

T.C.
ANTALYA BILIM UNIVERSITY
INSTITUTE OF POSTGRADE EDUCATION

MASTER OF BUSINESS ADMINISTRATION
MASTER'S THESIS

**ALGORITHMIC MANAGEMENT AND ORGANIZATIONAL OUTCOMES:
THE CASE OF AZERBAIJAN**

Javid YUSIFOV

OCTOBER 2023

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This thesis was accepted by the jury (with unanimous vote / majority vote) on the date/...../202.... in Master of Business Administration Program of Business Administration Department.

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DECLARATION

Master's Thesis of this study named "Algorithmic Management and Organizational Outcomes: the case of Azerbaijan", which I presented, I declare that scientific moral principles were followed in the preparation of this study, in case of benefiting from the works of others, reference is made in accordance with scientific norms, no falsification has been made in the data used, and that any part of this study is not presented as another academic study.

... / ... / 20..

Javid YUSIFOV

CONTENTS

ABSTRACT	i
ÖZET.....	ii
SYMBOLS AND ABBREVIATIONS	iii
LIST OF TABLES	iv
PREFACE.....	v
1. INTRODUCTION.....	1
1.1. Objectives of the Dissertation	3
1.2. Research Questions	3
1.3. Structure of the Dissertation	4
2. LITERATURE REVIEW	5
2.1. Sociotechnical Systems Theory	5
2.2. Algorithmic Management.....	10
2.2.1. Descriptive Algorithms.....	19
2.2.2. Predictive Algorithms	19
2.2.3. Prescriptive Algorithms	19
2.3. Usage of Algorithmic Management	20
2.3.1. Algorithmic Management and Decision-makings	20
2.3.2. Algorithmic Management and HR Functions	21
2.3.3. Algorithmic Management and Operational Functions.....	22
2.3.4. Algorithmic Management and Performance	23
2.4. Dark Side of Algorithmic Management.....	24
2.4.1. Algorithmic Bias	25
2.4.2. Accuracy	26
2.4.3. Transparency	27
2.4.4. Privacy	28
3. RESEARCH METHOD AND DESIGN	29
3.1. Research Method and Philosophy	29
3.2. Research Design.....	30
3.3. Research Population and Sampling Technique	30
3.4. Ethical Considerations	31
3.5. Data Collection Instruments	32
4. DATA ANALYSIS AND RESULTS.....	34

4.1. Demographic Information	34
4.2. Data Organization	35
4.3. Reliability and Validity.....	35
4.4. Presentation of Findings	35
5. DISCUSSION AND CONCLUSION.....	37
5.1. Discussion of Findings.....	37
5.1.1. History of Companies	37
5.1.2. Sphere of the Companies.....	37
5.1.3. Number of Employees	37
5.1.4. Goals of the Organizations	38
5.1.5. Purposes of Algorithmic Integration.....	38
5.1.6. Future Facilities.....	39
5.1.7. Concerns and Security	40
5.1.8. Achievements Reached by Algorithmic Integration.....	40
5.2. Implications for Practice and Theory.....	43
5.3. Limitations.....	43
5.4. Future Research Suggestions.....	44
REFERENCES	46

ABSTRACT

ALGORITHMIC MANAGEMENT AND ORGANIZATIONAL OUTCOMES: THE CASE OF AZERBAIJAN

Javid YUSIFOV

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As we know, the world is moving towards computer-based management and the wide use of Artificial Intelligence. The role of algorithms is substantial; however, it does not mean that companies should be fully dependent on computerized style of management. The main goal of the dissertation is to understand how and why some organizations are utilizing algorithms in management process. The aims of this thesis also include the definition of Algorithmic Management and its effect on management, as well as analysis of what algorithm is, what is the biography of algorithm, its history, areas of application, types of algorithms, their bright and dark sides, etc. The method of research is considered to be Qualitative with the applying of the combination of convenience sampling and purposive sampling techniques. Data is collected with the usage of interviews. With this methodology, we gathered information about the experience of several organizations. There are a few places where concrete steps were outlined for enhancing the state of the workplace, the workers, and the management system itself. Algorithms are employed to manage relationships between human workers in both online and offline work contexts, taking on jobs that human managers once performed. According to the research's findings, algorithms are typically required to track employees, periodically review their activities, and enhance working processes by removing manually performed personnel as a result of the algorithmic integration of new technologies.

KEYWORDS: Algorithms, Algorithmic Management, Algorithmic Control, Artificial Intelligence, Algorithmic Integration, Online Platforms.

COMMITTEE: Doç. Dr. A. Mohammed ABUBAKAR

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ÖZET

ALGORİTMİK YÖNETİM VE ORGANİZASYONEL SONUÇLAR: AZERBAJCAN ÖRNEĞİ

Javid YUSİFOV

Yüksek Lisans Tezi, İşletme Anabilim Dalı

Danışman: Doç. Dr. A. Mohammed ABUBAKAR

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Bilindiği üzere dünya bilgisayar tabanlı yönetime ve yapay zekânın yaygın kullanımına doğru ilerlemektedir. Algoritmaların şirketler üzerindeki rolü büyüktür; ancak bu, şirketlerin tamamen bilgisayarlı yönetim tarzına bağımlı olması gerektiği anlamına gelmez. Tezin temel amacı, bazı işletmelerin yönetim sürecinde algoritmaları nasıl ve neden kullandıklarını anlamaktır. Ayrıca algoritmik yönetimin tanımı ve yönetime etkisinin yanı sıra algoritmanın ne olduğu, biyografisi, tarihçesi, uygulama alanları, türleri, iyi ve kötü yanları da ele alınacaktır. Tezde, nitel araştırma yöntemi kullanılmıştır. Örneklem yöntemi olarak kolayda ve amaçlı örneklem teknikleri kullanılmıştır. Çalışmada veriler görüşmelerden elde edilmiştir. Bu doğrultuda çeşitli kuruluşların uygulamaları hakkında veriler elde edilmiştir. İşyerinin, çalışanların ve yönetim sisteminin durumunun iyileştirilmesine yönelik somut adımların ana hatlarıyla belirtilmiştir. Algoritmalar, daha önce kişiler tarafından gerçekleştirilen, çalışan ilişkilerini hem çevrimiçi hem de çevrimdışı çalışma alanlarında yönetmek için kullanılmaktadır. Araştırmanın bulgularına göre, yeni teknolojilerin algoritmik entegrasyonu sonucunda genellikle çalışanları takip etmek, faaliyetlerini periyodik olarak gözden geçirmek ve manuel olarak gerçekleştirilen personeli ortadan kaldırarak çalışma süreçlerini geliştirmek için ihtiyaç duyulmaktadır.

ANAHTAR KELİMELEER: Algoritmalar, Algoritmik Yönetim, Algoritmik Kontrol, Yapay Zeka, Algoritmik Entegrasyon, Çevrimiçi Platformlar.

JÜRİ: Doç. Dr. A. Mohammed ABUBAKAR

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SYMBOLS AND ABBREVIATIONS

Abbreviations

AI	: Artificial Intelligence
AM	: Algorithmic Management
ATAWAD	: AnyTime, AnyWhere, AnyDevice
ACW	: AfterCallWork
ACHT	: Talk Time + Hold Time + ACW Time
COVID-19	: Coronavirus Disease of 2019
CV	: Curriculum Vitae
GAFAM	: Google, Apple, Facebook, Amazon, Microsoft
GPS	: Global Positioning System
GDPR	: The General Data Protection Regulation
HR	: Human Resources
HRM	: Human Resources Management
IT	: Information Technology
IP	: Internet Protocol
LLC	: Limited Liability Company
NEC	: Network Enabled Capability
PUMA	: Playlist Usage Monitoring and Analysis
STS	: Sociotechnical Systems
THY	: Türk Hava Yolları
US	: United States
WWI	: World War I

LIST OF TABLES

Table 4.1. Demographic Data of the Participants.....	34
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PREFACE

Before you start to read Master's thesis named "Algorithmic Management and Organizational Outcomes: the case of Azerbaijan", I would like to emphasize that this dissertation has been written so as to comply the requirements of Masters of Business Administration Program at Antalya Bilim University. I have conducted the given research for eight months starting from October of 2021 up to May of 2022.

The research has contributed me to grasp the modern environment of high technology in a business world. I conducted interviews with two companies where I gained many fruitful pieces of information regarding the application of algorithms and artificial intelligence in management processes. Therefore, due to this dissertation, I have learned that how modern technology has stepped beyond the bounds of what is possible.

None of the words can express my endless thanks to my advisor Assoc. Dr. A. Mohammed ABUBAKAR for a gorgeous guidance and incomparable support during the research process. The regular feedback of my advisor enabled me to enhance my knowledge and polish my research skills. I would like to thank Antalya Bilim University as well for such an unforgettable experience in study.

Finally, many thanks to my family for their moral support which played a huge role within entire research process. I hope you enjoy reading this thesis.

1. INTRODUCTION

Nowadays, it is obviously seen a plenty of alterations happened with traditional methods of management in various organizations due to constantly developing technologies. In past, these different technological instruments had been used by individuals themselves for supporting managerial decision-making, supervising, control, planning, organizing by usage of informational systems and collection of data inside the company and beyond. However, now, with the increase of popularity and accessibility of Artificial Intelligence, including automation, computing systems and management itself are having a significant transformation or even an evolution. These huge technological progresses lead to the mediation of middle management via controlling, supervising, organization of labor, task assignment, feedback and motivation as well (Mateescu & Nguyen, 2019; Derrick & Elson, 2019).

As it sounds, algorithmic management is a way of use of computer algorithms, as well as artificial intelligence for controlling or managing employees. In other words, it is a strategic tracking, evaluation and managing of workers via algorithms. These algorithms assume tasks which used to be done by human beings or managers (Duggan et al., 2019). Algorithmic type of management is familiar especially in gig economy. Using this innovation, for instance, like in Uber, it is possible to monitor the global workforce of the firm on the global market. The algorithms, mainly, are used to assign tasks and estimate the performance of workers in organization. At the same time, they provide feedbacks and recommendations in order to improve performance (Kellogg et al., 2020).

However, monitoring and controlling of employees is no longer restricted by gig economy. Traditional companies are also providing the benefits of enlarged efficiency and decision-making driven by data (Lee, 2018). For instance, algorithms that are used for Human Resources department might increase efficiency, as well as surpass decision-making (e.g., Cowgill, 2019). It is common in most of the companies. For example, algorithms scan CVs and select the most suitable applicants for positions. During video-interview, they analyze facial expressions of applicants. Beside these, algorithms provide feedback related to performance between workers and managers. Whilst it is complicated to estimate how spread algorithmic management is all over the world, it is defined that about 40% of Human Resources departments in various organizations is using Artificial Intelligence.

The performance management is one of the largest effects of Artificial Intelligence on Human Resources Management. For instance, Adobe demonstrated that performance management is not a single discussion at the end of year, but it is regular conversation based on data. The ways of such approach are going to be recognized by more and more organizations which understand the significance of constant touch points, more feedback in the real-time regime so that employees could receive deserved positive confession and constructive feedback when needed. The majority of managers is absorbed by daily deals and does not spend time to provide feedback, on top of that, they oblige talented workers to feel themselves underestimated and unsatisfied. At this point, time is moving forward until they do not find from another company those recognition, investment, and authority they were looking for. When workers feel that they have got heard and understood, their involvement indicators rise. When it does not happen, they

become a risk of escape or a big problem for an organization and both cases will not lead to the desirable final. Performance management based on AI might help to eliminate such unexpected occurrences for both company and its employees. Managing of interaction points in real time regime like face-to-face meeting with manager or by dint of AI platforms such as chat bots makes it instant, accessible, and searchable in corporation-wide scape. If there is a cultural or philosophical conflict between management and workers, then it becomes possible to reveal and fix it without high-cost difficulties like loss of experts because of the absence of dialog between two sides leading to disruption in terms of obedience and disengagement of employees.

Algorithmic technologies, such as Artificial Intelligence, are becoming more essential for organizations since they are using algorithms for expansion and automation of various procedures or practices inside organization and even beyond. Such sort of algorithms are fundamental features of modern companies that allow to process huge amounts of data which occur in both social and organizational environments (Brayne, 2017). This penetrative influence of algorithms indicates that majority of the productional processes, providing services for seller and buyer coupled with combination of clicks which regulate our daily routine, are all imbued by algorithmic models (Totaro & Ninno, 2014). Scientists argue that due to deep consequences it is necessary to develop a theory which will permit to understand better how algorithmic technologies may change the organizational reality (Faraj, Pachidi, & Sayegh, 2018). While some scientists underline a potential of algorithmic instruments for giving opportunities to the companies which facilitate value-creating due to precise predictions (Mayer-Schönberger & Cukier, 2013), automation of structured and recurrent work (Davenport, 2018; Steiner, 2013), etc., others focus on negative parts like how algorithms enable managers or top managers to control employees (Kellogg, Valentine & Christin, 2020), to set non-flexible and formal rules that eliminate more specific ones which based on values of working via social issues (Lindebaum, Vesa, & den Hond, 2020), as well as to permit organizations to build their social and meaningful ratings on the basis of complicated algorithms that manipulate people (Glaser et al., 2021).

Existing researches pointed out that algorithms are a type of technology which is able to represent, manipulate, store, extract and transfer information by supporting, processing and modeling aspects of the world (Orlikowski & Iacono, 2001). Algorithms from the view of computing might be determined as independent and autonomic entity whose characteristics and effects are not dependent on their design. From the perspective of programming or computing, they are composed of two components called “logic” – determines what has to be done – and “control” that determines how it must be done (Gillespie, 2014; Kitchin, 2017; Kowalski, 1979). However, additionally, these components need two translations. One of them is translation of any task into the structured formula and suitable set of rules called “pseudo-code”. And the second one is translation of this pseudo-code into the source code which will complete task after compilation (Gillespie, 2014). In this predominant computing conception two translation processes are known as strict rational tasks coupled with reliability of mathematics with objectivity of technology (Seaver, 2019).

It is obvious that algorithms are disseminated across different kinds of work and are developed along with other types of computing in businesses. For example, recommendation mechanisms are impulsive force of the services like Amazon, Netflix,

Spotify, etc. In context of labor, algorithms help to structure supply chains. For instance, Zara and Walmart, which operate all over the world, are using production model named “just in time”. This type of logistic model means that manufacturer produces raw materials according to the precise schedule (Ford, 1922). Also, algorithms are getting widely used in hiring decisions, as well as various aspects of algorithms are being implemented in ordinary workplace infrastructures starting from logistics and transportation to service industries, and sometimes domestic work (Lee, 2018). Algorithmic systems which collect data about their employees are more accessible and easier to unfold them for employers. It is important to indicate that these systems are often engraining as measures to reduce labor force and costs, admitting classifying workers as inexpensive independent contractors (Lee, 2018).

1.1. Objectives of the Dissertation

The main goal of the given dissertation is to understand how and why some organizations are utilizing algorithms in management process. In addition to this, the study is going to define objectives which might involve:

- To review the literature on algorithms, algorithmic management, and artificial intelligence whether they are being used in Azerbaijan.
- To define pros and cons of integration algorithmic technologies in terms of effectivity and efficiency.
- To define challenges and approaches which might be fruitful to deal with those challenges.

1.2. Research Questions

Given dissertation will provide answers for some questions related to integration of algorithmic technologies and artificial intelligence, and the consequences appeared after implementing the new sort of management. The main questions are:

- What does algorithmic management mean itself?
- How algorithmic deployment affects yearly revenue of companies?
- How algorithmic management helps or maybe undermines organizational productivity?
- How it affects to strategy of companies?
- Do algorithms have more advantages than disadvantages or vice-versa?
- Is it worth it to spend some part of the budget of a company for an integration of artificial intelligence and algorithms for improving managerial opportunities?

This research will attempt to answer each question in order to get precise imagination regarding automation of the managerial functions for the control and tracking of workers for achieving new goals in terms of productivity, performance, decision-making, etc. Additionally, given dissertation will discuss regarding Human Resources functions whether these departments in Azerbaijan utilize algorithms at all, or not. If yes, how algorithms affected those functions.

1.3. Structure of the Dissertation

This study will be consisting of five chapters which are: introduction, literature review, the research method and design, data analysis and discussion. It would be more informative to describe each chapter separately. First chapter is Introduction that contains information regarding general definition and background of algorithms, a brief information about its biography and where those algorithms have been applying so far and for which departments mainly. In addition to that, we are going to determine dissertation objectives, the essential research questions, and the structure of this study. The second chapter is the literature review where the given research will discuss algorithmic management closely, spot its definition, learn the history of algorithms, their types, their fruitfulness and disadvantages, as well as places where they have been widely integrated. After that, incoming third chapter will contain information related to research method and design. That section should be including ethical considerations, also which research method and sampling technique were used, and which data collection tools were embraced for the given dissertation. Then, fourth chapter will indicate data analysis that is involving demographic information, organization data and reliability of it. On the same section we will retrieve research results and present them. Finally, in fifth chapter as it could be understood would be discussion regarding findings, data about limitations and future suggestions as well.

2. LITERATURE REVIEW

2.1. Sociotechnical Systems Theory

At first, it is necessary to define the meaning of the sociotechnical systems theory starting from its etymology. The word “sociotechnical” might be divided into “socio” – meaning that it is associated with people and society – and “technical” – about technology and machines. The combination of these words gives us sociotechnical. This theory is based on two principles. First one is an interaction of social and technical factors that establishes conditions for prosperous or maybe non-prosperous operations of the system. Such interactions are partially composed of the linear relationships of cause and effect which are often intended. Also, they are partly consisting of complex, unpredictable, and non-linear ones that are usually unexpected. One of the paradoxical points is that although the theory is called “sociotechnical”, the socio is not behaving as technical since individuals are not robots or machines. Both interaction types unavoidably occur when a sociotechnical system is being forced to work. Consequently, the second of the principles is that the optimization of either social or more often technical tends to increase not only the amount of unexpected or unintentional non-linear relationships, but relationships which undermine the performance of system. Thus, sociotechnical theory is associated with joint optimization. The sociotechnical system which is a descriptive term that is given for any practical implementations of social and technical elements involved in purposeful behavior is a proprietary expression of a sociotechnical theory. Sociotechnical systems use metaphors and conceptions of a general system theory, in particular conception of open systems as methods of analyzing, describing, and designing of systems with consideration of joint optimization (Walker et al., 2008).

The theory of sociotechnical systems was originally formed within the framework of the discipline "Organizational Development" and was a scientific approach to the design of the labor process in the aspect of human interaction and technical and technological labor factors (Botla, 2018). In the future, the concept acquires a more general meaning and begins to refer to the study of the interaction of the infrastructural elements of society, the subject implementations of society, on the one hand, and human behavior, on the other hand. Society, social institutions, and their substructures can also be considered as complex socio-technical systems. The concept of a sociotechnical system can be attributed to any connected set of social and technical elements that form the factors of purposeful activity. The term was coined in the 1960s by Eric Trist and Fred Emery, who were consultants at the Tavistock Institute for Human Relations. The concept of sociotechnical systems, in contrast to the theories of technological determinism, which asserted the unilateral impact of technology on a person in the process of performing labor operations, is based on the idea of interaction between a person and a machine (Mumford, 2003).

Technological determinism, which was criticized by Emery and Tryst, proceeds from the following provisions: - technological systems are self-sufficient and autonomous, their functioning does not depend on the motives and goals of people involved in the technical process; - individually psychological and social elements of a person's labor activity must be subordinated to technical structures; - learning is the process of adapting a person to a machine, performing operations subordinate to the

processes of a technical system; - the human personality in the technical system is a replaceable element. The sociotechnical system is formed by the following subsystems:

1. The technical subsystem includes devices, tools and technologies that transform input into output in a way that improves the economic efficiency of the organization.
2. The social subsystem includes employees employed in the organization (knowledge, skills, attitude, values, attitude to the functions performed), the management structure, and the reward system.

If we analyze the organization in a broader context, then the organization's links with the environment - a subsystem of the environment - should be taken into account as factors. The latter includes social values, social and state institutions with which the organization interacts, other organizations acting as competitors or in other ways. It is possible to achieve high efficiency of the organization's functioning by optimizing its subsystems and their interaction - by harmonizing their work. The plan of technical and social conditions ought to be carried out in such a way that technological productivity and humanitarian aspects do not negate each other. A simple option for harmonizing technical systems and the people involved in them is to involve the latter in the design of elements of the technological system and technical processes, to stimulate invention and rationalization, which creates a sense of ownership of technical and technological processes in people (Kurlovich, n.d.).

The term sociotechnical is associated with the organization of labor relations in industrial sectors. A new understanding of the interaction of the individual and technical and technological processes arises in connection with the saturation of the latter with high technologies. The design engineer is not only engaged in the development of technological processes, but he must also now take into account how the personality of the employee and the community of the labor collective as a whole can ensure the reliability, efficiency, and safety of the functioning of the technical and technological system (Mate & Silva, 2005).

The system of human activity, if we follow the principle of exclusion of reductionism, cannot be fully considered without taking into account the social structure.

In the social structure, as far as human activity is concerned, three levels can be distinguished: micro-meso- and macro: individual, organization and society. In turn, the human activity system can be divided into subsystems that perform certain functions in activity. The implementation subsystem transforms matter and energy within the physical action. The information subsystem performs coordination and communication functions regarding physical activity. The goal-setting subsystem sets the direction of physical activity and communication (Kurlovich, n.d.).

With the exception of the goal-setting subsystem, similar subsystems that we encounter in the system of human activity can also be distinguished in the technical system. Goal setting can only be carried out by a person, so this subsystem is necessarily associated with human activity. Therefore, the functions performed by most subsystems of the system of human activity can be taken over by the technical system. This opportunity is used both in the production sector and in other spheres of life of a modern

person, including in the city (infrastructure). Effective transfer (translation) of the functions of human subsystems (his activity) into subsystems of technical systems is also achieved through the division and specialization of human activity operations, in particular through the division and specialization of labor in the manufacturing sector. Activity separation means that activity functions that were previously connected or connected to each other within the same system are separated and performed by specialized activity systems. At the same time, it should be taken into account that human and technical systems are equally functional, the transfer of the functions of human subsystems to technical systems does not mean that the former loses their corresponding functionality. As a rule, human subsystems are able to duplicate technical functionality. There is a distribution of functions (distribution) between the systems of human activity and technical systems. Such an ordered distribution forms a higher-level system, a socio-technical system (Kurlovich, n.d.).

Each new technical invention, new technical and technological formations that enter a person's life become not just objects that he manipulates, but either embody a new function that becomes significant in human activity or take on the functions already performed by some subsystem of human activity.

Thus, a change in the technical environment entails the emergence of new samples and activity models. Such materialized forms of activity, as a rule, universalized - associated with the activity of each member of society, form a socio-technical infrastructure. As long as the functions of the activity system were internalized, related to the internal content of the human activity system, they were individual in nature and had an impact on social structures to a much lesser extent. But externalization forces each member of society to tie his own system of activity to a given technical environment, to given technical formations. For example, while there were no steps on the ascent, each in his upward movement raised his leg to the height that was convenient for him and commensurate with his physical capabilities, as soon as steps appeared on the ascent, the height that it is necessary to raise the leg to overcome this ascent is already determined by the height steps. The height of the step in this example is a technical sample that objectified the function that previously constituted the inner content of the activity of each specific individual. The step becomes a universal model, it can be said to force all people to follow a certain predetermined pattern of behavior. The technical function is universal and therefore has a social character. The technical function is therefore at the same time a social function or a sociotechnical function. The combination of two properties of technical properties, namely their externalization or objectification and universal or social character, allows society to improve the mechanism of socialization. If earlier familiarization with social norms, what is called socialization, took place through the processes of social communication, including in the early stages of personality development, through the processes of education, now it becomes possible to socialize the individual through a technical environment that forms and directs the activity of the individual in a socially acceptable direction (Kurlovich, n.d.).

Considering social groups and organizations in a wider environment, taking into account the influence of external environmental factors in relation to them, within the framework of the theory of sociotechnical systems, the principles developed by Ashby in his work "The Design of the Brain" are applied. The adaptive mechanisms of the system

identified by Ashby in this book are successfully applied by Fred Emery to the analysis of sociotechnical systems.

In theory, there are three interpretations of the system category. Structural interpretation reflects the traditional approach to the concept that goes back to the Aristotelian term “holon” (whole). It considers the system as a set of elements connected by certain relationships. A system is the sum of elements and connections existing between them.

The functionalist approach proceeds from the interpretation of the system as a kind of black box with an input and an output. The signals arriving at the input are converted, depending on the internal state of the black box, into signals coming from the output of the system. Such a transformation is called a function (Kurlovich, n.d.).

The concept of hierarchy defines a given system as one of the levels of a comprehensive multi-level system. Elements of the system, in turn, are subsystems. Each given system is a subsystem of a higher-level system. The position of the object in the hierarchical structure at a certain level, the differentiation of its activity, actions and reactions, depending on which level signals come from a higher or lower one, such selectivity indicates that this object is a system. Basic principles of the system:

- the system is more than the set of its elements and includes, in addition to the set of elements, the totality of those relations between the elements that determine the properties of the system;
- the structure of the system determines its functionality;
- functions of the system can be performed by its various structures - the principle of equal functionality;
- the system cannot be exhaustively described only at one level of the hierarchy (principle of exclusion of reductionism).

Sociotechnical theory proposes a theoretical basis for projection of an organization and for the usage of privileges that are promised by command and control such as Network Enabled Capability (NEC) as well (Keller, Atkinson & Clarkson, 2008). However, what does NEC mean?

There are plenty of interpretations of what NEC is which alter depending on which viewpoint to look from. Therefore, there is no unique determination or definition about NEC. The former Minister of Defense of Great Britain Geoffrey Hoon in Strategic Defense Review in July 2002 best described NEC:

‘Network Enabled Capability encompasses the elements required to deliver controlled and precise military effect rapidly and reliably. At its heart are three elements: sensors (to gather information); networks (to fuse, communicate, and exploit the information); and strike assets to deliver military effect. The key is the ability to collect, fuse and disseminate accurate, timely and relevant information with much greater rapidity (sometimes only a matter of minutes or even in “real time”) to help provide a common understanding among commanders at all levels.’ (Hoon, 2002, p. 15).

Sociotechnical theory is originated from the work in Tavistock Institute in London between 1950-1960 (Trist & Bamforth, 1951). These sociotechnical systems are being applied in autonomous work groups and self-governing roles. Trist (1981) thinks that self-governed commands are more effective with flexible roles than ones with distinctly structured roles. As it was mentioned before, sociotechnical systems have basis on theory of open systems which depicts that organization is a system of human which is existing in dynamic relationships with environment. According to Sommerville (2003) complicated relationships between system components mean that systems represent something more than an accumulation of its parts and it has properties which are the properties of the system overall. On top of that, according to Whitworth (2009), a performance of traditional information system is its functionality, however, more accurate definition is that how successfully the system interacts with its environment. This enables the convenience of usage and other unfunctional requirements such as safety and reliability to be a part of the system performance.

Sociotechnical systems have to support basic organizational aspects individually and collectively synergize them, thence, strategy must be concluded in redesigning of management mechanism so as to adapt new work system models in retort to environment.

The concept of sociotechnical systems, in contrast to theories of technological determinism, which asserted the unilateral impact of technology on a person in the process of performing labor operations, is based on the idea of interaction between a person and a machine. At the same time, it is assumed that the design of technical and social conditions should be carried out in such a way that technological efficiency and humanitarian aspects do not contradict each other (Green, 2010).

Man is the most important element of sociotechnical systems. The presence of the anthropogenic factor leads to the fact that many characteristics of such systems are no longer strictly defined: the connections between subsystems are not clearly described, the question of the number and composition of input data remains open, since it is not known what can affect the behavior of a person as an element of the system, etc. The values of most input and output factors in sociotechnical systems are not numerically measurable. The level (strength) of control actions is also not clearly defined. It is difficult to predict the effect of control actions on the anthropogenic elements of the system. In addition, since the goal of the system in goal setting is often formulated by the decision maker qualitatively (indistinctly), this leads to its “blurring”, the appearance of a “permissibility range” when the goal is achieved.

If the classical methods of mathematical statistics are applicable to the disclosure of uncertainties in the study of the technical subsystem of the STS, then they are not suitable for the anthropogenic component, since the uncertainty in this case is subjective. Unlike objective probability, which reflects the relative frequency of occurrence of an event in the total volume of observations, subjective probability is understood as a measure of the certainty of a certain person or group of people (experts) that this event will actually take place. As a measure of a person's confidence in the possibility of an event occurring, subjective probability can be formally represented in various ways. Most often, it is presented as a probabilistic measure on a set of events, obtained by an expert (Azhmukhamedov & Protalinsky, 2013).

Subjective probability in modern works in the field of systems analysis does not simply represent a measure of confidence on a set of events, but is linked to the decision maker's preference system, and ultimately to a utility function that reflects his preferences on a set of alternatives. When the technical and social subsystems of the STS interact, a so-called synergistic effect arises, which consists in the fact that the interaction gives the system new properties that were absent from individual elements. Since the methods of classical systems theory turn out to be practically unsuitable for use as a scientific and methodological basis for the study of STS, it becomes necessary to expand the arsenal of classical systems theory through the use of fuzzy sets, the use of linguistic variables, fuzzy cognitive modeling and informal assessment in order to develop a unified approach to modeling sociotechnical systems (Azhmukhamedov & Protalinsky, 2013).

2.2. Algorithmic Management

Apple, Microsoft, Amazon, Alphabet, Alibaba Group, Facebook, and Tencent were the world's most valued public firms since about September 30, 2020. These seven corporations had a combined market worth of more than \$8.3 trillion. They are all platform-based. The platform's business concept has seen a tremendous growth in popularity. In the third quarter of 2010, ten years ago, two oil firms (ExxonMobil and PetroChina) were at the top of the rankings. Only Apple was in third place, while Microsoft was in sixth place, out of GAFAM (Google, Apple, Facebook, Amazon, and Microsoft). In the third quarter of 2011, Apple took the top rank, followed by Google in 2013, Amazon, and Facebook in 2016. Platforms are increasingly used to implement projects and a large variety of goods and services (Feshchenko, 2021).

Platforms provide software for business; crowdsourcing platforms allow to collect ideas, facts, or opinions from a wide group of external customers; and cybercurrencies are available on numerous platforms (Caliskan, 2020). John Deere has traditionally developed agricultural equipment, but its tractors, along with corn and wheat, are now collecting data thanks to GPS and some other software coupled with its MyJohnDeer cyber-farming platform. Members of the synthetic biology society can "mix and match" BioBricks (DNA sequences that contain particular information and biological activities as per the BioBrick TM protocol) on the internet platform (Stark & Pais, 2021).

On current platforms, one facet of algorithmic supervision is that agents function as private authorities, establishing their own set of regulations (Frenken & Fuenfschilling, 2020). Even though it has been stated that platforms exist in a "legal void" (Elert & Henrekson, 2016), the legal basis for running on platforms is meticulously outlined in the "terms and conditions" that all participants (whether customers, suppliers, or sellers) must agree (Frenken & Fuenfschilling, 2020). Such terms typically amount to several pages of fine print for sellers. Despite an abundance and details, the bureaucracy of these norms is questionable, particularly because to the instability of such settings. The same may be said for the applicable protocols, vendor assessment techniques with a use of algorithms, and level of employment (Curchod et al. 2019). Platform corporations unilaterally "pivot" (Ravenelle, 2019), widening the scope of work or the mechanism of compensation and analysis of workers, frequently without prior notice or rationale, putting people at greater risk (Griesbach et al., 2019). Alterations in adjustments and protocols on a regular basis are not only untrustworthy for a reliant entrepreneur such as a developer, dealer, or vendor). They are the primary source of ambiguity. As a result, the platform's algorithmic

administration differs significantly from the academic management of an organization or industry a century before. Whereas piecework wages in a Taylorist plant might fluctuate at will, the practical implementation of Taylorism on a broad scale demanded relatively fixed norms in the nature of productivity bargaining, which was developed and regulated by wartime employee representatives during WWI (Stark & Pais, 2021). Furthermore, during the mid-twentieth century, the evolution of Taylorism in Fordist as well as other monopoly capitalist structures was coordinated around fixed salary scales and other organizational norms aimed to maintain predictability. Interior labor markets were merely internal bureaucratic norms aimed at reducing market volatility (Stark & Pais, 2021). Workers might exploit these principles to predict improvements in salary levels and job ranks using protocols typically incorporated indicators (algorithms) of credentials and seniority. On the converse, algorithmic systems' technological capabilities enable a type of rational control that differs from the technical, managerial (Kellogg, Valentine, & Christin, 2020, p. 366), or administrative controls applied by employers previously. The objective of frequent recoding of the institutional framework, changing evaluation metrics, and unplanned "updates" of conditions in platform corporatism (Vertesi et al., 2020) is to induce uncertainty (Stark & Pais, 2021). Non-bureaucratic control is based on the continuous development of those uncertainty, whether it is instability (Frenken & Fuenfschilling, 2020) or obfuscation (Curchod et al., 2019; Rahman, 2020). Because, as Hatim Rahman points out, platforms cannot potentially (or legally) compel workers to prior controls, non-bureaucratic regulations are critical (Stark & Pais, 2021). Platform owners' claims that drivers as well as other individuals who provide their staff, musicians and artists who introduce their creative groups, reliant entrepreneurial creators who provide Research and innovation services, manufacturers who basically provide retail departments, and others are independent contractors might be jeopardized.

Taylorism is linked to the gadget ecology. In practice, large portion Taylorism's materiality—stopwatches, timecards, strobing cameras, and computation protocols—showed algorithmic characteristics. Platform capitalism's algorithmic management includes "an ecology of counting devices in terms of ranks, listings, categories, asterisks, and many other indications ("likes," "links," "taggings," and other click patterns)" (Kornberger, Pflueger & Mouritsen, 2017).

While the assemblage of people, mechanisms, and methods was a part of constructing and sustaining a hierarchical control technique in Taylorism, the assemblage of individuals, equipment, and norms in algorithmic management takes place in a system with twisted, not cyclic, feedback mechanisms. Algorithmic management lines, technically speaking, are not authoritative (Günsel & Yamen, 2020).

Although both the theory of scientific management proposed by Taylor and Weber's theory of bureaucratic management make significant contributions to the subject of management, there are some major distinctions between them. By segmenting jobs into manageable, particular elements and implementing scientific techniques to enhance each element, Taylor's concept of scientific management aims to boost efficiency and production. This method works well in circumstances where maximizing output is the main objective, such as highly routine, monotonous jobs. The essential importance of official rules, regulations, and hierarchies in companies is emphasized by Weber's theory of bureaucratic management, on the other side. A division of workforce, straight lines of leadership, and an emphasis on effectiveness and reason define this strategy. Large

businesses, wherein there is a requirement for a distinct structure of command, a strict specialization of workforce, and a concentration on rules and regulations, are ideally suited for the application of Weber's concept. Overall, Taylor's scientific management theory is better suited for industrial or assembly-line situations, while Weber's bureaucratic management theory is better suited for huge companies like the government or the public sector.

The fact that these theories were created in the beginning of the twentieth century should not be overlooked. Modern management techniques, on the other hand, attempt to use a hybrid approach which takes into account many management viewpoints and are more dynamic and flexible.

Ratings are one of the most essential instruments in algorithmic administration's "evaluative framework" (Kornberger, Pflueger, & Mouritsen, 2017); they provide client evaluation and feedback. In contrast to employee appraisals by frontline staff (in a traditional business setting) or 360-degree colleague assessments (in a post-bureaucratic context), ratings are established by the transaction's partners. In context of binary data, indications (likes, comments, tweets, etc.) which might be combined to generate an estimation are commonly employed instead of various feedbacks. Such assessments could also be used for feedback to vendors in many ways, and these performance measures are almost always accessible over the internet. Of course, the platform operator has access to certain metrics at all times. In fact, some platforms will reject or start punishing a service or user depending on the evaluations they have received from others. Client ratings potentially influence seller's behavior even without confirmation through the platform operator, just as user access the assessments could impact client decision. Digital ratings produce nervousness and insecurity, like Wanda Orlikowski with Susan Scott proved in their seminal early TripAdvisor analysis, and also as Corentin Curchod and collaborators revealed in eBay research (Orlikowski & Scott, 2016; Curchod et al., 2019).

Evaluations are commonly expressed as a number of points. The ability to instantly collect and transform rankings, or perhaps a group of rankings for a few factors, into a rating system is critical for algorithmic management (Stark & Pais, 2021). If evaluation is defined as determining whether something is superior or even worse than a criterion, ranking is defined as determining whether something is superior or worse than the other.

Since the platform economy is largely based on the economy of focus, rankings are important. Not only do retailers fight for interest, but practically all groups of people do as well. It is important still to be prominent in order to be chosen for purchasing or to be linked. Through many platforms, prominence is determined by the position of the trade, vendor, or client within ranking. Because the volume of suggestions or possible matching upon platforms is absolutely overwhelming, rankings provide further awareness. Even though the rankings' proposals are severely restricted to a category or a sort of categorization, their quantity is frequently enormous. The actual figure fluctuates over each platform: 10, 110, or 1010, but once falling below a particular rank in the rankings, it will become invisible (Bucher, 2012). Platform players strive for a spot within algorithmic ratings in the battle for noticeability. Such position is defined as the total amount of many other clients' ratings, perhaps by explicit counterparty ratings, and

occasionally even by various other suppliers' ratings such as "likes" coupled with shares. This type of rivalry is more like structured competition versus market contention. Contentions on platforms, on the other hand, are not the same as sports tournaments, song contests, or architecture contentions, which take place at a specific period and in a specific location, with participants signing up at the start and leaders revealed in final. Rankings can be found practically everywhere, at almost any time, and are updated on a regular basis.

Internet - based evaluations are not the same as trophies and rewards in traditional contentions (Stark & Pais, 2021). The "gold medalist of the Sporting Events" is indeed the leader of these Sporting Events. However, a provider that is rated eighth on one table may finish in the top 10 the following season. Unless the sequential step is modest, the variety between getting inside or outside of top 10 could perhaps make a difference (Stark & Pais, 2021). Evaluations upon plenty of platforms may not be repetitive but are algorithmically modified virtually steadily. Through these circumstances, algorithmic management does not imply that the viewer or vendor is still under constant supervision 24/7, but rather that explicit ratings of their actions are transposed into a listing which might receive feedback in order to influence their actions (Stark & Pais, 2021).

Although ranking orders can be apparent, a ranking nomenclature is rarely published in its entirety. It is frequent in public platforms, in which there is a new mode of visibility, according to Tiziano Bonini and Alessandro Gandini (Bonini & Gandini, 2019). The evolving function of rankings within music expenditure, where computational rankings and their associated controls take on new forms in reaction to new products and services, is particularly fascinating. The practice of content curation is prominent in music, as it is in other areas of culture; at the same time, top lists constantly appear in curatorship. Tabulating is a unique facility available to listeners on radio and modern music streaming services, and thus the prioritized roster has been and continues to be the most popular curatorial method. Furthermore, this model has evolved significantly.

Subscribers of Spotify and perhaps other streaming services who are familiar with playlists may be puzzled by the names given to ranked playlists. Platform owners, publishers, broadcasters, and musicians, on the other hand, would not be startled, because we are not discussing about playlists created by someone or someone's friends (there are billions on Spotify), but playlists developed by owners. While big labels get their own Spotify playlists to support their singers, Spotify's own playlists are the most popular on the platform. Each platform comes with its own data analysis technology. PUMA (Playlist Usage Monitoring and Analysis), as an example, cuts every song in a playlist via parameters like the number of plays, glides, and uploads. This program keeps tracks of the playlist's generic effectiveness, using graphical representations to show the age variety of listeners, their sex, geographical location, signup level, and so forth (Bonini & Gandini 2019, p. 6).

It has been referring to the manner wherein structured lists attracted individuals to the awareness of others within platform economy when it was spoken about algorithmic management ratings as kind of a new variant of availability, whether explicit or hidden. Some may believe, however, that algorithmic control systems indicate a different kind of accessibility: subordinates watched from the outside become the focus of a new, far more pervasive scrutiny of leadership. Algorithmic management is viewed as a new discipline

surveillance system in this approach. Curchod and his co-authors expressed this viewpoint in an eBay study (Curchod et al., 2019; p. 665–667). It is not concluded that such "power asymmetries stem from eBay's ability to impose sanctions and rewards through highly bureaucratic, automated practices" (Curchod et al., 2019; p. 660), as well as its "vendors are in a formal, hierarchical power structure" based on their incisive observations concerning power asymmetries among assessors and assessors at the interaction level as well as between vendors and platform holders at the systemic scale" (Curchod et al., 2019; p. 666).

Platform organizations are really strong. Moreover, the range of properties of algorithmic control (wide registration coverage and at the same time the ability to make intimate details visible) is really outstanding. Platforms, contrary to Curchod et al. (Curchod et al., 2019), illustrate that consolidated power and proximate disciplinary management can perhaps be separated. Administration is decentralized and disseminated within platform algorithmic monitoring (Kornberger, Pflueger, Mouritsen 2017; Vallas & Schor, 2020).

Obviously, institutions disperse control as well: power is allocated organizationally in bureaucracies (the subject of the bureaucratic hierarchy may control some lower actors and be controlled by others higher in power hierarchy). When we state that administration is fragmented and dispersed in algorithmic management, we do not even imply the bureaucratic power is spread more decentralized. Both traditionally and algorithmically, algorithmic management is not arranged on institutional power. In a tripartite algorithmic approach, platform vendors forego administrative control in preference of incorporating the attitude of the other two sides of the market (Kornberger, Pflueger, Mouritsen, 2017: p. 3; Vallas, Schor, 2020; p. 282). This participation serves as a resource to algorithmic management. Despite the fact that buyers and sellers are not members of the executive staff, they are an important aspect of algorithmic management. As a result, algorithmic management does not digitize conventional institutions and processes. It does not deal with institutional issues, and its answers do not even generate a new type of algorithmic administration. Interactions in tripartite partnerships create the inputs for assessments, rankings, and much else non-bureaucratic calculation mechanisms of algorithmic management, and the final outcomes - performance indicators - are available to second and third parties (albeit in part and often in a rather opaque way).

Taylorism was strongly hierarchical, not only in terms of managerial advancement and accountability, and also in terms of consecutive engineering and founded in a conceptual framework that arranged categories of inclusion and exclusion from the specific to the conventional (Stark & Pais, 2021). Algorithmic management follows a distinct logic, lacking the verticality and consistency of a mid-twentieth-century conglomerate: its datasets are relational rather than categorical. In high-tech start-ups, when cognitively distant team members seek transverse interaction instead of fragmentation, algorithmic management is also unlike project management (Vaan, Stark & Vedres, 2015). Unlike late-twentieth-century startup project management, the platform economy lacks horizontality and parallel engineering: while some are algorithmically observed, others strive for algorithmic emphasis in evaluations.

Accountability remained linear in the commercial environment of mid-twentieth century, as it was in other stratified systems. Numerous evaluation approaches coexisted

in late-twentieth-century post-bureaucratic enterprises, innovative start-ups, as well as in-house efforts in all other aspects of corporate firms. Responsibility is not vertical and lateral under the algorithmic governance of the digital economy. Contractors are not held responsible by project leaders. They are also not liable to each other, despite the fact that they examine each other using a variety of gadgets and must carry these assessments into consideration. Thus, project leaders are not obligated to their staff, sellers, or consumers. There are plenty of ratings, a lot of reporting, but no one is responsible, because there is no accountability in algorithmic accounting (David & Ivana, 2021).

Comparing algorithmic management in our century to the empirical management revolution a century ago is illuminating from the standpoint of class structure. Whilst Taylorism is commonly thought of as a tool of finance in its labor dominance (Braverman, 1974), such multiple paradigms fail to acknowledge the advent and development of empirical management since it overlooks the fact that Taylorism had been a new-type program. Empirical management, led by Frederick Winslow Taylor, established the key ideas for the new understanding class's practice as well as ideology. The labor process was transformed as a result of a multilayered class conflict between manpower, investment, and developing new category (Stark, 1980).

Manufacturing and technical engineers were in the vanguard of the initiative, adopting and modifying empirical management approaches to serve their collective interests as managers of a rapidly expanding managerial ranks. They did not make their assertions on the basis of capital ownership or the workforce supposition of value. Knowledge management, on the other hand, claimed knowledge and became the conceptual foundation of a new generation of managers and professionals (Botla, 2018). It is not required to embrace its assertions of scientific and impartiality in order to acknowledge that it was a compelling ideology for a growing class in the twentieth century (David & Ivana, 2021).

If in empirical management a prominent place was occupied by industrial engineers and mechanics, then the engineering base of algorithmic control is made up of programmers and specialists in data processing and analysis. The tests undertaken by these researchers are more probably to be for fundamental problems of sociality, rather just ergonomics, than those carried by Taylorists with their supporters (Marres & Stark, 2020). The modern social engineering effort does include data analysts and developers.

Arguments of impartiality and scientific nature establish a solid line of consistency that spans a century, linking empirical with algorithmic management. While empirical management has been linked to the expansion of the professional class and the idea of bureaucratic monitoring, algorithmic leadership is indeed not bureaucratic, as well as its dominance alters the structure of the professional class. Plus, there is also a reason to expect that the digital economy's expansion and the adoption of algorithmic management would be coupled by a significant reduction in the number of managers. Bureaucracy is not automated or created algorithmically by algorithmic management. The algorithmic triad, on the other hand, will keep managers occupied (Enriquez & Vertesi, 2020). According to one theory, algorithmic management is associated with a general, albeit delayed, deterioration in management, as well as a significant shift in the relationship between line as well as staff management, strengthening one another (David & Ivana, 2021).

Any examination of digital capitalism's political structure, in something as brief as this essay, must begin with the significance that the name "platform" serves in legitimizing platform dominance ideology and political relationships. The term "platform" invokes various connotations, as Tarleton Gillespie effectively demonstrates (Gillespie, 2010): an operating system, a structure's foundation, a towering structural feature, a metro platform, a venue to take a position or express ideas, and so forth. As per Gillespie, the term "platform" is "precise enough to imply something while being generic enough to work in a variety of contexts for various audiences" (Gillespie, 2010; p. 349). Whatever the multiple implications of the platform have in familiar is that they are plain and accessible to all: "in any sense of the platform, its elevation, flatness, and accessibility refer to ideological as well as physical features," and the term "preserves a populist spirit" by offering a "progressive and egalitarian device that promises support to those who stand on it" (Gillespie, 2010; p. 350-351).

This conceptual flattening rejects power imbalances between actors unless the platform addresses to different publics in the same language as well as being transparent in terms of availability. However, the geometry is rigid rather than flat in this case. While track records and vendor information were open to all, online scoring allowed consumers to conceal their reputations and identities, as well as their e-mail addresses" (Curchod et al., 2019; p. 656). At the transaction level, buyer personal privacy and anonymity correspond to an asymmetry of authority in favor of the buyer rather than the vendor; at the management level, the platform manager's position of apathy and range corresponds to an asymmetry of power in favor of the platform manager over the vendor. Curchod and his colleagues notice "isolation of the visible" (vendors) and uncover a "coalition of the invisible" (purchasers and platform manager) as a result of this (Curchod et al., 2019; p. 665). Participants who are managed on platforms, whether they are drivers of Uber, composers on Spotify, crafters on Etsy, perhaps hooked complementors on others, are familiar with this combination of platform operator and client (Huws, 2014; Schor, 2020).

Rahman with Thelen situate their examination of the platform structure in broader perspective, noting three major stages in the last century's history of capitalism. The "nexus of reciprocal interactions" amongst industrial mega-firms and its patrons was part of the model in the mid-twentieth century. These bonds were used to achieve long-term growth that was assured by a huge workforce on long-term labor contracts and long-term capital (patient capital). This model fell apart at the close of the twentieth century and was replaced by a "network of contracts" wherein the price of shares was the primary metric of advance. Investor pressure has fueled aggressive outsourcing and staff reduction measures at corporations like Nike to combat price wars amongst manufacturers. In the third stage, new platform businesses are backed by a certain financial asset: "in contrast to the "strike and sell" mindset of the 1990s, the commercial interests of companies like Uber and Amazon are long-term" (Rahman & Thelen 2019; p. 180).

The business strategy at each stage is based on a varied political coalition: the mid-century prototype was rooted on a partnership of managers and owners (along with the workforce), while the stockholder reformation of the late twentieth century was coordinated around a partnership of managers and owners; today's platform concept is based on a partnership of businessmen, shareholders, and purchasers. "Consumers are part of a political alliance against labor, either directly or tacitly" (Rahman & Thelen,

2019; p. 181). Platform firms could therefore leverage the customer to impact financial regulation due to their unprecedented constant cooperation with them. The rather precise, almost instantaneous link with the client allows for "explicit weaponization," or the use of the customer base as a weapon in political confrontations with legislators (Rahman & Thelen, 2019; p. 185).

As Rahman and Thelen (2019) admit, there are very specific policy and regulatory opportunities in the United States that have most likely made it a conservatory for platform farming. However, China has certain political characteristics that set it apart from the United States, resulting in a burgeoning platform industry. A collaboration of platform managers as well as the Chinese Communist Party would be a good option for forming an alliance together (Jia & Winseck, 2018; Kloet et al., 2019; Plantin & Seta, 2019). Again, the European regulatory environment is fundamentally different, which may explain why there are so few significant platforms based in Europe (Peck & Phillips, 2020).

Long-term financiers in the US permitted platforms to pass vendors for a long time in the early years to generate a network effect and reach a "winner takes all" situation. Platforms might need such subsidies to reward suppliers who have invested in strengthening their position on the platform. Having built a solid supplier base, the platforms have channeled their energy into expanding their customer base. However, once dominance is gained - as it has with "first generation" platforms (such as Amazon) - the platforms spread sideways, reaching new areas. Platforms are no more required to fund suppliers, who are increasingly subject to arbitrary service modifications and whose personal stake is at danger. Platforms must also be able to accommodate a big number of customers. As a result, a partnership with the purchaser has been formed (David & Ivana, 2021).

Platform owners have avoided the uncertainties of legislation unless they might recruit satisfied customers who could really help them secure advantageous legislation (Thelen, 2018; Culpepper & Thelen, 2019). Occasions of obvious political crisis amongst platforms and a customer are currently connected with actions in which platforms create unpleasant social outcomes. For instance, in response to requests from residents affected as long-term tenants through Airbnb's impact upon the property market, certain municipalities, notably cities like Barcelona, are actively regulating Airbnb. As a result, regulators' attention is effectively moved from the platform client's interests to the larger public interest in such circumstances, even if this occurs at the local or zonal level at the moment.

Antimonopoly legislation in twentieth-century capitalism was founded on consumer protection rhetoric. Antimonopoly regulation in the twenty-first century can still be based on this kind of slogan, however the development of platforms into new industries will demand them to remain to generate customer support for the near future. Alternatives include antimonopoly legislation based on social instead of customer safety concerns to keep dominant platforms in check (David & Ivana, 2021).

An algorithm is a collection of rules that must be followed when computing or performing other operations in order to solve problems according to Oxford Online Dictionary. Since the eighteenth century, when Max Weber proposed a step-by-step

distribution and allegedly objective techniques of choice and assortment that are unique for making decisions in contemporary bureaucracy, algorithms have been used in the corporate world (Fourcade and Healy, 2016). Nowadays, however, although algorithms have been using for a long time, a character of usage of algorithms has changed due to impetuous upsurge of computing power and collection of digital data. As a result, algorithmic management, as opposed to "management's use of algorithms," focuses on programmatic algorithms, which can be characterized as computer-based programmed procedures for transforming input data onto expected result (Kellogg et al., 2020; Barocas et al., 2014; Gillespie, 2014). Thus, algorithmic management refers to the use of certain computational processes in the management of a corporation. Since technological development extends the potential of data collection and data processing like sensors, cameras, audio devices, biometric data and text, a potential and economic advantages of algorithmic decision making expands in the same way (Kellogg et al., 2020).

The term "algorithmic management" was initially defined by Lee et al. (2015), which defined this as programmatic algorithms that assume administrative responsibilities and organizational instruments that keep algorithms in practice. Algorithmic management, according to Lee et al. (2015), entails algorithms being used to assign, evaluate, and optimize working persons. In addition to that, analogically, Mateescu and Nguyen (2019) defined it as various set of technological instruments and methods for distant management over work forces based on data collection and tracking employees for providing decision-making that is fully or partially computerized. According to Kellogg et al (2020), empirical study shows that algorithmic management has been currently limited mostly by changes in organizational control form through direction automation, assessment, and discipline.

There has not been any large-scale representative research into algorithmic management to date. As a result, the literature which is extant is drawn from different case studies, with the majority of it being conducted within experiential setting of platform career. Virtual infrastructures that function as mediators in multi-sided markets, bringing together two or more independent user groups, according to Srnicek (2016) (Rochet & Tirole, 2003; Evans, 2003; Eisenmann et al., 2006; Wood et al., 2018). In consequence, platforms get the capacity to enhance staff members to deal with a variety of consumers on an individual basis, as well as to differing extents, to select which clients and professions they accept, how those implement these tasks, and, in most situations, the prices they charge those buyers. Platform policies and design aspects, on the other hand, have a significant impact on a worker's opportunity to exercise such responsibility (Wood et al., 2018). It is no wonder that algorithmic management started in this area because data gathering, and algorithms have become so fundamental to the operation of virtual labor platforms (Mateescu & Nguyen, 2019). Nevertheless, algorithmic management traits are increasingly being observed in traditional workplaces, most notably in warehouses, as well as in commerce, production, branding, consulting, banking, resorts, contact centers, and even among media, attorneys, and officers to a lesser level. In platform work, algorithms assume some administrative responsibilities by autonomously delegating responsibilities to personnel through use of handheld devices, cellphones, as well as desktops (Wood, 2021).

Beside Lee et al. (2015), Antoinette Rouvroy (2013) used the term "algorithmic governmentality" to describe new power regimes ushered in by the "computational turn"

and the increasing ubiquity of algorithms in everyday life. The structuring of social media timelines, the provision of personalized music and film suggestions, and the filtering and dissemination of news stories are all popular applications. Each of these programs has one thing in common: they provide a systematic order to chaos of the Internet, making information more edible and manageable for the average user.

2.2.1. Descriptive Algorithms

Descriptive algorithms use data processing techniques such as data cleaning, cleaning, and sorting, to analyze worker generated data, integrate data from different sources, or average scores, distributions, or it is useful for working with relatively simple statistics that show the relationships between the variables (Meijerink & Bondarouk, 2021). This helps managers monitor relevant indicators such as worker performance, absenteeism, and personality. Therefore, descriptive algorithms include recruitment and selection such as resume screening, social media analysis and so on, performance evaluation and training. For instance, descriptive algorithms are being utilized in selection process where they evaluate personality properties of candidates for job based on their profiles in social media (Cheng & Hackett, 2021). Regarding training process, such sort of algorithms assists to search and trace training programs. Descriptive algorithms might assess the effectiveness of trainings as well. Next, they take part in sentiment analysis, congestion and figuring out performance indicators, as well as survey of automated salary, ranking of job, competency profile construction and so forth (Meijerink & Bondarouk, 2021).

2.2.2. Predictive Algorithms

Predictive algorithms are being used to determine objectives by assigning a rating that depicts the probability of an occasion or consequence occurring (Leicht-Deobald et al., 2019). It will also include the use of advanced correlation procedures, AI algorithms, or data mining techniques (Davenport, 2014) to assist planners in fields such as recruitment and choice (foreseeing future prospects of a work seeker), manpower arranging (foreseeing attrition), and execution management (foreseeing upcoming execution of a specialist). In spite of the fact that such forecasts are not perfect, they might assist human resource managers in deciding on a specific course of activity (Cheng & Hackett, 2021). Predictive algorithms in selection process are, as it might be grasped from its denomination, predicting potential coupled with performance of candidates. In addition to that, they are able to forecast demands for upskilling, as well as gaps in workforce competency during training process. By usage of predictive algorithms, it is not as complicated as it was before to divine the project's time of going off track. Coming to employees, such algorithms fruitfully support to predict the future performance of workers. Aspects like desired compensation level, turnover in workforce planning, and future labor need – all these could be cheaply predicted by predictive algorithms (Meijerink & Bondarouk, 2021).

2.2.3. Prescriptive Algorithms

Prescriptive algorithms augment foresight calculations by counting reenactments and using hypothetical case methods to suggest what should be done within face of

possible outcomes (Davenport, 2014; Leicht-Deobald et al., 2019). It accomplishes two features:

1. Decision assist by an algorithm recommending what circumstance to pursue as well as a person director approve the correct decision, such as a program algorithm which sorts out job contenders based on their CVs or portfolios, and then a personal supervisor deciding what jobseekers to attend for an appointment.
2. Decision mechanization is when a software makes a decision without the need for human intervention (Leicht- Deobald et al., 2019; Meijerink et al., 2021; Strohmeier & Piazza, 2015). Digital platforms that suit freelancers and institutions, such as Uber, Deliveroo, as well as Amazon Mechanical Turk, use algorithms for robotic governance (Duggan et al., 2019; Lee et al., 2015; Meijerink & Keegan, 2019; Newlands et al., 2021; Rosenblat & Stark, 2015; Veen et al., 2019). Digital platforms like to limit the quantity of freelancer specialists on their stage since they demand a fee each matchmaking. Human resources algorithms help to computerize mechanized governance, regulate autonomous specialists at scale, and restrain exchange costs (Gandini, 2019; Rosenblat, 2018). So, online platforms utilize a wide extend of predictive human resources management algorithms to automate decisions in aspects such as workforce arranging, for example, a software calculation that naturally assigns exercises to specialists, selection like automated confirmation to the online platform on the premise of chosen specialist characteristics, compensation, for instance, surge estimating that decide the level of variable pay, and execution examination such as dismissal or deactivation of destitute performing specialists.

2.3. Usage of Algorithmic Management

2.3.1. Algorithmic Management and Decision-makings

Organizations utilize algorithms and digital information systems not only to support decision making, but for decision making as well which lead to a rise of automation of plenty of leadership features (Chamorro-Premuzic & Ahmetoglu, 2016; Parry, Cohen, & Bhattacharya, 2016). For instance, computers assist to assign tasks for employees, and estimate task implementation, as well as determine compensation on basis of digital algorithms (Harms & Han, 2019). Therefore, computers are getting transformed from simple instruments or informational devices into leadership agents by creating new structure of leadership with an interaction of computers and individuals (Glikson & Woolley, 2020). A term of algorithmic leadership portrays processes where computer agent influences on human agents so as to structure, direct and manage performance and relations in group or organization (Wesche & Sonderegger, 2019). Algorithms may aid organizational subjects to surmount biases within decision making by contributing evidence-based quantitative approach which is relying on mathematical estimation of alternatives instead of human intuition (Davenport & Harris, 2017).

Although it is hard to call algorithms a recent invention, they are increasingly getting used in systems for decision making. Such systems are known as Algorithmic Decision-making Systems (Castelluccia & Le Métayer, 2019). They often refer to an analysis of huge amounts of personal data for establishing correlation, or for gathering

more information which is considered to be beneficial for decision making. Intervention of an individuals into decision making process can vary, or even be away in completely automated systems. In plenty of situations, the decision impact on people might be significant (Castelluccia & Le Métayer, 2019). For example, credit access, treatment, employment and so on.

Algorithmic decision-making systems have a significant role in developing and improving of new digital services. Such sort of applications is consumed in order to assist making predictions, recommendations or resolutions in various spheres such as information, planning, logistics, finance, etc (Castelluccia & Le Métayer, 2019). These services have been directed to an optimization of one or several precise criteria like cost, energy, time, relevance, and others. For instance, navigational services help users to define optimal itinerary for their destination taking into consideration parameters such as traffic conditions, traffic, and cost. There are new services that were not existed several years ago which may include intermediary platform AirBnB that proposes accommodation, as well as Uber which represents alternative transportation means. Additionally, smart home applications are getting integrated for homes so as to increase comfort and optimization of electricity consumption. Similarly, medical apps have getting offered as well, which will assist to improve health by tracking the physical activity or eating habits. All mentioned services consume a huge amount of data and complicated algorithms and models. They might be addressed to individuals, as well as public or private services. For example, new services are getting deployed for development of logistics such as optimal distribution of products in shops, or optimal construction of roads, as well as improvement of finances that involve auctions, and cyber security which includes automatic detection of vulnerability in computer systems. Algorithmic decision making could be also used for optimization of the existing services. In this context, solutions that used to be made by humans now they are being made fully or partially with the use of algorithmic decision making (Castelluccia & Le Métayer, 2019).

One of the spheres where enormous progress was made in area of artificial intelligence in last decade which might have a strong effect on confidentiality is image recognition (Castelluccia & Le Métayer, 2019). These methods can be consumed in many types of algorithmic decision-making systems, for instance, for identification of people by face recognition. This may be applied for pictures published on internet, as well as for photos potentially. It enables police officers to reveal potential offenders (Castelluccia & Le Métayer, 2019).

2.3.2. Algorithmic Management and HR Functions

The application of software algorithms based on computer-based data to support employment decisions or computerize HR processes (Duggan et al, 2019; Kellogg et al, 2020; Lee, Kusbit, Metsky & Dabbish, 2015; Leicht-Deobald et al, 2019; Newlands et al., 2021; Strohmeier, 2020; Veen et al, 2019). Based on this definition it is possible to highlight three major features of algorithm based HRM. First, development and use of digital data. Second is a deployment of digital algorithms that process digital data. Last one is partial or complete automation of decision making related to HRM. Algorithmic HRM might be considered as a sort of digital or electronic HRM (Bondarouk, Parry, & Furtmueller, 2016; Strohmeier, 2020). It signifies that virtual HR management is the technique of utilizing the power of online job knowledge, task, or HR management

activities for HR management purposes (Parry & Strohmeier, 2014; Strohmeier, 2020). Coming to algorithmic HRM, that potential is related to a consumption of virtual data for partially or wholly automated HRM decision making. Thus, the first two characteristics imply that algorithmic HR planning is a subset of virtual HRM, whereas the third characteristic, mechanization of HR management-related governance, distinguishes algorithmic HR management from other types of computerized HRM. Virtual data is required for algorithmic HR management. Computerized algorithms cannot function without them. Software algorithms must be able to use data, that is why those data must be represented in form of binary digits for computers to be able to read them. Thereby, algorithmic HRM demands so called digitization which is a process by means of which information converts into digital data (Strohmeier, 2020). An instance of this could be transformation of paper records about employees into digital data which stored in Human Resources Information Systems. Beside these, usage of sensors and intellectual devices in workplace involving smart watches, smartphones, GPS tracking and sociometrical badges admit organizations additionally digitize data related to workers. It's feasible to imagine an electronic data set that records employee engagement, position, action, effectiveness, psychological state, and interpersonal relationships (Garcia-Arroyo & Osca, 2019). Innovation, combined with the use of detectors and intelligent devices, allows for the collection of electronic data in coexistent regime from a variety of sources. It is frequently referred to as "big data." Data can be termed large if it has a large capacity, a high rate, or a high multiplicity (Garcia-Arroyo & Osca, 2019). Considering large size and speed via which they are getting gathered, it is hard to effectively process those data manually. In this case, algorithms are used to retrieve data from disparate sources, merge them, and transform them into a standardized format without the need for human intervention.

2.3.3. Algorithmic Management and Operational Functions

Employers utilize algorithmic management to lead personnel, specify what is necessary to perform and in what order, and in what given timeframe, with varying degrees of precision. Underneath technological control, management is mostly accomplished by systems that motivate employees to complete specified tasks at a specific pace by work scheduling, expertise, and deskilling (Braverman, 1974; Burawoy, 1982). Work specifications, guidelines, inspections, and protocols are used to provide direction beneath bureaucratic control. Managers use two main components in algorithmic management to coordinate staff habits: algorithmic prescribing as well as algorithmic limiting.

One of the operational functions within management might be algorithmic recommending. Algorithmic suggesting entails managers using algorithms to make suggestions in the hopes of inspiring the targeted employee to make selections that the choice planner prefers. Managers can engrave systems with instructions that highlight specific options for staff to perform, just as they can with previous kinds of rational management (Kellogg et al. 2020). Algorithmic suggesting frequently guides employee choices by dynamically finding designs within data, mostly via intellectual algorithms which work without utilizing specific guidelines, relying on designs and deduction to present laborers with pre-chosen options (Gabrilovich, Dumais, & Horvitz, 2004). To give an example, the non-profit "Crisis Text Line," which connects people with problems with volunteer consultants, uses robot algorithms to examine content data and

recommend which communications should be preferred. Their computational approach discovered that the word “ibuprofen” was 16 times more common than the word “suicide” to predict the need for crisis assistance. Subsequently, messages including the phrase “ibuprofen” were mechanically preferred, which reduced volunteer responsiveness for greater texters between 120 seconds and 39 seconds (Kellogg et al., 2020).

Furthermore, managers are also utilizing algorithmic suggest getting around the assumptions that employees utilize to make judgments. For example, a commercial tech firm that relied on clothing buyers’ capacity to make forthcoming merchandising selections began mining data from prior judgments’ actual performance to recommend more beneficial upcoming marketing options (Kellogg et al., 2020). Meanwhile, Uber used individual data, like halting and gaining intensity, to determine whether employees were behaving incorrectly and algorithmically recommend when they should be forced to stop driving (Rosenblat & Stark, 2015). Such proposals were frequently made in the form of bumps integrated into computational systems, making them difficult for personnel to ignore (Thaler & Sunstein, 2009). Uber, for example, used customized and actual bumping to effectively persuade drivers to return home after three passengers in a line reported sensing unsafe (Scheiber, 2017).

Managers are also employing algorithmic limits to organize the activities of their personnel. It entails the exploitation of algorithms to display only specific facts and allow specific patterns while predicting others. Managers can create algorithms with assumptions and instructions that limit employees’ activity (Callaghan & Thompson, 2001). Algorithmic management allows data limitations to be incorporated into the workflow quickly and quietly. Platform companies like Uber, for instance, utilized algorithms so as to limit shift options, ride options, and delivery options in order to streamline services (Calo & Rosenblat, 2017; Lee et al., 2015). Also, despite the fact that it increased the workload of pediatricians, a hospital management applied algorithms to restrict the loading needs of drug store staff members’ robots in actual time to benefit customers waiting for prescription refills (Barrett et al., 2012). Upwork utilized automated chat bot alerts to remind laborers of their consensus not to d’al with customers off the platform whenever these terms like skype, mobile, or mail were written into the conversation among staff and customers, and Upwork sent comparative notifications while laborers spread e-mail addresses as well as contact information with customers, or proposed utilizing various cloud sharing facilities (Jarrahi, Sutherland, Nelson, & Sawyer, 2019).

2.3.4. Algorithmic Management and Performance

Algorithms are made to manage most of the commonly utilized objects or activities in our society, performing their assignments within the most possible productive way (Geraci, 2020). Organizations are using these modern instruments to manage an expanding number of processes, from production lines to client data collection and observing or controlling the workers behavior and performance. To “make transportation as reliable as running water”, the transportation network, Uber, uses a mobile application to manage its employees, according to Travis Kalanick, co-founder of Uber. Uber drivers are approximately a million around the world including Azerbaijan and are managed by an algorithm. From selection process to their assessment, these drivers are chosen and evaluated according to standardized parameters to guarantee a predictable level of service

given to clients. It means, erasing any need for face-to-face interaction between them and the organization. Their employment is realized via the application, as well as all their job activities. When they choose to work, due to the adaptability offered by the company, one tap is sufficient to log in into the app, the algorithm, at that point, will select for them the clients within the base of their distance, indicating in the driver's app like a trip request without showing any individual data regarding their clients nor their last destination (Geraci, 2020). This request might be skipped up to three time before disconnection. In order to keep their collaborators under control and to monitor their performance, the company gets weekly reports, involving average customer rating and confirmation rate, and the same results are shared with the drivers as well. This service level evaluation is a very standard instrument utilized by other gig economy companies such as Deliveroo. They utilize algorithms to compare the contractor's performance evaluation the medium average time fundamental to complete a particular trip taking under consideration what the company has characterized as reasonable delay (Geraci, 2020). Another example of how to evaluate the workers performance using algorithmic management is given by Amazon, where according to real time pick rate, the algorithm sends systematic instructions to employees directing them within the most productive way to take the requested objects from shelves.

Such platforms like Uber are using customer ratings, as well as work acceptance ratings to evaluate workers via algorithms (Lee et al. 2015; Rosenblat & Stark, 2015). Usage of such types of rating suppose that clients might be used as a sort of managerial assessment (Rosenblat & Stark, 2015). Travelers vote drivers on a system of one to five stars, as well as drivers at that point receive weekly performance metrics via a smartphone app (Rosenblat & Stark, 2015). Furthermore, such mobile apps acquire personalized information on halting and speeding up to assess future performance and propose to personnel who are driving erratically to pause algorithmically (Ticona et al., 2018; Kellogg et al., 2020). Calibrated consumer scores are merged with other measurements including employments accomplished as well as duration of interaction to algorithmically assess laborers on computerized platforms that provide inaccessible services like information input, planning, branding, translation, encoding, and scripting. Such tools analyze employment levels remotely based on keystrokes and images which are displayed to clients (Wood et al., 2018).

2.4. Dark Side of Algorithmic Management

On the other hand, algorithms might bring in complementary bias for decision making as well. It means that authoritative actors are easily able to make use of algorithms for introducing their own interests in processes of decision making (Kellogg et al., 2020). Last achievements in learning algorithms within the area of artificial intelligence led to facilitating data-driven decision making (Faraj et al., 2018; von Krogh, 2018). A rapid advancement of artificial intelligence has increased organizational desires and strengthened broadly held presumptions about learning algorithm control, clarity, consistency, and rationality, devoting to a very pragmatic picture of individual insights between investigators and specialists (King, 2016). Such remarkable levels of trust are based on 3 essential concepts. Primarily, judgement reached from learning algorithms is frequently seen as greater and more dependable than decision-making relied on person judgment (Kryscynski et al., 2017). The tremendous processing capability of algorithms enables rapid examination of large data sets to identify factual design and connections

(Giermindl et al., 2021). As a consequence, algorithmic justice, clarity, and impartiality are supposed to be enhanced (Giermindl et al., 2021). Furthermore, personal statistics is widely used to predict, adjust, and regulate present and future individual behavior, especially by carefully collecting and examining previous data (Chamorro-Premuzic et al., 2017). The assumption is that by analyzing prior behaviors and their outcomes, current and upcoming behavior can be clarified and anticipated (Wang & Katsamakos, 2019). Lastly, because it can optimize inanimate objects, processes, and assets, persons analysis is thought to have the power to optimize selfaware, individual human beings (Giermindl et al., 2021). Such assumptions, on the other hand, may be detrimental because they tend to a pragmatic view of individual insights without taking into account possible hazards, which could have major ramifications for companies and people. Treating workers as though they were measurable information objects rather than real people, for example, appears to be a fundamental class mistake (Giermindl et al., 2021). Individual insights obtained from empirical innovative advances in the sphere of artificial intelligence may underrate human ambiguity, be more intrusive, and have more dire implications for workers over other types of business insights, such as looking at products, net profit, key financial statues, and so forth (Giermindl et al., 2021; King, 2016; Leicht-Deobald et al., 2019). Subsequently, moral and ethical issues arise as a result of underlying principles about individuals' analytical roles, skills, and commitments across analysts and scholars (Giermindl et al., 2021; King, 2016; Leicht-Deobald et al., 2019).

2.4.1. Algorithmic Bias

According to Favaretto et al., (2019), the term “algorithmic bias” might be considered as a socio-technical phenomenon. The social aspect involves biases which existed long time and which effect on certain groups like marginalized or impecunious societies whilst its technical side assumes exhibition of social biases in algorithmic outcomes. Inside a non-algorithmic environment, social biases relate to actions taken opposed to or in favor of persons and classifications associated with social identity factors such as gender, ethnicity, and origin (Fiske, 1998). At several phases of algorithmic processes, social distortions could be included within algorithms. If a company's or society's social distortions are included into an algorithm's input, those biases may manifest themselves in the algorithm's output. In the application process, for instance, a risk evaluation algorithm can be created utilizing dataset which reflects disproportionately higher denial rates for women candidates without significant causes including such credit score differences or late payment record while compared to men candidates (Kordzadeh & Ghasemaghaei, 2021). At a certain time, the algorithm would accept that sex is a key component in assessing credit threats. As a result, the algorithm would reproduce and, further, amplify gender inequalities that may have formerly resulted in skewed credit approvals (Fuster et al., 2018). Therefore, algorithmic bias can be traced back to social issues including prejudice, injustice, as well as social inequality. In this way, algorithmic prejudice is a social notion whose definitions shift with changing cultural frameworks and ethical norms (Binns, 2018). As an example, in order to a social structure to be deemed fair, individuals must be treated equally, especially in social, governmental, and financial matters, as per populism ideologies (Binns, 2018). Nevertheless, there is disagreement as to what must be balanced. As per Rawls' definition of equity, it is satisfactory for an algorithm to favor poor population excessively, and this is not deemed algorithmic prejudice. Once algorithmic prejudice is conceptualized and

estimated using a conceptual framework, algorithmic bias might be late in unexpected ways relying on the paradigm's understanding of balance and fairness (Lee et al., 2017). Bias perceptions may alter among faiths, societies, associations, and legal frameworks in the same way (Kordzadeh & Ghasemaghahi, 2021). In spite of the differences in algorithmic bias interpretations because of ethical, juridical, and social perspectives on equity, all formulations possess two key aspects widely accepted: 1) A divergence from a concept of justice appears in the results of a prejudiced algorithmic framework, as well as 2) the divergence occurs regularly and consistently rather than arbitrarily. Thus, an overall interpretation for algorithmic prejudice given may be a systematic deviation divergence from fairness that occurs inside an algorithm's outcomes (Verma & Rubin, 2018).

2.4.2. Accuracy

Accuracy could be a measurable performance characteristic that describes how closely accurate results and the valuation of the measurand correspond. A quantitative approximation of a result's accuracy is essential for determining the degree of confidence that may be placed in it, as well as the consistency of choices based on that outcome. The measurement unreliability exemplifies "the scattering of the values that seem reasonably attributed to the measurand," and is frequently expressed as a standard deviation or as an interval including a larger fraction of these principles, found by multiplying the merged standard uncertainty by an indicated scope calculate. Because differences in impact volumes can affect measurement results in both arbitrary and precise ways, the qualitative performance parameters of the measures, namely accuracy, encompass both trueness and precision, just as the word natural fruits encompasses both apples and oranges. It would be unsightly to talk about natural products and oranges, as well as it would also be unseemly to utilize the terms accuracy and precision instead of trueness and precision. Individuals must understand how algorithms generate decisions that will have an influence on their lives. Discussions about privacy reveal policymakers' and end users' naivety. In order to stay competitive, countries need invest in information science abilities. It is only possible to put it into practice through education. A similar role is played by data science research. On the one hand, it is critical for our education. From one side it is key for our education. From another side, research is needed to address the numerous innovative and societal challenges including accuracy. Currently, eight of the world's ten greatest companies, as measured by market capitalization, are American. The two other companies are Chinese (van der Aalst, 2019).

Algorithms improve forecast accuracy, but they also increase the danger of them being wrong, especially if we do not acquire them. For example, when Netflix held a million-dollar competition to develop an algorithm that could predict which movies a particular client would enjoy, teams of data scientists pooled their resources and produced a winner. However, it only applied to DVDs, and as Netflix users switched to streaming movies, their preferences changed in ways that contradicted the algorithms' projections. Another case in point is social media. Many websites now use algorithms to determine which advertising and links to display to visitors. When these algorithms are solely focused on increasing client click-throughs, websites get clogged with low-quality click-bait content. Although click-through rates are increasing, consumer happiness is decreasing. These kinds of problems are inescapable. When designing and implementing algorithms and identifying new information sources with a variety of organizations, we've

noticed that the source of difficulties is frequently not problems in the algorithms themselves, but bugs in the way we interact with them. Managers must grasp what algorithms do well, what questions they answer, and what questions they do not answer in order to avoid mistakes (Hozano et al., 2017).

2.4.3. Transparency

Because of the caution of individuals who build these systems and the knowledge wherein the algorithms are taught, algorithmic judgment may pose a corruption risk. All components have the potential to create frameworks that do not assist the general good, but rather perpetuate generational disparities, bigotry, personal benefit, and other discriminatory actions. As a result of algorithms' proclivity for reproducing bias and predilection patterns, as well as their growing relevance in organizational decision-making, there have been calls for greater openness and wider responsibility for algorithmic judgment frameworks (Kossow et al., 2021). The principle of algorithmic opacity states that the factors that can affect an algorithmic system's choice should be apparent to those who use or are influenced by the algorithmic system's results (Kossow et al., 2021). Despite the fact that the terms algorithmic consistency and algorithmic accountability are sometimes used simultaneously, the basic concepts are different. While algorithmic opacity requires that the elements to a framework and the functioning of that framework be disclosed, it does not need that the framework's conclusion be fair. Algorithmic accountability refers to the notion that the entities that create or use algorithms should be held accountable for the results of their choices (Kossow et al., 2021). Analyzing an algorithmic framework's yield in order to hold its creators and owners accountable necessitates a high level of algorithmic openness. The demand for greater visibility in the formulation and utilization of algorithms appears to be a natural reaction to the problems outlined. Indeed, the belief that visibility is critical to successful efforts to reduce corruption is as old as the fight against corruption itself and is epitomized by the unusual name Transparency International. On a scientific level, this idea is rooted in the foremost perspective on corruption control, which says that corruption is rooted in data disparities amongst society and local servants. Because principals cannot oversee agents because to an unavailability of information on their job, there is a greater chance for intoxicated optional conduct, which could also contribute to corruption chances like as self-enrichment (Kossow et al., 2021). As a result, greater transparency should lead to better administration and more visible transparency. Transparency can lead to increased accountability, but whether this is the case depends on the type of data offered and how it is disclosed. According to Lindstedt and Naurin (2010), relevant components including media independence and knowledge are critical in ensuring that increased levels of openness lead to greater transparency and much less corruption. Even though there are technical tools available to reduce algorithmic framework opacity, there are a few technical issues that could make processes more or less visible. The ambiguity of algorithmic systems is one problem; while one unit may be understood, the linkages of multiple elements of the framework could be difficult to study satisfactorily. Another concern is the interdependence of decisions. Because certain algorithms are frequently employed to handle a number of difficulties at once, the answers to those concerns are interdependent. As a result, making a specific decision may be difficult or impossible. Finally, machine learning algorithms, that build a model relied on input data, are usually so sophisticated that even their developers are puzzled by them. Visibility may be difficult

to accomplish yet when algorithmic approaches rely on mechanisms that allow for post-deployment monitoring. Many business software companies refuse to share the inner workings of their algorithms or the raw data they use, claiming that this violates their intellectual property rights. Algorithmic systems are typically patented or protected under intellectual property as well as copyright law because they are at core a commercial product that is frequently difficult to separate from their input or processing data. This economic uncertainty might create a slew of valid roadblocks to the public release of algorithmic systems, especially where governments get algorithmic systems via private companies (Kossow et al., 2021).

2.4.4. Privacy

Algorithmic management depends intensely upon different shapes of data collection to form and use predictive models. For example, GPS information about Uber drivers' movements is collected by the app and can impact administration decisions, hiring algorithms regularly collect applicant's social media and internet footprint information, and performance or productivity algorithms rely upon information collected within the work environment such as email tracking or sound and video recording. This broad data collection, and the surveillance that empowers it, causes numerous concerns with respect to both worker privacy and control (McKenzie, 2020). Individual data rights grant employee's autonomy over how their information is collected and utilized. These rights are broadly accepted to be foundational in guaranteeing that governments and private organizations regard and protect an individual's security (Bottomley, 2020). Although privacy is regularly thought of as the right to be left alone, it can, moreover, involve an individual's right to control the use, deal, and collection of their personal data. Advocates have argued that privacy rights ought to expand to the work environment. Control over one's privacy requires a human, in their role as an employee, to have the right to provide or withhold consent from the collection and preparing of their personal data. It may entail providing employees with the right to access and amend individual data possessed by their employers. This may even amplify to client reviews, or reputation data, which can have significant consequences for employees (Bottomley, 2020). General protections, such as anti-retaliation provisions, may be essential to ensure that employees are able to adequately work out their individual data rights (Bottomley, 2020). Different policies require changing levels of consent. For instance, Europe's General Data Protection Regulation (GDPR) require consent to be freely given, particular, informed, and unambiguous. Under the GDPR, a workers consent alone may not provide adequate legitimization for processing personal data due to the potential for constraint inside an employment relationship. Advocates argue that prohibitions on constraint or retaliation by managers are vital in order to ensure that consent policies satisfactorily protect individual data rights. For instance, employees who are required to provide consent as a condition of business are likely to submit to extreme intrusions on their privacy (Bottomley, 2020).

3. RESEARCH METHOD AND DESIGN

3.1. Research Method and Philosophy

This dissertation, and all gathered data for this research is processed throughout qualitative research method. As it is known, mainly two research methods exist which are qualitative and quantitative. Given research is conducted via qualitative research method and its tools. According to Hollis (1994), the qualitative approach looks for an understanding phenomenon, while the quantitative approach seeks to clarify them. The objective of qualitative research is to portray and analyze the world as it is experienced, interpreted, and understood by individuals within the course of their regular lives. It is regularly micro-analytic, and it is frequently focused on a particular issue in a particular situation. The social sciences are experimental disciplines in which progresses in knowledge are accomplished through observation of people's behavior. In this, they vary from non-empirical disciplines that progress understanding either by following the rules of an internally coherent, closed framework of axioms that are taken as undeniable truths, or by the application of logic. This utilization of observation of behavior as the source of new knowledge is shared by both qualitative and quantitative research strategies (Cropley, 2021). However, the qualitative approach contrasts with the quantitative one because it involves: observing one or more individuals in a real life setting and recording what happens or effectively inspiring descriptions of real life from individuals, for instance, by means of interviews (Cropley, 2021). These depictions are nearly always verbal, very regularly talked, and are frequently referred to as narratives recording what the individuals tell or write, or how they behave. This often includes a written text, even when the initial record comprised of audio or video tapes (Cropley, 2021). Next is interpreting what the individuals said. The reason of this interpretation is to utilize the concepts of a specific discipline such as sociology or psychology to get it what was observed and recorded within the steps already outlined (Cropley, 2021). The results of this step constitute the findings of the investigation. The last comes generalizing these interpretations by relating them to other individuals or settings, or to existing hypothesis. This step concedes the conclusions of the study. The conclusions can consist of a common description of a setting or a group of individuals such as a description of interpersonal relations in, for example, a clinic, or of the expansion and clarification of existing hypothesis with respect to a few phenomenon such as the development of intelligence (Cropley, 2021).

Specifically, qualitative approaches point out that: the assignment of research is to find out how individuals see the world, not how much they possess of certain widespread characteristics. To do this, researcher and respondent must work together to recreate the respondent's conceptualization of the world, investigation could be a process of cooperation between researcher and respondent. The method of interpreting data regularly includes gathering common theories from specific data while quantitative methods include confirming theories derived from existing common statements. Hence, in qualitative approaches theorizing is regularly based on inductive reasoning. As a result, qualitative inquire about plans in social science usually include observing and recording people's behavior either in natural settings, for example through participant perception, or as the individuals themselves review such settings, for instance, by means of different sorts of narratives such as interviews (Cropley, 2021).

3.2. Research Design

Research design can be considered as the structure of research it is the "glue" that holds all of the components in a research project together. As it was mentioned before, this thesis utilizes qualitative research method. The research design might be considered as descriptive research. It is also known as statistical research. This portrays phenomena as they exist. It is utilized to distinguish and obtain data on characteristic of a specific issue like community, group, or people. In other words, we can say that this sort of research depicts social events, social structure, social circumstances, etc. The observer observes and describe what did he discover. Descriptive research answers the questions such as what, who, where how and when. It is utilized to study the current situation (Khazode, 1995). Descriptive research aims at precisely depicting the characteristics of a specific group or circumstance, one may undertake a descriptive study about the works in a company, their age distribution, their educational level, their state of their physical wellbeing and so on also one may study the conditions of work in a company health, security and welfare. A descriptive study might be concerned with the attitude or views of an individual towards anything, for example, attitudes presidential type of government, right to strike, capital punishment, prohibition, college autonomy and so forth (Akhtar, 2016).

3.3. Research Population and Sampling Technique

In fact, it would be more correctly to name it as "sample" instead of "population" since there is a difference between them. The population is the whole group that is needed to draw conclusions about. On the other hand, the sample is the specific group of people to collect data from (McCombes, 2019). As it is obvious, there are mainly two types of sampling techniques: probability and non-probability sampling techniques. This dissertation is composed of data which is wholly gathered by means of non-probability sampling techniques. Thus, this means that the focus group is relatively small and specific. In addition to that, it is known that non-probability sampling techniques might be divided into convenience sampling, voluntary response sampling, purposive sampling, and snowball sampling technique. A convenience sample basically includes the people who happen to be most available to the researcher (McCombes, 2019). This can be a simple and reasonable way to gather initial data, but there is no way to tell in case if the sample is representative of the population, so it cannot create generalizable results (McCombes, 2019). Similar to a convenience sampling, a voluntary response sampling is primarily based on ease of access. Instead of the researcher choosing members and specifically reaching them, individuals volunteer themselves, for instance, by responding to a public online survey. Purposive sampling, known as judgement sampling, as well, includes the researcher utilizing their expertise to choose a sample that is most valuable to the purposes of the research. In case if the population is difficult to access, snowball sampling can be utilized to enroll participants through other participants (McCombes, 2019). The number of individuals we have access to "snowballs" as we get in contact with more individuals (McCombes, 2019). Considering all these, it is possible to precisely emphasize that this research was conducted by applying of the combination of convenience sampling and purposive sampling techniques. This is because the number of participants is relatively small and specific since in Azerbaijan companies have not widely using artificial intelligence, as well as algorithmic management system yet. Despite difficulty while looking for organizations where algorithms and artificial

intelligence used, by means of convenience and purposive sampling methods, two companies agreed to provide data for the research.

3.4. Ethical Considerations

According to Bhandari (2021), ethical considerations in research are a collection of guidelines that guide the planning and execution of research projects. When gathering data from humans, researchers must adhere to a strict code of ethics. In the offered dissertation, the same has been done. These factors contribute to the protection of study participants' privileges, the improvement of research validity, and the preservation of scientific rigour. Varieties of ethical dilemmas must first be established. During research, there are many different types of ethical dilemmas that can arise. Voluntary involvement, informed permission, anonymity, confidentiality, the risk of damage, and results communication are the factors to consider (Bhandari, 2021). Voluntary participation means that all participants in the study are permitted to choose whether or not to participate in the study. At any moment throughout the research project, any participant can withdraw or leave without feeling obligated to continue. Attendees are not required to indicate an explanation for withdrawing from the study. Informed consent is a situation in which all prospective participants receive and comprehend all relevant information before deciding whether or not to participate. This includes information about the study's advantages, hazards, funding, and institutional support. There is no data who the members are, so it is impossible to link any particular member to their material because of anonymity. Only by not gathering any personally identifying information, such as names, contact information, email addresses, IP addresses, physical attributes, images, or recordings, it will be probable to maintain anonymity. It may be impossible to truly anonymize data collecting in many circumstances. Information obtained in person or over the phone, for example, cannot be regarded entirely anonymous because a few personal indicators are impossible to conceal. Confidentiality indicates that readers are aware of the members' identities but all identifying information are removed from the report. Because all participants have a right to privacy, it's critical to keep their personal information safe for as long as storing or using it. Even if failing to collect data anonymously, it is essential to maintain confidentiality whenever possible. Coming to potential for harm, it is necessary to consider all variants of harm so as to avoid them. There might be various forms of harm, for example, psychological harm, social harm, physical harm, legal harm, etc. Finally, the last one is results communication which mainly includes plagiarism and ways how to avoid it. Plagiarism implies submitting others' works as someone's own claim. Despite the fact that it may be inadvertent, taking someone else's work without giving proper credit is theft. It is an ethical dilemma in research communication because damaging other analysts or investigators can benefit somebody.

The given research follows considerations such as informed consent, confidentiality, coupled with an avoidance of a potential for harms like psychological, social, physical, and legal. Detailly, there are five participants from two companies in total. Half of participants are from company named "SERVIER", other two ones are from another company called "POSITIVE". All of the participants were detailly informed about what the study or research is, its purpose, risks and benefits. In addition to that, all of them were provided with interview questions in order to allow themselves to be prepared for it in advance. On top of that, there is no doubt that one of the most essential

issues in research ethics is confidentiality which have been strictly followed as well. Thus, according to ethical considerations, whole identifying data regarding participants are extracted from paper so as to not spread them away. Coming to avoidance of harm, it might be emphasized that interview question did not involve sensitive sort of questions which may lead to spiteful consequences such as, for instance, negative emotions. Social type of harm was also excluded successfully from the research, as well as legal harm. Interview procedures were conducted accordingly to the rules of legitimacy and safety, that is, in the safe zone where there were no third parties – only company staff. Therefore, whole data were gathered transparently and reliably.

3.5. Data Collection Instruments

Mainly, there are five types of data collections instruments in qualitative research which involve interviews, open-ended surveys, or questionnaires, focus groups, observations, and finally, case studies (Houston, 2022). Open-ended surveys and questionnaires permit members to answer freely at length, instead of choosing from a set number of responses. Focus groups are comparable to interviews, but that simply conducted them in a group format. It is credible to utilize a focus group when one-on-one interviews are impossible or time-consuming to schedule. Observation could be a strategy in which a data collector observes subjects within the course of their normal routines, takes detailed field notes, or records subjects by means of video or audio. In the case study method, a combination of numerous qualitative information sources might be analyzed to draw deductions and come to conclusions. This dissertation, as it might be noticed from previous paragraphs, have utilized the method of data collection which is interviews. Normally, interviews are one of the most common qualitative data-collection instruments, and they are a great approach once it is possible to accumulate highly personalized data. Informal, conversational interviews are perfect for open-ended questions that permit to pick up rich, detailed context (Houston, 2022). However, nowadays, there are several types of interviews which are structured, semi-structured and unstructured. Structured interviews are, basically, verbally managed questionnaires, in which a list of predetermined questions are inquired, with small or no variety and with no scope for follow-up questions to responses that warrant further elaboration. Subsequently, they are generally fast and simple to manage and may be of specific use if clarification of certain questions is required or in case there are likely to be literacy or numeracy problems with the respondents. On the other hand, unstructured interviews do not reflect any biased theories or thoughts. They are ordinarily very time-consuming, for instance, often lasting a few hours, and can be difficult to manage, and to take part in, as the lack of predetermined interview questions provides small guidance on what to talk about, as well as which numerous participants find confounding and unhelpful (Gill, Stewart, Treasure & Chadwick, 2008). The type of interview that had been used in this research is semi-structured interview. Semi-structured interviews composed of several key questions that help to determine the areas to be investigated, but also allows the interviewer or interviewee to diverge so as to pursue an idea or response in more detail. The adaptability of this approach, especially compared to structured interviews, also permits for the disclosure or elaboration of information that is vital to members but may not have previously been thought of as pertinent by the research group (Gill, Stewart, Treasure & Chadwick, 2008). The interviews have been taken from five individuals from two companies together. In details, two participants are from SERVIER, having positions of

Information Technology System Support Officer, the second participant has a position of Head of the Marketing Department in SERVIER LLC, Azerbaijan. Coming to POSITIVE Call Center, overall, three people were interviewed whose positions are Information Technology Specialist, Human Resources Specialist, and the Project Manager of TURKISH AIRLINES.

As it might be seen, there are just five people interviewed. It could seem like a small number of individuals; however, they are holding the elite positions in their organizations. Therefore, there is no doubt that the data gathered within interviews are from high-level persons of two companies.

Interview included overall nine questions, and these questions were unique for each participant:

- Firstly, can you provide with information about your company and its activity, please? Since when is it operating? And what does your organization do mainly?
- How many employees does your organization have in total? Are you planning to expand in future?
- What is the yearly revenue of your company? Compared to previous years, did it increase or decrease? Why?
- What is your position in organization? What are your responsibilities?
- When and why have you decided to integrate AM for your company? And are you planning to integrate it more deeply in future?
- How has AM improved the organizational productivity? Why?
- How did AM affect to the strategy of your organization? Why do you think?
- In which work aspects does your organization use AM?
- What are advantages and disadvantages of using AM for your organization?

Hence, some questions have approximately same responses from every participant. However, most of them varies from each other since workers are from inequable departments or positions.

Out of four, the minimum duration of interviews is 7:02 (seven minutes and two second), however, maximum duration is 52:06 (fifty-two minutes and six seconds).

4. DATA ANALYSIS AND RESULTS

4.1. Demographic Information

Table 4.1. Demographic Data of the Participants.

Interviewees	Age	Gender	Position	Year of experience
Participant 1	42	Male	Information Technology System Support Officer	9
Participant 2	51	Female	Head of the Marketing Department	6
Participant 3	26	Male	Project Manager	2
Participant 4	26	Male	Information Technology Specialist	2
Participant 5	28	Female	Human Resources Manager	2

In total, five people were interviewed, of which three were men, and two were women (Table 4.1). The first participant is a man working at SERVIER LLC Azerbaijan as an Information Technology System Support Officer. Support for the entire office and everything related to computers, IT technologies, telephones. That is, both hardware and software, and human factors that need to be supported all together.

The second interviewee or participant is a woman who works at SERVIER as the Head of the Marketing Department (Table 4.1). As in all pharmaceutical companies, they are engaged in the promotion of drugs. That is, they develop a strategy and, according to this strategy, they promote these drugs at the expense of medical representatives. In addition, they develop a strategy for promoting drugs, such as budgeting, forecasts, and so on.

The third respondent is a man who works at POSITIVE Call Center as a Project Manager of TURKISH AIRLINES (Table 4.1). His current project consisted of orders sent by TURKISH AIRLINES and sustaining the high performance among the management staff and regular employees.

Next ones come man and woman who were interviewed together, the first of whom held the position of an IT specialist, and the other, accordingly, held the position of a Human Resources Manager in the POSITIVE Call Center company. Their main job consisted of supporting the office with the necessary information and services. Furtherly, a man holding a position of Information Technology specialist in POSITIVE Call Center

will be considered as participant four, and a woman working at the position of Human Resources Manager will be indicated as participant five (Table 4.1).

4.2. Data Organization

All collected interview data in this research was analyzed with a usage of NVivo 12 Plus. However, before analyzing this data in NVivo 12 Plus, interviews were recorded. Out of four, half of interviews was conducted and recorded in Microsoft Teams, half was recorded via Dictaphone in face-to-face condition. After these, interviews were carefully listened, transcribed, and analyzed initially in Microsoft Word. In NVivo, overall, four interview files were uploaded after transcription. Minimum codes and references are detected in the interview with participant 2. It has 7 codes and 9 references. On the other hand, maximum number of codes and references are in the interview with participant 1. In details, it has 13 codes and 42 references. Further interview analysis was conducted in NVivo where all data was categorized for more precise understanding.

4.3. Reliability and Validity

All researches must have both validity and reliability (Brink, 1993). The phrase "qualitative research" actually refers to a broad category of research methodologies that all have some things in common. Instead of focusing on causal rules, qualitative researchers examine people's beliefs, experiences, and meaning systems from their own point of view (Brink, 1993). Statistical analysis coupled with empirical computation are not employed, and the methodologies are more subjective than in quantitative research. Data analysis validity is concerned with the veracity and accuracy of research results (LeCompte & Goetz, 1982). Therefore, the given research will represent results came from pieces of information provided by interviewees. There are numerous validity categories, and numerous names have been used to describe them. Two major kinds of validity that cover the various sorts were established by Campbell and Stanley in 1966. They make reference to "internal" and "external" validity, concepts that are now utilized in the majority of textbooks on nursing research (Brink, 1993). The word "internal validity" is used to describe how accurately study findings match reality rather than simply being the result of unrelated factors (Brink, 1993). The degree or level to which these reality projections or representations are genuinely relevant across groups is known as external validity (Brink, 1993). The continuity, steadiness, and repeatability of the informant's stories, as well as the researchers' capacity to gather and record information effectively, are all factors that affect reliability. The same is applied in this dissertation. In some cases, additional questions were asked so as to obtain necessary and more accurate information.

4.4. Presentation of Findings

There are data in the interview documents that describe processes of a certain nature, but not all of them are related to the main theme of this work. The main indicator among all data is the factor of using algorithms in the control system.

There are some points where specific actions were described to improve the condition of the workplace, employees, and the management system itself. The interviews listed questions regarding the personal aspects of the participants in relation to certain

parameters. For example, how the third participant described the work and employees and how he copes with all employees. There are characteristic qualities of each of the respondents, but they were all united by one thing, the vagueness of thought in relation to algorithmic management at work. After all, if listened or read the files, it will be clear that they refer to this as something abstract. It means that no one in the depths does not believe that such a system can work and rely only on some old but proven methods. On the one hand, this is good because the new is an improved model of the old and this is not just a statement. The interviews described specific moments when the system at work improved each time and improved on the basis of previous mistakes. Everything that was used earlier will be replaced by new management with an emphasis on process automation. But in the end, there will still be someone who will manage all these processes. Again, then a person will look for a way to improve an already almost excellent control algorithm. Because people never stand still and constantly improve themselves and thereby the space around them (people, workplace, etc.).

5. DISCUSSION AND CONCLUSION

5.1. Discussion of Findings

Coming to the first part of the last chapter, this part of dissertation will be discussing regarding findings regarding information about companies whose workers were interviewed.

5.1.1. History of Companies.

Starting from SERVIER, it is established in 1954, however, in Azerbaijan it is operating roughly 15-16 years. According to participant number one, he responded in the following way: “... we have been here for 15–16 years officially, that is, officially SERVIER Azerbaijan. The SERVIER company itself has existed since 1954, a French company. Organized or created by Jacques Servier, this is the surname Servier, which is why it is also called SERVIER.”. Second respondent also emphasized the age of SERVIER: “It has been working, I can’t say exactly since when, but at least somewhere around 70 or 80 years, maybe even more.”. This means that, SERVIER is not fully Azerbaijani organization, although it is operating in Azerbaijan.

Coming to POSITIVE, it has been operating since 2010, and in Azerbaijan it came 3 years ago. The participant three says: “*THY project started on December 14, our training, December 14, 2020.*”. As well as participant five gives more detailed information: “...in Turkey it has been operating in Istanbul for twelve years. In addition, there is duplication. It has been operating in Baku, Azerbaijan, for almost two years, so to speak, since June 2020.”

5.1.2. Sphere of the Companies.

The sphere of SERVIER is pharmaceuticals. In other words, they produce and develop medicines in many countries. Participant one explains: “*Our company SERVIER, it is engaged in pharmaceuticals, that is, our activity or type of activity is a pharmaceutical company. We produce medicines... well, now not only medicines, but also some special additional equipment or, as they say, vests for removing certain control parameters and all that. But basically, most of it is the production of medicines. Well, not only production, we develop ourselves.*”. The second participant says almost as similarly as first one: “*This is a pharmaceutical company, they are engaged in the production of drugs, molecules.*”

Switching to POSITIVE, this is a call center which works with various companies, for instance, with TURKISH AIRLINES and they provide call services for THY. According to participant five: “*That is, the call center. We mostly work with different companies, so to speak, large companies, and we provide their call service.*”.

5.1.3. Number of Employees.

Currently, SERVIER has 41 workers, however, company is planning to extend staff up to 50. As participant one explains: “*I can say at the moment there are more than 40 of them. Because we have a lot of people leaving and coming, so 41 can be written.*”

We are planning another expansion, so we will have to wait for another 45, and in the coming years we are planning up to 50 people in general.”. As it might be understood from the script of the interview, the origin of this organization is France with approximately 41 or 42 employees in Azerbaijan only.

At the same time, POSITIVE has almost 230 workers. To be detailed, 228 workers at the moment in Azerbaijan. Participant 5 says *“It should be about 228 at the moment.”*.

5.1.4. Goals of the Organizations.

Although SERVIER has only 41 workers in Azerbaijan, they are planning to expand since amount of job arises so that sometimes they hire assistants. SERVIER works not only with pharmacies, but also with distributors. Therefore, their goal is to capture more and more regions. Participant one says: *“...well, the volume of work increases, so we sometimes take assistants or a second person who is an assistant manager. There is work with pharmacies, and not so much with pharmacies, but with distributors. There is work by regions, by districts. Well, there's plenty of work there. So, there is an expansion. Regional expansion. Regions also need to be covered.”*. On the other hand, expansion and regional coverage depends on the profitability of the organization. If SERVIER will not have a high income, then they will not be able to expand. Participant two emphasizes: *“...but the expansion of the staff depends directly on the profit that we bring to the head office. If our sales are high, naturally we will expand. If not, on the contrary, it could be downsizing.”*.

Aims of POSITIVE include parameters like avoidance of absenteeism, high quality, time distribution and so on. According to participant three *“The goals are that I can name some of them, for example, absenteeism should not be a problem, the keys should be good, that is, rich quality. Then, you probably know all this yourself, ACHT should be in place. There are a thousand other factors, for example, the caller AfterCallWork, ACV we tell him, how many minutes he took a break, how many minutes he used meal, how many minutes he kept in the HOLD, how many minutes he talked, how many calls he received, how many minutes the agent hung up - all should be done.”*. In addition to this, one of the main goals is to make customers happy, thereby earning money for business. On top of that, it is extremely important to track workers as well. The same participant points out: *“The goal of the company is to fulfill the goals set for our institutional clients in general. The goal is to make our institutional clients happy and the business to make money. Employee tracking is one of our most important goals.”*

5.1.5. Purposes of Algorithmic Integration.

SERVIER tends to the standardization of processes by automation of those processes. The reason is that this led to both effectivity and efficiency. Participant one depicts: *“...we have globally decided to change the structure and approach to IT and, in general, to the automation of some processes. That is, we decided to do everything according to the standard, and not so that everyone would do something different. Why, because it's effective, it's fast.”*. Such approaches of algorithmic integration coupled with cloud services and getting rid of services resulted optimization of working process, as well as flexibility of job. Principle that SERVIER follows is “ATAWAD”, meaning “AnyTime, AnyWhere, AnyDevice”. To be precise, algorithmic integration and cloud

decisions enabled workers to work from anywhere and any device whenever they desire. Participant one explains: *“Well, firstly, look, such things as work optimization, contacts optimization, that is, if I said something to someone, handed something to someone, this project was lost - this is one thing. The transition to online, plus, because last year we were forced to switch, we had to make some such decisions and purchase, switch more to the cloud, that is, cloud solutions. The same inbox, OneDrive, SharePoint - this is all one of the parts when we decided, so to speak, to get rid of servers, from any local ... because there is such a thing, well, we have it sounds ATAWAD, that is, "AnyTime, AnyWhere, AnyDevice ". That is, you can access files, documents, letters, no matter where you are, no matter when, that is, the office is open, not working, and regardless of the device, whether you have a computer or phone, or you just logged into your home network. This gave me such flexibility in my work, so this is one of the key factors in integrating everything.”*

Switching to POSITIVE, the most important purpose of deploying algorithms is tracking workers. Since a happiness of clients is highly dependent on quality of job done by employee, it is crucial to track them. According to participant three: *“As I said, the most important thing we use is tracking the employee. The algorithmic management we use the most is for that purpose.”*.

5.1.6. Future Facilities.

One of the future facilities for SERVIER is robotization. In other words, new bots that will be applied, they will replace humans since they are not able to do a job as accurately as bots can. Participant one detailly says: *“...we will have robots, so-called bots, that will work just like people, more precisely, even better than they do. The fact is that they read email, they process, look, remind. They check the reports, the clarity of the project.”*. Another facility is considered a systemization and acceleration of documentation processes. It will be reached by applying the electronic signatures. Participant one emphasizes: *“Right now, we are integrating electronic signatures so as not to run around offices, for example. Someone is in the area, he can't every time... or there... maybe, but in the future, if the reports are sent in an online form with signatures, then it takes a very fast time, and all the work is systematized.”*. Additionally, because of some technical problems with Internet, there will be the second line. It might look very simply, however, when Internet connection fails, whole work may stop. Although it is a little integration, but the consequences could be extremely negative. According to participant one: *“Soon, there will be a second line, if the Internet is lost somewhere here, so that the work does not stop. This is also technical integration, purely physically, of equipment, solutions for integrating our office and globally too.”*. Plus, a new telephone system is supposed to be applied in future. The reason is that it might be fruitful for saving money. It will enable to make calls all over the world, as well as to the head office. At the same time, it is possible to receive calls on mobile phone from long distances. First participant explains it like this: *“Changes are planned, let's say, the installation of telephone systems. That is, you are no longer tied to a landline phone, even if you are here, you can receive city calls on your regular phone. Plus, you can call and save money, and you can call the head office or even anywhere in the world. I mean for work, for their branches and not to spend fabulous money on long-distance calls.”*.

In POSITIVE, Artificial Intelligence will provide new automatized facilities which will eliminate manual side of job. For instance, manual calculations for ticket change are going to be automated. Thus, system will count the final price for the ticket and time will be saved. Third participant says: *"...artificial intelligence plays a big role in doing something good. That is, they will do more of this robotization system. For example, what we do manually will be more systematic. For example, I am sure you remember the calculations. We have manual calculations. We have been promised that God willing, it will soon have artificial intelligence. That is, the system itself will calculate everything. Sometimes the system calculates itself, thankfully. Sometimes it doesn't."*

5.1.7. Concerns and Security.

SERVIER applied some limitation for Wi-Fi access for non-corporate devices in order to be secured from various types of viruses. Devices such as laptops must be only from several firms, as well as they must be from certain series. Participant one described it as: *"Because it is not a corporate device. Anything can be here. And viruses, and all sorts of phishing things. Therefore, accordingly, people are used to the fact that, while I connected to the Internet, everything was fine, yes, excellent, but now I can't. Or the transition to corporate standards, there must be certain laptops of a certain type of certain companies, HP or Dell. They should be of two or three types, series. Plus, a certain system must still be installed, there must be its own settings, which give their own specific restrictions. On the one hand, restrictions are good because you don't climb and you don't accidentally install on some site, you don't download. On the other hand, these restrictions are sometimes so directly limited that we cannot open Yandex Disk, Mail.ru disk, DropBox, and something else, it seemed, they send viruses. The guys send viruses on Google Drive too. Even if Google Drive opens, it opens somehow through. Therefore, while this integration is underway, globally we are a small state."*

Looking at POSITIVE, the main concerns are related to leakage of data. Since both customers and employees have their own personal information, it is inadmissible to permit a leakage. Also, there might be a cyber-attack. That is why, IT specialist installed additional devices so as to complicate a cyber-attack so that no one could hack the system. Participant four explains: *"The reason is that both our customers and we have personal confidential information, both in the IT department and inside the operation, and the leakage of this information anywhere, that is, it means a catastrophe. Because it is impossible to prevent it. That is, there may be a cyber-attack, or any customer shares with us their ID card or card information. That is, it is noted not directly by the client representative, but through the program - there are keystrokes. But leaks are possible here, which means that any good hacker can do it. Therefore, we have installed additional devices for this purpose, that is, to make the work more difficult so that there is no attack."*

5.1.8. Achievements Reached by Algorithmic Integration.

IT department of SERVIER integrated new network system which permitted switching from one Wi-Fi to another without even noticing it. Additionally, filters are applied in order workers not to download whatever they want from sources where viruses may come. According to participant one: *"We have integrated a new network system, wi-fi is everything, when you walk around the office and you don't notice that you are*

switching, the speed is stable. Plus, filtering streams, filtering the Internet, that is, you cannot download anything you want, and, accordingly, open all sorts of unnecessary sites where viruses can come from.”. The other achievements are improvements in speed, flexibility, and optimization of working process. The same participant describes: *“And here already, yes, they improved in speed, in flexibility, but in price it has already increased. That is, the head office is also engaged in this optimization, and our realities are already taken into account. That is, the same signature. If it is not officially recognized in our state, then it only works within us. Well, this is also being optimized, and printing, it would seem, is a trifle, but the cartridge ran out somewhere, you can’t print, I’m not there, and that’s it, the work has stopped. So, you don’t have to wait for someone. I put an electronic signature, sent it to the manager, the manager immediately saw it in the mail, signed further and sent it. It already optimization on time turns out. It’s all an improvement in the end.”*. Sometimes it is much easier and better to pay for ready services such as online servers since responsibility transfers from company itself towards service company. It also helps to save money; however, organization is receiving the same result by paying less money. First participant proves it saying: *“...we save at a certain stage, for example, what relates to IT, while paying for a product, well, let’s say, an online server, we remove some responsibilities from certain people, while all the complexity falls on another company, the same Amazon, Google, Microsoft – they have already integrated everything you need, and backups, and that’s it. At the same time, we spend a certain amount, a smaller amount, we get the same thing that we did. A person is released, as they say, for business, that is, he can do other projects, he can use his time, hours for some project or something else. This already improves performance, it affects our goals, that is, we save a certain amount of money that we spent every year, from there we transfer it to another development, while not losing, moreover, we still get flexibility in work.”*.

Achievements of POSITIVE might involve automation of some processes by usage of Artificial Intelligence. Participant three says: *“...before the team leaders and I manually entered the average talk time of our employee, manually entered the report, extracted the data, put it in excel, excel shows it after copying and pasting. We send it by e-mail, WhatsApp to the customer representative so that the customer representative also knows. We don’t do this anymore after we have artificial intelligence. That is, of course, it is time, we have come a long way in this matter.”*. In addition to this, AI might help managers to save time because of automated process. For instance, AI could assist in determination of a service level of entire office for the past day, as participant three explains: *“...every morning I am sent something alone: yesterday’s service level of the office. In other words, the service level is an indicator of how the office worked yesterday. For example, he shows me every morning. Before that, I had to check it one by one. Then the loss of capacity, that is, how many employees we have based ’n the interval every hour, how many should be, what percentage deviation. They also send it to us as an example. These were all time-wasting things. And now we are ahead.”*. There are some cases when it is crucial to have a backup plane. For instance, if an operation of company is fully relied on servers, in this case it would be better to have one more server in case of shutting down of first one. The same approach was implemented in POSITIVE, as participant four points out: *“Server, we have two servers, one of which shuts down or if there is a problem, in a short time, within 5-10 minutes, our other server starts up and resumes in the call center within 5-10 minutes. And almost every device is available in a*

dual server room, that is, to the air conditioners, where the temperature was quite high. And high temperatures are inevitably harmful to devices.”

It is very remarkable when the question regarding application and usage of algorithms was asked. At this point, participant five passed the word to the participant four who is holding the position of Information Technology Specialist. Thus, from here it is possible to conclude that Human Resources Management department in POSITIVE Call Center does not utilize any kind of algorithms for HR purposes, for instance, for scanning CVs, or selecting more appropriate ones, etc. On the other hand, algorithms coupled with artificial intelligence are widely being used in POSITIVE so as to track operators or customer representatives who work over the phone, to analyze their speech, to detect some words that were used by worker during a call, as well as to analyze behaviors of both customer and customer representative. It comes from the words of the participant three: “...*artificial intelligence sends us the status of a customer representative every hour. That is, what is the average talk time of our client representative. This is known from artificial intelligence algorithms. That is, it is sent every hour, every two hours. Then we have report pages, where artificial intelligence is used. So much... I think that, of course, our system is all artificial intelligence, that is, I think there... for example, we have something there... Speech Analytics. So, when you use a word, the system captures it. For example, if you direct client to a sales office, the system captures it, artificial intelligence captures it and directs us that an employee used such a word.*”. It could be observed that one of the priorities in POSITIVE is to reach higher optimization of the job process. In other words, doing more staff at the same period of time, hence, integration of AI and algorithms will lead to an opportunity to achieve that progress in efficiency.

One of the essential aims of POSITIVE is productivity of work. Participant three explains it in a such way: “...*we cannot interfere in some things because it's not under our control. But how does the current artificial intelligence in our hands and what we have said before affect it? As you say, office space increases productivity. Productivity also, of course, allows you to do more work in a given time. This, of course, is money for any business. The goal is to make our institutional clients happy and the business to make money. They have not invested here yet; they have not seen any potential. Let the company make money on the business side, let the institutional client achieve its business goals, and at the same time we have slightly distracted the concept of the call center. There is currently no such call center in Baku. And as we build these systems, we come closer to the goal in every sense.*”. The principle is very clear that if the productivity will increase, then the business will obtain more money, however, in order to achieve a high productivity, a service level of whole call center must be elevated as well, which will lead to happiness of customers.

To sum up, both interviewed companies are consuming computer algorithms and AI in very specific way. SERVIER Azerbaijan takes advantages from algorithmic and cloud decisions which result flexibility of job due to synchronization of data. Even if the computer is lost, access to information is password-protected by a code that has its own requirements. Due to hard encryption, access to information is closed. Plus, the fact that the desktop, documents – it is all synchronized. What is thrown on the desktop, it is in the cloud. It enables to access all data such as documents, mails and so on from cloud. That is a big advantage.

Coming to POSITIVE, advantages of algorithms and artificial intelligence are being used so as to reach higher productivity and work more efficiently. Managers can think of more productive systems. Of course, not only in POSITIVE, in general, the whole office, the whole management project: POSITIVE, GLOBAL BILGI and THY (TÜRK HAVA YOLLARI). The goal is to be more productive. “*With this algorithmic management we find ways to do more work in less time.*” – concludes participant three.

5.2. Implications for Practice and Theory

Algorithms are progressively being introduced into online and offline working environments and are utilized to manage interactions among human workers, taking on tasks that human managers used to do. However, organizations which adhere to Weberianism instead of Taylorism, they are limited to integrate algorithms and AI for managerial purposes. As Weberianism tends to strict hierarchical conditions coupled with large layering inside a company where all decisions are being made by top-level managers, algorithms will not get trusted as same as in Taylorism. Coming to Taylorism, the main point here is achieving high efficiency and productivity by optimizing work procedures so as to increase output. Taylorism is more flexible, simple and open type of management which admits the usage of algorithms and AI not only for supporting decision-making, but also for being responsible for management itself.

Considering the results from the given research, it is possible to observe that, generally, algorithms are needed so as to trace employees and regularly analyze their activities, as well as to optimize working process by eliminating manually done staff due to algorithmic integration of new systems. Depending on priorities of various organizations, algorithmic decisions might be probably used in order to achieve higher efficiency of job by doing more in shorter time, thereby increase the profitability of business. In addition to all these, the dissertation pointed out that in Azerbaijan, algorithms and artificial intelligence have not been using in decision-making process, as well as for human resources purposes, and even for marketing purposes yet. However, companies are planning to integrate computer algorithms more deeply and intensively in future. Hypothetically, algorithms and AI will be implemented not only for tracking or analyzing a speech of workers such as in case of POSITIVE, or integrating bots to read and process emails as it is in SERVIER, but also for automating managerial functions such as monitoring the work attendance of employees, automatically make reports regarding performance of labor, decision-making processes, etc. Indeed, though algorithmic management is, at present, an example of almost complete intervention of human management by technology, it still needs in efficiency and has numerous disadvantages. Even though it could be working for such platform companies as Uber, it is still not something that most and more traditional organizations would implement, and on such a scale. One of the most obvious and simple to implement way forward appears to be the integration of the automation technology into organizational processes.

5.3. Limitations

Understanding how and why some firms use algorithms in their management processes was the main objective of the presented dissertation, however, because of COVID-19 restrictions, many companies in Azerbaijan did not respond, and at the same time, some of them rejected to participate the research. Because of this fact, unfortunately,

the dissertation is limited by two companies only. However, these companies provided maximum of data which they could.

Beside these, since algorithmic type of management is quite new form of management, that is, automated sort of administration, in Azerbaijan it has not been as extended as in European countries for example. Probably, this was another reason why companies did not respond. To be precise, approximately 15 companies were contacted to take part in the given research. Out of those, only 2 of them agreed, 1 of them rejected, others had no response.

As it might be observed, the dissertation results are made based on just 2 organizations from separate spheres of activity. SERVIER is a pharmaceutical company producing, distributing, and developing drugs and molecules while POSITIVE is a call center providing call services for various companies. Therefore, all gathered and analyzed data might be applicable mostly for these two sectors, not all ones.

The responses are frequently subjective and open to interpretation, which is another major limitation of qualitative research. Making respondents feel at ease enough to express their actual ideas and sentiments may be challenging for a study (Akers, n.d.). Respondents could give an answer that they believe would please the researcher or conform to social norms. The researchers may create interpretations that are consistent with her planned conclusion when gathering and analyzing the data from a qualitative research study (Akers, n.d.).

Social desirability bias might be considered as another limitation. Social desirability inclinations frequently show up in predictable ways in investigations (Bergen & Labonté, 2019). They are more prevalent in studies on topics that participants find sensitive or contentious, as well as in circumstances where certain attitudes, behaviors, or norms are commonly accepted. The issue with social desirability bias is that it can lead to an unreliable impression of consensus by overestimating the positive and reducing response variability (Bergen & Labonté, 2019). Different strategies have been proposed by researchers to reduce or account for the bias. Some support data collecting using self-administered surveys, arguing that the lack of an observer reduces the pressure to respond in a particular way (Bergen & Labonté, 2019). Face-to-face interviews allow experienced interviewers to take steps to probe and verify participant answers, while participant observation approaches have been advised to triangulate various kinds of data collection (Bergen & Labonté, 2019).

Finally, it is necessary to note that the topics of automated leadership and artificial intelligence in business environment is still progressing and developing all over the world. Thus, the quantum of literature regarding these themes is not as plenty as expected. Therefore, the dissertation did not focus only on leadership and computer algorithms.

5.4. Future Research Suggestions

The implications of algorithmic systems on business and workers warrant closer examination. The developing appropriation of these systems spurs questions regarding the effects on employees subject to algorithmic management, the accountability and fairness of algorithms, and the capacity of our current regulatory and legal structures to

address these changes. Below are a few of the questions that ought to be considered in future research and debate on this subject:

- How can workers observe better approaches to defend their rights while they are confronted by the framework which is regularly touted as unerring, unbiased, and unavoidable? Which sorts of transparency on the part of technology companies and managers are needed?
- How will algorithmic management instruments be shaped by diverse workplace contexts, standards, and workers' personalities or senses of autonomy?
- As algorithmic management instruments become more common in traditional employment contexts, how will the role and authority of human managers change? How will control dynamics move as decision-making gets to be increasingly centralized and mediated by third parties?
- How will the opaqueness and velocity of experimentation which technologically provides mediated decision-making, make it more complicated for academics and researchers to conduct an investigation and gather information about these systems effects on workers?
- In which ways a productive data collection is essential so as to enable algorithmic management systems to function while various workers warn about confidentiality in workplace? Since information collected about clients is utilized to manage workers, could it be considered as inadequate?

REFERENCES**Books**

- Akhtar, I. (2016). *Research Design* [Ebook] (1st ed.). Social research foundation, Kanpur, India. Retrieved 20 May 2022, from <https://www.researchgate.net/publication/308915548>.
- Burawoy, M. (1982). *Manufacturing consent: Changes in the labor process under monopoly capitalism*. Univ. of Chicago Press.
- Cropley, A. (2021). *Introduction to Qualitative Research Methods*. ResearchGate. Retrieved 20 May 2022, from https://www.researchgate.net/publication/285471178_Introduction_to_Qualitative_Research_Methods.
- Huws, U. (2014). *Labor in the Global Digital Economy: The Cybertariat comes of age*. Monthly Review Press.
- Khantzode, V. V. (1995). *Research methodology techniques and trends*. APH Pub. Corp.
- Ford, H., Crowther, S. & Woodrow Wilson Collection. (1922) *My Life and Work*. Garden City, N.Y., Doubleday, Page & company.
- Maté, J. L., & Silva, A. (2005). *Requirements engineering for Sociotechnical Systems*. IGI Global.
- Mumford, E. (2003). *Redesigning human systems*. Information Science.
- Mayer-Schönberger, V., & Cukier, K. (2013). *Big data: A revolution that will transform how we live, work, and think*. Houghton Mifflin Harcourt.
- Sommerville, I. (2003). *Software Engineering*. China Machine Press.
- Steiner, C. (2013). *Automate this how algorithms came to rule our world*. Portfolio/Penguin.
- Trist, E. L. (1981). *The evolution of socio-technical systems: A conceptual framework and an action research program*. Ontario Ministry of Labour, Ontario Quality of Working Life Centre.
- Whitworth, A. (2009). *Information obesity*. Chandos Publishing.

Articles

- Azhmukhamedov, I. M., Protalinsky O. M. (2013). Methodology for studying poorly formalized, weakly structured sociotechnical systems. Bulletin of Astrakhan State Technical University. Series: Management, Computing and Information Science, (1), 144-154.

- Rouvroy, A. & Berns, T. (2013). Gouvernamentalité algorithmique et perspectives d'émancipation: Le disparate comme condition d'individuation par la relation?. *Réseaux*, 177, 163-196. <https://doi.org/10.3917/res.177.0163>.
- Barocas, S., Rosenblat, A., Boyd, D., Gangadharan, S. P., & Yu, C. (2014). Data & Civil Rights: Technology Primer. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2536579>.
- Barrett, M., Oborn, E., Orlikowski, W. J., & Yates, J. (2012). Reconfiguring Boundary Relations: Robotic Innovations in Pharmacy Work. *Organization Science*, 23(5), 1448–1466. <http://www.jstor.org/stable/23252317>.
- Bucher, T. (2012). Want to be on the top? algorithmic power and the threat of invisibility on Facebook. *New Media & Society*, 14(7), 1164–1180. <https://doi.org/10.1177/1461444812440159>.
- Bergen, N., & Labonté, R. (2019). “Everything Is Perfect, and We Have No Problems”:
Detecting and Limiting Social Desirability Bias in Qualitative Research. *Qualitative Health Research*, 30(5), 783-792. <https://doi.org/10.1177/1049732319889354>.
- Braverman, H. (1974). Labor and Monopoly Capital. *Monthly Review*, 26(3), 1. https://doi.org/10.14452/mr-026-03-1974-07_1.
- Brayne, S. (2017). Big Data Surveillance: The case of policing. *American Sociological Review*, 82(5), 977–1008. <https://doi.org/10.1177/0003122417725865>.
- Brink, H. (1993). Validity and reliability in qualitative research. *Curationis*, 16(2). <https://doi.org/10.4102/curationis.v16i2.1396>.
- Botla, L. (2018). *Socio Technical Systems of a Company: The Dimensionality of Socio Technical Systems*. ResearchGate. Retrieved 20 May 2022, from <https://www.researchgate.net/publication/327775884>.
- Binns, R. (2018). What can political philosophy teach us about algorithmic fairness? *IEEE Security & Privacy*, 16(3), 73–80. <https://doi.org/10.1109/msp.2018.2701147>.
- Bonini, T., & Gandini, A. (2019). “first week is editorial, second week is algorithmic”:
Platform gatekeepers and the platformization of music curation. *Social Media + Society*, 5(4), 205630511988000. <https://doi.org/10.1177/2056305119880006>.
- Bondarouk, T., Parry, E., & Furtmueller, E. (2016). Electronic HRM: Four decades of research on adoption and consequences. *The International Journal of Human Resource Management*, 28(1), 98–131. <https://doi.org/10.1080/09585192.2016.1245672>.

- Curchod, C., Patriotta, G., Cohen, L., & Neysen, N. (2019). Working for an algorithm: Power asymmetries and agency in online work settings. *Administrative Science Quarterly*, 65(3), 644–676. <https://doi.org/10.1177/0001839219867024>.
- Culpepper, P. D., & Thelen, K. (2019). Are we all Amazon primed? consumers and the politics of Platform Power. *Comparative Political Studies*, 53(2), 288–318. <https://doi.org/10.1177/0010414019852687>.
- Cowgill, Bo (2019). *Bias and productivity in humans and machines*. Upjohn Institute Working Paper, No. 19-309, W.E. Upjohn Institute for Employment Research, Kalamazoo, MI, <http://dx.doi.org/10.17848/wp19-309>.
- Callaghan, G., & Thompson, P. (2001). Edwards Revisited: Technical control and call centres. *Economic and Industrial Democracy*, 22(1), 13–37. <https://doi.org/10.1177/0143831x01221002>.
- Castelluccia, C., & Métayer, D. (2019). *Understanding algorithmic decision-making: Opportunities and challenges*. Europarl.europa.eu. Retrieved 20 May 2022, from [https://www.europarl.europa.eu/RegData/etudes/STUD/2019/624261/EPRS_STU\(2019\)624261_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2019/624261/EPRS_STU(2019)624261_EN.pdf).
- Chamorro-Premuzic, T., & Ahmetoglu, G. (2016). *The Pros and cons of robot managers*. Harvard Business Review. <https://hbr.org/2016/12/the-pros-and-cons-of-robot-managers>.
- Chamorro-Premuzic, T., Akhtar, R., Winsborough, D., & Sherman, R. A. (2017). The datafication of talent: How technology is advancing the science of human potential at work. *Current Opinion in Behavioral Sciences*, 18, 13–16. <https://doi.org/10.1016/j.cobeha.2017.04.007>.
- Caliskan, K. (2020). Data money: The socio-technical infrastructure of cryptocurrency blockchains. *Economy and Society*, 49(4), 540–561. <https://doi.org/10.1080/03085147.2020.1774258>.
- Calo, R., & Rosenblat, A. (2017). The taking economy: Uber, information, and power. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2929643>.
- Cheng, M. M., & Hackett, R. D. (2021). A critical review of algorithms in HRM: Definition, theory, and Practice. *Human Resource Management Review*, 31(1), 100698. <https://doi.org/10.1016/j.hrmmr.2019.100698>.
- Duggan, J., Sherman, U., Carbery, R., & McDonnell, A. (2019). Algorithmic management and app-work in the gig economy: A research agenda for employment relations and HRM. *Human Resource Management Journal*, 30(1), 114-132. <https://doi.org/10.1111/1748-8583.12258>.
- Davenport, T. H. (2014). *Big Data at work: Dispelling the myths, uncovering the opportunities*. Harvard Business Review.

- Davenport, T. H. (2018). From analytics to artificial intelligence. *Journal of Business Analytics, 1*(2), 73–80. <https://doi.org/10.1080/2573234x.2018.1543535>,
- David, S., & Ivana, P. (2021). *Algorithmic Control in the Platform Economy*. Cyberleninka. Retrieved 26 May 2022, from <https://cyberleninka.ru/article/n/algorithmicheskoe-upravlenie-v-ekonomike-platform>.
- Derrick, D. C., & Elson, J. S. (2018). Automated leadership: Influence from Embodied Agents. *HCI in Business, Government, and Organizations*, 51–66. https://doi.org/10.1007/978-3-319-91716-0_5.
- de Vaan, M., Vedres, B., & Stark, D. (2015). Game Changer: The Topology of Creativity. *American Journal of Sociology, 120*(4), 1144–1194. <https://doi.org/10.1086/681213>.
- Elert, N., & Henrekson, M. (2016). Evasive entrepreneurship. *Small Business Economics, 47*(1), 95–113. <https://doi.org/10.1007/s11187-016-9725-x>.
- Evans, D. S. (2003). Some empirical aspects of multi-sided platform industries. *Review of Network Economics, 2*(3). <https://doi.org/10.2202/1446-9022.1026>.
- Eisenmann, T., Parker, G. G., & Van Alstyne, M. W. (2006). *Strategies for two-sided markets*. Harvard Business Review. <https://hbr.org/2006/10/strategies-for-two-sided-markets>.
- Favaretto, M., De Clercq, E., & Elger, B. S. (2019). Big Data and discrimination: Perils, promises and solutions. A systematic review. *Journal of Big Data, 6*(1). <https://doi.org/10.1186/s40537-019-0177-4>.
- Frenken, K., & Fuenfschilling, L. (2020). The Rise of Online Platforms and the Triumph of the Corporation. *Sociologica, 14*(3), 101–113. <https://doi.org/10.6092/issn.1971-8853/11715>.
- Fuster, A., Plosser, M. C., Schnabl, P., & Vickery, J. I. (2018). The role of technology in mortgage lending. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3127175>
- Fourcade, M., & Healy, K. (2016). Seeing like a market. *Socio-Economic Review*. <https://doi.org/10.1093/ser/mww033>.
- Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (pp. 357–411). McGraw-Hill.
- Faraj, S., Pachidi, S., & Sayegh, K. (2018). Working and organizing in the age of the learning algorithm. *Information and Organization, 28*(1), 62–70. <https://doi.org/10.1016/j.infoandorg.2018.02.005>.

- Garcia-Arroyo, J., & Osca, A. (2019). Big Data Contributions to Human Resource Management: A systematic review. *The International Journal of Human Resource Management*, 32(20), 4337–4362. <https://doi.org/10.1080/09585192.2019.1674357>.
- Gabrilovich, E., Dumais, S., & Horvitz, E. (2004). Newsjunkie. *Proceedings of the 13th International Conference on World Wide Web*. <https://doi.org/10.1145/988672.988738>.
- Glaser, V., Pollock, N., & D'Adderio, L. (2021). The Biography of an Algorithm: Performing algorithmic technologies in organizations. *Organization Theory*, 2(2), 263178772110046. <https://doi.org/10.1177/26317877211004609>.
- Günsel, A., & Yamen, M. (2020). Digital Taylorism as an Answer to the Requirements of the New Era. *Agile Business Leadership Methods For Industry 4.0*, 103-119. <https://doi.org/10.1108/978-1-80043-380-920201007>.
- Geraci, M. (2020). Manejo algorítmico: ¿Un método libre de responsabilidad para gestionar el desempeño de los trabajadores?. *Revista De La Facultad De Jurisprudencia RFJ*, 7(7), 244-269. <https://doi.org/10.26807/rfj.v7i7.252>.
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, 204(6), 291-295. <https://doi.org/10.1038/bdj.2008.192>.
- Gillespie, T. (2014). The relevance of algorithms. *Media Technologies*, 167–194. <https://doi.org/10.7551/mitpress/9780262525374.003.0009>.
- Glikson, E., & Woolley, A. W. (2020). Human trust in artificial intelligence: Review of empirical research. *Academy of Management Annals*, 14(2), 627–660. <https://doi.org/10.5465/annals.2018.0057>.
- Giermindl, L. M., Strich, F., Christ, O., Leicht-Deobald, U., & Redzepi, A. (2021). The dark sides of people analytics: Reviewing the perils for organisations and employees. *European Journal of Information Systems*, 31(3), 410–435. <https://doi.org/10.1080/0960085x.2021.1927213>.
- Höddinghaus, M., Sondern, D., & Hertel, G. (2021). The automation of leadership functions: Would people trust decision algorithms?. *Computers In Human Behavior*, 116, 106635. <https://doi.org/10.1016/j.chb.2020.106635>.
- Harris, J. G., & Davenport, T. H. (2017). *Competing on analytics: The new science of winning*. Harvard Business Review.
- Hollis, M. (1994). *The Philosophy of Social Science*. <https://doi.org/10.1017/ccol0521447801>.

- House of Commons Defence Committee. (2002). *A New Chapter to the Strategic Defence Review* (6th ed., p. 15). Retrieved 20 May 2022, from <https://publications.parliament.uk/pa/cm200203/cmselect/cmdfence/93/93.pdf>.
- Hozano, M., Antunes, N., Fonseca, B., & Costa, E. (2017). Evaluating the Accuracy of Machine Learning Algorithms on Detecting Code Smells for Different Developers. *Proceedings Of The 19Th International Conference On Enterprise Information Systems*. <https://doi.org/10.5220/0006338804740482>.
- Harms, P. D., & Han, G. (2019). Algorithmic leadership: The future is now. *Journal of Leadership Studies*, 12(4), 74–75. <https://doi.org/10.1002/jls.21615>.
- Jarrahi, M. H., Sutherland, W., Nelson, S. B., & Sawyer, S. (2019). Platformic management, Boundary Resources for gig work, and worker autonomy. *Computer Supported Cooperative Work (CSCW)*, 29(1–2), 153–189. <https://doi.org/10.1007/s10606-019-09368-7>.
- Jarrahi, M., Newlands, G., Lee, M., Wolf, C., Kinder, E., & Sutherland, W. (2021). Algorithmic management in a work context. *Big Data & Society*, 8(2), 205395172110203. <https://doi.org/10.1177/20539517211020332>.
- Jia, L., & Winseck, D. (2018). The political economy of Chinese internet companies: Financialization, concentration, and capitalization. *International Communication Gazette*, 80(1), 30–59. <https://doi.org/10.1177/1748048517742783>.
- Keller, R., Atkinson, S., & Clarkson, P. (2008). *Network enabled capability as a challenge for design: A change management view*. ResearchGate. Retrieved 20 May 2022, from <https://www.researchgate.net/publication/242072305>.
- Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of Control. *Academy of Management Annals*, 14(1), 366–410. <https://doi.org/10.5465/annals.2018.0174>.
- King, K. G. (2016). Data Analytics in human resources. *Human Resource Development Review*, 15(4), 487–495. <https://doi.org/10.1177/1534484316675818>.
- Kitchin, R. (2016). Thinking critically about and researching algorithms. *Information, Communication & Society*, 20(1), 14–29. <https://doi.org/10.1080/1369118x.2016.1154087>.
- de Kloet, J., Poell, T., Guohua, Z., & Yiu Fai, C. (2019). The platformization of Chinese society: Infrastructure, governance, and Practice. *Chinese Journal of Communication*, 12(3), 249–256. <https://doi.org/10.1080/17544750.2019.1644008>.
- Kurlovich, A. (n.d.). *Safety of Chemical Processes in the Aspect of the Theory of Sociotechnical Systems*, 168-175. Retrieved 26 May 2022, from <https://cyberleninka.ru/article/n/bezopasnost-himicheskikh-protsessov-v-aspekte-teorii-sotsiotekhnicheskikh-sistem/pdf>.

- Krscynski, D., Reeves, C., Stice-Lusvardi, R., Ulrich, M., & Russell, G. (2017). Analytical abilities and the performance of HR professionals. *Human Resource Management, 57*(3), 715–738. <https://doi.org/10.1002/hrm.21854>.
- Kowalski, R. (1979). Algorithm = logic + control. *Communications of the ACM, 22*(7), 424–436. <https://doi.org/10.1145/359131.359136>.
- Kordzadeh, N., & Ghasemaghaei, M. (2021). Algorithmic bias: review, synthesis, and future research directions. *European Journal Of Information Systems, 31*(3), 388–409. <https://doi.org/10.1080/0960085x.2021.1927212>.
- Kornberger, M., Pflueger, D., & Mouritsen, J. (2017). Evaluative infrastructures: Accounting for Platform Organization. *Accounting, Organizations and Society, 60*, 79–95. <https://doi.org/10.1016/j.aos.2017.05.002>.
- Kossow, N., Windwehr, S., & Jenkins, M. (2021). *Algorithmic transparency and accountability*. Transparency International. Retrieved 20 May 2022, from https://knowledgehub.transparency.org/assets/uploads/kproducts/Algorithmic-Transparency_2021.pdf.
- Lee, M., Kusbit, D., Metsky, E., & Dabbish, L. (2015). *Working with Machines / Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. ACM Conferences. Retrieved 20 May 2022, from <https://dl.acm.org/doi/10.1145/2702123.2702548>.
- Lee, M. K., Kim, J. T., & Lizarondo, L. (2017). A human-centered approach to algorithmic services. *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. <https://doi.org/10.1145/3025453.3025884>.
- Lee, M. (2018). Understanding perception of algorithmic decisions: Fairness, trust, and emotion in response to algorithmic management. *Big Data & Society, 5*(1), 205395171875668. <https://doi.org/10.1177/2053951718756684>.
- Leicht-Deobald, U., Busch, T., Schank, C., Weibel, A., Schafheitle, S., Wildhaber, I., & Kasper, G. (2019). The challenges of algorithm-based HR decision-making for personal integrity. *Journal of Business Ethics, 160*(2), 377–392. <https://doi.org/10.1007/s10551-019-04204-w>.
- LeCompte, M. D., & Goetz, J. P. (1982). Problems of reliability and validity in Ethnographic Research. *Review of Educational Research, 52*(1), 31. <https://doi.org/10.2307/1170272>.
- Lindstedt, C., & Naurin, D. (2010). Transparency is not enough: Making transparency effective in reducing corruption. *International Political Science Review, 31*(3), 301–322. <https://doi.org/10.1177/0192512110377602>.
- Lindebaum, D., Vesa, M., & den Hond, F. (2020). Insights from “the Machine stops” to better understand rational assumptions in algorithmic decision making and its

- implications for organizations. *Academy of Management Review*, 45(1), 247–263. <https://doi.org/10.5465/amr.2018.0181>.
- Marres, N., & Stark, D. (2020). Put to the test: For a new sociology of testing. *The British Journal of Sociology*, 71(3), 423–443. <https://doi.org/10.1111/1468-4446.12746>.
- Meijerink, J., & Bondarouk, T. (2021). The duality of algorithmic management: Toward a research agenda on HRM algorithms, autonomy and value creation. *Human Resource Management Review*, 100876. <https://doi.org/10.1016/j.hrmr.2021.100876>.
- Meijerink, J., Boons, M., Keegan, A., & Marler, J. (2021). Algorithmic human resource management: Synthesizing developments and cross-disciplinary insights on digital HRM. *The International Journal Of Human Resource Management*, 32(12), 2545–2562. <https://doi.org/10.1080/09585192.2021.1925326>.
- Orlikowski, W. J., & Iacono, C. S. (2001). Research Commentary: Desperately Seeking the ‘IT’ in IT Research—A Call to Theorizing the IT Artifact. *Information Systems Research*, 12(2), 121–134. <http://www.jstor.org/stable/23011075>.
- Orlikowski, W. J., & Scott, S. V. (2016). Digital work: A research agenda. *A Research Agenda for Management and Organization Studies*. <https://doi.org/10.4337/9781784717025.00014>.
- Plantin, J.-C., & de Seta, G. (2019). WeChat as infrastructure: The techno-nationalist shaping of Chinese digital platforms. *Chinese Journal of Communication*, 12(3), 257–273. <https://doi.org/10.1080/17544750.2019.1572633>.
- Peck, J., & Phillips, R. (2020). The Platform Conjuncture. *Sociologica*, 14(3), 73–99. <https://doi.org/10.6092/issn.1971-8853/11613>.
- Parry, K., Cohen, M., & Bhattacharya, S. (2016). Rise of the machines. *Group & Organization Management*, 41(5), 571–594. <https://doi.org/10.1177/1059601116643442>.
- Rahman, K. S., & Thelen, K. (2019). The rise of the platform business model and the transformation of twenty-first-century capitalism. *Politics & Society*, 47(2), 177–204. <https://doi.org/10.1177/0032329219838932>.
- Ravenelle, A.J. (2019) ‘“we’re not uber:” control, autonomy, and entrepreneurship in the Gig Economy’, *Journal of Managerial Psychology*, 34(4), pp. 269–285. doi:10.1108/jmp-06-2018-0256.
- Rochet, J.-C., & Tirole, J. (2003). Platform Competition in Two-sided Markets. *Journal of the European Economic Association*, 1(4), 990–1029. <http://www.jstor.org/stable/40005175>.

- Rosenblat, A., & Stark, L. (2015). Uber's drivers: Information asymmetries and control in dynamic work. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2686227>.
- Rosenblat, A. (2018). *Uberland*. <https://doi.org/10.1525/9780520970632>.
- Simon, J. (2019). Artificial intelligence: scope, players, markets and geography. *Digital Policy, Regulation And Governance*, 21(3), 208-237. <https://doi.org/10.1108/dprg-08-2018-0039>.
- Seaver, N. (2019). Knowing algorithms. *digitalSTS*, 412–422. <https://doi.org/10.1515/9780691190600-028>.
- Strohmeier, S., & Parry, E. (2014). HRM in the Digital age – digital changes and challenges of the HR profession. *Employee Relations*, 36(4). <https://doi.org/10.1108/er-03-2014-0032>.
- Strohmeier, S., & Piazza, F. (2015). Artificial Intelligence Techniques in human resource management—a conceptual exploration. *Intelligent Techniques in Engineering Management*, 149–172. https://doi.org/10.1007/978-3-319-17906-3_7.
- Strohmeier, S. (2020). Digital Human Resource Management: A conceptual clarification. *German Journal of Human Resource Management: Zeitschrift Für Personalforschung*, 34(3), 345–365. <https://doi.org/10.1177/2397002220921131>.
- Stark, D., & Pais, I. (2021). *Algorithmic management in the platform economy*. *Sociologica*. <https://doi.org/10.6092/issn.1971-8853/12221>.
- Stark, Q. (1980). On the role of urban-to-rural remittances in Rural Development. *The Journal of Development Studies*, 16(3), 369–374. <https://doi.org/10.1080/00220388008421764>.
- Thelen, K. (2018). Regulating Uber: The politics of the platform economy in Europe and the United States. *Perspectives on Politics*, 16(4), 938–953. <https://doi.org/10.1017/s1537592718001081>.
- Trist, E. L., & Bamforth, K. W. (1951). Some social and psychological consequences of the longwall method of coal-getting. *Human Relations*, 4(1), 3–38. <https://doi.org/10.1177/001872675100400101>.
- Totaro, P., & Ninno, D. (2014). The concept of algorithm as an interpretative key of modern rationality. *Theory, Culture & Society*, 31(4), 29–49. <https://doi.org/10.1177/0263276413510051>.
- Thaler, R. H., & Sunstein, C. R. (2009). *Improving decisions about health, wealth and happiness*. Penguin Books Ltd.

- Ticona, J., Mateescu, A., & Rosenblat, A. (2018). Beyond Disruption. *Data Society*.
https://datasociety.net/wp-content/uploads/2018/06/Data_Society_Beyond_Disruption_FINAL.pdf.
- van der Aalst, W. (2019). Responsible Data Science in a Dynamic World. *IFIP Advances In Information And Communication Technology*, 3-10. https://doi.org/10.1007/978-3-030-15651-0_1.
- Vertesi, J. A., Goldstein, A., Enriquez, D., Liu, L., & Miller, K. T. (2020). Pre-Automation: Insourcing and Automating the Gig Economy. *Sociologica*, 14(3), 167–193. <https://doi.org/10.6092/issn.1971-8853/11657>.
- Verma, S., & Rubin, J. (2018). Fairness definitions explained. *Proceedings of the International Workshop on Software Fairness*.
<https://doi.org/10.1145/3194770.3194776>.
- Vallas, S., & Schor, J. B. (2020). What do platforms do? understanding the gig economy. *Annual Review of Sociology*, 46(1), 273–294.
<https://doi.org/10.1146/annurev-soc-121919-054857>.
- Veen, A., Barratt, T., & Goods, C. (2019). Platform-Capital’s ‘app-etite’ for control: A labour process analysis of food-delivery work in Australia. *Work, Employment and Society*, 34(3), 388–406. <https://doi.org/10.1177/0950017019836911>.
- von Krogh, G. (2018). Artificial Intelligence in organizations: New opportunities for phenomenon-based theorizing. *Academy of Management Discoveries*, 4(4), 404–409. <https://doi.org/10.5465/amd.2018.0084>.
- Walker, G., Stanton, N., Salmon, P., & Jenkins, D. (2008). A review of sociotechnical systems theory: a classic concept for new command and control paradigms. *Theoretical Issues In Ergonomics Science*, 9(6), 479-499.
<https://doi.org/10.1080/14639220701635470>.
- Wood, A. J., Graham, M., Lehdonvirta, V., & Hjorth, I. (2018). Good gig, Bad gig: Autonomy and algorithmic control in the global gig economy. *Work, Employment and Society*, 33(1), 56–75. <https://doi.org/10.1177/0950017018785616>.
- Wood, A. J. (2021). *Algorithmic Management: Consequences for Work Organisation and Working Conditions*, Seville: European Commission, 2021, JRC124874.
- Wang, N., & Katsamakas, E. (2019). A network data science approach to people analytics. *Information Resources Management Journal*, 32(2), 28–51.
<https://doi.org/10.4018/irmj.2019040102>.
- Wesche, J. S., & Sonderegger, A. (2019). When computers take the lead: The Automation of Leadership. *Computers in Human Behavior*, 101, 197–209.
<https://doi.org/10.1016/j.chb.2019.07.027>.

Websites

- Akers, H. (n.d.). *The Disadvantages of Qualitative & Quantitative Research*. Theclassroom.com. Retrieved 24 June 2022, from <https://www.theclassroom.com/disadvantages-qualitative-quantitative-research-8321143.html>.
- Bhandari, P. (2021). *Ethical Considerations in Research | Types & Examples*. Scribbr. Retrieved 20 May 2022, from <https://www.scribbr.com/methodology/research-ethics/#:~:text=What%20are%20ethical%20considerations%20in,for%20harm%20C%20and%20results%20communication>.
- Bottomley, E. (2020). *Data and Algorithms in the Workplace: An Overview of Current Public Policy Strategies*. Berkeley: Center for Labor Research and Education. Retrieved from <https://laborcenter.berkeley.edu/data-and-algorithms-in-the-workplace-an-overview-of-current-public-policy-strategies/>.
- Bunzel, C. (n.d.). *Algorithmic Management: Benefits, Challenges, and Best Practices*. AIHR. Retrieved 20 May 2022, from <https://www.aihr.com/blog/algorithmic-management/>.
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for Research*. Experimental and Quasi-Experimental Designs for Research. <https://www.sfu.ca/~palys/Campbell&Stanley-1959-Exptl&QuasiExptlDesignsForResearch.pdf>.
- Green, D. (2010). *Socio-technical Systems in Global Markets*. Nu Leadership Revolution Blog. Retrieved 26 May 2022, from <https://nuleadership.com/2010/08/23/socio-technical-systems-in-global-markets/>
- Houston, K. (2022). *Qualitative data-collection methods | The Jotform Blog*. The Jotform Blog. Retrieved 20 May 2022, from <https://www.jotform.com/blog/qualitative-data-collection-methods/>.
- McCombes, S. (2019). *Sampling Methods | Types and Techniques Explained*. Scribbr. Retrieved 20 May 2022, from <https://www.scribbr.com/methodology/sampling-methods/>.
- Nguyen, A., & Mateescu, A. (2019). *Explainer: Algorithmic Management in the Workplace*. Data & Society. Retrieved 20 May 2022, from <https://datasociety.net/library/explainer-algorithmic-management-in-the-workplace/>.
- Scheiber, N. (2017). *How uber uses psychological tricks to push its drivers' buttons*. The New York Times. <https://www.nytimes.com/interactive/2017/04/02/technology/uber-drivers-psychological-tricks.html>.

Theses

Feshchenko, P. (2021). *Algorithmic Management and Algorithmic Leadership: A Systematic Literature Review* (Masters). University of Jyväskylä.

McKenzie, W. (2020). *The Legal Challenges of Algorithmic Management in the Workplace* (Bachelor). University of Otago.



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Date of birth: 11/10/1999

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CONTACT

ABOUT ME

Hi, I am Javid. I am very flexible and responsible for the work that finds me. Coming to my preferences, I love listening to music, as well as reading books and articles about different topics. These are my main hobbies. Additionally, I can describe myself as stress-resistant. I like working cooperatively and I am able to adapt myself to various conditions.

WORK EXPERIENCE

29/04/2021 – 12/10/2021 Baku, Azerbaijan

Customer service and customer relations representative Positive Call Center

My first position was in Reservation and Ticketing department of Turkish Airlines. In this position, my responsibility was to help passengers to solve their problems with their reservations, as well as to provide them with the latest information regarding COVID-19 regulation rules of per country they were traveling to. Those days, because of the pandemic, many flights were getting cancelled, so I was one of the representatives or operators who were providing customers with the best solutions.

In addition to this, starting from July 30, I have been promoted to the new position in Customer Relations Department of the Turkish Airlines. Here, my responsibility was to direct passengers to the appropriate department so as to work out possible solutions for their specific and sometimes critical issues. Customer Relations Department is like a bridge between Management Department and Reservation and Ticketing department of the same company. Therefore, for urgent situations we were cooperating with our management department to provide clients with necessary and even beneficial solutions.

EDUCATION AND TRAINING

14/09/2016 – 2020 Baku, Azerbaijan

Bachelor degree of Geological Engineering Azerbaijan State Oil and Industry University

Address Azadliq avenue, 34, 1010, Baku, Azerbaijan |

Website www.asolu.edu.az

11/2019 – 28/05/2020 Baku, Azerbaijan

IELTS Exam Certificate Unity Language Center

Address Vaqif avenue, 1007, Baku, Azerbaijan | **Website** www.unity.az |

Final grade 6.5

29/08/2020 – 06/09/2020 United Kingdom

Business Management Certificate eLearning College

Website www.clearingcollege.com

2013 Baku, Azerbaijan

Certificate of Honor on the Republican Olympiad on the Russian language Embassy of the Russian Federation in Azerbaijan Republic

Final grade Third place

02/05/2010 Baku, Azerbaijan

Certificate of Honor on the Event dedicated to the 65th Anniversary of the Victory over Fascism School №278 named after Parviz Ismailov

Final grade Second place

31/08/2020 – CURRENT Antalya, Türkiye

● **Master of Business Administration** Antalya Bilim University

Address Ciplaklı mah. Akdeniz Bulvarı No: 290 Döşemealtı, Antalya, Antalya, Türkiye | Website www.antalya.edu.tr

23/09/2022 Yevlakh, Azerbaijan

● **Certificate of Honor for Active Participation in the subjects of Combat Training and Socio-political Training** Ministry of Defence

13/07/2022 – 10/07/2023 Kalbajar, Azerbaijan

● **Military Ticket** Ministry of Defence

Website www.mod.gov.az

20/04/2020 – 01/06/2020 Baku, Azerbaijan

● **Petroleum Geology Engineering** Azerbaijan State Oil and Industry University

Website www.asoiu.edu.az

LANGUAGE SKILLS

MOTHER TONGUE(S): Azerbaijani | Russian

Other language(s):

English

Listening	Reading	Spoken production	Spoken interaction	Writing
B2	B2	B2	B2	B2

Turkish

Listening	Reading	Spoken production	Spoken interaction	Writing
B1	B1	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Microsoft Word | Google Drive | Microsoft Powerpoint | Zoom | Microsoft Excel | Social Media | LinkedIn | Outlook | Microsoft Office