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Historical Origins of Workplace Monitoring: From Ancient Oversight to Digital Taylorism

Summary

The article explores the historical development of workplace monitoring, from ancient systems of labour control to modern measures of digital surveillance. It examines how monitoring mechanisms have evolved alongside changes in technology, work organisation, and management theories – from early surveillance and record-keeping on the workforce, through moral oversight to algorithm-driven tracking of employees' behaviour and their psychological and emotional states. By analysing current trends within the historical context, the article draws attention to the cyclical nature of patterns evident in contemporary workplace monitoring models and argues that theories considered by many as outdated and incompatible with contemporary workplace conditions, continue to play a significant role in shaping labour relations. The article challenges the myth of technological objectivity and calls for a more ethical and, above all, conscious approach to the issue of workplace monitoring.

Keywords: workplace monitoring, surveillance, Digital Taylorism, management theories

1. Introduction

It is a challenging task to define workplace monitoring.¹ The notion itself is vague at best and, in general, can be described as an action of an employer which aims to observe employees by various means.² Similar definition of employee monitoring is proposed by the International Labour Organization (ILO), which in its code of practice *Protection of Workers' Personal Data* indicates that “the term ‘monitoring’ includes, but is not limited to, the use of devices such as computers, cameras, video equipment, sound devices, telephones and other communication equipment, various methods of establishing identity and location, or any other method of surveillance.”³ Therefore, ILO states that the term “monitoring” may incorporate a variety of surveillance methods, catalogue of which cannot be enumerative and closed.

It may seem quite puzzling that, despite years of research and sustained interest in this subject, it still resists a single, universally accepted definition. It is not without a reason. Employee monitoring or broader labour monitoring has been accompanying mankind for thousands of years, and so it remained a constantly evolving concept, making it exceedingly complex to encapsulate it within a unique and uniform concept. The definition of employee monitoring will evolve in line with societal changes and the dominant forms of work at the time. It will have to be defined differently in relation to hunter-gatherer societies and primitive communes, in relation to the times of the Industrial Revolution and in relation to the contemporary digital era

¹ In this article, the words “monitoring” and “surveillance” will be used interchangeably. However, it should be mentioned that in some scientific fields, these terms take on different meanings. As Kirstie Ball points out, this is particularly evident in the case of organisational sociologists and occupational psychologists. The former, concerned with power, politics, resistance and employee meaning-making, often use the term “surveillance” with a dystopian connotation. On the other hand, psychologists prefer to use the term “monitoring” because it is more neutral and does not carry the negative baggage of “surveillance.” See: K. Ball: *Workplace Surveillance: An Overview*. “Labour History” 2010, vol. 51, no. 1, p. 88.

² M. Barański, M. Giermak: *Protection of Employees' Geolocation Data in EU Law*. In: *Earth Observation & Navigation. Law and Technology*. Eds. M. Jankowska, M. Pawełczyk, S. Augustyn, M. Kulawiak. Ius Publicum, Instytut Prawa Gospodarczego, Instytut Własności Intelktualnej, Warsaw 2017, p. 199.

³ ILO: *Protection of Workers' Personal Data*, 1997, point 3, para. 3.3, https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_protect/%40protrav/%40safework/documents/normativeinstrument/wcms_107797.pdf (accessed 26.05.2026).

of Industry 4.0. Moreover, the understanding of monitoring and the connotation of the term may vary regionally, due to the experiences and history of certain nations and social groups. Societies that have experienced totalitarian or authoritarian rule,⁴ where control and surveillance were constitutive elements thereof, will have a different understanding and associations with workplace monitoring than nations with no such experiences.

On the other hand, Edwards, Martin and Henderson point out that “employee surveillance remains the Cinderella sister of surveillance studies.”⁵ It is frequently overlooked in the research and receives less attention from the public than state surveillance, especially after the Snowden case, and widely publicised cases of consumer profiling by e-commerce platforms, social media, and search engines and is often associated with the concept of “surveillance capitalism.”⁶ It raises an important question: Why does workplace monitoring receive relatively little attention despite the fact that most people spend a significant part of their lives at work? Considering its impact on individuals’ daily lives, one would expect it to be a major area of concern for both citizens and researchers. Yet, it receives less coverage than other forms of surveillance and monitoring. Could it be that, after so many years of employee monitoring, it has come to be seen as a natural aspect of work, stemming from the organisational function of an employer defined in the labour law legislation of most European countries?

Recently, under the influence of changes in the working environment, new forms and an increasingly broader scope of employee monitoring, there has been a growing and recurring interest in this topic. However, in order to fully understand the issue of contemporary workplace monitoring and the shape it has taken, it is essential to look

⁴ Such as e.g. countries of the Visegrad group during the times of Soviet-type dictatorship – Poland (Republic of Poland 1944–1952 and Polish People’s Republic 1952–1989), Czech Republic (Czechoslovak Socialist Republic 1948–1992), Slovakia (Czechoslovak Socialist Republic 1948–1992) and Hungary (Hungarian People’s Republic 1949–1989).

⁵ L. Edwards, L. Martin, T. Henderson: *Employee Surveillance: The Road to Surveillance is Paved with Good Intentions*. “SSRN” 2018, p. 11.

⁶ The term “surveillance capitalism” is originally employed by Zuboff; see: S. Zuboff: *Big Other: Surveillance Capitalism and the Prospects of an Information Civilization*. “Journal of Information Technology” 2015, vol. 30, no. 1, pp. 75–89; L. Edwards, L. Martin, T. Henderson: *Employee Surveillance...*, p. 11.

at the phenomenon of workplace monitoring from a historical perspective by examining how it has developed, how its characteristics have evolved and which scientific theories have decisively influenced its forms. Accordingly, this article will focus on analysing these aspects.

2. Five-phase model of the historical development of workplace monitoring (by Edwards, Martin and Henderson)

Many authors covering the subject of workplace monitoring in their works, when writing about its history, identify its origins with the emergence of the factory work system at the beginning of the 20th century and, above all, associate it with the person of F. W. Taylor and his work entitled *The Principles of Scientific Management*.⁷

One of the models that takes as its starting point the already mentioned historical moment of the birth of a new form and organisation of production is the five-phase model proposed by Edwards, Martin and Henderson.⁸ In that model the first phase of the historical development of workplace monitoring is referred to as “Surveillance 1.0: analogue world.” While elaborating on that phase, the authors point out that the growth of factories as a new organisational form of workplace⁹ in combination with the ideas of J. Bentham¹⁰ and F. W. Taylor, resulted in placing the main focus on workforce efficiency, which was to be significantly increased by managerial control and monitoring of employees. In the initial stage, forms of monitoring were based on the adequate distribution of tasks among workers, their close observation and the measurement of the time required to perform certain activities in the workplace. However, as employers began to attach greater importance to monitoring, the forms of monitoring expanded and became a dominant factor influencing employees’ working and wage conditions, recruitment policies, and overall work environment.

⁷ F. W. Taylor: *The Principles of Scientific Management*. Harper & Brothers Publishers, New York–London 1919.

⁸ L. Edwards, L. Martin, T. Henderson: *Employee Surveillance...*, pp. 3–4.

⁹ D. S. Landes: *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present*. Cambridge University Press, Cambridge–New York–New Rochelle–Melbourne–Sydney 1969, p. 2.

¹⁰ J. Bentham: *The Panopticon Writings*. Ed. M. Božovič. Verso, New York–London, 1995 (1787), pp. 29–95.

The second phase, "Surveillance 2.0: database nation," dates back to the 1970s and began with the increasing use of computers in the workplace, advancing digitalisation and electronic data processing. At this stage, the monitoring of employees has become more detailed, as computers used by employees as a work tool have given employers the ability to monitor the employees' interactions and activities mediated by such equipment. By monitoring the keyboard and mouse cursor activities and the programs used by the employee, employers were able to gather detailed data on the employee's behaviour and preferences. In addition, the recording of employee data in databases gave employers the ability to engage in database surveillance, that is, focusing on individual productivity and continuously comparing and analysing it against the total workforce. The usage of databases enabled the creation of extensive profiles, including access to employees' personal lifestyles. The development of data collection techniques provided fertile ground for even more sophisticated monitoring systems in the future, which increasingly encroached on employees' privacy.

The next phase of workplace monitoring is "Surveillance 3.0: the Internet and interception of communications." This phase is a continuation of the second phase, closely tied to ongoing digitisation. However, the defining characteristic that separates these two phases is the advent of the Internet, specifically its increasing use as a new tool in many workplaces starting in the mid-1990s. On one hand, this development enhanced work efficiency and led to new forms of work (e.g., telework or remote work). On the other hand, internet access in the workplace brought new risks related to its misuse by employees, such as wasting working time, neglecting duties, using the Internet for non-work purposes, or downloading inappropriate content onto company devices. Employers, recognising these threats and seeking to counteract them, began adopting new employee monitoring tools, such as checking company phone records, examining company email accounts, and reviewing the history of browsing during working hours.

These new forms of monitoring extended beyond the traditional boundaries of the workplace. Through them, employers not only obtained information about work-related activities but also accessed data about workers' private lives, such as personal opinions expressed

online, interactions on social media, and personal relationships.¹¹ Authors aptly point out that the boundary between online and real, “offline,” life is increasingly blurred. Many individuals consider their online presence an integral part of their identity, sharing details about their private lives, families, friends, and interests on various platforms, thus exposing themselves to a greater likelihood of being monitored.

Nevertheless, employers should restrict their monitoring to work-related activities, and employees’ private lives should remain respected. However, modern surveillance tools and the monitoring opportunities they provide often lead to these limitations being inadequately observed by employers.

The fourth and penultimate phase is “Surveillance 4.0: smart tech, ubiquitous computing and the Internet of Workers.” This phase, as proposed by Edwards, Martin and Henderson, is grounded in a new technological phenomenon significantly impacting workplace monitoring: the Internet of Things (IoT). The IoT refers to a network of objects and environments equipped with processors and wireless connections, allowing them to be identified, located, and managed via the Internet.¹² This connectivity enables the said devices and spaces to interact autonomously without human intervention while continuously collecting data on various aspects of employee’s activity.¹³

In the workplace, IoT typically takes the form of small devices that can be installed in specific locations, on everyday items, work tools, or even on employees’ bodies. These devices enable discreet, continuous, and extensive real-time monitoring of employees, collecting data on a wide range of activities.¹⁴ The development of IoT has resulted in the

¹¹ Intrusion into the private lives of employees through the aforementioned forms of monitoring has been confirmed by the European Court of Human Rights (ECtHR) case law. See e.g. ECtHR judgments in *Halford v. the United Kingdom* from 25 June 1997, *Copland v. the United Kingdom* from 3 April 2007, *Bărbulescu v. Romania* from 5 September 2017.

¹² M. Molè: *The Internet of Things and Artificial Intelligence as Workplace Supervisors: Explaining and Understanding the New Surveillance to Employees Beyond Art. 8 ECHR*. “Italian Labour Law e-Journal” 2022, vol. 15, no. 2, pp. 89–90.

¹³ D. Lupton: *The Quantified Self: A Sociology of Self-Tracking*. Polity Press, Cambridge, 2016, pp. 28–29.

¹⁴ A characteristic example of such devices are the wristbands that employees are expected to wear to monitor their movement and activities in the workplace. See: M. H. Jarrahi, G. Newlands, M. K. Lee, Ch. T. Wolf, Ch. E. Kinder, W. Sutherland: *Algorithmic Management in a Work Context*. “Big Data & Society” 2021, vol. 8,

monitoring of employee behaviours and activities that were previously difficult or deemed impossible to measure.¹⁵ This is especially evident in the monitoring of employees' mental and emotional states, which has gained increasing attention in recent years.¹⁶ In earlier phases of workplace monitoring development, such surveillance would not have been feasible primarily due to technological limitations.

The final, fifth stage of the historical model proposed by Edwards, Martin and Henderson is "Surveillance 5.0: the age of algorithms." It marks the current state of workplace monitoring development, characterised by the extensive use of machine learning technologies and algorithms to observe the workforce and assist management in decision-making concerning employees. Machine learning and algorithms are tied to vast databases, or "big data," established over the preceding phases.

Analysing data using algorithms allows employers to identify recurring patterns, which can be used to classify and profile the workforce. In practice, this translates to automated or algorithmically supported decision-making regarding various aspects of human resource policy, including recruitment, dismissals, promotions, and disciplinary measures.¹⁷

As was the case in previous phases, algorithms too allow employers to monitor and observe new aspects of employees' lives that were not

no. 2, p. 5. It is worth mentioning that there are even more controversial devices used to track employees, such as subcutaneous chips, that can be injected into employees. See: B. Surdykowska: *O lęku przed nadciągającym chipowaniem pracowników – uwagi na tle powstającego ustawodawstwa w USA*. "Z Problematyki Prawa Pracy i Polityki Socjalnej" 2023, vol. 21, no. 4, pp. 1–15.

¹⁵ N. M. Richards: *The Dangers of Surveillance*. "Harvard Law Review" 2013, vol. 126, p. 1940.

¹⁶ M. Ienca, G. Malgieri: *Mental Data Protection and the GDPR*. "Journal of Law and the Biosciences" 2022, vol. 9, no. 1, pp. 2–4.

¹⁷ For instance, this is the situation in Amazon's distribution centre in Poznań (POZ1) in Poland. The automated system of worker performance reviews introduced in that workplace integrates employee evaluation with surveillance, gathering extensive personal data throughout the workday. Using algorithms, it assesses two key metrics: productivity and quality of work. See more in: M. Rozmysłowicz, P. Krzyżaniak: *Automated Processing of Data on Work Performance and Employee Evaluation: A Case Study of Practices at Amazon Warehouses in Poland*. "Italian Labour Law e-Journal" 2023, vol. 16, no. 2, pp. 149–164.

previously subject to scrutiny.¹⁸ Increasingly, traditional monitoring tools, such as CCTV cameras, are being integrated with algorithmic systems enabling facial recognition¹⁹ and beyond. Many employers also use devices to analyse employees' tone of voice to assess their mood.²⁰

Algorithmic systems can be viewed as an extension of traditional forms of workplace monitoring, enriched with new elements designed to offer greater predictability and objectivity.²¹ In reality, however, the lack of transparency in their operation and uncertainty regarding the data sets on which they were trained often result in algorithmic bias²² and excessive intrusion into employees' privacy.

Devices and systems based on algorithms, while currently representing the most advanced forms of workplace monitoring, offering employers vast capabilities for oversight and management of the company and personnel, also pose risks that were previously unknown. This situation makes them the greatest challenge to date in the context of protecting employee privacy.

¹⁸ As this kind of spheres, Edwards, Martin and Henderson enumerate employees' behaviours of interests, uncover emotional states and unshared personal preferences. See: L. Edwards, L. Martin, T. Henderson: *Employee Surveillance...*, p. 6.

¹⁹ A. Dixon, O. Kiazim, S. Creed, O. Bowden: *Facial Recognition Technology in Employment: What You Need to Know*. "RAIL: The Journal of Robotics, Artificial Intelligence & Law" 2021, vol. 4, no. 2, pp. 121–130.

²⁰ P. V. Moore, P. Akhtar, M. Upchurch: *Digitalisation of Work and Resistance*. In: *Humans and Machines at Work: Monitoring, Surveillance and Automation in Contemporary Capitalism*. Eds. P. V. Moore, M. Upchurch, X. Whittaker. Palgrave Macmillan, London 2018, p. 37; M. Barański: *Artificial Intelligence in the Workplace through the Prism of Article 8 of the Convention for the Protection of Human Rights and Fundamental Freedoms*. In: *Artificial Intelligence and Human Rights*. Eds. L. M. Martín, M. Załucki. Dykinson, Madrid 2021, p. 344; V. De Stefano: 'Negotiating the Algorithm': *Automation, Artificial Intelligence and Labour Protection*. "Comparative Labor Law & Policy Journal" 2019, vol. 41, no. 1, p. 11.

²¹ Edwards, Martin and Henderson even equate algorithms to parasites. See: L. Edwards, L. Martin, T. Henderson: *Employee Surveillance...*, p. 7.

²² Algorithmic bias can be defined as the tendency for algorithms to produce outputs that lead to a disadvantage for certain groups, such as women, ethnic minorities, or people with a disability, which is caused by biased or poor-quality data used for developing it – see: European Union Agency for Fundamental Rights: *Bias in Algorithms – Artificial Intelligence and Discrimination*. FRA, Luxembourg 2022, pp. 17–19.

3. The logic of employee monitoring preceding the “analogue world”

The aforementioned model of employee monitoring development, composed of five stages, accurately reflects the dynamics of the evolution of this phenomenon. However, it does not account for the perspective of pre-industrial societies and pre-Taylorist management models, which are crucial for a comprehensive understanding of the history of workplace monitoring.

At this point, it is essential to consider the system of labour division and surveillance existing during the Middle Kingdom of Ancient Egypt. It is commonly believed that the labour performed therein, and its efficiency, was solely the result of the slavish treatment of workers and their complete subjugation to the divine authority of the pharaoh. However, it turns out that the reality of work in ancient Egypt was more complex. This is indicated by the words of Kadish, cited amongst others, by Ezzamel in his work on the organisation of labour in the Middle Kingdom of Ancient Egypt²³:

Work and workers needed to be organized so as to achieve a desired level of production and delivery of goods and services. While laborers of all sorts were subject to a certain amount of violent coercion, that is not a sufficient explanation of the general successful discipline of labor, nor is the likely correct notion that workers obliged to perform *corvée* labor [unpaid, forced labour performed for a specific period of time – T. M.] on major royal projects, such as pyramid-building, were, at least, in part, motivated by religious devotion (i.e., to the monarchy).²⁴

Certainly, coercion and religious subjugation played significant roles in shaping labour relations at the time. However, they were not the only factors influencing them. Analysing the methods and discipline of work in Ancient Egypt leads to the conclusion that the primary factor contributing to their extraordinary development and the creation of enduring legacies was the appropriate organisation of labour,

²³ M. Ezzamel: *Work Organization in the Middle Kingdom, Ancient Egypt*. “Organization” 2004, vol. 11, no. 4, pp. 497–498.

²⁴ G. E. Kadish: *Observations on Time and Work-Discipline in Ancient Egypt*. In: *Studies in Honor of William Kelley Simpson Vol. II*. Ed. P. Der Manuelian. Museum of Fine Arts, Boston 1996, p. 439.

of which surveillance was a key element. Moreover, at a very general level, we can observe some similarities between the organisation and surveillance of work in the Middle Kingdom and modern workplace monitoring practices.

As Ezzamel points out, rosters and name lists with workers' names were widely used during the Middle Kingdom. Some of these served as attendance lists, while others divided workers into groups and assigned them to specific tasks.²⁵ Already then, the division of labour and the establishment of concrete work goals were of great significance. It is also noteworthy that a characteristic feature of labour organisation in Ancient Egypt was the reporting of productivity, work in progress, and completed tasks. Reports often took the form of letters and accounts.²⁶ Individuals who were unwilling or failed to perform their duties properly faced sanctions, often of a criminal law nature, such as imprisonment in the "Great Prison" (*khenret weret*) at Thebes.²⁷ Moreover, a policy of differentiated wages was also applied, which emphasised the difference in skills, achievements, and social status. One could argue that the wage level reflected the value of a particular individual within Egyptian society.²⁸

Examining the history of labour organisation in Ancient Egypt, it is difficult not to draw parallels, at least at a general level, between some of the practices of that era and modern workplace organisation and employee monitoring.²⁹ Attendance checks, task observation by supervisors (then humans, nowadays increasingly robots), setting standards and detailed divisions of labour, monitoring work quality, and rewarding or disciplining workers – all these elements, albeit in different forms and with varying intensity, are visible in both contemporary and ancient systems of labour organisation and surveillance.

However, labour surveillance in Ancient Egypt was characterised by a certain distinctive feature that was later changed under the influence of industrial development, the explanation of which will

²⁵ M. Ezzamel: *Work Organization in the Middle Kingdom, Ancient Egypt*. "Organization" 2004, vol. 11, no. 4, pp. 507–509.

²⁶ *Ibidem*, pp. 515–518.

²⁷ *Ibidem*, pp. 514–515.

²⁸ *Ibidem*, p. 531.

²⁹ G. Sewell: *Surveillance: A Key Idea for Business and Society*. Routledge, London–New York 2021, pp. 12–13.

allow us to better comprehend the present system of organisation and monitoring in the workplace. It concerns the concept of time, specifically the relationship between a task and the time needed to complete it. In the Middle Kingdom, this relationship was understood entirely differently than in the pivotal era of industrial capitalism. Egyptian society of that time was unfamiliar with the concept of “timed labour,” as work was performed within a “task orientation” system – focused on completing a specific goal, often disregarding the time required.³⁰ Goals were either physical, for instance, completion of the building, or time-based, never mixed.³¹ The fusion of these two spheres only occurred in the later era of the first industrial revolution (early 19th century) with the emergence of a new labour discipline in which the relationship between work and time became an indicator subject to constant evaluation.³²

Surveillance was also a significant aspect of medieval times; however, it was understood in a manner characteristic of pre-modern communal societies, which primarily revolved around the community.³³ Unlike in modern and especially postmodern times, individuals and their privacy did not hold as much importance in the Middle Ages.³⁴

³⁰ E. P. Thompson: *Time, Work-Discipline, and Industrial Capitalism*. “Past & Present” 1967, no. 38, pp. 60–61.

³¹ M. Ezzamel: *Work Organization in the Middle Kingdom, Ancient Egypt...*, p. 531.

³² Ibidem, p. 531; G. Clark: *Factory Discipline*. “The Journal of Economic History” 1994, vol. 54, no. 1, pp. 128; See also: K. W. Hoskin, R. H. Macve: *Accounting and the Examination: A Genealogy of Disciplinary Power*. “Accounting, Organizations and Society” 1986, vol. 11, no. 2. Interestingly, the distinction between time-based pay and task-based work was still present in the 18th century. As described by Carmona, Ezzamel, and Gutierrez, the 18th-century Royal Tobacco Factory in Spain operated in such a way that cigar operators, who required a high level of skill, were paid on a piece-rate basis, which was intended to positively impact product quality, whereas snuff operators, mostly unskilled workers, were paid weekly. See: S. Carmona, M. Ezzamel, F. Gutierrez: *Control and Cost Accounting Practices in the Royal Tobacco Factory of Seville*. “Accounting, Organizations and Society” 1997, vol. 22, no. 5, p. 417.

³³ M. Chatziathanasiou: *Addressing New Aspects of Surveillance in Late Mediaeval England, 1350–1550*. “Mos Historicus: A Critical Review of European History” 2024, vol. 2, no. 1, p. 32.

³⁴ In 1890, Samuel Warren and Louis Brandeis indicated that the “right to privacy” should be understood as the right to control access to information about oneself. This interpretation of the right to privacy, focusing primarily on the individual, has shaped the modern debate on privacy. See E. Longfellow: *Public, Private, and the Household in Early Seventeenth-Century England*. “Journal of British Studies” 2006, vol. 45, no. 2, p. 315;

Surveillance encompassed almost all spheres of life and was primarily focused on the lower social classes. This stemmed from the hierarchical social relations prevailing in the Middle Ages and the fear among the ruling elites of a popular uprising against them.

A crucial role in maintaining the social order of the time was played by labour surveillance, exemplified by late medieval England. As Chatziathanasiou points out, supervision over the workforce was strongly promoted in labour legislation of the time, especially in the period following the plague epidemic. For instance, the Statute of 1388 *de facto* introduced surveillance over workers' and vagrants' places of residence, as it prohibited them from leaving their place of residence to take up work or change their place of living unless they possessed an appropriate letter approved by royal and local authorities. The statute also led to the establishment of written registers for storing workers' data.³⁵

Another labour-related institution based on worker supervision, or rather the master's control over the servant, was compulsory service.³⁶ According to the Statute of Labourers from 1351, as cited by Bennet³⁷:

Every man and woman of our kingdom of England, of whatever condition, whether bond or free, who is able bodied and below the age of sixty years, not living from trade nor carrying on a fixed craft, nor having of his own the means of living, or land of his own with regard to the cultivation of which he might occupy himself, and not serving another, if he, considering his station, be sought after to serve in a suitable service, he shall be bound to serve him who has seen fit so to seek after him [...].³⁸

Another legal act characteristic of that period, fitting within the framework of medieval labour surveillance, was an order issued in 1492 by the Coventry Leet, which stated: "Also that no single women, being in good health and mighty in body to labour, within the age of 50 years, take or keep from henceforth houses or chambers by

S. Warren, L. Brandeis: *The Right to Privacy*. "Harvard Law Review" 1890, vol. IV, no. 5, pp. 193–220.

³⁵ M. Chatziathanasiou: *Addressing New Aspects of Surveillance...*, pp. 45–46.

³⁶ J. Bennett: *Compulsory Service in Late Medieval England*. "Past & Present" 2010, no. 209, pp. 7–51.

³⁷ *Ibidem*, p. 9.

³⁸ The Statute of Laborers from 1351 (Statutes of the Realm, vol. I, p. 307).

themselves, nor that they take any chamber with any other persons, but that they go into service until they be married.”³⁹

As Bennett points out, this legal act has been subject to numerous interpretations. Some suggest it aimed to combat prostitution,⁴⁰ others see it as an expression of fears regarding self-sufficient women, while yet others argue that it served to domesticate women.⁴¹ Regardless of these interpretations, one thing is certain – it contributed to positioning women as a source of cheap labour and reinforced surveillance over them.

However, it must be noted that it was not only women who were subjected to “domestication,” or rather, to being confined to a permanent place of stay. Similar measures were taken against unruly journeymen, who, by being placed under one roof, became easier for masters to control in terms of their behaviour and work. This also strengthened the hierarchical socio-economic model.⁴²

The world of labour in the Middle Ages was approached with great suspicion, partly because workers, lower-ranking clergy, and artisans often joined forces in political protests and strikes against the ruling elites.⁴³ Such actions were met with a definite response from the authorities in the form of the Royal Statute of 1495, which established monetary and corporal punishment for craftsmen and labourers who made or caused an assembly against those appointed to control and supervise their work.⁴⁴

Analysing labour surveillance in the Middle Ages, it is evident that it was entirely different from the Taylorist understanding of the term. Its primary aim was to preserve the existing social system, which was built upon strong pillars of hierarchy and master–servant relations, rather than to oversee the tasks performed by workers for the purpose of increasing production efficiency. However, it is worth considering

³⁹ See: M. D. Harris: *The Coventry Leet Book or Mayor's Register*. Early English Text Society, London 1907, p. 545, as cited in J. Bennett: *Compulsory Service in Late Medieval England*. “Past & Present” 2010, no. 209, p. 45.

⁴⁰ See: J. Ward: *Women in England in the Middle Ages*. Hambledon Continuum, London–New York 2006, p. 97.

⁴¹ J. Bennett: *Compulsory Service in Late Medieval England...*, p. 45.

⁴² M. Chatziathanasiou: *Addressing New Aspects of Surveillance...*, p. 47.

⁴³ Ibidem, p. 49; K. Robertson: *The Laborer's Two Bodies*. Palgrave Macmillan, New York, p. 56.

⁴⁴ M. Chatziathanasiou: *Addressing New Aspects of Surveillance...*, p. 52.

whether modern workplace monitoring does not also have certain features that serve to perpetuate certain social relations?

Another characteristic example of workplace surveillance, somewhat diverging from the principles of Frederick W. Taylor's later dominant "scientific management," is the "Silent Monitor." This tool for employee monitoring was designed and implemented by Robert Owen in his cotton mill in New Lanark around 1800. It was a rectangular block of wood, resembling part of a post, installed at each workstation. Each side of the block was painted a different colour. The colour displayed on the front of the block represented the worker's performance from the previous day. White indicated "super excellence," yellow signified "moderate goodness," blue denoted "a neutral state of morals," while black was dreaded by workers as it indicated "excessive naughtiness."⁴⁵

Workers' performance was recorded by Owen in a "book of character." As Sewell notes, maintaining such a record enabled a broader assessment of the employee's moral condition.⁴⁶ Moreover, an important role in this scrutiny mechanism was played by a sense of shame resulting from a "public" or at least visible to colleagues, negative evaluation. Public shaming contributed to improving the deficiencies apparent in the conduct of some workers.⁴⁷

The feature distinguishing Owen's four-sided wooden block, known as the "Silent Monitor," from later forms of workplace monitoring is that it was never intended to measure employees' productivity or output. Instead, it served to assess the temperament or behaviour of workers or, in a broader sense, their morality.⁴⁸ As Donkin concludes: "if you kept your nose clean, the least you could expect was a blue."⁴⁹

Analysing the mechanism of the "Silent Monitor" and the intentions behind its use, it is difficult not to see parallels with modern forms of employee monitoring, particularly in jobs where interaction with customers plays a significant role. These include workplaces such as call centres⁵⁰ or digital platform jobs. In both cases, the subject of evaluation becomes the employee's behaviour, particularly its

⁴⁵ R. Donkin: *The History of Work*. Palgrave Macmillan, London–New York 2010, p. 94.

⁴⁶ G. Sewell: *Surveillance...*, p. 14.

⁴⁷ *Ibidem*.

⁴⁸ R. Donkin: *The History of Work...*, p. 94.

⁴⁹ *Ibidem*.

⁵⁰ *Ibidem*.

qualitative aspects.⁵¹ The behaviours of call centre operators are monitored by recording their conversations with customers and assessed by specially designated bodies. In addition to the substantive content of the conversations, the tone of voice used by workers is often scrutinised to see whether it is sufficiently polite.⁵² Moreover, both call centre and platform workers are subject to “bottom-up” evaluations by customers. This process bears a strong resemblance to the mechanism of Owen’s “Silent Monitor.”

In fact, the “book of character” can be compared to reports or files containing detailed assessments of individual call centre operators, prepared by their supervisors. Similarly, the “star ratings” and average score of a worker visible to every user of apps for ordering rides or food, strongly resemble the colours on the sides of the “Silent Monitor.” In this context, the aforementioned shame mechanism also plays an important role. Just as in Owen’s cotton mill, it is intended to motivate workers to improve their behaviour.⁵³

4. Taylorism as a cornerstone of modern workplace monitoring

Examining the history of workplace monitoring, we can identify a pivotal moment that significantly shifted the discourse on this subject and became the cornerstone of many contemporary forms of employee monitoring. This cornerstone was the emergence of the factory work system and particularly the creation of scientific management principles by F. W. Taylor. Therefore, in order to properly understand

⁵¹ J. Bronowicka, M. Ivanova, W. Klicki, S. King, E. Kocher, J. Kubisa, J. Zielińska: *‘Game That You Can’t Win’? Workplace Surveillance in Germany and Poland*. European University Viadrina, Frankfurt (Oder) 2020, p. 15.

⁵² Ibidem, p. 22 In addition, new, technologically advanced forms of workplace monitoring are causing this type of monitoring to become more severe for employees. As Molè notes, “a call centre employee will be obliged to keep a kinder voice on a steady basis, since the employer will not check occasionally but constantly through a sensor directed at the employee’s tone of voice.” See M. Molè: *The Internet of Things and Artificial Intelligence...*, p. 90.

⁵³ It should also be mentioned that the overall rating on the application may affect the price paid to the platform worker. See T. Mirosławski: *Platform Work as a Manifestation of a New Form of Employment in the Era of the Fourth Industrial Revolution*. “Z Problematyki Prawa Pracy i Polityki Socjalnej” 2023, vol. 21, no. 4, p. 5.

the contemporary direction of workplace monitoring, it is essential to consider what had the greatest formative effect on it. Accordingly, this section of the article will examine Taylorian management theory with its implications for contemporary forms of workplace monitoring.

Adam Smith, in *An Inquiry into the Nature and Causes of the Wealth of Nations*, argued that the key factor influencing a nation's prosperity was the efficiency and scale of industrial production. He claimed that the greater and faster industrial progress is, the more prosperous society becomes. However, for industrial development to continue, changes in the production system were necessary. According to Smith, the crucial change underpinning the new production system was the division of labour.⁵⁴

The division of labour was based on the premise that traditional tasks performed by workers were overly complex, requiring time and specialised knowledge or skills to complete. By breaking down these tasks into simpler activities, they could be performed quickly and without the need for specialised expertise.⁵⁵ Goods that previously required skilled craftsmen could now be produced by groups of unskilled workers using tools and machinery designed specifically for these simpler tasks. Consequently, production could increase without a proportional rise in labour costs.⁵⁶

However, as Smith noted, the new division of labour would result in workers becoming:

[...] as stupid and ignorant as it is possible for a human creature to become. The torpor of his mind renders him not only incapable of relishing or bearing a part in any rational conversation, but of conceiving any generous, noble, or tender sentiment, and consequently of forming any just judgment concerning many even of the ordinary duties of private life.⁵⁷

Smith recognised that progress has a price, which is worth paying, and that the evoked situation is an inevitable side effect of any

⁵⁴ A. Smith: *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776). Ed. E. Cannan. University of Chicago Press, Chicago 1976, pp. 17–28.

⁵⁵ Smith illustrates this with the example of pin production – “one man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head.” See: *Ibidem*, p. 18.

⁵⁶ K. Crawford: *Atlas of AI*. Yale University Press, New Haven–London 2021, p. 59.

⁵⁷ A. Smith: *An Inquiry into the Nature and Causes of the Wealth of Nations...*, p. 1040.

civilised society. Nevertheless, he points out that every responsible state should be aware of this and develop a public education system to counterbalance the stultifying effects of the division of labour.⁵⁸

Less than a century later, Karl Marx also warned of the dangers inherent in labour division and the large-scale expansion of factory work. In the first volume of *Capital*, he argued that the division of labour under the capitalist form of large-scale industry transforms the worker into a living appendage of the machine. He also drew attention to the meaning of women's, children's and unskilled men's labour as a new foundation for the division of labour.⁵⁹ What Smith had written earlier came to fruition.

Smith's division of labour played an important role in Frederic Winslow Taylor's theory of scientific management. Taylor agreed that breaking down the tasks performed by the workers into smaller, easily measurable, and monitorable activities would contribute to more efficient production. However, he argued that the true potential to overcome inefficiencies arising from the previous management models lay in combining the appropriate division of labour with new scientific management methods.⁶⁰ He believed that knowledge, rather than mere muscle power, is the primary source of productivity.⁶¹

Taylor developed the principles of scientific management inspired by experiments he conducted at the Bethlehem Steel Company and several other factories.⁶² The core tenets of his theory covered the setting of work standards to establish a target rate of productivity higher than previous averages; and the standardisation of working methods to ensure that workers could achieve specific goals, including the creation of work instructions, setting the precise sequence of shift and the development of material specification charts and stock control systems.⁶³ The basis for all this was a thorough scientific analysis and

⁵⁸ Ibidem, pp. 1042–1045.

⁵⁹ K. Marx: *Capital: A Critique of Political Economy Vol. I* (1867). Penguin, London 1992, pp. 614–615.

⁶⁰ F. W. Taylor: *The Principles of Scientific Management*. Harper & Brothers Publishers, New York–London 1919, p. 7.

⁶¹ R. Kanigel: *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency*. Abacus, London 2000, p. 9.

⁶² M. J. Hatch, A. L. Cunliffe: *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*. Oxford University Press, Oxford 2013, p. 25.

⁶³ Ibidem.

measurement of each of the tasks performed by the workers. This approach stemmed from Taylor's conviction that "[t]he natural laziness of men is serious, but by far the greatest evil from which both workmen and employers are suffering is the 'systematic soldiering' which is almost universal under all of the ordinary schemes of management and which results from a careful study on the part of the workmen of what will promote their best interests."⁶⁴ He further claimed that in a large workplace, it was rare to find a competent worker who would not devote considerable effort to determining how slowly he could work while convincing his employer that his pace was adequate.⁶⁵

Taylorist management thought rejects the notion that workers could naturally strive to perform their duties adequately. Instead, it relies on the opposite logic of measurement and control. Social relations in the workplace must be replaced by a system in which the worker's body is separated from his or her mind, and the expertise and supervisory authority are exclusively held by managers.⁶⁶

Herbert Francis Stimpson, one of the "efficiency engineers" of the time, described his perspective on workers to a congressional committee investigating the effects of scientific management, by stating that he perceived them "as a little portable power plant [...] a mighty delicate and complicated machine [...]. The physical body of the man is constructed on the same mechanical principles as the machine is, except that it is very much higher development."⁶⁷ Stimpson's view emphasised that workers' efficiency and limitations could be measured in the same way as mechanical machines.⁶⁸ A very similar approach to the person of the worker was expressed by one of Taylor's most famous apologists who put his ideas into full-scale practice – Henry Ford. Ford's attitude towards the factory production process is evident in his following words: "a business is men and machines united in the production of a commodity and both the men and the machines need

⁶⁴ F. W. Taylor, *The Principles of Scientific Management*. Harper & Brothers Publishers, New York–London 1919, pp. 20–21.

⁶⁵ Ibidem, p. 21.

⁶⁶ P. Brown, H. Lauder, D. Ashton: *The Global Auction: The Broken Promises of Education, Jobs, and Incomes*. Oxford University Press, Oxford 2011, p. 69.

⁶⁷ R. Kanigel: *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency*. Abacus, London 2000, p. 460.

⁶⁸ Ibidem.

repairs and replacements [...]. Machinery wears out and needs to be restored. Men grow uppish, lazy, or careless [...].”⁶⁹

Analysing the theory of scientific management, we see that its key feature is the continuous monitoring of workers through the measurement of their efficiency and the time required to complete assigned tasks. Workers need to be monitored as this theory to be applied, needs concrete and real data. Furthermore, the monitoring of workers does not need to meet any special requirements or account for workers’ dignity and privacy since, according to the logic of Taylorism, they are nothing more than a more expensive version of a machine whose productivity should be constantly measured and, where possible, improved. Tools such as clocks, meters and scales were used to measure the performance.

From a modern perspective, Taylor’s system may seem brutal, disregarding the humanity of workers and appearing distinct from contemporary experiences. However, this perception is misleading. Taylor’s principles have not disappeared but rather evolved to adapt to new conditions. To this day, many employers and companies continue to draw inspiration from Taylor and apply elements of his scientific management principles. It is not without reason that the 21st century is called the age of “Digital Taylorism.”

Digital Taylorism, like its traditional counterpart, is based on the separation of the mind and body. Just as the knowledge of craftsmen was once appropriated and transformed into an organised production line in Ford’s factories, today, the knowledge of white collar workers is being captured, digitised, and converted into patterns, procedures, and scripts that can be applied on a global scale. Digital Taylorism no longer needs a single factory to house the entire workforce and human supervisors responsible for measuring and recording workers performance. Technological advancements now enable the collection of productivity data at any time, regardless of an employee’s location.⁷⁰ New forms of employee monitoring are serving this purpose, such as the surveillance of electronic devices used for work, company email accounts, telephone conversations, GPS tracking, surveillance via

⁶⁹ E. Rothschild: *Paradise Lost: The Decline of the Auto-Industrial Age*. Random House, New York 1973, p. 34.

⁷⁰ P. Brown, H. Lauder, D. Ashton: *The Global Auction...*, p. 72.

so-called wearable work instruments, and many other forms of monitoring that make it possible to obtain information about a worker's activities, work pace and breaks, his or her location, etc.⁷¹

However, in recent years, employee monitoring has expanded to include new categories of data. Increasingly, employers value information not strictly related to the work performed but concerning the personal sphere – workers' character, emotions, interests, and mental state. This shift is a response to changes in the labour market. On one hand, many modern jobs demand significant flexibility from employees; on the other hand, workers are more and more reluctant to spend their whole life in one job. This has resulted in a paradigm shift.

For employers, workers' specific skills have become less critical than their personal traits and whether these align with the roles they are expected to fulfil within an organisation.⁷² As Suresh Gupta from Capco Consulting outlined: "[...] we can't teach people to be more flexible, to be more empathetic [...] but we can teach them the basics of banking."⁷³

With this shift in focus – from employees' skills to their personalities – a new wave of employee monitoring tools has emerged to gather such data. Traditional tools like clocks, scales and meters, once used to measure workers' productivity, have been replaced by psychological tests, team-building games, brain-computer interfaces, social media monitoring, emotion-detection devices and other applications and tools designed for so-called self-tracking purposes.⁷⁴

⁷¹ V. De Stefano: *'Negotiating the Algorithm'...*, pp. 9–10; M. Barański, M. Giermak: *Protection of employees' geolocation data in EU law...*, pp. 197–208; M. Barański: *Artificial intelligence in the workplace...*, p. 344.

⁷² Olšovská and Švec indicate that a new nature of work positions in Industry 4.0 requires employees who are more psychologically resilient to work stress, have certain cognitive, psychomotor and behavioural skills and personality features that help them fulfil their work tasks and at the same time prevent possible damage to the manufacturing means and/or reduce complaints from customers, which represent direct employer costs. See: A. Olšovská, M. Švec: *Use of Psychological Examinations of Employees and Job Applicants in Personnel Management*. In: *Issues of Human Resource Management*. Ed. L. Mura. InTech, London 2017, pp. 23–24.

⁷³ P. Brown, H. Lauder, D. Ashton, *The Global Auction...*, p. 79.

⁷⁴ See: L. D. McGill: *Psychological Tests in the Workplace: Should Your Company Use Them?* "Employment Relations Today" 1990, vol. 17, no. 3, pp. 227–232; K. Trzynieć: *Monitorowanie stanów emocjonalnych pracownika za pomocą interfejsów mózg – komputer*. "Bezpieczeństwo Pracy" 2017, no. 12, pp. 23–25; A. Lukács: *Employees' Right to Privacy and Right to Data Protection on Social Network Sites*. Iurisperitus Publishers, Szeged 2021;

5. Conclusions

The historical trajectory of the development of workplace monitoring demonstrates a profound evolution in its forms, methodologies, objectives, and implications. Beginning with the monitoring practices within task-oriented systems of labour in societies such as the society of the Middle Kingdom of Ancient Egypt, through the medieval labour surveillance aimed at preserving hierarchical social relations, then following Robert Owen's morally evaluative frameworks of "Silent Monitor," to the efficiency-focused scientific management of Frederick Winslow Taylor and modern algorithmic surveillance, it is evident that monitoring has consistently reflected broader societal values and particularly power dynamics.

As this article illustrates, the interplay between technology, organisational control, development of the industry and employee autonomy is resulting in an ongoing shift in the boundaries of workplace monitoring. Early practices prioritised collective productivity and moral oversight, while later systems based on scientific methods emphasised efficiency and data-driven decision-making. However, it is crucial to realise that in the realm of contemporary monitoring, we are witnessing a cyclical return to a kind of moral sphere surveillance. Modern means of employee monitoring, such as psychological tests, tracking of workers' non-work related behaviours and social media monitoring, increasingly focus on assessing workers' personal traits, emotions and characters, echoing past approaches which sought to regulate moral and behavioural norms.

The return to moral scrutiny, currently facilitated by advanced technology, raises various critical questions about privacy, ethical boundaries and the preservation of employee autonomy. While monitoring systems bring new opportunities to improve organisational efficiency in the workplace, at the same time, they carry a significant risk of excessive intrusion into the personal sphere, undermining the privacy, independence and, most importantly, the dignity of the individual.

Workplace monitoring cannot be perceived only as a technological phenomenon but rather as a socio-political construct shaped by

M. Swan: *The Quantified Self: Fundamental Disruption in Big Data Science and Biological Discovery*. "Big Data" 2013, vol. 1, no. 2, p. 85; M. Ienca, G. Malgieri: *Mental Data Protection...*, pp. 2–4.

historical context, economic systems and the hierarchical relations of power. To completely understand the complexity of the modern workplace and new means of monitoring, it is crucial to adopt a critical, ethical, and historically conscious perspective that respects workers' autonomy while addressing the nuanced dynamics of the ongoing loop in monitoring practices.

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Historyczne źródła monitoringu w miejscu pracy: od starożytnego nadzoru do cyfrowego taylorizmu

Streszczenie

Artykuł analizuje historyczny rozwój monitoringu w miejscu pracy – od starożytnych systemów kontroli pracy po współczesne formy nadzoru cyfrowego. Przedmiotem rozważań jest ewolucja mechanizmów monitorowania wraz ze zmianami w zakresie pracy, technologii oraz teorii zarządzania: od wczesnych form obserwacji i ewidencjonowania siły roboczej, przez nadzór moralny, aż po algorytmiczne śledzenie zachowań pracowników, a także ich stanów psychicznych i emocjonalnych. Analizując współczesne tendencje w kontekście historycznym, artykuł zwraca uwagę na cykliczny charakter wzorców widocznych we współczesnych modelach monitoringu pracowniczego oraz wskazuje, że teorie uznawane przez wielu za przestarzałe i niedostosowane do współczesnych warunków nadal odgrywają istotną rolę w kształtowaniu stosunków pracy. Artykuł podważa mit technologicznej obiektywności oraz postuluje bardziej etyczne, a przede wszystkim świadome podejście do problematyki monitoringu w miejscu pracy.

Słowa kluczowe: monitorowanie miejsca pracy; nadzór; cyfrowy taylorizm; teorie zarządzania