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Maturity in sustainability: The impact of institutionalization level
Sürdürülebilirlikte olgunluk: Kurumsallaşma düzeyinin etkisi

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ABSTRACT: This study examines the impact of institutionalization maturity on sustainability maturity among publicly traded companies in Türkiye. Institutionalization refers to the formalization and standardization of organizational practices, ensuring stability and efficiency. Sustainability maturity, on the other hand, reflects an organization's ability to integrate environmental, social and economic dimensions into its operations. Using data obtained from the Public Disclosure Platform (KAP), this research applies correlation and regression analyses to assess the relationship between institutionalization maturity and sustainability maturity. The findings reveal a significant positive relationship, with institutionalization maturity explaining 31.2% of the variation in sustainability maturity. Additionally, institutionalization maturity is consistently high across firms, whereas sustainability maturity exhibits greater variability, indicating the influence of external regulatory and industry-specific factors. The results suggest that firms aiming to enhance sustainability performance should prioritize strengthening their institutional structures. Moreover, policymakers can develop more cohesive regulatory frameworks to ensure more consistent sustainability practices across industries.
Keywords: Institutionalization, Sustainability, Strategic Management, Corporate governance

ÖZ: Bu çalışma, Türkiye'de halka açık şirketlerde kurumsallaşma olgunluk seviyesinin sürdürülebilirlik olgunluğu üzerindeki etkisini incelemektedir. Kurumsallaşma, örgütsel süreçlerin standartlaştırılması ve kurallar çerçevesinde yapılandırılması yoluyla istikrarı ve verimliliği artırmaktadır. Sürdürülebilirlik olgunluğu ise işletmelerin çevresel, sosyal ve ekonomik boyutları iş süreçlerine ne ölçüde entegre edebildiklerini ortaya koymaktadır. Araştırmada, Kamu Aydınlatma Platformu (KAP) verileri kullanılarak korelasyon ve regresyon analizleri gerçekleştirilmiş, kurumsallaşma ile sürdürülebilirlik olgunluğu arasındaki ilişki değerlendirilmiştir. Elde edilen bulgular, kurumsallaşma olgunluğunun sürdürülebilirlik olgunluğu üzerinde anlamlı ve pozitif bir etkisi olduğunu ve bu ilişkinin %31,2 oranında açıklayıcı güce sahip bulunduğunu göstermektedir. Ek olarak, kurumsallaşma olgunluğunun şirketler arasında genellikle yüksek ve tutarlı seviyelerde olduğu, buna karşın sürdürülebilirlik olgunluğunun daha fazla değişkenlik gösterdiği tespit edilmiştir. Bu durum, dış düzenleyici faktörlerin ve sektörel farklılıkların sürdürülebilirlik uygulamalarında belirleyici rol oynadığını ortaya koymaktadır. Uygulama açısından çalışma, işletmelerin sürdürülebilirlik performanslarını artırabilmeleri için kurumsal yapılarını güçlendirmeleri gerektiğine işaret etmektedir. Ayrıca, yetkili kurumlar tarafından oluşturulacak daha açık ve uyumlu mevzuat çerçeveleri, sürdürülebilirlik uygulamalarının sektörler arası tutarlılığını artıracağı öngörülmektedir.
Anahtar Kelimeler: Kurumsallaşma, Sürdürülebilirlik, Stratejik yönetim, Kurumsal yönetim

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GENİŞLETİLMİŞ ÖZET

Literatür taraması

Bu çalışma, kurumsallaşma olgunluk seviyesinin sürdürülebilirlik olgunluğu üzerindeki etkisini incelemektedir. Kurumsallaşma, organizasyonel süreçlerin kurallar çerçevesinde yapılandırılmasını sağlayarak uzun vadeli istikrarı ve verimliliği artırmaktadır. Sürdürülebilirlik olgunluğu ise işletmelerin çevresel, sosyal ve ekonomik boyutları faaliyetlerine ne ölçüde entegre ettiğini ifade etmektedir. Mevcut literatürde bu kavramlar detaylı bir şekilde ele alınmasına rağmen, kurumsallaşma olgunluğunun sürdürülebilirlik olgunluğu üzerindeki etkisini ampirik olarak değerlendiren çalışmalar sınırlıdır. Bu nedenle, çalışmanın temel amacı, kurumsallaşma olgunluğu ile sürdürülebilirlik olgunluğu arasındaki ilişkiyi analiz ederek, bu ilişkinin işletmelerin sürdürülebilirlik uygulamalarına nasıl yansıdığını ortaya koymaktır.

Yöntem

Araştırmada, Türkiye'de halka açık 467 şirketin 2023 yılı verileri analiz edilmiştir. Veriler, Kamu Aydınlatma Platformu (KAP) tarafından yayımlanan kurumsal yönetim olgunluğu anketinin ve sürdürülebilirlik olgunluğu anketinin ham verilerinden elde edilmiştir. Dolayısıyla, Kurumsallaşma ve sürdürülebilirlik olgunluk seviyeleri, söz konusu verilerin değerlendirilmesiyle ölçülmüştür. Çalışmada, normallik testleri ile veri setinin analize uygunluğu kontrol edilmiştir. Sonrasında korelasyon ve regresyon analizleri uygulanarak değişkenler arasındaki ilişkiler istatistiksel olarak test edilmiştir.

Bulgular ve tartışma

Araştırma sonuçları, kurumsallaşma olgunluğunun sürdürülebilirlik olgunluğu üzerinde anlamlı ve pozitif bir etkisi olduğunu ortaya koymaktadır. Regresyon analizine göre, kurumsallaşma olgunluğu sürdürülebilirlik olgunluğundaki değişimin %31,2'sini açıklamaktadır. Bu bulgu, kurumsal yapıların sürdürülebilirlik uygulamalarını destekleyici bir unsur olduğunu göstermektedir. Ayrıca, kurumsallaşma olgunluğunun şirketler arasında genellikle yüksek olduğu, ancak sürdürülebilirlik olgunluğunun daha fazla değişkenlik gösterdiği tespit edilmiştir. Bu durum, sektör dinamikleri, düzenleyici politikalar ve işletme stratejilerinin sürdürülebilirlik uygulamalarında belirleyici faktörler olabileceğini göstermektedir.

Çalışmanın bulguları, kurumsal yapısı güçlü olan firmaların sürdürülebilirlik hedeflerine ulaşmada daha avantajlı olduğunu ortaya koymaktadır. Bu doğrultuda, sürdürülebilirlik uygulamalarını geliştirmek isteyen işletmelerin kurumsallaşma süreçlerine daha fazla önem vermeleri gerektiği vurgulanmaktadır. Ayrıca, düzenleyici kurumların sürdürülebilirlik politikalarını daha tutarlı ve kapsayıcı bir çerçeve ile yönlendirmesi, işletmeler arasındaki farklılıkları azaltarak uygulamaların daha bütüncül hale gelmesine katkı sağlayabilir.

Sonuç ve öneriler

Bu çalışma, kurumsallaşma olgunluğu ile sürdürülebilirlik olgunluğu arasındaki ilişkiyi ele alarak işletmeler ve politika yapıcılar için önemli çıkarımlar sunmaktadır. Bulgular, kurumsallaşma süreçlerinin sürdürülebilirlik uygulamalarını desteklediğini ve uzun vadeli kurumsal stratejilere katkıda bulunduğunu göstermektedir. Bu doğrultuda,

- İşletmelerin, sürdürülebilirlik performanslarını artırabilmeleri için kurumsal yönetim süreçlerini iyileştirmeleri ve sürdürülebilirlik politikalarını daha etkin hale getirmeleri önerilmektedir.
- Politika yapıcıların, sürdürülebilirlik olgunluğunu teşvik etmek amacıyla daha sıkı düzenlemeler getirmesi ve teşvik mekanizmaları oluşturması gerektiği vurgulanmaktadır.
- Yatırımcılar ve diğer paydaşlar şirket ile ilgili kararlarında sürdürülebilirlik raporlamalarının yanı sıra şirketlerin kurumsal yönetim olgunluğunu da göz önünde bulundurulmalıdır.

Bu bağlamda, kurumsallaşma süreçlerinin yalnızca işletmelerin iç yönetim dinamikleri ile sınırlı kalmadığı, aynı zamanda sürdürülebilirlik hedeflerine ulaşmada önemli bir yapı taşı olduğu sonucuna ulaşılmaktadır. İleriki araştırmaların, kurumsallaşma ve sürdürülebilirlik olgunluğunu sektörel, bölgesel veya zamansal düzeylerde incelemesinin faydalı olacağı düşünülebilir.

Introduction

In today's business environment, the concepts of institutionalization and sustainability are critical in shaping management strategies and ensuring organizational success. Institutionalization refers to the process by which a company's management and organizational structures are formalized, standardized, and embedded in its operational framework. This process ensures consistency and efficiency in operations, thus increasing organizational stability and resilience (Selznick, 1957: 50-53; Meyer & Rowan, 1977: 340-363). Sustainability, on the other hand, focuses on balancing environmental, social, and economic factors to achieve long-term success and is often referred to as the Triple Bottom Line (Elkington, 1997: 23). It emphasizes the importance of maintaining ecological health, social equity, and economic viability (Daly, 1996: 63; Hawken, 1993: 75) without compromising the ability of future generations to meet their own needs (Brundtland, 1987: 291-293).

This research examines the impact of institutionalization maturity on sustainability maturity in publicly listed companies in Türkiye. While existing literature has extensively explored institutionalization and sustainability (Demir and Sezgin, 2014; Lozano and Garcia, 2020; Haghighi and Takian, 2024), there remains a gap in understanding how institutionalization maturity affects sustainability maturity, especially in emerging economies. Unlike previous studies that examine institutionalization and sustainability independently, this study provides an empirical assessment of how institutionalization maturity influences sustainability maturity, particularly in the context of an emerging economy like Türkiye.

Therefore, the primary objective of this study is to analyze the relationship between institutionalization maturity and sustainability maturity and to examine how this relationship influences firms' sustainability practices. Türkiye presents a compelling case due to its rapidly evolving corporate governance landscape (Erben Yavuz et al., 2024) and increasing regulatory pressures on sustainability reporting (Hazır, 2024). By investigating this relationship, the study contributes to the broader literature on organizational development and sustainability practices in Türkiye, emphasizing the link between well-established organizational structures and sustainable business operations. Accordingly, the study seeks to answer the following question: To what extent does institutionalization maturity influence sustainability maturity among publicly traded companies in Türkiye? Based on the research question, the following hypothesis (H1) will be tested: “Institutionalization maturity significantly impacts sustainability maturity among publicly traded companies in Türkiye.”

This study analyzes publicly traded companies in Türkiye using data from the Public Disclosure Platform (KAP). It systematically reviews the literature on institutionalization and sustainability, outlines the research methodology, presents key findings, and provides practical and academic recommendations.

Literature review

Maturity level of institutionalization

Institutionalization is a multifaceted concept that integrates organizational practices, norms, and structures into a formalized and enduring framework. Selznick (1957: 53) defines institutionalization as the infusion of value into an organization beyond its technical functions, embedding cultural and normative foundations that ensure long-term legitimacy. Meyer and Rowan (1977: 340-363) describe it as the process through which social constructs acquire rule-like status in social thought and action, embedding them into the organizational fabric. This conceptualization is echoed by DiMaggio and Powell (1983: 147-160), who emphasize that institutionalization involves the repetition of actions, which are then endowed with similar meaning by both individuals and the organization itself. Scott (1995: 79) expands this understanding by identifying institutionalization as the establishment of schemas, rules, norms, and routines as authoritative guidelines for behavior. Similarly, Porter (1995: 60-68) underscores the formalization of rational and efficient practices within organizations. Lawrence and Lorsch (1967: 45-50) reinforce this perspective by describing institutionalization as the development of formal structures that guide organizational behavior, ensuring stability and consistency.

Schein (1985: 34) further frames institutionalization as the process by which organizations gain legitimacy through defined roles and norms. Weick (1976: 1-19) emphasizes its role in ensuring continuity and predictability by establishing clear rules and guidelines. Kimberly (1979: 249-267) builds on this by arguing that institutionalization integrates organizational forms and policies, making them resistant to change and ensuring long-term stability. Additionally, Hodgson (2006: 1-25) broadens the discussion by defining institutions as systems of established social rules that become embedded in societal norms and behaviors, highlighting the broader societal dimension of institutionalization.

On the other hand, institutionalization maturity refers to the extent to which an organization's practices, norms, and structures are formalized, standardized, and integrated into its overall framework, in order to ensure consistency and efficiency in operations (Meyer & Scott, 1983: 302). This concept is vital for achieving organizational stability and resilience, as it reflects the degree to which rules, norms, and routines are established and routinized, contributing to the organization's legitimacy and continuity (Van de Ven & Poole, 1995; Tolbert & Zucker, 1996: 510-540). The maturity of institutionalization also reflects the alignment of organizational practices with institutional norms and standards, leading to increased homogeneity and predictability in organizational behavior (DiMaggio and Powell, 1983: 147-160; Scott 1995: 25).

Furthermore, the maturity of institutionalization can be understood as the internalization of core values and norms within an organization, which ensures long-term stability and adherence to its mission and purpose (Selznick, 1992; Zucker, 1987: 443-464.). This maturity stage signifies the widespread acceptance and standardization of practices, making them resistant to change and innovation (Meyer & Scott, 1983: 302; Pfeffer & Salancik, 1978: 612-613). Oliver (1991: 145-179) notes that institutionalization maturity influences an organization's capacity to respond to external pressures while maintaining stability, highlighting its importance in the organization's strategic and operational framework.

Institutionalization maturity levels are shaped by various factors that influence the formalization, standardization, and integration of organizational practices and norms. Selznick (1957: 55) highlights that aligning an organization's values with its external environment is crucial for maintaining legitimacy and relevance. Similarly, Scott (1987: 134-138) emphasizes that an organization's culture, including shared values and norms, plays a fundamental role in institutionalization maturity.

The formalization and standardization of rules and procedures are also key determinants, as they reflect the internalization of institutional norms (Meyer & Rowan, 1977: 340-363; DiMaggio & Powell, 1983: 147-160). The concept of institutional isomorphism, introduced by DiMaggio and Powell (1983: 147-160), further explains how coercive, mimetic, and normative pressures drive organizations toward homogeneity and stability, strengthening their institutionalization maturity. In parallel, Hannan and Freeman (1984: 149-164) argue that an organization’s survival and success in a competitive environment, as suggested by population ecology theory, significantly influence its institutionalization maturity.

External pressures also shape institutionalization maturity. Oliver (1991: 145-179) identifies how organizations develop strategic responses to institutional pressures, such as acquiescence, compromise, avoidance, defiance, and manipulation, all of which impact their institutionalization maturity. Institutionalization maturity is reinforced by an organization’s position within broader social systems and networks, where firms adapt and align their structures based on shared industry norms and collaborative relationships (Powell & DiMaggio, 1991; Hodgson, 2006). Similarly, Scott (1995) highlights that regulatory, normative, and cultural-cognitive elements shape institutionalization maturity by determining the legitimacy and acceptance of organizational practices within the networks. Subsequently, determinants of institutionalization maturity can be listed as follows:

- Formalization and Standardization of Rules and Procedures
- Regulatory Elements
- Normative Elements

- Cultural-Cognitive Elements
- Institutional Isomorphism
- Homogeneity
- Stability
- Legitimacy and Acceptance
- Strategic Responses to Institutional Pressures
- Survival and Success in Competitive Environments
- Embedding in Broader Social Systems and Networks
- Historical Context and Path Dependency
- Organizational Culture (Shared Values and Norms)
- External Social Systems and Industry Networks

To sum up, institutionalization and its maturity are critical concepts that underpin the stability, continuity, and legitimacy of organizations. While the process of institutionalization involves integrating organizational practices, norms, and structures into a formalized framework, the maturity of institutionalization on the other hand, reflects the extent of integration of these elements within an organization, and how they influence the operational efficiency and resilience of the organization. The institutionalization maturity consists of many components, including formalization, standardization, alignment with external pressures, cultural norms, regulatory elements, and strategic responses to institutional pressures.

Concept of sustainability and its maturity

The concept of sustainability involves a structure that encompasses environmental, social and economic dimensions and is often referred to as the Triple Bottom Line (Elkington, 1997: 73). This concept basically means meeting current needs without compromising the ability of future generations to meet their own needs (Brundtland, 1987: 291-293). Orr (1992: 90) defines sustainability as designing and managing human systems in ways that enhance the ecological health of the planet and the well-being of its inhabitants. This includes the efficient use of resources and energy, advocating for renewable energy sources, and reducing dependence on non-renewable resources (Lovins, 1977: 85).

The existing literature defines the concept of sustainability comprehensively. For example, Daly (1996: 86) emphasizes the importance of maintaining the health of ecological systems and ensuring that human activities do not exceed the carrying capacity of the environment. Carson (1962: 8) states that biodiversity should be protected and environmental degradation should be prevented. Meadows et al. (1972: 50-55) elaborate that sustainability requires balancing population growth, resource consumption and the capacity of the environment. Thus, the authors jointly emphasize that sustainability depends on maintaining ecological health and balancing current needs to ensure long-term, high quality human life. Hawken (1993) emphasizes the importance of creating an economy that can continue sustainably without depleting natural resources or causing serious ecological damage. Also, McKibben (1989: 55) reinforces that sustainability is necessary in all spheres of life, calling for a profound cultural and societal shift that values long-term environmental health over short-term economic gains. Brown (2009: 73) extends these arguments by emphasizing the need for a global transition to a renewable energy economy, reducing carbon emissions and promoting sustainable agriculture and water management.

Sustainability maturity level is a complex concept in organizations involving various indicators and frameworks. Elkington's (1997: 175) Triple Bottom Line framework comprehensively measures an organization's sustainability maturity by assessing sustainability in environmental, social and economic dimensions. Ehrenfeld (2004: 30-38) adds that true sustainability maturity goes beyond regulatory compliance and focuses on how corporate practices contribute to a sustainable world.

Furthermore, Sroufe and Sarkis (2007: 95) emphasize that assessing the life cycle impacts of products and services is important in determining sustainability maturity by measuring how well an organization minimizes these impacts. Esty and Winston (2006: 174) state that specific indicators such as carbon footprint, water use and waste reduction are critical metrics for assessing sustainability maturity. Rees

(1992: 121-130) introduces the concept of ecological footprint, which measures the extent to which human activities exceed the earth's capacity, as a key metric reflecting an organization's sustainability maturity.

Lovins (1999: 85-90) argues that energy efficiency and the adoption of renewable energy sources are key components of sustainability maturity. Moreover, Sustainability maturity can be assessed based on the extent to which businesses adopt sustainable innovations and green technologies (Hawken, Lovins and Lovins, 1999: 120-125). Furthermore, corporate social responsibility (CSR) standards also indicates its level of maturity and significant for an organization's adherence to sustainability principles (Welford, 1995: 80).

To sum up, factors related with sustainability maturity can be listed as follows:

- Environmental Sustainability, Social Responsibility, Economic Viability (Triple Bottom Line)
- Adherence to CSR principles and standards
- Contribution to a sustainable world through practices beyond mere compliance
- Lifecycle Impact Assessment
- Specific Sustainability Indicators (Carbon footprint, Water usage, Waste reduction)
- Sustainability Maturity Model (Progression from initial awareness to advanced integration of sustainability practices)
- Ecological Footprint (Measurement of human activities' impact on the Earth's capacity)
- Adoption of energy-efficient practices and renewable energy sources
- Adoption and implementation of sustainable innovations and technologies
- Resource Conservation Policies

In conclusion, sustainability is a multifaceted concept that combines environmental, social, and economic dimensions, referred to as the Triple Bottom Line. The concept is more than regulatory compliance. It involves enhancing ecological health, social equity, and economic viability. Organizations that commit to attaining sustainability maturity should adopt comprehensive frameworks such as the Triple Bottom Line, CSR standards, lifecycle impact assessments, and other sustainability maturity models. By considering carbon footprint, water usage, waste reduction, and other sustainable practices, companies can contribute to a sustainable future. Success in sustainability maturity requires the internalization of an organizational culture, valuing long-term environmental health and resource conservation. Therefore, achieving sustainability maturity is a journey of continuous improvement, requiring organizations to develop from fundamental awareness to the advanced integration of sustainable practices.

Institutionalization on sustainability

Institutionalization has emerged as a critical component in promoting sustainable development. Numerous perspectives take place on how embedding sustainability into core operations and strategic planning can enable organizations to better navigate environmental, social, and economic challenges. From the key role of leadership style to regional differences, unique dynamics within specific industries, and factors like political stability, the rule of law, and regulatory pressures and technology, various determinants shape sustainability practices.

Lozano & Garcia (2020: 1-16) underscores that institutionalization plays a vital role in building long-term resilience in organizations. By embedding sustainability into the core operations and strategic planning, organizations can better anticipate and respond to environmental, social, and economic challenges. The research highlights the importance of leadership in driving the institutionalization of sustainability.

Companies utilize sustainability reports for various reasons, such as gaining legitimacy, responding to stakeholder demands, and achieving market differentiation. Zampone et al. (2023: 4119-4142) assert that the imitative isomorphism of institutionalization, along with competitive pressures, promotes the

internalization and proper reporting of sustainability practices. Similarly, Tunji-Olayeni et al. (2023: 1-18) adds that sustainable practices are significantly influenced by imitative pressures from industry leaders and competitors particularly in the construction industry. The studies underscore the necessity of additional normative and competitive pressures to ensure long-term commitment and transformation toward sustainability. Reporting imitation and competitive pressures play a significant role on the international adoption of Sustainable Development Goals (SDGs).

Li et al. (2021: 169-181) emphasize the critical role of institutional capacity in sustainability, particularly in water management, by building institutional capacity to efficiently manage resources, involve multiple stakeholders, and address various environmental challenges. Kohl et al. (2022) advocate for a Whole-Institution Approach to sustainability in higher education institutions, covering areas such as teaching content, methodology, facilities, operations, societal interactions, governance, and capacity building.

Environmental, Social, and Governance (ESG) scores also one of the key indicators of sustainability. Kim et al. (2024: 1-33) examine how institutionalization impacts sustainability performance in Korean firms, with a focus on ESG scores. The analysis concludes that legitimacy signaling, firm visibility, stakeholder pressures, and government regulations significantly affect ESG scores. Moreover, factors such as firm size, media exposure, and stringent industry regulations shape corporate sustainability practices by increasing scrutiny from stakeholders and regulators, particularly in the financial sector. Furthermore, Adedeji et al. (2020: 401-427) discuss the integration of sustainability initiatives into the corporate governance frameworks of medium-sized firms, driven by institutional pressures and stakeholder expectations. The integration is critical for compliance with environmental and social governance criteria and improving non-financial performance metrics such as reputation and employee satisfaction.

To sum up, institutionalizing sustainability practices across various industries is crucial to promote long-term resilience and sustainable development. This review focuses on the adoption of SDG reporting, highlighting the critical role of leadership, regulatory pressures, and industry norms in shaping sustainability practices. Clearly, companies with high corporate maturity, having internalized practices such as transparency, formalization, standardization, homogeneity, and legitimacy, will be more capable of institutionalizing sustainability practices into their core operations.

Methodology

This study investigates the relationship between institutionalization maturity and sustainability maturity among publicly traded companies in Türkiye. Drawing from existing literature, it is hypothesized that institutionalization enhances the implementation of effective sustainability practices. The proposed hypothesis is as follows:

H1: Institutionalization maturity significantly impacts sustainability maturity among publicly traded companies in Türkiye.

Data collection & sample selection

The study focuses on publicly traded companies due to the availability of comprehensive data through the Public Disclosure Platform (KAP). Data were collected from KAP, utilizing survey reports published (KAP, https://www.kap.org.tr/tr/2024 Access date: 15.07.2024). The initial universe included 662 companies listed on Turkish stock exchanges. However, after excluding firms that did not provide corporate governance and sustainability reports for 2023, the sample size was reduced to 467 companies. As the study relied solely on publicly available secondary data and did not involve human subjects, it did not require ethics committee approval.

Measurement instruments

The Institutionalization Maturity and Sustainability Maturity scales were developed and administered by KAP. The Institutionalization Maturity scale consists of 68 items, while the Sustainability Maturity

scale consists of 56 items. Responses were categorized as "yes", "partially", "no", "exempted", and "not applicable".

Following KAP guidelines (KAP, https://www.vap.org.tr/sites/default/files/2024-01/kurumsal-yonetim-olgunluk-duzeyi-kurallari.pdf Access date: 20.07.2024), "exempted" and "not applicable" responses were excluded, resulting in a 3-point Likert scale. The final scores were entered as minimum "3" to maximum "5". A 3-point Likert scale was selected to minimize response bias and improve reliability, given that many firms had varying levels of exemptions across survey items. Previous research suggests that simpler response scales enhance response consistency and reduce misinterpretation (Dawes, 2008; Dolnicar, 2013).

Reliability assessment

The measurement instruments used in this study were originally developed and administered by KAP, ensuring alignment with standardized corporate governance and sustainability frameworks. In secondary data instruments, the scales had already been validated by their original source (Sajid et al., 2019). However, to assess internal consistency, Cronbach's Alpha was calculated for both Institutionalization Maturity and Sustainability Maturity scales. Table 1 shows the Cronbach's Alpha results.

Table 1: Reliability (Cronbach's Alpha) results

Scale	Cronbach's Alpha (α)	Number of Items
Institutionalization Maturity	0.780	68
Sustainability Maturity	0.990	55

The results indicated acceptable reliability for Institutionalization Maturity (α = 0.780) and very high reliability for Sustainability Maturity (α = 0.990). The alpha values confirm the internal consistency of both scales (Kılıç, 2013).

Data analysis

The study employs Normality Test using skewness and kurtosis values, to confirm whether the data were normally distributed. The skewness and kurtosis values fall within the typical range of -1.5 to +1.5, which is often used as a criterion for normality in the social sciences (Tabachnick and Fidell, 2013: 405).

Additionally, Pearson Correlation Analysis was applied to explore the strength and direction of the relationship between institutionalization maturity and sustainability maturity (Aslam and Ullah, 2023). Finally, Linear Regression Analysis was conducted to determine the effect of institutionalization maturity on sustainability maturity. Regression analysis helps understand how changes in the independent variable (institutionalization maturity) influence the dependent variable (sustainability maturity) (Kutner et al., 2004).

Findings and discussion

The findings include descriptive statistics, frequency distributions, normality tests, reliability analysis, and regression diagnostics. The main analysis focuses on maturity levels of Institutionalization and Sustainability of publicly traded companies in Türkiye.

Table 2: Descriptive statistics

Variable	N	Mean	Std. Dev.
Institutionalization Maturity	467	4,65	0,153
Sustainability Maturity	466	3,92	0,651
Valid N (listwise)	466		

Table 2 presents the descriptive statistics for the variables, Institutionalization Maturity Level and Sustainability Maturity Level. The key metrics include the number of observations (N), mean and standard deviation.

For the Institutionalization Maturity Level, the sample includes 467 valid responses. The average Institutionalization Maturity Level is 4.656, suggesting that publicly traded companies generally exhibit high levels of institutionalization maturity. The value of 0.153 for standard deviation indicates relatively low variability around the mean, implying that most companies have similar levels of institutionalization maturity, which could be expected that all the companies participate in the Turkish Stock Exchange.

On the other hand, Sustainability Maturity Level includes 466 valid responses, as one of the companies reported "not applicable" for all of the questions. The average Sustainability Maturity Level is 3.923, indicating a moderate level of sustainability maturity among the sampled companies. Furthermore, the standard deviation of 0.651 shows more variability in sustainability maturity compared to institutionalization maturity, suggesting more extensive differences in how companies implement sustainability practices. Finally, given that response values range from 3 to 5, with an expected midpoint of 4, the mean sustainability maturity level of 3.923 suggests that firms tend to cluster slightly below the midpoint of the scale.

Table 3: Normality test (Skewness and Kurtosis)

	Skewness		Kurtosis	
Variable	Statistics	Std. Dev.	Statistics	Std. Dev.
Institutionalization Maturity	-0,719	0,113	0,474	0,225
Sustainability Maturity	0,322	0,113	-1,337	0,226

Table 3 shows the Normality Test (skewness and kurtosis values) for the variables, Institutionalization Maturity Level and Sustainability Maturity Level. For the Institutionalization Maturity, the skewness value of -0.719, with a standard error of 0.113, indicates a moderate negative skewness. Therefore, the data distribution is slightly left-skewed, meaning that there are more companies with higher institutionalization maturity scores than lower ones. For the Sustainability Maturity, the skewness value of 0.322, with a standard error of 0.113, shows a slight positive skewness. The result implies that there are more companies with lower sustainability maturity scores compared to higher ones, but the distribution is relatively close to normal. Overall, the skewness and kurtosis values fall within acceptable ranges for normal distribution, suggesting that the data for both variables can be considered normally distributed (Tabachnick & Fidell, 2013).

Table 4: Correlation results

Variable	IM_M	SM_M
Institutionalization Maturity Mean (IM_M)	1	0,559
Sustainability Maturity Mean (SM_M)	0,559	1

The study performs correlation analysis to examine the relationships between the maturity levels of institutionalization and sustainability. Table 4 presents a correlation value of 0,559, suggesting a moderate degree of association between institutionalization maturity and sustainability maturity, as proposed by Evans (1996). The moderate relationship implies that companies with higher levels of institutionalization are also likely to exhibit higher levels of sustainability.

Table 5: Regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,559	,312	,311	0,54	1,660

Table 5 shows that the model explains a moderate amount of the variance in Sustainability Maturity, with Institutionalization Maturity being a significant predictor. The R square indicates that 31.2% of the variability in Sustainability Maturity is explained by Institutionalization Maturity. The adjusted R Square value being close to the R Square value suggests that the model's explanatory power is robust and not inflated by chance. Finally, the Durbin-Watson statistic indicates no significant autocorrelation in the residuals, supporting the validity of the regression analysis (Cohen, 1988: 407-414).

Table 6: Analysis of variance (ANOVA)

Model	F	Sig.
1	210.710	0,000

The ANOVA results indicated that the regression model was statistically significant, $F(1, 464) = 210.710$, $p < 0.001$. Thus, the Institutionalization Maturity is a significant predictor of Sustainability Maturity.

Table 7: Coefficient values

Model-1 Variables	B	Std. Error	Beta	t	Sig.	VIF
(Constant)	-7,131	,762		-9,360	,000	
Institutionalization Maturity	2,374	,164	,559	14,516	,000	1,000

The regression analysis reveals that Institutionalization Maturity (IM_MEAN) is a significant predictor of Sustainability Maturity (SM_MEAN), with an unstandardized coefficient (B) of 2.374 ($p < 0.001$). This indicates that for every one-unit increase in Institutionalization Maturity, Sustainability Maturity increases by 2.374 units, demonstrating a meaningful and substantial impact. The standardized coefficient (Beta) is 0.559, suggesting a moderate to strong positive relationship between the two variables. The model is statistically significant, as confirmed by the high t-value of 14.516 ($p < 0.001$). Additionally, collinearity statistics (VIF = 1.000) indicate that there are no multicollinearity concerns.

The study mainly investigates the impact of Institutionalization Maturity on Sustainability Maturity among publicly traded companies in Türkiye. First of all, the descriptive statistics indicated a lower mean and higher standard deviation for Sustainability Maturity, indicating more variability in the implementation of sustainability practices. The variability may arise due to other relevant factors, such as industry-specific regulations, firm visibility, stakeholder pressures, and corporate governance structures (Adedeji et al., 2020; Kim et al., 2024). In addition, the mean of the Sustainability Maturity remained slightly below of the central benchmark point, which suggests that there is a potential need for stricter or more uniform regulatory policies in Türkiye to promote a higher and more consistent level of sustainability maturity across companies, also stated by Durak Uşar & Soytas (2023). By introducing stricter sustainability standards and clearer compliance guidelines, policymakers could reduce inconsistencies and promote a more uniform adoption of sustainable practices (Liu et al., 2018).

Additionally, the findings reveal a statistically significant and substantial positive relationship between the two variables, with Institutionalization Maturity explaining 31.2% of the variability in Sustainability Maturity. However, the 31.2% explained variance means there is still 68.8% unexplained variance, which shows that other factors also contribute to sustainability maturity. For example, Oliver (1991)

argues that firms strategically respond to institutional pressures, meaning external regulatory changes or competitive dynamics may also shape sustainability behaviors. Similarly, Powell and DiMaggio (1991) highlight the role of interconnected networks, suggesting that peer influence and industry collaborations might further impact sustainability efforts. Further research could explore the impact of government incentives, industry-specific sustainability mandates, and stakeholder-driven pressures.

Furthermore, the unstandardized coefficient (B = 2.374) confirms that well-established institutional practices enhance a firm's capacity to implement sustainable operations. Moreover, the standardized coefficient (Beta = 0.559) indicates a moderate to strong relationship. The findings align with existing literature that highlights the role of institutionalization in embedding consistent and efficient management practices, which facilitate the integration of sustainability initiatives (Demir & Sezgin, 2014; Lozano & Garcia, 2020). In addition, formalized and standardized organizational structures improve resource allocation and long-term strategic planning, which are crucial for effective sustainability practices (Meyer & Rowan, 1977; Selznick, 1957). Furthermore, as companies with well-established organizational structures and norms are more capable of integrating sustainability practices into their core operations, institutionalization involves the adoption of shared norms and practices, leading to greater organizational homogeneity and stability (DiMaggio and Powell, 1983: 147-160; Kim et al, 2024: 1-33). The study builds on earlier findings by quantifying the relationship within the context of publicly traded companies in Türkiye.

Despite its contributions, the study has certain limitations. The reliance on secondary data from KAP introduces potential biases related to self-reporting, data completeness, and methodological constraints. Additionally, as the study employs a cross-sectional design, it captures only a snapshot of institutionalization and sustainability maturity levels at a single point in time. Future research could benefit from longitudinal studies that track firms over multiple years to assess how institutionalization maturity evolves and influences sustainability maturity in response to regulatory changes, competitive pressures, and industry-specific trends.

Conclusion and recommendations

This study explored the relationship between institutionalization maturity and sustainability maturity in publicly traded companies in Türkiye, using data collected from the Public Disclosure Platform (KAP). The analysis revealed a significant and positive link between the two variables. Companies with higher levels of institutionalization maturity were more likely to implement and sustain effective sustainability practices. The regression results showed that institutionalized structures account for over 31.2% of the variability in sustainability maturity, emphasizing the importance of robust organizational frameworks in driving sustainable business operations.

The descriptive statistics highlighted that institutionalization maturity levels are generally high and consistent among companies. However, sustainability maturity showed more variation, indicating that some firms are much further along in their sustainability efforts than others. This variation suggests that sustainability practices are unevenly distributed, pointing to a need for stronger and clearer policies to promote sustainability across the board.

The study has key implications for firms, policymakers, and investors:

- For Firms: Companies should strengthen their internal governance structures to ensure sustainability is integrated into core business operations, rather than treated as an add-on initiative.
- For Policymakers: Given the high variation in sustainability maturity, regulatory bodies should establish stricter sustainability reporting standards to reduce inconsistencies among firms.
- For Investors and Stakeholders: Investment and other decisions should consider not just sustainability disclosures, but also firms' internal governance maturity, as strong institutional frameworks indicate long-term sustainability commitment.

Despite its valuable contributions, this study has certain limitations that should be acknowledged. One key limitation is the reliance on self-reported data, which may introduce bias and affect the accuracy of findings. Additionally, the cross-sectional nature of the study limits the ability to assess how institutionalization and sustainability maturity evolve over time. Future research should consider longitudinal approaches that track changes across multiple time periods, allowing for a deeper understanding of causal relationships. Incorporating panel data models could further enhance the analysis by identifying external factors that influence sustainability maturity. Moreover, validating measurement scales and expanding the dataset to include multiple industries and regions would improve the robustness and generalizability of future studies.

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Ethical approval

This study is among the studies that do not require ethics committee approval due to use of publicly available data.

Conflict of interest

There is no potential conflict of interest in this study.