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Contribution of the Telecommunications Industry to Sustainable Development Goals within the Framework of SASB General Issue Categories: The Case of a Telecommunications Company

Kezban Şimşek[1]

Abstract

Sustainable development is an important issue that shapes the future of our planet by addressing economic, social and environmental factors. The United Nations (UN) has set 17 Sustainable Development Goals (SDGs) to ensure sustainable development, the success of which depends on global cooperation and joint efforts. The SDGs set out the environmental, social and economic sustainability issues to be achieved by 2030. Private sector efforts have an important role in achieving these goals. As a result of social responsibility and stakeholder demands, companies share their sustainability activities and the SDGs to which these activities contribute through reports. Telecommunications companies also have the potential to play a key role in achieving many SDGs through the innovative, accessible and inclusive digital infrastructure systems they provide. This study's goal is to reveal the impact of the telecommunications industry on the SDGs through the Sustainability Accounting Standards Board's (SASB) General Issue Categories (GIC). In this context, a methodological framework developed by SASB to identify important sustainability issues across sectors and industries matched SDGs with 26 general sustainability issues. In this framework, SDG impact indices were calculated for the technology and communication sector, which includes the telecommunications industry, and for a telecommunications company operating in Turkey, and SDG impact at the sector, industry and company level was tried to be revealed. According to the calculations, it was concluded that the goal known as SDG 9, which was established to establish strong infrastructures, support sustainable industrialization and strengthen and expand innovation, has an impact score of 37.50% for the telecommunication services industry, 31.25% for the technology&communication sector and 31.25% for the sample telecommunication company. SDG 9 has the highest impact score in telecommunications compared to other SDGs.

Keywords: Sustainable Development Goals, Sustainability Reporting, Telecommunications Industry, Materiality Analysis, SASB General Issue Category

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2024, 13 (3), 1633-1657 | Araştırma Makalesi

SASB Genel Konu Kategorileri Çerçevesinde Telekomünikasyon Endüstrisinin Sürdürülebilir Kalkınma Hedeflerine Katkısı: Bir Telekomünikasyon Şirketi Örneği

Kezban Şimşek [1]

Öz

Sürdürülebilir kalkınma ekonomik, sosyal ve çevresel unsurları ele alarak, gezegenimizin geleceğini şekillendiren önemli bir konudur. Başarısı küresel iş birliği ve ortak çabalara bağlı olan sürdürülebilir kalkınmayı sağlamak amacıyla Birleşmiş Milletler (BM) tarafından 17 Sürdürülebilir Kalkınma Hedefi (SDG) belirlenmiştir. SDG'ler 2030 yılına kadar ulaşılması arzulanan çevresel, sosyal ve ekonomik sürdürülebilirlik konularını ortaya koymaktadır. İlgili hedeflere ulaşmada özel sektör çabaları oldukça önemli bir yere sahiptir. Şirketler, toplumsal sorumluluğun ve paydaş taleplerinin bir sonucu olarak sürdürülebilirlik faaliyetlerini ve bu faaliyetlerin hangi SDG'lere katkı sağladığını raporlar aracılığıyla paylaşmaktadırlar. Telekomünikasyon şirketleri de sundukları yenilikçi, erişilebilir ve kapsayıcı dijital altyapı sistemleri aracılığıyla birçok SDG'nin başarılmasında kilit rol oynama potansiyeline sahiptir. Bu çalışma telekomünikasyon endüstrisinin SDG'ler üzerindeki etkisini Sürdürebilirlik Muhasebesi Standartları Kurulu'nun (SASB) Genel Konu Kategorileri (GIC) üzerinden ortaya koymayı amaçlamaktadır. Bu kapsamda SASB'ın sektörler ve endüstrilerde önemli sürdürülebilirlik konularını belirlemek için geliştirdiği 26 genel sürdürülebilirlik konusu ile SDG'lerin eşleştirildiği metodolojik bir çerçeve kullanılmıştır. Bu çerçevede telekomünikasyon endüstrisinin içinde bulunduğu teknoloji ve iletişim sektörü ile Türkiye'de faaliyet gösteren bir telekomünikasyon şirketi için SDG etki endeksleri hesaplanarak sektör, endüstri ve şirket düzeyinde SDG etkisi ortaya konmaya çalışılmıştır. Yapılan hesaplamalara göre güçlü altyapıları tesis etmek, sürdürülebilir sanayileşmeyi desteklemek ve yenilikçiliği güçlendirerek yaygınlaştırmak için oluşturulan ve SDG 9 olarak bilinen hedefin; telekomünikasyon endüstrisi için %37.50, teknoloji ve iletişim sektörü için %31.25, örnek telekomünikasyon şirketi için %31.25 etki puanına sahip olduğu sonucuna ulaşılmıştır. SDG 9'un telekomünikasyon alanında diğer SDG'lere göre en yüksek etki puanına sahip SDG olduğu görülmüştür.

Anahtar Kelimeler: Sürdürülebilir Kalkınma Hedefleri, Sürdürülebilirlik Raporlaması, Telekomünikasyon Endüstrisi, Önemlilik Analizi, SASB Genel Konu Kategorisi

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1. Introduction

The telecommunications industry has significant potential in achieving sustainable development goals. With the infrastructure and innovative services it provides, it is helping to realize many social, environmental and economic development initiatives (Tataru et al., 2019, p. 15). Telecommunication services today have gone beyond simple communication services and have become one of the most important tools in achieving sustainable development goals by providing inclusive access to health services education, helping reduce regional inequalities, eliminating the need for many unnecessary and non-environmental activities, and providing technological infrastructure for energy, water and production efficiency practices.

17 Sustainable Development Goals were adopted by the UN General Assembly in 2015 (UNDP, 2022). The United Nations (UN) and other important organizations state that the information and communication technology (ICT) sector, especially the telecommunications industry, has a vital role in achieving these goals (Sumaria, 2021). In their study, Clark et al. (2022) reveal the importance of digital technologies in achieving the sustainable development goals and state that digital inclusion and connectivity are essential for achieving all goals. Achieving all 17 goals requires four strategic elements: digital capabilities, technology, infrastructure and governance (Clark et al., 2022, p. 1). Telecommunication services play a crucial role along with other ICT elements for inclusive digital inclusion, digital capabilities development, technology, infrastructure and governance. However, every company has the potential to contribute to sustainability depending on the sector and industry in which it operates. Identifying the sustainability goals that are important for companies and shaping their sustainability-related activities according to these goals will contribute to the process of achieving the SDGs (Betti et al., 2018, p. 2). In this context, the Sustainability Accounting Standards Board (SASB) has developed 26 general sustainability issues to assist companies. Companies can identify important sustainability issues for themselves by utilizing materiality maps that identify important sustainability issues for 77 industries under 11 sectors in the SASB industry classification system (SASB Standards, 2022). As a matter of fact, it has become very important for companies to report their sustainability activities and which SDGs they contribute to. In this context, many reporting frameworks used by companies such as SASB and GRI have started to harmonize with the SDGs (Elalfy et al., 2021, p. 558). Through the reports produced by the accounting information system, companies present the impact of non-financial and financial activities on the value creation process and the SDGs they contribute to through these activities to their stakeholders.

In this study, a methodological framework that matches 26 general sustainability issues developed by SASB with 16 SDGs was used, the contribution of the important issues identified by SASB for the telecommunications industry to the relevant SDGs was determined and SDG impact indices were calculated for a telecommunications company operating in Turkey. In this way, it is aimed to determine where companies operating in the telecommunications industry contribute or could contribute to the SDGs. Companies and their stakeholders will have the opportunity to identify the social impacts and environmental or shortcomings of a company's operations and products. It is thought that the findings of the study will influence investors and other stakeholders in companies' decision-making processes.

The first section of the study discusses the conceptual framework of sustainable development goals; the key sustainability issues that SASB has identified for the sectors and industries under the Sustainable Industry Classification System (SICS)™; the concept of materiality; and the contribution of the telecommunications industry to the SDGs. The following section presents the methodology and findings of the research, while the final section evaluates the results of the research.

2. Conceptual Framework

The Sustainable Development Goals (SDGs), aimed for completion by 2030, encompass 17 primary goals and 169 sub-goals. Also known as global goals, the SDGs represent a universal appeal to eradicate poverty, protect the planet, and promote peace and prosperity for all people. These goals are founded on the principle that development must equally prioritize social, economic, and environmental sustainability (UNDP, 2022).

Achieving the Sustainable Development Goals is possible through a concerted effort in which the whole of society contributes its creativity, knowledge, technology and financial resources (UNDP, 2022; Ojutkangas, 2020, p. 2). While the SDGs were initially supported and driven by policymakers, they have rapidly gained prominence among a wide range of actors, including public institutions, NGOs, private sector organizations, and academics (Bebbington and Unerman, 2018, p. 2). With the increasing awareness of development goals, the UN Sustainable Development Goals Fund (SDG Fund) was established in 2014 to support activities in this context. The SDG Fund has brought together UN organizations, national governments, academia, civil society and the business world to achieve the development goals (SDG-F, 2014). On the other hand, the private sector also has a very important role in achieving the relevant goals (Elalfy et al., 2021, p. 557). Sustainable development is improved when the private sector embraces sustainability and becomes part of its operational and business culture. In this context, The SDG-F Private Sector Advisory Group was established within the SDG Fund. The main purpose of the group is to provide a common point of departure on what the private sector can contribute to the SDGs and how the problems encountered can be solved (SDG-F Private Sector, 2014). The SDGs are now being embraced by most companies, both in word and deed, as part of their business operations. For example, companies use development goals as a framework for making decisions about how much of their resources to allocate to which areas (Consolandi et al., 2020, p. 511-512). Similarly, theories in the literature indicate that there are some incentives for companies to engage in and report on sustainability activities (Khaled et al., 2021, p. 3). In particular, Stakeholder Theory and Legitimacy Theory are frequently used to explain how environmental and social initiatives and reporting practices occur in the sustainability context (Islam and Deegan, 2007, p. 853). According to Stakeholder Theory, companies engage in and report on sustainability practices to meet various stakeholders environmental and social expectations (Islam and Deegan, 2007, p. 850). The Legitimacy Theory addresses the issue from a broader perspective, including the stakeholder theory. According to the theory, external pressures on companies through norms and regulations encourage companies to engage in sustainability practices (Khaled et al., 2021, p. 3).

Companies report their corporate sustainability practices and provide information to their stakeholders and society in order to increase their corporate legitimacy by influencing perceptions towards them (Alotaibi and Hussainey, 2016, p. 368; Elalfy et al., 2021, p. 557). The Institutional Theory, which is prominent in the social and

environmental accounting literature and is used to explain the environmental and social initiatives and reporting practices of businesses, links the degree to which businesses adopt sustainability practices with changing institutional pressures and expectations (Islam and Deegan, 2007, p. 853). Regardless of the motivation, the assumptions regarding the sustainability activities carried out by businesses emphasize the importance of accountability to a large number of stakeholders by taking into account the interests of stakeholders (Aras et al., 2021, p. 1169). However, in addition to meeting the expectations of stakeholders, businesses also meet the needs of society. Stakeholders now seek not only financial performance data from businesses but also information regarding their sustainability performance. Businesses have started to present their sustainability initiatives and their contribution to achieving sustainable development goals through sustainability reports. In a study conducted by Pwc (2020), it is stated that 72% of the analyzed enterprises mention sustainable development goals in their reports. Sustainable Development Goals are also included in various reporting frameworks such as the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI) (Elalfy et al., 2021, p. 558).

There are many organizations that strive to provide standardization and global unity of practice in sustainability reporting (Elalfy et al., 2021, p. 561; Sethi et al., 2017, p. 790). The International Organization for Standardization (ISO) is one of these organizations with its frameworks and guidelines on environmental, social and economic issues such as ISO 14000, ISO 26000, which have been adopted by many sectors (Clap, 1998, p. 295; Sethi et al., 2017, p. 790). The Global Reporting Initiative (GRI) (Siew, 2015, p. 182), which carries out activities to create a globally applicable sustainability reporting framework, publishes global reporting standards that are most preferred by businesses and applied in different sectors (Elalfy et al., 2021, p. 562). The International Integrated Reporting Council (IIRC) is another organization that publishes sustainability reporting frameworks. The Council has published the Integrated Reporting Framework (IR) in order to create a globally accepted framework. With the integrated reporting framework, companies can clearly demonstrate the link between their financial activities and their sustainability-related activities and how sustainability issues are integrated with company activities as part of the value creation process (King, 2016). Integrated reporting addresses the value creation processes of businesses holistically with governance, financial capital, intellectual capital, environmental capital and social capital components and draws attention to the integration of different dimensions of business performance (Morros, 2016, p. 338). The International Sustainability Standards Board (ISSB) was established by the IFRS Foundation in 2021 to develop high quality, understandable, applicable and globally accepted sustainability standards for sustainability reporting, similar to accounting standards. The ISSB officially published IFRS S1 and IFRS S2 in June 2023, marking a significant step forward in global reporting standards (IFRS Foundation, 2024). In Turkey, these standards, which were published as TSRSs by the Public Oversight Accounting and Auditing Standards Authority (KGK) in 2023, became mandatory for the companies included in the board decision as of 2024 (KGK, 2023).

In terms of sustainability, standardization and materiality-oriented initiatives are important both to reduce measurement differences in sustainability and to identify the incentives that drive companies to act on environmental and social issues. In this sense, it is possible to say that SASB has an increasing impact (Consolandi et al., 2020:513-514). SASB and IIRC merged under the Value Reporting Foundation in 2021. In August 2022,

the Value Reporting Foundation and the IFRS Foundation officially announced their merger (IFRS Foundation CDSB, 2024)

SASB develops standards related to sustainability. The goal is to link businesses and investors by highlighting the financial implications of sustainability. SASB Standards are structured on a sector-based basis. The focus is on sustainability issues that are most relevant to investor decision-making (SASB Standards, 2022). SASB's universe of sustainability issues consists of 26 general categories of issues covering the dimensions of "environment", "social capital", "human capital", "business model and innovation", and "leadership and governance". The SASB identifies important sustainability issues that affect the activities of different sectors and industries and provides a perspective on the corporate impacts related to these issues. The starting point for sector-based materiality analysis is sustainability issues that are important for investor decision-making (SASB Standards, 2022).

The SASB Sustainable Industry Classification System (SICS)™ consists of 77 industries under 11 sectors (SASB, 2018). In this classification system, unlike traditional classification systems, SASB uses companies' sustainability profiles and takes into account sustainability risks and opportunities (SASB Industry, 2022). SASB sets out an approach that clearly and in detail identifies key industry-specific sustainability issues and performance measures. This approach can be used to solve or minimize comparability and conceptualization issues in sustainability (Consolandi et al., 2020, p. 514).

SASB's sector and industry-based Materiality Map and 26 GICs (General Issue Categories) provide a useful tool for SDG-ESG mapping and enable comparisons across sectors. By mapping the SDGs to the SASB framework, it is possible to assess sector, industry and company performance in terms of the impact dimension of the SDGs. DeMates and Phadke (2017) are the first to map the SASB framework to the SDGs. DeMates and Phadke (2017) matched the 30 GICs of the SASB with 17 targets of the SDGs. Betti et al. (2018) matched GICs to 17 SDGs as well as 169 sub-targets and calculated SDG impact indices of sectors and industries. Consolandi et al. (2020) calculated the SDG impact score using the ESG performance of companies in the healthcare sector and the SDG impact index. Aras et al. (2022) calculated the SDG Impact index of Yıldız Technical University using the methodology that matches the SASB framework and SDGs. In materiality analysis, social, environmental, and economic sustainability issues related to the companies themselves and their stakeholders are identified (Sardianou et al., 2021, p. 1775). SASB's materiality analysis is based on issues that affect investors' decision-making processes. In the Accountability Principles, materiality is defined more comprehensively and the impact on an organization and its stakeholders is taken into account in determining the relevant sustainability issues. According to Accountability Principles AA1000, materiality involves identifying and prioritizing the most pertinent sustainability issues, considering their impact on an organization and its stakeholders. Materiality is described as "an issue that will significantly affect the assessments, decisions, actions, and performance of an organization and its stakeholders in the short, medium, and long term" (Accountability Principles, 2018). The Integrated Reporting Council states that materiality analysis is specific to organizations and is based on a multi-stakeholder perspective. In Integrated Reporting, an issue is considered material if it

could significantly affect the organization's ability to create value in the short, medium or long term (IIRC, 2015, p. 4).

Businesses have the potential to contribute to the SDGs depending on the sector and industry in which they operate. There are high-impact SDGs for every sector and high-impact sectors for every SDG. There are some sectors that are more important for the SDGs than others due to the nature of their operations (Betti et al., 2018, p. 2; Khaled et al., 2021, p. 1). Businesses can contribute to sustainability by increasing their awareness and efforts on which goals in the SDGs are relevant to them. To do so, businesses should identify the material sustainability issues that create value for their stakeholders and which SDGs these material issues affect. Companies can use this to assess and report on how their value creation activities contribute to the SDGs (Consolandi et al., 2020, p. 516). Because today, all stakeholders expect businesses to identify the social and environmental impacts caused by their activities and to take responsibility for contributing to sustainability by managing these impacts through sustainable development. In other words, stakeholders demand more from businesses than financial information (Morros, 2016, p. 337). As a matter of fact, many organizations in the reporting field have rapidly started to include the Sustainable Development Goals in their sustainability reports (Bebbington and Unerman, 2018, p. 9). Through integrated reporting, companies present the contribution of their operations to the SDGs to financial information users, and these reports, which are part of the accounting information system, reveal the SDG performance of companies as a non-financial performance element as well as financial performance. Through these reports, investors and other stakeholders gain a holistic perspective on company performance.

The ICT sector, including the Telecommunications, Media and Technology industries, is critical to achieving sustainable development (Ojutkangas et al., 2020, p. 3). This critical importance stems from the sector's vital role in driving advances in technology, science and innovation, which are seen by the UN and other groups as essential to achieving the SDGs (Sumaria, 2021). Achieving all 17 SDGs requires four strategic elements: digital capabilities, technology, infrastructure and governance (Clark et al., 2022, p. 1). The digital infrastructure required for all these elements, and especially the telecommunications networks that make up the Internet, make telecommunications services an important industry in achieving sustainable development (Bandias and Ram Vemuri, 2005, p. 237; Davies et al., 2019, p. 4). Telecommunication systems make production and service processes independent from the human factor, time and space dimensions, and make many contributions to ensuring sustainability. It does this through its direct and indirect effects on information production, flow, evaluation, monitoring, implementation and feedback processes and capacities (Şenyel Kürkçüoğlu, 2021, p. 319). In achieving the SDGs, the telecommunications industry stands out especially with SDG 9, which is related to innovation, industry, and infrastructure. However, the infrastructure and innovative approach offered by the telecommunications industry has the potential to help achieve many other SDGs. From smart cities to global communications, from increasing efficiency and productivity at traffic intersections to providing remote maintenance, from optimizing production processes to providing socio-economically weaker regions with the chance to be digitally included, the telecommunications industry supports sustainable development with many innovative services (Sumaria, 2021). Especially in developing and underdeveloped countries, there is a need to improve telecommunications infrastructure to ensure the achievement of the

SDGs (Davies et al., 2019, p. 4). Studies show that it is possible to achieve significant growth in the economy with investments in telecommunications infrastructure in these countries (Olalekan, 2013; Isa and Adeniji, 2015; Oyeniran and Alliyu, 2016;. Matalqah and Matalqah, 2017; Usman and Mazadu, 2021).

Telecommunications services play a critical role as an important ICT element in building and expanding clean and sustainable energy infrastructure and ensuring access to affordable, sustainable, reliable, and modern energy for all. In the report prepared by the International Telecommunication Union (ITU) (2017), the importance of the telecommunications industry in achieving SDG 7 is presented with a special focus on information and communication technologies (ICT). The report underlines the need for energy and telecommunications providers to cooperate to successfully integrate of energy and ICT networks. Establishing comprehensive management systems in the energy supply chain, developing real-time measurement sensors, smart grids and pay phones, and telecommunication services help to achieve SDG 7 (ITU, 2017, p. 1-5).

Telecommunication services have changed the way we interact globally and global connectivity has become extremely simple. Emerging mobile network technologies and the ability to seamlessly transfer data around the world have made it possible to conduct meetings, financial transactions, health appointments and even surgeries remotely. These services enable the telecommunications industry to promote sustainability by reducing the use of unnecessary resources and eliminating inefficient, environmentally harmful methods. (Sumaria, 2021; Wickramasinghe and ABD Razak, 2023, p. 26). With online course access, training modules and smart education applications, telecommunications helps education to become more qualified (ITU-T Recommendation, 2022, p. 13). Bello and Othman (2020), in their study investigating the role of multinational telecommunication services in the development of basic education in Nigeria, reveal that multinational telecommunication services have made a significant contribution to the development of the education sector in Nigeria, especially basic education. With the intervention of telecommunication services in education, quality education can be provided leading to the improvement of infrastructure, school enrolment and most importantly, the quality of learning (Bello and Othman, 2020, p. 96; Wickramasinghe et al., 2024, p. 2604). The fact that education can continue without interruption, especially during Covdi-19, reveals the importance of telecommunication services and their contribution to SDG4 in particular. Wickramasinghe et al. demonstrate the importance of standard of living and digital education for sustainable development and the positive impact of the telecommunications industry as a moderator in delivering these initiatives (Wickramasinghe et al., 2024, p. 2592)

The Ericsson report (2019) states that the deployment of mobile broadband networks supports economic development, with a 10 percent increase in mobile broadband adoption leading to an average increase in Gross Domestic Product of 0.8 percent. This demonstrates the impact of the telecoms industry in achieving SDG 8: decent work and economic growth. The report also indicates that mobile broadband technology, a telecommunications service, helps reduce inequalities and provides internet access and digital services to meet various societal needs, including education and health services, financial inclusion, entrepreneurship, and humanitarian response. (Ericsson Report, 2019).

Vargas et al. (2020) underline in their study that the Internet of Things (IoT) cansignificantly contribute to sustainable economic, social and environmental development . The Internet of Things, which provides efficiency and productivity gains especially in industrialised economies, has the potential to make significant contributions to social, environmental and cultural development as well as supporting economic growth for developing countries (Vargas et al., 2020, p. 37202).

Another important contribution that the telecommunications industry can make in achieving sustainable development goals is the principle of equity (Şenyel Kürkçüoğlu, 2021, p. 332). The global increase in mobile broadband subscriptions will enable social and economic inclusion and will help reduce inequalities by enabling a wide range of social needs in education, health, production and consumption to be met and accessible to all (Sumaria, 2021; U4SSC, 2023, p. 31). Mobile communications will contribute to achieving the SDGs by providing access to infrastructure and digital services (Ojutkangas et al., 2020, p. 3). In remote and rural areas where telecommunications infrastructure is inadequate, communities are likely to be disproportionately and negatively affected in many areas, particularly in the provision of education and health services (GSMA, 2022, p. 11). With fair telecommunications access, it is possible to eliminate or minimise regional and global inequalities in welfare levels from education to health. This is extremely important to ensure global social and economic development, especially to achieve SDG 10 (Bandias and Ram Vemuri, 2005, p. 237-238). In their study (2005), Bandias and Ram Vemuri underline that the inadequacy of telecommunication infrastructure, especially in regional, rural and remote Australia, creates inequity in the level of welfare throughout the country. The study emphasises the importance of appropriate and equitable telecommunications service provision for sustainable development. In this context, telecommunication systems help to reduce inequalities and create equal opportunities for everyone to access information, resources and services (Ojutkangas et al., 2020, p. 3).

Today, smart city applications have come to the forefront as important tools for achieving many sustainable development goals in SDG11 (FG-AI4EE D.WG2-04, 2022, p. i). Smart city applications have the potential to not only shorten commuting times, but also to provide numerous social and environmental benefits, such as reduced traffic stress and environmental pollution, increased productivity, dispersal of population density across regions, and more choice in where people live, thanks to mobility applications and the increasing acceptance of remote working by the private sector (Mckinsey Global Institute Report, 2018, p. 44). The goal to be achieved with smart city applications is in parallel with sustainable development goals. Smart cities can serve to achieve many sustainable development goals such as reducing environmental problems, efficient use of energy, providing decent work, and ensuring economic development by increasing production and productivity. The telecommunications industry is one of the important providers of smart city systems and services (Mckinsey Global Institute Report, 2018, p. 26). Although building a ubiquitous advanced telecommunications infrastructure to support such smart sustainable city connectivity is a major technological challenge that requires significant deployment and operational costs (U4SSC, 2023, p. 45), telecommunications infrastructure is an enabler for smart cities and helps to achieve numerous goals such as SDG3, SDG4, SDG6, SDG7, SDG8, SDG9, SDG11, SDG13 (Sumaria, 2021).

It is evident that telecommunication services contribute directly and indirectly to the achievement of numerous sustainable development goals. Today, major telecommunication companies go far beyond simple communication services and offer products that use technology and innovation to meet a wide range of social, economic and environmental needs. These products focus on smart technology applications from the cellular connectivity market to smart cities, waste management, education, health, security, water and energy efficiency, and manufacturing (Mckinsey Global Institute Report, 2018, p. 105). It will be decisive for the success of many Sustainable Development Goals for telecommunications companies to follow these developments, focus on important sustainability issues for the industry, and take necessary physical and digital infrastructure initiatives. Better access to physical and virtual digital infrastructure provided by the telecommunications industry will enable societies and individuals to realise potential economic, environmental and social benefits, and people will be able to benefit from technology and applications more effectively and efficiently (Sumaria, 2021).

3. Research Methodology

This study uses a methodology developed by the Sustainability Accounting Standards Board (SASB) to match 26 general sustainability issues with the Sustainable Development Goals. Phadke and DeMatest (2017) were the first to match SASB's GICs with the 17 broad targets of the SDGs. Subsequently, Betti et al. (2018) mapped GICs to the SDGs not only at the goal level but also at the sub-goal level. Betti et al. (2018) also calculated SDG impact indices of sectors and industries to calculate the relationship between GICs and SDGs. Aras et al. (2022) proposed a more refined methodology using the weighted SDG impact index (WSII) to calculate the SDG impact index of the GIC. This study adopts the SASB GIC-SDG matching of Phadke and DeMates (2017) and follows a similar methodology as Betti et al. (2018) in Step 1 and Aras et al. (2022) in Step 2. In the second step, the weighted SDG impact index (WSII) is also used in this study to calculate the SDG impact index of a sample telecommunication company.

This research is based on the studies of Aras et al. (2022). Phadke and DeMates, (2017) mapping of SASB categories with sustainable development goals was used. In this mapping, current SASB categories were used as in Aras et al. (2022) (Table 1). The SDG relevance index was calculated for the technology and communication sector, in which the telecommunications industry is included, by utilising Betti et al. (2018). In the last step, the SDG impact index of the Sample Telecommunication Company was calculated using the studies of Aras et al. (2022).

The material issues of the Sample Telecommunication Company were identified using the 2021 annual report, the material issues were matched with the SDGs and the WSII index was calculated.

Table 1. The updated SASB taxonomy

Dimension	SASB General Issue Category	SDG															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Environment	E1 Greenhouse Gas Emissions							■		■			■	■	■	■	
	E2 Air quality			■								■	■				
	E3 Energy management			■				■		■			■	■			
	E4 Water and wastewater management		■	■			■					■	■		■	■	
	E5 Waste and hazardous materials management			■			■		■			■	■		■	■	
	E6 Ecological impacts		■				■					■	■		■	■	
Social Capital	S1 Human rights and community	■					■		■		■	■					■

	relations															
	S2 Customer privacy															
	S3 Data security															
	S4 Access and affordability															
	S5 Product quality and safety															
	S6 Customer welfare															
	S7 Selling practices and product labeling															
Human Capital	H1 Labor practices															
	H2 Employee health and safety															
	H3 Employee engagement, diversity and inclusion															
Business Modaland Innovation	B1 Product design and lifecycle management															
	B2 Business model resilienc															
	B3 Supply chain management															
	B4 Materials sourcing and efficiency															
	B5 Physical impacts of climate change															
Leadership and Governance	G1 Business ethics															
	G2 Competitive behavior															
	G3 Management of the legal and regulatory environment															
	G4 Critical incident risk management															
	G5 Systemic risk management															
Sum of SASB Issues affecting each SDG		8	9	15	2	6	12	9	10	8	7	10	13	8	7	11	12
	Impacted SDGs															
	Non-impacted SDGs															

Kaynak: Aras, G., Kutlu Furtuna, O & Hacioglu Kazak, E. (2022). The nexus between stakeholders' materiality and sustainable development goals: evidence from higher education institutions, International Journal of Sustainability in Higher Education, 23(1), pp. 114-134, DOI 10.1108/IJSHE-11-2020-0439

3. 1. Research Stages

The analysis stages of the research are summarised in the table below.

Table 2. Analysis stages of the research

stage 1	**stage 2**
Mapping SASB Categories to SDGs for the Technology and Communications Sector and Related Industries	Matching the material Issues of the Sample Telecommunication Company with the SDGs
Calculation of the Industry SDG Impact Index (ISII)	Materiality Analysis of the Sample Telecommunication Company
Calculation of the Sector SDG Impact Index (SSII)	Calculation of the SDG Impact Index of the Sample Telecommunication Company (WSII)
Calculation of the Average Industry SDG Impact Index (AISII)	Calculation of the Average SDG Impact Index of the Sample Telecommunication Company (AWSII)
Calculation of the Average Sector SDG Impact Index (ASSII)	

The research consists of 2 stages. In the first stage, in order to determine the relationship between GICs and SDGs, sector-wide and sub-industry-specific GICs of the technology and communication sector and all industries under the technology and communication sector, including the telecommunications industry, were mapped to SDGs by utilising the SASB taxonomy in which SASB Categories are mapped to SDGs, and sector and industry-specific indices were calculated.

In the final stage, the material issues of the Sample Telecommunications Company, identified using the integrated annual report for 2021 and associated with SASB's GICs,

were matched with the SDGs to calculate the SDG impact of the Sample Telecommunications Company.

Calculations were made over 16 SDGs as in the studies of Aras et al. (2022) and Betti et al (2018). The reason for this is that SDG 17 is related to all of the other 16 SDGs as stated in the relevant studies.

Step 1: Calculating Sector and Industry SDG Impact Indices by Matching SASB Categories with SDGs for the Technology and Communications Sector and Related Industries

In this study, Phadke and DeMates' (2017) study was used as a basis for matching SASB's GICs with SDGs. However, since SASB revised the GICs from 30 to 26 GICs in 2018, the updated taxonomy of SASB was taken into consideration and the updated map in Aras et al. (2022) was used (Table 1).

At this stage, SASB Categories for the Technology and Communications Sector and Related Industries were mapped to the SDGs. Sector and Industry SDG Impact Indices were calculated to provide a measure of the ability of the Technology and Communication Sector and Related Industries to impact the SDGs. According to SASB's Sustainable Industry Classification System (SICS), there are 6 sub-industries (Electronic Manufacturing Services & Original Design Manufacturing, Hardware, Internet Media & Services, Semiconductors, Software & IT Services) under the technology and communication sector, including the Telecommunications industry (Table 3). SASB recognises that 6 out of 26 general sustainability issues are important for Telecommunication Services. "Energy management (E3)", "Customer privacy (S2)", "Data security (S3)", "Materials sourcing and efficiency (B4)", "Competitive behaviour (G2)" and "Systemic risk management (G5)" are important sustainability issues for telecommunication services (Table 3). SASB's important sustainability issues for the Technology and Communication Sector are; "Greenhouse Gas Emissions (E1)", "Energy management (E3)", "Water and wastewater management (E4)", "Waste and hazardous materials management (E5)", "Customer privacy (S2)", "Data security (S3)", "Labour practices (H1)", "Employee health and safety (H2)", "Employee engagement, diversity and inclusion (H3)", "Product design and lifecycle management (B1)", "Supply chain management (B3)", "Materials sourcing and efficiency (B4)", "Competitive behaviour (G2)" and "Systemic risk management (G5)" (Table 3). The map specific to the telecommunications industry where the SASB Categories are mapped to the SDGs is given in Table 4.

Table 3. SASB Technology and Communication Sector materiality map

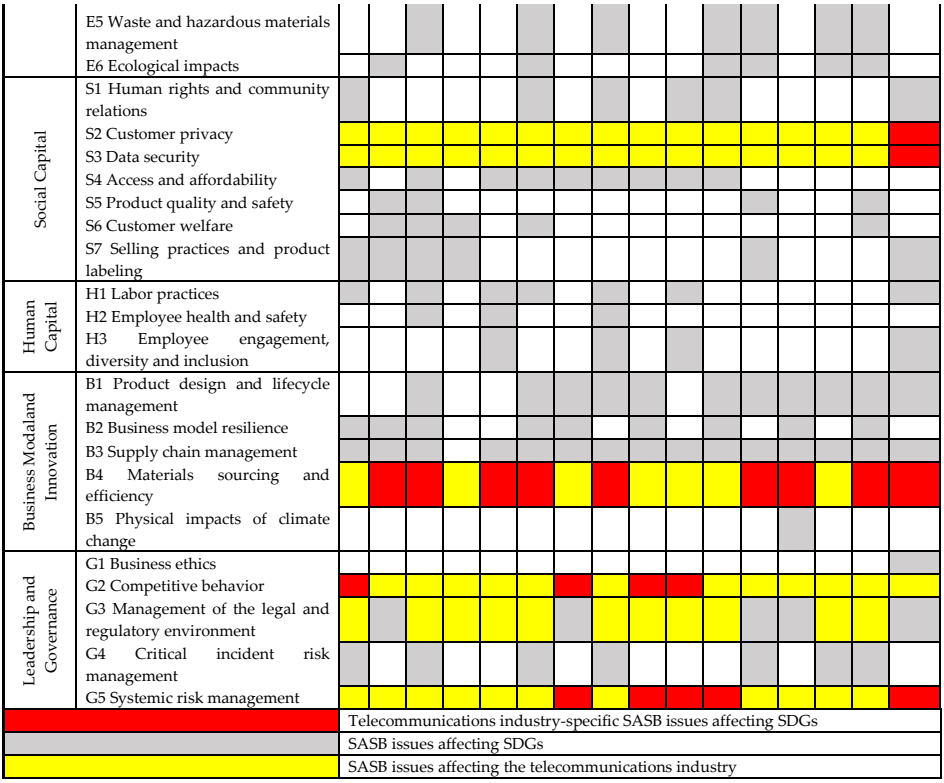
Dimension	SASB General Issue Category	Electronic Manufacturing Services & Original Design Manufacturing (6 of 26)	Hardware (5 of 26)	Internet Media & Services (5 of 26)	Semiconductors (9 of 26)	Software & IT Services (6 of 26)	Telecommunication Services (6 of 26)
Environment	E1 Greenhouse Gas Emissions				■		
	E2 Air quality						
	E3 Energy management			■	■	■	■
	E4 Water and wastewater management	■			■		

	E5 Waste and hazardous materials management	■			■		
	E6 Ecological impacts						
Social Capital	S1 Human rights and community relations						
	S2 Customer privacy			■		■	■
	S3 Data security		■	■		■	■
	S4 Access and affordability						
	S5 Product quality and safety						
	S6 Customer welfare						
	S7 Selling practices and product labeling						
Human Capital	H1 Labor practices	■					
	H2 Employee health and safety	■			■		
	H3 Employee engagement, diversity and inclusion		■	■	■	■	
Business Modal and Innovation	B1 Product design and lifecycle management	■	■		■		
	B2 Business model resilience						
	B3 Supply chain management		■				
	B4 Materials sourcing and efficiency	■	■		■		■
	B5 Physical impacts of climate change						
Leadership and Governance	G1 Business ethics						
	G2 Competitive behavior			■	■	■	■
	G3 Management of the legal and regulatory environment						
	G4 Critical incident risk management						
	G5 Systemic risk management					■	■
■	Material topics						
	Immaterial topics						

Source: SASB Materiality Finder, https://www.sasb.org/standards/materiality finder/find/?lang=en-us Date of Access: 18.04.2022)

Table 4. Map of telecommunications industry-specific SASB issues affecting the SDGs

Dimension	SASB General Issue Category	SDG															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Environment	E1 Greenhouse Gas Emissions							■		■			■	■	■	■	
	E2 Air quality			■								■	■				
	E3 Energy management	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	E4 Water and wastewater management		■	■			■					■	■		■	■	



Source: Prepared by the author using SASB Materiality Mapping and The updated SASB taxonomy

In order to calculate the SDG Impact Index (SSII) of the technology and communication sector, the SDG impact index (ISII) of all industries under the technology and communication sector, including the telecommunications industry, should be calculated first. The following formulae proposed by Betti et al (2018) were used to calculate the Sector and Industry SDG Impact Indices: MIk is the number of industry-specific SASB topics affecting the SDG, MI is the total number of SASB topics affecting the SDG.

$$ISII_{j,k} = \frac{\sum_{i=1}^{26} imp_{j,i,k}}{\sum_{i=1}^{26} imp_{j,i}} .100 = \frac{MI_k}{MI} .100 \quad \textbf{(1)}$$

$$SSII_j = \frac{\sum_{k=1}^{6} ISII_{j,k}}{6} \quad \textbf{(2)}$$

$$AISII_k = \frac{\sum_{j=1}^{16} ISII_{j,k}}{16} \quad \textbf{(3)}$$

$$ASSII = \frac{\sum_{j=1}^{16} SSII_j}{16} \quad \textbf{(4)}$$

Step 2: Matching the Material Issues of the Sample Telecommunication Company with SDGs and Calculating the SDG Impact Index

The material issues of the Sample Telecommunication Company were determined using the document analysis method. Within the scope of document analysis, the integrated annual report of the Sample Telecommunication Company for 2021 was examined and material issues were identified. An average materiality score was calculated for each material issue obtained from the integrated annual report. The average materiality score (S) is calculated by proportioning the number of stakeholders who consider each material issue important to the total number of stakeholders.

S= Number of Stakeholders/Total Number of Stakeholders **(5)**

Then, these mean score data were separated into high-middle-low bins using an equal-width partitioning algorithm that calculates the width of the intervals (W). The following formula proposed by Aras et al. (2022) was used to calculate the width of the intervals. In the formula; N represents the intervals, B represents the highest value and A represents the lowest value.

$$W = \frac{B - A}{N} \quad \textbf{(6)}$$

In addition, at this stage, the relationship between the material issues of the Sample Telecommunication Company and the SASB issues was determined in order to ensure that the material issues of the Sample Telecommunication Company are matched with the SDGs. In determining this relationship, SASB's sector and industry-specific Sustainability issues descriptions and the Sample Telecommunication Company's descriptions of its material issues in its integrated report were utilised. The SDG impact index of the Sample Telecommunication Company was calculated in accordance with the methodology proposed by Aras et al. (2022). In accordance with this methodology, the SDG impact index of the Sample Telecommunication Company was calculated with the following formula in line with the different materiality levels (high, medium and low) obtained from the document analysis results:

$$WSII_J = \frac{MI_h.0.6 + MI_m.0.3 + MI_l.0.1}{MI}.100 \quad \textbf{(7)}$$

$$AWSII = \frac{\sum_{j=1}^{16} WSII_j}{16} \quad \textbf{(8)}$$

WSII is used to calculate the impact index of the sample telecommunication company for each SDG. WSII is the ratio of the weighted sum of the number of SASB categories affecting each SDG depending on the level of material. In the calculation, the weight ratio is considered as 0.6 for issues with high material level, 0.3 for issues with medium material level and 0.1 for issues with low material level. MI is the total number of SASB categories affecting SDGs.

3. 2. Analysis Result

Step 1: Findings on the calculation of Sector and Industry SDG Impact Indices by Matching SASB Categories with SDGs for the Technology and Communication Sector and Related Industries

This section presents the findings of the first stage of the analysis.

Through the priority issues identified by SASB for the Technology and Communication Sector and Telecommunication Services sector, the impact score of the Technology and Communication Sector and Telecommunication Services sector on a specific sustainable Development Goal was calculated and presented in Table 5 and Table 6.

Table 5. Industry SDG Impact Index (ISII) for the Telecommunication Services industry (ISII)

SDG	ISII	SDG	ISII
SDG 9	37.50	SDG1	12.50
SDG16	33.33	SDG2	11.10
SDG7	33.30	SDG8	10.00
SDG10	28.57	SDG11	10.00
SDG13	25.00	SDG15	9.09
SDG5	16.70	SDG6	8.33
SDG12	15.38	SDG4	0
SDG3	13.30	SDG14	0

Table 6. Technology&Communication Sector SDG Impact Index (SSII)

SDG	SSII	SDG	SSII
SDG9	31.25	SDG14	21.43
SDG5	30.56	SDG3	21.11
SDG16	29.17	SDG15	19.70
SDG7	27.78	SDG6	18.06
SDG13	27.08	SDG11	16.67
SDG8	26.67	SDG2	12.96
SDG10	26.19	SDG1	12.50
SDG12	21.79	SDG4	0

SDG 9 was found to be the SDG with the highest impact score with 37.50% impact score for Telecommunication Services industry and 31.25% impact score for Technology&Communication Sector (Table5,6). The top five SDGs most affected by the Telecommunication Services industry are SDG 9 with 37.50%, SDG 16 with 33.33%, SDG 7 with 33.30%, SDG 10 with 28.57% and SDG 13 with 25.00%. This means that the industry affects different SDGs at different levels, supporting the finding of Betti et al (2018) and Aras et al (2022) in their studies. When we look at the top five SDGs that the Technology&Communication Sector affects the most, it is SDG 9 with 31.25%, SDG 5 with 30.56%, SDG 16 with 29.17%, SDG 7 with 27.78% and SDG 13 with 27.08%. It is seen that the top five SDGs most affected by the Telecommunication Services industry are largely parallel to the sector to which it belongs.

Table 7 shows the average SDG impact score (AISII) of industries under the technology&communication sector.

Table 7. Average Industry SDG Impact Index (AISII) for the technology&communication sector

Industry	(AISII)
Semiconductors	36.55
Electronic Manufacturing Services & Original Design Manufacturing	27.77
Hardware	23.39
Telecommunication Services	16.51
Software & IT Services	12.50

Internet Media & Services	10.43

According to the finding in Table 7, the average impact score of the industries under the sector varies between 36.55% and 10.43%. Semiconductors industry is the industry with the highest average SDG Impact under technology&communication sector with 36.55%. Internet Media & Services industry has the lowest average SDG Impact with 10.43%. The average SDG Impact score of the Telecommunication Services industry is 16.51%. This means that some industries under the technology&communication sector are more related to the SDGs and some industries affect the SDGs more. As stated by Aras et al (2022), these scores reveal the direct impact of industries on SDGs. When we look at the Telecommunication Services industry in particular, the industry also has indirect effects on the achievement of SDGs. The industry has the potential to contribute to supporting the SDG impacts of other sectors and companies through the infrastructure services it provides. It helps to achieve the SDGs by reaching a wider area of influence in raising public awareness on sustainability. It supports the principle of equality by enabling large masses to access information simultaneously at a more affordable cost. As a matter of fact, in the context of SDG 4, the fact that both the sector and industry effect is 0 confirms this situation. This is because the technology&communication sector and the Telecommunication Services industry have a significant impact on improving the quality of education and reducing inequalities in education, as mentioned in the conceptual section.

Table 8. Average Sector SDG Impact Index(ASSII)

Sector	ASSII
Technology&Communication	21.43

Table 8 shows the average SDG Impact score of the Technology&Communication Sector. The average SDG Impact score of the Technology&communication sector (Average Sector SDG Impact Index (ASSII)) is 21.43 percent (Table 8).

Step 2: Findings on Matching the Material Issues of the Sample Telecommunication Company with SDGs and Calculation of SDG Impact Index

This section presents the findings of the second stage of the research.

Table 9 shows the materiality levels of the material issues of the Sample Telecommunication company in terms of stakeholders and their relationship with SASB issues.

Table 9. Relevance Between Material Topics Of Sample Telecommunication Company and SASB Topics

Material Issues of the Sample Telecommunications Company	Average score (%)	Materiality level*	Related SASB topic
1. Superior Digital Services and Innovation	27.27	L	B1
2. Customer Satisfaction and Loyalty	36.36	L	S6
3. Cyber Security and Privacy	100.00	H	S2,S3, S4
4. Strong Infrastructure and Superior Service Quality	45.45	L	S5, B2
5. Being an Exemplary Corporate Citizen	63.64	M	S1,G3
6. Creating Social Value	54.55	M	S1,H3, G2
7. Combating Climate Change and Effective Energy Management	81.82	H	E1,E3
8. Strong Financial Performance	27.27	L	G5
9. Value-Oriented Responsible Supply Chain	27.27	L	B3,B4
10. Effective Risk and Crisis Management	36.36	L	G5

*Materiality level has been classified as High (H), Medium (M) and Low (L)

Table 9 shows the materiality levels of the material issues of the sample telecommunication company in terms of stakeholders and their relationship with SASB issues. As seen in Table 9, the material issues of the sample telecommunication company are "*Superior Digital Services and Innovation*", "*Customer Satisfaction and Loyalty*", "*Cyber Security and Privacy*", "*Strong Infrastructure and Superior Service Quality*", "*Being an Exemplary Corporate Citizen*", "*Creating Social Value*", "*Combating Climate Change and Effective Energy Management*", "*Strong Financial Performance*", "*Value-Oriented Responsible Supply Chain*" and "*Effective Risk and Crisis Management*".

These material issues were categorised as High, Medium and Low after the materiality scores calculated by taking into account the number of stakeholder groups that consider these issues important (formula 5) were disaggregated using equal-width segmentation. After the classification, "Cyber Security and Privacy" and "Combating Climate Change and Effective Energy Management (81.82%)", which are important for all stakeholders (100%), were determined as the material issues of the Sample Telecommunication Company with high level of importance. "Being an Exemplary Corporate Citizen (63.64%)" and "Creating Social Value (54.55%)" have been identified as material issues with medium level of importance. "Superior Digital Services and Innovation (27.27%)", "Customer Satisfaction and Loyalty (36.36%)", "Strong Infrastructure and Superior Service Quality (45.45%)", "Strong Financial Performance (27.27%)", "Value-Oriented Responsible Supply Chain (27.27%)" and "Effective Risk and Crisis Management (36.36%)" are material issues with low level of importance.

When we look at the relationship of the material issues of the Sample Telecommunication Company with the GICs of SASB, "*Customer privacy (S2)*", "*Data security (S3)*, "*Access and affordability (S4)*", "*Greenhouse Gas Emissions (E1)*" and "*Energy management (E3)*" are the issues of the Sample Telecommunication Company with high materiality level according to the SASB GICs. *"Human rights and community relations (S1)", "Employee engagement, diversity and inclusion (H3)", "Competitive behaviour (G2)", "Management of the legal and regulatory environment (G3)"* are issues of medium materiality according to the SASB GICs of the Sample Telecommunications Company. *"Product quality and safety (S5)", "Customer welfare (S6)", "Product design and lifecycle management (B1)", "Business model resilience (B2)", "Supply chain management (B3)", "Materials sourcing and efficiency (B4)"* and *"Systemic risk management (G5)"* The Sample Telecommunications Company's issues that have a low level of materiality according to the SASB GICs.

Table 10 shows the sample telecommunication company's score for influencing certain SDGs.

Table 10. SDG Impact Index of Sample Telecommunications Company (WSII)

SDG	WSII	SDG	WSII
SDG9	31.25	SDG12	14.62
SDG7	31.11	SDG11	13.00
SDG10	24.29	SDG3	12.00
SDG13	23.75	SDG6	11.67
SDG16	20.83	SDG14	11.43
SDG5	18.33	SDG15	10.91
SDG8	18.00	SDG2	5.56
SDG1	17.50	SDG4	5.00

When the table is analysed, although the Sample Telecommunication Company affects all SDGs to some extent, the SDG that the Sample Telecommunication Company affects at a higher level compared to other SDGs is SDG 9 with an impact score of 31.25%. This shows that SDG 9 is more relevant for the Sample Telecommunication Company than the other SDGs and means that the Sample Telecommunication Company is able to impact SDG 9 at a higher level through its activities and operations. SDG 9 is followed by SDG 7 with 31.11%, SDG 10 with 24.29%, SDG13 with 23.75%, SDG16 with 20.83%.

Table 11 shows the average SDG Impact Indices of Technology&Communication Sector, Telecommunication Services Industry and Sample Telecommunication Company.

Table 11. Average SDG Impact Index (%)

Average SDG Impact Index of Technology&Communication Sector (ASSII): 21.43
Average SDG Impact Index (AISII) of Telecommunication Services Industry (AISII): 16.51
Average SDG Impact Index of Sample Telecommunication Industry (AWSII):16.83

Average SDG Impact Index of Technology&Communication Sector is 21.43%. Average SDG Impact Index (AISII) of Telecommunication Services Industry is 16.51%. Average SDG Impact Index of Sample Telecommunication Company is 16.83%. Average SDG Impact Index of Sample Telecommunication Company is above the industry average but below the sector average.

4. Conclusions

Telecommunication industry is becoming more and more important in achieving sustainable development goals with the infrastructure services it provides from individuals to businesses. Although there are not enough studies in the literature on the impact of the telecommunication industry on achieving sustainable development goals, it is seen that the studies conducted do not have a holistic perspective. In this study, the impact of Technology&Communication Sector, Telecommunication Services Industry and Exemplary Telecommunication Company in contributing to SDGs is considered together and the importance of Telecommunication Services in contributing to SDGs is presented with a holistic perspective at sector, industry and company level. In this article, SASB's key sustainability issues are used, and the contribution of focusing on key issues to achieving the SDGs is explained in the specific case of Telecommunication Services. Through the integrated report, which is an important tool of sustainability reporting, material issues at the sample company level are matched with SASB material issues and SDG impact indices are calculated at the company level.

When we look at the research results, SDG 9 was found to be the SDG with the highest impact score with 37.50% impact score for Telecommunication Services industry, 31.25% impact score for Technology&Communication Sector and 31.25% impact score for the sample telecommunication company. At the sector, industry and sample company level, SDG 9 stands out, which shows that SDG 9 is more relevant than other SDGs for both the telecommunication industry, the Technology&Communication Sector where the telecommunication industry is located, and the sample telecommunication company. The GSMA (2023) report also emphasises the SDG 9 impact of the mobile telecommunications industry in parallel with the research result. In the report, the widespread access of mobile networks, investments in 5G and infrastructure, and the increasing adoption of mobile internet services are cited as the reasons why SDG 9 comes to the fore for the industry. When we look at the other SDGs that the sample telecommunication company

is relevant to, it is seen that these (especially for the first five SDGs) are in parallel with the industry and sector to which it belongs.

According to the results revealing the average SDG impact at sector, industry and company level; Average SDG Impact Index of Technology&Communication Sector is 21.43%, 16.51% for Telecommunication Services Industry and 16.83% for the sample telecommunication company. These results reveal the impact of the telecommunications industry and the sector in which it is located in achieving sustainable development. These results are in line with the results of a limited number of studies (Wickramasinghe and ABD Razak, 2023; Wickramasinghe et al., 2024; Shih, 2011) that address the impact of the telecommunications industry on the SDGs, albeit with a different methodology.

As Betti et al. (2018) stated in their study, there are sectors with high impact for each SDG. For industry and companies, some SDGs come to the forefront due to the nature of the operations belonging to the sector and industry. The contribution of companies in achieving the SDGs is extremely important. In order for companies to provide the contribution expected from them in achieving the SDGs, it would be beneficial for them to focus on the material sustainability issues at the industry and company level. This will help companies both to assess their current contribution to the SDGs and to identify relevant SDGs and focus on the missing SDGs. Thus, stakeholders' expectations regarding sustainability can be met and company performance will be supported by non-financial indicators as well as financial indicators.

As the research results reveal, companies operating in the telecommunication industry have many direct or indirect impacts on the achievement of the SDGs. Focusing on important sustainability issues by being aware of the environmental, social and economic impact of the sector, industry and activities carried out by telecommunication companies, undertaking more accessible, inclusive and innovative physical and digital infrastructure initiatives, and reporting these initiatives and their impacts are not only necessary for company performance, but also decisive for the success of sustainable development goals. In addition, in order to support infrastructure initiatives and digital transformation activities of companies operating in the telecommunications industry, industry-specific tax reductions and incentives should be included in development plans and medium-term programs.

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