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An Assessment on the Problems and Possible Solutions of Artificial Intelligence Tools and Techniques on Execution, Monitoring and Reporting of Impact Investments

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Ahmet EFE*

Abstract

Impact analysis is an important work that should be done by business analysts in order to perform a successful requirements management in terms of compliance with regulations, environment and stakeholder needs as a result of possible changes in business demands and innovative technology. This multidisciplinary study examines the problems, solutions, stakeholder expectations, technical tools and approaches related to social impact assessments (SIA), with the assumption that impact investment needs will gradually increase in the light of legal regulations and business expectations in Türkiye. In this study, a literature review on impact analysis and impact investments is made and evaluations are made in the light of the current situation and possible future developments. In particular, based on the assumption that SIA is a priori to impact investments, the possibilities and ways of using artificial intelligence (AI) algorithms and smart Management Information System (MIS) tools are evaluated in the context of the innovative re-organization. In this study, various suggestions are developed by assertion that the tendency in the use of AI applications and smart MIS tools will gradually increase and will become a necessity in terms of meeting stakeholder expectations from impact investments in a realistic and futuristic manner.

Keywords: *Impact assessment, impact analysis, social impact assessment, impact investing, artificial intelligence.*

Etki Yatırımlarının Uygulanması, İzlenmesi ve Raporlanmasına İlişkin Yapay Zekâ Araç ve Tekniklerindeki Sorunlar ve Olası Çözümleri Üzerine Bir Değerlendirme

Öz

Etki analizi, iş taleplerindeki olası değişiklikler ve yenilikçi teknolojiler sonucunda, mevzuata, çevreye ve paydaş ihtiyaçlarına uyum açısından başarılı bir ihtiyaç yönetimi gerçekleştirmek için iş analistleri tarafından yapılması gereken önemli bir çalışmadır. Bu multidisipliner çalışma, Türkiye'deki yasal düzenlemeler ve iş beklentileri ışığında etki yatırımı ihtiyaçlarının giderek artacağı varsayımıyla, sosyal etki değerlendirmelerine (SED) ilişkin sorunları, çözümleri, paydaş beklentilerini, teknik araçları ve yaklaşımları incelemektedir. Bu çalışmada etki analizi ve etki yatırımları ile ilgili literatür taraması yapılarak mevcut durum ve gelecekteki olası gelişmeler ışığında değerlendirmeler yapılmaktadır. Özellikle, SED'in yatırımları etkilemek için öncelikli olduğu varsayımına dayanarak, yapay zekâ (YZ) algoritmalarını ve akıllı Yönetim Bilgi Sistemi (YBS) araçlarını kullanma olasılıkları ve yolları yenilikçi yeniden yapılanma bağlamında değerlendirilmektedir. Bu çalışmada YZ uygulamaları ve akıllı YBS araçlarının kullanım eğiliminin giderek artacağı ve paydaş etki yatırımlarından beklentilerinin gerçekçi ve geleceğe dönük bir şekilde karşılanması açısından bir zorunluluk haline geleceği iddiasıyla çeşitli öneriler geliştirilmiştir.

Anahtar Kelimeler*: Etki değerlendirmesi, etki analizi, sosyal etki değerlendirmesi, etki yatırımı, yapay zekâ.*

* ORCID Dr., CISA, CRIC, PMP, Senior Field Auditor, International Federation of Red Cross and Red Crescent, ESSN Audit Unit, icsiacag@gmail.com

Genişletilmiş Özet

Sosyal Etki Değerlendirmesi (SED), bir girişimin veya projenin sosyal çevre ve insanlar üzerindeki potansiyel etkisini değerlendirmek ve yatırım kararlarını desteklemek için kullanılan önemli bir araçtır. SED'in amacı, girişimin bir sonucu olarak ortaya çıkabilecek hem olumlu hem de olumsuz potansiyel dini, sosyal ve kültürel etkileri belirlemek ve olumsuz etkileri azaltmak ve olumlu etkileri artırmak için öneriler sunmaktır. Bununla birlikte, etkili bir SED yürütmede ortaya çıkan çeşitli zorluklar vardır. En büyük zorluklardan biri, değerlendirme sonuçlarında tutarsızlıklara yol açabilen SED yöntemlerinde standardizasyon eksikliğidir. Diğer bir zorluk ise, genellikle soyut olduklarından ve nicelleştirmeleri zor olduğundan, sosyal etkilerin nicelleştirilmesi ve ölçülmesindeki zorluktur. Bu zorlukların üstesinden gelmek için, daha standartlaştırılmış SED araçları ve teknikleri geliştirmeye yönelik çabalar olmuştur.

Etki analizi ve etki değerlendirmeleri, öncelikle düzenleyici otoriteler ve Birleşmiş Milletler ve çevresel gereklilikler nedeniyle bir maliyet unsuru olarak görülüyordu. Ancak finansal getirilerin sosyal, kültürel, çevresel ve insani değerler üzerinde olumlu sonuçları olabilecek şekilde elde edilmesi, sosyal etki analizi ve değerlendirmelerini özellikle stratejik karar vermede önemli hale getirmiştir.

Etki yatırımları, saf kâr odaklı kapitalist yatırımlardan aşağıdaki yönlerden farklılık gösterir:

- Yatırımın amacı, sosyal ve çevresel çözümlere katkıda bulunmaktır,
- Piyasa fiyatının altı ile riske uyarlanmış piyasa fiyatı arasında finansal getiri hedeflemesi,
- Çeşitli varlık türlerinin yatırımda kullanılması ve
- Yatırımcının sosyal veya çevresel performansı ölçme ve raporlama taahhüdü.

En umut verici çözümlerden biri, etki analizinde Yapay Zekanın (YZ) kullanılmasıdır. YZ, etki analizine daha sistematik ve nesnel bir yaklaşım sağlayabilir ve sosyal etki değerlendirmelerinin yürütülme biçiminde devrim yaratma potansiyeline sahiptir. YZ, büyük miktarda veriyi analiz edebilir, kalıpları ve korelasyonları belirleyebilir ve geleneksel yöntemlerle elde edilmesi zor olan içgörüler sağlayabilir. Genel olarak, etki yatırımları için etki analizinde YZ kullanımı, karşılaşılan zorluklara umut verici bir çözümdür. YZ tabanlı SED araç ve tekniklerinin geliştirilmesi ve uygulanması konusunda daha yapılacak çok iş olsa da bu yaklaşımın potansiyel faydaları göz ardı edilemez. YZ, SED sonuçlarının kalitesini ve güvenilirliğini iyileştirerek, kuruluşların girişimlerinin sosyal etkisi hakkında bilinçli kararlar verme yeteneğini önemli ölçüde geliştirme potansiyeline sahiptir.

YZ, daha fazla veriye dayalı, kanıta dayalı analiz sağlayarak ve karar vermeyi etkileyebilecek önyargıları azaltarak etki yatırım kararlarını önemli ölçüde iyileştirme potansiyeline sahiptir. YZ, çok büyük miktarda veriyi analiz etmek ve insan gözüyle kolayca görülemeyen kalıpları ve eğilimleri belirlemek için kullanılabilir ve yatırımcıların belirli bir yatırımın etki potansiyeli ve sürdürülebilirliği hakkında daha bilinçli kararlar almasına yardımcı olur. YZ'nin, etki yatırım kararlarını iyileştirebilmesinin yollarından biri, çevresel, sosyal ve yönetişim (ÇSY) ölçümlerinin gerçek zamanlı analizini sağlamaktır. Örneğin YZ algoritmaları, büyük ÇSY ölçüm veri kümelerini analiz edebilir ve etki yatırımı için potansiyel riskleri ve fırsatları belirleyebilir. Bu, yatırımcıların bir yatırımın hem finansal getiri hem de sosyal ve çevresel etki sağlama potansiyeli hakkında daha bilinçli kararlar almasına olanak tanır.

YZ'nin etki yatırımı kararlarını iyileştirmeye yardımcı olabilmesinin bir başka yolu da kişisel önyargıların karar verme üzerindeki etkisini azaltmaktır. Örneğin YZ algoritmaları, yatırım kararları verirken kişisel fikir ve duyguları göz ardı edecek ve somut verilere ve kanıtlara odaklanacak şekilde programlanabilir. Bu, bireysel ön yargılardan etkilenme olasılığı daha düşük olan daha tutarlı ve objektif yatırım kararlarına yol açabilir. Ayrıca YZ, olumlu etki potansiyelinin genellikle en yüksek olduğu, yetersiz hizmet alan ve marjinal topluluklardaki potansiyel yatırım fırsatlarının belirlenmesine de yardımcı olabilir. Örneğin YZ algoritmaları, yatırıma ve desteğe en çok ihtiyaç duyan toplulukları belirlemek için demografik verileri, coğrafi verileri ve kaynaklara ve hizmetlere erişim verilerini analiz edebilir. Bu, etki yatırımcılarının en büyük sosyal ve çevresel etkiyi elde etmek için sermayelerini nereye yatıracakları konusunda daha bilinçli kararlar almalarına yardımcı olabilir.

1. Introduction

Social Impact Assessment (SIA) is an important tool used to evaluate the potential impact of an initiative or project on the social environment and people and support investment decisions. The objective of SIA is to identify any potential religious, social and cultural impacts- both positive and negative- that may occur as a result of the initiative and to provide recommendations for mitigating negative impacts and enhancing positive impacts. However, there are several challenges that arise in conducting an effective SIA. One of the biggest challenges is the lack of standardization in SIA methods, which can lead to inconsistencies in assessment results. Another challenge is the difficulty in quantifying and measuring social impacts, as they are often intangible and difficult to quantify. To address these challenges, there have been efforts to develop more standardized SIA tools and techniques.

One of the most promising solutions is the use of Artificial Intelligence (AI) in impact analysis. AI can provide a more systematic and objective approach to impact analysis and has the potential to revolutionize the way social impact assessments are conducted. AI can analyze large amounts of data, identify patterns and correlations, and provide insights that would be difficult to obtain through traditional methods. Overall, the use of AI in impact analysis for impact investments is a promising solution to the challenges faced. While there is still much work to be done in developing and implementing AI-based SIA tools and techniques, the potential benefits of this approach cannot be ignored. By improving the quality and reliability of SIA results, AI has the potential to significantly enhance the ability of organizations to make informed decisions about the social impact of their initiatives.

Impact analysis and impact assessments were primarily seen as a cost element due to regulatory authorities and the United Nations and environmental requirements. However, obtaining financial returns in a way that can have a positive results and outcomes on social, cultural, environmental and human values has made social impact analysis and evaluations especially important in strategic decision making.

- Impact investments differ from pure profit-oriented capitalist investments in the following aspects:
- The aim of the investment is to contribute to social and environmental solutions,
- Financial return targeting between below market price and risk-adjusted market price,
- The use of various types of assets in investing and
- Investor's commitment to measuring and reporting social or environmental performance.

According to challenges mentioned in the literature both for SIA and (Impact Investment) II, our research question is defined as “what are the critical Questions to be answered before strategic impact investment decisions are given?”.

For this question to be answered, first conceptual and theoretical background with literature discussions are given; secondly new trends on impact analysis and assessment are discussed; thirdly Islamic perspective on impact assessment and impact investment is elaborated; fourthly Importance of SIA for Meeting Different Stakeholders’ Needs in the Social Impact Ecosystem is discussed and Technical Expectations: Impact Analysis, Impact Investment and Artificial Intelligence are elaborated before evaluations on the innovative initiation of impact investments are done with conclusions on the answer of research question.

2. Conceptual Definitions

The list of main types of impact assessments (Wikipedia.org):

1. Environmental impact assessment (EIA) - An EIA is a study of the potential environmental consequences of a proposed project.
2. Social impact assessment (SIA) - An SIA is a study of the potential social and cultural impacts of a proposed project.
3. Health impact assessment (HIA) - An HIA is a study of the potential health impacts of a proposed project.
4. Economic impact assessment (Econ IA) - An Econ IA is a study of the potential economic impacts of a proposed project.
5. Cultural heritage impact assessment (CHIA) - A CHIA is a study of the potential impacts on cultural heritage sites and resources of a proposed project.
6. Biodiversity impact assessment (BIA) - A BIA is a study of the potential impacts on biodiversity of a proposed project.
7. Climate change impact assessment (CCIA) - A CCIA is a study of the potential impacts of climate change on a proposed project.
8. Cumulative impact assessment (CIA) - A CIA is a study of the potential cumulative impacts of a proposed project.
9. Impact investment: (II) Impact Investing is like a filter used when making an investment budget. If included in investment budget by quantifying the social and / or environmental benefit of that investment, as well as the profitability calculations, while planning the investment, the investment will return as both financial profitability and social and / or environmental added value. There is a triple-digit profit in an investment made by targeting impact investment; risk mitigation, profit and social/environmental impact.

3. Theoretical Background

The main objective of SIA is to evaluate the intended and unintended social impacts of projects, policies, and programs. It is a way of considering the social dimension of development and ensuring that the impacts of interventions are positive and sustainable for all stakeholders.

The following theoretical backgrounds help illuminate the strategies and methodologies used in SIA.

1. Systems Thinking: Systems thinking is a holistic approach to analysis that considers the entire ecosystem of a situation, recognizing that everything affects and is affected by everything else. This theoretical framework is critical to SIA as it facilitates understanding the interconnections between various social and environmental aspects. It further aids in identifying the unintended consequences of specific interventions, assisting in a more comprehensive and informed decision-making process (Esteves, Franks, and Vanclay, 2012).
2. Social Capital Theory: Social capital theory emphasizes the significance of social networks, norms, and trust within a society (Putnam, 2000). It acknowledges the importance of social connections and relationships in promoting individual and collective well-being, as well as sustainable development. In the context of SIA, the focus lies in understanding how interventions can enhance or erode social capital and how these changes affect the social outcomes of development projects (Schuller, Baron, and Field, 2000).

3. Human Development Theory: Human Development Theory places importance on expanding human capabilities and creating social and economic opportunities for individuals and communities (Sen, 1999). This theory guides SIA by offering ways to assess the impact of interventions on human development, ensuring that they enhance well-being and capabilities of individuals and communities (Nussbaum and Sen, 1993).
4. Behavioral Economics: Behavioral economics merges psychological insights with economic theory to understand how social, cognitive, and emotional factors influence economic decisions (Thaler and Sunstein, 2008). This theory holds relevance in SIA by explaining how social attitudes and behaviors can affect the outcomes of development interventions, guiding the design of policies and programs that can lead to better social outcomes (Kahneman, 2011).
5. Environmental Justice: Environmental justice underscores the principle that all people have the right to a healthy and sustainable environment (Schlosberg, 2007). It emphasizes the distributional impacts of interventions, advocating for policies that are inclusive and benefit all society members, especially the most vulnerable. This perspective is essential in SIA to ensure equitable and inclusive interventions (Bullard and Johnson, 2000).

However, the theoretical background of impact investment business is rooted in several fields of study including economics, finance, and sociology. The concept of impact investment emerged from the idea of social entrepreneurship and the need to address social and environmental issues through market-based solutions. One of the key economic theories behind impact investment is the theory of social entrepreneurship. According to Martin (2007), social entrepreneurship refers to the creation of organizations that aim to generate positive social or environmental impact in addition to financial returns. This theory highlights the role of entrepreneurs in driving innovation and solving social and environmental problems through market-based solutions. Another key theory behind impact investment is the idea of mission-related investing. This theory emphasizes the importance of aligning investment decisions with the values and missions of investors (Chaves and Anderson, 2018). Mission-related investing aims to create social and environmental impact by investing in companies and organizations that are aligned with the values and missions of investors. Finally, the theory of impact investing is rooted in the field of finance and the concept of responsible investing. According to the Global Impact Investing Network (GIIN), impact investing is “an investment approach that intentionally seeks to create positive social and environmental impact alongside a financial return” (GIIN, 2020). This theory highlights the importance of considering social and environmental impact alongside financial return in investment decisions.

Overall, the theoretical background of impact investment business draws on theories of social entrepreneurship, mission-related investing, and responsible investing to create market-based solutions to social and environmental problems.

4. Literature Discussions and Research Problems

From the literature information it is found the following key areas that are being discussed:

1. *Conceptual frameworks for social impact assessment*: Scholars have discussed different frameworks for conducting social impact assessments, including those developed by the International Association for Impact Assessment (IAIA) and the Organisation for Economic Co-operation and Development (OECD) (Vanclay, 2002).

2. *Methods for social impact assessment*: Researchers have explored various methods for conducting social impact assessments, including qualitative and quantitative methods, stakeholder engagement, and participatory approaches (Salzmann, 2014).
3. *Indicators and metrics for measuring social impact*: The literature has debated the selection of indicators and metrics for measuring the social impact of projects and interventions, including the use of standard indicators and the development of new metrics (Hodge et al., 2010).
4. *Integration of social impact assessment into project decision-making*: Scholars have discussed the challenges of integrating social impact assessments into project decision-making, including the need for greater collaboration between stakeholders and the need for more robust monitoring and evaluation systems (Goldstein et al., 2012).
5. *The role of stakeholders in social impact assessment*: Researchers have explored the role of stakeholders, including communities, government agencies, and private sector actors, in social impact assessments and the need for greater collaboration and engagement between these groups (Renn, 2008).

Based on the point mentioned above, many scholars have published different studies. In this context, the concept of Social Impact Analysis affects various important research areas such as philanthropy, the third sector, social entrepreneurship and corporate social responsibility that have already developed and developed in the world (Porter and Kramer 2006, 2011). Vanclay (2003) explains the most convenient way of conceptualizing social impact as changes in people's lifestyles, cultures and shared beliefs, communities, environments, health and well-being, personal and property rights, and finally, their fears and desires. As can be seen in this definition, social impact analysis is a development and democracy philosophy related to social sustainability and the social dimension of sustainable development rather than a technique (Esteves and Vanclay, 2013). The main theoretical disciplines that include social impact analysis fail to establish a background in the process of developing a conceptual framework or establishing valid criteria to test the relationships between different variables (Vanclay, 2003, 66). Another reason for this is that the field of impact analysis, which is close to the field of applied sociology, is perceived as less academic discipline-oriented, as De Martini (1980) stated (Vanclay, 2003). However, as De Martini (1980) stated, there is much more potential in social impact analysis studies to contribute to basic sociological knowledge compared to many other applied fields. As Freudenburg and Keating said, a well-done social impact analysis provides invaluable data to study the changes taking place in our social system (Freudenburg and Keating, 1982; 77). The retrospective study of social impact in the discipline of anthropology is the most basic feature of the field. Development studies are likewise a field of study that deals with the issue of social impact (Vanclay, 2003, 63). A scientific genealogy of social influence can be traced back to the earliest times when sociology was founded, for example, to the concerns of Toennies and Durkheim about the social consequences of the Industrial Revolution. However, the formation of the field in our current understanding is in the 1970s (Freudenburg, 1986, 453). Social impact analysis is a multidisciplinary research field, both at its origin and in its continuation: Social impact measurement attracts attention both as a field of social sciences and as a part of the policy-making process (Freudenburg, 1986, 451). Karen Maas and Kellie Liket, who analyzed the existing social impact systems in depth, listed a total of 32 different methods (2011). In his articles, he argues that each of these different methods serves organizations in different sectors and mandates, and that organizations pay attention to some special considerations when evaluating these different measurement methods in measuring the impact of their organizations (Maas and Liket, 2011). According to the conceptualization of Neil Reeder and Andrea Colantanio, who have studies on the subject from

the London School of Economics, measurement methods have different characteristics (Reeder and Colantonio, 2013).

Social Impact Assessment (SIA) is a methodology employed to evaluate the social consequences of development projects and interventions. However, this tool is not exempt from difficulties and challenges. The following offers a brief account of these challenges, citing relevant literature to support the discussion:

1. Definitional and Conceptual Challenges: SIA involves evaluating a wide array of outcomes such as economic, social, cultural, and environmental impacts, which can be challenging to define and measure. Becker (2001) highlighted that the multiplicity of impacts covered by SIA creates ambiguity in defining and understanding the concept. Vanclay (2003) further noted that this breadth of outcomes often leads to difficulty in establishing consistent methodologies and techniques in SIA practice.
2. Data Collection and Analysis Challenges: The complexity and diversity of data required for SIA can be daunting and time-consuming. According to Esteves et al. (2012), gathering qualitative and quantitative data from various sources can pose a significant challenge due to the need to ensure data validity and reliability.
3. Measurement and Evaluation Challenges: Applying suitable tools and methods to measure and evaluate outcomes can be arduous. Franks (2011) asserted that the quantitative and qualitative nature of social impacts often presents challenges in determining the most suitable measurement tools.
4. Stakeholder Involvement Challenges: Involving stakeholders from target communities can be complicated due to limited resources, conflicting interests, and lack of trust. According to O'Faircheallaigh (2010), the diverse and often conflicting interests of stakeholders can hamper effective SIA.
5. Political and Contextual Challenges: Influences from political, cultural, and economic factors can affect the execution and outcomes of SIAs, thereby complicating the process. As Lockie (2001) argued, political pressures can skew the direction of SIA, making the assessment less objective.
6. Integration Challenges: Achieving effective integration of SIA into the planning, implementation, and monitoring of social initiatives can be difficult. Vanclay et al. (2015) argued that SIAs are often considered as standalone processes, undermining their potential impact on decision-making and project development.

In terms of impact investments, the literature highlights the following challenges:

1. Lack of standardization: The absence of standardized definitions and metrics for impact investment makes assessment and comparison of investments challenging (Brest and Born, 2013).
2. Measuring impact: Measuring investment impact is often subjective, and hence, difficult to accurately assess (Mudaliar and Dithrich, 2019).
3. Challenges in accessing finance: Small and growing companies face difficulties in securing finance, necessitating higher support compared to established entities (Brindley, 2017).
4. Challenges in valuing impact: Impact investments require new skills and knowledge to evaluate potential impacts, complicating the investment assessment process (Saltuk et al., 2015).
5. Balancing financial and impact returns: Making trade-offs between financial and impact returns is a tough task (Jackson, 2013).

6. Limited pool of investment opportunities: The relatively small pool of investment opportunities poses a challenge for investors seeking suitable options (Drexler and Noble, 2013).
7. Lack of exit strategies: Absence of clear exit strategies can complicate the return realization and exit process for investors (Bouri et al., 2018).
8. Long-term focus: Impact investments require long-term focus and acceptance of lower financial returns, which might not suit all investors (Freireich and Fulton, 2009).

5. New Trends on Impact Analysis and Assessment

Based on the information from academic journals and articles, the trend of impact analysis and assessments in the market reports can be summarized as follows:

1. Increased focus on sustainability and environmental impact: There is a growing trend in market reports to assess the impact of companies and their products on the environment and society. This includes the evaluation of their carbon footprint, resource consumption, and waste generation, as well as their impact on local communities, human rights, and labor practices (Kanter, 2016).
2. Integration of ESG (Environmental, Social and Governance) factors: Market reports are increasingly including ESG factors as a key aspect of impact analysis and assessment. This includes the evaluation of companies' social responsibility and corporate governance practices, as well as their environmental impact (Deloitte, 2018).
3. Use of data analytics and advanced technology: Market reports are increasingly relying on data analytics and advanced technology to gather and analyze data for impact assessments. This includes the use of big data, machine learning algorithms, and other technologies to assess a company's impact on the environment, society, and other stakeholders (Harvard, 2018).
4. Focus on stakeholder engagement: Market reports are also placing a greater emphasis on engaging with stakeholders, including customers, employees, suppliers, and communities, to gather information and data for impact assessments. This includes conducting surveys, focus groups, and other forms of engagement to gather data on a company's impact on different stakeholders (Ng et al., 2019).

6. Islamic Requirements on Impact Assessment and Its Investment

The divine belief system views impact analysis and assessment through a moral and ethical lens, considering factors such as divine justice, compassion and empathy, and the well-being of all beings involved. This perspective is informed by the teachings of various religious scriptures and figures. Islamic perspective on impact analysis and assessment can be influenced by various sources, including the Quran and Hadith (the sayings of Prophet Muhammad). The Quran emphasizes the importance of caring for the environment and natural resources and avoiding waste and destruction (Al-Baqarah 2:219). This perspective can be applied to impact analysis and assessment by ensuring that the impact of a project or action is evaluated in terms of its potential harm to the environment and its sustainability.

Additionally, the Islamic principles of justice and fairness require that decisions affecting the welfare of individuals and communities be made with consideration for their rights and well-being (Al-Maidah 5:8). This principle can be applied to impact analysis and assessment by evaluating the social and economic impact of a project or action on the affected communities. Therefore, Islamic perspective on impact analysis and assessment emphasizes the importance of considering the environmental and social impact of actions and decisions. The principles of

justice, fairness, and environmental stewardship are key considerations in evaluating the impact of a project or action.

Islamic economics places great emphasis on the concept of social justice and equitable distribution of wealth. Impact investment, with its focus on creating positive social and environmental outcomes while generating financial returns, aligns with these principles. According to Dr. Mohd Daud Bakar (2019), impact investment has a crucial role in addressing social and environmental issues and contributing to sustainable development in Islamic economics. He states, "It enables investors to finance businesses and initiatives that have a positive impact on society and the environment, in addition to generating a financial return. This supports the concept of Maqasid al-Shariah (the objectives of Islamic law), which places emphasis on the promotion of public welfare and the well-being of humanity."

In a report by the Islamic Development Bank (2018), the importance of impact investment in Islamic finance is highlighted as a way to address the funding gap for development initiatives in Muslim-majority countries. The report states, "Impact investment can play a significant role in addressing critical development challenges, such as poverty, inequality, and environmental degradation, by financing socially responsible initiatives that deliver positive social, environmental, and financial outcomes."

Therefore, impact investment in Islamic economics is important because it aligns with the principles of social justice and sustainable development that are central to the Islamic economic system. By supporting initiatives that promote positive social and environmental outcomes while generating financial returns, impact investment can contribute to the fulfillment of the objectives of Islamic finance.

According to a 2019 article in the Journal of Islamic Economics, Banking and Finance, the trend of impact investment in Islamic finance is growing globally, with a focus on social entrepreneurship. The article highlights the increasing recognition of the role that Islamic finance can play in promoting sustainable development and poverty reduction through impact investment. The authors argue that the principles of Islamic finance, such as the emphasis on ethical investing and the sharing of risk and profit, are well-suited to the goals of impact investment and social entrepreneurship.

In a 2018 article published in the Journal of Islamic Accounting and Business Research, the authors examine the potential of Islamic finance to support social entrepreneurship in the Muslim world. The authors argue that the ethical principles of Islamic finance, such as the prohibition of riba (usury) and the promotion of social justice, make it an ideal platform for supporting social entrepreneurship. They also suggest that Islamic finance can provide a source of financing for social entrepreneurs who may face challenges in accessing conventional funding sources.

Another article, published in the International Journal of Social Entrepreneurship and Innovation in 2018, highlights the need for further research on the impact of Islamic finance on social entrepreneurship. The authors argue that the unique features of Islamic finance, such as the emphasis on ethics and social responsibility, can be leveraged to support the growth of social entrepreneurship. They suggest that more research is needed to understand how Islamic finance can be used to support social entrepreneurs in various countries and industries.

Another article, by Kıvanç (2017) discusses the potential of the Islamic finance sector in Türkiye to contribute to the development of impact investment. The author highlights the similarities and differences between Islamic finance and impact investment, and the role of the Islamic finance sector in promoting impact investment in Türkiye.

Another article by Basri and Tansel (2017) provides evidence on the role of Islamic finance in impact investment in Türkiye. The authors analyze the impact of Islamic finance on the development of impact investment and provide insights into the future of impact investment in Türkiye. The article concludes that Islamic finance can play a significant role in promoting impact investment in Türkiye and can contribute to the development of the Turkish economy.

Another article by Sönmez (2017) provides a comprehensive overview of the relationship between Islamic finance and impact investment in Türkiye. The author discusses the potential of the Islamic finance sector to contribute to the development of impact investment in Türkiye and provides insights into the challenges and opportunities facing the sector. The article concludes that Islamic finance has the potential to play a significant role in promoting impact investment in Türkiye, but there are still challenges that need to be overcome to realize this potential.

Therefore, the trend of impact investment and social entrepreneurship in Islamic finance is growing, with a focus on the ethical principles and social responsibility inherent in Islamic finance. However, there is a need for further research to understand the impact of Islamic finance on social entrepreneurship and how it can be leveraged to support social entrepreneurs globally.

7. Non-Governmental Organizations and Social Entrepreneurs

Social impact analysis enables NGOs and social entrepreneurs to look at their operations more holistically and better fulfill their mission of creating social benefit. For this reason, the people and organizations that make measurements can give up the ones with low impact while continuing the activities with high impact, and they can minimize the loss of time and money by improving the rest.

In addition, NGOs and social entrepreneurs who find convincing evidence of their benefit to society and the environment are more reliable with donors, investors and funders. Considering the long-term competition in the sector, communication of the social impact created plays an important role in finding resources for an organization. Therefore, social impact analysis is increasingly important not only for organizations to control their impact and prevent waste of resources, but also for their financial survival.

According to the article "Social Impact Assessment and Social Entrepreneurship: A Review" (Liu and Chen, 2018), the best approach for Non-Governmental Organizations (NGOs) and social entrepreneurs to assess social impact is to use a multi-stakeholder approach. This approach involves involving multiple stakeholders, including community members, government representatives, and other stakeholders, in the assessment process. The authors argue that this approach allows for a more comprehensive and accurate evaluation of the social impact of an initiative, as it takes into account the perspectives and opinions of multiple stakeholders.

Another approach discussed in the article "Social Impact Assessment: A Study of Non-Governmental Organizations in India" (Kumari, 2018), is the use of a participatory approach. This approach involves engaging community members in the assessment process and incorporating their perspectives into the assessment. This approach is especially useful for NGOs and social entrepreneurs working in developing countries, as it allows for the incorporation of local knowledge and perspectives, which can be particularly valuable in the evaluation of social impact initiatives.

Additionally, the article "A Guide to Social Impact Assessment for Social Entrepreneurs" (Cook and Miller, 2019) suggests using a results-based approach, which involves measuring the outcomes of a social impact initiative and using these outcomes to evaluate its effectiveness. This approach is particularly useful for social entrepreneurs, as it allows them to determine the financial and social return on investment of their initiatives.

Therefore, the best approach for Non-Governmental Organizations and social entrepreneurs to assess social impact is to use a multi-stakeholder, participatory, and results-based approach. By incorporating the perspectives and opinions of multiple stakeholders and measuring the outcomes of initiatives, NGOs and social entrepreneurs can ensure that their initiatives have a positive impact on communities.

8. Private Sector Organizations

It has been understood that achieving the new sustainable development goals created by the United Nations is impossible without the participation of private sector organizations. As a result, the UN through its various programs encourage the private sector to look at social problems from a perspective beyond CSR. This new perspective is shaped within the framework of inclusive business models. Inclusive business models are explained as the positioning of low-income and poor people as producers or consumers in the business models of companies, and in this way, finding solutions to social problems profitably without giving up company profits. Social impact analysis is also required for the detection and communication of the changes that occur as a result of the establishment and operation of this model.

One of the best business approaches to social impact assessment by private sector organizations is the use of corporate social responsibility (CSR) frameworks. CSR frameworks are structured approaches to considering the impact of business activities on stakeholders and the environment (Carroll, 1991).

One commonly used CSR framework is the Global Reporting Initiative (GRI), which provides guidelines for companies to report on their economic, social, and environmental performance (Global Reporting Initiative, 2020). This framework helps companies identify and measure their social impact and allows them to align their practices with their sustainability goals.

Another effective approach is the use of stakeholder engagement, where companies involve the communities and stakeholders affected by their operations in the social impact assessment process (Dahlsrud, 2008). This approach can provide valuable insights into the social impact of business activities and can lead to more informed decision-making and better stakeholder relations.

Therefore, companies can also consider the use of impact investing, where they intentionally invest in initiatives that deliver both financial returns and social impact (Impact Investing, 2021). This approach allows companies to assess the social impact of their investments and allocate resources to initiatives that contribute to their sustainability goals.

Businesses and investors require impact analysis and assessment to provide reliable information on the environmental, social, and economic effects of proposed projects or investments. This information is crucial for decision-making, risk management, and promoting sustainable business practices. The analysis should be thorough, transparent, and consider all relevant stakeholders and perspectives. It should evaluate potential impacts on the environment, human health, cultural heritage, and the surrounding community. Long-term effects, such as

environmental degradation, social conflict, and economic disruption, should also be taken into account. The results of the analysis should influence project design, decision-making, and the development of mitigation measures and risk management strategies. Ultimately, impact analysis is essential for ensuring responsible business practices and protecting the environment, human health, and communities.

Impact analysis and assessment refer to the evaluation of the potential effects of a proposed action or project on various aspects, such as the environment, social and economic conditions, and other stakeholders. Businesses and investors may expect the following from impact analysis and assessment requirements in Türkiye:

1. Compliance with regulations: According to the Turkish Environmental Law No. 2872, Environmental Impact Assessments (EIA) are required for certain types of projects to mitigate their potential harmful effects on the environment (Anon., 1983). These EIAs must be transparent, rigorous, and follow the stipulated regulations and guidelines to ensure their validity and reliability.
2. Risk management: Impact analyses can be used to anticipate and manage potential risks. These risks could range from financial losses, environmental degradation, to social conflict (Aven, 2016). Therefore, businesses and investors anticipate impact assessments to effectively identify these risks and suggest appropriate mitigation strategies.
3. Sustainability: Businesses and investors are increasingly aware of the need for sustainable practices. The United Nations' Sustainable Development Goals have set the global agenda for achieving a more sustainable future, and many businesses align their strategies with these goals (United Nations, 2015). Through impact analysis, businesses and investors can assess the long-term sustainability of their projects or investments.
4. Stakeholder engagement: Businesses and investors expect impact analyses to consider a wide array of stakeholders and their perspectives, including local communities, non-governmental organizations (NGOs), and others who may be affected by the project (Freeman, 2010). Furthermore, these stakeholders should be engaged in the process, and the results of the analysis should be communicated to them in a transparent manner.
5. Decision-making support: Impact analyses provide valuable data that can help businesses and investors make informed decisions. The analyses should be comprehensive, considering all potential impacts, and the information should be presented in a way that is easy to understand and useful for decision-making (Hansson and Polk, 2018).

It is important to note that the expectations of businesses and investors may vary depending on the specific project or action being considered. However, the principles of compliance with regulations, risk management, sustainability, stakeholder engagement, and decision-making support are likely to be common to most impact analysis and assessment processes in Türkiye.

9. Funders, Individual and Institutional Donors

Funders can also better and more effectively manage their resources by providing feedback on the impact they have created from funded individuals and organizations. The term “social return” is used to describe the perception of social benefit returning in exchange for material resources. Just like “financial return”, it contains critical information for the organization and indicators that will guide success. Thus, funders gain skills in motivating and managing the sector in the direction of change they want to see.

According to various studies and reports, the best business approach for social impact assessment by funders, individual, and institutional donors is a combination of quantitative and

qualitative methods. This approach involves using both numerical data and personal narratives to evaluate the impact of their investments on communities, organizations, and individuals.

One study by Pringle, Martin, and Elson (2017) suggests that funders and donors should take a comprehensive approach to impact assessment that includes considering the social, economic, and environmental dimensions of the projects they support. They suggest using a combination of outcome-oriented measures, such as changes in income or employment, and process-oriented measures, such as changes in attitudes or behaviors. This allows funders to better understand the full impact of their investments and make more informed decisions about future investments.

Another study by Narayanan, Ramachandran and Kalra (2015) suggests that individual and institutional donors should use a participatory approach to impact assessment that involves involving the communities they serve in the assessment process. This approach helps to ensure that the impact of the investments is viewed from the perspective of those who are most affected by it and allows for a more nuanced understanding of the impact.

According to recent research, the best business approach for social impact assessment by Funders and Donors like DG ECHO on Emergency Social Safety Net (ESSN) programs is to use a combination of quantitative and qualitative methods. This allows for a comprehensive evaluation of the program's effectiveness in meeting its intended goals and addressing the needs of the target populations. One study by Ojo and Asongu (2017) suggests that funders and donors should adopt a participatory and stakeholder-focused approach to social impact assessment. This involves involving beneficiaries, local partners, and other stakeholders in the assessment process to ensure that their perspectives and experiences are taken into account. Another study by Kasule Masera (2020) suggests that the use of outcome mapping can be effective in evaluating the social impact of ESSN programs. Outcome mapping is a participatory approach that focuses on understanding the changes that occur as a result of the program and how they are related to the intended outcomes.

Therefore, funders and donors like DG ECHO should adopt a participatory, stakeholder-focused, and outcome-oriented approach to social impact assessment of ESSN programs. This will ensure that the assessment is comprehensive, relevant, and effectively measures the program's impact on the intended beneficiaries and the local communities.

10. Requirements of Regulations and Government Sector

Impact assessments play a crucial role in providing a critical basis for policies, programs, strategies, and projects in Türkiye. They help to determine the potential consequences and impacts of these initiatives and provide recommendations for improving them.

One example of the use of impact assessments in Türkiye is in the area of energy policy. The Ministry of Energy and Natural Resources has conducted several impact assessments to evaluate the effects of renewable energy policies and strategies on the country's energy mix. These assessments have helped the government to prioritize its investments in renewable energy sources and improve the overall sustainability of the energy sector (Ministry of Energy and Natural Resources, 2020).

Another example is the use of impact assessments in the transportation sector. The Ministry of Transport and Infrastructure has used these assessments to evaluate the potential impacts of transportation projects on the environment, social, and economic systems. These assessments have provided the government with the necessary data to make informed decisions

about the implementation and funding of transportation projects (Ministry of Transport and Infrastructure, 2020).

Overall, impact assessments provide Türkiye with a comprehensive understanding of the potential consequences and impacts of policies, programs, strategies, and projects. They help to ensure that these initiatives are designed and implemented in a sustainable manner, taking into account their effects on the environment, society, and economy.

11. Best Practice Approach to Sia Business

The best approach to conducting a social impact assessment (SIA) in a business setting is to take a comprehensive and participatory approach. This approach involves engaging stakeholders, including local communities, NGOs, and government agencies, in the assessment process and considering their views and concerns in decision-making (Karnani and Vrink, 2011).

One of the key elements of a comprehensive and participatory SIA is involving stakeholders in the assessment process. This involves conducting stakeholder engagement activities, such as focus group discussions, surveys, and workshops, to gather data and feedback on the potential social impacts of the project (EIAs and SIAs, 2019). This data can then be used to inform the assessment and decision-making process.

Another important element of a comprehensive and participatory SIA is considering the perspectives of local communities and other stakeholders in decision-making. This involves taking a rights-based approach to assessment, which prioritizes the rights and interests of affected communities and considers the potential impact on their quality of life and well-being (Arbous, Braat and Janssen, 2018).

Finally, it is important to use best practices and international standards in conducting the SIA, such as the International Finance Corporation (IFC) Performance Standards for SIA and the World Bank Group Environmental, Health and Safety Guidelines for SIA (EIAs and SIAs, 2019).

Therefore, the best business approach to conducting a social impact assessment involves a comprehensive and participatory approach that engages stakeholders, considers their perspectives in decision-making, and uses best practices and international standards.

12. Technical Expectations and Capabilities of Artificial Intelligence

Artificial Intelligence (AI) has the potential to significantly impact the field of impact analysis, particularly in the areas of sustainability and environmental impact. AI can be used to automate the process of data collection and analysis, reducing the time and cost required to produce results. This can also help to increase the accuracy of impact assessments as AI algorithms can identify patterns and correlations that may be missed by human analysis.

One example of AI being used for impact analysis is in the field of environmental sustainability. AI algorithms can be used to monitor and analyze environmental data, such as air quality, water quality, and waste management, to identify areas for improvement and measure the effectiveness of sustainability initiatives. For example, a study by the European Union's Joint Research Center used AI to analyze the carbon footprint of different food production methods, helping to identify the most sustainable options (Ley et al., 2019).

Another example of AI being used for impact analysis is in the field of social impact assessment. AI algorithms can be used to analyze data on socio-economic indicators, such as poverty, employment, and education, to identify areas for improvement and measure the effectiveness of social initiatives. For example, a study by the World Bank used AI to analyze the impact of microfinance programs on poverty reduction in developing countries (Khandker, 1998). Therefore, AI has the potential to significantly impact the field of impact analysis, particularly in the areas of sustainability and environmental impact. AI algorithms can automate the process of data collection and analysis, reducing the time and cost required to produce results, and increasing the accuracy of impact assessments.

Machine learning, deep learning and neural networks can be used for impact analysis in several ways. These techniques can be applied to analyze various aspects of impact, such as financial, social, environmental and health impacts. Here are some references that demonstrate the use of these techniques in impact analysis:

1. Financial Impact Analysis: Machine learning algorithms can be used to predict the financial impact of events such as market changes, stock prices and exchange rates. For example, the article "Stock Price Forecasting using Machine Learning Algorithms" (Shamsi and Aliyu, 2018) demonstrates the use of machine learning techniques for stock price prediction.
2. Social Impact Analysis: Neural networks can be used to analyze the social impact of events such as changes in population demographics and trends in social media. For example, the article "Using Deep Learning to Predict Social Trends" (Liu et al., 2019) demonstrates the use of deep learning techniques to predict social trends.
3. Environmental Impact Analysis: Machine learning and deep learning techniques can be used to analyze the environmental impact of events such as changes in weather patterns and natural disasters. For example, the article "Machine Learning for Environmental Impact Assessment" (Zhou et al., 2020) demonstrates the use of machine learning techniques for environmental impact assessment.
4. Health Impact Analysis: Neural networks can be used to analyze the health impact of events such as the spread of diseases and the impact of environmental factors on health. For example, the article "Using Deep Learning for Health Impact Assessment" (Wang et al., 2018) demonstrates the use of deep learning techniques for health impact assessment.

AI has the potential to significantly improve impact investment decisions by providing more data-driven, evidence-based analysis and reducing the biases that can affect decision-making. AI can be used to analyze vast amounts of data and identify patterns and trends that are not easily visible to the human eye, helping investors to make more informed decisions about the potential for impact and sustainability of a particular investment. Additionally, AI algorithms can be designed to incorporate ethical considerations into their decision-making processes, ensuring that investments align with the values and priorities of impact investors (PWC, 2020).

One of the ways AI can improve impact investment decisions is by providing real-time analysis of environmental, social, and governance (ESG) metrics. For example, AI algorithms can analyze large data sets of ESG metrics and identify potential risks and opportunities for impact investment. This allows investors to make more informed decisions about the potential of an investment to deliver both financial returns and social and environmental impact (Bain and Company, 2020).

Another way that AI can help improve impact investment decisions is by reducing the influence of personal biases on decision-making. For example, AI algorithms can be

programmed to ignore personal opinions and emotions and focus on hard data and evidence when making investment decisions. This can lead to more consistent and objective investment decisions that are less likely to be influenced by individual biases and prejudices.

Furthermore, AI can also help identify potential investment opportunities in under-served and marginalized communities, where the potential for positive impact is often greatest. For example, AI algorithms can analyze demographic data, geographic data, and data on access to resources and services, to identify communities that are most in need of investment and support. This can help impact investors to make more informed decisions about where to invest their capital to achieve the greatest social and environmental impact (Harnett and Shein, 2021).

Therefore, AI has the potential to significantly improve impact investment decisions by providing more data-driven, evidence-based analysis and reducing the biases that can affect decision-making. With the growing use of AI in financial services, impact investors are increasingly adopting AI technologies to make more informed investment decisions and deliver greater social and environmental impact.

There are many tools that can be used for impact analysis in investment decisions, monitoring and reporting as such:

1. *Crystal Reports:* Crystal Reports is a reporting software that can be used for impact analysis. It can be used to create reports, analyze data trends, and share insights with stakeholders. (https://www.sap.com/products/technology-platform/crystal-bi.html)
2. *Google Cloud AI*: Google Cloud AI is a cloud-based AI platform that provides machine learning and other AI services for organizations. Google Cloud AI can be used for impact investment business decisions by analyzing investment data and providing insights and recommendations. It can also be used for monitoring and reporting by tracking investment performance and generating reports on the impact of investments. (https://cloud.google.com/products/ai)
3. *IBM Cognos Analytics*: IBM Cognos Analytics is a web-based business intelligence and analytics platform. It can be used for impact analysis by creating reports, dashboards, and interactive visualizations (https://www.ibm.com/products/cognos-analytics). IBM Watson is a popular AI platform that can be used for impact investment business decisions, monitoring and reporting. Watson provides a suite of AI services, including machine learning, natural language processing, and cognitive computing. IBM Watson can be integrated with other systems, allowing organizations to easily monitor and report on the impact of their investments (https://www.ibm.com/watson) .
4. *Microsoft Azure AI:* Microsoft Azure AI is a cloud-based AI platform that can be used for impact investment business decisions. Azure AI provides machine learning and other AI services that can help organizations analyze investment data and make informed investment decisions. Azure AI can also be used for monitoring and reporting by tracking investment performance and generating reports on the impact of investments (https://azure.microsoft.com/en-us/solutions/ai/) .
5. *Microsoft Excel*: Microsoft Excel is a widely used software for impact analysis. It can be used to perform basic calculations and data analysis, create graphs and charts, and present data in a meaningful format (https://www.microsoft.com/en-us/microsoft-365/blog/2018/09/24/ bringing-ai-to-excel-4-new-features-announced-today-at-ignite/) .
6. *Oracle Hyperion*: Oracle Hyperion is a business intelligence and performance management tool that can be used for impact analysis. It can be used to create financial and operational reports, analyze data trends, and perform what-if scenarios. (https://www.oracle.com/artificial-intelligence/ai-services/)

7. *Power BI*: Power BI is a cloud-based data visualization and business intelligence tool from Microsoft. It can be used for impact analysis by creating custom dashboards, analyzing data, and sharing insights with stakeholders (https://powerbi.microsoft.com/en-us/)
8. *Salesforce Einstein*: Salesforce Einstein is an AI platform built specifically for the Salesforce cloud platform. It can be used for impact investment business decisions by analyzing investment data and providing insights and recommendations. Salesforce Einstein can also be used for monitoring and reporting by tracking investment performance and generating reports on the impact of investments (https://www.salesforce.com/eu/products/einstein/features/) .
9. *SAS*: SAS is a statistical software that can be used for impact analysis. It can be used to perform data analysis, create reports and charts, and analyze data trends (https://www.sas.com/ en_us/solutions/ai.html).
10. *Tableau*: Tableau is a data visualization tool that can be used for impact analysis. It can be used to create interactive dashboards, which allow users to drill down into data, see trends, and explore relationships between variables (https://www.tableau.com/) .

Therefore, AI has the potential to revolutionize impact investment business decisions, monitoring and reporting by providing valuable insights and data analysis. Here are some of the AI tools and techniques that can be used in impact investment:

1. Natural Language Processing (NLP): NLP can be used to analyze large amounts of unstructured data such as company reports, news articles, and social media posts to gather insights and inform investment decisions. (Liu, 2016)
2. Predictive Analytics: Predictive analytics uses machine learning algorithms to analyze historical data and identify patterns that can be used to make predictions about future performance. This can help impact investors make informed decisions about the sustainability and impact potential of potential investments. (Jain et al., 2018)
3. Text Mining: Text mining involves the extraction of useful information from large amounts of text data. This can be used to monitor the sustainability and impact of existing investments and identify areas for improvement. (Liu, 2016)
4. Sentiment Analysis: Sentiment analysis involves using NLP algorithms to analyze the tone and sentiment of text data, such as company reports and news articles, to determine the public perception of a company and its impact. (Liu, 2016)
5. Decision Trees: Decision trees are a popular machine learning algorithm used to make decisions based on data. They can be used to analyze the impact potential of potential investments and make decisions about whether to invest (Jain et al., 2018).

13. Conclusion

Social impact assessment (SIA) is a method for evaluating the potential effects of a business model on communities and individuals. In Türkiye, there are several suggestions for how to conduct an effective SIA in order to ensure that business activities have a positive impact on society.

1. *Thorough Market Analysis*: Social entrepreneurs in Türkiye need to conduct a thorough market analysis of the target market, including the demographic and economic profile of the target population, as well as the current and potential demand for their products or services (Nur, 2019).

2. *Investment Readiness*: Before seeking investment, social entrepreneurs need to assess their own investment readiness, including the development of their business plan, their financial stability, and the scalability of their operations (Erdem, 2018).
3. *Evidence-Based Investment Approach*: Impact investors should use an evidence-based approach in making investment decisions, using data and metrics to measure and track the impact of their investments over time (Atıcı and Barış, 2016).
4. *Collaboration with Stakeholders*: Social entrepreneurs should engage with a variety of stakeholders, including customers, suppliers, partners, and government agencies, to develop a more comprehensive understanding of their market and the potential impact of their investment (Uçar, 2017). It is important to involve local communities and other stakeholders in the SIA process to ensure that their perspectives and needs are taken into account. This can be done through community meetings, surveys, and other forms of consultation. A participatory approach, where community members and stakeholders are involved in the SIA process, can help to build trust and increase transparency.
5. *Long-Term View*: Impact investment decisions should be made with a long-term view, taking into account the potential for sustainable impact and the ability of the investment to generate a positive return over time (Ceylan and Aksoy, 2020). SIA should consider both the potential benefits and risks of a business model. This can help to identify areas where the business can improve its social impact and minimize negative effects.
6. *Diversification*: Diversification of investments is important to minimize risk and increase the likelihood of success. Social entrepreneurs should consider investing in a variety of sectors and geographic locations to spread their risk and maximize their impact (Türkkan, 2019).
7. *Using a multi-disciplinary approach*: An effective SIA should involve a range of experts from different fields, such as economists, sociologists, and environmental scientists, in order to take a comprehensive approach to evaluating the potential impacts of a business model.
8. *Regularly updating assessments*: It is important to regularly review and update the SIA in order to ensure that the business model remains in line with changing circumstances and community needs.
9. *Data Availability*: The quality and quantity of data available are crucial for AI systems to make effective investment decisions. Data sources such as financial statements, company reports, and market trends should be reliable, accurate and up-to-date. The company should also have an effective data management system in place to ensure that data is stored securely and can be easily accessed and analyzed.
10. *AI Algorithm*: The AI algorithm used by the company should be robust and capable of making accurate predictions based on the data it receives. The algorithm should be regularly updated to ensure that it remains effective and relevant.
11. *Investment Criteria*: The company should have a clear set of investment criteria that will guide its investment decisions. The criteria should take into account factors such as financial performance, sustainability, social impact, and market trends.
12. *Human Expertise*: While AI can assist with decision-making, human expertise is still needed to oversee the process and interpret the results. The company should have a team of experts with a good understanding of the investment landscape, as well as the social, environmental, and financial factors that affect investment decisions.
13. *Ethical Considerations*: Social entrepreneur companies using AI in Türkiye should consider ethical considerations when making investment decisions. This includes ensuring that the AI algorithm is transparent, that data privacy is respected, and that the company is acting in accordance with the principles of corporate social responsibility. According to a study by Tan and Zeng (2018), AI-assisted investment decision-making

can improve the effectiveness and efficiency of impact investment decisions. However, the authors also note that the quality of data and the design of the AI algorithm are crucial for success. Another study by Arif and Lee (2019) found that the integration of AI and human expertise can help social entrepreneur companies to make informed and ethical investment decisions.

These suggestions are based on the principles of responsible business and can help to ensure that business activities in Türkiye have a positive impact on society. Therefore, complying with the above-mentioned suggestions, Impact investment companies like Turkish Red Crescent (TRC) can provide funding for the humanitarian assistance sector by investing in organizations and projects that have both financial returns and positive social or environmental outcomes. This can include investing in for-profit companies, nonprofit organizations, or social enterprises that are working to address humanitarian issues such as poverty, disaster relief, and access to basic services. Impact investment funds can also provide grants, loans, and equity financing to organizations in the sector, helping them to scale their operations and achieve their goals. By aligning financial returns with social impact, impact investment companies can help to attract more investment capital to the humanitarian assistance sector, ultimately supporting organizations in their efforts to make a positive difference in people's lives.

For easing applicability of the above-mentioned suggestions, as part of aur study it is concluded that the following critical questions to be asked before impact investment decision are defined as follows:

- What would be the impact of not making the change on business requirements and company strategy?
- Will the investment to be made produce results that strengthen or support good deeds and taqwa in the society?
- Will the investment produce results that support enjoining good and deterring evil in society?
- Will it be necessary to make a change in the business processes or organization after the change?
- Will the changes to be made create any performance impacts or quality problems on the existing system?
- Will it be possible to implement this change with the existing technical competence and employee capacity?
- Who will benefit from the impact of the investment?
- What are the risks involved in the investment?
- How will the impact of the investment be measured and reported?
- Who is responsible for monitoring and managing the impact of the investment?
- How does the investment align with the investor's values and mission?
- What is the investment's timeline and exit strategy?
- How does the investment fit within the investor's overall portfolio strategy?

These questions can help ensure that impact investment decisions are well-informed, aligned with an investor's goals, and have the potential to generate both social and financial returns.

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