

GENDER BALANCE AMONG DIRECTORS IN THE AGE OF AI

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ABSTRACT

Gender balance in corporate boards has been a widely debated topic in recent years. The adoption of the EU Directive on Improving the Gender Balance among Directors of Listed Companies – Gender Balance Directive, 10 years after the publication of the Proposal for this Directive is a testament to how difficult it was to reach a compromise. This long-awaited legal instrument was adopted at the time when artificial intelligence has become a new hot topic in company law and corporate governance. However, an intersection between gender balance and AI regarding corporate boards, i.e. women on boards in the age of rapid development of AI was not discussed to that extent. At the beginning, the author explains the mechanisms for fostering gender balance in corporate boards under the Gender Balance Directive. Afterwards, the mechanisms outlined in Serbian Law on Gender Equality for improving representation of women in boards are described as well. To highlight the extent to which it is necessary to implement mechanisms for establishing gender balance and to identify the specific directorial positions involved, statistical data for EU countries and Serbia are also presented. In the following parts of the paper, the author analyses whether and how the development of AI will influence the gender balance in corporate boards. On the one hand, AI may be used when selecting women directors and thus be seen as useful mechanism for improving gender balance. Nevertheless, this is also associated with the risk of discrimination against women. On the other hand, its use may be an impediment for fostering gender equality in the setting where an algorithm may replace a director or even make all previous efforts for improving gender balance in corporate boards futile.

Key words: gender balance, directors, corporate boards, AI, high-risk AI.

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1. INTRODUCTION

Various mechanisms for improving gender balance among directors in corporate boards are employed worldwide. Although gender balance may be improved and finally accomplished in different ways, quotas have become the most important among these mechanisms, especially in the EU countries. Ten years after the publication of the Proposal for a Directive on Improving the Gender Balance among Non-executive Directors of Companies Listed in Stock Exchanges and Related Measures, the Directive on Improving Gender Balance among Directors of Listed Companies and Related Measures was adopted in 2022.¹ The introduction of quotas has drawn the attention of corporate law scholars, as it represents a mechanism which directly impacts the process of appointing directors. Improving gender balance among directors may be understood as a modification of shareholders rights.² Specifically, it is an example of protecting stakeholder interests, demonstrating a shift away from prioritizing shareholders. To put it differently, it is a manifestation of giving greater importance to stakeholder interests.³

Before the adoption of the Gender Balance Directive, many countries have chosen and introduced quotas in their laws in order to foster gender balance, following the Norwegian example.⁴ Norway is perceived as a pioneer with regard to quotas and board composition. Female board representation is an important issue not only in Europe, but also in the US. California was the first US state where publicly held corporations, both domestic and foreign whose principal executive offices are located in California, are required to have women

¹ Proposal for a Directive of the European Parliament and of the Council on Improving the Gender Balance among Non-executive Directors of Companies Listed in Stock Exchanges and Related Measures, COM (2012) 614 final, 2012/0299 (COD), 20 November 2012 (hereinafter: the Proposal); European Parliament: *Directive (EU) 2022/2381 of the European Parliament and of the Council of 23 November 2022 on Improving Gender Balance among Directors of Listed Companies and Related Measures*, OJ L 315, 07.12.2022, (hereinafter: Gender Balance Directive or the 2022 Directive).

² See Hopt, K. J., Leyens, P. C.: The Structure of the Board of Directors: Boards and Governance Strategies in the US, the UK and Germany, *ECGI Working Paper Series in Law*, (567) 2021, p. 32.

³ Fisch, J., Davidoff Solomon, S.: Centros, California's Women on Boards' Statute and the Scope of Regulatory Competition, *European Business Organization Law Review*, 20(3) 2019, p. 495.

⁴ Among these are Spain, France and Italy. See, for example, Mensi-Klarbach, H., Seierstad, C.: Gender Quotas on Corporate Boards: Similarities and Differences in Quota Scenarios, *European Management Review*, 17(3) 2020, p. 620.

directors.⁵ Although the experience of these countries, supported by available statistics, suggests that quotas are an effective measure for fostering gender equality, there is no consensus on underlying reasons for their introduction into the legal system. In general, there were two motivational factors for legislators to introduce quotas with regard to board composition – improving the financial performance and contributing to societal goals.⁶ Even though enhancing corporate performance is often cited as a key reason for introducing quotas, empirical studies on the topic show varying results.⁷ Critics and unconvincing reasons for their introduction regarding company performance has not prevented European legislative bodies to introduce quotas in order to improve gender balance in corporate boards. The same applies to Serbia, which provides for quotas in order to improve gender balance among directors as well. Considering the controversy surrounding financial performance as a reason for introducing quotas, it may be concluded that legislators are willing to introduce quotas primarily to support broader societal objectives.

On top of the issues related to mechanisms for fostering gender equality in corporate boards, artificial intelligence (AI) development leads to the need to review these mechanisms from the perspective which includes such a development. First, since AI can be used in the process of selecting director candidates, the effects of using these AI systems to improve gender balance in corporate boards should be elaborated. Specifically, AI is considered an important tool and helpful mechanism in this process. Considering the recent adoption of the AI Act, its impact on gender balance in corporate boards is also important.⁸ Second, it should be taken into account whether software may replace directors and if this is to be expected in future, it should be clarified what this means for gender balance in corporate boards. The answer differs

⁵ Companies are required to have at least one female director by the end of 2019, at least two female directors on boards with four of five member, and three female directors on boards with six or more directors by the end of 2021. Fisch, J., Davidoff Solomon, S.: Centros, California's Women on Boards' Statute and the Scope of Regulatory Competition, *European Business Organization Law Review*, 20(3) 2019, pp. 504-505.

⁶ Edmans, A., Flammer, C., Glossner, S.: Diversity, Equity, and Inclusion, *NBER Working Paper Series*, (31215) 2023, p. 2.

⁷ See Fröhlich, M., Jevremović Petrović, T., Lepetić, J.: Gender, Business and the Law, in: Vujadinović, D., Fröhlich, M., Giegerich, T. (eds.): *Gender-Competent Legal Education*, Cham: Springer, 2023, p. 677.

⁸ European Parliament: *Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act)*, OJ L 1689, 12.07.2024, (hereinafter: AI Act).

according to whether there are both human directors and software directors on the board or whether the directors are exclusively software. The first option seems more realistic at the moment and, therefore, it should be elaborated in more detail. The second option does not leave space for fostering gender balance at all. Additionally, gender balance in corporate boards is not an issue in companies without a board of directors in its standard meaning – Distributed Autonomous Organization/Enterprises (DAO/DAE).⁹

This paper is structured as follows. Section 1 presents general introduction regarding the gender balance in the boards of directors and the impact of rapid development of AI on this issue. Section 2 elaborates on fostering gender equality in corporate boards in the EU under the Gender Balance Directive. Statistical data on gender equality in corporate boards of the largest listed companies in the EU are also presented. Section 3 analyses fostering gender equality in Serbia. To highlight the extent to which it is necessary to implement mechanisms for establishing gender balance and to identify the specific directorial positions involved, statistical data for Serbian companies is also presented. Positive and negative effects of selecting directors with AI assistance as well as the relevant provisions of AI Act are elaborated in Section 4. The effects of replacing human directors with software on gender balance in corporate boards are analysed in Section 5. Section 6 concludes the paper.

2. FOSTERING GENDER EQUALITY AMONG DIRECTORS IN EU

There are many different measures for supporting gender balance in corporate boards. These are, for example, creating a pool of candidates of under-represented gender, different methods of promoting gender equality, setting an obligation to draw up a strategy regarding the gender equality in corporate boards, providing an obligation to publish statistics regarding board diversity and setting so-called quotas.¹⁰ The most intrusive measures into company law are quotas.¹¹ This intrusion is of highest intensity when quotas are provided for appointment of both executive and non-executive directors. The companies affected by quotas may apply different mechanisms in order to avoid complying with this requirement. For example, companies may change their seat or go

⁹ Petrin, M.: Corporate Management in the Age of AI, *Columbia Business Law Review*, (3) 2019, pp. 1025-1026.

¹⁰ See more Fröhlich, M., Jevremović Petrović, T., Lepetić, J.: Gender, Business and the Law, in: Vujadinović, D., Fröhlich, M., Giegerich, T. (eds.): *Gender-Competent Legal Education*, Cham: Springer, 2023, pp. 679-680.

¹¹ See *ibid.*, 680.

private if quotas apply only to public companies.¹² Moreover, companies may appoint “token women” (a woman is appointed mainly because of political reasons) or a “golden skirt” (a woman who holds multiple board positions), which undermines the achievement of broader societal objectives.¹³ In addition to the impact quotas may have on the structure of the board, they can also influence individual behaviour, team dynamics, and group decision-making.¹⁴ Being selected through quotas may be associated with other negative consequences. For example, they may create a moral hazard problem, where women might reduce their effort due to the awareness of quotas, or they could be perceived as less committed, even if this perception is unfounded and produce great discrimination and antipathy.¹⁵

Nevertheless, the Gender Balance Directive provides for quotas in order to achieve better representation of women among directors. Surprisingly, the European Commission refers to studies that found a positive relationship between gender diversity and financial performance and profitability in order to support the introduction of quotas.¹⁶ Recital 16 of the Gender Balance Directive states that diversity improves corporate governance and encourages innovation, among other benefits, while Recital 10 of the Directive cites research suggesting that diversity fosters recovery and resilience, emphasizing its importance for maintaining the Union’s competitiveness, driving innovation, and raising the professional quality of board members.

The provisions of the Directive concern the composition of company boards and the process of appointment or election of directors. Solely by comparing the title of the Directive with the one of the Proposal, it may be concluded that the EU Commission has become more ambitious over the years. The title of the Gender Balance Directive relates to improving gender balance of directors, while the 2012 Proposal mentions only non-executive directors in its title. The

¹² See Dobson, J., Hensly, D., Rastad, M.: Toward Gender Diversity on Corporate Boards: Evaluating Government quotas (Eu) versus Shareholder Resolutions (Us) from the Perspective of Third Wave Feminism, *Philosophy of Management* 17(3) 2018, p. 337.

¹³ Mensi-Klarbach, H., Leixnering, S., Schiffinger, M.: The Carrot or the Stick: Self-Regulation for Gender-Diverse Boards via Codes of Good Governance, *Journal of Business Ethics*, 170(3) 2021, p. 578; Du Plessis, J., O’Sullivan, J., Rentschler, R.: Multiple layers of gender diversity on corporate boards: To force or not to force?, *Deakin Law Review*, 19(1) 2014, p. 5.

¹⁴ Leszczyńska, M.: Mandatory Quotas for Women on Boards of Directors in the European Union: Harmful to or Good for Company Performance?, *European Business Organization Law Review*, 19(1) 2018, p. 41.

¹⁵ Dobson, J., Hensly, D., Rastad, M.: Toward Gender Diversity on Corporate Boards: Evaluating Government quotas (Eu) versus Shareholder Resolutions (Us) from the Perspective of Third Wave Feminism, *Philosophy of Management* 17(3) 2018, p. 346.

¹⁶ Gender Balance Directive, recital 16.

Gender Balance Directive does not aim to harmonize rules on selection of directors in detail, but only to set minimum requirements regarding this process in listed companies.¹⁷ The fact that EU law does not harmonize rules on the organization of companies, including the structure of their bodies and management, underscores the importance of the new rules provided in the Gender Balance Directive.

2.1. OBJECTIVES AND LIMITATIONS

Fostering gender-based decision making within companies is one of the means of achieving gender equality in the workplace.¹⁸ This includes decision making at all levels. Nevertheless, the Gender Balance Directive relates only to gender-balance representation among top management positions and provides procedural requirements with regard to selection of candidates for appointment or election of directors in listed companies.¹⁹ The Directive does not apply to micro, small and medium-sized companies (SMEs) but only to listed companies. Thus, the number of women affected by these rules is very limited. Specifically, since these rules apply only to the top management of listed companies, its effects are limited to small number of women in total. For example, the Norwegian Gender Balance Law, which has served as a model for many legislators, pertains to only 500 women.²⁰ This approach has been chosen because it is expected that increased female representation in top management positions will have a spillover effect on lower positions within companies.²¹

The Gender Balance Directive sets the rule that members of under-represented sex have to hold at least 40 % of non-executive director positions by 30 June 2026 or at least 33% of all director positions by the same date.²² Furthermore, companies which are not subject to the objective regarding all director positions have to set individual quantitative objective in order to improve the gender balance among executive directors which should be achieved by 30 June 2026.²³ It is anticipated that these rules will positively impact the economy as

¹⁷ Gender Balance Directive, recital, 24.

¹⁸ Gender Balance Directive, recital 5.

¹⁹ Gender Balance Directive, recital 7.

²⁰ Øystein Strøm, R.: The Norwegian Gender Balance Law: A Reform that Failed?, *Annals of Corporate Governance*, 4(1) 2011, p. 13.

²¹ Gender Balance Directive, recital 10.

²² Gender Balance Directive, Article 5, para. 1.

²³ Gender Balance Directive, Article 5, para. 2.

a whole, with listed companies serving as examples for other companies to follow.²⁴

The quotas set by the Directive are of gender binary nature and, as such, do not correlate with gender fluidity.²⁵ Therefore, the Directive's provisions may be considered outdated, as they pertain only to gender equality between women and men but not to diversity in its contemporary sense.²⁶ Specifically, quotas can apply not only to women but also to other diverse directors who are under-represented. For example, such solutions are provided in California.²⁷ The term "board diversity" may include different aspects – demographics (e.g. gender, race), professional background (e.g. work experience, skills set) and viewpoints on the world and business (e.g. political positions).²⁸ Additionally, the provisions of the Gender Balance Directive do not address the question of how quotas are applied when directors are legal persons.²⁹ In some countries, including France, Spain, and Serbia, a director can also be a legal person.³⁰ This may be considered a shortcoming of the Gender Balance Directive as well as a previously mentioned disregard for the modern understanding of gender.

2.2. MEANS TO ACHIEVE THE OBJECTIVES

The Directive sets three means to achieve the objectives. It provides for a positive action measure, an obligation to report and the penalties for non-compliance. First, when selecting the candidates for appointment or election to director positions, the priority should be given to the under-represented sex in the selection process when candidates are equally qualified (positive ac-

²⁴ Gender Balance Directive, recital 27.

²⁵ Dobson, J., Hensly, D., Rastad, M.: Toward Gender Diversity on Corporate Boards: Evaluating Government quotas (Eu) versus Shareholder Resolutions (Us) from the Perspective of Third Wave Feminism, *Philosophy of Management* 17(3) 2018, p. 334.

²⁶ European Company Law Experts Group: Gender Balance Broom Wagon – The Resurrection of the Commission Proposal on Improving the Gender Balance among board members, *ECGI blog*, 07.06.2022.

²⁷ Ibid.

²⁸ Fos, V., Jiang, W., Nie, H.: A Diverse View on Board Diversity, *SSRN*, 2023, pp. 1-2.

²⁹ European Company Law Experts Group: Gender Balance Broom Wagon – The Resurrection of the Commission Proposal on Improving the Gender Balance among board members, *ECGI blog*, 07.06.2022.

³⁰ See, Eroğlu, M., Karatepe Kaya, M.: Impact of Artificial Intelligence on Corporate Board Diversity Policies and Regulations, *European Business Organization Law Review*, 23(3) 2022, p. 555.

tion).³¹ By exception, candidate of the other sex may be selected when there are reasons of greater legal weight. Companies have to, upon request, inform candidates considered for a director position about the selection criteria, the comparative assessment of candidates, and any specific reasons for favouring a candidate who is not from the under-represented sex. The companies have to ensure that shareholders or employees who are the voters, regarding selecting candidates for appointment or election of directors, are properly informed about the measures provided in the Directive and penalties for non-compliance by the company.³² Therefore, the rule on positive action is related to the process of selecting candidates for appointment or election to director positions and not the election at the general meeting.³³ Any other interpretation would make it impossible for companies with a large number of shareholders who vote anonymously on the selection of directors and are not required to provide explanations to justify the election of certain director.³⁴

The application of the rule on positive action, as well as the rule on individual quantitative objective in relation to improving gender balance among executives may be suspended if the following conditions are fulfilled by 27 December 2022: 1) members of under-represented sex hold at least 30% of non-executive director positions or at least 25% of all director positions or 2) Member State's national law requires those proportions while it includes effective, proportionate and dissuasive enforcement measures in the case of non-compliance and requires that all listed companies not covered by that national law set individual quantitative objectives for all director positions.³⁵ If the conditions are no longer fulfilled, the rules on suspension apply at the latest six months after. To determine whether the conditions for suspension are met, the required number of director positions must be the one closest to representing 30% of non-executive directors or 25% of all directors, but it must not exceed 39%. This applies even in cases where, under national law, the quantitative targets are applied separately to shareholder representatives and employee representatives. It may be concluded that, If Member States apply lower targets, it will

³¹ Gender Balance Directive, Art. 6, para. 1.

³² Gender Balance Directive, Art. 6, para. 5.

³³ See Birkmose, H.: Improving the Gender Balance Among Directors of Listed Companies in the EU, *European Company and Financial Law Review*, 20(1) 2023, p. 193.

³⁴ See European Company Law Experts Group: Gender Balance Broom Wagon – The Resurrection of the Commission Proposal on Improving the Gender Balance among board members, *ECGI blog*, 07.06.2022.

³⁵ Gender Balance Directive, Article 12, para. 1.

still suffice. Nevertheless, it is not clear why it is so.³⁶ Anyway, this possibility diminishes the significance of the rules for achieving the objectives set out in the Directive. This is especially true having in mind the statistical data on the number of women directors of largest listed companies in the EU.

The European Institute for Gender Equality provides for a gender statistic database with regard to board members, presidents (chairpersons), employee representatives, CEOs, executives and non-executive members of largest listed companies in EU and non-EU countries.³⁷ According to this database, the total number of women board members in listed companies in the EU was 33.9% in 2023, 32.3% in 2022, 30.7% in 2021, 29.5% in 2020, and only 17.8% in 2013.³⁸ Therefore, there is a significant progress over the decade. The positive trend is noticeable with regard to the number of women presidents as well. Specifically, the number of women presidents was 8.3% in 2023, 8.8% in 2022, 8.5 in 2021, 7.1% in 2020 and only 4.8% in 2013.³⁹ When it comes to the number of women non-executive directors (including employee representatives), there is a noticeable increase, with women comprising 36.3% in 2023, 34.8% in 2022, 33.2% in 2021, 31.9% in 2020 and 19.5% in 2013.⁴⁰ The number of executive directors in listed companies in the EU has also been steadily increasing. The average percentage of women executive directors in listed companies in the European Union was 22.4% in 2023, 21.1% in 2022, 20.3% in 2021, 19.4% in 2020, while it was only 11.8% in 2013.⁴¹ It may be concluded that the number of women non-executive directors continues to be higher than the number of women executive directors and that there is still room for improvement regarding both the number of non-executive and executive women directors. According to data for 2023, only 7.8% of CEOs were women, compared to 8.25% in 2022, 7.9% in 2021, 7.5% in 2020, and just 2.8% in 2013.⁴² The number of women CEOs is quite modest and far from satisfying although there was an improvement compared to the number of women CEOs in 2013.

Second, companies have obligations to report to the competent authorities about the gender representation on their boards and to publish the information

³⁶ See Birkmose, H.: Improving the Gender Balance Among Directors of Listed Companies in the EU, *European Company and Financial Law Review*, 20(1) 2023, p. 195.

³⁷ The data is available at <<https://eige.europa.eu/>>, last accessed on 25/10/2024.

³⁸ Note: the data for the period 2020-2023 include 27 EU countries while the date for 2012 includes 28 EU countries. See <<https://eige.europa.eu/>>, last accessed on 25/10/2024.

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

on the website as well as to include it in the company's corporate governance statement, which should be incorporated in a management report in accordance with the Directive 2013/34/EU.⁴³ If the objectives are not achieved, the information should include the reason for not achieving the objectives and a description of the measures which are already being undertaken or are planned to be undertaken in order to achieve them.

Third, the Directive prescribes the penalties for the infringements of the rules regarding individual quantitative objectives, the means to achieve the objectives and reporting obligations.⁴⁴ These may be fines, annulment of decision on the selection by the judicial body, etc. European countries apply various sanctions for non-compliance with the quota while different sanctions may be combined. Among these penalties are dissolution of company, fines, "open seat" approach (board position may be filled only by under-represented sex) and suspension of board payment.⁴⁵ It is important to note that the decision regarding the election of directors is ultimately the decision made by the shareholders. Therefore, when an action or omission to act is attributable to shareholders, the companies should not be subject to penalties.⁴⁶ The same applies in the case of electing employee representatives when the decision makers are the employees.

3. FOSTERING GENDER EQUALITY AMONG DIRECTORS IN SERBIA

In Serbia, a candidate country for EU membership, quotas are among the instruments for improving gender balance in corporate boards. Specifically, the Law on Gender Equality provides for various mechanisms in order to foster gender balance in Serbian companies.⁴⁷ This Law sets, among other things, the institutional framework for achieving gender equality and the policy measures

⁴³ See Gender Balance Directive, Art. 7, paras. 1-3. European Parliament: *Directive (EU) 2013/34 of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC*, OJ L 182, 29.06.2013, Art. 20 (1) (g).

⁴⁴ See Gender Balance Directive, Art. 8.

⁴⁵ See Mensi-Klarbach, H., Seierstad, C.: Gender Quotas on Corporate Boards: Similarities and Differences in Quota Scenarios, *European Management Review*, 17(3) 2020, pp. 619-620.

⁴⁶ See Gender Balance Directive, recital 48.

⁴⁷ Official Gazette of the Republic of Serbia *Law on Gender Equality*, Belgrade: Official Gazette of the Republic of Serbia, 52/ 2021.

for achieving and enhancing it. Measures for achieving and enhancing gender equality should create equal opportunities for the participation and equal treatment of women and men in management and supervisory bodies, among other things. Therefore, it is undisputable that provisions of the Law on Gender Equality are important both from the perspectives of corporate governance and company law.

3.1. (UN)CONSTITUTIONALITY OF THE LAW ON GENDER EQUALITY

The Law on Gender Equality was adopted in 2021. It came into force in June 2021, with the application of certain provisions postponed until the beginning of 2024. With the coming into force of this Law, its predecessor – the 2009 Law on Equality of Sexes – ceased to be in effect.⁴⁸ Nevertheless, the enforcement of individual acts or actions undertaken based on the Law on Gender Equality has been suspended by a recent decision of the Constitutional Court.⁴⁹ Specifically, the Constitutional Court of the Republic of Serbia has instituted proceeding of assessing the constitutionality of the Law on Gender Equality. This Court received eight initiatives for initiating a proceeding of assessing constitutionality of provisions of this Law and their compliance with approved international treaties. Initiators argue, among other things, that concept of gender introduced by the Law on Gender Equality is not in accordance with the Constitution of Serbia. Namely, Serbian Constitution mentions only sex and not gender, which is a different notion. According to the Law on Gender Equality, gender “refers to the socially defined roles, opportunities, behaviours, activities, and attributes that a particular society considers appropriate for women and men, including the relationships between men and women and the roles within those relationships, which are socially determined based on sex.”⁵⁰ Furthermore, the sex is defined as “biological characteristic based on which individuals are classified as women or men”.⁵¹ Also, the initiators dispute the introduction of gender sensitive language by the same Law.

The Law stipulates the obligations for the public authorities, employers, and other social partners to integrate gender perspective in their operations.⁵² According to Article 6, para. 1, item 18 of the Law on Gender Equality, public

⁴⁸ Official Gazette of the Republic of Serbia: *Law on Equality of Sexes*, Belgrade: Official Gazette of the Republic of Serbia, 104/2009.

⁴⁹ Decision of the Constitutional Court, No. IUz-85/2021 dated 28 June 2024.

⁵⁰ Law on Gender Equality, Art. 6, para. 1, item 1.

⁵¹ Law on Gender Equality, Art. 6, para. 1, item 3.

⁵² Law on Gender Equality, Art. 1, para. 4.

authorities are both authorities at national and subnational levels, state-owned enterprises, institutions, public agencies and other organizations and individuals entrusted by law with delegated public powers. This also includes legal entities established or predominantly financed by the Republic of Serbia, an autonomous province, or a local self-government unit. The Law on Gender Equality defines employers as natural and legal persons, both domestic and foreign, in public or private sector which employs or engages one or more individuals.⁵³ This refers to a person who exercises rights and obligations of the employer on behalf of the Republic of Serbia, autonomous provinces and local self-government unit in public authorities at national and subnational levels. Therefore, state-owned companies and private companies are affected by this Law. To conclude, the outcome of the proceeding of assessing the constitutionality of the Law on Gender Equality is important for companies in both public and private sectors.

3.2. MEASURES FOR ACHIEVING GENDER EQUALITY

According to the Law on Gender Equality, there are two types of measures for achieving and promoting gender equality: general measures and special measures.⁵⁴ On the one hand, general measures for achieving and promoting gender equality are legally mandated actions that prohibit discrimination based on the sex or gender in specific areas or require appropriate steps to ensure gender equality. They also include provisions from other documents (declarations, resolutions, strategies, etc.) aimed at fostering gender equality. On the other hand, special measures are activities, criteria and practices ensuring the equal participation and representation of women and men in all areas of social life and equal opportunities for realization of rights and freedoms. These measures are defined and implemented by public authorities and employers, in line with general measures established by law. They should ensure, among other things, balanced gender representation in management and supervisory bodies.⁵⁵ There are three types of special measures: measures which are established and implemented when gender balance is significantly unbalanced, incentive measures and programmatic measures. Specifically, the representation of sexes is considered balanced when the representation of one sex is between 40% and 50% compared to the other sex, while it is deemed significantly unbalanced when the representation of one sex is below 40% compared to the other sex, unless otherwise stipulated by a special law.⁵⁶

⁵³ Law on Gender Equality, Art. 6, para. 1, item 19.

⁵⁴ Law on Gender Equality, Art. 8.

⁵⁵ Law on Gender Equality, Art. 10, para. 3, item 4.

⁵⁶ Law on Gender Equality, Art. 6, para. 1, item 9.

The Law on Gender Equality mandates that public authorities and employers include a section on gender equality in their plans or programs of work and operations which serve as a type of a planning document.⁵⁷ Public authorities and employers with more than 50 employees and engaged individuals are required to establish and implement special measures in accordance with their plans or programmes.⁵⁸ The annual reports on achieving gender equality which should be prepared by public authorities and employers have to include an assessment of the gender equality status and the reasons for any failure to achieve equal representation of women and men in the public authority or employer, if such representation has not been realized.⁵⁹ Furthermore, public authorities, which includes state-owned companies and public enterprises are required to adopt a risk management plan for violation of gender equality principle.⁶⁰ Other entities may adopt this plan but they are not required to do so. Finally, public authorities with more than 50 employees and engaged individuals are required to designate a gender equality officer from among their staff.⁶¹

The Law on Gender Equality provides special rules regarding the composition of management and supervisory bodies in public authorities. In these entities, balanced representation of sexes in management and supervisory bodies has to be ensured. The body authorized to appoint and grant consent for appointment of members of management and supervisory bodies is required to undertake special measures when the representation of sexes is significantly unbalanced.⁶² Only in exceptional cases are special measures adopted in accordance with the specificities arising from the nature of the work, service, or activity, the location and working conditions, when objective reasons exist and are based on a special justification regarding those specificities.⁶³ The similar is stipulated for the management and supervisory bodies within employers. Specifically, balanced representation of sexes should be ensured while taking into account the specificities arising from the nature of the work, service, or activity, the location and working conditions defined by the criteria for election or appointment, along with other objective reasons.⁶⁴ Therefore, quotas relate

⁵⁷ Law on Gender Equality, Art. 13, item 4.

⁵⁸ See Law on Gender Equality, Art. 16.

⁵⁹ See Official Gazette of the Republic of Serbia: *Regulation on the Official Development and Implementation of a Risk Management Plan for Violations of Gender Equality Principle*, Belgrade: Official Gazette of the Republic of Serbia, 67/2022, Art. 5.

⁶⁰ Law on Gender Equality, Art. 19.

⁶¹ Law on Gender Equality, Art. 64, para. 1.

⁶² Law on Gender Equality, Art. 26, para. 2.

⁶³ Law on Gender Equality, Art. 26, para. 3.

⁶⁴ Law on Gender Equality, Art. 30, para. 1.

only to sex and not to gender with regard to composition of corporate boards and they are not limited to largest listed companies.

European Institute for Gender Equality provides for a statistic date for Serbian largest listed companies as well. The total number of women board members in these companies was 18.2% in 2023, 19.2% in 2022, 23.4% in 2021, 21.7% in 2020 and 17% in 2013; the number of women presidents was 11.1% in 2023, 20% in 2022, 18.2% in 2021, 25% in 2020 and 21.4% in 2013; women comprised 19.5% of non-executives in 2023, 19.1% in 2022, 23.7% in 2021, 22.6% in 2020 and 17.9% in 2013; women comprised 29.4% of executives in 2023, 33.3% in 2022, 31.7% in 2021, 31.3% in 2020 and 21.1% in 2013; number of women CEOs was 22.2% in 2023, 20% in 2022, 18.2% in 2021, 16.7% in 2020 (no data is available for 2013).⁶⁵ Furthermore, the number of women directors as indicated by the 2021 Gender Equality Index for the Republic of Serbia – focused on digitalization, the future of work, and gender equality – women held 18% of board seats in the largest listed companies in 2018, 19.3% in 2016, and 17.3% in 2014.⁶⁶ Statistical data indicate that the state of gender equality differs significantly from the situation in boards of EU largest listed companies. Interestingly, while the total number of women board members and non-executive directors in Serbia is lower than the EU average, the proportion of women in executive roles and as CEOs is notably higher. Also, the data reveals the number of women executives is higher than that of women non-executives. Finally, statistical data shows that the total number of women directors in largest listed companies in Serbia has been decreasing in recent years, a trend that began following the adoption of the Law on Gender Equality.

Nevertheless, the total number of women board members is higher when considering all companies registered in Serbia, rather than just the largest listed ones. According to the most recent data from the Serbian Business Register Agency, at the end of 2023, women comprised 25.3% of directors and 27% of legal representatives of all Serbian companies.⁶⁷ As of March 1, 2023, women represented 30.2% of supervisory board members (out of a total of 5,023 members), 24% of managing board members (from 4,049 members), and 33.6% of executive board members (from 442 members).⁶⁸ The data shows a gradual increase in the number of women directors since 2021, following a period of stagnation. Specifically, in 2022, women made up 24.2% of the total 115,272

⁶⁵ Ibid.

⁶⁶ Babović, M., Petrović, M.: Indeks rodne ravnopravnosti u Republici Srbiji 2021 – digitalizacija, budućnost rada i rodna ravnopravnosti, 2021, <<https://www.rodnaravnopravnost.gov.rs/>>, last accessed on 25/10/2024.

⁶⁷ See www.apr.gov.rs, last accessed on 25/10/2024.

⁶⁸ See <www.apr.gov.rs>, last accessed on 25/10/2024.

directors, while the proportion was 24.1% in 2021. The percentage of women directors remained the same in 2021, 2020, and 2019. In order to understand that the total number of women directors should be higher, one should know that, according to the latest statistical data, women comprise the majority of the population in Serbia, accounting for 51.77%.⁶⁹ Moreover, as recent publication by Statistical Office of the Republic of Serbia indicates, women enrol in and complete higher education at greater rates than men. Specifically, in 2022, women made up 59% of enrolled students and 61% of graduates in higher education institutions.⁷⁰ The share of female graduates in Serbia does not differ from the EU statistics where 60% of university graduates are women.⁷¹ Also, in 2022, women accounted for a higher percentage of doctoral graduates (59%) compared to men (41%).⁷²

It may be concluded that the Law on Gender Equality provides for quotas as a mechanism for fostering gender equality in corporate boards. However, it does not stipulate sanctions for non-compliance with this requirement, i.e., achieving balanced representation of women and men in management and supervisory bodies of companies. Therefore, the prescribed quotas are voluntary by their nature. Nevertheless, sanctions are prescribed for non-compliance with, among other things, the obligations to keep records and submit the report on achieving the gender equality. In these cases, prescribed sanctions for misdemeanours are fines.⁷³

4. SELECTING DIRECTORS WITH AI ASSISTANCE

AI could assist in identifying women suitable for director positions in companies seeking new leadership. However, using AI in this process is considered a high risk. Therefore, although AI is mostly seen as a useful mechanism for fostering gender balance since it may be used for selecting the best women candidates as directors, its use may hamper gender balance as well. To understand the impact of AI on board composition, one must first understand what AI means and how it functions. AI may have three roles in relation to corporate decision making in general: assisted AI, advisory or augmented AI,

⁶⁹ See statistic date at: <<https://www.rodnaravnopravnost.gov.rs/>>, last accessed on 25/10/2024.

⁷⁰ Statistical Office of the Republic of Serbia: Women and Men in the Republic of Serbia, Belgrade, 2024, <<https://www.stat.gov.rs/>>, last accessed on 25/10/2024.

⁷¹ Gender Balance Directive, recital 16.

⁷² Ibid.

⁷³ Law on Gender Equality, Arts. 67 and 68.

and autonomous AI.⁷⁴ Furthermore, the use and development of AI will have an impact on directors, regardless of gender, to acquire new knowledge about AI.⁷⁵ Nevertheless, if a company is pushed to appoint directors with expertise in different fields – specialist directors, including directors with expertise in AI, this trend may hinder the efforts to promote gender diversity.⁷⁶

In 2024 AI Act, AI system is defined as “a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments”.⁷⁷ This definition to a certain extent resembles the one provided by the High-Level Expert Group on AI – AI HLEG. This independent group of experts set by the European Commission defined AI starting from the AI definition proposed in 2019 European Commission Communication and then defined AI both as a scientific discipline and as technology.⁷⁸ According to definition of AI system provided by AI HLEG, “Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a

⁷⁴ See Zhao, J., Gómez Fariñas, B.: Artificial Intelligence and Sustainable Decisions, *European Business Organization Law Review*, 24(1) 2023, pp. 13-15.

⁷⁵ See Lepetić, J.: Veštačka inteligencija i upravljanje privrednim društvima, in: Popović, D. (ed.): *Veštačka inteligencija: izazovi u poslovnim pravu*, Beograd: Pravni fakultet, 2024, pp. 247-248.

⁷⁶ See Nili, Y., Shapira, R.: Specialist Directors, *Yale Journal on Regulation*, 41(2) 2024, p. 696.

⁷⁷ AI Act, Art. 3 (1).

⁷⁸ As stated in the European Commission Communication, AI “refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications).”, European Commission: *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions on Artificial Intelligence for Europe*, Brussels: European Commission, 25.04.2018 COM(2018) 237 final, p. 1; High-Level Expert Group on Artificial Intelligence: *Policy and investment recommendations for trustworthy AI*, Brussels: European Commission, 2019, p. 1.

numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions.”⁷⁹

Some AI systems are qualified as high-risk because of the activity they should perform. AI systems which are used in employment are such systems, including the ones used for recruitment and selection of persons.⁸⁰ It is perceived that these AI systems “may perpetuate historical patterns of discrimination, for example against women.”⁸¹ Relying exclusively on algorithms may result in discrimination and unfairness which may be recognized only after the algorithm made a decision.⁸² For example, a targeted advertisement for a highly paid CEO position is more likely to reach men than women.⁸³ Therefore, the historic bias in the data may have negative effects on board composition.⁸⁴ Nevertheless, the reasons for using these systems outweigh the disadvantages associated with their use. Algorithms that use data about the company seeking a director, its current directors and the potential candidates can aid in the selection process by predicting the performance of each candidate.⁸⁵ It is not a novelty that many companies, for example, Ikea and Intel use AI in human resource recruiting.⁸⁶ An algorithm may expend the pool of potential candidates.⁸⁷ There are even studies which show that using AI in the selection process results in progress of gender diversity.⁸⁸

⁷⁹ High-Level Expert Group on Artificial Intelligence: *Policy and investment recommendations for trustworthy AI*, Brussels: European Commission, 2019, p. 6.

⁸⁰ AI Act, recital 57.

⁸¹ AI Act, recital 57.

⁸² Köchling, A., Wehner, M. C.: Discriminated by an algorithm: a systematic review of discrimination and fairness by algorithmic decision-making in the context of HR recruitment and HR development, *Business Research*, 13(3) 2020, p. 796.

⁸³ Hickman, E., Petrin, M.: Trustworthy AI and Corporate Governance: The EU’s Ethics Guidelines for Trustworthy Artificial Intelligence from a Company Law Perspective, *European Business Organization Law Review*, 22(4) 2021, p. 605.

⁸⁴ *Ibid.*

⁸⁵ Erel, I., Stern, L. H., Tan, C., Weisbach, M. S.: Selecting Directors Using Machine Learning, *The Review of Financial Studies*, 34(7) 2021, p. 3227.

⁸⁶ Eroğlu, M., Karatepe Kaya, M.: Impact of Artificial Intelligence on Corporate Board Diversity Policies and Regulations, *European Business Organization Law Review*, 23(3) 2022, p. 545.

⁸⁷ Erel, I., Stern, L. H., Tan, C., Weisbach, M. S.: Selecting Directors Using Machine Learning, *The Review of Financial Studies*, 34(7) 2021, p. 3253.

⁸⁸ Eroğlu, M., Karatepe Kaya, M.: Impact of Artificial Intelligence on Corporate Board Diversity Policies and Regulations, *European Business Organization Law Review*, 23(3) 2022, p. 564.

Anyway, the law anticipates rules that should eliminate the negative effects of using AI systems. Therefore, the use of AI under clearly defined rules should be welcomed. This approach is accepted in the AI Act. Specifically, gender issues were considered when drafting AI Act. Gender is first mentioned in Recital 27 which recalls the 2019 Ethics Guidance for Trustworthy AI developed by AI HLEG.⁸⁹ According to the Guidance, there are seven requirements for realisation of trustworthy AI, including diversity, non-discrimination and fairness. This requirement is particularly important in the context of board composition. As already noted, some AI systems are considered high-risk. The AI Act provides classification rules for these systems in Article 6. Specifically, AI system is considered high-risk if both of the following conditions are met: 1) it is intended as a safety component of the product, or AI is itself a product covered by the Union harmonization legislation listed in Annex I of AI Act and 2) the product whose safety component is the AI system, or the AI system as the product requires third party conformity assessment before being placed on the market or put into service according to the Union harmonization legislation listed in Annex I of the AI Act, regardless of whether an AI system is placed on the market or put into service independently of the products to which these conditions apply. Furthermore, as set by the second paragraph of Article 6, AI systems listed in Annex III of the AI Act are considered to be high-risk. Among these are the ones in relation to employment, workers' management and access to self-employment.⁹⁰

AI system mentioned in Annex III is not considered to be high risk if it does not present a significant risk or harm to the health, safety or fundamental rights of natural persons, including but not materially influencing the outcome of decision making. This applies when the intention is to perform a specific procedural task, enhance the outcome of already performed human activity, detect decision-making patterns or deviations from previous patterns without intending to replace or alter previously completed human assessment, without proper human review or perform preparatory task for the assessment relevant for the purposes of the use cases outlined in Annex III.⁹¹ In addition to classification of high-risk AI systems, the AI Act also provides various require-

⁸⁹ High-Level Expert Group on Artificial Intelligence: *Policy and investment recommendations for trustworthy AI*, Brussels: European Commission, 2019.

⁹⁰ Specifically, these are: "(a) AI systems intended to be used for the recruitment or selection of natural persons, in particular to place targeted job advertisements, to analyse and filter job applications, and to evaluate candidates; (b) AI systems intended to be used to make decisions affecting terms of work-related relationships, the promotion or termination of work-related contractual relationships, to allocate tasks based on individual behaviour or personal traits or characteristics or to monitor and evaluate the performance and behaviour of persons in such relationships". AI Act, Annex III (4).

⁹¹ AI Act, Art. 6 (3) (2).

ments for these systems, obligations of providers and deployers of high-risk AI systems and other parties, rules on notifying authorities and notified bodies, rules on standards, conformity assessment, certificates and registration in relation to these AI systems.⁹² All these rules aim to prevent negative effects of using high-risk AI which perform certain activities, including the process of selecting director candidates, except when the AI system meets the criteria to not be considered high risk. It may be concluded that these rules should eliminate unfair and discriminatory decision making with regard to the process of selecting candidates for directors. If these rules are applied correctly, AI will serve as a valuable aid rather than a decision-maker in this process.

5. REPLACING HUMAN DIRECTORS WITH SOFTWARE

As previously explained, significant efforts have already been made to achieve gender balance in corporate boards. Measures implemented in many countries have yielded positive results, as confirmed by statistical data. The development of AI could undermine the efforts of legislators towards gender equality in corporate boards if software were to take over the roles of directors. Specifically, AI may not only serve as an assistant or advisor to directors but could also potentially replace them and become a primary decision maker. Replacing directors with software can severely affect the issue of board diversity. In general, women may join corporate board in two ways – the company may expand the board and include a female director, or a female director may replace a male director while maintaining the board's size.⁹³ Of these two methods, the latter is more common in practice, typically occurring when a director is replaced due to term expiration or retirement, rather than dismissal.⁹⁴ Recent studies show that women with prior experience have received more new independent director positions (when expanding the board) than men in recent years.⁹⁵ The use of AI may be an impediment for fostering gender balance in the setting where an algorithm becomes a director. An algorithm can join the board of directors in the same way as women can. In these cases, gender balance may not be fostered since the new director will not be a woman. Still, it is significant which one of the two options of joining the board is applied – whether the software will replace a previously appointed director or if the number of directors will increase to include the software as a new director.

⁹² See AI Act, Arts. 8-49.

⁹³ Cziraki, P., Robertson, A. Z.: *When Bill Rolls Off: Continuity and Change on Corporate Boards*, 2024, p. 2.

⁹⁴ *Ibid.*

⁹⁵ *Ibid.*

Expanding the board with software will not hinder the current state of gender balance but it will prevent improving it. The decrease of number of human directors can negatively affect previous state of gender balance. Therefore, it is important to consider which director will be replaced by software, i.e., whether the replaced director will be a man or a woman. This will probably depend on the type of the director position, i.e. whether it is executive or non-executive. As statistics have shown, a larger number of female directors are non-executive directors, including the independent ones. Having in mind the competences of directors, it is anticipated that software will most likely replace independent directors.⁹⁶ Considering that the trend of increasing the number of female directors is most noticeable among non-executive directors, a large number of women will be among the candidates whose replacement is expected. Nevertheless, if a quota system is in place, software will replace male directors if they are non-executives, rather than female ones in order to achieve gender balance. It may be concluded that quotas will not only become an important mechanism for improving gender balance among directors but also serve as an essential tool for preserving it in cases where directors are replaced with software.

Finally, fostering gender balance is not possible when directors are only software. If this setting becomes our reality, gender will not be relevant and all previous efforts for improving gender balance in corporate boards will become futile. However, if software replaces some but not all human directors, gender balance remains an important issue. This is also true in the cases when the board is expanded in order to include a software, i.e., when there is no replacement of human director with software. The boards consisted of both humans and software are sometimes called hybrid boards.⁹⁷ Having a board consisted of both humans and software (hybrid board) requires additional regulation regarding quotas. Specifically, quotas should still be applied, but the question of how they should be applied also needs to be addressed.⁹⁸ It seems undisputable that software does not have a gender (this does not exclude the possibility of endowing AI with legal personhood) and therefore AI should not be counted as director when applying quotas. Nevertheless, it is interesting to note that a human-like robot Sophia developed by a Hong Kong-based company, in 2021 expressed a

⁹⁶ See Eroğlu, M., Karatepe Kaya, M.: Impact of Artificial Intelligence on Corporate Board Diversity Policies and Regulations, *European Business Organization Law Review*, 23(3) 2022, p. 558.

⁹⁷ Gramitto Ricci, S. A.: Artificial Agents in Corporate Boardrooms, *Cornell Law Review*, 105(3) 2020, p. 900.

⁹⁸ Eroğlu, M., Karatepe Kaya, M.: Impact of Artificial Intelligence on Corporate Board Diversity Policies and Regulations, *European Business Organization Law Review*, 23(3) 2022, p. 559 & p. 565.

desire to become a mother, although she clarified that she is still too young to become one since she was created in 2016.⁹⁹ Certainly, this should not mean that gender of robo-director should be an issue in this context.

6. CONCLUSION

Quotas represent an efficient tool for improving gender balance in company boards, especially when non-compliance is followed by penalties. The European Commission decided to provide for them in the Gender Balance Directive. The same approach was chosen by Serbian legislators when adopting the Law on Gender Equality. Since this mechanism may be considered a modification of shareholders' rights, it has attracted the attention of company law scholars. Statistical data show that the number of women directors in the largest listed companies in the EU has been increasing over the years. It is important to note that these data only indicate a growth trend among the largest listed companies, while there is little to no data on the number of female directors in other companies. Moreover, these statistics do not reveal how often the same woman serves as a director in multiple companies. Although the number of women directors is rising globally, there is still room for improvement. The development of AI can help continue and accelerate this trend, but it may also hinder it and even make all previous efforts useless.

From a gender balance perspective, the most relevant issues concerning AI and corporate boards are selecting directors with AI assistance and replacing human directors with software. AI can be used in selection process of directors and it is considered a useful tool for expanding the pool of women candidates. However, using AI for these purposes is associated with the risks of potential historical bias and discrimination, including the discrimination against women. According to the AI Act, an AI system used in the area of employment, workers' management and access to self-employment is classified as high-risk AI system. Therefore, an AI system used for selecting candidates for directors is a high-risk AI system. The AI Act provides the requirements which should be met in order to eliminate the said risks. Only adherence to these rules enables fostering gender equality among directors by using AI in the process of selecting candidates for directors.

If software joins a corporate board, fostering gender equality is not possible. Software may replace an existing director or become a new director in expanded board. A decrease in the number of human directors could lead to a dis-

⁹⁹ This information is available at <<https://www.analyticsinsight.net/artificial-intelligence/the-human-like-ai-robot-sophia-wants-to-become-a-mother>>, last accessed on 18/10/2024.

ruption of gender balance if the software replaces a female director. Software is more likely to replace an independent rather than other types of directors and therefore, many women have the possibility of being the candidates for replacement. In this setting, quotas are an essential tool for preserving gender balance in corporate boards. Expanding boards with AI director will not result in improving nor worsening of gender balance. Anyway, software should not be counted when implementing quotas with regard to the corporate boards. Finally, if software replaces all human directors, gender equality will not be an issue in corporate boards. The same applies to DAO without boards in the traditional sense.

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