 May 2011, II UK 20/11, OSNP 2011, No. 11–12, item 145; Judgment of the Supreme Court of 18 February 2016, II PK 352/14, LEX No. 2004192.

[3] See also Bąba, 2022b, p. 13.

[4] In comparison to traditional subordination.

[5] The complete exclusion of employee autonomy in favor of rational control based on impersonally implemented, encoded principles.

[6] See also Drozdowicz, 2020.

[7] Also, in the case of non-employment administrative-type work, a certain kind of subordination can be discussed, which is similar to the employer-employee relationship but with significant specific differences resulting from the nature of these relationships. This type of work generally includes relationships in which officers of militarized formations are engaged in performing specific duties, particularly in the Internal Security Agency and the Intelligence Agency; the Central Anti-Corruption Bureau; the State Fire Service; the Police; the Armed Forces of the Republic of Poland; the Customs Service; the Border Guard; the Military Counterintelligence Service and the Military Intelligence Service; the Prison Service. The legal situation of the aforementioned officers is regulated by non-employee service pragmatics, which are normative acts of the rank of law.

Non-employment administrative-law work is characterized, in particular, by the public-law nature of work and increased availability. Most importantly, however, in militarized formations, there is a clear hierarchical structure (service subordination), where specific rules of peculiar subordination apply. Persons working in such formations must obey orders (not just commands, as in the employer-employee relationship).

[8] The mentioned author, allowing from a national perspective the performance of work by a trainee under conditions of subordination outside the employment relationship, seems to express the view that this subordination is the same as in the employer-employee relationship. However, a few authors signal that, legally, the subordination of a trainee is not always identical to employee subordination. A. Musiała particularly emphasizes that in the relationship between a trainee and the hosting entity, there is an additional subordination, "the one that occurs in school relations between a teacher and a student" (Musiała, 2015, p. 311–312).

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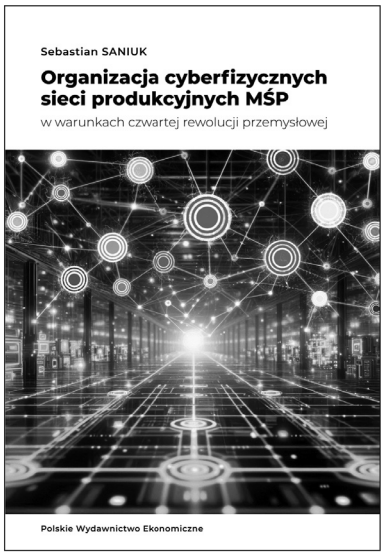
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SEBASTIAN SANIUK

ORGANIZACJA CYBERFIZYCZNYCH SIECI PRODUKCYJNYCH MŚP W WARUNKACH CZWARTEJ REWOLUCJI PRZEMYSŁOWEJ

W monografii skoncentrowano się zwłaszcza na identyfikacji poziomu dostosowania małych i średnich przedsiębiorstw (MŚP) produkcyjnych do sieciowej współpracy przy wykorzystaniu inteligentnych technologii czwartej rewolucji przemysłowej oraz na wykorzystywanych przez przedsiębiorstwa sposobach koordynacji cyberfizycznych sieci zorientowanych na realizację spersonalizowanych zleceń produkcyjnych. Dla ułatwienia nawiązywania współpracy oraz implementacji koncepcji Przemysłu 4.0 i Przemysłu 5.0 zaproponowano model biznesu cyberfizycznych sieci oparty na elementach architektury technicznej, w tym na platformie e-biznesowej pozwalającej na lepszą integrację i współpracę z klientem oraz planowanie tymczasowych cyberfizycznych sieci produkcyjnych przedsiębiorstw zorientowanych na wspólną realizację spersonalizowanych zleceń produkcyjnych. Przedstawiana konceptualizacja modelu biznesu, który opiera się na e-platformie, może zapewnić inteligentną komunikację dotyczącą zasobów MŚP poprzez automatyczną wymianę danych w czasie rzeczywistym w całej sieci oraz pozwolić sektorowi MŚP na konkurowanie z silnymi pod względem posiadanego kapitału, nowoczesnymi, inteligentnymi fabrykami przyszłości. Ponadto w pracy zaproponowano metodykę weryfikacji planowanych do realizacji spersonalizowanych zleceń produkcyjnych, która pozwoli ocenić szanse zorganizowania cyberfizycznej sieci produkcyjnej, zdolnej do terminowej i zgodnej z przyjętym budżetem realizacji takich zleceń.