AN ANALYTICAL HIERARCHY PROCESS BASED INTEGRATED PERFORMANCE EVALUATION INDEX MODEL PROPOSAL FOR MUNICIPALITIES IN TURKEY[*]

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ABSTRACT

Municipalities across Turkey are expected to adopt the principles of transparency, accountability, sound financial management and open ethical public engagement practices that include the provision and use of communication tools to facilitate an effective and clear voice within, and on behalf of the community. In this study, annual reports published by 29 Metropolitan Municipalities in Turkey between 2018 and 2020 were examined for the purpose of digitizing social data using content analysis methodology. An index model proposal and a performance measurement evolved based upon the opinions of 12 experts utilizing the "analytical hierarchy process" technique of "multi-criteria decision making" methods.

Keywords: AHP, Integrated Reporting Model, Integrated Performance, Integrated Reporting Index, Municipality

JEL Classification: M41, C44

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TÜRKİYE'DEKİ BELEDİYELER İÇİN AHP TABANLI ENTEGRE PERFORMANS DEĞERLENDİRME ENDEKS MODELİ ÖNERİSİ

ÖZ

Paydaşlarıyla en yakın teması kuran kamu kurumu statüsündeki belediyelerin şeffaf ve hesap verebilir olması beklenmektedir. Kurumsal raporlar, yerel yönetimler ve paydaşları arasındaki iletişimi sağlamada önemli araçlardır. Bu makalenin amacı ülkemizdeki belediyeler tarafından uygulanabilir bir "Entegre Raporlama Endeks Modeli" önerisinde bulunmak ve "Entegre Performans Ölçümlerini" yapmaktır. 29 Büyükşehir Belediyesi'nin 2018-2020 yılları arasında yayınladıkları faaliyet ve finansal raporlar incelenmiş, elde edilen sosyal veriler "içerik analizi" yöntemi ile sayısallaştırılmış, finansal veriler normalize edilmiş ve 12 uzmandan alınan görüşlerle "çok kriterli karar verme" yöntemlerinden "analitik hiyerarşi süreci" tekniği kullanılarak model önerisi oluşturulmuştur. Sayısallaştırılmış sosyal verilerle normalize edilmiş finansal veriler analiz edilerek performans ölçümleri yapılmıştır.

Anahtar Kelimeler: AHP, Entegre Raporlama Modeli, Entegre Performans, Entegre Raporlama Endeksi, Yerel Yönetim

JEL Sınıflandırması: M41, C44

GENİŞLETİLMİŞ ÖZET

AMAÇ ve MOTİVASYON

Bu çalışmanın amacı, ülkemizde hizmet veren yerel yönetimlerin kullanılabileceği bir "Entegre Raporlama Endeks Modeli" oluşturmak ve "Entegre Performans Ölçümü" gerçekleştirmektir. Yerel yönetimlerce yayınlanan faaliyet raporları ve finansal raporlar incelendiğinde, anlaşılması zor olan bir yapıya sahip oldukları, okuyucu dostu olmayan uzun sayfalardan oluştukları ve en önemlisi sosyal ve finansal bilgileri bir arada içermedikleri görülmektedir. Yapılan literatür araştırmasında yerel yönetimler özelinde endeks modeli önerisi sunan bir çalışmaya henüz rastlanmamıştır. Çalışma, "Entegre Raporlamanın" yerel yönetimler tarafından uygulanabilir olduğunun ifadesi, konuyla ilgili farkındalık oluşturulması, aynı zamanda yerel yönetimlerin performans ölçümünü sağlayan bir ölçüm aracının geliştirilmiş olması açısından öncü, aynı zamanda geliştirilmeye açık bir adımdır.

ARAŞTIRMA STRATEJİSİ ve YÖNTEMİ

Bu çalışmada, içerik analizi tekniği ve Çok Kriterli Karar Verme (ÇKKV) yöntemlerinden "Analitik Hiyerarşi Süreci (AHS)" tekniği kullanılmıştır. Araştırmanın ilk aşamasında ülkemizde hizmet veren 29 Büyükşehir Belediyesi'nin 2018-2020 yılları arasında yayınladıkları yıllık faaliyet raporlarından elde edilen sosyal veriler içerik analizi yöntemi ile sayısal hale getirilmiştir. Her bir sermaye faktörü için elde

edilen puanlar, oluşturulan "Entegre Rapor Endeks Modeli" yardımıyla performans ölçümünde kullanılmıştır. Araştırmanın ikinci aşamasında, ÇKKV yöntemlerinden biri olan "Analitik Hiyerarşi Süreci (AHS)" tekniği kullanılmıştır. Analitik Hiyerarşi Süreci (AHS) tekniği kapsamında on iki uzman görüşü alınmış, yerel yönetimler için öncelik verilmesi gereken sermaye kriteri sıralaması yapılması istenmiş ve grup kararı alınarak "Yerel Yönetimler için Entegre Raporlama Endeks Modeli" oluşturulmuştur. Araştırma kapsamına dahil edilen uzmanlar yerel yönetimlerin üst düzey çalışanlarından ve akademisyenlerden oluşmaktadır. Çalışmada akademik bakış açısı ile uygulayıcı bakış açısı bir araya getirilmiştir.

İçerik analizinde puanlanan sosyal sermaye kriterleri ve alt kriterler, Entegre Raporlama Konseyi'nin yayınlamış olduğu "Küresel Raporlama Endeksi" (GRI, 2022), Birleşmiş Milletler Gelişim Programı'nın yayınlamış olduğu "Sürdürülebilir Kalkınma Hedefleri" (UNDP, 2022) ve Ekonomik ve Kalkınma İşbirliği Örgütü'nün yayınladığı "Daha İyi Yaşam Endeksi" (OECD, 2022)'den yararlanılarak hazırlanmıştır. Sosyal sermaye ana kriterleri sosyal ve ilişkisel sermaye, insan sermayesi, doğal sermaye ve entelektüel sermayeden oluşmaktadır. Sosyal ve ilişkisel sermaye ana kriterinin 8, insan sermayesinin 7, doğal sermayenin 4, entelektüel sermayenin ise 2 alt kriteri analizlere dahil edilmiştir.

Finansal sermaye ana kriterleri T.C. Maliye Bakanlığı Muhasebat Genel Müdürlüğü tarafından yayınlanan "Kamu İdareleri için Mali Analiz Rehberi" (Muhasebat Genel Müdürlüğü, 2022) doğrultusunda hazırlanmış olup, faaliyet başarısı, borç yapısı, harcamalar ve gelirler ana sermayelerinden oluşmaktadır. Faaliyet başarısı ana sermayesinin 5, borç yapısı ana sermayesinin 6, harcamalar ana sermayesinin 7, gelirler ana sermayesinin ise 5 alt kriteri bulunmaktadır. Finansal performans ölçümünde finansal sermayelerin yanı sıra üretilmiş sermaye de dahil edilmiştir.

BULGULAR ve TARTIŞMA

Araştırmada ülkemizde yerel yönetimlerde uygulanabilecek ulusal düzeyde bir "Entegre Raporlama Endeks Modeli" geliştirilmiş ve 29 Büyükşehir Belediyesi'nin 2018-2020 yılları arasındaki performansları ölçülmüştür. "Entegre Raporlama Endeks Modeli" sosyal sermaye ve finansal sermayeden oluşmaktadır. Ana kriter ve alt kriterleri aşağıda listelenmektedir:

Sosyal Sermaye Modeli:

Sosyal Sermaye Ana Kriteri Sıralaması: 1. Sosyal ve İlişkisel Sermaye**,** 2. Entelektüel Sermaye**,** 3. İnsan Sermayesi**,** 4. Doğal Sermaye.

Sosyal ve İlişkisel Sermaye Alt Kriteri Sıralaması: 1. Yolsuzlukla Mücadele**,** 2. Vatandaş Memnuniyeti**,** 3. Kurumsal Yönetime Uygunluk**,** 4. Sosyal Projeler ve Yatırımlar**,** 5. Barış, Adalet ve Güçlü Kurumlar**,** 6. Vatandaş Şikâyet Mekanizması**,** 7. Kurumsal Sosyal Sorumluluk Ödülleri**,** 8. Tedarikçi Seçimi.

Entelektüel Sermaye Alt Kriteri Sonuçları: 1. Zımni Bilgiler, Sistemler, Prosedürler ve Protokoller, Patent ve Telif Hakları.

İnsan Sermayesi Alt Kriteri Sıralaması: 1. Kadın Çalışanların Hakları**,** 2. Ücretler, İş Sağlığı ve Güvenliği, Performans Değerlendirme Sistemi**,** 3. Karar Verme ve Yönetime Katılma Hakkı, Mesleki Eğitim, Genç Çalışan Eğitimini Destekleme.

Doğal Sermaye Alt Kriteri Sıralaması: 1. Yenilenebilir Enerji ve Çevre Dostu Girişimler**,** 2. Sürdürülebilir Şehirler ve Topluluklar**,** 3. Çevre Ödülleri.

Sosyal Sermaye Performans Sonuçları:

Ankara, İzmir, Bursa, Antalya, Adana, Konya, Hatay, Manisa, Kayseri, Tekirdağ, Denizli, Trabzon ve Muğla Büyükşehir Belediyeleri, 2018-2020 yılları arasında sosyal sermaye performans ölçümüne göre artan performansa sahiptir.

Finansal Sermaye Modeli:

Finansal Sermaye Ana Kriteri Sıralaması: 1. Faaliyet Başarısı**,** 2. Borç Yapısı**,** 3. Gelirler ve Harcamalar.

Faaliyet Başarısı Alt Kriteri Sıralaması: 1. Bütçe Dengesi**,** 2. Faaliyet Dengesi**,** 3. Tahsilat-Tahakkuk, Vergi ve Benzeri Gelirler Tahsilat-Tahakkuk**,** 4. Ödeme-Tahakkuk.

Borç Yapısı Alt Kriteri Sıralaması: 1. Vadesi Geçmiş Yükümlülükler ve Gelirlerin Yükümlülük ve Giderleri Karşılama Gücü**,** 2. Vadesi Geçmiş Alacaklar**,** 3. Yükümlülük, Borçlanma**,** 4. Yükümlülük Dağılımı.

Gelirler Alt Kriteri Sıralaması: 1. Vergi Gelirleri**,** 2. Kişi Başına Düşen Gelir**,** 3. Gelir Tahmini**,** 4. Mali Olmayan Varlıklar.

Harcamalar Alt Kriteri Sıralaması: 1. Tahakkuk Esaslı Faiz Gideri**,** 2. Personel Harcamalarının Giderleri İçerisindeki Payı, Kişi Başına Düşen Gider, Nakit Esaslı Faiz Gideri**,** 3. Nakit Esaslı Personel Harcamaları**,** 4. Tahakkuk Esaslı Personel Harcaması.

Finansal Sermaye Performans Sonuçları:

Adana ve Denizli Büyükşehir Belediyelerinin finansal sermaye performansları 2018-2020 yılları arasında artmıştır.

SONUÇ ve ÖNERİLER

Bu çalışmada ülkemizde hizmet veren 29 Büyükşehir Belediyesi'nin 2018-2020 yılları itibari ile yıllık faaliyet raporları incelenmiş, faaliyet raporları içerisindeki kavramlar ya da ifadeler içerik analizi yöntemi ile sayısallaştırılarak analize uygun hale getirilmiştir. Ülkemizde sosyal raporlamaya yeterince

önem verilmemesi, verilerin belediye beyanlarına dayanması ve tüm faaliyetlerin faaliyet raporlarına aktarılmamış olma ihtimali, sosyal verilerin toplanması konusunda kısıt oluşturmaktadır. Yerel yönetimler için önerilen Entegre Raporlama Endeks Modelinin oluşturulmasında 12 uzmandan görüş alınmıştır. Alınan uzman görüşleri doğrultusunda oluşturulan "Entegre Raporlama Endeks Modeli" ile belediyelerin performans ölçümleri gerçekleştirilmiştir. Uzman görüşleri grup kararı alınmasına imkân sağlamış ve amaçlanan "Entegre Raporlama Endeks Modeli" kurulmuştur.

1. INTRODUCTION

Recently, public administration practices in developed countries have been subject to progressive evaluation reviews and consequential modifications aimed at ensuring that public resources are allocated more effectively and equitably. A focus on performance outcomes has resulted in the adoption of new and innovative management applications resulting in organizational restructurings and creation of modern information systems. In essence, the preceding changes have involved a series of transformative movements in administrative systems resulting in an alignment with the umbrella term "New Public Administration". Basically, the new movements have heralded the need for public administrations to be more transparent, accountable and sensitive to taxpayers through clear and open communication. Thus, there is an increasing interest in the overall performance of public-sector organizations and their impact on both the social and physical environment. Traditional accounting practices are now being modernized along with a heightened level of community demand for public-sector organizations to adopt open communication practices that support transparency and accountability. Budgeting, expenditures, management of public money and new public financial management systems draw attention to the need for effective and sustainable economic management and service delivery (Katsikas et al., 2017). In more recent times, there have been broad initiatives aimed at promoting value-added outcomes of voluntarily implementing integrated reporting for the public-sector (Global Reporting Initiative, 2005). The European Commission has long been a strong advocate for central and local governments to endorse and implement integrated and sustainable reporting.

Integrated reporting is becoming the preferred strategic communication tool as it opens the way for highlighting and sharing a diversity of viewpoints, developments (proposed or actual) and perspectives on how organizations plan and approach sustainability, corporate governance, natural capital, intellectual capital, human capital, and social capital (Katsikas et al., 2017). The importance of public sector financial and social performance reporting is now an essential component of the communication process for transparent and accountable engagement with communities. At the same time, it is also becoming increasingly clear that community expectations are on the rise in relation to the provision of sustainable developments in the form of comprehensive packaging of supportive services and

environmental enhancement projects that protect and advance the health and well-being of community members (Birney et al., 2010).

Local governments as public-sector organizations are tax-funded institutions with a clear mandate to address local and regional developmental needs and requirements for healthy living that include facilities, utilities, health services, housing, transportation, education, work/employment, economic vitality, recreation and heritage, protection of the natural environment and care of youth, elder people and the disabled. While transparency and accountability regarding the provision and sustainability of the complex array of infrastructure and essential services represent a crucial aspect of the communication process, there remains the problem of how to measure the integrated performance of local governments. The challenge facing many public-sector organizations is the need to deploy effective and reliable indicators that reflect overall performance in all key areas of municipal responsibility. This study examines the integrated performances of local governments through creating a social performance index drawing upon the GRI Standards of Integrated Reporting Council (Global Reporting Initiative, 2022), the UNDP Sustainable Development Goals (UNDP, 2022), and the OECD's Better Life Index (OECD, 2022). For financial performance measurement, the ratios published by the General Directorate of Public Accounts were used (Muhasebat Genel Müdürlüğü, 2022).

The primary purpose of this study is to share a developmental initiative for a contemporary integrated reporting index model applicable for adoption by municipalities throughout Turkey and to evaluate their integrated performances by using the mentioned model. The main purpose of the study is to answer the following questions: Which main-criteria and sub-criteria elements should be included in the integrated reporting index model to be used by local governments in Turkey? and May local government performance comparison be made with the established local government integrated reporting index model?. For this purpose, annual reports including financial reports of 29 metropolitan municipalities in Turkey were analyzed consecutively over the time period of 2018, 2019 and 2020 respectively). In the first stage of the research, the social data obtained from the annual activity reports published by 29 Metropolitan Municipalities between 2018-2020 were digitized by content analysis method. The scores obtained for each capital factor were used in performance measurement. In the second stage of the research, "Analytic Hierarchy Process (AHP)" technique, which is one of the MCDM methods, was used. Within the scope of the Analytical Hierarchy Process (AHP) technique, twelve expert opinions were taken, the capital criteria that should be prioritized for local governments were requested, and the "Integrated Reporting Index Model for Local Governments" was developed by taking a group decision. The experts included in the scope of the research consist of senior staff of local administrations and academicians. The academic perspective and the practitioner perspective were brought together in the course of this research in order to achieve an enhanced pool of perspectives.

The following points need to be highlighted for the contribution and authenticity of the study to the literature. First of all, the study develops an integrated reporting index model that can be applied in local governments in Turkey. Additionally, with this model, empirical results for the measurement of integrated performance of local governments within a three-year time series are provided. Accordingly, the social and financial performance results of local governments that serve many different stakeholder groups are open to analysis. In order to obtain comparable results, the entire sample was selected from metropolitan municipalities. The study shows the integrated performance developments of metropolitan municipalities over the years and the employed method provides an opportunity to rank them. Consequently, success levels can be determined according to the integrated performance of metropolitan municipalities. The results can guide local governments, the political authority they are affiliated with, and the relevant ministry in terms of using an integrated reporting index model and performing integrated performance measurement.

2. LITERATURE REVIEW

Milton Friedman (Friedman, 1970) argued in his doctrine that the only social responsibility of companies is to produce profits. However, this argument has changed in recent decades by increased attention to corporate governance. Integrated reporting, in its most basic sense, is the integration of non-financial information to financial information of companies. In this regard, integrated reporting aims to present how the firm creates value by adding its strategies, corporate governance and social performance to the existing financial model. The emergence process of integrated reporting has become a main discussion area with the crises experienced in 2008. Company scandals and financial crises have negatively affected the society. In addition to these impacts, social problems such as climate change, water scarcity, rapid consumption of natural resources and human rights have further increased economic uncertainties. This situation caused decision makers to reconsider the reliability of the reports published by companies and it is argued whether financial and social information published independently from each other reflect information about how companies create value in the short and long term. Many academic studies have been carried out that are associated with the discussion of social reports published by companies. The findings that show the positive relationship between social performance and financial performance have increased investors' interest in social performance (Black Sun Plc., 2012). Thus, it is emphasized more and more that the environmental, social and managerial performance of companies have significant impacts on their financial performance and shareholder value, and it is concluded that traditional financial and social reports did not provide sufficient information about the current and future performance to their shareholders and other stakeholders. As a

result of these discussions, integrated reporting which includes financial and social information has started to gain significant importance.

When discussing integrated reporting, integrated thinking needs to be taken into consideration since they are closely related. Integrated thinking is a continuous journey that evolves over time and continues to promote collaboration across all sections of the organization (Value Reporting Foundation, 2021). An organization actively considers the connections between its many operating and functional units (IIRC, 2021). The activities and outputs of the organization increase, reduce, or transform the capitals, which represent stocks of value. These capitals are classified as financial, social and relationship, human, intellectual and natural. Organizations, on the other hand, are not obligated to use this capital classification (IIRC, 2021). Integrated reporting is an essential foundation to establish "integrated thinking" for not only public offices but for the whole ecosystem, mainly for SMEs as well (Kaya & Türegün, 2014)

Guthrie et al. (2017) aim to investigate the connection between integrated reporting and organizational internal processes, particularly which internal mechanisms in organizations are primarily altered by integrated reporting disclosures and how they impact integrated thinking internally. They examined five Italian public sector organizations as part of the study's scope and used the data from official records and management interviews. They concluded in the study that businesses, which implement integrated reporting, also implement integrated thinking.

Integrated reporting is important in the public sector, especially in terms of transparency and accountability. According to Nistor et.al. (2019), for global financial stability and long-term sustainability, a high-quality information exposure is necessary. To create a more open and accountable public sector, transparency is required. Integrated reporting is a contemporary tool to provide an overall degree of transparency in the public sector, specifically, in the case of municipalities, by combining financial indicators, operational data and sustainability information. Nistor et al. (2019) aim at determining whether the key components of the emerging reporting trend align with those of the existing reporting set and applications in a hypothetical reporting organization in their work "Approaching Public Sector Transparency Through An Integrated Reporting Benchmark". The preceding study attempted to assess non-financial and financial data from an integrated perspective in the operations of organizations. The cluster analysis of the disclosure practices of the European Union local public administrations, along with an examination of the six-stage capital model from the IIRC framework and the eight key principles from the GRI guidelines, led to the conclusion that the sample has the highest explanatory power in Anglo-Saxon and Northern local public administrations.

As the reports of public sector institutions have become more transparent, it results in trustful relationships with stakeholders. This trustful relationship can be considered as a "culture of openness"

within organizations (Hood, 2010). Reducing the asymmetry of information with an appropriate disclosure level may help to create it. Besides transparency, responsibility is another important behavior of public sector organizations. With the use of integrated reporting, they become more responsible (Greiling & Spraul, 2010) because integrated reporting puts strategic financial and social information at the same level of importance for accountability and performance evaluation. Caruana and Grech (2019) identify the level of connection between current practices and integrated reporting in the annual departmental reports produced by Maltese government ministries. According to the study, integrated reporting principles can be gradually implemented in an effort to boost accountability and transparency.

Farneti et al. (2019), examine the three types of social capital that the international integrated reporting framework identified: intellectual, human, and social capital. These researchers also examined how relationship capital has been adapted to integrated reporting and tested its impact on social explanations. An examination of the contents of the annual reports and integrated reports released between 2009 and 2017 was undertaken as part of a case. According to the study's empirical findings, enhanced stakeholder interactions in the public sector can be observed by looking at how integrated reporting affects the disclosure of social information. The study showed that the integrated reporting framework's material assessment method assisted in promoting as well as prioritizing key social issues discussed with stakeholders.

In the literature review, no study was found that aims to develop an integrated reporting index model and to measure integrated performance of local governments. However, some studies have been carried out on the private sector application of the subject. Aras and Yıldırım (2022) aim to include each capital component in the integrated reporting and showed their impacts by weighing these components. They used Entropy method in a Turkish deposit bank in the BIST sustainability index, covering the period between 2014 and 2017. In their study, they found that intellectual capital has the highest weight, and it is followed by social and relationship capital, human capital, financial capital, governance capital, manufactured capital and natural capital.

Public institutions can use integrated reporting as a tool for communicating financial and non-financial information together to be more transparent, accountable, reliable and responsible in the services they provide to their stakeholders. Integrated reporting is the most advanced and comprehensive instrument that board and governance professionals can incorporate into their strategy to test businesses resilience against factors such as environmental issues, financial crises, and social instabilities (Girella, 2021). In this regard, integrated reporting aims to present how a firm creates value by adding its strategies, corporate governance and social performance to its existing financial model. With integrated reporting, an organization actively considers the connections between its operational and functional units with the utilized or affected capitals (IIRC, 2021). Although organizations compiling an integrated

report are not obligated to use this classification or to organize their report according to different types of capitals, the elements of an integrated reporting are categorized into financial, manufactured, intellectual, human, social and relationship, and natural capital. (IIRC, 2021).

3. AN APPLICATION ON LOCAL GOVERNMENTS IN TURKEY

3.1. Methodology

In this study, the integrated performances of 29 metropolitan municipalities with accessible annual reports for the 2018-2020 activity period were analyzed. Mardin Metropolitan Municipality, which did not submit its annual reports to the public in the relevant period, was excluded from the scope of the study. 2021 and 2022 period could not be included, because the annual reports were not published when the study was submitted. In addition, the study includes the pandemic period and results were interpreted in terms of this special period. In the integrated performance measurement of local governments, the capitals suggested by the International Integrated Reporting Framework include many different capitals such as social and relationship capital, human capital, natural capital, intellectual capital, manufactured capital, and financial capital. These bundles of capitals are considered as basis for the study.

3.1.1. Deriving Indicators

A review of the integrated reporting literature identified the use of indicator-based approaches. Indicator-based approaches are used to inform decision-makers with demonstration of the multi-dimensionality of service features (Mahmoud & Hine, 2013). Although there are some attempts to define integrated reporting indicators in private sector, the number of studies in public sector related to this area is insufficient. As a result, creating an integrated reporting index model in the public sector brings about two main challenges. The first one is that there is no public sector specific integrated reporting indicator definition in the literature. Secondly, there is not sufficient information about which of the indicators published by global institutions are important for local governments.

Although Integrated Reporting Committee (GRI), UNDP Sustainable Development Goals, and OECD Better Life Index defined social indices of integrated reporting, it is not obvious which capital criteria can be used by local governments and what is the order of importance of the proposed main-criteria and sub-criteria. In this study, research conducted for the selection and sorting of the integrated reporting main-criteria and sub-criteria, according to their priorities for municipalities.

3.1.2. Development of Indexes

In order to calculate the human, social and relational capital, natural capital and intellectual capital grades of local governments, content analysis of the qualitative data obtained from the annual reports

and other sources has been converted into quantitative format. The index criteria are weighted as "0","1" and "2" points. The list of index criteria is shown in Appendix-1. Content analysis is carried out with the keywords identified for each main-criteria and sub-criteria. Whether the keywords are included in the annual reports of the municipalities and/or in the explanations made on the websites are examined. For example, under human capital, the keyword "wage" was used for wages, while the key "female workforce" was used for the rights granted to female employees.

Capital ratings of municipalities regarding their social performance were calculated in two stages. In the first stage, raw index grades were calculated for each capital item separately. In the second stage, the grades calculated for each capital item were divided by the grade average of the capital item group and multiplied by one hundred; in other words, they were normalized and included in the analysis.

Since the distribution ranges of the indicators considered in terms of financial and manufactured capitals are quite different, the reflection of the effect of difference change on the results is prevented by standardizing in the range of 0-1.

3.1.3. Establishing the AHP Decision Hierarchy

Analytical Hierarchy Process developed by Saaty, was employed as the research methodology in order to determine the importance (levels/weights) of the criteria selected. MCDM approaches are criticized for a number of reasons, such as insufficient use of variables, personal interpretation, and direct selection of weights (Barron & Barrett, 1996). The innovation of the AHP method is that it solves multidimensional problems by defining the relative weights between the main criteria and sub-criteria (Al Khalil, 2002). AHP differs from other MCDM techniques in that it offers a multi-layered and multidimensional approach that reduces a complex problem to its simplest form (Saaty & Vargas, 2000).

The AHP method is used in many fields such as education, strategic planning, project selection, engineering, public, industry, management, production, political, social and sports (Vaidya & Kumar , 2006). As this study aims to develop an applicable integrated reporting index model for performance measurement of local governments, the AHP technique is used. This technique allows determining priorities among main-criteria, sub-criteria and alternatives. AHP is one of the many criteria decision-making methods that structures a hierarchy of alternatives. In applying AHP, firstly binary decision making by comparing alternatives, criteria matrices are formed. Secondly, the criteria are weighted according to the evaluation criteria. After comparison matrices are made, consistency ratio (CR) is calculated. By looking at the CR value, if the value of CR is above 0,1, the comparisons are adjusted; if it is below, the most suitable alternative is selected.

AHP analysis is conducted in five steps÷ setting a target, criteria, or sub-criteria, and an alternative, pair-wise comparison of criteria and sub criteria related to the target, constituting a comparison matrix, analyzing the weights and controlling the CR (Kara & Iranmanesh, 2022).

When determining the relative priority levels for each criterion, the technique depends on the decision maker's (expert) opinion. By responding to questionnaires created using Saaty's 1–9 scale, decision-makers assess the criteria and sub-criteria as shown in Table 1. The priority order of the decision options is determined by considering each criterion (Anderson et.al, 2008). There are numerous methods for making multi-criteria decisions. The key benefits of AHP over conventional methods are its simplicity and its successful utilization in complicated decision-making situations that involve both subjective and objective assessments (Timor, 2011). AHP narrows down the multidimensional problem to just one dimension by determining the relative weights of the criteria and sub-criteria. The ranking's priority vectors are used to make decisions in order to select the best result out of many options. Numerous decision-makers (managers, engineers, financial specialists, marketing experts, etc.) may participate in an enterprise decision. With AHP, a single outcome can be obtained by combining the judgments of individuals (groups) with various levels of experience, education, and knowledge (Saaty, 2008).

Table 1. The Fundamental Scale

Intensity of Importance	Definition	Explanation
1	Equal Importance	Two activities contribute equally is the objective
2	Weak	
3	Moderate Importance	Experience and judgement slightly favor one activity over another
4	Moderate Plus	
5	Strong Importance	Experience and judgement strategy favor one activity over another
6	Strong Plus	
7	Very Strong or Demonstrated Importance	An activity is favored very strongly over another; its dominance demonstrated in practice
8	Very, Very Strong	
9	Extreme Importance	The evidence favoring one activity over another is of the highest possible order of affirmation

Source: (Saaty & Vargas, 1994)

In this study, to obtain the matrix reflecting the priority levels of the determined criteria, 12 experts were interviewed. Expert profiles are shown in Table 2. In the Analytical Hierarchy Process method, there is no limitation on the number of experts who take part in this study. 5 of the 12 experts are

academicians who have studies integrated reporting related subject, and 7 of them are senior managers employed in local governments. The reason to include both academicians and practitioners in the study is to evaluate the different views of these two groups. This sample was selected for the purpose of pairwise comparisons. AHP approach helps to prioritize the pairwise comparisons of factors by using eigenvalues. An example of judgement scale is provided in Appendix-2

Table 2. Expert Profiles

Number of Experts	Expert Groups	Area of Expertise
5	Academicians	Accounting
4	Municipal Officials	Financial Services Manager
2	Municipal Officials	Strategy Development Manager
1	Municipal Officials	Financial Services Expert

3.1.3.1. Mathematical Infrastructure of AHP Method

Pairwise comparisons are used to determine the weights (w) of the criteria. Decision-makers are not required to compare numbers. For pairwise comparisons in the literature, Saaty's scale of 1–9 is typically employed. If comparing n criteria based on their relative weights of importance is something you want to do, with criteria a1, a, …, an and weights w1, w, …, wn, the general structure of the pairwise comparison matrix will be shown in Equation 1 in Appendix-3 (Tzeng & Huang, 2011).

Here $a_{ij} = \frac{1}{a_{ji}}$ (according to reciprocity) and $a_{ij} = \frac{a_{ik}}{a_{jk}}$. In real problems, the result $\frac{w_i}{w_j}$ is often unknown. Therefore, what needs to be solved in AHP is to find the value of a_{ij} as $a_{ij} \cong \frac{w_i}{w_j}$ (Tzeng & Huang, 2011). The general form of the weight matrix is given in Equation 2 in Appendix-3.

Multiplying the W by the w values is given in Equation 3 or as in Equation 4 in Appendix-3.

The solution of the Equation 3 and Equation 4 is the eigenvalue finding problem. Their relative weights are calculated with the w eigenvector found based on Λ_{Max} which satisfies the $(Aw = \Lambda_{Max}I)w = 0$ equation. Here $\Lambda_{Max}$is the largest eigenvalue of the matrix A and the eigenvector w is obtained by the equation $(A - \Lambda_{MaxI})w = 0$ depending on Λ_{Max}.

Additionally, two parameters, Consistency Index (CI) and Consistency Ratio (CR), are applied to guarantee the accuracy of relative weights as well as the consistency of subjective perceptions. The following formula in Equation 5 in Appendix-3 is used to calculate the Consistency Index (CI).

$\Lambda_{Max}$is the largest eigenvalue and n is the total number of features (criteria). In order to obtain a reliable result, the CI value should not exceed 0.1 (Tzeng & Huang, 2011).

The formula in Equation 6 in Appendix-3 is used to calculate the consistency ratio. RI stands for "Random Value Index". It is derived from a large sample of a randomly generated cross-comparison matrix. Consistency ratio (CI) is expected to be below 0.1 for reliable and realistic results.

3.2. Research Model

In this study, AHP method helps to prioritize the main-criteria and sub-criteria of social and financial dimensions of integrated reporting for municipalities. The capitals suggested by IIRC such as human capital, social and relationship capital, intellectual capital, natural capital and financial capital are selected as the main-criteria in the study while the sub-criteria of the study were chosen from literature as shown in the table in Appendix-1. The index scores created as a result of the literature review were first graded according to the content analysis of the annual reports of local governments, and the sub-criteria, which is “zero” in value, was not included in the study. Calculations related to the AHP process were done via MS Excel.

Human capital, social and relationship capital, natural capital and intellectual capital represent four sub-criteria of the social dimension of integrated reporting, while operational success capital, debt structure capital, expenditures capital, income capital, and manufactured capital represent five main criteria of the financial dimension.

The main criterion of human capital has seven sub-criteria: wages, occupational health and safety, rights of women employees, the right to make decision and participation, performance evaluation system, Vocational Training, and youth training support.

The main criterion of social and relational capital has eight sub-criteria: social projects and investments, anti-corruption and bribery, corporate social responsibility awards, citizen satisfaction, citizen complaint mechanism, supplier selection, compliance with corporate governance, peace, and justice and strong institutions.

The main criterion of natural capital has four sub-criteria: environmentally friendly initiatives, renewable energy, environment awards, and sustainable cities and communities.

The main criterion of intellectual capital has two sub-criteria: total number of patents and implied knowledge, systems and protocols.

Under the financial dimension, the main criterion of operation success has five sub-criteria: budget balance indicator, activity balance indicator, collection-accrual indicator, tax and similar income collection-accrual indicator, and payment-accrual indicator.

The main criterion of debt structure capital has six sub-criteria: liability indicator, liability distribution indicator, overdue liabilities indicator, debt indicator, indicator of revenues to cover liabilities and expenses, and overdue receivables indicator.

Expenditures capital main criterion has seven sub-criteria: accrual-based personnel expenditure indicator, cash-based personnel expenditure indicator, indicator of the share of personnel expenditures in expenses, accrual-based interest expense indicator, cash-based interest expense indicator, forecast indicator and expense per capital indicator.

Income capital main criterion has five sub-criteria: dependency indicator, tax income indicator, non-financial asset indicator, income forecast indicator, and income per capita indicator.

Manufactured capital is the main criterion and has one sub-criterion: the ratio of tangible assets to total assets indicator.

As illustrated in Figure 1 the objective of this study is to evaluate and examine the municipalities' performance through a number of social and financial criteria based on what the most appropriate criteria is prioritized. The AHP Hierarchy Model for measuring the integrated performance of the municipalities is shown in Figure 1 below (Akbaş & Kaya, 2022).

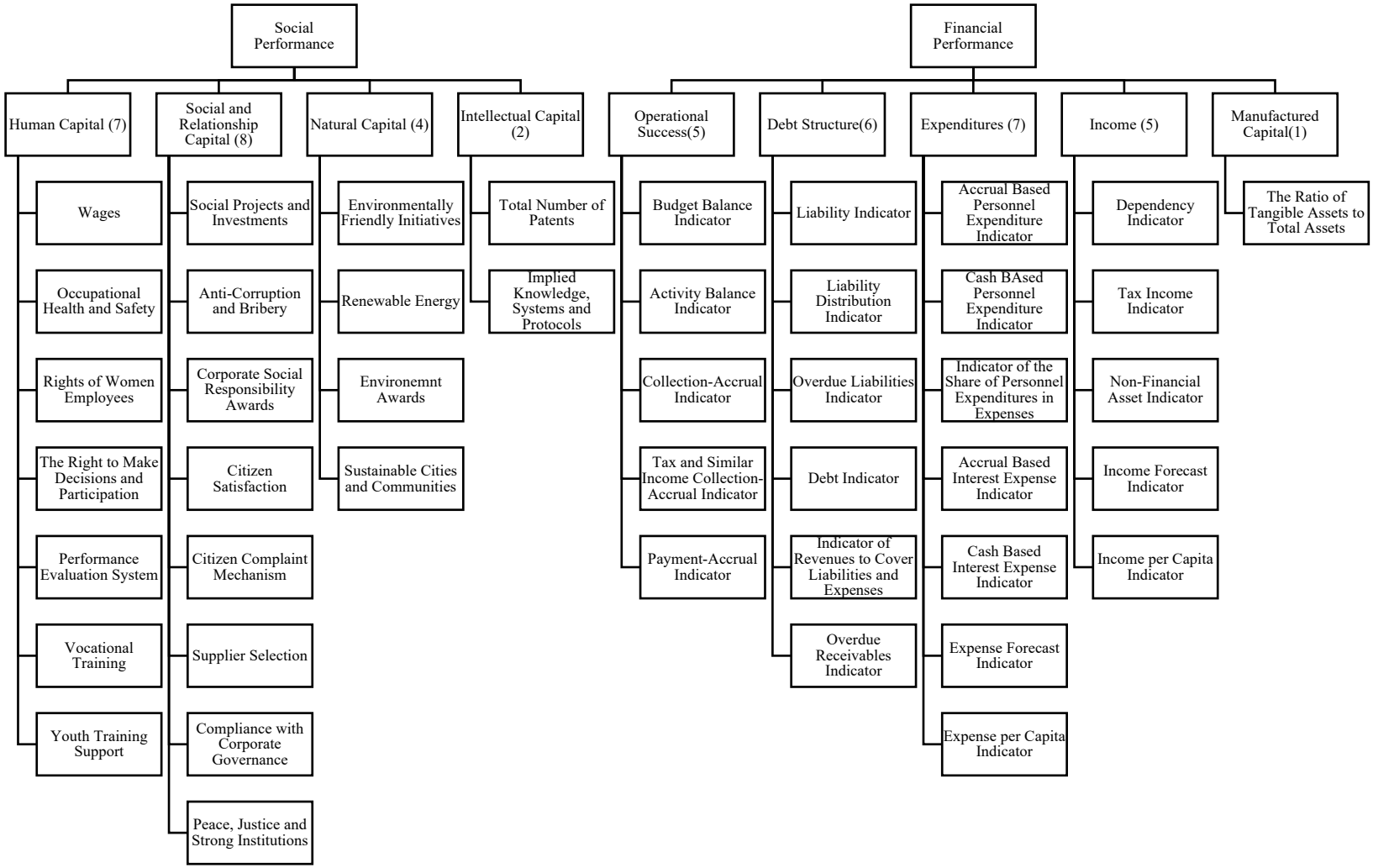

Figure 1. AHP Hierarchy for Measuring Performances of Integrated Reporting Index Model

The first step in decision making with AHP is to understand the problem well by examining it through a hierarchical structure as in Figure 1. The aim of this hierarchical structure is to determine the main-criteria and sub-criteria. After the hierarchical structure has been created, pairwise comparisons of the main criteria and sub-criteria are made.

3.2.1. Performance Measurement

This study aims at evaluating the performance of local governments in 2018, 2019 and 2020 according to the AHP based method. Therefore, AHP, one of the Multi-Criteria Decision Making Methods, was firstly applied to determine the priority levels of each main and sub-criteria of the index model. The priorities of the main and sub-criteria obtained with the AHP were also used in the performance evaluation with the index study. In the integrated performance measurement, the performances of each sub-criterion obtained by multiplying the normalized social and financial index data with the global weight results of the sub-criteria were collected and the main criteria performances were obtained. Evaluations were made separately for the years 2018, 2019 and 2020.

4. FINDINGS

Pairwise comparisons of the main-criteria and sub-criteria were made by 12 experts separately with the AHP method. Pairwise comparisons were made according to the 9-point scale developed by Saaty and pairwise comparison matrices were created. By taking the geometric mean of the comparison matrices made by 12 experts, the pairwise comparison matrices reflecting the group decision were obtained. Table 3 and Table 4 show the social and financial main-criteria comparison results of the integrated reporting index model.

4.1. Priority Comparisons of Social and Financial Dimensions

In the dimension of social performance, 4 main-criteria and 21 sub-criteria were evaluated. According to the results, CR of the experts' comparisons are below 0,1 which means, the results are reliable and realistic (Tzeng & Huang, 2011). Group decision is taken for the determination of the priority ranking of 4 main-criteria. The results are given in Table 3 below:

Table 3. Pairwise Comparisons of Social Performance

	Human Capital	**Social and Relationship Capital**	**Natural Capital**	**Intellectual Capital**	**Weights**
Human Capital	1	1	1	1	0,2464
Social and Relationship Capital	1	1	2	1	0,2964
Natural Capital	1	0,5	1	1	0,2188
Intellectual Capital	1	1	1	1	0,25

Considering the importance degrees of the sub-dimensions, *Social and Relationship Capita l(SRC)* (Weight: 0,2964) has the greatest impact on social performance of local authorities, followed by Intellectual Capital (IC) (Weight: 0,25), Human Capital (HC) (Weight: 0,2464), and Natural Capital (NC) (Weight: 0,2188), respectively. It is thought that the pandemic experienced in the world in 2019 caused a change in the social service programs of local governments and therefore caused social and relational capital to be the main criterion with the highest priority. According to the results illustrated in Table 3, SRC is perceived to have the highest weight indicating that municipal authorities have to pay more attention toward sub-criteria such as anti-corruption and bribery (weight: 0,2264), citizen satisfaction (weight: 0,1449), compliance with corporate governance (weight: 0,1360), social projects and investments (weight: 0,1287), peace, justice, and strong institutions (weight: 0,1221), citizen complaint mechanism (weight: 0,1138), corporate social responsibility awards (weight: 0,0684), and supplier selection (weight: 0,0548).

Table 4. Pairwise Comparisons of Financial Performance

	Operational Success Indicator	**Debt Structure Indicator**	**Income Indicator**	**Expenditures Indicator**	**Weights**
Operational Success Indicator	1	1	2	2	0,3458
Debt Structure Indicator	1	1	1	1	0,2458
Income Indicator	0,5	1	1	1	0,2042
Expenditures Indicator	0,5	1	1	1	0,2042

Considering the importance degrees of the main-criteria *Operational Success Indicator* **(**OSI)(Weight: 0,3458) has a significant impact on financial performance followed by Debt Structure Indicator (DSI) (Weight: 0,2458), Income Indicator (II) (Weight: 0,2042), and Expenditures Indicator (EI), which (have equal impacts, respectively. According to the results of analysis illustrated in Table 4, OSI is perceived to have the highest weight indicating that municipal authorities have to pay more attention toward sub-criteria budget balance indicator (weight: 0,3064), activity balance indicator (weight: 0,2814), collection-accrual indicator and tax and similar income collection-accrual indicator (weight: 0,1407), and payment-accrual indicator (weight: 0,1307), respectively.

4.2. Social and Financial Performance Measurements

4.2.1. Integrated Performance Reporting Index Model

The integrated reporting model developed according to the results of the study has been prepared based on the basic services of local governments. The model can be used by municipalities from different statuses.

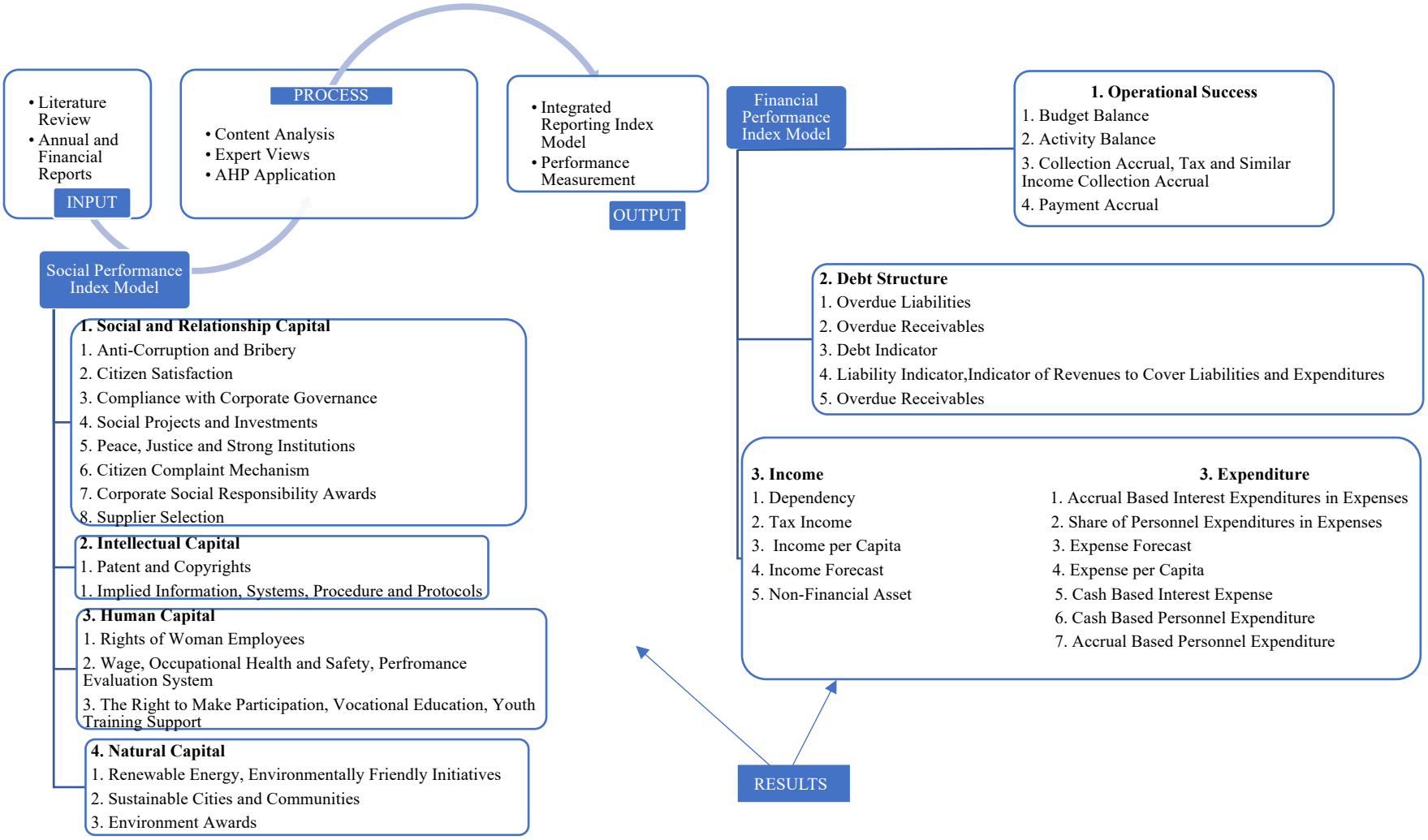

Figure 2. Integrated Reporting Index Model for Municipalities

To measure the integrated performances of municipalities by using the AHP method, global weights of the criteria were calculated using pair-wise comparisons. Global weights were calculated by multiplying the priority weight of the main criteria by priority weight of the sub-criteria. Rankings of both main-criteria and sub-criteria were obtained to show the priorities. The global weights of each sub-criterion multiplied with index scores of municipalities obtained from annual reports between 2018-2020 are used to calculate the social and financial performances. The results are shown in Table 5 and Table 6.

Table 5. Global Weights and Ranking

Main Criteria	Priority Weight	Main Criteria Rank	Sub-Criteria	Priority Weight	Global Weight	Sub-Criteria Rank
	Social Performance					
Social and Relationship Capital	0,2964	1	Anti-Corruption and Bribery	0,2264	0,067	1
			Citizen Satisfaction	0,1496	0,044	2
			Compliance with Corporate Governance	0,1360	0,040	3
			Social Projects and Investments	0,1287	0,038	4
			Peace, Justice and Strong Institutions	0,1221	0,036	5
			Citizen Complaint Mechanism	0,1138	0,034	6
			Corporate Social Responsibility Awards	0,0684	0,020	7
			Supplier Selection	0,0548	0,016	8
Intellectual Capital	0,250	2	Total Number of Patents	0,500	0,125	1
			Implied Knowledge, Systems and Protocols	0,500	0,125	1
Human Capital	0,2464	3	Rights of Women Employees	0,1943	0,048	1
			Wages	0,1408	0,035	2
			Occupational Health and Safety	0,1408	0,035	2
			Performance Evaluation System	0,1408	0,035	2
			The Right to Make Decisions and Participation	0,1278	0,032	3
			Vocational Training	0,1278	0,032	3
			Youth Training Support	0,1278	0,032	3
Natural Capital	0,2188	4	Environmentally Friendly Initiatives	0,2887	0,063	1
			Renewable Energy	0,2887	0,063	1
			Sustainable Cities and Communities	0,2470	0,054	2
			Environment Awards	0,1756	0,038	3
	Financial Performance					
Operational Success	0,3458	1	Budget Balance Indicator	0,3064	0,106	1
			Activity Balance Indicator	0,2814	0,097	2
			Collection-Accrual Indicator	0,1407	0,049	3

Table 5. Continued. Global Weights and Ranking

			Tax and Similar Income Collection-Accrual Indicator	0,1407	0,049	3
			Payment-Accrual Indicator	0,1307	0,045	4
Debt Structure	0,2458	2	Overdue Liabilities Indicator	0,2075	0,051	1
			Overdue Receivables Indicator	0,2075	0,051	1
			Debt Indicator	0,1629	0,040	2
			Liability Indicator	0,1462	0,036	3
			Indicator of Revenues to Cover Liabilities and Expenses	0,1462	0,036	3
			Liability Distribution Indicator	0,1296	0,032	4
Expenditures	0,2042	3	Accrual Based Interest Expense Indicator	0,1755	0,036	1
			Indicator of the Share of Personnel Expenditures in Expenses	0,1610	0,033	2
			Cash Based Interest Expense Indicator	0,1392	0,028	3
			Expense Forecast Indicator	0,1392	0,028	3
			Expense per Capita Indicator	0,1392	0,028	3
			Cash Based Personnel Expenditure Indicator	0,1290	0,026	4
			Accrual Based Personnel Expenditure Indicator	0,1171	0,024	5
Income	0,2042	3	Dependency Indicator	0,3494	0,071	1
			Tax Income Indicator	0,2158	0,044	2
			Income per Capita Indicator	0,1622	0,033	3
			Income Forecast Indicator	0,1422	0,029	4
			Non-Financial Asset Indicator	0,1304	0,027	5

Table 6. Social Performance Evaluation Measures in Turkish Cities Between 2018-2020

Metropolitan	**2018**	**Change (%)**	**2019**	**Change (%)**	**2020**	**Total Change Between 2018-2020(%)**
İstanbul	0,036	-38,46%	0,026	56,67%	0,060	40,00%
Ankara	0,103	34,39%	0,157	53,82%	0,340	69,71%
İzmir	0,338	60,70%	0,860	59,81%	2,140	84,21%
Bursa	0,262	71,61%	0,923	43,09%	1,622	83,85%
Antalya	0,517	31,07%	0,750	35,95%	1,171	55,85%
Adana	0,212	42,23%	0,367	64,98%	1,048	79,77%
Konya	0,153	52,63%	0,323	42,11%	0,558	72,58%
Şanlıurfa	0,146	65,32%	0,421	-9,92%	0,383	61,88%
Gaziantep	0,206	56,54%	0,474	-12,86%	0,420	50,95%
Kocaeli	0,617	-92,81%	0,320	35,09%	0,493	-25,15%
Mersin	0,544	-14,05%	0,477	30,26%	0,684	20,47%
Diyarbakır	0,314	-30,83%	0,240	15,79%	0,285	-10,18%

Table 6. Continued. Performance Evaluation in General Social Performance Measure

Hatay	0,198	39,63%	0,328	7,08%	0,353	43,91%
Manisa	0,142	1,39%	0,144	47,64%	0,275	48,36%
Kayseri	0,149	18,58%	0,183	71,04%	0,632	76,42%
Samsun	0,202	-43,26%	0,141	70,50%	0,478	57,74%
Balıkesir	0,303	-28,39%	0,236	44,21%	0,423	28,37%
Kahramanmaraş	0,247	-268,66%	0,067	62,98%	0,181	-36,46%
Van	0,155	-74,16%	0,089	51,37%	0,183	15,30%
Aydın	0,122	-84,85%	0,066	51,47%	0,136	10,29%
Tekirdağ	0,121	1,63%	0,123	59,67%	0,305	60,33%
Denizli	0,212	26,39%	0,288	17,24%	0,348	39,08%
Sakarya	0,377	51,48%	0,777	-2,10%	0,761	50,46%
Muğla	0,589	39,34%	0,971	8,91%	1,066	44,75%
Eskişehir	0,481	58,10%	1,148	-0,70%	1,140	57,81%
Trabzon	0,331	29,42%	0,469	39,48%	0,775	57,29%
Malatya	0,464	-21,78%	0,381	25,73%	0,513	9,55%
Erzurum	0,273	38,10%	0,441	-27,83%	0,345	20,87%
Ordu	0,233	68,81%	0,747	-58,26%	0,472	50,64%

When the social performance Turkish cities between 2018-2020 are examined, it is seen that the performances have increased over the years in Ankara, İzmir, Bursa, Antalya, Adana, Konya, Hatay, Manisa, Kayseri, Tekirdağ, Denizli, Trabzon and Muğla. The increase in the social performance of Izmir (84,21%) Metropolitan Municipality over the years is remarkable. The increase in the social performance of the Izmir Metropolitan Municipality during the research years is due to the fact that the municipality gave priority to the services related to the main criteria and sub-criteria of social and relationship capital in the relevant years. An issue that should be considered in the interpretation of the social performance results of the metropolitan municipalities is the effect of the local government elections that took place in our country in 2019 on performance and the effect of the pandemic experienced in the world in 2019 on local government services. Especially between 2018-2019 period, when the preparations for the local government elections progressed the fastest, it is seen that Kahramanmaraş, Kocaeli, Aydın, Van, Samsun and Istanbul Metropolitan Municipalities had low social performance, but in the post-election period their performance increased rapidly. This rapid increase may be due to the pandemic conditions as well. It is observed that the social performance -in Ankara, Antalya, Adana, Kayseri, Manisa, Tekirdağ, Trabzon and Metropolitan Municipalities have increased continuously over the research period. After the local elections in 2019, Bursa, Konya, Şanlıurfa, Gaziantep, Hatay, Denizli, Sakarya, Muğla, Eskişehir, Erzurum and Ordu experienced a decline in their social performance.

Table 7. Performance Evaluation in General Financial Capital Measure

Metropolitan	2018	Change (%)	2019	Change (%)	2020	Total Change Between 2018-2020(%)
İstanbul	0,499	-15,78%	0,431	11,68%	0,488	-2,25%
Ankara	0,517	-82,69%	0,283	50,87%	0,576	10,24%
İzmir	0,527	-6,04%	0,497	-1,02%	0,492	-7,11%
Bursa	0,493	-52,63%	0,323	27,58%	0,446	-10,54%
Antalya	0,520	-67,74%	0,310	11,68%	0,351	-48,15%
Adana	0,385	21,75%	0,492	0,40%	0,494	22,06%
Konya	0,498	-67,68%	0,297	44,80%	0,538	7,43%
Şanlıurfa	0,430	-25,36%	0,343	25,60%	0,461	6,72%
Gaziantep	0,532	5,17%	0,561	-2,56%	0,547	2,74%
Kocaeli	0,702	-64,79%	0,426	44,09%	0,762	7,87%
Mersin	0,490	-33,15%	0,368	32,35%	0,544	9,93%
Diyarbakır	0,392	-49,62%	0,262	38,06%	0,423	7,33%
Hatay	0,507	-73,63%	0,292	27,54%	0,403	-25,81%
Manisa	0,455	-17,57%	0,387	35,39%	0,599	24,04%
Kayseri	0,488	-49,24%	0,327	31,01%	0,474	-2,95%
Samsun	0,498	-24,81%	0,399	24,86%	0,531	6,21%
Balıkesir	0,713	-84,24%	0,387	27,26%	0,532	-34,02%
Kahramanmaraş	0,451	-8,67%	0,415	23,29%	0,541	16,64%
Van	0,495	-40,23%	0,353	31,32%	0,514	3,70%
Aydın	0,356	-42,97%	0,249	49,18%	0,490	27,35%
Tekirdağ	0,515	-54,19%	0,334	28,48%	0,467	-10,28%
Denizli	0,384	15,60%	0,455	29,89%	0,649	40,83%
Sakarya	0,499	-59,42%	0,313	19,12%	0,387	-28,94%
Muğla	0,526	-57,96%	0,333	39,56%	0,551	4,54%
Eskişehir	0,463	-23,47%	0,375	24,55%	0,497	6,84%
Trabzon	0,508	-79,51%	0,283	10,16%	0,315	-61,27%
Malatya	0,640	-47,47%	0,434	28,62%	0,608	-5,26%
Erzurum	0,640	-42,54%	0,449	12,98%	0,516	-24,03%
Ordu	0,442	-28,12%	0,345	1,71%	0,351	-25,93%

When the financial performance between 2018-2020 is examined; it is observed that the performance in Adana and Denizli has increased over the years. Between 2018-2019 periods, it could be assumed that due to the election expenditures, financial performances of municipalities decreased in general. Of the 29 metropolitan municipalities examined, only Adana, Gaziantep and Denizli showed an increase in financial performance in the same period. Financial performance decreased especially in Balıkesir (-84.24%), Ankara (-82.69%), Trabzon (79.51%) and Hatay (-73.63%). Metropolitan Municipalities is remarkable. The performance of Ankara Metropolitan Municipality is remarkable. It recovered from the rapid financial performance decrease experience in 2018-2019 period, with a 50.87% increase in the 2019-2020 period. In the 2019-2020 period, the financial performance of all municipalities increased,

except for Gaziantep Metropolitan Municipality. The 5.17% performance increase in Gaziantep Metropolitan Municipality in the 2018-2019 periods was followed by a -2.56% decrease during the 2019-2020 period.

5. RESULTS AND DISCUSSION

Over the years, due to harsh political competition, public institutions have felt the significant responsibility to address the needs of the taxpayers evermore. Such condition made these public offices more accountable, transparent, and flexible. Increasing interest in the performance of public sector organizations and their impact on the external environment forced them to produce social reports. There has been much discussion on whether the current format for reporting in the public sector ultimately meets the needs of the various stakeholder groups, which differ greatly in terms of their knowledge, skills, maturity, and information needs.

Depending on the dynamics of each local government, the efficiency and effectiveness criteria on which local governments base their performance measurement may vary. Therefore, there is a need for an optimal criteria model for local government performance evaluation, as performance evaluation with more indicators or manageable criteria than necessary may lead to incorrect results. For this purpose, the study aims to identify the main criteria that local government decision makers can use to measure the social and financial performance of their municipalities and to rank them according to their priorities. It is assumed in this study that applicable measurement mechanisms will enable local governments to achieve performance management by prioritizing the activities and functions they perform and should pursue.

This study developed an index model for integrated reporting at the national level for local governments. It measured the integrated performance of 29 metropolitan municipalities. For this purpose, the content analysis was conducted using annual reports for 2018-2020. The index model for measuring the performance of metropolitan municipalities was developed on the basis of results. The index model is based on 12 expert judgements, evaluated using AHP. In the integrated reporting index model, social and relationship capital were identified as the most important criterion for social performance measurement, followed by intellectual, human, and natural capital. Among the main criteria identified for measuring financial performance, operational success was identified as the most important, followed by debt structure, and income and expense indicators were of equal importance. As a result of the research on local governments providing public services in Turkey, a social capital and a financial capital index model have been developed. The performance of local governments has been measured using this developed model. The purpose of the Integrated Reporting Index proposed in the study is to raise awareness on this issue and to emphasize that corporate reports used in local

governments should be more accountable, transparent, and understandable in line with the new paradigms. This study is expected to pave the way for future studies on the same topic and bring a new perspective to the field. As a suggestion for future research, the same methodology can be applied to other municipalities and/or alternative MCDM techniques can be used.

YAZARLARIN BEYANI

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Conception/Design of Study- MÇA; Drafting Manuscript- MÇA; Critical Revision of Manuscript- CTK; Final Approval of Accountability- MÇA, CTK.

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APPENDIX

Appendix 1. Main Criteria and Sub-Criteria

Criteria	Scoring			Descriptions	References
Human Capital					
1. Wages				This criterion is discussed under two headings as overtime wages and additional payments.	(GRI, 2021)
-Overtime Wages	0: There is no explanation.	1: In the industry average	2: Above the industry average	Under this criterion, the place of overtime wages in the sector average was investigated	(ILO, 2022)
-Additional Payments	0:Not available	1: Available		Under these criteria, explanations related to premiums, dividends, social assistance and similar payments, which are considered as motivation-enhancing other than overtime wages, were evaluated.	(GRI, 2021)
2.Occupational Health and Safety				The measures taken by the municipality to protect the health and safety of its employees are evaluated under this criterion. The examination was carried out under 2 criteria, namely physical working conditions and education	(GRI, 2021) (United Nations, 2021)
-Physical Working Conditions	0: There is no explanation.	1:These is a positive statement, but there is no certificate.	2: There is a certificate	The measures taken by the municipality regarding occupational health and safety and whether the municipality has the OHSAS certificate; which certifies the compliance of the company with certain standards for the health and safety of the employees, has been evaluated in this criterion.	(OECD, 2003) (GRI, 2021) (United Nations, 2021)
- Occupational Health and Safety Education	0: There is no explanation	1: There is an education			

Appendix 1. Continued. Main Criteria and Sub-Criteria

3. Rights of Women Employees				Policies implemented by the municipality for the inclusion of women in working life were evaluated under this criterion. It has been examined in 2 sub-criteria as positive discrimination and female workforce in management.	(GRI, 2021)
-Positive Discrimination	0: There is no explanation.	1: There is positive discrimination		Under this criterion, in addition to legal sanctions, statements regarding whether positive discrimination is made against female employees are evaluated.	(GRI, 2021)
-Female Workforce in Management	0: Not available	1: %20	2: More than %20	Female employees in the senior management were evaluated under this criterion.	(GRI, 2021)
4. The Right to Make Decisions and Participate in Management	0: No Explanation /Rights	1: The right has been granted.		Explanations about whether the employees of the municipalities participate in the decision-making phase are evaluated under this criterion.	(GRI, 2021) (OECD, 2003)
- Workforce Satisfaction Survey	0: No explanation /survey is not held.	1: A survey is held		Explanations about whether the municipalities hold surveys in which employees evaluate the municipality and working conditions are evaluated under this criterion.	(GRI, 2021)
5.Performance Evaluation System	0: No description / no system available	1: Superiors evaluate subordinates	2: Subordinates also have the opportunity to evaluate superiors.	Explanations on whether there is a process for evaluating the performance of the employees and whether an over-the-top evaluation is allowed are evaluated under this criterion.	(GRI, 2021)

Appendix 1. Continued. Main Criteria and Sub-Criteria

6. Vocational Education	0: No explanation /no training opportunity .	1: Training opportunity is available.		All kinds of practice and training opportunities for the Professional development of the employees are evaluated under this criterion.	(OECD, 2003) (GRI, 2021)
7. Youth Training Support	0: No explanation /no training opportunity .	1: Training opportunity is available.		Programs to creating opportunities for the youth who are not in education, employment and training in order to prevent future erosion of skills and job discouragement.	(United Nations, 2021)
Social and Relational Capital					
1. Social Projects and Investments				Statements of municipalities regarding their social projects are evaluated under this criterion	(United Nations, 2021) (OECD, 2021)
-Poverty	0: Not available	1: Available	2: More than 1 project	Projects to end poverty in all forms everywhere	
-Zero Hunger	0: Not available	1: Available	2: More than 1 project	Projects to end hunger, achieve food security and improved nutrition and promote sustainable agriculture	
-Good Health and Well-being	0: Not available	1: Available	2: More than 1 project	Projects to ensure healthy lives and promote well-being for all at all ages	
- Education	0: Not available	1: Available	2: Includes all ages, genders	Projects to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	
- Gender Equality	0: Not available	1: Available	2: More than 1 project	Projects to achieve gender equality and empower all women and girls	

Appendix 1. Continued. Main Criteria and Sub-Criteria

- Partnerships for the Goals	0: Not available	1: Available		International projects and collaborations to strengthen the means of implementation and revitalize the global partnership for sustainable development	
- Culture/Art	0: Not available	1: Available	2: Projects are exclusive	Projects to protect cultural and natural World heritage	
2. Anti-Corruption and Bribery	0: No description available	1: Combat measures have been taken		The statements regarding the measures taken by the municipalities in the fight against corruption and bribery are evaluated under this criterion.	(GRI, 2021) (United Nations, 2021) (OECD, 2003)
3. Corporate Social Responsibility Awards	0: No explanation/reward	1: There is an award.	2: International award(s) exist(s)	The explanations regarding the awards received by the municipalities as a result of their social responsibility activities in the relevant period are evaluated under this criterion.	(GRI, 2021)
4. Citizen Satisfaction				Explanations regarding the surveys conducted to measure citizen satisfaction were evaluated under this criterion. The criterion is grouped under one subheading.	(GRI, 2021)
-Citizen satisfaction research	0: No research	1: Research is available		The statements made by the municipalities regarding the application status of these surveys are evaluated under this criterion.	

Appendix 1. Continued. Main Criteria and Sub-Criteria

5. Citizen Complaint Mechanism	0: Available	1: Not available	2: ISO 10002 certification is available.	The explanations regarding whether the municipalities have a system in which they can submit their citizens' complaints and whether they have ISO 10002 certificate are evaluated under this criterion.	(GRI, 2021)
6. Supplier Selection				The criteria on which the municipalities choose the suppliers they work with while carrying out their activities are evaluated in this criterion.	
-Equality	0: No description	1: There are equal selection criteria.		Explanations on whether there is a policy of providing equal opportunities to each supplier, away from monopolization, were evaluated under this criterion.	(Cauxroundtable, 2021)
7. Compliance with Corporate Governance Principles	0: No description	1: There is an explanation		The municipality's compliance report with corporate governance principles has been evaluated under this criterion. (Transparency, accountability, fairness, responsibility)	(OECD, 2003)
8. Peace, justice and strong institutions					

Appendix 1. Continued. Main Criteria and Sub-Criteria

- Participatory budget	0: Not available	1:Available			(Caldas, Dollery, & Marques, 2020)
- Cooperation and Collaboration with local communities	0: Not available	1: Available		Existence of operations with implemented local community engagement, impact assessments, and/or development programs	(GRI, 2021)
- Decision making capacity	0: Not available	1: Available		The decision-making mechanism should be sensitive to needs, inclusive and representative (existence of citizen parliaments)	(United Nations, 2021)
Natural Capital					
1. Environmentally Friendly Initiatives				The statements about the initiatives of the companies that affect the environment positively are evaluated under this criterion.	(United Nations, 2021) (OECD, 2003)
- Environmental Impact	0: No explanation/no adverse effects	1: No adverse effects	2: There is a positive effect	The explanations regarding the positive and negative contributions of the companies to the environment, depending on their field of activity or their mode of operation, are evaluated under this criterion.	(OECD, 2003)
-CO2 ((Greenhouse Gas) emissions.	0: No description	1: Within legal limits	2: ISO 14064 Certificate is available.	The explanations of the municipalities regarding the greenhouse gas emission rates were evaluated under this criterion.	(GRI, 2021)

Appendix 1. Continued. Main Criteria and Sub-Criteria

-Electricity Usage	0: No description	1: Within legal limits	2: TS16001 Certificate is available.	The explanations regarding the measures taken by the municipalities for their electricity consumption are evaluated under this criterion.	(GRI, 2021)
-Water Usage	0: No description	1: Within legal limits	2: Additional measures and augmentation systems are available.	The explanations regarding the availability of waste water management systems for the savings measures for the water usage of the municipalities were evaluated under this criterion.	(GRI, 2021)
- Environmental Management System ISO 14001	0: No description/no certificate is available	1: There is certificate		The explanations regarding whether it has an environmental management system certificate given by ISO and accepted in the international platform are evaluated under this criterion.	(OECD, 2003)
2. Renewable Energy				The explanations regarding the support given by the municipalities to all kinds of renewable energy sourced and whether they use these sources in their activities are evaluated under this criterion.	(GRI, 2021)
3. Environment Awards	0: Not available	1: Available		The explanations regarding the awards received by the municipalities due to their contribution to the environment in the relevant activity period are evaluated under this criterion.	(Özbay & Selvi, 2014)

Appendix 1. Continued. Main Criteria and Sub-Criteria

4. Sustainable cities and communities					
-Ecology dimension	0: Not available	1: Available	2: Developed Projects are Available	Initiatives to ensuring access to safe and inclusive green spaces and public spaces and reducing the environmental impact of cities	(United Nations, 2021)
-Planned Urbanization Dimension	0: Not available	1: Available	2: Developed Systems are Available	Initiatives for; - Safe and accessible housing, - Accessible and sustainable transportation systems, - Inclusive and sustainable urbanization	(United Nations, 2021)
-Disaster and Emergency Dimension	0: Not available	1: Available		Initiatives for; - Reducing the negative effects of natural disasters - Implementing policies for inclusion, resource efficiency and disaster risk reduction.	(United Nations, 2021)
- Responsible Consumption and production	0: Not available	1: Available		Initiatives for significant reduction of waste generation and promoting a universal understanding of sustainable lifestyles	(United Nations, 2021)
- Climate Action	0: Not available	1: Available		Initiatives to integrate climate change-related measures into policies and plans	(United Nations, 2021)

Appendix 1. Continued. Main Criteria and Sub-Criteria

Intellectual Capital					
1. Patents and Copyrights					(Integrated Reporting Council, 2021)
-Number of new products	0: No description	1: There is an explanation.		The explanations regarding the number of new products/services put into production or put into service by the municipality during the year are evaluated under this criterion.	(Roos, Roos , Edvinsson, & Dragonetti, 1998) (Bontis, 1998)
-Total number of patents	0: No description	1: There is an explanation.	2: It is above the industry average.	The explanations about the total number of patents and the nature of the patents and the total number of trademarks are evaluated under this criterion.	(Integrated Reporting Council, 2021)
2. Implied knowledge, systems and procedure and protocols				The explanations about the municipality culture and management processes are evaluated under this criterion.	(Integrated Reporting Council, 2021)
- Investments in information technologies	0: There is no description	1: There is an explanation		Information about the details of information technologies and the amount of investment made in information technologies are evaluated under this criterion.	(Wang & Chang, 2006) (Seviby, 2008) (Stewart, 1997) (SeetharamanLow, & Saravanan, 2004)
Financial Capital					
1. Operational Success					Muhasebat Genel Müdürlüğü (2022)
2. Debt Structure					Muhasebat Genel Müdürlüğü (2022)
3. Expenditures					Muhasebat Genel Müdürlüğü (2022)
4. Income					Muhasebat Genel Müdürlüğü (2022)

Appendix 2. AHP Scale

	MAIN CRITERIA : SOCIAL CAPITAL																	
	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
	Extremely more important	Far more important to extremely more important	Far more important	Much to far more important	Much more important	Slightly to much more important	Slightly more important	Equally or slightly more important	Equally important	Equally or slightly more important	Slightly more important	Slightly to much more important	Much more important	Much to far more important	Far more important	Far more important to extremely more important	Extremely more important	
Human Capital																		Social and Relationship Capital
Human Capital																		Natural Capital
Human Capital																		Intellectual Capital
Social and Relationship Capital																		Natural Capital
Social and Relationship Capital																		Intellectual Capital
Natural Capital																		Intellectual Capital

The table is presented as an example of the decision matrices prepared for the opinions of the experts. In this table, it is requested that the main criteria should be prioritized by the experts specific to the local government. Each main criterion was prioritized over the other, respectively, and the results were analyzed with the AHP method.

Appendix 3. AHP Formulas

Equations of AHP are given below:

$$A = \begin{bmatrix} a_{11} \cdots & a_{1j} \cdots & a_{1n} \\ \vdots & \vdots & \vdots \\ a_{i1} \cdots & a_{ij} \cdots & a_{in} \\ \vdots & \vdots & \vdots \\ a_{n1} \cdots & a_{nj} \cdots & a_{nn} \end{bmatrix} \qquad \textbf{Equation 1}$$

$$W = \begin{array}{c} \\ w_1 \\ \vdots \\ w_i \\ \vdots \\ w_n \end{array} \begin{array}{c} \begin{array}{ccc} w_1 & \cdots & w_j \cdots & w_n \end{array} \\ \begin{bmatrix} w_1/w_1 \cdots & w_1/w_j \cdots & w_1/w_n \\ \vdots & \vdots & \vdots \\ w_i/w_1 \cdots & w_i/w_j \cdots & w_i/w_n \\ \vdots & \vdots & \vdots \\ w_n/w_1 & w_n/w_j & w_n/w_n \end{bmatrix} \end{array} \qquad \textbf{Equation 2}$$

$$W.w = \begin{array}{c} \\ w_1 \\ \vdots \\ w_i \\ \vdots \\ w_n \end{array} \begin{array}{c} \begin{array}{ccc} w_1 & \cdots & w_j \cdots & w_n \end{array} \\ \begin{bmatrix} w_1/w_1 \cdots & w_1/w_j \cdots & w_1/w_n \\ \vdots & \vdots & \vdots \\ w_i/w_1 \cdots & w_i/w_j \cdots & w_i/w_n \\ \vdots & \vdots & \vdots \\ w_n/w_1 \cdots & w_n/w_j \cdots & w_n/w_n \end{bmatrix} \end{array} \begin{bmatrix} w_1 \\ \vdots \\ w_i \\ \vdots \\ w_n \end{bmatrix} = n \begin{bmatrix} w_1 \\ \vdots \\ w_i \\ \vdots \\ w_n \end{bmatrix} \qquad \textbf{Equation 3}$$

$$(W - nI)w = 0 \qquad \textbf{Equation 4}$$

$$CI = \frac{(\Lambda_{Max} - n)}{(n-1)} \qquad \textbf{Equation 5}$$

$$CR = \frac{CI}{RI} \qquad \textbf{Equation 6}$$