



Social Impact Investing

Scientific Analysis of Project Examples for the Application of Social Impact Measurement



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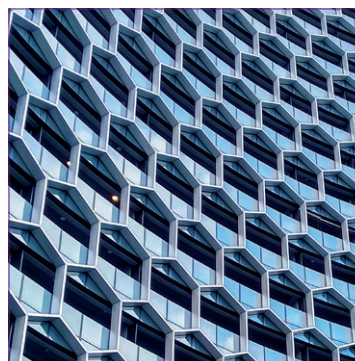
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FOR-
WORD

Foreword



Anyone promising impact and effect must be measured against the objectives!

In its Best Practice Guide to Social Impact Investing, the Institute for Corporate Governance in the German Real Estate Industry (ICG) conveys impact-oriented approaches to channel creative efforts into non-financial aspects of their investments also and in doing so, assume their responsibility for people, the environment and structures. The task now is to present this stance in a comprehensible and transparent manner to meet the requirements of sustainable investors. To this end, it is important to plan, measure and track the effects of investments in a targeted manner.

By initiating this commissioned research, the ICG has launched the next step toward further standardization to promote verification management, develop benchmarks, and enhance industry credibility. This can only succeed if, in addition to the economic success factors, social and societally relevant impact fields are included in the analyses and scoring models.

For an industry focused on economic success, it is a big step to implement impact measurement in addition to the known factors of performance measurement, thus influencing the principles of decision-making. But the world is changing, and acceptance of management that is geared exclusively to economic success and neglects minimum social and ecological standards is declining dramatically.

In European legislation, in addition to the Green Deal and the redirection of financial flows, a tightening of rules for non-financial reporting is apparent. In its Action Plan on Financing Sustainable Growth, the European Commission is focusing on improving the dialogue be-

tween reporting companies, users, and other relevant stakeholders and organizations, as well as on including reporting on non-financial risks and opportunities and the link to business models (EFRAG – European Financial Reporting Advisory Group).

Moreover, the new Corporate Sustainable Reporting Directive (CSRD), which came into force in April 2021, requires more than 50,000 companies in Europe to report sustainability information in accordance with mandatory EU standards. The concept of “dual materiality” was newly introduced, according to which companies must not only state how sustainability aspects affect their business but also how their business impacts people and the environment.

This is a good reason for the ICG to look at the standards and associated governance for future requirements. This also includes having social impact investing indicators, their transparency and measurability scientifically verified. Those who set new objectives must also work to develop new standards. The path itself is the reward. Let us find better paths together.

Susanne Eickermann-Riepe

Chair of the ICG

Chair of the Board RICS Europe and Germany

EBS Real Estate Management Institute (REMI)

The Real Estate Management Institute of the EBS European Business School is one of the world's leading training and further education institutes for real estate economics. At the EBS in the early 90s, for the first time at a university, the department of real estate economics was integrated into teaching and further education and – a one-of-a-kind in Germany – accredited by RICS. The EBS Real Estate

Management Institute stands for an excellent connection between teaching, practice and research. It is unique in its international orientation and the valuable network with lifelong contacts that has developed over time, as well as the possibility to adapt proactively and quickly to new topics and challenges as a private university.

Prof. Dr Kerstin Hennig
Head of Real Estate
Management Institute,
EBS University



Prof. Dr Kerstin Hennig is a Professor of Real Estate at the EBS University of Economics and Law and Head of the EBS Real Estate Management Institute (REMI).

After studying business administration at the European Business School in Oestrich, London and Paris and obtaining her doctorate (Dr rer. pol.) at the EBS Business School, Prof. Dr Kerstin Hennig worked in the real estate industry for 25 years, specializing in real estate management and investment. Her previous professional positions include debis Immobilienmanagement, Tishman Speyer Properties, UBS AG, IVG Immobilien AG and Groß & Partner. At the same time, Kerstin Hennig regularly worked as a lecturer and adjunct professor at various universities and institutes internationally.

In 2018, Prof. Hennig took over the leadership of the Real Estate Management Institute at EBS University. She teaches and researches in the field of real estate economics with a focus on Real Estate Innovation & Entrepreneur and Leadership, Sustainability, and Real Estate Management.

Prof. Hennig is a member of the Executive Committee of the Urban Land Institute (ULI) and a member of the Executive Committee of iddiw – Institut der deutschen Immobilienwirtschaft e.V. She is also a member of the supervisory boards of DWS Grundbesitz GmbH and DEMIRE AG. Furthermore, she is a member of the board of ZIA Deutschland Mitte.

«By working together and engaging all stakeholders, the real estate industry can add great value to address and target social and environmental sustainability issues, take responsibility, and continue to make the world a liveable and lovable place for future generations.»



Laura Vivian Haidl
Research Assistant and
Doctoral Student

Laura Vivian Haidl joined the EBS Real Estate Management Institute as a research associate and doctoral candidate on 1 April 2021. Her research focus is sustainability, with a focus on impact investing in the German real estate market.

Laura Vivian Haidl worked in the Deals Tax team at PwC in Frankfurt and Düsseldorf from August 2015 to March 2021. Ms Haidl holds a degree from the European Business School University of Business and Law (B.Sc.) and the Frankfurt School of Finance and Management (LL.M.).

Developers of the practical examples



Catella creates living spaces: Catella Project Management develops new neighbourhoods with a long-term perspective. In doing so, the Swedish company is implementing the concept of the “15-minute city”, with a mix of commercial and residential use, affordable housing for all, a sustainable working environment and the diversity that ensures the sustainable value of the neighbourhood. New mobility concepts make it possible to give people back the open space in the city; the areas between the buildings have greenery and are made for people to meet and linger. The neighbourhoods developed by Catella are located in central locations, planned to be both car-friendly and car-poor, and have an overall forward-looking design.

Previous projects include Living Circle in Düsseldorf, Living Lyon in Frankfurt and various commercial projects such as the C&A headquarters and Telekom’s largest service centre. The Seestadt mg+ and Düssel-Terrassen neighbourhood developments are the two largest certified climate protection settlements in NRW. In the Rhineland alone, around 4,000 new homes are currently being built. Catella Project Management is part of the Catella Group, Stockholm, a leading real estate investment and fund management specialist with offices in 15 countries. The Group manages assets of around 20 billion euros. Catella is listed on Nasdaq Stockholm in the Mid Cap segment.



As one of Germany’s leading residential developers, Instone Real Estate plans mixed-use neighbourhoods, attractive apartment and multi-family buildings as well as publicly subsidized housing and renovates listed properties. They also build the necessary social infrastructure in many neighbourhood projects. They have been active as project developers of residential real estate in Germany since 1991. Their many years of experience make them a reliable partner for the public sector, private residential property purchasers and long-term institutional residential property investors such as pension and provident funds. The es-

tablishment of building rights is as much a part of their expertise as the implementation of demanding development projects. As a partner to cities and municipalities, integrating social aspects in planning has a particularly high priority. They also develop neighbourhoods with new day-care centres and contribute to the costs of new school buildings. Together with their planners, architects and consultants, they design and market residential projects, always keeping their customers’ wishes in mind. More than 400 employees work for Instone at nine locations nationwide.

(as of 30 September 2020).



Landmarken AG develops the future of cities. They want to inspire and excite people by creating lively and identity-forming places that make cities more attractive, liveable and fit for the future. Landmarken AG executes sustainable office, mixed-use and special real estate as well as entire neighbourhood developments with a heterogeneous range of uses. In addition, they set standards: Many of their projects in office and administration, laboratory and research real estate, hotel projects, special and historic preservation properties, and affordable residential neighbourhoods have won awards. With their experience in inner-city development, they build creative urban building blocks. In addition, their portfolio ranges from revitalization to new construction, from the sustain-

able retail centre to the conversion of inner-city department stores. In harmony with economy, ecology and social issues, they assume responsibility for an environment worth living in. By treating natural resources with care, they develop high-quality and sustainable projects. Sustainability is part of their landmark spirit, which they live as a team and communicate to the outside world through their projects. They are involved in the ICG Social Impact Investments working group because their projects create social added value – not only for the users of their projects but for all people in the surrounding area or city. In them, investors find a reliable partner and competent provider of attractive, sustainable investment properties.

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1. Executive Summary

«Impact is fundamentally about change»
(Kölbel, Heeb, Paetzold, & Busch, 2020, p. 555).

Impact investing is not a new economic concept (Chiappini, 2017). The term impact investing first appeared during a Rockefeller Foundation event in 2007, where selected investors sought to define a new approach to investing that could generate more than just financial returns (Höchstädter & Scheck, 2015). Stakeholders in the finance and real estate industry cannot be expected to act in a purely altruistic manner, but the 2008 financial crisis also revealed that the financial-economic system was in urgent need of reform. It prompted economic and financial models to be rethought to create a sustainable economic environment and restore the reputation of financial firms (on an individual basis) and the financial system (as a whole). These claims also generally shape the corporate social responsibility (CSR) of financial firms, socially responsible investments, and philanthropic investments (Chiappini, 2017). Opportunities to reimagine real estate development and investment and connect them to local needs and priorities have come to the fore globally (Urban Land Institute, 2021); a sole focus on financial return is also being increasingly questioned.

According to the Global Sustainable Investment Review 2018 by the Global Sustainable Investment Alliance (GSIA), global sustainable investment assets (sustainable investment) totalled \$30.682 billion in 2018 (\$22.838 billion in 2016) (GSIA, 2018). In 2020, global sustainable

investment assets already amounted to USD 35.301 billion (GSIA, 2020).

Global Standards

Sustainable investments are increasingly seen as an important lever to achieve societal objectives, such as the Sustainable Development Goals (SDGs) of the United Nations (Agenda 2030) (Busch, Carroux, Heeb, Köbel, & Paetzold, 2020; Kölbel et al., 2020). But it is not discernible what the term encompasses and how impact on the real economy is or can be achieved, and in particular how this impact can be measured. Furthermore, there is currently no single framework that has gained acceptance and is used in objective setting, structuring, impact measurement and reporting, and benchmarking. Stakeholders are mostly guided by different tools and systems, which are already recognized, but which make comparability and thus data collection and benchmarking difficult.

We are still in the development phase of measuring social impact: Various stakeholders are currently developing measurement tools, and terminology and trying to define industry standards. However, a uniform definition of terms, uniform models for measurement, and comparable and transparent industry standards are still lacking. The real estate industry faces a major, but feasible, challenge in this regard, which must bring all stakeholders to the table to formulate an optimal solution for the real estate industry as a whole.

This commissioned research is intended to represent the first step in this direction by defining the concept of social impact investing and designing a model for analysing and measuring social impact for the real estate industry, using real estate projects, properties and neighbourhoods as examples.

Historical development

The investor initiative “UN Principles for Responsible Investments” (PRI) came into being as early as 2006. The term ESG was established by the PRI and defined by BaFin. In September 2015, “Transforming our world: the 2030 Agenda for Sustainable Development” (2030 Agenda) was adopted by the United Nations General Assembly. Building on these milestones, the European Commission established the “EU Action Plan: Financing Sustainable Growth” (EU Action Plan) on 08 March 2018, with which the financial industry must comply through different regulations at different points in time. In addition to the EU Action Plan, to implement the United Nations 2030 Agenda, the European Green Deal for a Sustainable EU Economy (EU Green Deal), with further requirements and strategies, was presented on 11 December 2019. Corresponding plans and regulations are also planned in relation to the social challenges of society.

Since the UN Millennium Agreement 2000 and the subsequent goals, principles and action plans mentioned above, a whole range of guidelines, frameworks and impact measurement systems have been developed worldwide. The most commonly used impact measurement systems are the SDGs (73%), the IRIS Catalog of Metrics (46%), the IRIS+ Core Metrics Sets (36%), and the Impact Management Project’s (IMP) Five Dimensions of Impact Convention (32%) (Hand, Dithrich, Sunderji, & Nova, 2020). According to Green Soluce and IEIF’s (2021) study on ESG trends in Europe, UN-PRI (43%), GRESB (48%) and INREV Sustainability Reporting Guidelines (24%) are the most commonly used frameworks for institutional investors and fund managers (Green Soluce & IEIF, 2021). As part of a uniform benchmarking process, various rating agencies or certifications currently take ESG and sustainability factors into account across all sectors. However, since none of the tools has yet established itself as a market standard, comparability and transparency in the market are not yet given. A lack of data and the need for scientific evidence, which has been lacking to date, make it correspondingly difficult to draw general conclusions about the financial returns and performance of impact investments. Currently, there are already a large number of measure-

ment models and analysis grids in the area of ecology; however, the area of social criteria has not yet come into focus. Therefore, this commissioned research is intended to provide an initial foundation for a measurement model and analysis grid of social criteria in real estate.

Commissioned Research

This commissioned research builds on the ICG’s Guide to Social Impact Investing (February 2021) and has the following objectives:

1. Development of an analysis grid as a basis for assessing the social impact elements of real estate projects/properties at different stages of their development
2. Development of an exemplary model to measure the social impact of real estate projects/properties in different stages
3. Analysis and measurement of social impact exemplified by three practical examples

The analysis grid developed as part of this commissioned research is intended to enable all stakeholders in the real estate industry to measure the social added value of their projects and investments and to transparently demonstrate, verify and thus face up to their social responsibility. In addition to the financial return, the question arises to what extent social and environmental return will also influence valuation in the future; the total value is supplemented by the social and environmental impact.

By working together and engaging all stakeholders, the real estate industry can add significant value to responsibly embrace social and environmental sustainability issues and continue to make the world a liveable and lovable place for future generations.

2



2. Objective of Commissioned Research

The objective of the commissioned research is to analyse and measure social impact investing in the real estate sector. First, the commissioned research is concerned with developing an analysis grid based on existing models as a basis for evaluating social impact elements of real estate projects/properties in different stages, and second, with developing a model for measuring social impact. In this commissioned research, the analysis and measurement of social impact are developed and formulated based on three practical examples. The study is based on the ICG's Best Practice Guide for the Real Estate Industry on Social Impact Investing.

This commissioned research is intended to serve the public sector, funds, developers as well as investors to be able to measure and compare the social impact of their projects/investments. In this context, social impact is understood as social responsibility with explicit consideration of the social impact of real estate stakeholders on the developed and undeveloped environment. Stakeholders should become aware of their social responsibility and be able to analyse, measure and present the social-added value of their projects/investments just like the financial-added value.

The commissioned research is divided into two areas. Part I includes the literature review and Part II includes the development of an exemplary analytical framework and measurement model.

As part of the literature review, the term social impact investing is defined, followed by a presentation of current international regulations and policies. Impact measurement tools and frameworks are then presented and assessed with respect to this commissioned research.

Based on this preliminary work, an exemplary analysis grid will be created that makes social impact measurable. A distinction is made here between neighbourhoods and projects. Projects, in turn, are divided according to their use (real estate use type). After illuminating the respective impact fields/criteria of the neighbourhoods and property types, key performance indicators (KPI) are assigned to these impact fields/criteria, which are intended to make the impact of the neighbourhood or project measurable and comparable. The focus here is on social impact; numerous measurement options and models already exist for measuring ecological impact. However, since the social impact and the ecological impact are closely linked, the ecological interface (e.g. for usable green spaces, neighbourhood climate, etc.) is addressed.

The analysis grid is applied to three projects (one completed, one ongoing, and one planned) to establish a baseline that allows the social impact of these projects to be measured comparably. The three projects analysed have different objectives: The main objective of the Living Circle (Düsseldorf) and Schumanns Höhe (Bonn) projects was, inter alia, a mixed neighbourhood, while the main objective of the Moringa (Hamburg) project lies in linking sustainability with (affordable) housing (see Chapter 8 of this work).

In the conclusion, it is shown how the developed analysis grid can help to identify and evaluate the impact levers and to which points attention must be paid to achieve a sustainable social impact in a project or neighbourhood. The outlook highlights open questions, limitations, and further areas of research.

PART I

PART I: Literature Review

The first part of this commissioned research defines the concept of social impact investing. Furthermore, impact measurement frameworks and tools will be presented and analysed considering their real estate industry application.

3. Frameworks and Impact Measurement

Problem

Income and wealth inequality are among the world's most pressing issues. The socioeconomic divide has increased immensely in recent decades, continued to rise rapidly after the outbreak of the global financial crisis, and ultimately became only more apparent with the COVID-19 pandemic. High and rising inequality harms our society in many ways. Inequality can affect social cohesion and may lead to poorer health and well-being. Therefore, one of the United Nations Sustainable Development Goals is also to reduce inequality (SDG 10). Inequality can also weaken societal trust in institutions and foster political and social instability. Lost trust can lead to intolerance and discrimination, as seen in the events that preceded recent movements like Black Lives Matter and Stop Asian Hate. All economic stakeholders, as well as policymakers, must therefore consider the needs of future generations in light of the needs of current generations when thinking about social value creation (Urban Land Institute, 2021).

Responsibility of the Real Estate

Industry

As curators of the Urban Environment, the real estate industry clearly has a large and responsible role. The real estate industry according to a broad definition (plus architects, planners, lenders, consultants and construction companies) comprised a gross value added of approx. 619 billion euros in 2020, which corresponds to a share of 20% of the total value added in Germany. The gross value added of the real estate industry in Germany according to a narrow definition (brokerage, management, trading and leasing) comprised a gross value added of €334 billion in 2020, which represents 11% of the total value added (ZIA, 2021). The long-term nature of real estate decisions related to developed space has an enormous and weighty impact on the environment and, by extension, on people. The long-term nature of these decisions makes social responsibility particularly important. Opportunities to reimagine real estate development and investment and connect them to local needs and priorities have come to the fore globally (Urban Land Institute, 2021). To this end, the establishment of the SDGs and the frameworks and objectives that have evolved from them have provided the essential impetus and have had a major impact.

The extension of the social impact to the social responsibility of all real estate stakeholders is a key postulate of this study.

Market Overview

The social impact investing market is still a young niche market, especially in the German real estate context, and for which little scientific evidence exists. Similarly, the topic is of high and current relevance: More and more large real estate companies are setting up social impact funds and/or designing social impact investment neighbourhoods/projects. The legal deadlines for implementing social and environmental measures, e.g. under the EU Green Deal or EU Action Plan (more information on this in Chapter 3.2) serve as accelerators. External pressure, both legal as well as social, is forcing companies to focus on this issue.

Impact investments can pursue all kinds of social and environmental objectives, but they are mostly oriented towards the world's most pressing concerns for a sustainable development process, following the 17 United Nations Sustainable Development Goals (SDGs) (for more information, see Chapter 3.2).

However, according to the concept award guidelines of the "Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection (2017)" (see Chapter 4), urban planning, architectural, housing, energy and economic criteria should also be included. Implementation of sustainable and integrated urban development, as called for in the Leipzig Charter of 2007, could thus be ensured and implemented (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017).

According to the Global Sustainable Investment Review 2018 by the Global Sustainable Investment Alliance (GSIA), global sustainable investment assets (sustainable investment) totalled \$30.682 billion in 2018 (\$22.838 billion in 2016). From 2016 to 2018, sustainable investment assets grew 34% globally. Sustainable investments now account for a significant share of professionally managed assets in every region, ranging from 18% to 63%. For example, sustainable investment assets account for more than 50% of total professionally managed assets in Canada, Australia, and New Zealand, nearly half in Europe, 26% in the U.S., and 18% in Japan (GSIA, 2018).

At the beginning of 2020, global sustainable investments in the five main markets (Europe, USA, Canada, Australia/Asia and Japan), reached USD 35.301 billion, representing an increase of 15% in the last two years (2018-2020) and 55% in the last four years (2016-2020) (GSIA, 2020).



This positive trend is reflected in the Global Impact Investing Network's (GIIN) Investor Survey 2020, which surveyed 294 of the leading impact investors from 46 countries who collectively manage \$404 billion in impact investing assets: 69% of respondents viewed the impact investing market as growing steadily; in 2011, by contrast, 75% of participants viewed the market as in its early stages (Hand et al., 2020).

The impact of sustainable investments can currently still be described as moderate; this is mainly because many investors and financial service providers equate impact with ESG (Environmental Social Governance (ESG)). But taking ESG criteria into account does not automatically create an impact (Busch et al., 2021; Busch, Carroux, Heeb, Köbel, & Paetzhold, 2020).

Status Quo

Sustainable investments are increasingly seen as an important lever for achieving societal objectives, such as the United Nations (UN) Sustainable Development Goals (SDGs) (Busch et al., 2020; Kölbels et al., 2020). But it is not discernible what the term encompasses and how impact on the real economy is or can be achieved.

We are still in the development phase of measuring social impact: Various stakeholders are currently developing measurement tools, and terminology and trying to define industry standards. There is currently no single framework in place at the time this study was written that is used in objective setting, structuring, impact measurement and reporting. Stakeholders are mostly guided by different tools and systems, which are already recognized, but the lack of uniform definitions of terms and the lack of uniform models for measurement make comparability and thus data collection and comparable and transparent industry standards difficult.

3.1 Social Impact Investing

«Impact is fundamentally about change»

(Kölbel et al., 2020, p. 555). Impact is defined as a change in a specific social or environmental parameter caused by an activity. Impact is further defined in terms of three defining characteristics (Kölbel et al., 2020):

1. Change compared to the actual state
2. Reference to a clearly defined parameter
3. Implication of causality

A distinction must also be made here between investor impact (changes caused by investor activity in company impact) and company impact (change caused by a company's activity in specific social and environmental parameters). Investors usually have no, or only a limited, impact on social or environmental parameters. However, investors influence companies, which in turn influence relevant social and environmental parameters (Busch et al., 2020; Kölbel et al., 2020). Changes in companies by investors can be achieved through three primary mechanisms of action (Busch et al., 2020; Kölbel et al., 2020):

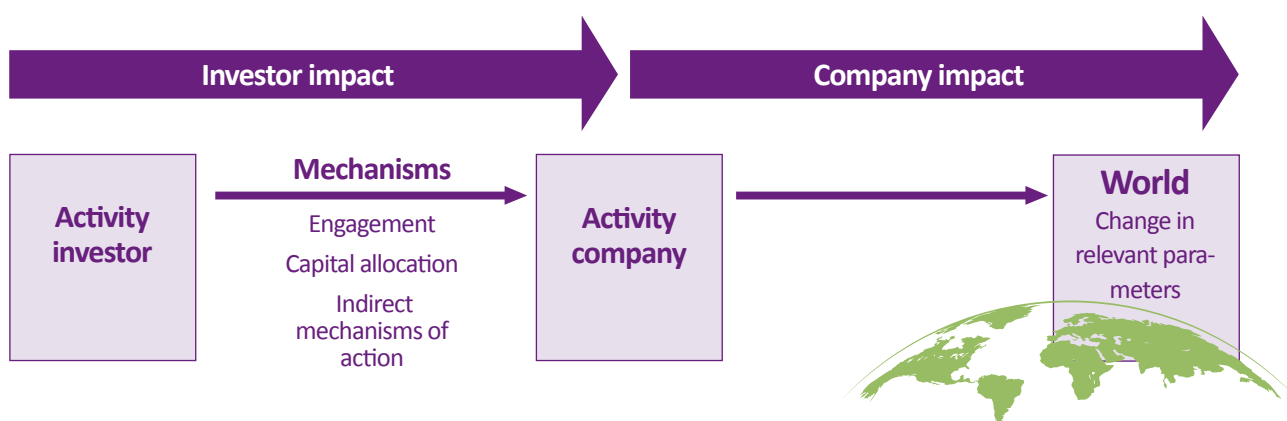
1. Shareholder engagement
2. Capital allocation
3. Indirect impact mechanisms such as stigmatization (public questioning of a company's legitimacy), endorsement (public support of a company), benchmarking (measuring companies by rating agencies or indices), and demonstration (encouraging other investors to follow suit)

The company itself only has an impact if it generates social outcomes that would not otherwise have occurred. It must provide what is known as additionality. It must increase the quantity or quality of the company's social outcomes beyond what would have occurred in the alternative (Brest & Born, 2013).

Regarding the financial dimension, the return of invested capital seems to be a minimum requirement for impact investment (Freireich & Fulton, 2009; Höchstädter & Scheck, 2015). Freireich and Fulton (2009) divide the impact investment investor group into "impact-first investors" who primarily maximize the impact of their investment and accordingly forgo potential returns, while "finance-first investors" seek primarily to meet their minimum return requirements or deliberately seek investments that deliver above-average returns.

Sustainable investments are an investment approach in which environmental, social, and governance factors, combined with financial considerations, guide the selection and management of investments (GSIA, 2018). According to GSIA (2018), sustainable investments comprise the following seven activities and strategies:

1. Negative/exclusive screening
2. Positive/best-in-class screening
3. Standards-based screening
4. ESG integration
5. Sustainability-oriented investing
6. Impact/community investing
7. Corporate engagement and shareholder activism



Impact mechanisms of sustainable investments (from Busch et al. (2020, p. 25))

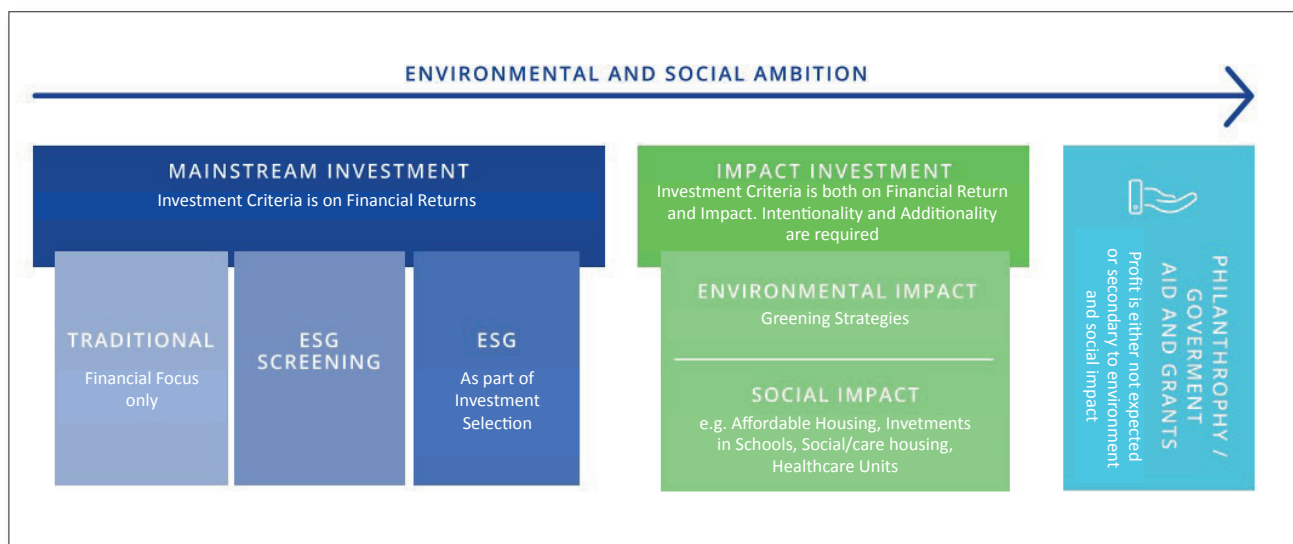
As in 2016, the largest sustainable investment strategy globally is negative/exclusive screening (\$19.8 billion), followed by ESG integration (\$17.5 billion) and corporate engagement/shareholder action (\$9.8 billion). Negative screening (i.e., excluding companies that do not operate in line with sustainable values) remains the most common strategy in Europe. ESG integration is most common in the U.S., Canada, Australia/New Zealand, and corporate engagement and shareholder activism is the dominant strategy in Japan. Standards-based screening has lost ground in Europe since 2016, as significantly fewer assets are managed according to this strategy. Despite modest growth in Canada and faster growth in Japan in assets managed under standards-based screening, the total global volume of these assets declined from 2016 to 2018 (GSIA, 2018).

The term impact investing first appeared during a Rockefeller Foundation event in 2007, where selected investors sought to define a new approach to investing that could generate more than just financial returns (Höchstädter & Scheck, 2015). Impact investing represents a small segment of sustainable investments, according to GSIA (2018).

Impact investments are investments made to generate positive, measurable social and environmental impacts in addition to a financial return. Thus, the impact of im-

pact investments is not a consequence of investment – an externality (positive or negative) – but represents the purpose of this type of investment (Chiappini, 2017). Impact investments can be made in both emerging and developed markets and target a range of returns from below-market to market rates depending on the investors' strategic objectives.

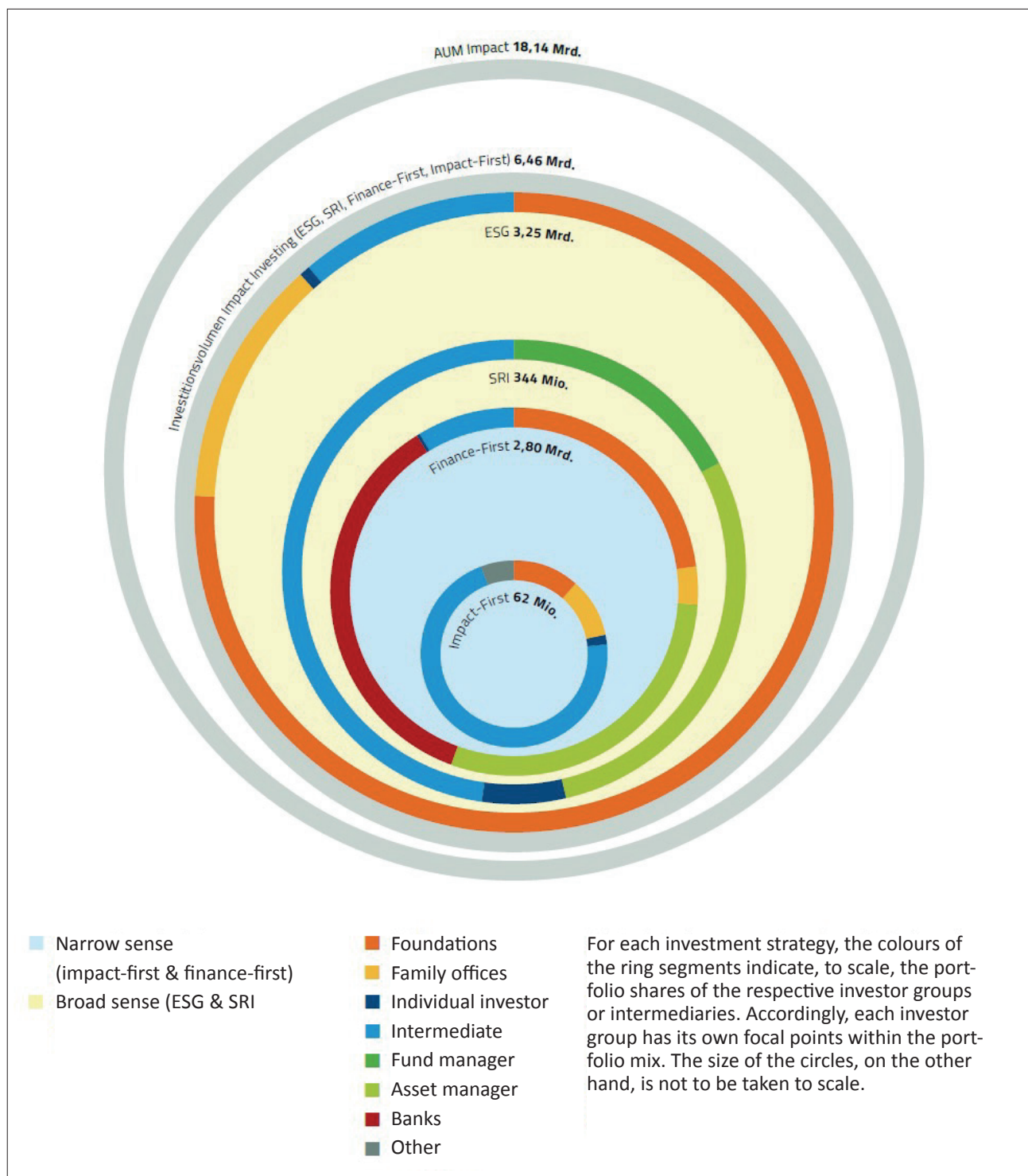
The growing impact investment market provides capital to address the world's most pressing challenges in sectors such as sustainable agriculture, renewable energy, conservation, microfinance, and affordable and accessible basic services such as housing, health, and education (GIIN, 2021b). Impact investing includes community investing, where capital is targeted to traditionally underserved individuals, or communities, or financing is provided to companies with a clear social or environmental purpose (GSIA, 2018). Impact investments also relate to either environmental objectives (environmental or green impact investing), social objectives (social impact investing), or a combination of both (INREV, 2020). The implementation of the aforementioned social and ecological objectives is part of the social responsibility that we must all bear; especially considering the long-term nature of real estate developments. Thus, impact investing is a task and duty incumbent on the real estate industry.



Investment spectrum (from INREV (2020, p. 8))

The market volume in Germany depends on the understanding and selectivity of the term “impact investing”. Four investment strategies are distinguished (consistent with the OECD capital spectrum distinction from the 2015 Impact Investing reports):

The narrow sense includes impact-first and finance-first, while the broad sense still includes socially responsible investments and ESG investments. Impact investing in the broad sense comprises approximately 6.5 billion euros in market volume, while impact investing in the narrow sense comprises approximately 2.9 billion euros in Germany (Then & Schmidt, 2020).



Onion-skin model of impact investing in Germany by investment strategies and investor groups (taken from Then and Schmidt (2020, p. 16))

Social demand/beneficiary	Demand	Supply
Social target areas	Organization of delivery	Investor intent
Core social areas such as age, disability, health, children and families, public order and safety, (affordable) housing, unemployment or education and training	Mandatory reporting, external certification or labelling, or statutory requirements	Statutory restrictions or restrictions with a reporting obligation
Beneficiary context	Measurability of social impact	Expected return
Population at risk according to socio-demographics, location, or income	Formal evaluation (evaluated or not)	Return on capital or profit equal to or lower than the risk-adjusted market return
Goods/service		
Neither fully public nor fully private		

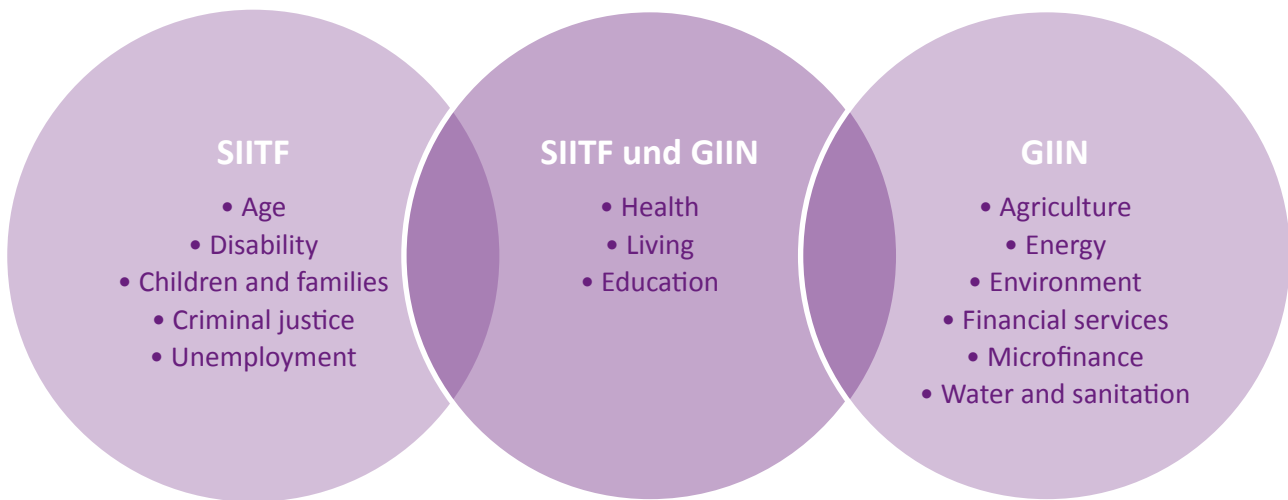
Social impact investing characteristics, attributes, and suitability (adapted from OECD (2015))

Different approaches and guidelines exist to classify social impact investing and create frameworks. The characteristics and attributes of social impact investing as defined by the OECD serve as a recognized guideline. According to the OECD, a transaction can only be considered social impact investing if it meets the specified eligibility thresholds for each of the seven characteristics (see figure Social Impact Investing Characteristics, Attributes and Suitability (adapted from OECD (2015)). However, this approach allows for the definition to include variations in the boundaries of social impact investing to accommodate different purposes (OECD, 2015). Depending on the context, some characteristics are more relevant than others, particularly social objectives/areas and financial return, both in definition and in their relationship to each other.

Views on areas to include in social impact investing may vary depending on the different perspectives held by the stakeholders involved in each transaction. The prevailing view in the literature is that impact investing is not limited to specific demographics, geographies, impact targets, sectors, asset classes, or financial instruments (Best & Harji, 2013). Although impact investment interventions

often target underserved populations, impact investing may well benefit a broader population in terms of social responsibility (Evenett & Richter, 2011; Harji & Jackson, 2012). A range of impact objectives can be pursued that are either closely linked to a specific sector or can be achieved across a range of sectors (Höchstädter & Scheck, 2015).

For example, the Social Impact Investment Taskforce Forum (SIITF), established by the G8 under the UK's Presidency, which in its first year included only developed countries, focused on social issues, while organizations working in developing countries may take a broader view. The Global Impact Investing Network (GIIN), on the other hand, is a global network that seeks to attract mainstream investors to social impact investing. As such, they tend to categorize target areas in line with more traditional investment sectors. The figure below shows a comparison between the social sectors that SIITF focuses on and the sectors that the GIIN outlines for global investors and intermediaries. Surprisingly, only three areas overlap (health, affordable housing, and education), illustrating how perspectives can differ (OECD, 2015).

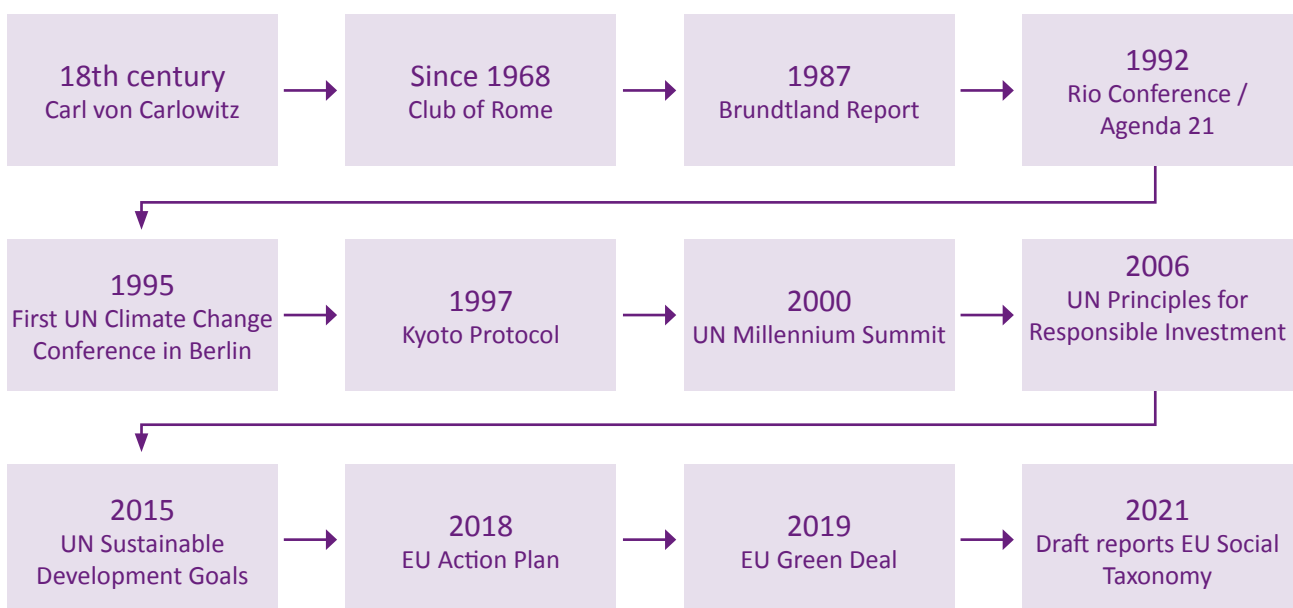


Social needs and investment areas (based on OECD (2015, p. 62))

3.2 Sustainability – International regulations and measures

Companies are not only made aware of their social responsibility concerning the consequences of the social and ecological effects of their actions and decisions through media attention but they are also given corresponding obligations by the state through publications, regulations and laws.

The following figure shows an overview of national and international catalysts, regulations and measures:



National and international triggers, regulations and measures (own presentation EBS REMI 2021)

In particular, the UN Millennium Declaration in 2000 was the first time that concrete objectives with a deadline were formulated and set on the global level. These Millennium Development Goals provide the basis for the SDG (“Sustainable Development Goals”), from 2015.

In the following Chapter, the most important international regulations and measures that constitute the framework for impact investing and also lay the foundations for social impact investments are briefly explained. The focus is on EU regulations and ordinances.



3.2.1 UN Millennium Declaration 2000

In September 2000, world leaders from 189 countries gathered at United Nations headquarters in New York to adopt the United Nations Millennium Declaration, committed to a new global partnership to fight extreme poverty and set a series of time-bound targets – with a deadline of 2015 – that have become known as the Millennium Development Goals (United Nations, 2000).

The eight Millennium Development Goals (MDGs) include the following targets (United Nations, 2015a), with goal no. 7 noting the foundation and requirement of global environmental sustainability:

- | |
|---|
| 1. Eradication of extreme poverty and hunger |
| 2. Primary education for all children |
| 3. Gender equality and empowerment of women |
| 4. Reduction in infant mortality |
| 5. Improving maternal health |
| 6. Combating HIV/AIDS, malaria and other diseases |
| 7. Ensuring environmental sustainability |
| 8. Global partnership for development |

The UN Millennium Declaration represents the global start signal for considering environmental and social objectives and led to the first frameworks, principles, regulations and laws being implemented.

3.2.2 UN Principles for Responsible Investment (PRI)

As part of the implementation of the MDGs, the UN Principles for Responsible Investments (PRI) investor initiative was established back in 2006. Six principles were defined in this investor initiative:

1. Inclusion of ESG issues in analysis and decision-making processes in the investment sector
2. Be an active shareholder and consider ESG issues in investment policy and practice
3. Encourage companies being invested in to maintain appropriate disclosure regarding ESG issues
4. Promote acceptance and implementation of the principles within the investment industry
5. Working together to increase effectiveness in implementing the principles
6. Report on the activities and progress of the principles' implementation (PRI, 2019)

Through the PRI, the term ESG was introduced (PRI, 2019). In response, the German Federal Financial Supervisory Authority (BaFin) has listed a definition of the individual ESG categories (BaFin, 2019):



Environmental	Social	Governance/ corporate governance
• Climate protection • Adaptation to climate change • Biodiversity protection • Sustainable use and protection of water and marine resources • Transition to a circular economy, waste prevention and recycling • Avoidance and reduction of • Pollution • Protection of healthy ecosystems • Sustainable land use	• Compliance with recognized labour standards (no child labour, no forced labour, no discrimination) • Compliance with occupational safety and health protection • Appropriate remuneration, fair conditions in the workplace, diversity, and training and development opportunities • Freedom of assembly and to form trade unions • Ensuring sufficient product safety, including health protection • Equal requirements for companies in the supply chain • Inclusive projects or consideration of community and social minority concerns	• Tax honesty • Measures to prevent corruption • Sustainability management by the Executive Board • Executive Board compensation dependent on sustainability • Enabling whistleblowing • Ensuring employee rights • Ensuring data protection • Disclosure of information

Sample definitions ESG (own presentation based on BaFin (2019))

3.2.3 Sustainable Development Goals: Agenda 2030

In 2015, at the UN Summit in Paris, the eight MDGs of the Millennium Declaration were revised and supplemented by global Sustainable Development Goals (SDGs). On 25 September 2015, “Transforming our world: the 2030 Agenda for Sustainable Development” (2030 Agenda) was adopted by the United Nations (“UN”) General Assembly. The 2030 Agenda comprises 17 Sustainable Development Goals (“SDGs”), which have been broken down into 169

sub-objectives. These expanded targets are scheduled to be achieved by 2030 (United Nations, 2015b).

These objectives are intended to serve as a common language and normative framework for determining and classifying overarching impact objectives worldwide. The real estate and financial sectors play a key role in achieving the objectives.



The 17 Sustainable Development Goals of the 2030 Agenda (taken from the Federal Government (2021))

RICS assigns the following SDGs to the real estate industry (RICS, 2021)



SDGs of the real estate industry (taken from RICS (2021))

3.2.4 EU Action Plan

Building on these global milestones (UN Millennium Declaration & UN Paris Agreement), the European Commission established the “EU Action Plan: Financing Sustainable Growth” (EU Action Plan) on 08 March 2018, with which the financial industry must comply through different regulations at different points in time. The real estate sector has not yet been explicitly compiled.

Sustainable finance takes environmental and social considerations into account when making investment decisions. Environmental considerations relate to climate change adaptation and mitigation, while social considerations touch on issues related to inequality, participation, employment, and investment in people and communities (European Commission, 2018). Companies have the task and duty to consider social and environmental impacts. This is now also underpinned by corresponding regulations to ensure they fulfil their social responsibility towards people and the environment.

The EU Action Plan addresses the financial sector and has defined three targets based on the 2030 Agenda and the adoption of the Paris Climate Change Agreement (European Commission, 2018):

1. Redirecting capital flows to sustainable investments to achieve sustainable and inclusive growth.

2. Addressing financial risks arising from climate change, resource scarcity, environmental degradation, and social problems.

3. Promoting financial and economic activity in terms of transparency and long-termism.

By taking environmental and social objectives into account, the aim is to limit the financial impact of environmental and social risks. To implement these EU Action Plan objectives, ten individual measures were defined (European Commission, 2018):

1. Introduction of an EU classification system for sustainable activities
2. Standards and labels for environmentally friendly financial products
3. Promotion of investments in sustainable projects
4. Consideration of sustainability in financial consulting
5. Development of sustainability benchmarks
6. Better consideration of sustainability in ratings and market analyses
7. Clarification of the obligations of institutional investors and asset managers
8. Consideration of sustainability in supervisory regulations
9. Strengthening the rules on the disclosure of sustainability information and accounting
10. Promoting sustainable corporate governance and reducing short-term thinking on the capital markets

A primary objective of the Action Plan was to develop an EU taxonomy to collect comparable information on sustainable investments through common definitions (European Commission, 2018).

The Taxonomy Regulation (Regulation (EU) 2020/852) of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investments and amending Regulation (EU) 2019/2088 defines criteria for determining, the extent to which an economic activity qualifies as environmentally sustainable (a corresponding regulation regarding social the criteria is planned; initial drafts were submitted in summer 2021 and are expected to be revised by autumn 2021). However, classification as an environmentally sustainable business activity is only possible if this activity is carried out in accordance with the OECD Guidelines for Multinational Enterprises and the United Nations Guiding Principles on Business and Human Rights, including the Declaration on Fundamental Principles and Rights at Work by the International Labor Organization (ILO), the eight ILO core labour standards as well as the International Bill of Human Rights (“minimum protection”). The aim here is to be able to show an investment’s degree of environmental sustainability. The criteria for environmental sustainability (Art. 3 a) to d) Taxonomy Regulation, refer primarily to the fact that defined environmental targets (Art. 9 Taxonomy Regulation) must be met.

In addition, the environmental objectives should not significantly impair each other (Art. 17 Taxonomy Regulation) and ensure that the minimum level of protection (Art. 18 Taxonomy Regulation) is implemented (Taxonomy Regulation, 2020). The Taxonomy Regulation defines 6 environmental objectives according to Art. 9 a) to f) (Taxonomy Regulation, 2020):

1. Climate protection
2. Adaptation to climate change
3. The sustainable use and protection of water and marine resources
4. The transition to a circular economy
5. Avoidance and reduction of environmental pollution
6. The protection and restoration of biodiversity and ecosystems

The EU Technical Expert Group on Sustainable Finance (TEG) was created to develop, among other things, techni-

cal evaluation criteria for the environmental targets. The report, including an annex, examines seven economic sectors and develops criteria. Buildings form a separate sector of the seven economic sectors (EU Technical Expert Group on Sustainable Finance, 2020a, 2020b).

The increasing importance of impact investing, mainly driven by EU initiatives in Europe, can also be deduced from the Global Sustainable Investment Review 2018 and 2020 figures (GSIA, 2018, 2020): At the beginning of 2020, global sustainable investments reached USD 35.3 billion across the five major markets, representing a 15% increase over the last two years (2018-2020). Europe reported a 13% decline in sustainable investment growth from 2018 (USD 12.3 billion) to 2020 (USD 10.7 billion), but this was due to a change in measurement methodology from which the European data for this year's report was derived (unfortunately, a comparison to the previous measurement methodology is not available due to the complexity of regulatory changes within Europe during the comparison periods).

3.2.5 EU Green Deal

In addition to the EU Action Plan, with further requirements and strategies to implement the United Nations 2030 Agenda, the European Green Deal for a Sustainable EU Economy (EU Green Deal) was presented on 11 December 2019. To lead the EU to a fair and prosperous society, with a modern, resource-efficient and competitive economy, no more net greenhouse gas emissions should be released after 2050 and economic growth should be decoupled from resource use. Furthermore, protecting, preserving and enhancing the EU's natural capital and protecting people's health and well-being from environmental risks and impacts is an objective of the EU Green Deal (European Commission, 2019). The EU Green Deal sets concrete targets that were set by the aforementioned frameworks (e.g. the MDGs and SDGs) and regulations. By setting concrete targets and linking them to data, impact investing is to be implemented (on a mandatory basis); companies are thus held accountable to society.

The EU Green Deal includes the following targets (European Commission, 2019):

1. Ambitious EU climate protection targets for 2030 and 2050
2. Supply of clean, affordable and safe energy
3. Mobilizing industry for a clean and circular economy
4. Energy- and resource-saving construction and renovation
5. Faster transition to sustainable and intelligent mobility
6. A fair, healthy and environmentally friendly food system
7. Preserve and restore the ecosystem and biodiversity
8. Zero-pollutant target for a pollution-free environment

The following objectives of the EU Green Deal concern the real estate sector:

The objective of "providing clean, affordable, and secure energy" also includes mitigating the risk of energy poverty, which affects households that cannot afford essential energy services due to securing the minimum standard of living (European Commission, 2019). An intersection of social and environmental issues is evident here in particular. Under the objective of "Mobilizing Industry for a Clean and



Circular Economy,” the Circular Economy Action Plan will be drafted, which will focus on measures for resource-intensive sectors such as the construction industry.

The “Energy and Resource Efficient Construction and Renovation” objective will seek to reduce the energy consumption of buildings (currently 40% of energy consumption) through energy performance legislation, while also seeking to improve the current renovation rate of 0.4% to 1.2% through initiatives (European Commission, 2019).

The objectives related to the circular economy and the energy- and resource-saving construction and renovation also have social components, such as the positive influence of (diverse, sustainable) building structures on the quality of stay and diversity of use of a real estate project/property.

3.2.6 EU Social Taxonomy

The EU Action Plan (Chapter 3.2.4) focused on developing the EU taxonomy in order to be able to transparently collect reliable and comparable information on sustainable investments using uniform definitions. First, the taxonomy is addressed in terms of climate change mitigation and later extended to aspects of social sustainability (European Commission, 2018). To date, the respective key topics are recorded in the following ordinances:

- Taxonomy Ordinance dated 18 June 2020,
- Disclosure Ordinance dated 27 November 2019 and
- Benchmark Ordinance dated 27 November 2019.

In July 2021, Subgroup 4 submitted a draft report regarding the EU Social Taxonomy. This draft report is an important step in the deliverables to be provided by the Platform to advise the Commission on possible extensions of the taxonomy framework beyond environmentally sustainable activities to include social objectives and activi-

ties that significantly harm environmental sustainability, as well as those that do not have a significant impact on sustainability.

The Platform’s recommendations in this regard will feed into a Commission report describing the provisions that would be needed to extend the scope of the Taxonomy Regulation, to be adopted by the end of 2021 in accordance with Article 26 (2a and 2b) of the Taxonomy Regulation (European Commission, 2021).

After presenting the existing and planned regulations and measures and their influence on the topic of social impact investment, the following section will now present the existing and most commonly used impact measurement tools and analyse them with regard to their applicability for measuring social impact in the real estate sector.

3.3 Impact Measurement Tools and Frameworks

To approach the topic of impact measurement, it is first necessary and helpful to deal with the following terms. The impact logic is the relationship between the planned impact objective and the resources/services used; the impact logic can be depicted as an impact staircase with three levels:

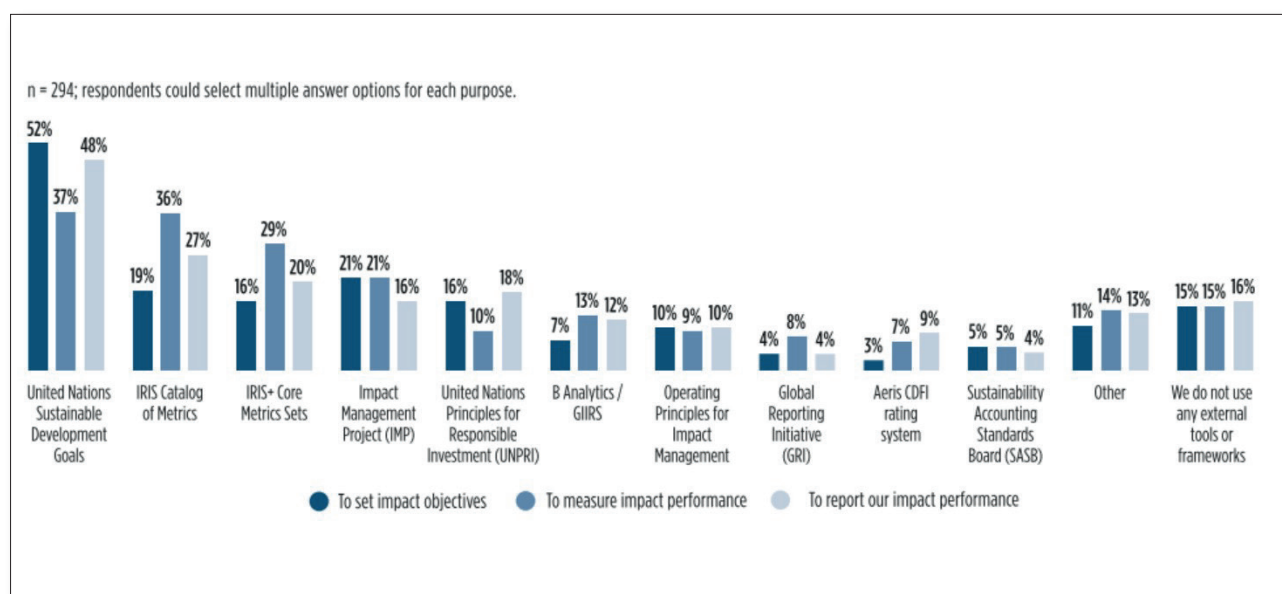
Outputs (the services/products or their use by their relevant target groups can be described as outputs), outcomes (outcomes are achieved when the outputs open up new skills and opportunities for the target group and lead to changed perspectives and behaviours), and impact (ideally, outcomes ensure lasting positive change at the societal level, which are defined as impact) (ICG, 2021). Outputs are measurable and can be directly attributed to social impact, while outcomes are anticipated after the output but are rarely measurable and attributable to social impact (PGIM, 2020). The objective of this commissioned research is to measure social impact. This is intended to demonstrate the possibilities of assuming social and societal responsibility in the real estate sector and its measurability/impact.

The complexity of the processes and the lack of normative frameworks are seen as the main challenges for a systematic and explicit consideration of ESG factors in asset

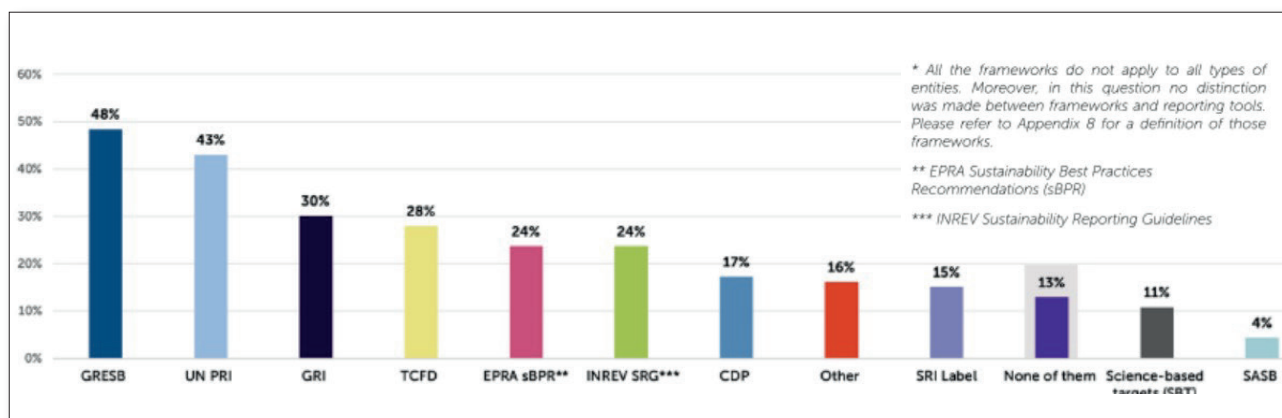
valuation. In Germany, there is a strong emphasis on the lack of consistency between EU regulations and national regulations (Green Soluce & IEIF, 2021).

Currently, there are various international guidelines and standards, as well as certifications, which are intended to ensure the orientation and comparability of impact investing. This shows a strong awareness in the market: In a 2020 GIIN Investor Survey, 59% see some progress and 39% see significant progress in refining impact measurement management practices; 65% of respondents see some progress and 29% see significant progress in terms of a shared understanding of how to define the impact investing market segment.

In the first edition of the GIIN Investor Survey in 2010, 85% of respondents used their own proprietary impact measurement systems. A decade later, 89% use external systems, tools, and frameworks to measure impact investing. The most commonly used impact measurement systems are the SDGs (73%), the IRIS Catalog of Metrics (46%), the IRIS+ Core Metrics Sets (36%), and the five dimensions of the Impact Management Project (IMP) impact convention (32%) (Hand et al., 2020).



Use of tools, frameworks, and systems, by purpose (taken from Hand et al. (2020, p. 18))



Most commonly used frameworks and reporting schemes (taken from Green Soluce and IEIF (2021, p. 16))

According to the study by Green Soluce and Institut de l'Épargne Immobilière et Foncière (IEIF) on ESG trends in Europe, GRESB (48%), UN-PRI (43%), and INREV Sustainability Reporting Guidelines (24%) are the most commonly used frameworks for institutional investors and fund managers. TCFD (Task Force on Climate-Related Financial Disclosures) and GRI are used as reporting standards by 28% and 30% of respondents, respectively. They serve the reporting needs of all participants, whether they are institutional investors, fund managers or real estate com-

panies. Although the United Nations Sustainable Development Goals framework was not mentioned in the "Other" category, more than 55% of respondents reported evaluating their impact against these goals (Green Soluce & IEIF, 2021).

The next step is to compare the most common impact measurement tools and frameworks in the field of impact investing, which are briefly explained in the following Chapter:

Frameworks						
Operating Principles for Impact Management	Impact Management Framework	TONIIC Framework	INREV Impact Investing	GRI	GRESB	
Measurement						
IRIS Database		TONIIC Framework		ECORE		
Certificates						
DGNB	BREEAM	LEED	HQE	Green Start	CASBEE	WELL
						

Overview of the most common frameworks, impact measurement tools and certificates (own representation EBS REMI 2021)

3.3.1 Operating Principles for Impact Management

A reference framework of operating principles (Operating Principles for Impact Management) for impact-based investment processes was created by the International Finance Corporation (IFC) in April 2019 (IFC, 2019b).

The principles of impact management invoke, first, the core elements of a reliable impact management system and, second, transparency regarding the signatory's compliance with the principles. These principles encompass the entire process and are divided into five elements, which in turn are based on nine principles (IFC, 2019a).

The Operating Principles for Impact Management can serve as overarching standards in managing an impact-oriented investment process. These principles are a broad way to support tailored approaches to hold fund

managers accountable for impact investing. However, the principles are only designed for application by fund managers and therefore cannot be extended to all stakeholders in the (real estate) economy. Furthermore, these principles merely represent a framework for action that must be filled out by individual (social and/or ecological) measures, which, however, are not further defined within the framework of these principles. There is therefore some room for interpretation and potential for what is known as impact washing. Impact washing in this respect involves using the term "impact" as a marketing tool to attract capital or enhance its reputation without actually focusing on material solutions to environmental and social challenges.

3.3.2 Impact Management Framework

The Impact Management Project (IMP) provides a forum to build global consensus on measuring, managing and reporting sustainability impacts. It is relevant for companies and investors who want to manage ESG risks as well as those who also want to contribute positively to global objectives. The Impact Management Project (IMP) has worked with over 2,000 investors and companies to develop "impact classes" that group investments with similar impact characteristics based on their impact performance data (or, in the case of new investments, their impact targets). In short, an impact class combines the impact of an investment's underlying asset(s) with the investor's contribution to that impact (IMP, 2018).

Impact asset classes were developed to help investors describe the impact performance (or, if a new product, the impact objectives) of an investment or portfolio of investments (IMP, 2018).

With its classifications, impact dimensions and impact asset classes, the IMP provides an overarching methodological framework to understand, capture and manage impacts. Similar to the Operating Principles for Impact Management, the Impact Management Framework is a broad-based way to support tailored approaches that investors and companies can use to understand, capture, and manage the impact of impact investing. However, these principles encourage the various stakeholders to enter into an exchange with each other. The fact that individual (social and/or environmental) measures have to be filled in, but have not been further defined within the framework of the principles, results in some room for interpretation and the potential for impact washing.

We will also apply the IMP methodology with its classifications, impact dimensions, and impact asset classes to our analysis grid and measurement model below.

3.3.3 IRIS Database

Regarding sectoral standardization of instruments, the GIIN has developed a catalogue that allows market stakeholders to select environmental and/or social impact indicators organized by sectors such as education, health, and access to finance. The catalogue is called the Impact Reporting Investment Standard (IRIS) and its mission is to support transparency, credibility, and accountability in impact measurement across the impact investing industry.

Both the description of the metrics and their calculations are disclosed. In 2019, the GIIN released the IRIS+ system. IRIS+ offers a widely accepted impact accounting system, combining the most widely used impact investment metrics with research, evidence, and practical implementation guidance. The IRIS Catalog of Metrics is a component of the IRIS+ system (GIIN, 2021a; McCarthy, Emme, & Glasgo, 2019).

The IRIS database offers parameters for a wide range of industries and sectors that are designed to make impact investing measurable. These are already very extensive, but could certainly be supplemented, especially with regard to the intercorrelation of the various industries and sectors. Furthermore, the real estate sector should be further subdivided, especially concerning the different types of real estate use. The current parameters are mainly related to the residential sector and, in order to

provide a comprehensive representation of the real estate industry, should also include other real estate uses, such as commercial real estate. Specifically, certain affordable housing measurement parameters, such as PD5833 (Percentage Affordable Housing) or PI1748 (Client Savings Premium), are used in this commissioned research for the measurement model to be developed (see also Chapter 6.2.1).

3.3.4 TONIIC Framework

TONIIC is a global community of asset owners seeking a greater net positive impact on the planet and its inhabitants across the capital spectrum. Members include some 500 high-net-worth individuals, family offices and foundations that extend their influence across the spectrum of capital and personal resources in more than 25 countries around the world. TONIIC envisions a world where all investments honour the planet and its inhabitants, and is therefore working to expand and improve the impact investing ecosystem (TONIIC, 2019b).

According to Toniic, there are two dimensions to impact investing:

(1) that the underlying businesses invested in contributing to solutions to major world problems, and (2) that the investor's intent for positive change is expressed through or with the investment. This is evident in the IMP impact class matrix supplemented by Toniic (TONIIC, 2019a).

To align Toniic's efforts with the industry and report data that is comparable across the impact investing ecosystem, Toniic mapped the impact topics of interest to its members, to the Sustainable Development Goals and the SDGs to a selection of impact metrics from IRIS Catalog 4.0i (Toniic, 2019b). In 2016, the TONIIC SDG Impact Topics Matrix was created, mapping 60 topics to the SDGs and their subgoals (TONIIC, 2019a). The objective is to enable impact investors to align their investments with the SDGs and thereby find greater alignment and synergy in global investment opportunities (TONIIC, 2019b).

TONIIC extends the Impact Management Framework model and provides a broad-based pathway to support customized approaches with which investors and companies can understand, capture, and manage the impact of impact investing.

Similar to the Operating Principles for Impact Management and the Impact Management Framework, there is some room for interpretation regarding the definitions of social and environmental measures, as a uniform definition is not deposited. This creates a potential for what is known as impact washing. Underpinning the SDGs with the impact metrics from the IRIS Catalog 4.0 provides guidance on the measurability of the SDGs; however, this should be further refined by sector and industry. Assignment to an industry such as real estate would help to more quickly and efficiently find the appropriate metrics and underlying SDGs for the real estate project/property and make them comparably measurable.

Within the scope of this commissioned research, the relationship between IRIS and TONIIC is particularly evident by linking the parameters used in the affordable housing measurement model (see also Chapter 6.2.1 "Urban Mix"): PD5833 (Percentage Affordable Housing) is attributable to SDG 1 and 11, while PI1748 (Client Savings Premium) is attributable to SDG 1. This in turn provides the direct link to the SDGs and MDGs under the measurement model to be developed, which forms the basis for sustainable investing.

3.3.5 Global Real Estate Sustainability Benchmark (GRESB)

The GRESB (Global Real Estate Sustainability Benchmark) is a private, for-profit environmental labelling organization. It was founded in 2009 and is specifically dedicated to the real estate investment sector. It is the international benchmark for ESG performance of “real” assets and its main target group is real estate investors (Green Soluce & IEIF, 2021). The methodology is consistent across different regions, investment vehicles and property types, and is aligned with international reporting frameworks such as TCFD, GRI and PRI. The GRESB Real Estate Assessment provides investors with information and tools to monitor and manage the ESG risks and opportunities of their investments and to prepare for increasingly stringent ESG obligations. This assessment provides reporting entities with comparative business information on where they stand relative to their peers, a roadmap of actions they can take to improve their ESG performance, and a communication platform to engage with investors (GRESB, 2021).

The GRESB Real Estate Benchmark consists of participants completing both the management and performance components, and the GRESB Development Benchmark evaluates the management and development areas. However, if the company has both ongoing capital expenditures and development projects, and is engaged in both building operator and development activities, participation in both benchmarks is strongly recommended. As a result, participants receive two GRESB assessments, two benchmark

reports, two peer groups, etc., showing how companies approach their respective activities in both benchmarks (GRESB, 2021).

GRESB Real Estate Assessment evaluates performance against three ESG components of management, performance and development. Each indicator is assigned to one of the three ESG dimensions (GRESB, 2021). The indicators represent the (impact) of the company on people and the environment. Taking these social and ecological effects into account emerges from the growing social responsibility that companies have to face.

GRESB covers the valuation of real estate assets from an investor’s perspective. The respective terminology and interpretations of the individual categories are decisively explained in guidelines and thus result in a solid framework for the comparable valuation of real estate assets, which leaves little room for what is known as impact washing. GRESB has a limited application on the measurement model to be developed in the context of this commissioned research because GRESB is to be applied at the enterprise level and not at the property level. The weighting of the factors E-S-G according to the GRESB benchmarks was discussed for the measurement model to be developed, but discarded, as social responsibility is core to this commissioned research and ecological criteria are only considered with regard to how they interface with social aspects.

3.3.6 Global Reporting Initiative (GRI)

The Global Reporting Initiative (GRI) was founded in late 1997 to develop globally applicable guidelines for sustainable development and report on economic, environmental, and social performance, initially for companies and later for any governmental or non-governmental organization (Green Soluce & IEIF, 2021).

The GRI standards create a common language for organizations to report on their sustainability impacts consistently and credibly. This improves global comparability and enables organizations to be transparent and accountable (GRI, 2021).

The respective terminology and interpretations are explained in guidelines and thus provide a solid framework to comparably value real estate assets that leave little room for impact washing.

This model can only be applied to this commissioned research to a limited extent since the social and environmental issues addressed tend to be based at the management level. This analyses the extent to which a company assesses and reports sustainability impacts. It is not intended to be applied to a real estate project/property.

3.3.7 INREV Impact Investing

INREV is the European Association for Investors in Non-Listed Real Estate Vehicles. INREV defines impact investing in terms of its core characteristics “intentionality”, “additionality” and “measurability” in conjunction with financial objectives, all of which are critical to understanding what impact investing means for real estate (INREV, 2020).

INREV has contrasted the key social and environmental objectives with the impact categories as well as the UN SDGs in the following figures (examples of real estate impact categories linked to the UN SDGs (taken from INREV (2020, p. 11)).

These core features give a first impression of the pressing social and environmental issues, but only encompass one aspect of social and environmental impact investing. The characteristics are kept very generic and do not cover the respective problems in depth. For example, while housing concerns affordable housing (SDGs 1, 10, 11), it

also includes features such as safety and availability of social support services, which cannot be covered by the SDGs mentioned and their respective subgoals.

Moreover, these core characteristics are also not applicable to all types of neighbourhoods and property uses. For example, the implementation of housing and education objectives and criteria is limited or impossible for commercial properties. This means that some of the criteria are omitted, making it difficult to compare different real estate projects using this model.

The areas of (affordable) housing, health, education, regeneration, and green building are components of a successful neighbourhood (though not always cumulative) and also influence various real estate uses (see Section 6.2 for more information). The aforementioned areas are reflected in the measurement model and again provide a link to the SDGs and thus MDGs.

	Social impact			Environmental impact	
Impact Categories	Housing	Health	Education	Green Building	Regeneration
Impact Theme	Social/Affordable Housing	Health and Wellbeing Facilities	Educational Facilities	Energy Efficiency and Clean Energy	Energy and Resource Efficiency
Primary Impact UN SDG	 			 	 
Secondary Impact UN SDG	 	 	  	  	  

Examples of real estate impact categories associated with the UN SDGs (taken from INREV (2020, p. 11))



3.3.8 ESG Circle of Real Estate (ECORE)

The initiative Ecore ESG Circle of Real Estate was launched at the end of 2019. The Ecore initiative now comprises a broad field of over 100 participants and six real estate associations. Within Ecore, the group of ESG Solution Partners (20 service companies) also acts as advisory sparring partners and operational implementers of sustainability measures to support the investor side on their path to climate-neutral buildings. The members of the Ecore (ESG Circle of Real Estate) initiative have developed a scoring standard to make sustainability in real estate portfolios transparent, measurable and comparable. In addition to ESG issues, the scoring also maps the required taxonomy criteria of the Paris Climate Agreement and the EU Green Deal. Stakeholders can identify how well a property or portfolio meets climate objectives and ESG criteria based on a percentage score within the standardized set of criteria ranging from 0 to 100 (ECORE, 2021).

ECORE is specifically tailored to the real estate industry. At present, however, this measurement model primarily includes environmental aspects in line with the taxonomy

criteria of the Paris Climate Agreement and the EU Green Deal. It is hoped that this will be extended to include the social aspects of ESG as soon as the EU issues the relevant regulations.

The ecological aspects are part of successful sustainable neighbourhood and real estate development, but are only addressed as an interface in the context of this commissioned research. Accordingly, an expansion to include social criteria is to be hoped for and can, if necessary, be based on this commissioned research. The focus of the present commissioned research is the development of a measurement model, through which social criteria and characteristics of neighbourhoods and real estate projects and properties can be comparably measured. Just as with Ecore, a uniform catalogue of criteria is used as a basis and points are given. Stakeholders can then use the points to identify and compare their social footprint.

3.3.9 Real Estate Certificates

In addition to the previously described frameworks, reporting standards and impact tools, several cross-industry rating agencies or certifications that consider ESG and sustainability factors also exist. However, just as with the frameworks, as yet, no uniform standard for such benchmarks exists.

The most well-known international certificates are briefly listed below (no claim to completeness¹):

• DGNB (German Sustainable Building Council)
• BREEAM (Building Research Establishment Environmental)
• CASBEE (Comprehensive Assessment System for Building Environmental Efficiency)
• Green Star
• HQE (Haute Qualité Environnementale)
• LEED (Leadership in Energy and Environmental Design)
• WELL

The British sustainability certification BREEAM has been around since 1990, making it the oldest certification. The American equivalent, LEED, was created in 1998 and DGNB was founded in 2007. Here we can see that the topic of sustainability was being discussed even before the term ESG was implemented in the real estate industry.

The use of building certification schemes is observed in the UK and Europe, with significant numbers in large cities. Eastern European countries show increased activity. BREEAM and LEED are widely used in all regions, while HQE and DGNB are concentrated in the French- and German-speaking regions (Green Soluce & IEIF, 2021).

The multitude of certificates and a lack of a certificate comparison portal make it difficult for the real estate industry to gain a good overview and comparison of the details of the available certification options. This affects all stakeholders, from investors, developers, users and the public sector. The certifications are (mostly) subject to a fee and, depending on the choice, are associated with significantly increased effort. Many of the certificates currently relate mainly to the environmental aspects and very little to the social aspects of the real estate industry.

Investors and also users are increasingly requesting certifications and they are slowly becoming an industry standard. Investors in particular have increasingly had an eye on sustainability certificates, as these have been shown to increase rent levels (approx. 1.5% to 3.8% for office properties) and also value growth (approx. 6.85% to 7.5% for office properties). The trend of demand for sustainability certificates is also evident in office project development: 42% of office developments in prime locations in the Big 7 cities in Germany are certified, often with a Gold or Platinum designation (JLL, 2021).



¹ The presentation of international real estate certificates is not the main aspect of this work. Nevertheless, the above-mentioned certificates repeatedly interface with the ecological and social criteria, which are then taken up and addressed in this work.

4



4. Concept Award Procedure

The impact investing market (narrow definition: finance-first and impact-first) comprises approximately 2.9 billion euros in Germany (Then & Schmidt, 2020). Overall, many more such projects could exist provided affordable land is available. One way to address the shortage of affordable land is through a change in municipalities' concept allocation procedures.

The Hessian Ministry for Environmental Protection, Climate Protection, Agriculture and Consumer Protection published the guideline "Grundstücksvergabe nach Qualität von Konzepten" (Awarding land according to quality of concepts) in October 2017: "Providing the population with affordable housing is a central task of municipal politics and administration" (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017, p. 4). In this context, the growing demand for housing is set against the increasingly scarce resource of "living space". Concept allocation, therefore, lends itself as an instrument for creating affordable housing. At the same time, this type of concept allocation also enables the pursuit of overarching strategic objectives within municipalities (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017). The municipalities are facing up to their social responsibility with an adapted procurement procedure.

According to Priska Hinz, Hesse's Minister for the Environment, Climate Protection, Agriculture and Consumer Protection, awarding land according to maximum bids leads to higher rents or property prices. Ms Hinz states that a break in the price spiral can be achieved by awarding contracts based on content-based concepts. The concept award should therefore not be made according to the highest bid, but according to the best utilization con-

cept. According to the guidelines, urban planning, architectural, housing, energy and economic criteria should be taken into account in addition to the highest bid. Implementation of sustainable and integrated urban development, as called for in the Leipzig Charter of 2007, can thus be ensured and implemented (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017).

"Under the concept awards, municipal land is not exclusively awarded or sold on a leasehold basis at the highest price, but rather as part of competitive procedures according to the quality of the utilization concept, evaluating the degree of fulfilment of the specified ecological, social, housing and urban development criteria" (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017, p. 10). The price of the land should play only a minor role in the award (either as a non-dominant part of the evaluation matrix or as a payment obligation). Legal requirements, in particular from municipal law, European state aid law and public procurement law, must be observed. In particular, if the land is sold below market value, state aid law must be examined (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017).

The concept is evaluated based on weighted evaluation criteria (if necessary also upper and lower limits within these), which must be derivable from the project description. These evaluation criteria and their weighting are announced at the time of tendering and can only be adjusted in extremely rare cases (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017).



The guideline derives the evaluation criteria for awarding concepts in the field of architecture and urban development from the Leipzig Charter of 2007 (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017, p. 28):

- Creation and safeguarding of quality public spaces
- Modernization of infrastructure networks and increase in energy efficiency
- Active innovation and education policy
- Consolidating urban upgrading strategies
- Strengthening the local economy and local labour market policy
- Active education and apprenticeship policy for children and youth
- Promoting high-performance and affordable urban transport

According to the case law of the Federal Supreme Court (BGH 04.04.2017, X ZB 3/17), the evaluation under a school grading system, according to which a specific point value does not have to be assigned to each evaluation aspect in advance, is permissible. The decision on weighting can also be made after receipt of the concept but then requires detailed justification and documentation of the value decisions (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017).

Further evaluation criteria (such as socially just housing policy and resource protection) must be individually determined, weighted and taken into account (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017). However, the guidelines do not make a general recommendation of the evaluation criteria to be applied nor their weighting: “Each property, each task has its framework conditions and requirements, which must be defined individually [...] If the contents of a concept are to be decisive, the evaluation of the dimension price bid must be given a noticeably subordinate weighting” (Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection, 2017, p. 35).

Municipalities, with the involvement of all stakeholders, are addressing their social responsibility to tackle the environmental and social challenges of the Urban Environment through an adapted procurement process. The public sector should therefore pay explicit attention to and consider social and environmental impacts when awarding projects, not just financial metrics. The analysis grid developed in the following can be used as a guide.

The relevant points from the concept award process, especially the environmental, social, housing and urban design criteria, are reflected in the impact clusters of neighbourhoods according to CBRE and REMI (2021), which form the basis for our analysis grid and measurement model. Thus, for example, the point of urban integration via the quality of the urban structure and spatial formation is a criterion according to the Leipzig Charter, which is reflected in the impact cluster Urban Environment under the indicator architecture.

PART II

PART II: In the second part of this commissioned research, based on the preceding literature analysis, with the help of the existing models and frameworks, we designed an analytical framework for measuring and evaluating social impact investing in the real estate sector.



PART II:

Development of an Analysis Grid and Measurement Model

In developing the analysis grid and measurement model, the first step is to analyse what type of property is involved, i.e., whether it is a neighbourhood or a property/project. Properties/projects, in turn, are differentiated by the type of use. A neighbourhood is a social and structural-spatial unit of a certain size that can be delineated within (existing or to be created) built-up urban areas, either from the outside or from the inside, but that is altogether different from the surrounding settlement sections and that also has a specific quality and identity (Frick, 2008). Therefore, the neighbourhood analysis grid of CBRE and REMI (2021) is used as a basis and extended by a classification according to property use types (residential property, commercial property and mixed-use property).

CBRE and REMI (2021) base their neighbourhood analysis grid on five success factors (referred to below as impact clusters) for a successful neighbourhood: Urban Mix, Infrastructure, Identity, Urban Environment and Connectivity. These impact clusters are in turn subdivided into individual indicators, which can then be measured by corresponding key performance indicators. In the course of this commissioned research, the list of indicators and key performance indicators was partly adapted and extended to cover a correspondingly wide range of possible social aspects of real estate projects and real estate properties. In the next step, the five impact clusters of neighbourhoods according to CBRE and REMI (2021) are assigned to the impact objectives of the impact fields according to ICG (2021).

The fields of action here are “sustainable neighbourhood development” and “affordable housing” (ICG, 2021). With regard to the impact areas of sustainable neighbourhood development and affordable housing, five impact objectives were defined by ICG (2021), which are presented in Chapter 6.1.

The five impact objectives defined in this process are then superimposed on the neighbourhood analysis grid. Thus, each key performance indicator is assigned an impact cluster according to CBRE and REMI (2021) and an impact target according to ICG (2021). Between 1 and 5 points (based on the Likert scale concept) are awarded per key performance indicator. Finally, the key performance indicators are scored and added together according to the impact clusters and impact targets.

On this basis, projects/properties can be analysed and assessed with regard to their respective social impact. Each property will have an individual profile due to its uniqueness. Comparability of the social impact results from achieving the corresponding points, i.e. via the scoring model. In this context, reference should be made to the “do no harm” regulations, which are also part of the EU Taxonomy (see also Chapters 3.3.4 to 3.3.6). Achieving one objective must not be to the disadvantage or detriment of another objective. This regulation (among the other regulations of the EU Taxonomy) is not explicitly shown in the measurement model and analysis grid but is intended to complete the model as an all-encompassing concept.



5. Definition of Neighbourhoods and Real Estate

To be able to assign impact fields, impact objectives and impact indicators (Chapter 6.1) as well as impact clusters (Chapter 6.2) of a neighbourhood, project, or property or a type of real estate use, these must first be defined and delimited.

In the typology, we distinguish between neighbourhoods and projects or properties, whereby a neighbourhood

is ultimately to be understood as an agglomeration of properties/projects. Neighbourhoods range from individual buildings to large-scale developments (Feldhaus & REMI, 2020). The differentiation between projects (property still in development status/not yet completed) and properties (property completed and generally also in use) is subsumed under the typology “neighbourhood” in the following.

5.1 Neighbourhoods

Administratively delineating neighbourhoods is rarely useful, as they tend to be more intuitively delineated, inner-city or peri-urban areas. Rather, they are characterized by an individual mix of uses and have their own appearance in the urban landscape – both socially and spatially. Within walking distance, they offer users and residents a space for everyday life with potential for identification and social interaction (Feldhaus & REMI, 2020). This concept is also followed by the 15-minute city or neighbourhood, which is characterized by the fact that

all relevant fixed points of everyday life can be reached within 15 minutes. The concept of the 15-minute city or neighbourhood has come into focus, especially in the context of the current covid pandemic, as the neighbourhood has turned into the only place to meet (everyday) needs (Pozoukidou & Chatziyiannaki, 2021).

Neighbourhoods are characterized by common points of reference or orientation, a functioning infrastructure in terms of mobility and local supply, and public squares and

spaces. A neighbourhood is defined by agglomeration effects, i.e., by an added value that only occurs when different functions in close spatial proximity in relation to each other bring an advantage to the individual (Feldhaus & REMI, 2020). According to Frick (2008), a neighbourhood is a social and structural-spatial unit of a certain size that can be delineated from the outside or the inside within (existing or to be created) built-up urban areas, but that as a whole differs from the surrounding settlement sections and that also has a specific quality and identity.

The heart of a neighbourhood is a diverse mix of uses, an individual appearance and the interaction of different infra- and social structures as well as the presence of public spaces, if possible in combination with a green concept and a high quality of stay. Accessibility and free access are essential. A well-thought-out mobility concept offers the population and users smooth movement with ideally smooth transitions to adjacent neighbourhoods. This results in synergy effects due to the agglomeration advantages already mentioned, so that the mix of uses within the neighbourhood leads to an increase in the attractiveness of the entire urban area (Feldhaus & REMI, 2020).

In this respect, the mix of uses can be seen as a common guiding principle of all neighbourhood definitions. This mix is not only aimed at mixing the classic uses of office, retail, commercial and residential, known as yield generators, but is also characterized in particular by social components and public meeting opportunities for leisure as well as education and culture, to name but a few. On the contrary, it is precisely the latter uses that help influence the quality of daily life and are thus among a neighbourhood's central elements (Feldhaus & REMI, 2020).

Neighbourhoods are multi-faceted in shape and size, and it does not matter whether they are implemented on conversion sites (brownfields), as part of urban expansions on the outskirts (greenfields), or as new developments within existing urban space. Neighbourhoods range from individual buildings to large-scale developments (Feldhaus & REMI, 2020).

Neighbourhood developments are particularly shaped and characterized by the cooperation of different stakeholders (including municipalities, investors, project developers, and users) (Feldhaus & REMI, 2020). Every building, but especially a neighbourhood, significantly impacts its environment, shapes it and is shaped by it. The special responsibility that real estate actors have can be seen, inter alia, in the long-term effects of the Urban Environment.

Therefore, well-designed and stringently implemented participation processes (including as co-creations) can make a significant contribution to sustainable success in neighbourhood development (Oetken, Henkel, & Hennig, 2021).

5.2 Real Estate

In addition to the typology of real estate based on its status (project/property/neighbourhood), its characteristics or equipment, real estate can generally also be classified based on its uses. In this respect, the property can be differentiated as residential and commercial. Commercial real estate, in turn, can be divided into office and administrative real estate, retail real estate (solitary forms of operation and composite forms), industrial real estate (production real estate, warehouses, logistics real estate),

special real estate (hotel real estate, leisure real estate, social real estate, infrastructure real estate) and other (Rottke, 2017).

Within the scope of this commissioned research, not all types of real estate can be conclusively examined. The focus below is on residential real estate, commercial real estate and mixed-use real estate.

6. Definition of the Analysis Matrices

After defining neighbourhoods and real estate uses, the impact areas, impact objectives, and impact indicators of social impact investing according to the ICG (2021) are considered (Chapter 6.1).

After that, the impact clusters and their indicators from the neighbourhood analysis matrix of CBRE and REMI (2021) are presented individually (Chapter 6.2).

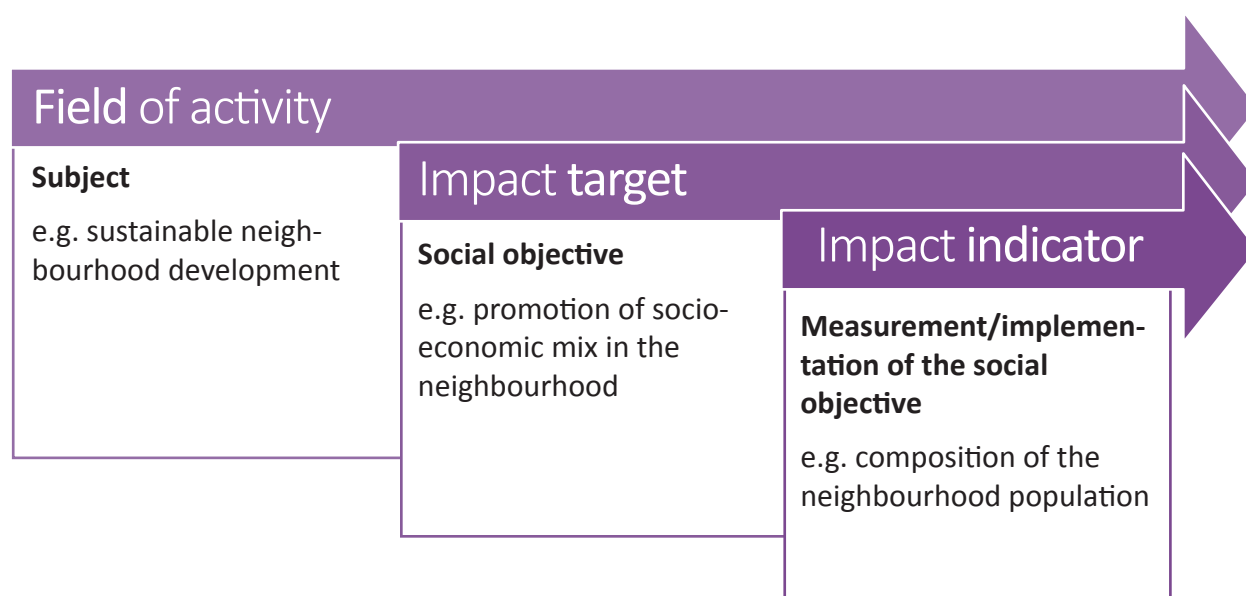
The impact targets according to ICG (2021) are then combined below with the impact clusters and their indicators from CBRE and REMI's (2021) neighbourhood analysis matrix, resulting in a measurement model and analysis matrix (Chapter 7). Here, the impact indicators according to ICG (2021) are used for the respective key performance indicators to measure the impact clusters.

6.1 Impact Areas, Impact Targets and Impact Indicators

This commissioned research builds on the Best Practice Guidelines "Social Impact Investing - The Best Practice Guide for the Real Estate Industry" (ICG, 2021) and develops a measurement model and analysis grid for measuring the social impact of real estate projects and real estate properties based on previous findings in combination with an extensive literature review.

The impact fields and impact indicators developed by the ICG were used as the basis for this commissioned research and were expanded by existing frameworks and models.

As part of its Best Practice Guidelines, ICG analysed two impact areas for social impact investing: sustainable neighbourhood development and affordable housing. These impact areas were in turn assigned specific impact objectives, which in turn comprised specific impact indicators. Accordingly, the respective subject area is the impact area. The impact objectives represent societal objectives for the respective impact area. The impact objectives can then be measured through the respective impact indicators (ICG, 2021).



Presentation of impact fields, impact targets and impact indicators (own presentation EBS REMI)

6.1.1 Impact Area: Sustainable Neighbourhood Development

To be able to analyse and assess neighbourhoods in terms of their sustainability and social responsibility, it is necessary to establish specific objectives based on the relevant SDGs that must be strived for in order to be “sustainable” and “social”. For the objectives to be measurable, indicators must be assigned to these objectives.

Neighbourhood development primarily touches on the following SDGs:



(10) Less inequality and (11) Sustainable cities and communities. But other SDGs can also play a role here, such as SDG 3 (health and well-being) or SDG 4 (quality education) (ICG, 2021).

Sustainable neighbourhood development can be broken down into five impact objectives according to the ICG study (ICG, 2021):

1. Promotion of socio-economic mix
2. Access to local infrastructure and sustainable mobility
3. Promotion of cultural and economic diversity
4. Improving the quality of social housing and life
5. Improvement of ecological living and quality of life

The following typical and relevant impact indicators for sustainable neighbourhood development can be assigned to the above-mentioned impact objectives (ICG, 2021, p. 52)

The impact targets according to ICG (2021) for the area of sustainable neighbourhood development are then combined in the next step with the impact clusters and their indicators from the Neighbourhood Analysis Matrix (Chapter 6.2) of CBRE and REMI (2021), resulting in a measurement model and an analysis matrix (Chapter 7).

Promotion of socio-economic mix in the neighbourhood

- **Composition of the neighbourhood population (independent of income)**
- **Composition of the neighbourhood population (income-related)**
- Availability of social support services
- Availability and quality of education/care services
- Neighbourhood residents from special occupational groups

Access to local infrastructure and sustainable mobility

- **Accessibility of local infrastructure**
- **Accessibility and quality of public transport**
- Distances and mobility effort
- Quality of cycling and walking infrastructure
- Presence of sustainable mobility offers

Promotion of cultural and economic diversity in the neighbourhood

- **Commercial use of real estate**
- **Presence of cultural/creative institutions**
- **Presence of social/non-profit organizations**
- **Frequentation/liveliness**
- Presence of gastronomy
- Jobs created
- Unemployment rate

Improvement of social housing and quality of life in the neighbourhood

- **Perceived atmosphere and quality of stay**
- **Offer of leisure and recreational opportunities**
- **Safety in the neighbourhood**
- Climate resilience quality
- Availability/quality of a feedback system
- Quality of coexistence
- Recommendation (neighbourhood-based)

Improvement of ecological living and quality of life in the neighbourhood

- **Quality of noise and air pollution in the neighbourhood**
- **Type/quantity/quality of green and natural areas in the neighbourhood**
- Optional: Climate friendliness of the neighbourhood
- Optional: Quality of the construction-related circular economy (Cradle2Cradle) in the neighbourhood
- Quality of the microclimate in the neighbourhood

*Impact indicators for sustainable neighbourhood development
ICG (2021, p. 52)*

6.1.2 Impact Area Affordable Housing

According to the ICG Best Practice Guidelines, the impact area of sustainable neighbourhood development can be understood as an overarching theme, which includes the impact area affordable housing through appropriate residential real estate (ICG, 2021). The consideration and integration of socially disadvantaged groups via affordable housing are directly linked to the impact area “Improvement of social housing and quality of living in the neighbourhood”.

Housing represents an elementary basic need, and at the same time, the resulting costs are often the largest single item in the household budget. The housing allowance and the consideration of actual expenses for housing and heating in the context of minimum income schemes are intended to serve as stabilizers in this regard so that households are not overburdened by housing costs. After covering housing costs, a reasonable amount must remain to cover other needs and cultural and social participation. (German Bundestag, 2021).

A common definition of affordable housing is that the “warm” rent (including warm and cold operating costs) is affordable as long as it does not exceed 1/3 of the net household income. After deducting the warm rent, a minimum amount must remain as a monthly household budget (Jekel, 2018). The minimum amount, according to the advisory board’s common definition (Jekel, 2018, p. 8), is

- 1-person household: EUR 670
- 2-person household: EUR 1.005
- 3-person household: EUR 1,234
- 4-person household: EUR 1,463

In Germany, the target groups for housing assistance have been defined – according to federalist principles – through state laws or guidelines since 2006 (Kotulla, 2020). If a state does not have its own housing assistance regulations, the Controlled Tenancy Act (WoBindG) and Housing Assistance Act (WoFG) regulations apply nationwide. According to Section 1 WoFG, the target groups for housing assistance include low-income households as well as families and other households with children, single parents, pregnant women, elderly people, people with disabilities, homeless people and others in need of assistance. According to Section 9 WoFG, only households with an annual income not exceeding EUR 12,000 for a one-person household or EUR 18,000 for a two-person

household are eligible. EUR 4,100 are allocated for each additional person included in the household and EUR 500 are allocated for each child within the meaning of Section 32(1)–(5) of the Income Tax Act.

Affordable housing affects the following SDGs:



(1) No Poverty, (7) Access to Affordable, Reliable, Sustainable, and Modern Energy, (10) Less Inequality, and (11) Sustainable Cities and Communities (Deutscher Bundestag, 2021; ICG, 2021; INREV, 2020).

Affordable housing under the SDGs includes the following characteristics: Ensuring access for all to adequate, safe and affordable housing and basic services and upgrading slums. Investing in housing solutions for the most vulnerable in society (homeless, refugees, disabled) results in large societal savings. Preserving (or investing in) affordable workforce housing in cities and improving the lives of residents creates more diverse and thus stronger communities (Toniic, 2019c).

Affordable housing can be broken down into five impact objectives (ICG, 2021):

1. Creating and preserving affordable (and/or social) housing
2. Providing disadvantaged target groups with affordable housing
3. Improving the income situation for (disadvantaged) target groups
4. Creating stable housing situations
5. Improving the living situation of disadvantaged target groups

The following typical and relevant impact indicators for affordable housing can be assigned to the above impact objectives (ICG, 2021, p. 47):



Creation and preservation of affordable (and/or social) housing

- **Affordable/social housing units**
- **Area of affordable/social housing units**
- **Additional affordable/social housing units**
- **Area of additional affordable/social housing units**
- People living in affordable/social housing units
- Occupancy density
- Overcrowding

Providing disadvantaged target groups with affordable housing

- **Households with persons with non-income-related disadvantages**
- **Households with income-related deprivation**
- Households with public housing certificate (Wohnungsberechtigungsschein – WBS)
- Households with persons from special occupational groups
- Households receiving social security (SGB2) benefits

Improving the income situation for target groups

- **Rent difference from the local rent**
- **Housing cost burden ratio**
- Net income after deducting housing costs
- Change in mobility expenditure
- Relative amount of incidental costs

Creation of stable living situations

- **Annual rent increase**
- **Duration of the additional price and occupancy commitment**
- **Length of tenancy/fluctuation rate**
- Frequency of evictions
- Availability/quality of a feedback system
- Relationship between tenant and landlord/management

Improving the living situation of disadvantaged target groups

- **Number/proportion of persons/households for whom the quality of the situation has improved**
- **Satisfaction with living environment and conditions**
- **Availability and quality of social support services**
- Availability/quality of social/community facilities
- Availability/quality of green spaces/playgrounds
- Relationship of trust with the neighbourhood

Impact indicators for affordable housing (ICG (2021, p. 47))

The impact objectives according to ICG (2021) for the area of affordable housing are then linked in the next step with the impact objectives of promoting socioeconomic mixing in the neighbourhood and optimizing social housing and quality of life in the neighbourhood from the impact field of sustainable neighbourhood development and thus combined with the impact clusters and their indicators from the Neighbourhood Analysis Matrix (Chapter 6.2) of CBRE and REMI (2021), resulting in a measurement model and an analysis matrix (Chapter 7).

6.2 Impact Clusters of Neighbourhoods

To make the sustainability and social responsibility of a neighbourhood measurable and comparable, the characteristics of a neighbourhood need to be looked at more closely and understood. The different types of neighbourhoods offer various advantages for their users. But what factors contribute to the success of a neighbourhood and how can the success be measured? A neighbourhood's success is closely related to sustainability and social responsibility, as these points are crucial for the acceptance and use of a neighbourhood.

The real estate industry has specific requirements regarding the profitability and sustainability of an investment in the neighbourhoods asset class(es). The individual characteristics of neighbourhoods can be characterized by indicator groups. The differences within the characteristics can be made quantifiable with the help of indicators, which in turn allows success to be measured.

The aim of operationalizing a neighbourhood's success must be to find the levers that ensure economic, ecological and social sustainability in the neighbourhood, both in the project development phase and in existing neighbourhoods. This is the only way to ensure long-term user acceptance as the key to a sustainable concept's durability. Through five categories (user mix, infrastructure, identity, urban environment, and connectivity), a neighbourhood's orientation can be analysed in terms of its long-term sustainability in each of its three dimensions. Each category fits like a puzzle piece into a neighbourhood's overall success. Moreover, without mutual support among the various dimensions, a neighbourhood's success may be questionable (CBRE & REMI, 2021).

The five categories can be operationalized with the help of various individual indicators. The characteristics of the indicators allow conclusions to be drawn about a neighbourhood's strengths, potentials and orientation. The result, in the form of a neighbourhood index, then shows where and to what extent structural or conceptual measures are necessary in the neighbourhood within its life cycle, from project development to realignment, in order to bring about improvements. These indicators can in turn be assigned to impact fields of the real estate industry to be able to measure social impact investing (CBRE & REMI, 2021).

The five impact clusters and their respective indicators, which ultimately form the basis for the analysis grid and measurement model, are presented below. Objectively measurable metrics (such as affordable housing percentages) were used where possible. However, since social responsibility also includes subjective characteristics (such as the quality of green and natural spaces in the neighbourhood), they are also part of the analysis grid and measurement model. By precisely labelling the scores of the individual indicators and describing them in the context of this Chapter, an attempt is made to achieve as much objectivity as possible in implementing the analysis grid and measurement model.

URBAN
MIX

INFRA-
STRUCTURE

IDENTITY

URBAN EN-
VIRONMENT

CONNEC-
TIVITY

6.2.1 Urban Mix

Category

Urban Mix represents the first category for analysing neighbourhood sustainability. A neighbourhood is defined by its functionality and mix of uses. Close integration of different uses and mutually supportive functions are essential to a neighbourhood's long-term, sustainable success. Synergies between user groups ensure resilience to economic and social trends, reduce volatility, and spread risk. Mixed use should also be seen as a functional addi-

tion to the urban space. The needs of a neighbourhood's users must be considered, whether they are commercial or social in nature. A good quality of stay, green areas and access for the public provide for neighbourhood revitalization. Finally, at the same time, the sense of security within the neighbourhood must also be taken into account (CBRE & REMI, 2021).

User Groups

Integration of the different user groups is also highly relevant to promote the socio-economic mix in the neighbourhood, but also to optimize the social living and quality of life. This must take into account the needs of different user groups, such as the availability of social support services, or the availability and quality of education/care services. The integration of socially disadvantaged groups through, for example affordable housing, must not be neglected.

Affordable Housing

The “Percentage Affordable Housing” metric according to IRIS+ (PD5833) (see also Section 3.3.3) represents the percentage of housing units that are expected to be built, or preserved, as a result of expenditures made by the organization (e.g., the building entity) during the reporting period and are considered affordable housing. This metric is intended to capture the percentage of housing units created, or preserved, through an organization’s expenditures that are used as affordable housing, relative to all housing units created, or preserved, through the organization’s investment. This metric is intended to capture information for units in both single-family and multi-family buildings. Organizations should footnote the assumptions used in defining affordable housing. The ratio is calculated as follows: (Number of housing units built, or preserved, that qualify as affordable housing/Number of housing units built, or preserved) x 100 (GIIN, 2021a).

Currently, there are no uniform nationwide government requirements in Germany regarding the provision of affordable housing. However, many cities, towns and municipalities have established their own specifications and guidelines: For example, the city of Osnabrück has stipulated that minimum quotas of socially bound rental housing (duration: at least 20 years) with a maximum net cold rent of currently €7.00/m² of living space must be created when 8 or more residential units are created in the multifamily housing sector; the size of the quota is between 10% and 30% of the living space created (City of Osnabrück, 2017). When designating building land, more and more municipalities stipulate that at least 30% of new buildings must be provided by investors for subsidized housing (DStGB, 2019). As a basis for this commissioned research, 30% is therefore taken as the minimum criterion. The evaluation is then based on the percentage that exceeds this minimum criterion.

Disadvantaged Households

The supply of affordable housing to disadvantaged target groups can be illustrated by two key figures, inter alia: Percent of households with non-income and income-related disadvantage. Households with income-related disadvantages are defined in accordance with Section 1 (2) No. 1 of the Housing Financing Act (WoFG) and thus include households with low incomes below the respective income thresholds of Section 9 WoFG. Households with non-income-related disadvantages can be defined according to Section 1 (2) No. 2 WoFG and thus include, in particular, families and other households with children, single parents, pregnant women, the elderly, disabled persons, homeless persons and other persons in need of assistance.

The key figure households with non-income-related disadvantage percentage is calculated as follows: (Households with non-income-related disadvantage/number of households) x 100.

The indicator households with income-related disadvantage percentage is calculated as follows: (Households with income-related disadvantage/number of households) x 100.

Affordable housing must be created for these households as a matter of social responsibility. Just as with the measurement of affordable housing, no statutory requirements exist. Therefore, as a basis for this commissioned research, 30% is taken as the minimum criterion (sum of both ratios). The evaluation is then based on the percentage that exceeds this minimum criterion. The sum of both key figures must be considered in this.

Rental Prices

The “Client Savings Premium” (rent difference from local rent) metric according to IRIS+ (PI1748) (see Section 3.3.3) (GIIN, 2021a) represents the ratio of price savings achieved by the client relative to the rent of the housing units. This metric is intended to capture savings as a percentage compared to local rents. Positive numbers can be interpreted as savings for the tenant. Organizations should report these prices at the end of the reporting period. Companies should footnote all assumptions used, including how locational rents were selected.

The ratio is calculated as follows: ((local rent – anticipated rent)/anticipated rent) x 100 (GIIN, 2021a).

The rent customary in the locality (also referred to as comparative rent) is formed in accordance with the statutory requirement of Section 558 (2) of the German Civil Code (BGB): the customary charges agreed or changed in the municipality, or in a comparable municipality, for residential space of a comparable type, size, furnishings, quality and location, including the energy-related furnishings and quality, in the last four years or, apart from increases in accordance with Section 560. Pursuant to Section 556d (1) BGB, the rent at the beginning of the tenancy may not exceed the local comparative rent (Section 558 (2) of the BGB) by more than 10% if a tenancy agreement is concluded for residential premises located in an area with a tight housing market as determined by statutory order pursuant to para. 2. Section 7 (1) WoFG stipulates that housing cost relief may be provided by determining maximum permissible rents below local comparative rents, or by other measures, in order to achieve affordable housing costs for households within the meaning of Section 1 (2) (2) (1) WoFG. Accordingly, the minimum level of the analysis grid for this commissioned research is a rent that does not exceed the local comparative rent.

The key figure “Annual rent increase in percent” represents the annual rent increase in percent. The ratio is calculated as follows: (current/planned rent/planned rent increase) x 100; if applicable, the rent increase is given over several years and must therefore be calculated down to the p.a. value.

Rent increases for existing tenants are limited by a “cap”. Here, rent increases are limited to a maximum of 15-20% (depending on location) over three years. Increases may also not exceed the limit of the rent index and may not be implemented more often than once every 15 months. The modernization levy is another regulation. The rent increase for an occupied modernized property is capped at 8% (previously 11%) of the modernization costs. Only those works that improve the general living conditions and contribute to energy saving and reduction of environmental impact can be considered.

In July 2019, Berlin’s “Mietendeckel” (rent cap) came into effect, setting rent ceilings based on quality, location and amenities for five years, excluding new construction. This was declared null and void by the Federal Constitutional Court in 2021 (Frehner, 2021).

Offer Availability

The availability of social support services and the availability and quality of education/care services is an implementation of SDG 1 (No Poverty), SDG 3 (Health and Well-Being), SDG 5 (Gender Equality), SDG 10 (Reduce Inequality), and SDG 11 (Sustainable Cities and Communities) (INREV, 2020) (see also Section 3.3.7). By integrating these two components, the impact areas of health and education are promoted, according to INREV (2020). At the same time, how-

ever, this also ensures the integration of various user and age groups, such as children and senior citizens, who are dependent on the aforementioned services.

Security

According to Breuer (2003), residents need safety and security in their environment. With regard to the need for security, a distinction must be made between explicit and implicit security in the urban neighbourhood. Zeiß (1993) describes explicit security in terms of safety, security, and freedom in the residential environment and identifies two authoritative sources that support this threat to the perception of security. For example, road traffic leads to a loss of safety for all users due to increased traffic, speed, and appropriation of public space. In addition, low user frequency implies a lack of social control in public spaces and thus affects perceived safety in the neighbourhood. The implicit need for security, on the other hand, describes aspects of subjectively perceived structure and order. According to Weichhart (2014), this refers not only to the absence, or predictability, of physical threats but above all to the psychological safety of the environmental experience. Users orient themselves to significant features of their spatial-social environment. These act as indicators of social permanence, or possible change, which guarantees security of one’s identity. Thus, the first achievement of spatial identity arises in the experience of security, constancy, and predictability, which is a necessary precondition for action designs (Weichhart, 2014).

Noise and Air Pollution

Noise and air pollution can affect quality of life and also lead to adverse health effects (Deutscher Bundestag, 2021). For noise abatement and the prevention of air pollution, the “Gesetz zum Schutz vor schädlichen Umwelteinwirkungen durch Luftverunreinigungen, Geräusche, Erschütterungen und ähnliche Vorgänge” (Act for the Protection against Harmful Effects on the Environment Caused by Air Pollution, Noise, Vibrations and Similar Processes) (Federal Immission Control Act, BImSchG) is of central importance. According to Section 1 BImSchG, humans, animals and plants, the soil, water, the atmosphere as well as cultural and other material assets must be protected against harmful effects on the environment and the occurrence of harmful effects on the environment must be prevented (Blum, 2021).

In Germany, various regulations exist against harmful noise pollution in the urban fabric; these include DIN 18005 “Schallschutz im Städtebau” (Noise Protection in Urban Development) for consideration in urban development, 16. BImSchV zum Schutz vor Verkehrslärm (16th Federal Immission Control Regulation for protection against traffic noise, and TA Lärm (Noise Prevention Code) for protection against industrial and commercial immissions.

The thresholds commonly used in Germany to guide urban planning and objectives are shown in the following

figure (Blum, 2021; Planungsgemeinschaft Dr Ing. Walter Theine, 2010).

Type of use to be protected	Tag 6 am – 10 pm			Nacht 10 pm – 6 am		
	Orientation value*)	Limit value**)	Threshold value***)	Orientation value*)	Limit value**)	Threshold value***)
Hospitals, schools, spa locations, retirement homes	45 dB(A)	57 dB(A)	65 dB(A)	35 dB(A)	47 dB(A)	55 dB(A)
Pure and general residential areas, small housing estates	50/55 dB(A)	59 dB(A)	65 dB(A)	40/45 dB(A)	49 dB(A)	55 dB(A)
Central areas, village and mixed areas	55 dB(A)	64 dB(A)	65 dB(A)	45 dB(A)	54 dB(A)	55 dB(A)

*) Orientation value DIN 18005 "Noise protection in city construction"

**) Immissions limit values from the 16th Regulation on applying the Federal Immissions Protection Act/Traffic Noise Protection Regulation 16. BImSchV dated 12. June 1990 (Federal Gazette I p. 1036)

***) Health-relevant threshold values (e.g. Wende 1997)

Orientation values DIN 18005, immissions limits 16. BImSchV and relevant threshold values of noise impact research (taken from Planungsgemeinschaft Dr Ing. Walter Theine (2010, p. 7))

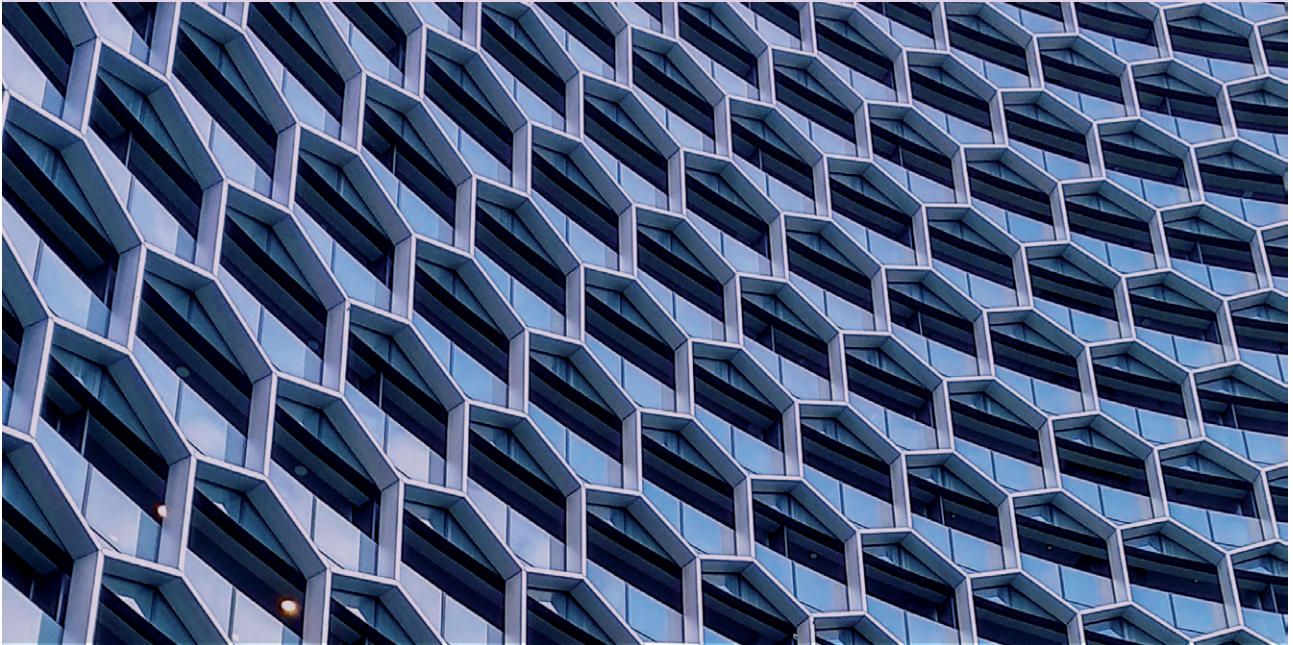
DIN 18041 increases quality of life by implementing improvements in acoustics and thereby also reduces additional disadvantages for older people with hearing aids and people with limitations, or disabilities such as hearing loss (Blum, 2021).

People in our latitudes spend a large part of the day indoors. The Committee for Indoor Guideline Values (Ausschuss für Innenraumrichtwerte – AIR) derives two guideline values (precautionary and hazard guideline value) for health assessment: if guideline value I is exceeded, there is a pollutant in the air, but even with lifelong exposure, no adverse health effects are to be expected according to the current state of research. If this guideline value is exceeded, caution should be exercised and measures taken to minimize the concentration of pollutants. If the guide value II is exceeded, immediate action must be taken, because damage to human health can be assumed with sufficient probability if this concentration is exceeded. Guideline value II is directly related to the building codes of the German states, in which structural installations must be designed in such a way that hazards due to chemical, physical, or biological influences do not arise (AIR, 2021; Blum, 2021).

The quality of noise pollution and air pollution in the neighbourhood is only partially prescribed by law and includes a range of measured values, which are usually substantiated by appropriate expert opinions in the context of construction projects. Therefore, the evaluation within the framework of this analysis model is based on extended measures regarding the optimization of air quality and noise protection.

Green Spaces

Tessin (2004) states that public green spaces, as places for leisure and recreation, first ensure basic physiological needs. The attractiveness of a location can also be linked to physiological needs. Criteria comprise good urban infrastructure, good connections to the public transport system and the distances to or accessibility of other facilities such as stores or services for daily needs, gastronomy as well as public reference points and especially parks (Karsten, 2007). Not all of these factors influence physiological needs directly, but indirectly; for example, good access to the public transportation network shortens the time needed to satisfy other physiological needs. When people satisfy their needs, they overcome more or less



large distances to the places/spaces of need satisfaction (Schuster & Volkmann, 2019).

Also of interest is a new study from 2021 that examines the use of urban green space during the COVID-19 outbreak in 2020 and the subsequent lockdown. The study shows the importance of green spaces as a place for social interaction, sports or even closeness to nature. Thus, study

participants showed increased awareness of respect for nature and suggested urban policies that underpin this. The actions associated with this are the establishment of green spaces in neighbourhoods and the expansion of green spaces within the city (Ugolini, Massetti, Pearlmutter, & Sanesi, 2021).

6.2.2 Infrastructure

Category

A neighbourhood's central character is defined by its user mix, as well as by its accessibility. Infrastructure represents the second category for analysing the sustainability of neighbourhoods. Significant impact clusters include developed street patterns, easily accessible and highly frequented public transport, parking for all vehicle types, the availability of sharing mobilities, and short distances within the neighbourhood with an appropriate pedestrian network connecting to adjacent urban areas. However, infrastructures must always be seen in connection with the mix of uses, or even the identity creation of the neighbourhood, and must be designed accordingly (CBRE & REMI, 2021).

Infrastructure is one of the most important factors for a neighbourhood's development. Several factors should be considered in the development. Accessibility to the public transportation system was identified as one of the most important factors. Here, it is particularly important to minimize the time required to reach the place of residence or work by keeping distances short. Users want a maximum walking time of five to ten minutes to the next connection. If there is no nearby connection, the developer should attempt to tie the neighbourhood into the public transportation system, by planning another bus or rail stop for example. Since this planning is often dictated by the municipality, the developer can try to create opportunities to shorten the time to the next connection, e.g., through bicycle rental stations (Feldhaus & REMI, 2020).

Shopping & Services

Another factor in the infrastructure is the provision of shopping facilities for daily needs and other services. The developer should consider these when developing the various lots. It should be taken into account that the user wants a maximum of 10 minutes walking distance to the nearest shopping opportunity. By specifying the ground floor be used for shopping and services, these factors can be integrated ex-ante into the design. Integrating other services (such as a post office, ATMs, hairdressers et al.) is also part of the daily requirements. These services also include medical facilities, which become increasingly important as people age, and care and education facilities, which are a priority for families and also other target groups such as seniors and immigrants. The gastronomic factor must not be ignored in the development, as these promote social interactions as well as exchanges between

all user groups. Ultimately, recreational and/or sporting opportunities should also be located in the close periphery (Feldhaus & REMI, 2020). Accessibility can therefore be derived from the concept of the 15-minute city or neighbourhood, which is characterized by the fact that all relevant fixed points of everyday life can be reached within 15 minutes (Pozoukidou & Chatziyiannaki, 2021).

In the context of social impact investing, key needs such as access to public transportation, shopping, daily services, medical services, care and educational facilities, and recreational activities should be accessible and within reach of everyone. This can be implemented by designing neighbourhoods based on the 15-minute city or neighbourhood concept.

6.2.3 Identity

Category

Identity represents the third category for analysing neighbourhood sustainability. In a neighbourhood, a positive connotation can help users identify with their surroundings, become involved in the neighbourhood in the long term, and revitalize it ("my neighbourhood").

The neighbourhood layout plays a significant role in how the neighbourhood is received by users. Whereas established neighbourhoods have been able to develop their character in interaction with their surroundings, new neighbourhood developments face the challenge of reducing the distance to external surroundings and "connecting" and increasing interaction and identification between users internally.

Open architecture can be conducive here and contributes significantly to the quality of life. It can break down the threshold of private and public space and between different uses. Easy accessibility in terms of public access for various users inside and outside the neighbourhood is also essential for identity creation.

Image

A neighbourhood's image in combination with unique architecture finally makes it possible to give a high recognition value to a neighbourhood. Finally, positive effects in identity formation and establishment can be achieved and established in the long term via targeted neighbourhood management and marketing (CBRE & REMI, 2021).

Quality

The first image aspect is the visual impression of the architecture and infrastructure and the general quality of the buildings. High quality can create a feel-good character that generates a positive image. Therefore, a high value should be placed on general quality, quality of stay and sustainability as well as innovation aspects in the development of the urban neighbourhood, including for image reasons (Feldhaus & REMI, 2020).

Overall, a positively connoted identity should lead to identification with the neighbourhood, which represents a place to live and/or work for a wide variety of user and age groups, and thus promotes socio-economic mixing.

6.2.4 Urban Environment

Category

The Urban Environment represents the fourth category for analysing neighbourhood sustainability. The building structure can not only positively influence the image and identity. Other relevant impact clusters of a neighbourhood are the design, the arrangement and thus interaction of buildings and open spaces, and the use of sustainable materials (see also Chapter 3.3.9).

Streets, Squares, Green Spaces

The streets, squares, green spaces and the cityscape shape people's awareness of their neighbourhood. These public spaces serve as places to stay, for meetings and urban experiences. Their attractiveness has an impact on the urban neighbourhood's reputation in the competition for residents, companies, visitors and investors and contributes decisively to users identifying with the neighbourhood. Given this special importance of public space, its design, development and maintenance are among the most important tasks of the developer. In addition, public space is a particular reflection of a neighbourhood's economic, social and architectural dynamics. To maintain this in the long term, the introduction of an urban/neighbourhood management system (see also Chapter 6.2.5) beyond the development period can be considered useful (Feldhaus & REMI, 2020).

Centrality

The centrality of the neighbourhood in the urban space is determined by the urban density. The quality of stay, but also the diversity of use is co-determined by the flexibility of the neighbourhood design. Anthropogenic factors such as light incidence, or windbreaks must be taken into account. Smart building concepts can provide technical support (CBRE & REMI, 2021).

Long Term Effect

The Urban Environment has a long-term effect on its surroundings and users. The analysis and significance of this impact is a particular challenge for revitalizations and project developments. Especially due to the influence of megatrends, and the impact of pandemics like COVID-19, new responsibilities and also new values are required in this regard.

In the context of social impact investing, this impact cluster focuses primarily on the environmental aspects; the user has a direct impact on the environment through the use of the building. By taking into account ecological factors, such as the use of recyclable materials, the developer, but also the user, assumes its social responsibility towards the (urban) environment.

6.2.5 Connectivity

Category

Connectivity represents the fifth category for analysing neighbourhood sustainability. In addition to an attractive, user-oriented building structure, acceptance by the wider community is also crucial in neighbourhood planning. This includes participation processes during the construction phase, user-oriented management during operation and active networking of users, residents and the public. It is argued that participation is generally a means of reducing power inequalities in society. Up to and during the 1990s, participation in urban governance was much discussed and formalized in international policy documents that postulated the right of citizens to influence and participate in the development of their local environment (Lund, 2018) in order to combat social exclusion (Oetken et al., 2021).

Co-Creation

In keeping with the heterogeneity of the city's population, priority must be given not only to the articulate and powerful stakeholders but also to those who are not heard and seen. This one-sided perspective leads to limited visibility of opportunities and thus a lack of consideration of society's interest in urban planning. The basic idea is that co-creation brings together different interests, the constructed environment and people. The definition of co-creation is derived from the overall concept of participation and is linked to the concept of creativity. In this commissioned research, co-creation is defined as the connection between top-down (as in agency-led development, e.g., the aerial perspective in master plans without consideration of people's needs) and bottom-up management (through citizen-led growth). It leverages the knowledge and financial power of those at the top and connects it to the ideas and needs of the grassroots. Consequently,



co-creation considers socio-spatial equity through public participation in shaping the Urban Environment in conjunction with economic interest as a new imperative (Oetken et al., 2021).

Traditional participation processes in construction planning can be supplemented by community applications or social media. Just like the creation of an identity and the guarantee of a sustainable mix of uses, the organization of social networks can also be supported by (inter)active neighbourhood management (CBRE & REMI, 2021).

Digital Infrastructure

Networking through digital infrastructures is fundamentally changing life, everyday life as well as the economy. Digitalization, from which connectivity has grown, is changing our society; social structures are being dissolved. Digitization must not be equated with technology; a more comprehensive understanding is required: It is not just a technical change, but a socio-technical change. This connectivity has received a particular boost from the covid pandemic (Zukunftsinstitut GmbH, 2021). Accordingly, the digital infrastructure has a special significance in the context of real estate developments: in addition to the networking of user groups, it also reinforces

the identity of the property/neighbourhood through dissemination in the media. In addition, the digital infrastructure also networks the building/urban environment with the users (see also smart buildings in Chapter 6.2.4, which can serve as a basis for such networking between building and user).

Next steps

After considering the impact fields, impact objectives, and impact indicators, as well as the impact clusters and their respective indicators, they are now to be combined in matrix form in the measurement model and analysis grid. Chapter 7 will explain the linkages between the impact objectives and impact clusters, present the weighting and scaling of the key performance indicators, and describe the evaluation through the analysis grid and measurement model.

Finally, Chapter 7 presents and exemplifies the complete analysis grid and measurement model. The aforementioned impact objectives and impact clusters are then measured using the individual key performance indicators, resulting in an individual evaluation for each project, which can be compared to other real estate projects and real estate properties.

7. Real Estate Social Impact Scoring Modell

Sustainable investments are increasingly seen as an important lever for achieving societal objectives (in addition to traditional objectives), but there is currently no single framework in place at the time this study was written that is used for objective setting, structuring, impact measurement, and reporting (see also Section 3.1). Stakeholders are mostly guided by different tools and systems, which are already recognized, but which make comparability and thus data collection difficult (see also Chapters 3.2 and 3.3).

We are still in the development phase of social impact measurement: different stakeholders (investors, companies and also the government) are currently developing measurement tools, and terminology and trying to define industry standards (see also Chapter 3.3). In the following, we will also apply the methodology of the IMP (see Chapter 3.3.2) with its classifications, impact dimensions and impact asset classes to our analysis grid and measurement model.

This analytical grid and measurement model is therefore intended as a first attempt to present and measure social impact investing in the real estate industry. The current legal situation and prerequisites for (Social Impact Investing), such as the EU Green Deal (see Chapter 3.2.5), are changing and expanding and the corresponding changes must be continuously taken into account in the future. Thus, the present model cannot be considered conclusive and requires adjustments and extensions depending on the type of neighbourhood/project.

In the following, the structure of the analysis grid and measurement model as well as the scaling and weighting are described in detail and the entire model is shown.

The analysis grid and measurement model are then applied to three practical examples and conclusions are drawn for further developments.

7.1 Categorization and Indicators

The five success factors (referred to here as impact clusters) for neighbourhood developments (Chapter 6.2) according to CBRE and REMI (2021) were used as the upper categories for measuring different impact areas of social impact investing:

- Urban Mix
- Infrastruktur
- Identity
- Urban Environment
- Connectivity

Each of these impact cluster categories is in turn to be assigned corresponding sub-objectives (hereafter referred to as indicators) (Chapter 6.2).

The **Urban Mix** domain (Chapter 6.2.1) includes the following indicators:

- User mix
- Public access/ground floor with utilization function/public spaces
- Places of interaction

- Green factor
- Quality of stay
- Security
- Use for all user groups
- Air pollution
- Noise pollution

The following indicators are assigned to the area of **infrastructure** (Chapter 6.2.2):

- Location/supply
- Connection to social infrastructures
- Connection to public transport
- Connection to MPT
- Mobility concept
- Services

The **identity** area (Chapter 6.2.3) captures the following indicators:

• Quarter layout
• Brand
• Public acceptance/atmosphere/image
• Diversification of the target group
• Social network/community

The following indicators are based on the **Urban Environment area** (Chapter 6.2.4):

• Materials
• Architecture
• Energy
• Anthropogenic factors
• Smart building/IOT
• Sustainability/certification

The area of **connectivity** (Chapter 6.2.5) comprises the following indicators:

• Neighbourhood management
• Sharing
• Social network/community
• Stakeholder participation/involvement
• Digital infrastructure (including smart building and IOT)

Within the framework of the analysis grid and measurement model, these indicators are in some cases subdivided again and differentiated once more by the “Description of indicators” column and the “Key performance indicator” assigned to each.

The impact clusters and their indicators are assigned the following five impact objectives for **sustainable neighbourhood development** (Chapter 6.1.1) according to ICG (2021):

• Promotion of socio-economic mixing in the neighbourhood
• Access to local infrastructure and sustainable mobility
• Promotion of cultural and economic diversity in the quarter
• Optimization of social housing and quality of life in the neighbourhood
• Optimization of ecological living and quality of life in the neighbourhood

The impact objectives for the area of affordable housing (Chapter 6.1.2) have been subsumed under the objectives of optimizing social housing and quality of life in the neighbourhood and promoting socioeconomic mixing in the neighbourhood.

To ensure that the model is applicable not only to neighbourhoods but also to individual real estate properties/projects, the key performance indicators of the impact clusters and impact fields are each assigned to the following categories (Chapter 5):

• Neighbourhood
• Residential
• Commercial property
• Mixed-use property

The resulting matrix structure consists of the combination of the impact clusters, the impact objectives, and the property use types and thus represents the basic framework of the measurement model and analysis grid.

The following section describes the weighting and scaling of the key performance indicators.



7.2 Weighting and Scaling

The indicators were not weighted, as they may have a different significance depending on the project (based on the project objective) and should therefore not be weighted differently in the analysis and evaluation of the project.

The combination of quantitative and descriptive research is possible through the use of the Likert scale as a common rating scale to quantify the results, thus making the data directly measurable (Perumal, 2010). The Likert scale provides a clear classification of response options in a quantitative way, although it cannot be treated as an interval scale in any case. Thus, there is no way to ensure that categories are always equally spaced (Bacon-Shone, 2015).

To make the measurability of the individual impact clusters and impact targets comparable, the Likert scale with a rating from 1 to 5 is used. Points are awarded for each key performance indicator (see also Chapter 6.2 for further details), ranging from a minimum of 1 to a maximum of 5. The points are marked per category with individual (non-exhaustive) characteristics, which must be fulfilled in order to be rated in the respective point grid from 1 to 5.

An example of this is the evaluation of the key performance indicator “Cultural/creative institutions” (impact cluster: Urban Mix; impact area: promotion of cultural and economic diversity in the neighbourhood). The respective points on the Likert scale (from 1 to 5) of this key performance indicator are assigned certain characteristics that must be fulfilled as a minimum in order to achieve the respective points. The following maximum points can be achieved in the indicators of the respective impact fields and impact clusters. Here, differences arise in the scoring of neighbourhoods, residential properties, commercial properties, and mixed-use properties, as not all indicators (such as affordable housing) apply to all property types.

An assignment of the individual indicators to the real estate use types can be seen in the figure “Social Impact Investing in Real Estate Scoring Model” (see Chapter 7.4).

1	2	3	4	5
No presence	Smaller cultural/creative institution	Small range of cultural/creative institutions	Wide range of cultural/creative institutions	Wide range of cultural/creative institutions of all kinds & neighbourhood management (promotion of scene building) & culture

Scoring according to characteristics of the key performance indicator „Cultural/creative institutions“ (own presentation EBS REMI)



7.3 Evaluation Social Impact

Social impact projects are evaluated using the categories “No impact”, “Silver”, “Gold” and “Platinum”. Here, the individual points of the Likert scale were assigned to one of the three categories, with Silver representing the minimum of social impact investing, Gold the “golden mean” and Platinum an excellent expression of social impact investing. The “No impact” area includes the characteristics that are not sufficient to fulfil an impact in the respective categories. For details, please refer to the presentation of the individual items by category in the figure “Social Impact Investing in Real Estate Scoring Model” (see Chapter 7.4).

As an example, the evaluation of the key performance indicator “Cultural/creative institutions” (impact cluster: Urban Mix; impact area: promotion of cultural and economic diversity in the neighbourhood) can be cited again:

The respective points on the Likert scale (from 1 to 5) of this key performance indicator are assigned to the categories “No impact”, “Silver”, “Gold” and “Platinum”.

- **1 point** (no presence of cultural/creative institutions) does **not** represent an **impact**
- **2 points** (presence of small cultural/creative institutions) is the requirement for the category **“Silver”**
- **3 points** (small range of cultural/creative institutions) the requirement for the category **“Gold”**
- The **“Platinum” category** can be achieved if the characteristics for 4 (large range of cultural/creative institutions) or 5 (large range of cultural/creative institutions of all kinds + neighbourhood management (promotion of scene- building) + culture) points are met

1	2	3	4	5
No presence	Smaller cultural/creative institution	Small range of cultural/creative institutions	Wide range of cultural/creative institutions	Wide range of cultural/creative institutions of all kinds & neighbourhood management (promotion of scene building) & culture

☐ No Impact
 ☐ Silver
 ☐ Gold
 ☐ Platinum

Scoring according to characteristics of the key performance indicator „Cultural/creative institutions“ (own presentation EBS REMI)

The following maximum points can be achieved in the indicators of the respective impact fields and impact clusters in the respective categories.

Individual indicators are assigned to the categories in the figure “Social Impact Investing: Real Estate Scoring Model” (see Chapter 7.4).

Points Impact Cluster	Total No Impact	Total Min Silver	Total Max Silver	Total Min Gold	Total Max Gold	Total Min Platinum	Total Max Platinum
Urban Environment	6	12	12	18	18	24	30
Identity	6	11	11	16	16	21	25
Infrastructure	4	10	10	16	19	25	30
Connectivity	4	9	9	14	15	20	25
Urban Mix	12	30	31	49	55	73	90
Overall result	32	72	73	113	123	163	200

Points Impact Targets	Total No Impact	Total Min Silver	Total Max Silver	Total Min Gold	Total Max Gold	Total Min Platinum	Total Max Platinum
Promotion of cultural and economic diversity	6	13	13	20	21	28	35
Promotion of socio-economic mix	5	11	11	17	18	24	30
Optimization of ecological living and quality of life	6	15	15	24	27	36	45
Optimization of social housing and quality of life	11	23	24	36	38	50	60
Access to local infrastructure and sustainable mobility	4	10	10	16	19	25	30
Overall result	32	72	73	113	123	163	200

Maximum scoring by category according to impact cluster and impact objectives (own representation EBS REMI)

7.4 Analysis grid and measurement

In summary, the following analysis grid and measurement model can be established based on the literature review and previous research on the analysis of real estate projects/properties and neighbourhoods.

This model does not claim to be exhaustive and requires adjustments and extensions depending on the type of neighbourhood/project.

The analysis grid and measurement model are set up as a matrix. The five impact clusters for neighbourhood developments (Chapter 6.2) according to CBRE and REMI (2021) and the five impact objectives for sustainable neighbourhood development (Chapter 6.1.1) according to ICG (2021) are the relevant categories for measuring the social impact of a real estate property or real estate project.

The neighbourhood analysis matrix with its five impact clusters forms the basis of the measurement model and

analysis grid. The five impact objectives for sustainable neighbourhood development were assigned to the indicators of the impact clusters so that each key performance indicator is based on an impact cluster and an impact objective.

Due to the different objectives of real estate projects and real estate properties, the indicators and their key performance indicators are not weighted differently in the evaluation.

The results are shown in the individual impact clusters and impact targets; once the category (No impact, Silver, Gold and Platinum) and, once, the total score is shown here compared to the achieved score.

Here, the focus is not on the maximum number of points to be achieved, but on achieving the categories in the impact clusters and impact objectives, which correspond to the objective of the real estate project and real estate property.

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	1	2	3	4	5	Neighbourhood	3 uses yielding + 1 non-yielding	Commercial property	Mixed-use property
Urban Mix	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Types of use of real estate	3 uses yielding + 1 non-yielding	3 uses yielding + 2 non-yielding	4 uses yielding + 1 non-yielding	4 uses yielding + 2 non-yielding + use linkage	General usage link + some non-yielding	X		X	X
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Cultural/creative facilities	No presence	Smaller cultural/creative institutions	Small range of cultural/creative institutions	Wide range of cultural/creative institutions	Wide range of cultural/creative institutions of all kinds + Neighbourhood management (promotion of Scene formation) + culture	X	X	X	X
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Social/non-profit institutions	No presence	Smaller social/non-profit organizations	Small range of social/non-profit organizations	Wide range of social/non-profit organizations	Wide range of social/non-profit organizations of all kinds + neighbourhood management (promotion of social and non-profit organizations)	X	X	X	X
	User mix	Creating and preserving affordable (and/or social) housing	Promotion of socioeconomic mix in the quarter	Affordable housing in percent (IR IS+ P D 5833): (Number of housing units built or preserved that qualify as affordable housing/number of housing units built or preserved) x 100	No affordable housing	0%–25% above target (e.g. Through concept award)	25%–50% above the target (e.g. Through concept award)	50%–75% above target (e.g. Through concept award)	75%–100% above target (e.g. Through concept award)	X	X		X
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income independent Disadvantage in percent: (Households with income independent Disadvantage/number of households) x 100	No households with non-income-related disadvantage	0%–25% above target (e.g. Through concept award)	25%–50% above the target (e.g. Through concept award)	50%–75% above target (e.g. Through concept award)	75%–100% above target (e.g. Through concept award)	X	X		X
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income independent Disadvantage in percent: (Households with income independent Disadvantage/number of households) x 100	No households with income-related disadvantage	0%–25% above target (e.g. Through concept award)	25%–50% above the target (e.g. Through concept award)	50%–75% above target (e.g. Through concept award)	75%–100% above target (e.g. Through concept award)	X	X		X
	User mix	Optimization of the net income of the target groups	Optimization of social housing and quality of life in the quarter	Rent difference from local rent in percent (IR IS+ P I1748): ((typical local rent – anticipated rent)/anticipated rent) x 100	Exceeding the typical local rent	No exceeding the typical local rent	Undercutting the typical local rent by more than 5%	Undercutting the typical local rent by more than 10%	Undercutting the typical local rent by more than 15%	X	X		X
	User mix	Creation of stable housing situations	Optimization of social housing and quality of life in the quarter	Annual rent increase in Percent: (current/planned rent/ planned rent increase) x 100	Annual rent increase in line with legislation	Below 20% resp., 15% in 3 years	Under 10% in 3 years	Under 5% in 3 years	No rent increase in 3 years	X	X		X
	Public access/ground floor with utilization function/public spaces	Accessibility	Promotion of cultural and economic diversity in the quarter	Accessibility areas and paths	Public areas for users only	Public areas + path network (for users only)	Limited public space for all users (e.g. Canteen, café, restaurant)	Public areas + path network (for all) (e.g. Canteen, café, restaurant)	Public areas + path network (for all e.g. Passage) + integration into the surroundings	X	X	X	X
	Places of interaction	Exchange/communication/fun/play	Promotion of cultural and economic diversity in the quarter	Presence of gastronomy	No presence	Smaller restaurants (without full kitchen)	Small range of cafes with outdoor areas + restaurants + table tennis courts, football pitches	Wide range of gastronomy of all kinds + neighbourhood management (promoting interactions e.g.. Street food festival) + public Interaction (table tennis courts, football pitches ...)	Large range of gastronomy of all kinds + neighbourhood management (promotion of scene formation) + culture	X	X	X	X
	Green factor	Park/nature/greenery	Optimization of ecological living and quality of life in the neighbourhood	Type/quantity/quality of green and natural areas in the neighbourhood	Green islands + wall greenery + selective large-scale greenery (green walls)	Trees and shrubs at the roadside, vertical greenery	Walkable green space (e.g. Taunusanlage)	Parks (outdoor and indoor) + neighbourhood management	Park grounds/urban forest * Neighbourhood management + Festivalization and integration in the Surroundings	X	X	X	X
	Noise pollution	Noise pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of noise pollution in the quarter	Fulfilment of building code requirements for noise protection	Noise protection report prepared and recommendations implemented	Implementation of increased noise protection measures (externally)	Implementation of increased sound insulation measures (externally and internally)	Additional implementation of acoustics improvement measures According to DIN 18041	X	X	X	X
	Air pollution	Air pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of air pollution in the quarter	Fulfilment of the requirements of the building code for air quality	Air pollution report prepared and recommendations implemented	Guideline value II of the Committee for Indoor Guideline Values is exceeded	Guideline value I of the Committee for Indoor Guideline Values is exceeded, guideline value II is not reached	Guideline value I of the Committee for Indoor Guideline Values is exceeded	X	X	X	X
	Quality of stay	Well-being effect/central meeting point	Optimization of social housing and quality of life in the quarter	Atmosphere and quality of stay	No quality of stay due to unprotected free space	Little quality of stay with light protection factor	Better quality of stay due to good neighbourhood layout	Better quality of stay through good neighbourhood layout and active safety concept	High quality of stay due to good neighbourhood layout and active Safety concept + Quarter management	X	X	X	X
	Security	Lighting/avoidance of dark corners	Optimization of social housing and quality of life in the quarter	Security through security concept	No safety concept	Rudimentary safety concept through structural measures + cameras	Detailed structural safety concept	Wafety concept with neighbourhood management	Sophisticated safety concept with neighbourhood management + integration into the community	X	X	X	X
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability of social support services	No presence	Smaller social support services	Small range of social support services	Wide range of social support services	Wide range of social support services of all kinds + Neighbourhood management	X	X	X	X
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability and quality of education/ care services	No presence	Smaller educational/ Care services	Small range of educational/ Care services	Wide range of educational/ Care services	Wide range of educational/ Care services of all kinds + neighbourhood management	X	X	X	X
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Offer of leisure and recreational opportunities	Accessible green spaces	Walkable green areas + play areas + quiet spaces	Walkable green areas + play areas + quiet spaces + landscaping (flowers, shrubs)	Accessible green spaces + playgrounds + quiet spaces + landscaping (flowers, shrubs)+ neighbourhood management	Walkable green spaces + playgrounds + quiet spaces + lands capping (flowers, Shrubs) + neighbourhood management + Interaction with the community (festivalization)	X	X	X	X
	Total Urban Mix									90	85	65	90

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	1	2	3	4	5	Neighbourhood	3 uses yielding + 1 non-yielding	Commercial property	Mixed-use property
Infrastructure	Location/supply	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	No retail	Retail trade without supply function	Kiosk (basic needs)	Food retail	Shopping mall + food retail + druggist + pharmacy (all-inclusive supply + supplement)	X	X	X	X
	Connection to social infrastructures	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructure	No consideration of the social infrastructures in the surrounding area	Pedestrian connection to already existing social infrastructures (day-care or school)	Pedestrian connection to several existing social infrastructures (day-care and school)	Creation of own social infrastructures in the neighbourhood + pedestrian Accessibility of existing social infrastructures	Creation of own social infrastructures in the neighbourhood + pedestrian Accessibility of existing Social infrastructures + connection to higher central social Institutions	X	X	X	X
	Connection to public transport	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility and quality of public transport	Low level of inclusion in the public transport network	Pedestrian connection to the urban public transport network	Own connection to the best possible public transport network on site (bus stop)	Own connection to the best possible public transport network on site (bus stop) + pedestrian accessibility	Own connection to the best possible public transport network on site (bus stop) + pedestrian accessibility + supraregional connection	X	X	X	X
	Connection to MPT	in and around the quarter	Access to local infrastructure and sustainable mobility	Quality of the cycle and footpath infrastructure	Limited inclusion in the interregional mit > 10 min	Good connection to regional mit connections > 5 min	Connection to supraregional mit connections within 10 min	Connection to supraregional mit connections within 5 min	Own connection to mit + motorway connection	X	X	X	X
	Mobility concept	Public transport/ Pedestrian zones/cycle paths/ parking spaces	Access to local infrastructure and sustainable mobility	Presence of sustainable mobility offers	Parking possibilities	Sufficient parking possibilities + charging station	Sufficient parking possibilities + sharing service (either car/ Bike/scooter) + charging station	Sufficient parking possibilities + several sharing services + Charging station	Seamless change of means of transport possible (no own means of transport necessary) harmonized modal split	X	X	X	X
	Services	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	No services	Isolated services from the surrounding area (only hairdresser, only laundry)	Comprehensive usability of services from the surrounding area	Comprehensive range of bookable services for all user groups (in the neighbourhood and the surrounding area)	Comprehensive range of bookable services for all user groups (in the neighbourhood and the surrounding area)	X	X	X	X
	Total Infrastructure									30	30	30	30
Identity	Quarter layout	Arrangement/location of the uses/routing	Optimization of social housing and quality of life in the quarter	Integration and opening of the neighbourhood	Isolated neighbourhood without integration into existing structures	Integration into existing construction methods	Opening up the neighbourhood to the surrounding area (e.g. integration into public traffic networks) + Fusion with existing structure	Opening up the neighbourhood to the surrounding area (e.g. integration into public traffic networks) + Fusion with existing structure + occasional Function supplement	Opening up the neighbourhood to the surrounding area (e.g. integration into public traffic networks) + Fusion with existing Structure + comprehensive supply supplement	X			
	Brand	USP, quality, recognition value	Optimization of social housing and quality of life in the quarter	USP, quality, recognition value	No recognition value/arbitrariness (no brand)	Widespread awareness (regional) + brand (concept)	Widespread awareness (regional) + positive image (media etc.)	Widespread awareness (national, possibly international) + positive (media, etc.) Prestigious property + USP	Widespread awareness (national, possibly international) + positive (media, etc.) Prestigious property + USP + regular brand refurbishment	X	X	X	X
	Public acceptance/ atmosphere/image	Positioning/external perception/self-perception	Optimization of social housing and quality of life in the quarter	Recommendation (quarter-related)	Social focal point/isolation of users	Negative image/user acceptance	No connotation	Positive image/desired place of use	High prestige externally and internally	X	X	X	X
	Diversification of the target group	Diversification of the target group	Optimization of social housing and quality of life in the quarter	Diversification of the target group	Isolated treatment of users (accumulation of uses)	Single thematic orientation without integration into the environment	Single thematic orientation with integration into the environment	Diverse uses with high synergy potential	Diverse uses with high Synergy potential including for the surrounding area	X	X	X	X
	Social network/community	Social network/community	Optimization of social housing and quality of life in the quarter	Social network/community	No measures	Neighbourhoods – Website (run by the operator - > no exchange of users)	Neighbourhood website with chat and comment function	App with chat function/comment function	App + comment function + neighbourhood management + events	X	X	X	X
	Total Identity									25	20	20	20
Developed surroundings	Materials	Recycling quality of materials	Optimization of ecological living and quality of life in the neighbourhood	Recycling quality of materials	Non-recyclable materials	Few recyclable materials	Materials that are not completely recyclable	Recyclable materials (cradle-to-cradle)	Recyclable materials (cradle-to-cradle)/regional materials/CO2-neutral	X	X	X	X
	Architecture	Diversity/building design/user orientation	Optimization of ecological living and quality of life in the neighbourhood	Diversity/building design/user orientation/reuse of space	Ill-considered functional architecture	Isolated landmarks	New architecture independent of existing construction methods	Consideration of regional/local construction methods	Landmark architecture with consideration of regional/local construction methods	X	X	X	X
	Energy	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	Traditional energy production (gas, heat, oil)	Supplement of traditional Energy production (gas, district heat, oil) through renewable energies (panels)	Self-sufficient environmentally friendly Energy generation (CHP, solar)	CO2 neutrality	CO2 neutrality and active energy management	X	X	X	X
	Anthropogenic factors	Sun/light/wind	Optimization of ecological living and quality of life in the neighbourhood	Sun/light/wind	Closed construction (shading, drafts, etc.)	Construction open	Construction open and translucent and protection from regional Weather specifics (solar/wind /cold protection) not always given	Construction open and translucent and protection from regional Weather specifics (solar/wind /cold protection)	Construction open and translucent and protection from local weather conditions (sun/ wind/cold protection) + consideration of annual seasons	X	X	X	X
	Smart building/IOT	Digitization of communication, services, homes, offices, etc.	Optimization of ecological living and quality of life in the neighbourhood	Digitization of communication, services, homes, offices, etc.	Non-existent	Elements of smart building (smart shutters for sun protection)	Smart building	Smart building including individual influencing measures	Smart building including individual influencing measures + integrated IOT-concept+ integration environment	X	X	X	X
	Sustainability/ certification	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	No explicit sustainability certification	Sustainability certification or equivalent criteria	Sustainability certification (at least Gold) or equivalent criteria	Sustainability certification (at least platinum) or equivalent criteria	Preparedness for future certification (best possible standard) + e.g. Well-being-certification or equivalent criteria	X	X	X	X
	Total Developed surroundings									30	30	30	30
Connectivity	Quarter management	Quarter management	Optimization of social housing and quality of life in the quarter	Availability/quality of a feedback systems	No neighbourhood management	Rental management	Active neighbourhood management	Active neighbourhood management + neighbourhood events	Active neighbourhood management + neighbourhood events + events (children's festivals, street festivals)	X			
	Sharing	Sharing	Promotion of cultural and economic diversity in the quarter	Sharing platforms and sharing services	No sharing platforms	Mobility sharing	Independent sharing services	Networked sharing services	Networked sharing services inclusive + community	X	X	X	X
	Social network/community	Social network/community	Promotion of cultural and economic diversity in the quarter	Social network/community	No measures	Neighbourhoods – Website (run by the Operator - > no exchange of users)	Neighbourhood website with chat and comment function	App with chat function/comment function	App + comment function + Neighbourhood management + events	X	X	X	X
	Stakeholder participation/involvement	Stakeholder participation/involvement	Optimization of social housing and quality of life in the quarter	Stakeholder participation/involvement	Participation process within the framework of legislation	Participation process within the framework of legislation + regular information provision (showcase)	Participation process within the framework of legislation + occasional information events for users	Participation process within the framework of legislation + regular information events for users	Participation process within the framework of legislation + regular information events for users + involvement of all stakeholders (citizens, public authorities, investors, Project developers)	X	X	X	X
	Digital infrastructure	Digital infrastructure	Optimization of social housing and quality of life in the quarter	Digital infrastructure	Non-existent	Intranet/website	Neighbourhood and building app	Interaction between user and building	Full networking lifecycle of the property/IOT	X	X	X	X
	Total Connectivity									25	20	20	20
										200	185	165	190

8. Application of the Analysis and Measurement Model

In the context of this commissioned research, three practical examples are analysed with regard to their potential social impact. All three examples are in various stages of completion or planning.

The objective is to consistently apply and test the previously created “Social Impact Investing in Real Estate Scoring Model”.

The analysis grid is applied to three projects (one completed, one ongoing, and one planned) to establish a basis for making the social impact of these projects comparable and measurable.

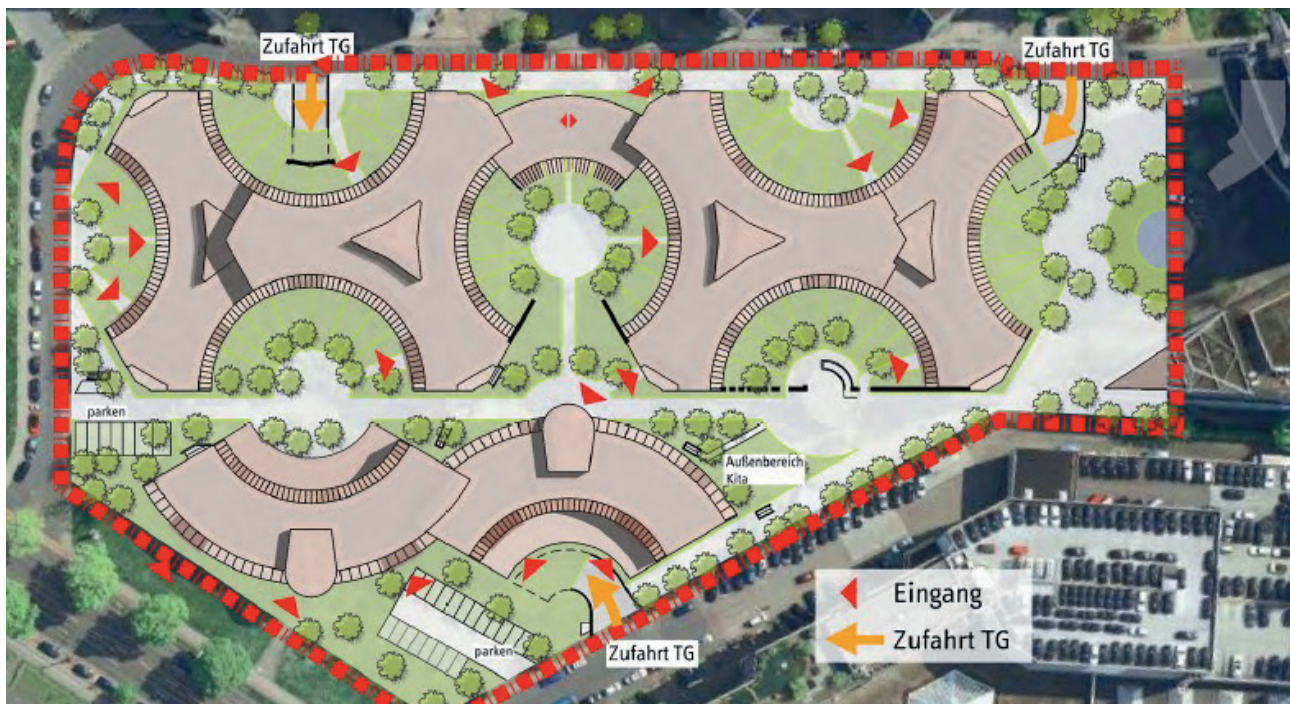
The three projects analysed have different objectives: The main objective of the Living Circle (Düsseldorf) and Schumanns Höhe (Bonn) projects was, inter alia, a mixed neighbourhood, while the main objective of the Moringa (Hamburg) project lies in linking sustainability with (affordable) housing (see the following explanations in this paper).

Information was provided by the respective developers and qualitative interviews were conducted by telephone to evaluate the respective projects.

8.1 Overview of the Practical Examples

Living Circle (Düsseldorf)	Schumanns Höhe (Bonn)	Moringa (Hamburg)
		
Completion 2017	Completion 2021	Completion 2024
		

8.2 Living Circle in Düsseldorf (Completed project)



Source of images: Catella: <https://www.living-circle.de/>

Profile	Living Circle
Adress	Kaiserstraße 18 40221 Düsseldorf
Residential units	353
Underground parking spaces	600
Completion	2017
Objective	Mixing of the neighbourhood

8.2.1 Objective and Brief Description of the Project

The Living Circle project was completed in the Grafenberg district (Düsseldorf) in 2017. It is a joint project of the Berlin Bauwert Investment Group and Catella Property Finance. For this purpose, the commercial building, consisting of seven semicircles, was converted into approximately 350 residential units. At that time, the topics of social and environmental impact that are nowadays being actively discussed were still in their infancy; nevertheless, at its completion, the project already fulfilled many of the points currently under discussion.

The office building, built in the 90s, was vacant for almost 7 years. This resulted in a difficult situation in terms of ur-

ban development. The project's main objective was, inter alia, a mixed neighbourhood.

Implementation

Modern designed 2- to 4-room apartments, penthouse apartments and townhouses between 45 m² and 120 m² were created in individual, differently designed components. With the support of the city of Düsseldorf, the apartments are offered at an average of € 10/m². 20 % of the apartments already be rented for a price of € 8.50/m² and the rent is fixed for a period of 10 years.

With the exception of these subsidized apartments, rent increases occur according to legal principles.

The underground garages (with around 600 parking spaces and a large number of charging columns) were retained and renovated, and part of the enclosed area gave way to extensive green spaces with playgrounds and outdoor seating. The extensive green spaces are designed to create a private atmosphere everywhere – with individual recreational areas for all tenants and gardens for the ground-floor apartments. The green spaces and the nature park are designed to be accessible and interactive for all.

All apartments have balconies or terraces; due to a shading survey, a large number of the apartments were equipped with two balconies. Noise abatement and air pollution surveys were undertaken and their relevant recommendations were implemented. An explicit safety concept was not drawn up; however, a certain level of security is also provided by the janitor on site.

Different facade designs create the character of individual single houses. Consideration of regional/local construction was made by preserving the former office building. Individual added elements, such as the balconies and staircases, can be dismantled individually. The deconstruction of the former office building also resulted in a high proportion of recyclable materials.

The Living Circle project is open to the public and was integrated into the existing structure (including the use and conversion of the old office building) and blends architecturally with existing structures.

The energy supply is provided by district heating. Smart building elements were not integrated, and no sustainability certificates were requested.

In addition to the apartments as well as the local supply, children's facilities (one nursery and six large day-care centres from 4 months) were established. In addition, the nature park was equipped with recreational facilities for all ages. Due to the central location on Grafenberger Allee, a wide range of cultural/creative institutions, social/non-profit organizations, as well as a selection of different gastronomic concepts, are available in the neighbourhood's vicinity. Further, thanks to its central location, there is a wide range of social support services and a wide range of education/care options. Due to the central location and the integration of the nature park, as well as the existence of childcare facilities, a variety of uses with high synergy potential also result for the surrounding area.

There is no neighbourhood app, neighbourhood website or (active) neighbourhood management.

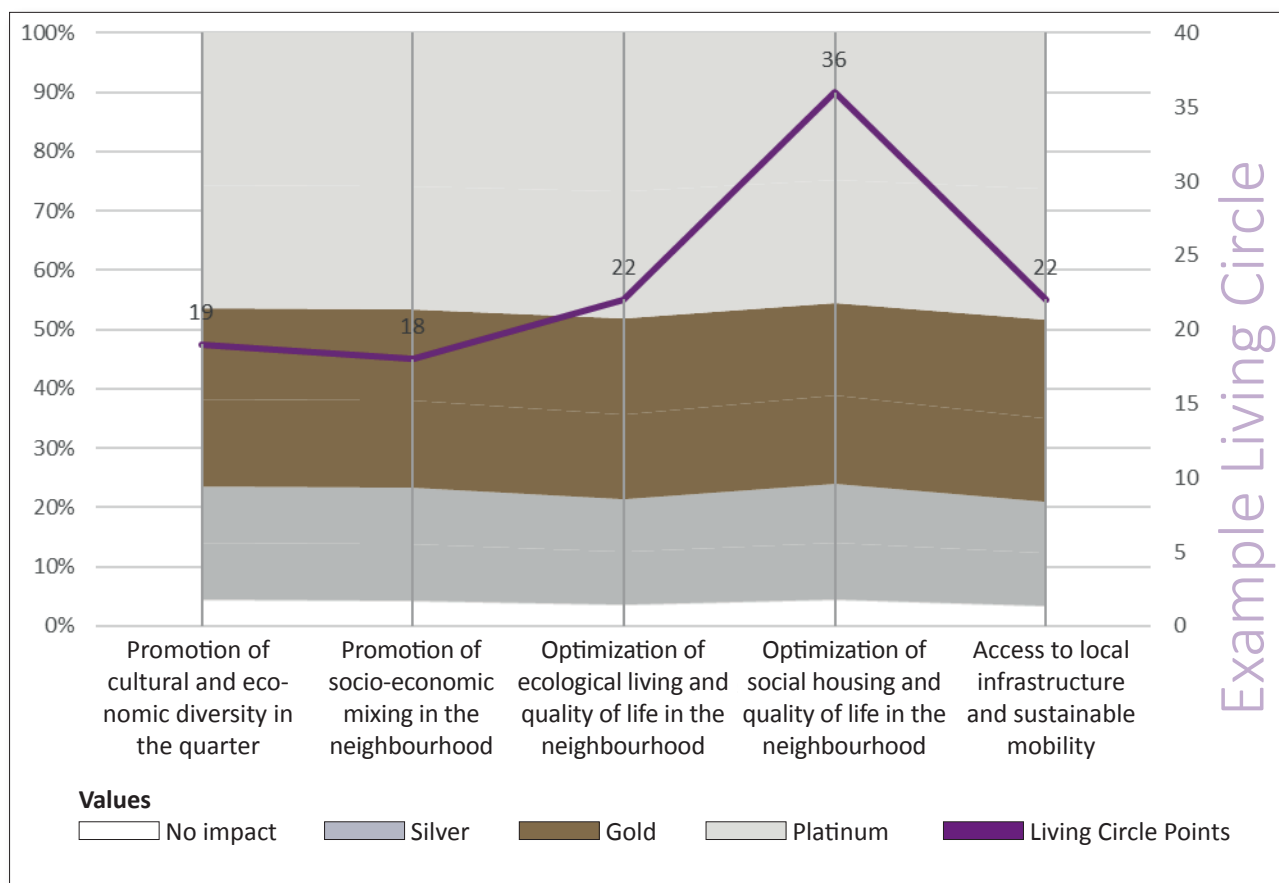
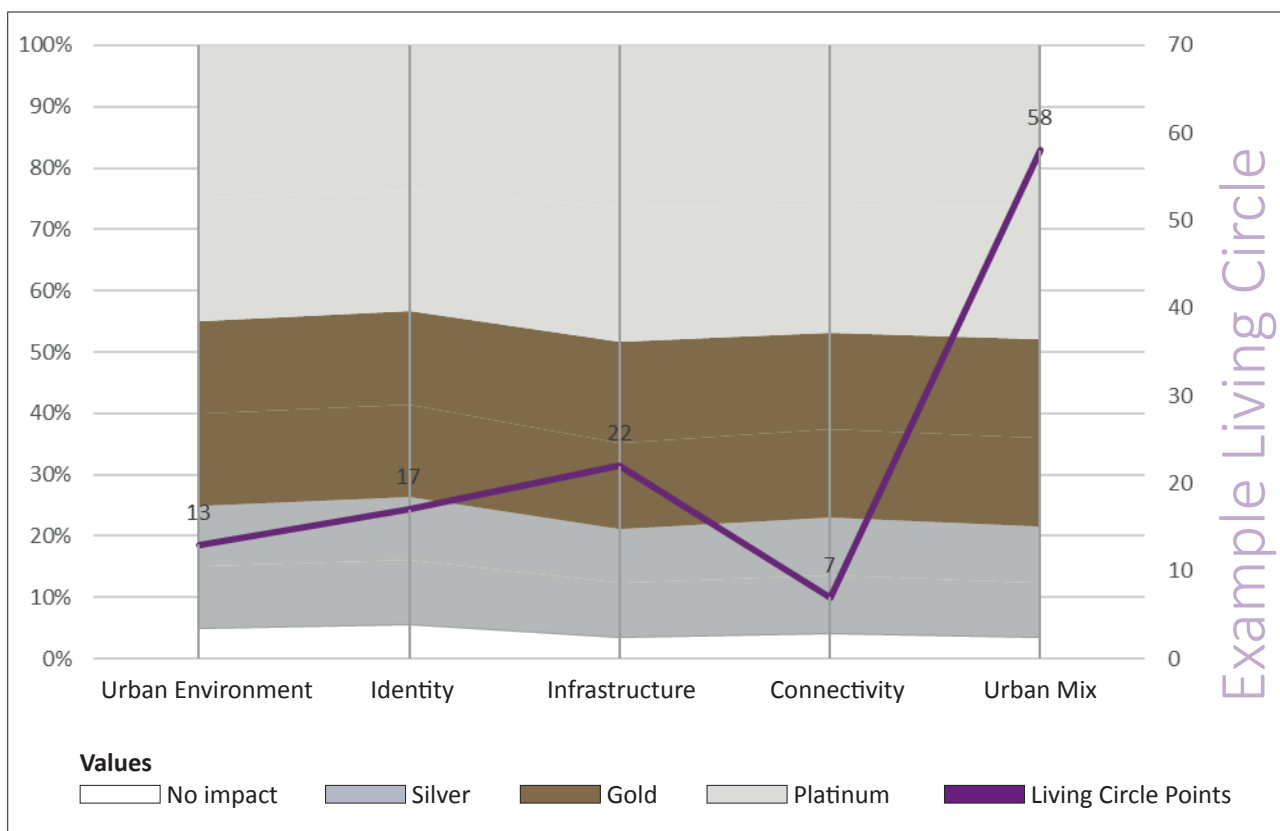
8.2.2 Application Analysis Grid

The Living Circle project can be evaluated as a neighbourhood. Of the maximum points to be achieved in the framework of the analysis grid for evaluating a neighbourhood development's social impact, the Living Circle project achieved 117 points out of 200.

A breakdown by impact areas and impact clusters, as well as an allocation to the categories No social impact („No impact“), Silver, Gold and Platinum can be found in the figures and tables below:

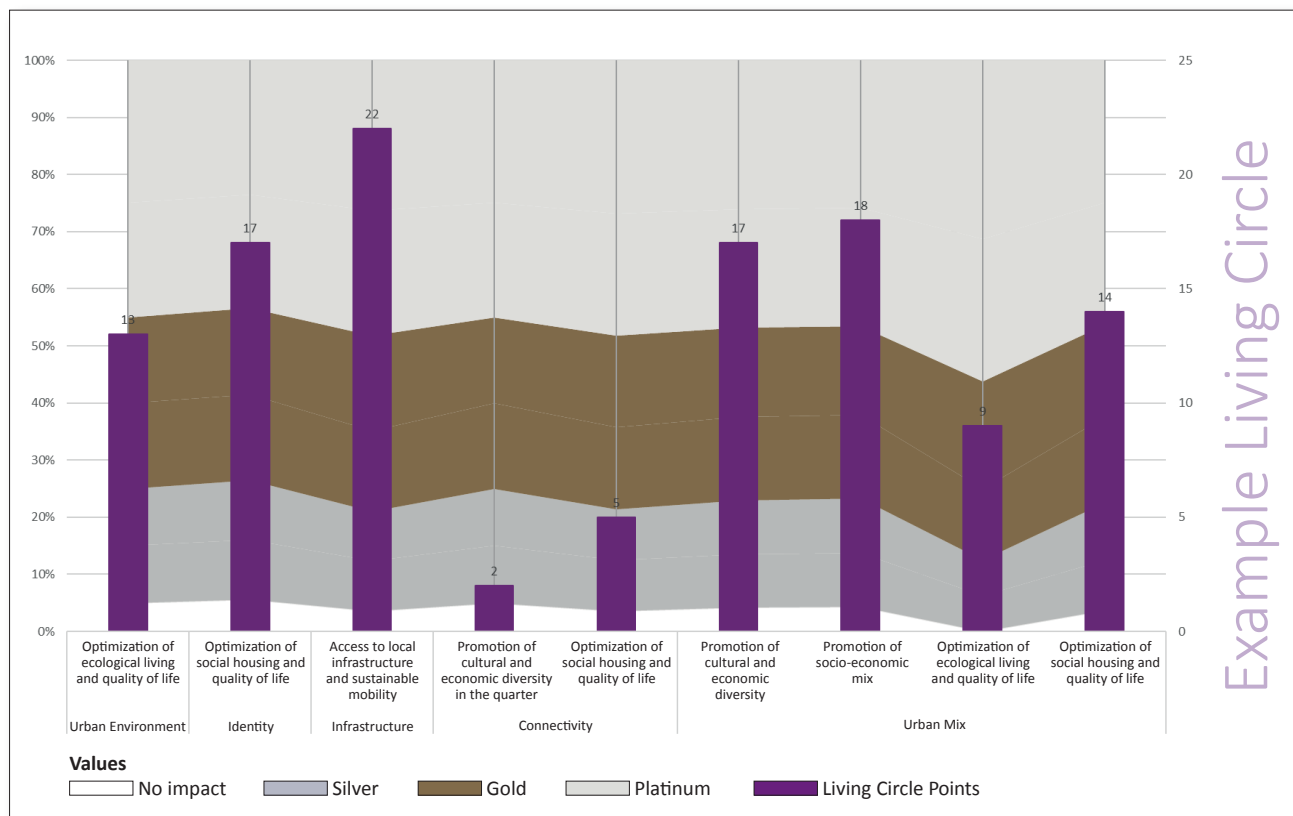
Points Impact Cluster	Living Circle Points	Max Points
Urban Environment	13	30
Identity	17	25
Infrastructure	22	30
Connectivity	7	25
Urban Mix	58	90
Overall result	117	200

Points Impact Targets	Living Circle Points	Max Points
Promotion of cultural and economic diversity	19	35
Promotion of socio-economic mix	18	30
Optimization of ecological living and quality of life	22	45
Optimization of social housing and quality of life	36	60
Access to local infrastructure and sustainable mobility	22	30
Overall result	117	200



Impact Objectives by Impact Clusters

Points Impact Cluster	Living Circle Points	Max Points
Urban Environment	13	30
Optimization of ecological living and quality of life	13	30
Identity	17	25
Optimization of social housing and quality of life	17	25
Infrastructure	22	30
Access to local infrastructure and sustainable mobility	22	30
Connectivity	7	25
Promotion of cultural and economic diversity in the quarter	2	10
Optimization of social housing and quality of life	5	15
Urban Mix	58	90
Promotion of cultural and economic diversity	17	25
Promotion of socio-economic mix	18	30
Optimization of ecological living and quality of life	9	15
Optimization of social housing and quality of life	14	20
Overall result	117	200



On average, most impact targets are in the Platinum and Gold range by impact cluster. Only the area of connectivity (7 out of 25 points) is anchored in the Silver range, as the

neighbourhood does not have an active neighbourhood management and does not offer a community platform, or special sharing services.

► Annex A1 details the respective impact cluster scores by indicator.

8.2.3 Conclusion

From the above tables, the Living Circle project can be considered a social neighbourhood, or a neighbourhood with a social impact. Of the maximum points to be achieved in the framework of the analysis grid for evaluating a neighbourhood development's social impact, the Living Circle project achieved 117 points out of 200. This is predominantly in line with a Gold standard of developed social impact investing: Real Estate Scoring Model of this commissioned research.

Achievement of the main objective is confirmed by the achievement of the Platinum category in the "Urban Mix" impact cluster and by the achievement of the Gold category in the "Promoting socio-economic mix in the neighbourhood" impact cluster.

8.3 Schumanns Höhe in Bonn (Ongoing Project)



Source of the images: Instone Real Estate: <https://www.instone.de/projekte/schumanns-hoehe-bonn>

Profile	Schumanns Höhe
Address	Sebastianstraße 180
Residential units	239
Underground parking spaces	190
Start of construction	2019
Completion	2021
Objective	Holistic, mixed neighbourhood development

8.3.1 Objective and Brief Description of the Project

The neighbourhood is located on the former site of the “Paulusheim” nursing home for the elderly. The 21,150 m² plot has 239 residential units, underground garages with a total of 190 parking spaces and about 600 bicycle parking spaces. The planned residential and usable area is 16,080 m². Construction of the three phases began in 2019 and was completed in 2021. The “Schumann Haus”, a listed building in which the composer Robert Schumann spent the last years of his life as a sanatorium until his death, is connected to the neighbourhood.

The project’s main objective was a holistic, mixed-use neighbourhood development that creates housing for all generations and income levels in coordination with the municipality and society and integrates delicately into the historic stock.

Implementation

The Schumanns Höhe project includes care housing, subsidized housing, day-care for children (U3) and adults, privately financed housing, multigenerational housing and a care service. All apartments (1-5 rooms with 30 to 150m²) are planned barrier-free for good usability for people with limitations and disabilities.

The apartments are divided as follows: 31 subsidized apartments, 24 care apartments, 44 multigenerational apartments (including 20 condominiums and 24 rental apartments), 10 privately financed rental apartments (rent approx. € 14/m² per month), 55 small-scale apartment rentals (rent approx. € 16-17/m² per month) and 75 condominiums.

Affordable housing is secured through 30 affordable housing units as well as 2 affordable housing units and 24 affordable housing units within the multi-generational housing project. Overall, the percentage of affordable housing is approximately 30 %; no affordable housing requirement was provided by the city as part of the concept award. Annual rent increases are planned only to the extent permitted by law.

The project also includes 20 day-care places including a professional care provider with services, as well as a care station and a U3-day-care group (for local care of young children). Furthermore, the project includes the operation of an outpatient care service station for the quarter as well as for the adjacent neighbourhoods.

The project frames the Robert Schumann Haus, which houses a music library and a cultural association. In addition, various cultural institutions, such as the Harmonie, are located in the project's immediate vicinity. Due to the central inner-city location, social support services are available in the nearby vicinity in addition to the neighbourhood's own care service.

A variety of educational institutions (such as day-care centres, schools and universities) are also available within walking distance. Its central location ensures a wide choice of gastronomy.

A connection to the local public transport system is provided by the bus stop Bonn Sebastianstraße. The A565 motorway can be reached within 8 minutes by car.

The Schumanns Höhe project includes two neighbourhood squares with a good quality of stay as meeting opportunities in public space, which are open to the public. Public usability of the paths was a requirement of the concept award.

Land sealing will be reduced by building to scale on the site area and incorporating existing mature vegetation into the exterior landscaping.

Although no security concept was developed, an opinion on security was obtained from the police. Burglary protection has been installed on the ground floor. The illumination and night lighting of the neighbourhood squares is well developed. Play areas between the houses provide additional protection for children.

Noise and air pollution have been assessed by experts and corresponding recommendations have been implemented.

Car-sharing stations are planned on the site for residents and neighbourhoods to reduce the need to purchase their own cars. To reduce CO₂, appropriate e-mobility connections will be installed in the underground garages. A parcel collection station (Packstation) is also planned to avoid unnecessary mobility burdens on the site.

The Schumanns Höhe project is open to the public and has been integrated into the existing structure (including old path networks) and blends architecturally with existing structures.

In addition to the comprehensive care supplement with care services, the Schumanns Höhe project has a special recognition value: In addition to the integration of the Robert Schumann Haus, the former care home facade was rebuilt, although it was not a listed building. Integrating different types of housing provides a diversification of target groups.

Common materials were used in the construction. The individual buildings were planned individually: The facades differ in their details (facades, balconies, etc.). In addition, the old facade of the previous retirement home was recreated. The construction method is an open design but provides protection from anthropogenic factors. A shading survey was conducted, and the results were implemented accordingly. Smart building elements were not integrated. No explicit sustainability certification was undertaken. To reduce CO₂ pollution, the use of district heating as an energy source via the municipal utility is planned via a waste incineration plant with combined heat and power generation. The buildings include green roofs to provide a backwater for heavy rains and offset inner-city heating.

The Schumanns Höhe project has no neighbourhood management; it is managed by the owners and Wahlverwandtschaft Bonn e.V.

A website regarding the Hausgemeinschaft Schumannshöhe is operated by Wahlverwandtschaft Bonn e.V. (but does not include user exchanges). Digital infrastructure has not been implemented. During the project's planning, workshops were held with residents, information events were offered, and Wahlverwandtschaft Bonn e.V. had a say in the planning.

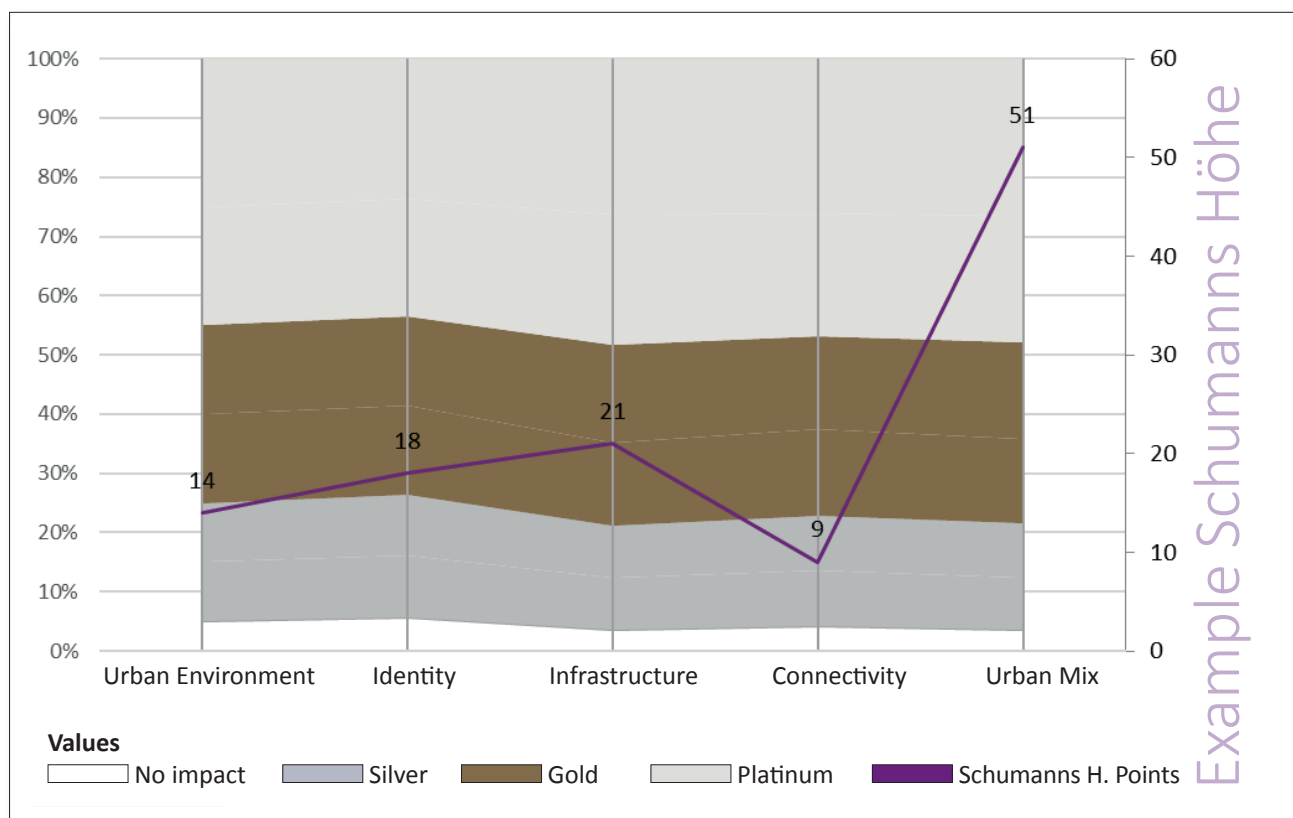
8.3.2 Application Analysis Grid

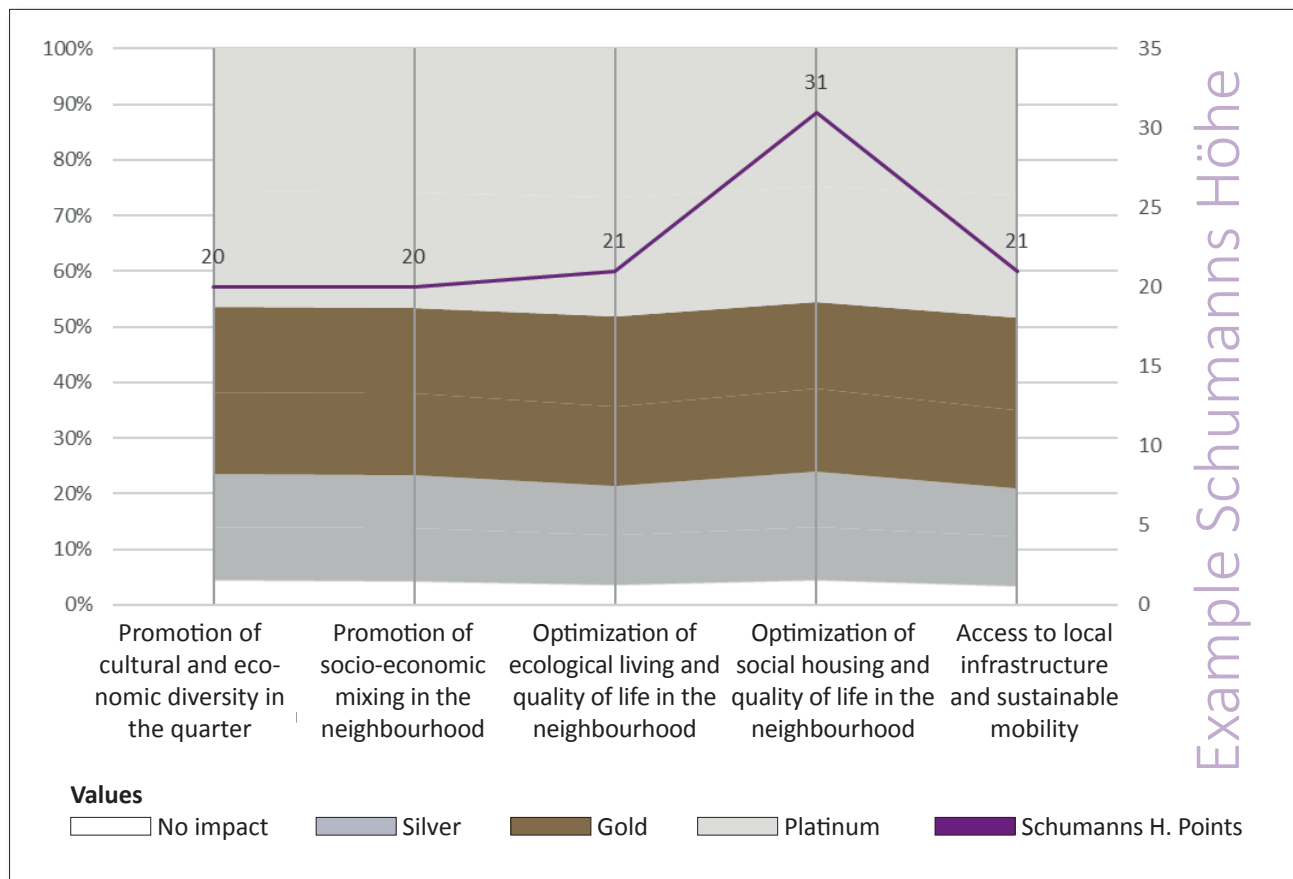
The Schumanns Höhe project can be considered a neighbourhood with social impact. Of the maximum points to be achieved under the analysis grid for evaluating the social impact of neighbourhood development, the Schumanns Höhe project achieved **113 points out of 200**.

A breakdown by impact areas and success factors, as well as an allocation to the categories No social impact ("No impact"), Silver, Gold and Platinum can be found in the figures and tables below:

Points Impact Cluster	Schumanns Höhe Points	Max Points
Urban Environment	14	30
Identity	18	25
Infrastructure	21	30
Connectivity	9	25
Urban Mix	51	90
Overall result	113	200

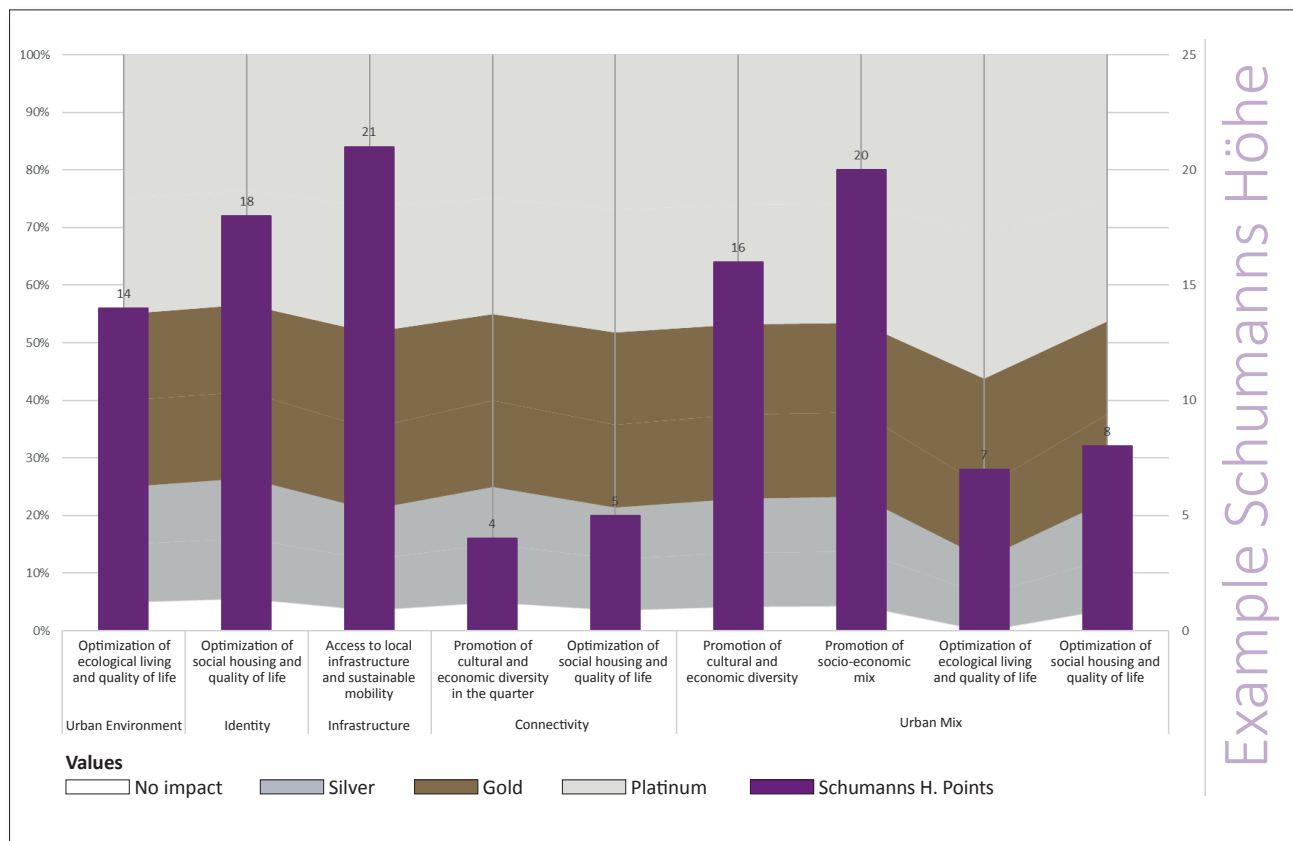
Points Impact Targets	Living Circle Points	Max Points
Promotion of cultural and economic diversity	20	35
Promotion of socio-economic mix	20	30
Optimization of ecological living and quality of life	21	45
Optimization of social housing and quality of life	31	60
Access to local infrastructure and sustainable mobility	21	30
Overall result	113	200





Impact Objectives by Impact Clusters

Points Impact Cluster	Schumanns Höhe Points	Max Points
Urban Environment	14	30
Optimization of ecological living and quality of life	14	30
Identity	18	25
Optimization of social housing and quality of life	18	25
Infrastructure	21	30
Access to local infrastructure and sustainable mobility	21	30
Connectivity	9	25
Promotion of cultural and economic diversity in the quarter	4	10
Optimization of social housing and quality of life	5	15
Urban Mix	51	90
Promotion of cultural and economic diversity	16	25
Promotion of socio-economic mix	20	30
Optimization of ecological living and quality of life	7	15
Optimization of social housing and quality of life	8	20
Overall result	113	200



On average, most impact targets are in the Platinum and Gold range by impact cluster. Only the area of connectivity is anchored in the Silver range, as the neighbourhood,

for example, does not have an active neighbourhood management and does not offer a community platform.

► Annex A2 details the respective impact cluster scores by indicator.

8.3.3 Conclusion

From the above tables, the Schumanns Höhe project can be considered a social neighbourhood. Of the maximum points to be achieved under the analysis grid for evaluating the social impact of neighbourhood development, the Schumanns Höhe project achieved 113 points out of 200. This is predominantly in line with a gold standard of developed social impact investing: Real Estate Scoring Model of this commissioned research.

Achievement of the main objective is confirmed by the achievement of the Platinum category in the “Urban Mix” success factor and by the achievement of the Platinum category in the “Promoting socio-economic mix in the neighbourhood” impact cluster.

8.4 Moringa in Hamburg (Project in Planning)



Quelle der Bilder: Landmarken AG: <https://www.landmarken-ag.de/projekte/moringa/>

Profile	Moringa
Address	Lucy-Borchardt-Straße 20457 Hamburg
Land area	4.741 sqm
Living spaces	11.906 sqm
Start of construction	2022
Completion	2024
Objective	Sustainability and (affordable housing)

8.4.1 Objective and Brief Description of the Project

Landmarken AG designed Moringa HafenCity (derived from the tree of life Moringa Oleifera) for the tender of construction site 105 (Lucy-Borchardt-Straße, 20457 Hamburg). Moringa GmbH, a project development company within the Landmarken family with a focus on Cradle to Cradle, has since emerged from this. The project site is located in the eastern part of the HafenCity district at the former Baakenhafen/Elbbrückenquartier, which has yet to be developed. The design is based on the Cradle2Cradle principle and focuses on social and environmental sustainability. The project is the first residential building in which the ecological construction method according to the Cradle-to-Cradle principle is consistently applied. The project is considered trend-setting due to its combination of climate- and resource-friendly construction with affordable housing.

Planning

A residential building with a commercial part is planned with a living area of 11,906 m² (in 3 components) on the 4,741 m² plot. In addition, 44 car parking spaces and 426 bicycle parking spaces are to be created.

The handover phase began in February 2020, the purchase of the land is planned for the beginning of 2022 and the start of construction for spring 2022 (after receiving the building permit). Completion and acceptance as well as handover to the tenants and thus the start of rental payments is scheduled for the end of 2024.

The project's main objective is to create a pilot project in the field of sustainability and (affordable) housing.

The project's results will be made available to the city of Hamburg, which will accompany the project scientifically for 6 years.

The combination of "People, Plant and Office" is to be achieved by linking the Cradle2Cradle approach with the co-working/co-living concept and the affordable housing sector.

Uses include subsidized housing (approx. 1/3), co-living/co-working (approx. 1/3), freehold housing as rental apartments (approx. 1/3), restaurants/shops and a day-care centre. Rental housing is required to remain rental housing for at least 30 years.

In the first component (4,329 m²), the creation of subsidized housing (housing for singles, couples and families who meet certain income limits) is planned on the 1st to 6th floors. A day-care centre is to be built on the ground floor and 1st floor with an outdoor area in the courtyard. The entrance to the underground garage should also be located in this part of the building.

The second component (3,229 m²) includes a co-living concept (residential communities with a maximum of 5 residents, various services and high-quality equipped common areas) from the ground floor to the 6th floor. Co-working spaces are to be created on the ground floor. Furthermore, additional common areas and a roof terrace are planned.

In the third component (4,348 m²), privately financed apartments are to be built from the 1st floor to the 12th floor. A restaurant is planned on the dwelling-mound floor (elevated floor about 8 to 9 meters above sea level to protect against high water and storm surges).

Security concepts (locking systems, lighting, cameras) are planned as part of neighbourhood management. In the Elbbrückenquartier and the HafenCity, there are already many cultural/creative institutions, including the HafenCity itself, the Elbphilharmonie Hamburg, the Miniatur Wunderland, the Alster estuary and much more. In terms of social/charitable institutions, social support services and education/care services, the Elbquartier is still in the process of expansion, so presence and availability here are still possible on a limited basis. The integrated KITA and gastronomy thus offer a good functional supplement for the HafenCity and the Elbbrückenquartier. HafenCity University is also within walking distance.

Various S-Bahn, U-Bahn and bus stations are within walking distance. In addition, there is a direct connection to regional MIT and supraregional MIT. The underground

parking garage will include e-bike and car-sharing services, as well as sufficient charging stations for e-bikes and cars.

The inner courtyard as well as the KITA and gastronomy are accessible to all, i.e. third parties. The roof terraces are accessible to all residents and are operated by the co-living operator.

Overall, greening of over 100% of the site area is planned (green facade, roof, courtyard). Noise abatement surveys are prepared, and recommendations are implemented. In addition, HafenCity windows are installed here, which can be opened without restricting noise protection. In addition to indoor measurements related to air quality, the quality of the green facade is measured in terms of temperature and humidity regulation of the building; this should also increase the air quality in the long term.

In the sense of the Cradle2Cradle principle, a waste-free economy is to be created in which no materials harmful to health or the environment are used, and all materials are permanent nutrients for natural cycles or closed, technical cycles. The majority of the structures are separable, deconstructable and recyclable. The take-back obligation for all components is requested to encourage manufacturers to develop a recyclable product. The building thus functions as a raw material depot with a value assessment for each raw material including an analysis of the reusability of the used materials after the period of use (residual value assessment). Achieving the HafenCity Platinum Ecolabel (similar to the DGNB standards) is the developer's obligation and will thus ensure the high quality standard and quality demand.

The building design was closely coordinated (monthly) with HafenCity Hamburg to ensure that the common objectives of sustainability were taken into account and that the building was also seamlessly integrated into the planned structure of HafenCity. The many interfaces in such an inner-city construction project require a great deal of coordination to ensure a smooth planning and construction process. There have been no user events to date, as the project is still in the development stage. Within the building, however, there will be an information room on the project, which will show the ecological and social added values, processed in real-time data and information on, for example, the products and materials used, and will be available to the interested public.

Sharing services for e-bikes and cars will be developed together with HafenCity Hamburg, and subsequently offered and expanded by Moringa.

Active energy monitoring is planned. Supply is ensured by the district heating power plant of HafenCity Hamburg and by solar panels on the roof. It is also possible to expand the solar-power system in the future. The use of green leases is obligatory for this project.

Smart building elements have been planned in the area of co-working and co-living, which will be controllable via the community app.

Active neighbourhood management will ensure networking within the building, but also with the HafenCity neighbourhood. A corresponding community app should encourage exchange among each other and also offer interactions with the building (e.g. for booking the co-working spaces). Events are to be planned both in the neighbourhood and in HafenCity itself to ensure and promote an exchange outside the Moringa neighbourhood.

8.4.2 Application Analysis Grid

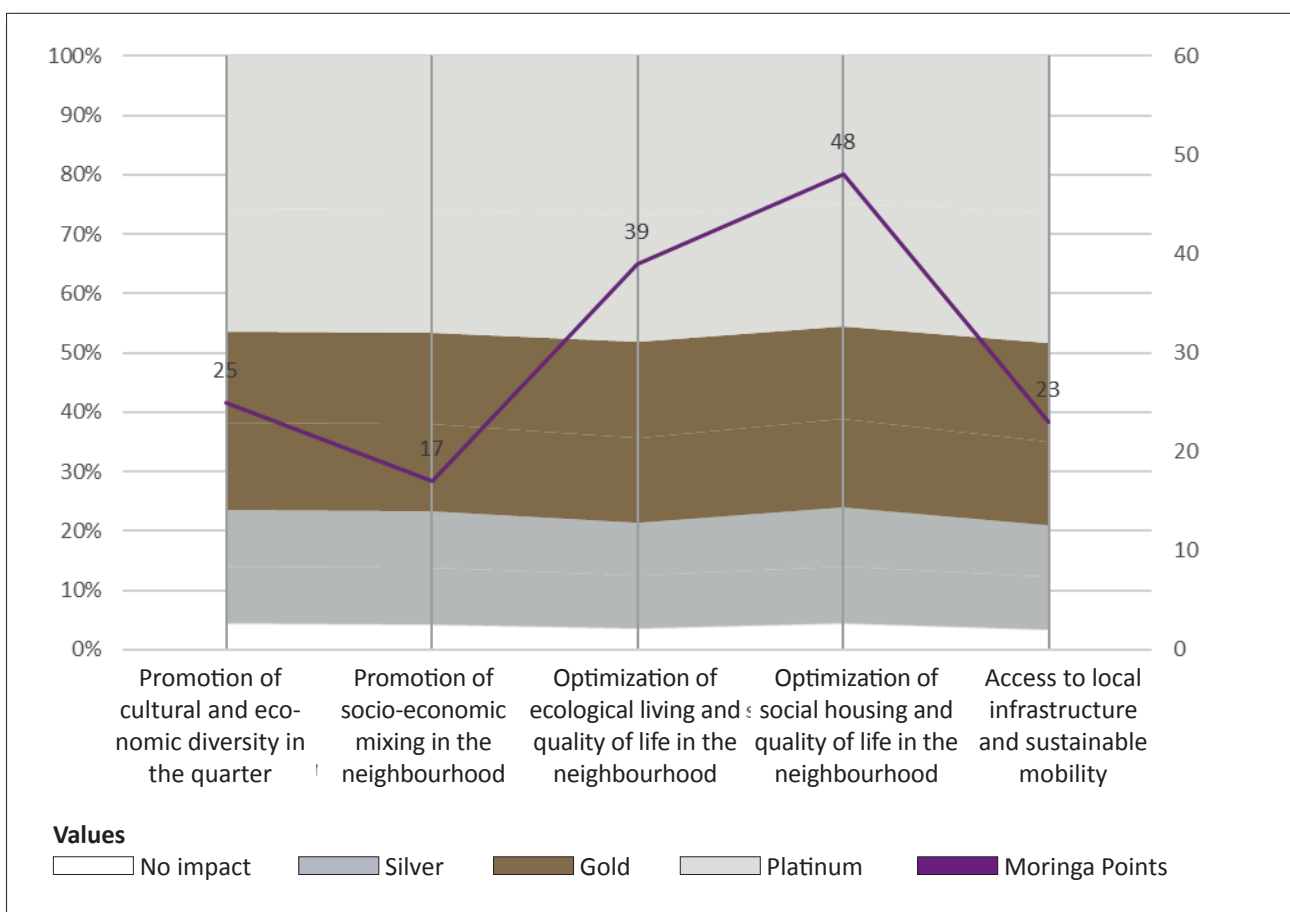
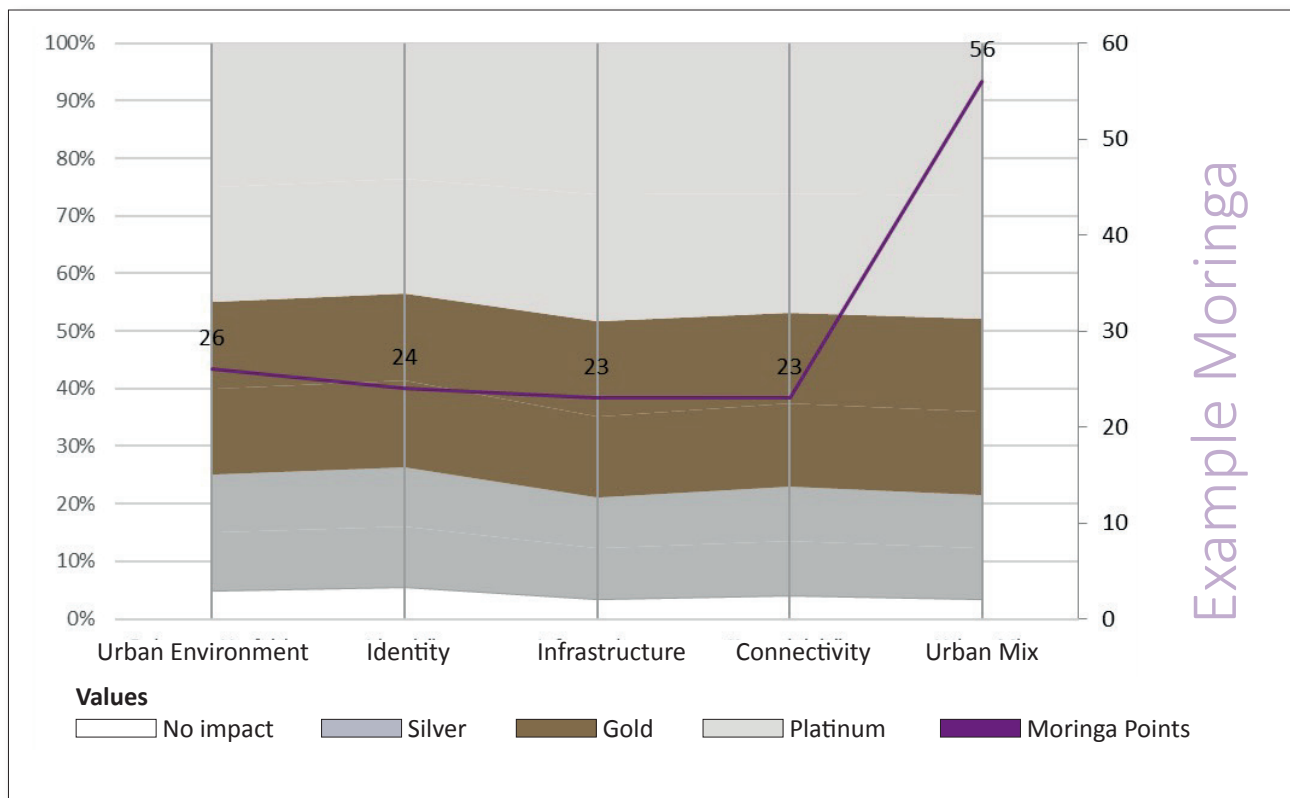
The Moringa project can be evaluated as a neighbourhood. Of the maximum points to be achieved under the analysis grid for evaluating the social impact of neighbourhood development, the Schumanns Höhe project achieved **152 points out of 200**. In the context of the analysis, it should be noted in particular that the Elbbrückenquartier is currently still under development and therefore some indicators and KPIs could only be evaluated according to the current situation. Upon completion

of the project, it is very likely that these categories will also be highly rated by the diverse development of the Elbbrückenquartier.

A breakdown by impact areas and success factors, as well as an allocation to the categories No social impact («No impact»), Silver, Gold and Platinum can be found in the figures and tables below:

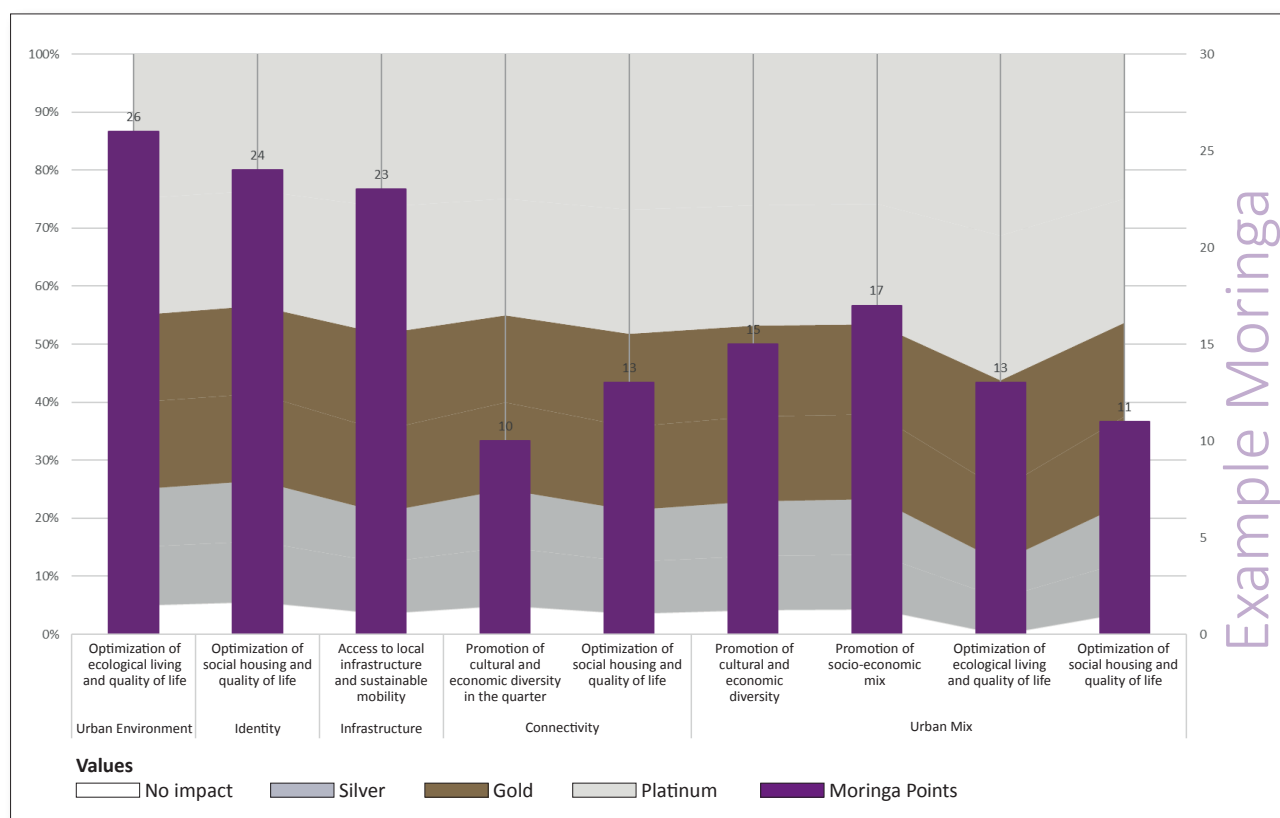
Points Impact Cluster	Moringa Points	Max Points
Urban Environment	26	30
Identity	24	25
Infrastructure	23	30
Connectivity	23	25
Urban Mix	56	90
Overall result	152	200

Points Impact Targets	Moringa Points	Max Points
Promotion of cultural and economic diversity	25	35
Promotion of socio-economic mix	17	30
Optimization of ecological living and quality of life	39	45
Optimization of social housing and quality of life	48	60
Access to local infrastructure and sustainable mobility	23	30
Overall result	152	200



Impact Objectives by Impact Clusters

Points Impact Cluster	Moringa Points	Max Points
Urban Environment	26	30
Optimization of ecological living and quality of life	26	30
Identity	24	25
Optimization of social housing and quality of life	24	25
Infrastructure	23	30
Access to local infrastructure and sustainable mobility	23	30
Connectivity	23	25
Promotion of cultural and economic diversity in the quarter	10	10
Optimization of social housing and quality of life	13	15
Urban Mix	56	90
Promotion of cultural and economic diversity	15	25
Promotion of socio-economic mix	17	30
Optimization of ecological living and quality of life	13	15
Optimization of social housing and quality of life	11	20
Overall result	152	200



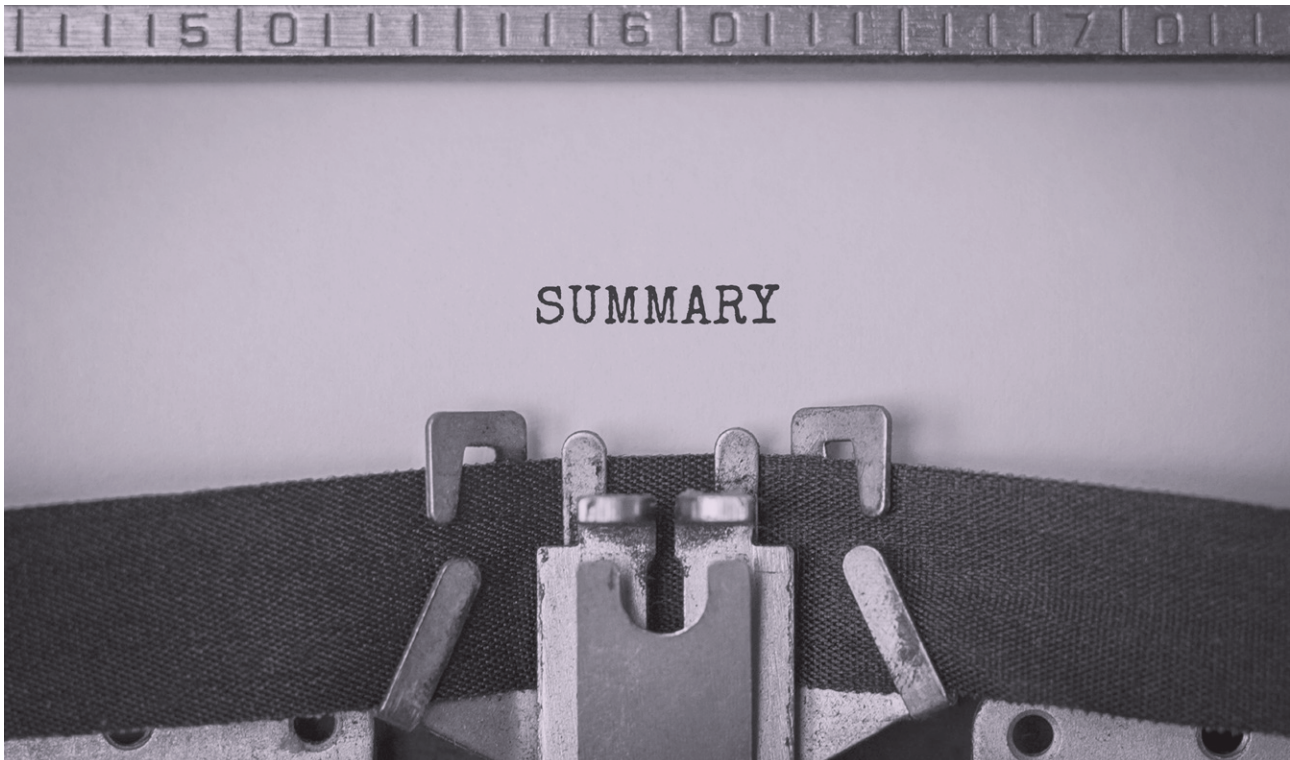
On average, most impact targets are in the Platinum and Gold range by impact cluster.

► Annex A3 details the respective impact cluster scores by indicator.

8.4.3 Conclusion

From the above tables, the Moringa project can be considered a social neighbourhood. Of the maximum points to be achieved under the analysis grid for evaluating the social impact of neighbourhood development, the Schumanns Höhe project achieved 152 points out of 200. This is predominantly equivalent to a Gold standard (and very likely Platinum standard upon completion and development of the Elbbrückenquartier) of developed social impact investing: Real Estate Scoring Model of this commissioned research.

Achievement of the main objective is ensured by the achievement of the Platinum category in the “Urban Environment” and the Platinum category in the “Urban Mix” success factor and by the achievement of the Platinum category in the “Optimization of ecological living and quality of life in the neighbourhood” impact area.



8.5 Summary

The measurement model and analysis grid for social impact in the real estate sector applied well to the analysed project and neighbourhood developments. Based on the measurement model and analysis grid, the impact objectives and impact clusters could be analysed, compared and evaluated on a project-specific basis.

In a further development of the model, a distinction, on the one hand, between completed, ongoing and, on the other hand, between planned neighbourhood developments as model variants could still be helpful since in the case of ongoing and planned projects, not all factors have yet been planned and/or implemented. Therefore, it is not possible to positively weight these factors that have not yet been implemented, consequently, these points could be excluded from the evaluation in the future. Thus, the score is not lowered unnecessarily. Furthermore, the topic around “energy” and the legal developments should be monitored and, if necessary, further differentiated in a further model version.

Moreover, it should be noted that each project is individual and, in addition to the aspects mentioned in the model, may have other positive environmental and social aspects that could be included in further elaborations of this model.

Overall, the model is a solid and complex initial basis for capturing, analysing and measuring social impact in real estate, as well as a basis for benchmarking based on a scoring model of different projects or neighbourhoods. Based on further considerations, discussions and regulations, constant adaptation and expansion are recommended.

Lastly, it should be noted that the complexity of the model comes from scientific analysis. For easier application in practice, the complexity will be simplified in a further version, if necessary, and the model will be reduced.

9



9. Conclusion and Outlook

New Area - Social Impact

While the area of environmental impact investing has been highlighted and analysed many times, the area of social impact investing has not progressed as far. As early as the literature research, it became obvious that the interest in social impact investing is steadily increasing and thus capital is increasingly provided for this purpose.

Challenges

The challenges in this still very young yet rapidly growing segment can be quickly put into context: Lack of uniform criteria, lack of transparency and regulation, especially in the areas of “S” (Social) and “G” (Governance) as well as the challenge of quantifiability and thus measurability of the latter two criteria.

Starting with the different definitions of social impact investing, which are similar in essence, namely, to achieve social impact in addition to financial return, but vary in their underlying criteria, the focus is on developing an analysis and measurement model. The main objective here is to measure the social impact and make it comparable using a scoring model. A wide variety of already recognized parameters and frameworks will help to measure the social impact and make it comparable subsequently.

However, since none of the tools has yet established itself as a market standard, comparability and transparency in the market are not yet given. A lack of data and scientific evidence makes it correspondingly difficult to make general statements about the financial returns and performance of such investments.

Social Responsibility

The extension of the social impact to the social responsibility of all real estate stakeholders is a key postulate of this study. The analysis grid and measurement model created as part of this commissioned research is intended to enable all stakeholders in the real estate sector to analyse and measure – and compare – the social and, in a further step, societal added value of their projects and investments.

Using the analysis grid, the sustainable social and societal impact of the project/investment should be presented comparably and objectively. It is important to note that each project will have its own unique profile due to the specifics of the project. Individual adaptations and interpretations of the definitions depending on the project/investment can (and should) therefore vary. Accordingly, a certain flexibility in applying the analysis grid must be observed.

To achieve a sustainable social impact, both existing and projected projects can be examined concerning various impact objectives and categories using the analysis tool presented. The aim is not to fulfil all categories and achieve all objectives, but to achieve a certain – self-imposed – standard of social impact for the project as a whole, and to measure and document this. However, the “do no harm” regulations, which are also part of the EU Taxonomy (see also Chapters 3.3.4 to 3.3.6), should also be mentioned here. Achieving one objective must not be to the disadvantage or detriment of another objective. This regulation (among the other regulations of the EU Taxonomy) is not explicitly shown in the measurement model and analysis grid but is intended to complete the model as an all-encompassing concept.

Opportunities and Possibilities

In particular, opportunities and possibilities exist for the public sector in terms of award procedures: by using this analytical grid as a basis, not only the financial return but also social and, in the next step, societal responsibility should be taken into account when awarding land. In this way, cities fulfil their responsibility to their citizens to create the greatest possible added value (environmental and social) for them.

Return

In addition to the financial return, the social and ecological return will also play an increasingly important role in real estate economic decisions in the future. This will also translate into an impact on valuation – the question needs to be asked to what extent Total Value needs to be supplemented with social and environmental aspects.

Outlook

Further elaboration on the impact on valuation and returns can be explored and addressed in future studies. The challenge of bringing together an analysis and measurement model that combines the aspects of environmental, social and societal objectives and indicators into an industry standard, taking into account legal framework conditions, while simultaneously not getting lost in too much complexity and thus remaining applicable, will also occupy real estate research.

Conclusion

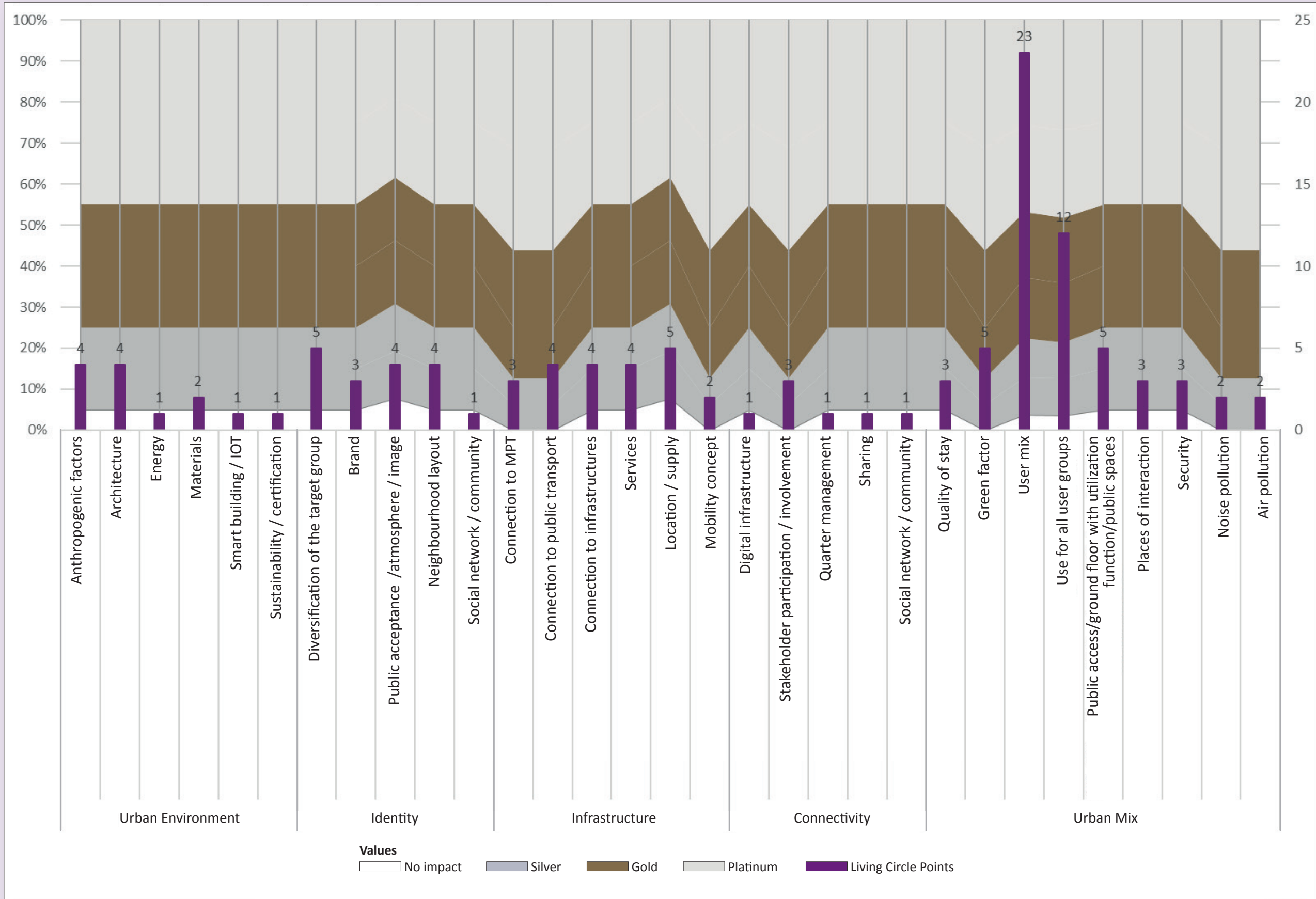
By working together and engaging all stakeholders, the real estate industry can add great value to address and target social and environmental sustainability issues, take responsibility, and continue to make the world a liveable and lovable place for future generations.

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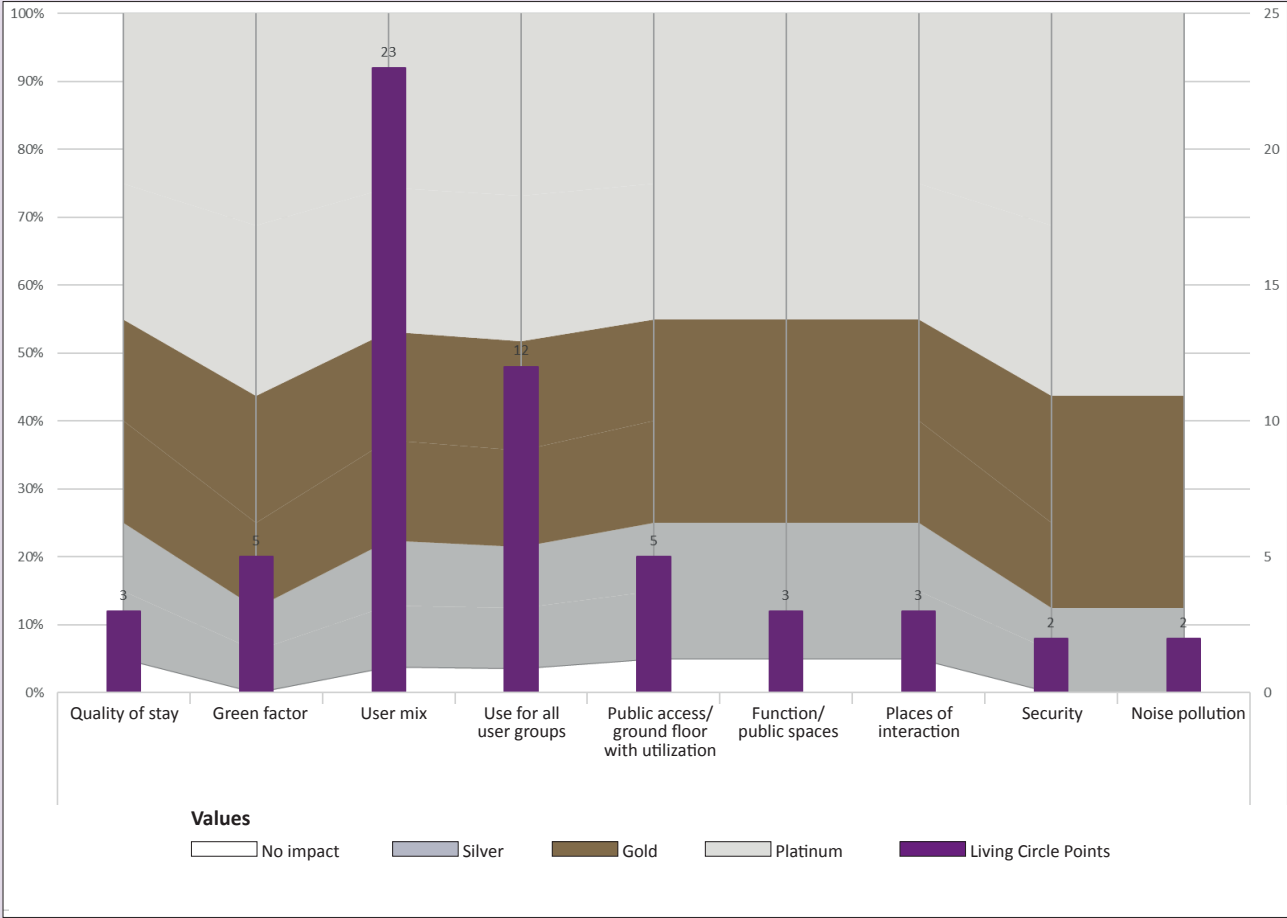
Living Cycle Düsseldorf Case Study

Points Impact Cluster	Living Circle Points	Max Points
Urban Environment	13	30
Anthropogenic factors	4	5
Architecture	4	5
Energy	1	5
Materials	2	5
Smart building/IOT	1	5
Sustainability/certification	1	5
Identity	17	25
Diversification of the target group	5	5
Brand	3	5
Public acceptance/atmosphere/image	4	5
Quarter layout	4	5
Social network/community	1	5
Infrastructure	22	30
Connection to MPT	3	5
Connection to public transport	4	5
Connection to social infrastructures	4	5
Services	4	5
Location/supply	5	5
Mobility concept	2	5
Connectivity	7	25
Digital infrastructure	1	5
Stakeholder participation/involvement	3	5
Quarter management	1	5
Sharing	1	5
Social network/community	1	5
Urban Mix	58	90
Quality of stay	3	5
Green factor	9	5
User mix	23	40
Use for all user groups	12	15
Public access/ground floor with utilization function/public spaces	5	5
Places of interaction	3	5
Security	3	5
Noise pollution	2	5
Air pollution	2	5
Overall result	117	200



Urban Mix - Living Circle

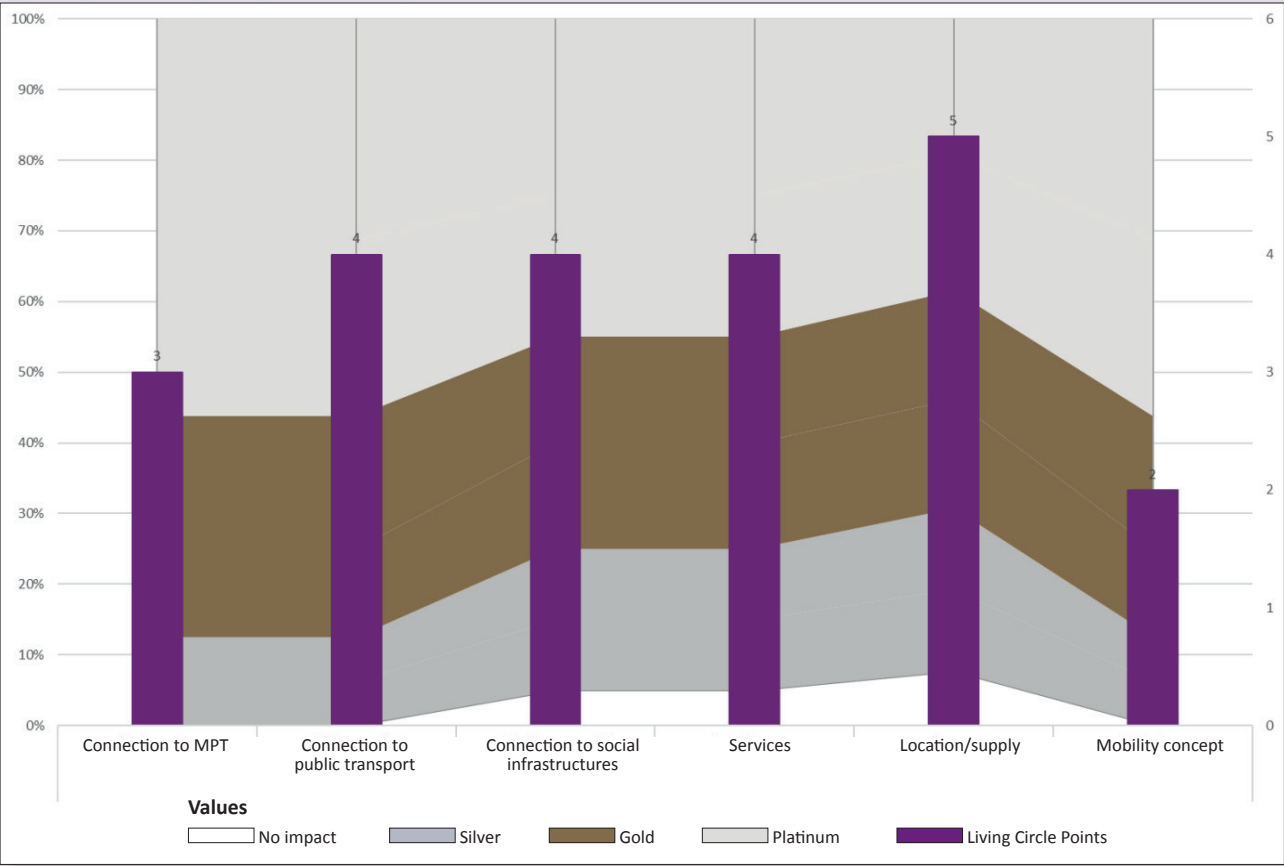
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Living Circle	Points
Urban Mix	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Types of use of real estate	Housing, follow-up care, nature park (sport and recreation for all ages), children's facilities (nursery, 6 large day-care centres from 4 months)	2
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Cultural/creative facilities	Inner city (not on the property)	4
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Social/non-profit institutions	Inner city (not on the property)	2
	User mix	Creating and preserving affordable (and/or social) housing	Promotion of socioeconomic mix in the quarter	Affordable housing in percent (IR IS+ P D 5833): (Number of housing units built or preserved that qualify as affordable housing/number of housing units built or preserved) x 100	No local regulation; No owner-occupied housing; 20% of residential lots	3
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income independent Disadvantage in percent: (Households with income independent Disadvantage/number of households) x 100	No restrictions or requirements; Accessibility	3
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income-related disadvantage in percent: (Households with income-related Disadvantage/number of households) x100	No restrictions or requirements	3
	User mix	Optimization of the net income of the target groups	Optimization of social housing and quality of life in the quarter	Rent difference from local rent in percent (IR IS+ P I1748): ((typical local rent – anticipated rent)/anticipated rent) x 100	€8.50 for 10 years at 20%	1
	User mix	Creation of stable housing situations	Optimization of social housing and quality of life in the quarter	Annual rent increase in Percent: (current/planned rent/ planned rent increase) x 100	Law except €8.50 for 10 years at 20%	1
	Public access/ground floor with utilization function/public spaces	Accessibility	Promotion of cultural and economic diversity in the quarter	Accessibility areas and paths	Public use of the rooms	5
	Places of interaction	Exchange/communication/fun/play	Promotion of cultural and economic diversity in the quarter	Presence of gastronomy	Inner city (not on the property)	2
	Green factor	Park/nature/greenery	Optimization of ecological living and quality of life in the neighbourhood	Type/quantity/quality of green and natural areas in the neighbourhood	Nature park (sport and recreation for all ages) open to all, except the gardens	5
	Noise pollution	Noise pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of noise pollution in the quarter	Graffenberger Allee, noise protection established; apartments to the inside; 2 balconies (min 2m to 2.5m) planned; study performed and implemented	4
	Air pollution	Air pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of air pollution in the quarter	Graffenberger Allee, noise protection established; apartments to the inside; 2 balconies (min 2m to 2.5m) planned; study performed and implemented	4
	Quality of stay	Well-being effect/central meeting point	Optimization of social housing and quality of life in the quarter	Atmosphere and quality of stay	Shading study conducted > 2 balconies	5
	Security	Lighting/avoidance of dark corners	Optimization of social housing and quality of life in the quarter	Security through security concept	No technology, janitor in the neighbourhood, police as tenants in the neighbourhood	4
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability of social support services	Inner city (not on the property)	1
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability and quality of education/ care services	Inner city (not on the property)	2
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Offer of leisure and recreational opportunities	Nature park (sport and recreation for all ages) open to all, except the gardens	5



Example Living Circle

Infrastructure - Living Circle

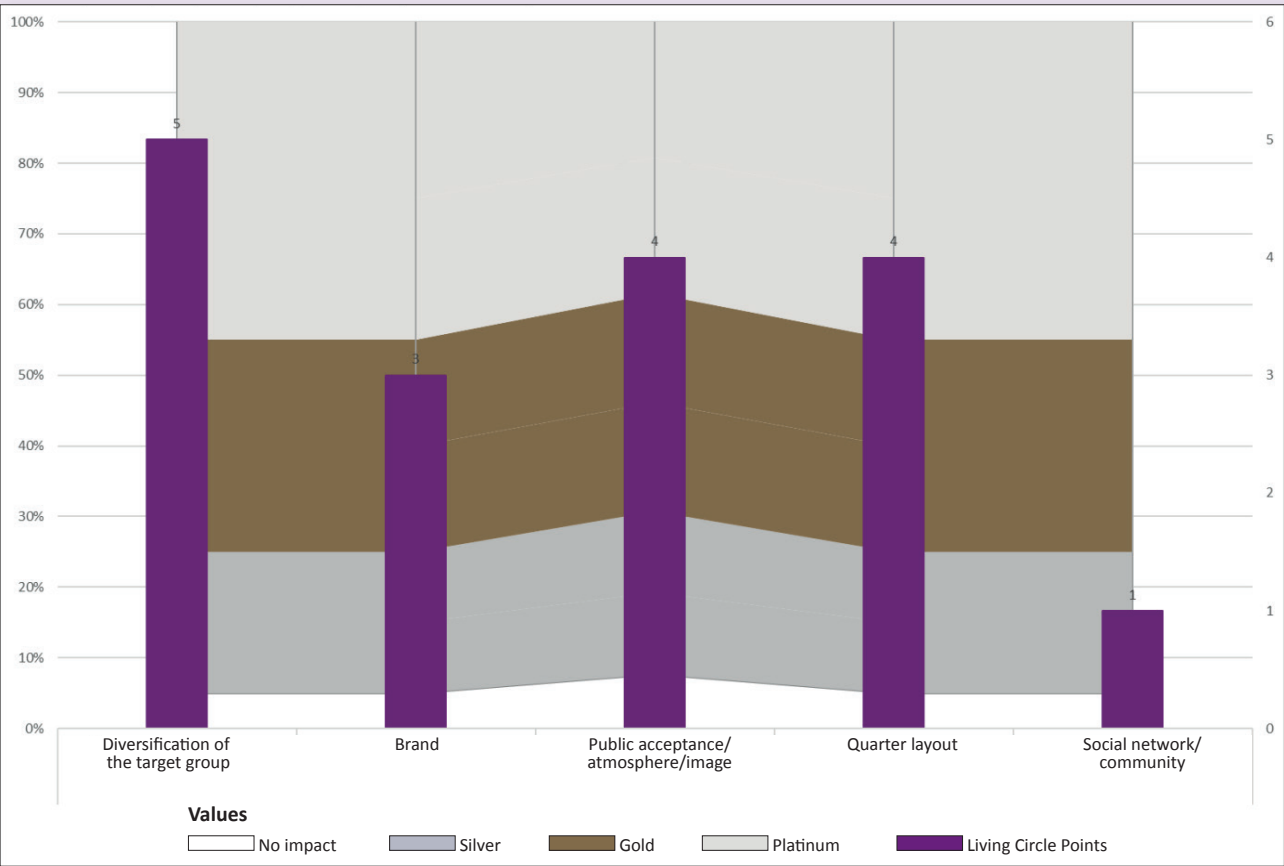
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Living Circle	Points
Infrastructure	Location/supply	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	Inner city (not on the property)	5
	Connection to social infrastructures	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructure	Inner city (not on the property)	4
	Connection to public transport	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility and quality of public transport	Inner city (not on the property)	4
	Connection to MPT	in and around the quarter	Access to local infrastructure and sustainable mobility	Quality of the cycle and footpath infrastructure	Inner city (not on the property)	3
	Mobility concept	Public transport/Pedestrian zones/cycle paths/parking spaces	Access to local infrastructure and sustainable mobility	Presence of sustainable mobility offers	Underground garage with more than 600 parking spaces and parking facilities; car traffic above restricted; no sharing (but will be in the future)	2
	Services	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	Inner city (not on the property)	4



Example Living Circle

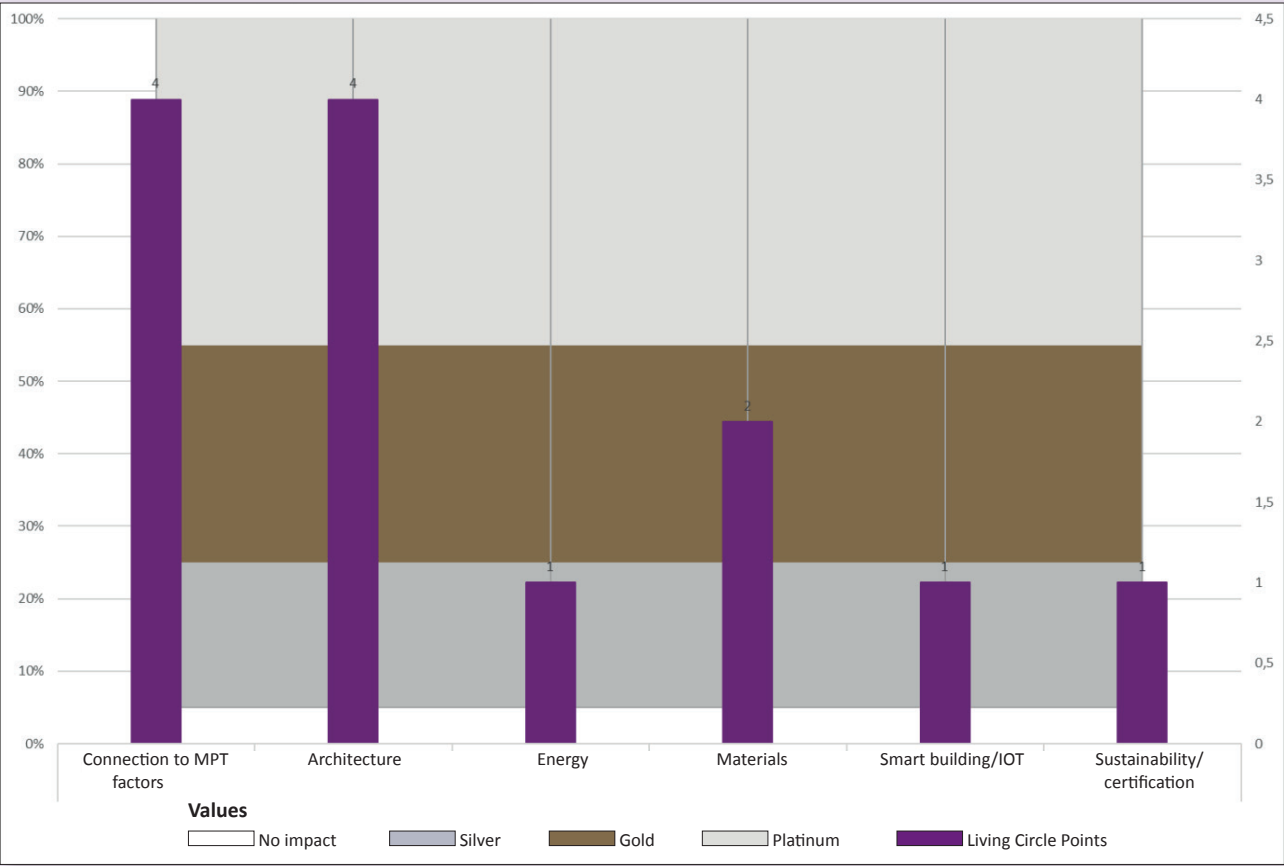
Identity - Living Circle

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Living Circle	Points
Identity	Quarter layout	Arrangement/location of the uses/routing	Optimization of social housing and quality of life in the quarter	Integration and opening of the neighbourhood	Existing office building, open, offer to the outside, fit into surroundings and parks, new focus quality of living	4
	Brand	USP, quality, recognition value	Optimization of social housing and quality of life in the quarter	USP, quality, recognition value	Stock office building and round shapes	3
	Public acceptance/atmosphere/image	Positioning/external perception/self-perception	Optimization of social housing and quality of life in the quarter	Recommendation (quarter-related)	positive image/desired place of use (Cologne likes it too)	4
	Diversification of the target group	Diversification of the target group	Optimization of social housing and quality of life in the quarter	Diversification of the target group	Diverse uses with high synergy potential including for the surrounding area (park)	5
	Social network/community	Social network/community	Optimization of social housing and quality of life in the quarter	Social network/community	No apps, tenant events, no neighbourhood management	1



Urban Environment - Living Circle

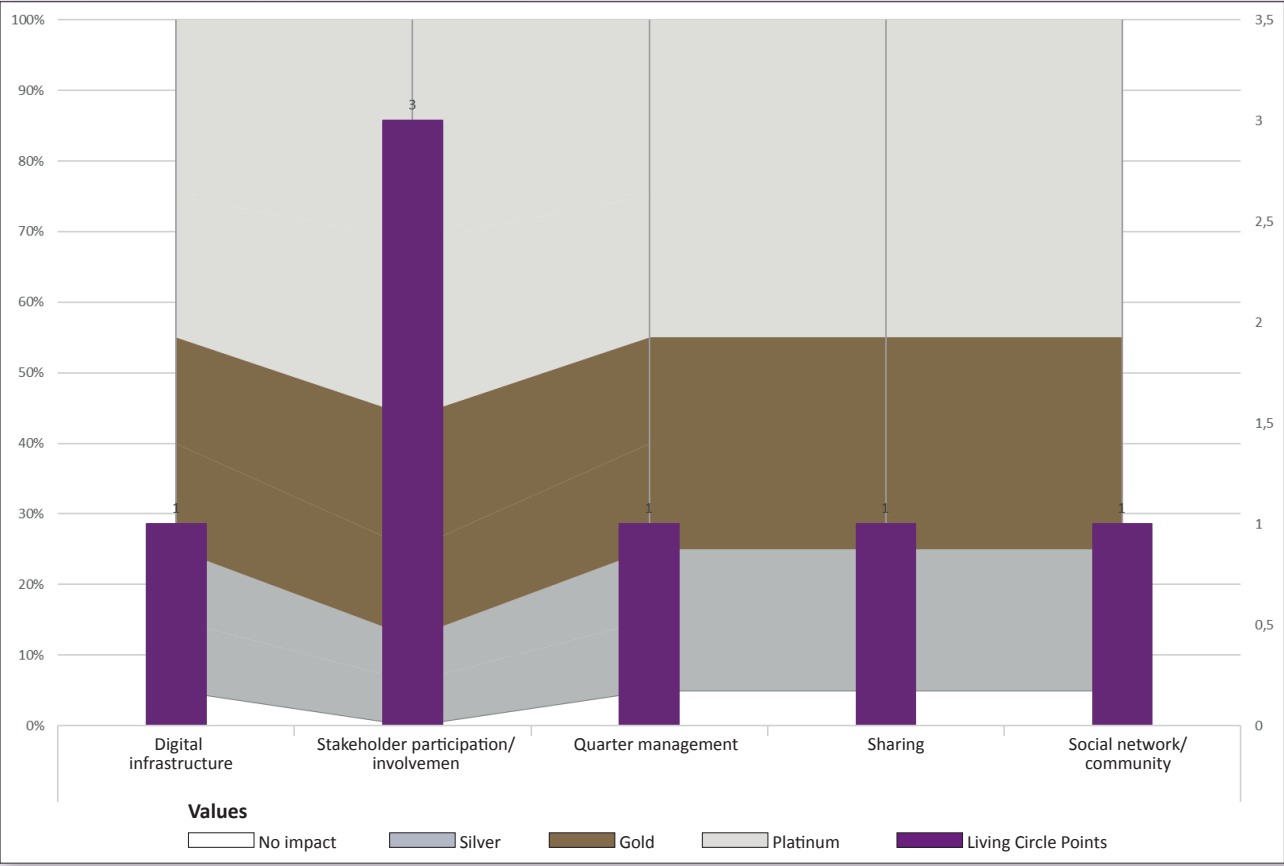
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Living Circle	Points
Developed surroundings	Materials	Recycling quality of materials	Optimization of ecological living and quality of life in the neighbourhood	Recycling quality of materials	Deconstruction (high percentage of recycling); substance preserved, individual elements newly created, flexible new elements (on the exterior)	2
	Architecture	Diversity/building design/user orientation	Optimization of ecological living and quality of life in the neighbourhood	Diversity/building design/user orientation/reuse of space	Consideration of regional/local construction methods (and handover to localities)	4
	Energy	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	District heating	1
	Anthropogenic factors	Sun/light/wind	Optimization of ecological living and quality of life in the neighbourhood	Sun/light/wind	Shading study conducted > 2 balconies; wind survey, roofs greened, interior areas greened	4
	Smart building/IOT	Digitalization of communication, services, homes, offices, etc.	Optimization of ecological living and quality of life in the neighbourhood	Digitalization of communication, services, homes, offices, etc.	No	1
	Sustainability/certification	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	None	1



Example Living Circle

Connectivity - Living Circle

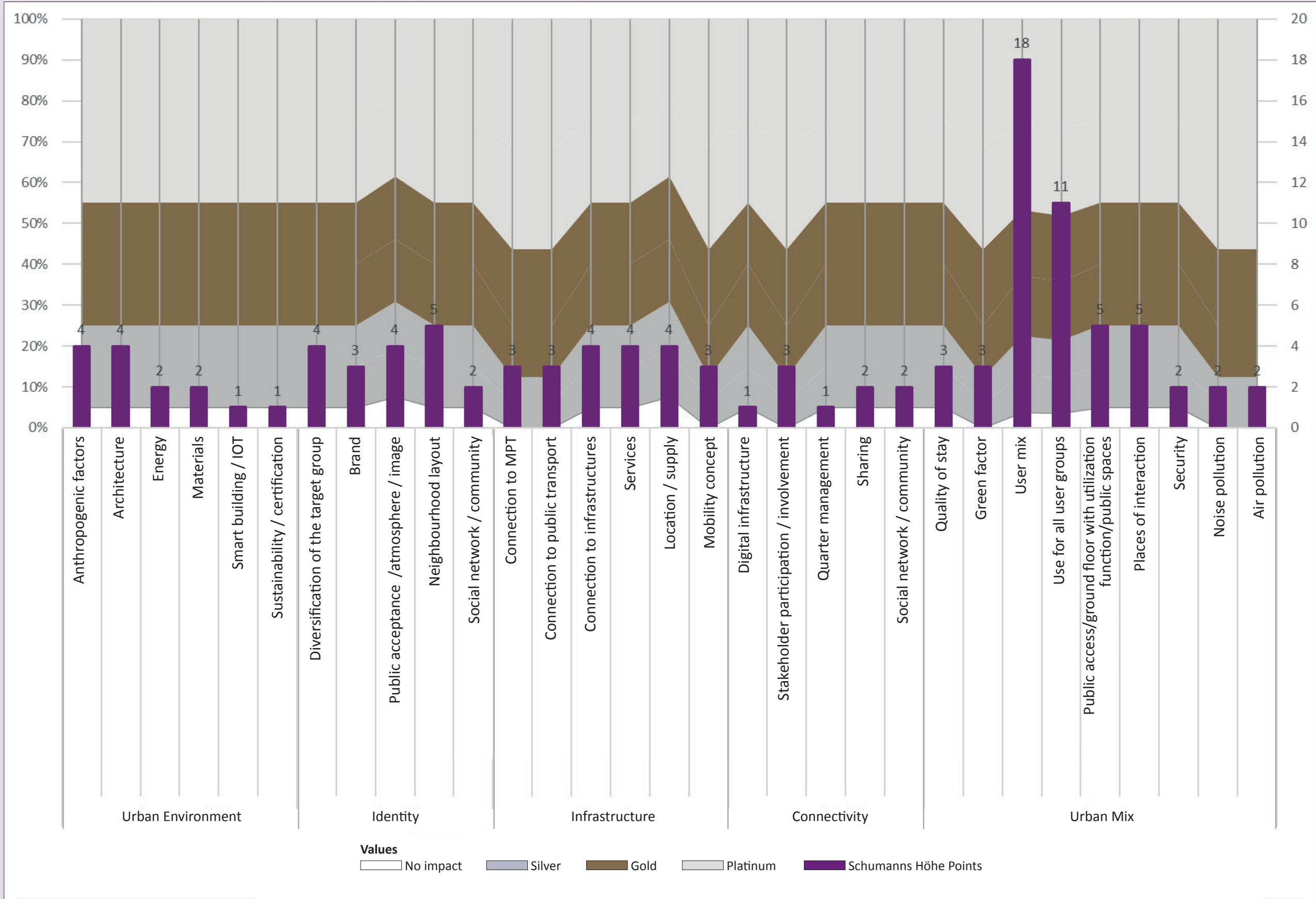
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Living Circle	Points
Connectivity	Quarter management	Quarter management	Optimization of social housing and quality of life in the quarter	Availability/quality of a feedback systems	No apps, tenant events, no neighbourhood management	1
	Sharing	Sharing	Promotion of cultural and economic diversity in the quarter	Sharing platforms and sharing services	No sharing (but in the future)	1
	Social network/community	Social network/community	Promotion of cultural and economic diversity in the quarter	Social network/community	No apps, tenant events, no neighbourhood management	1
	Stakeholder participation/involvement	Stakeholder participation/involvement	Optimization of social housing and quality of life in the quarter	Stakeholder participation/involvement	Tenant events, survey	3
	Digital infrastructure	Digital infrastructure	Optimization of social housing and quality of life in the quarter	Digital infrastructure	No	1



A2

Schumanns Höhe Bonn Case Study

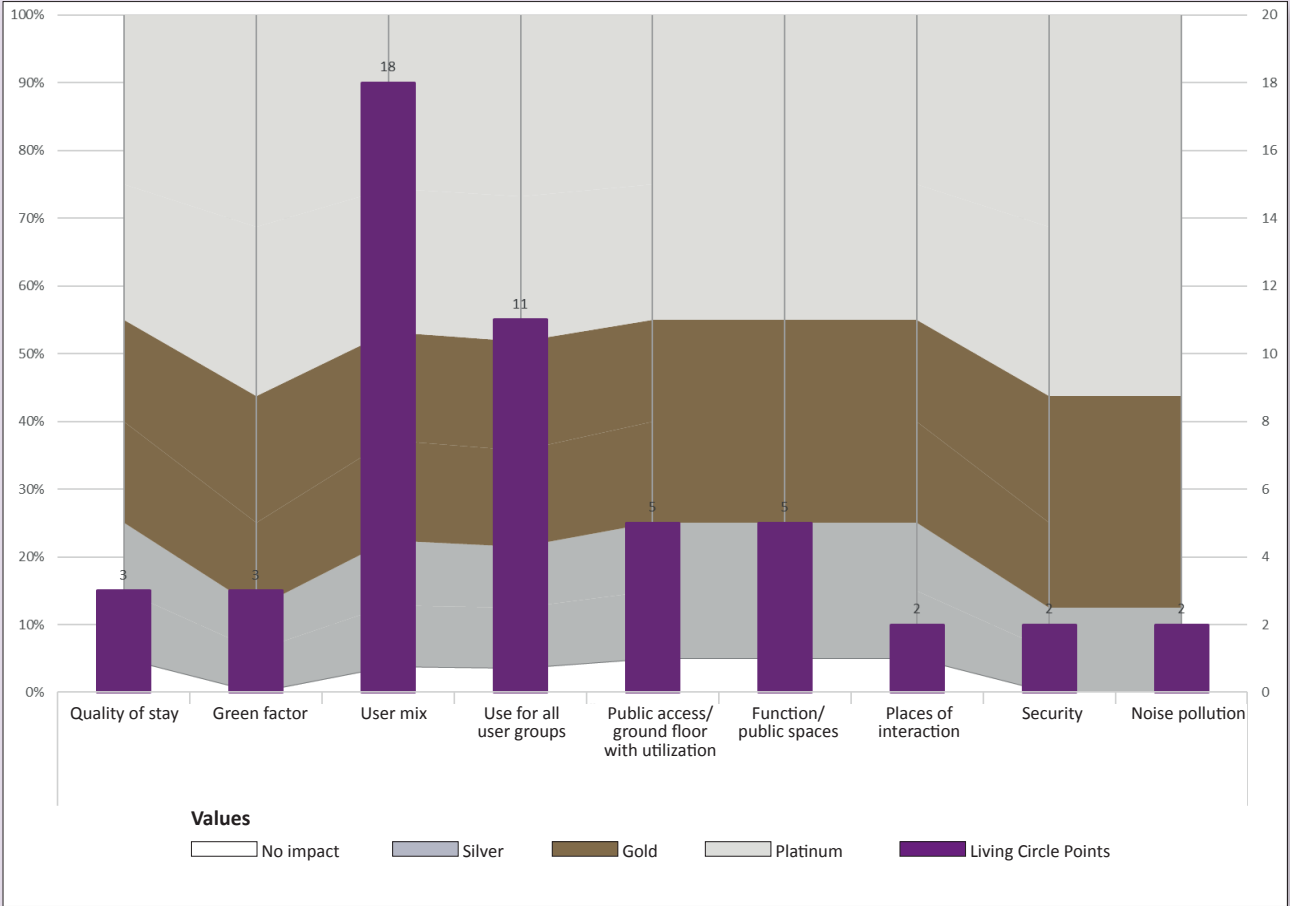
Points Impact Cluster	Schumanns Höhe Points	Max Points
Urban Environment	14	30
Anthropogenic factors	4	5
Architecture	4	5
Energy	2	5
Materials	2	5
Smart building/IOT	1	5
Sustainability/certification	1	5
Identity	18	25
Diversification of the target group	4	5
Brand	3	5
Public acceptance/atmosphere/image	4	5
Quarter layout	5	5
Social network/community	2	5
Infrastructure	21	30
Connection to MPT	3	5
Connection to public transport	3	5
Connection to social infrastructures	4	5
Services	4	5
Location/supply	4	5
Mobility concept	3	5
Connectivity	9	25
Digital infrastructure	1	5
Stakeholder participation/involvement	3	5
Quarter management	1	5
Sharing	2	5
Social network/community	2	5
Urban Mix	51	90
Quality of stay	3	5
Green factor	3	5
User mix	18	40
Use for all user groups	11	15
Public access/ground floor with utilization function/public spaces	5	5
Places of interaction	5	5
Security	2	5
Noise pollution	2	5
Air pollution	2	5
Overall result	113	200



Example Schumanns Höhe

Urban Mix - Schumanns Höhe

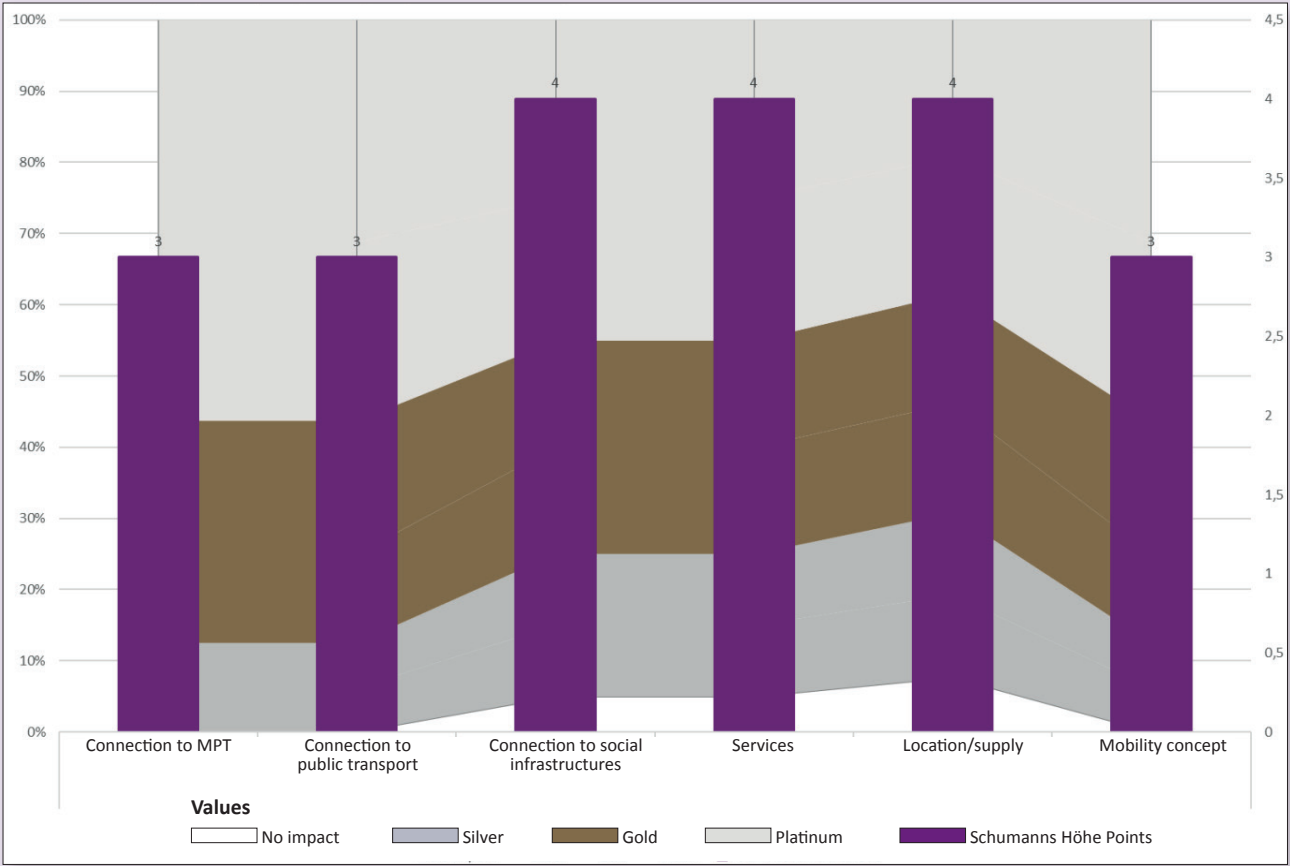
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Schumanns Höhe	Points
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Types of use of real estate	Care housing, subsidized housing, day-care for U3 and adults, privately financed housing, multigenerational housing, care service	1
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Cultural/creative facilities	Robert Schumann Haus framed (Music library and cultural association included), Harmonie, Springhaus theatre, churches (ev. and cath.) in the vicinity	3
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Social/non-profit institutions	Care (on-site and service), unemployment home nearby, multigenerational living by Wahlverwandtschaften eV, multigenerational living group also nearby	2
	User mix	Creating and preserving affordable (and/or social) housing	Promotion of socioeconomic mix in the quarter	Affordable housing in percent (IR IS+ P D 5833): (Number of housing units built or preserved that qualify as affordable housing/number of housing units built or preserved) x 100	30 subsidized, residential group with 24 places, multigenerational housing 54 units (23 units according to subsidy guidelines); 35 privately financed for rent, 150 privately financed owner-occupied apartments approx. 230 units; association has pre-allocation right; no specification in concept award; almost 30%	3
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income independent Disadvantage in percent: (Households with income independent Disadvantage/number of households) x 100	Number of rooms to come; Wahlverwandtschaften Bonn eV website on residents (Wohnguppe Schumanns Höhe)	3
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income independent Disadvantage in percent: (Households with income independent Disadvantage/number of households) x 100		3
	User mix	Optimization of the net income of the target groups	Optimization of social housing and quality of life in the quarter	Rent difference from local rent in percent (IR IS+ P I1748): ((typical local rent – anticipated rent)/anticipated rent) x 100	Elective affinity: 24 units with 12 EUR/sqm; freely financed: 14 EUR/sqm; apartments: 1617 EUR/sqm	2
	User mix	Creation of stable housing situations	Optimization of social housing and quality of life in the quarter	Annual rent increase in Percent: (current/planned rent/ planned rent increase) x 100	According to law	1
	Public access/ground floor with utilization function/public spaces	Accessibility	Promotion of cultural and economic diversity in the quarter	Accessibility areas and paths	Completely accessible and public paths/squares as a requirement	5
	Places of interaction	Exchange/communication/fun/play	Promotion of cultural and economic diversity in the quarter	Presence of gastronomy	Inner-city neighbourhood	5
	Green factor	Park/nature/greenery	Optimization of ecological living and quality of life in the neighbourhood	Type/quantity/quality of green and natural areas in the neighbourhood	Trees, old path, 2 squares	3
	Noise pollution	Noise pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of noise pollution in the quarter	considered in the planning, motorway 200m away but with noise barrier; car-free; healthy living must be ensured (expert opinion); no direct CO2 measurement; Noise level range was prohibited	2
	Air pollution	Air pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of air pollution in the quarter	Noise level range was prohibited	2
	Quality of stay	Well-being effect/central meeting point	Optimization of social housing and quality of life in the quarter	Atmosphere and quality of stay	a neighbourhood square is on a street and well lit; night lighting integrated; open layout; play areas between houses	3
	Security	Lighting/avoidance of dark corners	Optimization of social housing and quality of life in the quarter	Security through security concept	None; but public interest group obtains opinion of police; GF with burglar alarm system	2
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability of social support services	Care, inner city	4
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability and quality of education/ care services	U3 care, inner city	4
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Offer of leisure and recreational opportunities	Play areas, neighbourhood squares	3



Example Schumanns Höhe

Infrastructure - Schumanns Höhe

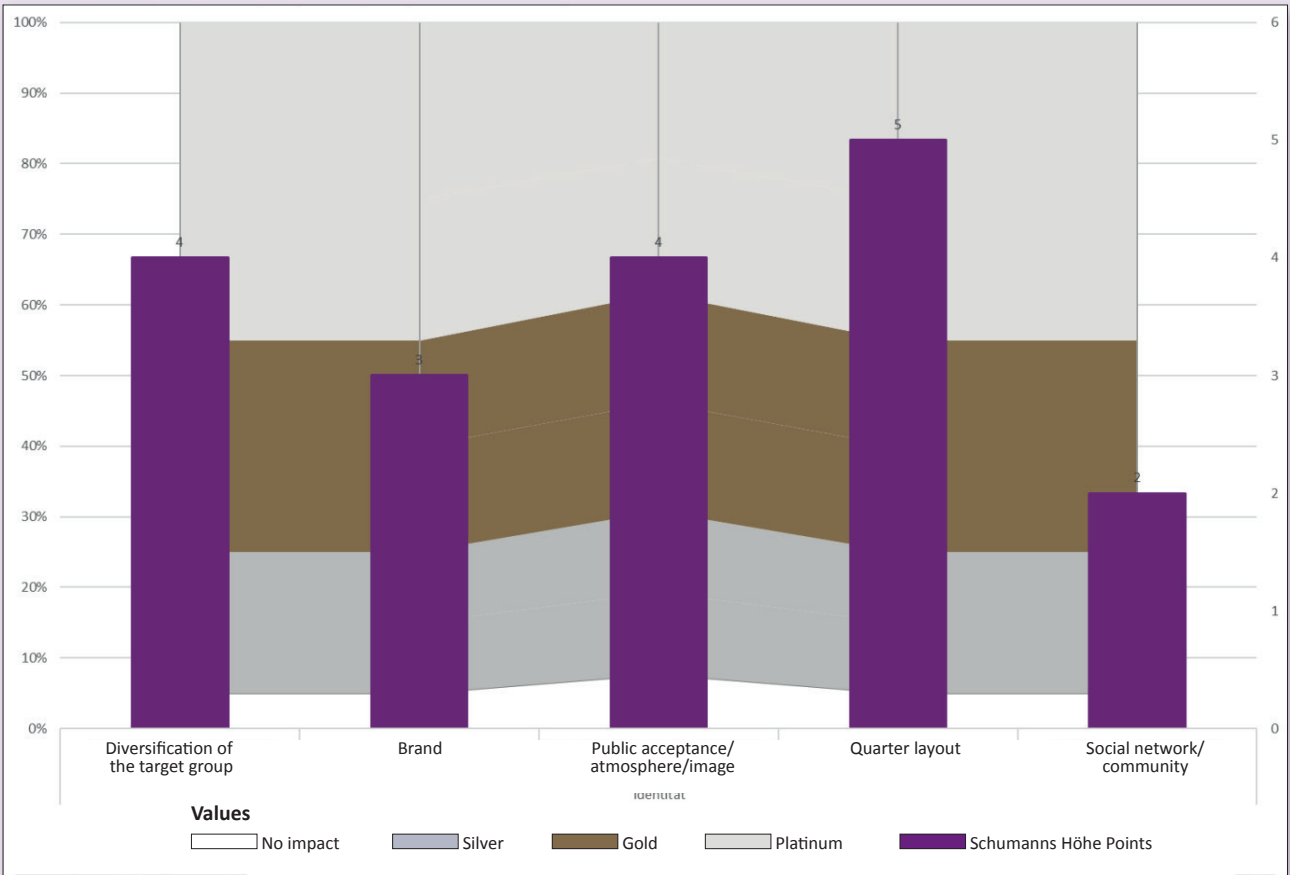
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Schumanns Höhe	Points
Infrastructure	Location/supply	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	Inner-city neighbourhood	4
	Connection to social infrastructures	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructure	Inner-city neighbourhood	4
	Connection to public transport	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility and quality of public transport	Inner-city neighbourhood	3
	Connection to MPT	in and around the quarter	Access to local infrastructure and sustainable mobility	Quality of the cycle and footpath infrastructure	Car-free neighbourhood, 2 public roads lead through	3
	Mobility concept	Public transport/ Pedestrian zones/cycle paths/parking spaces	Access to local infrastructure and sustainable mobility	Presence of sustainable mobility offers	2 car-sharing spots; charging stations probable; no e-bikes	3
	Services	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	Inner-city neighbourhood	4



Example Schumanns Höhe

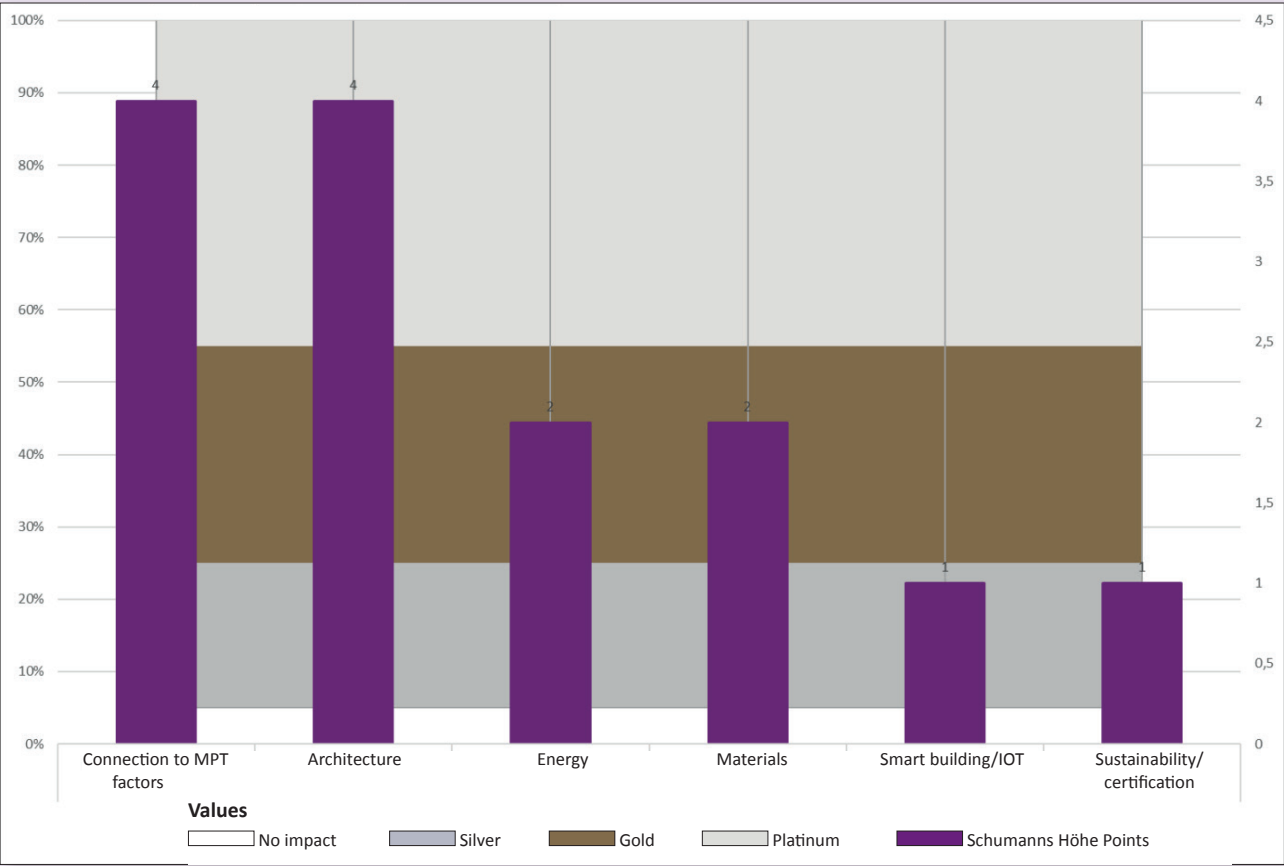
Identity - Schumanns Höhe

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Schumanns Höhe	Points
Identity	Quarter layout	Arrangement/location of the uses/routing	Optimization of social housing and quality of life in the quarter	Integration and opening of the neighbourhood	Integration in the district	5
	Brand	USP, quality, recognition value	Optimization of social housing and quality of life in the quarter	USP, quality, recognition value	Recognition value: Fasse nursing home rebuilt although it was not a listed building; Packstation next to mailbox; Robert Schumann Haus	3
	Public acceptance/atmosphere/image	Positioning/external perception/self-perception	Optimization of social housing and quality of life in the quarter	Recommendation (quarter-related)	positive image/desired place of use	4
	Diversification of the target group	Diversification of the target group	Optimization of social housing and quality of life in the quarter	Diversification of the target group	something for everyone; synergy potential also for the surrounding area (care and nursery); different income groups	4
	Social network/community	Social network/community	Optimization of social housing and quality of life in the quarter	Social network/community	None only owner management and association	2



Urban Environment - Schumanns Höhe

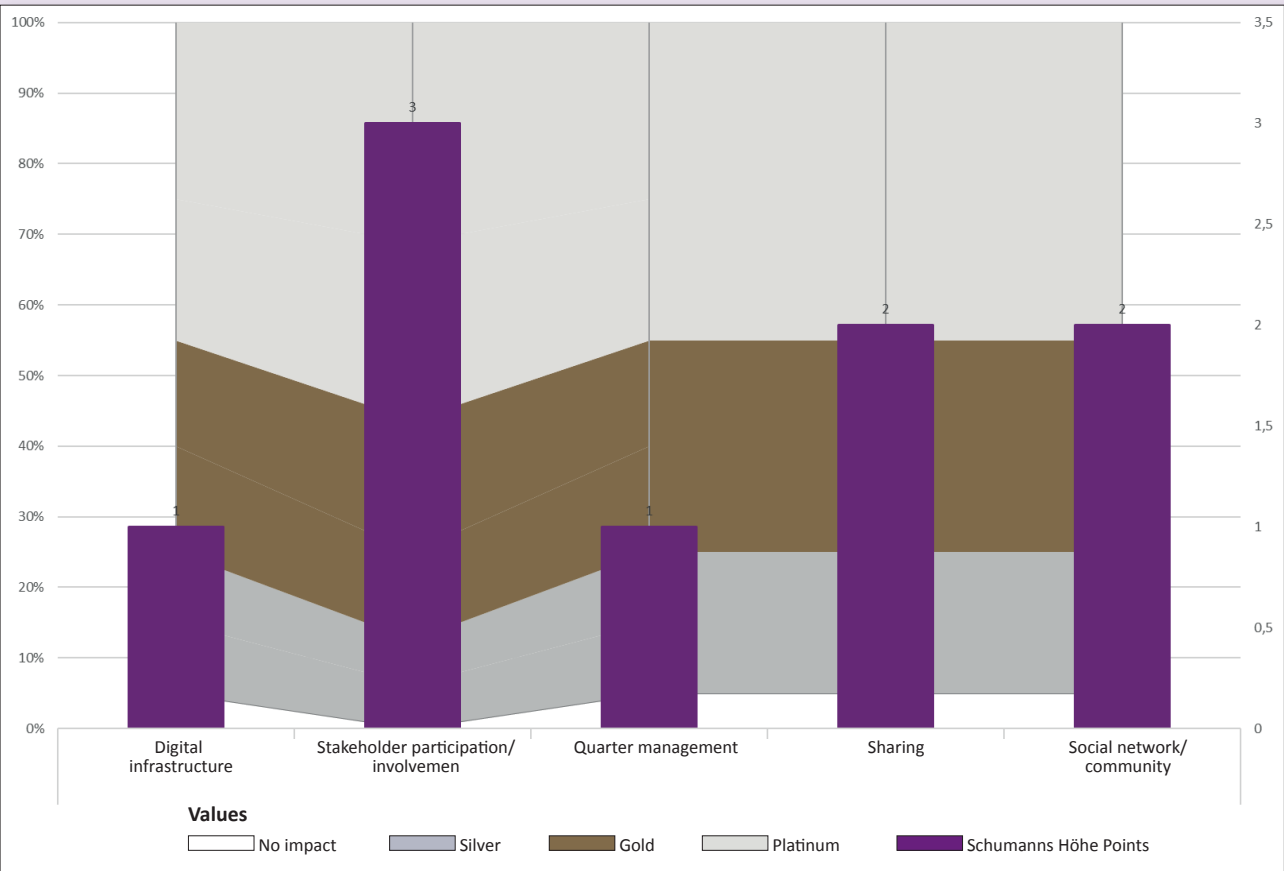
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Schumanns Höhe	Points
Developed surroundings	Materials	Recycling quality of materials	Optimization of ecological living and quality of life in the neighbourhood	Recycling quality of materials	Currently common	2
	Architecture	Diversity/building design/user orientation	Optimization of ecological living and quality of life in the neighbourhood	Diversity/building design/user orientation/reuse of space	Very different, different details (facade, balconies, etc.), old facade nursing home but rebuilt	4
	Energy	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	District heating, not according to kfw	2
	Anthropogenic factors	Sun/light/wind	Optimization of ecological living and quality of life in the neighbourhood	Sun/light/wind	Open but protected; shading expertise	4
	Smart building/IOT	Digitalization of communication, services, homes, offices, etc.	Optimization of ecological living and quality of life in the neighbourhood	Digitalization of communication, services, homes, offices, etc.	Not active	1
	Sustainability/certification	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	Nope	1



Example Schumanns Höhe

Connectivity - Schumanns Höhe

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Schumanns Höhe	Points
Connectivity	Quarter management	Quarter management	Optimization of social housing and quality of life in the quarter	Availability/quality of a feedback systems	Not available, owner management, association has own neighbourhood management	1
	Sharing	Sharing	Promotion of cultural and economic diversity in the quarter	Sharing platforms and sharing services	2 Care sharing spots	2
	Social network/community	Social network/community	Promotion of cultural and economic diversity in the quarter	Social network/community	None only owner management and association	2
	Stakeholder participation/involvement	Stakeholder participation/involvement	Optimization of social housing and quality of life in the quarter	Stakeholder participation/involvement	Association (also participation in planning), workshop with residents, information events	3
	Digital infrastructure	Digital infrastructure	Optimization of social housing and quality of life in the quarter	Digital infrastructure	None	1

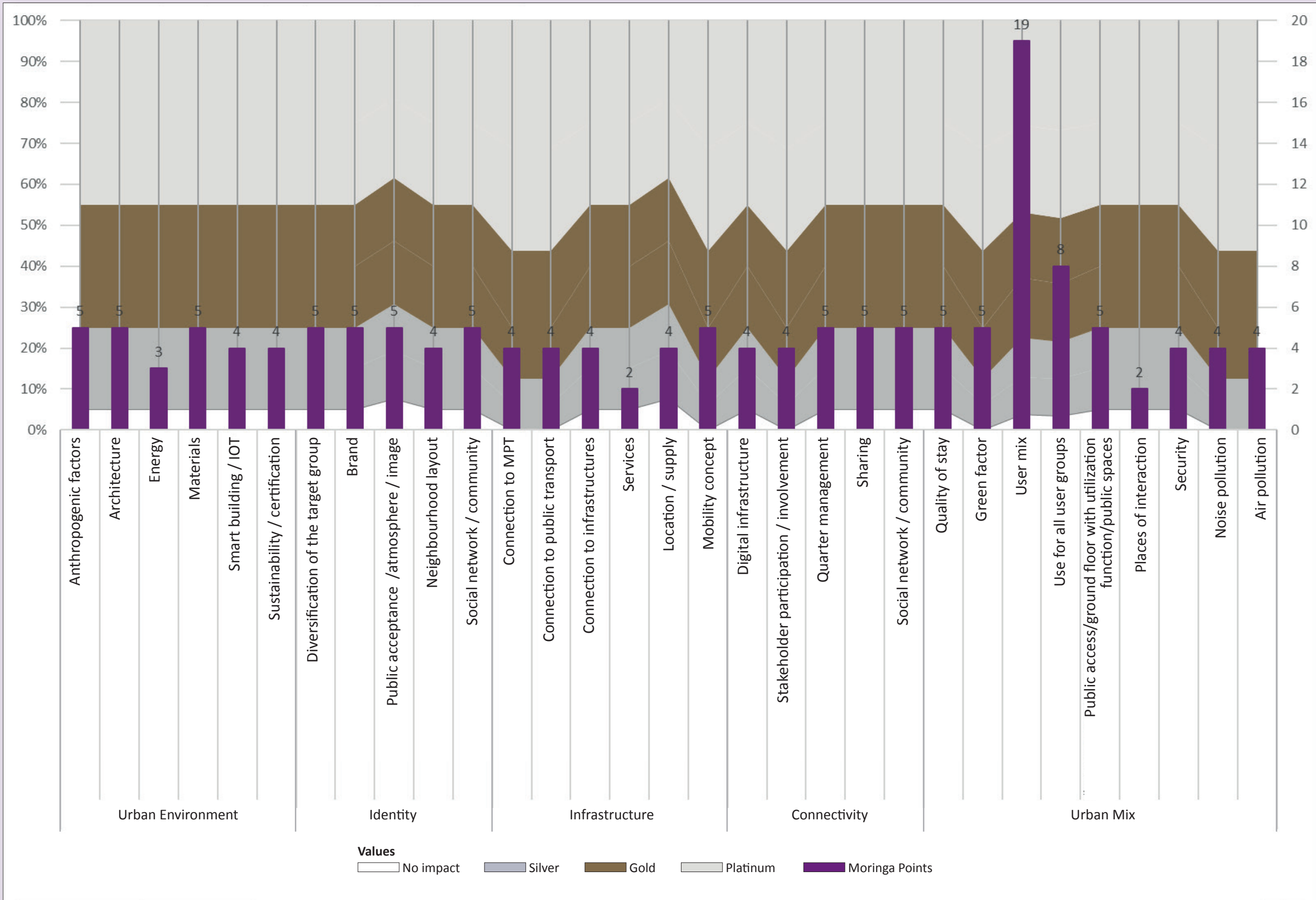


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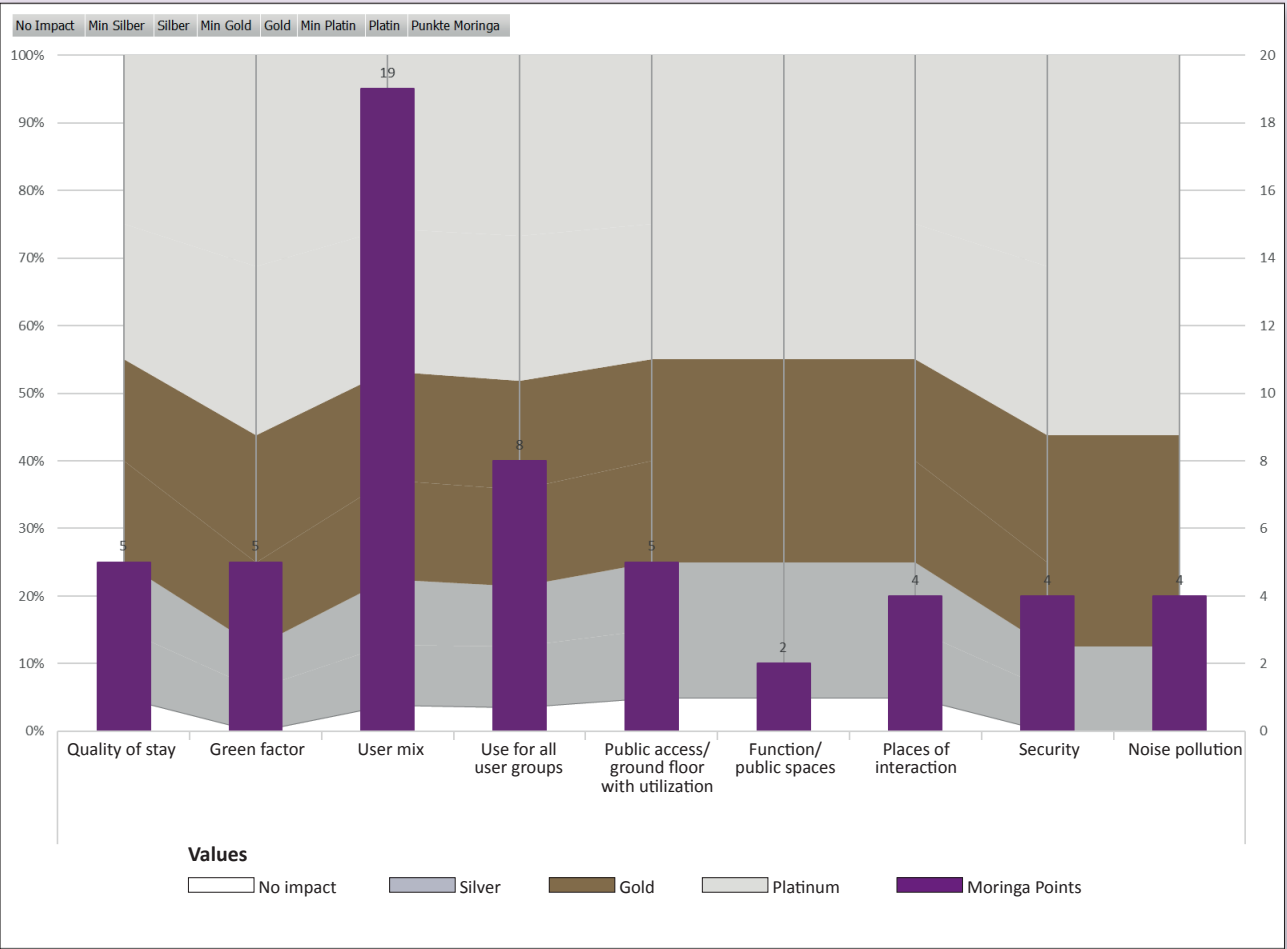
Moringa Hamburg Case Study

Points Impact Cluster	Moringa Points	Max Points
Urban Environment	26	30
Anthropogenic factors	5	5
Architecture	5	5
Energy	3	5
Materials	5	5
Smart building/IOT	4	5
Sustainability/certification	4	5
Identity	24	25
Diversification of the target group	5	5
Brand	5	5
Public acceptance/atmosphere/image	5	5
Quarter layout	4	5
Social network/community	5	5
Infrastructure	23	30
Connection to MPT	4	5
Connection to public transport	4	5
Connection to social infrastructures	4	5
Services	2	5
Location/supply	4	5
Mobility concept	5	5
Connectivity	23	25
Digital infrastructure	4	5
Stakeholder participation/involvement	4	5
Quarter management	5	5
Sharing	5	5
Social network/community	5	5
Urban Mix	56	90
Quality of stay	5	5
Green factor	5	5
User mix	19	40
Use for all user groups	8	15
Public access/ground floor with utilization function/public spaces	5	5
Places of interaction	2	5
Security	4	5
Noise pollution	4	5
Air pollution	4	5
Overall result	152	200



Urban Mix - Moringa

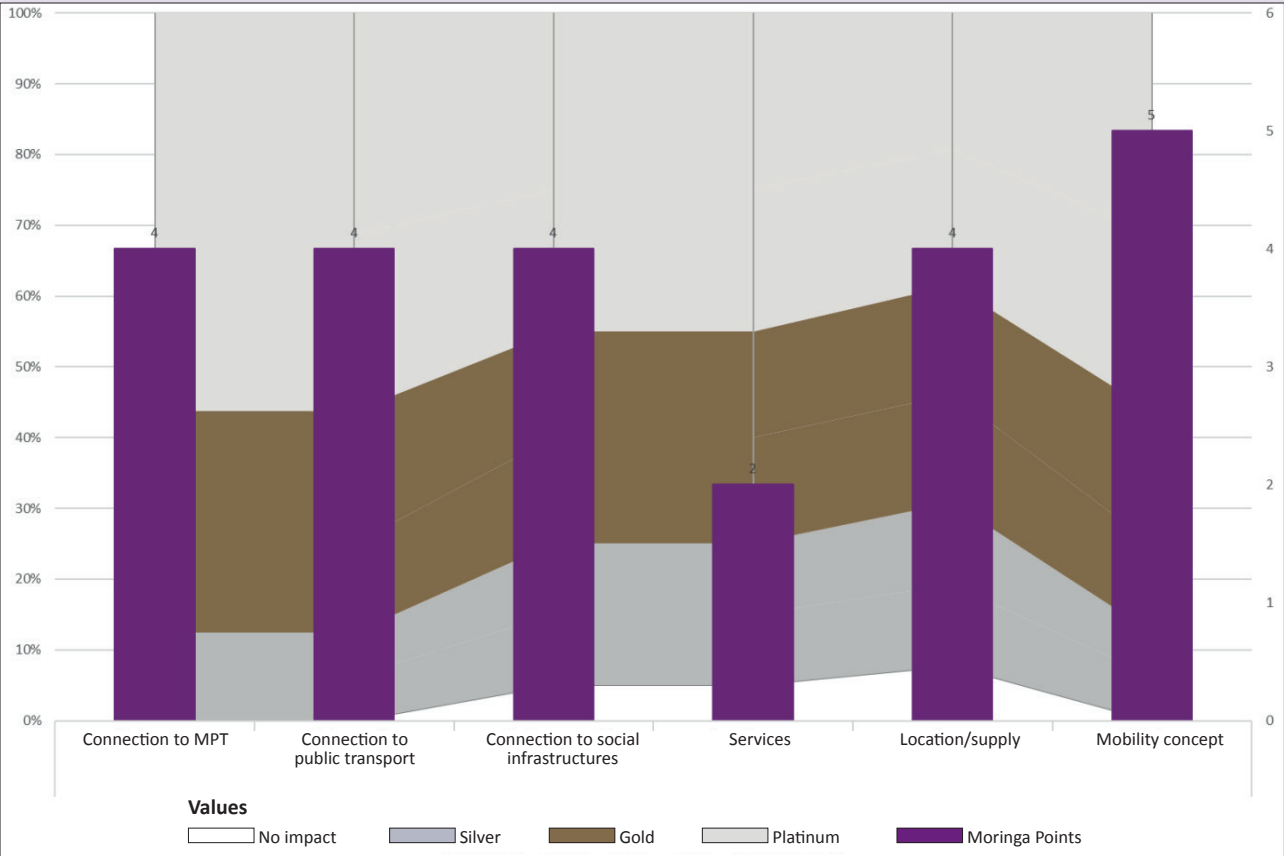
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Moringa	Points
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Types of use of real estate	Housing (affordable (1/3), rental (1/3)), day-care, gastronomy and co-working/co-living (1/3)	2
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Cultural/creative facilities	HafenCity, Elbphilharmonie Hamburg, Miniatur Wunderland, Alster estuary, wildlife exhibition in the neighbourhood	4
	User mix	Uses	Promotion of cultural and economic diversity in the quarter	Social/non-profit institutions	Elbbrückenquartier under development; Baakenhafen playground with day-care centre	2
	User mix	Creating and preserving affordable (and/or social) housing	Promotion of socioeconomic mix in the quarter	Affordable housing in percent (IR IS+ P D 5833): (Number of housing units built or preserved that qualify as affordable housing/number of housing units built or preserved) x 100	only rental apartments for min. 30 years (price controlled; privately financed; approx. 1/3); 1/3 publicly subsidized (3233%)	3
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income independent Disadvantage in percent: (Households with income independent Disadvantage/number of households) x 100		3
	User mix	Providing disadvantaged target groups with affordable housing	Promotion of socioeconomic mix in the quarter	Households with income independent Disadvantage in percent: (Households with income independent Disadvantage/number of households) x 100		3
	User mix	Optimization of the net income of the target groups	Optimization of social housing and quality of life in the quarter	Rent difference from local rent in percent (IR IS+ P 11748): ((typical local rent – anticipated rent)/anticipated rent) x 100	Freely financed housing construction (1/3) slightly above the local rent for cross-financing purposes	1
	User mix	Creation of stable housing situations	Optimization of social housing and quality of life in the quarter	Annual rent increase in Percent: (current/planned rent/ planned rent increase) x 100	In planning (by law in any case)	1
	Public access/ground floor with utilization function/public spaces	Accessibility	Promotion of cultural and economic diversity in the quarter	Accessibility areas and paths	Courtyard open to public; nursery, co-working and gastronomy for all as part of the neighbourhood ; roof terrace for users only; public passage	5
	Places of interaction	Exchange/communication/fun/play	Promotion of cultural and economic diversity in the quarter	Presence of gastronomy	Elbbrückenquartier under development; gastronomy integrated in building	2
	Green factor	Park/nature/greenery	Optimization of ecological living and quality of life in the neighbourhood	Type/quantity/quality of green and natural areas in the neighbourhood	Roof greening, over 100% of the property area is greened (green facade, roof, inner courtyard); HafenCity Festivities involved	5
	Noise pollution	Noise pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of noise pollution in the quarter	Noise protection report prepared and recommendations implemented; HafenCity windows that can be opened without reducing noise protection	4
	Air pollution	Air pollution	Optimization of ecological living and quality of life in the neighbourhood	Quality of air pollution in the quarter	Air pollution report prepared and recommendations implemented; facade greening temperature is monitored; indoor air quality is measured	4
	Quality of stay	Well-being effect/central meeting point	Optimization of social housing and quality of life in the quarter	Atmosphere and quality of stay	high quality of stay through good neighbourhood layout and active safety concept + neighbourhood management	5
	Security	Lighting/avoidance of dark corners	Optimization of social housing and quality of life in the quarter	Security through security concept	FM planning (locking systems, co-living/co-working); equipment and lighting in the basement; if necessary. Cameras	4
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability of social support services	Elbbrückenquartier under development	1
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Availability and quality of education/ care services	Day-care centre integrated into the neighbourhood (accessible to all); HafenCity Uni	2
	Use for all user groups	Families/children/seniors	Promotion of socioeconomic mix in the quarter	Offer of leisure and recreational opportunities	Courtyard semi-public; nursery, co-working and gastronomy for all as part of the neighbourhood; roof terrace for users only; C2C showroom/ information space	5



Example Moringa

Infrastructure - Moringa

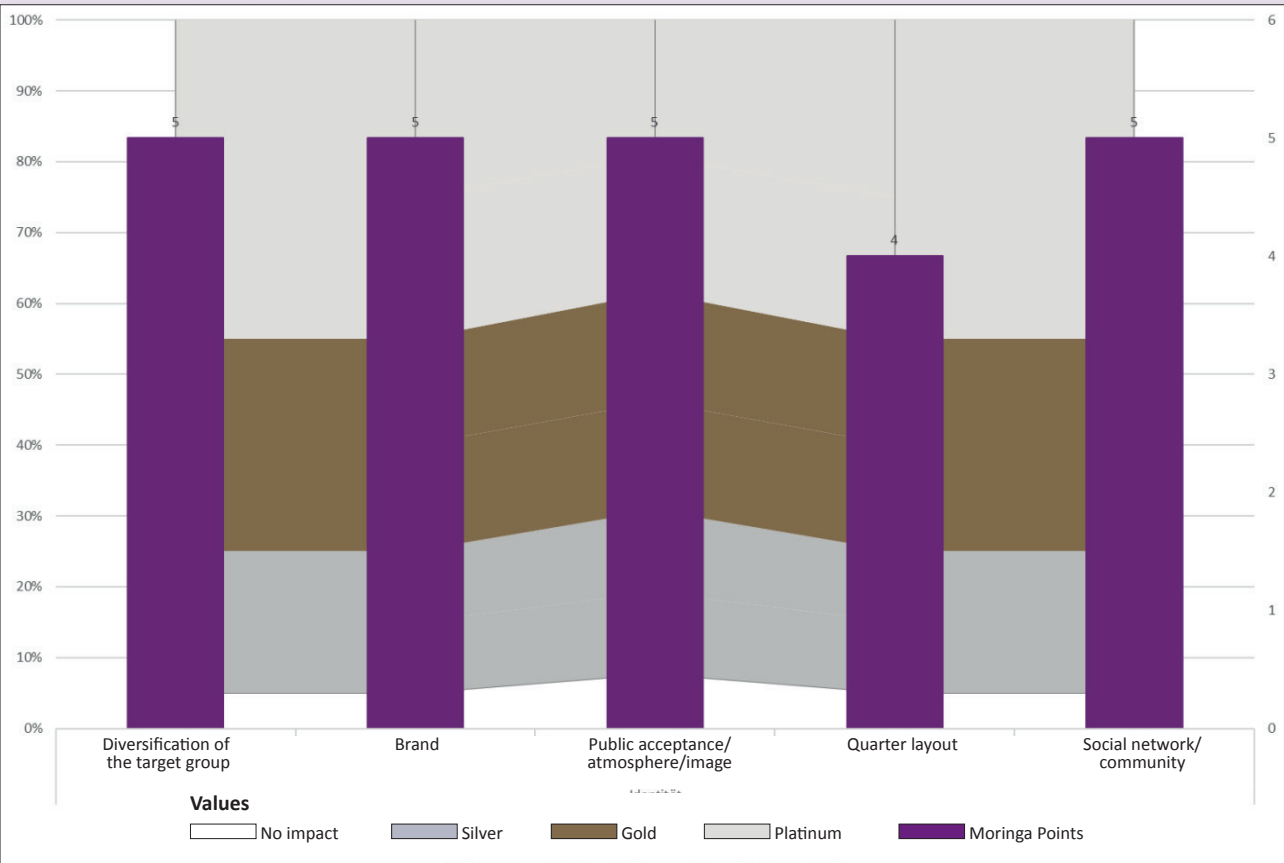
Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Moringa	Points
Infrastructure	Location/supply	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	Elbbrückenquartier under development; Edeka and Aldi	4
	Connection to social infrastructures	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructure	Day-care centre integrated in the neighbourhood (accessible to all)	4
	Connection to public transport	in and around the quarter	Access to local infrastructure and sustainable mobility	Accessibility and quality of public transport	S-Bahn, U-Bahn and bus stations	4
	Connection to MPT	in and around the quarter	Access to local infrastructure and sustainable mobility	Quality of the cycle and footpath infrastructure	Direct connection to regional MIT and supraregional MIT	4
	Mobility concept	Public transport/ Pedestrian zones/cycle paths/ parking spaces	Access to local infrastructure and sustainable mobility	Presence of sustainable mobility offers	Underground parking; sharing services (e-bikes and cars); charging stations available; mobility concept HafenCity Hamburg; large bicycle garage incl. loading points plus cargo bikes	5
	Services	Walkability/centrality/short distances	Access to local infrastructure and sustainable mobility	Accessibility of local infrastructures/distances and mobility effort	Elbbrückenquartier under development; ServiceApp	2



Example Moringa

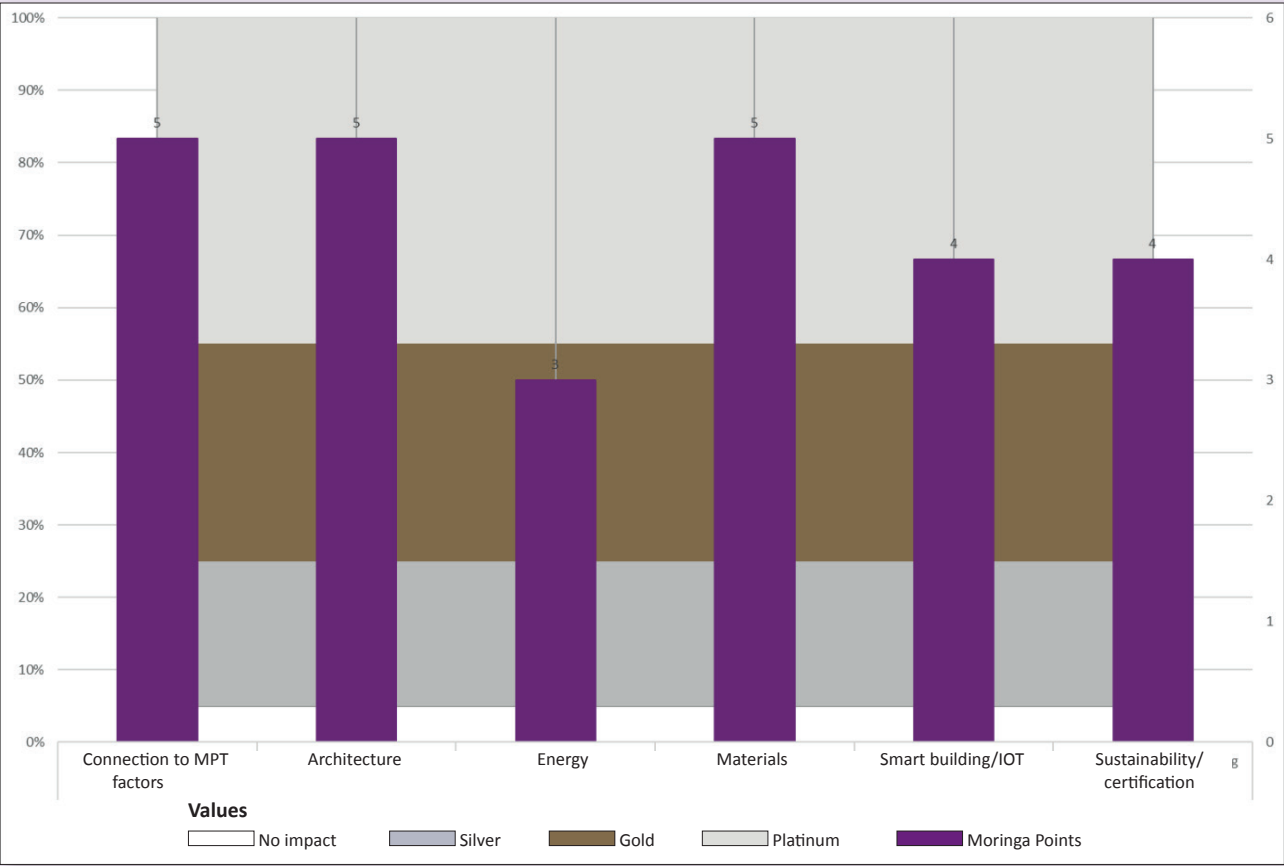
Identity - Moringa

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Moringa	Points
Identity	Quarter layout	Arrangement/location of the uses/routing	Optimization of social housing and quality of life in the quarter	Integration and opening of the neighbourhood	Opening up the neighbourhood to the surrounding area (e.g. integration into public traffic networks) + occasional functional additions	4
	Brand	USP, quality, recognition value	Optimization of social housing and quality of life in the quarter	USP, quality, recognition value	widespread awareness (national, possibly international) + positive (media etc.) Prestigious property + USP ; Project as pilot project in cooperation and research with the city of Hamburg and the university; Real Estate Brand Award	5
	Public acceptance/atmosphere/image	Positioning/external perception/self-perception	Optimization of social housing and quality of life in the quarter	Recommendation (quarter-related)	positive image/desired place of use; Real Estate Brand Award	5
	Diversification of the target group	Diversification of the target group	Optimization of social housing and quality of life in the quarter	Diversification of the target group	Diverse uses with high synergy potential (co-working/co-living, day-care centre and gastronomy); privately financed and subsidized residential apartments	5
	Social network/community	Social network/community	Optimization of social housing and quality of life in the quarter	Social network/community	CommunityApp	5



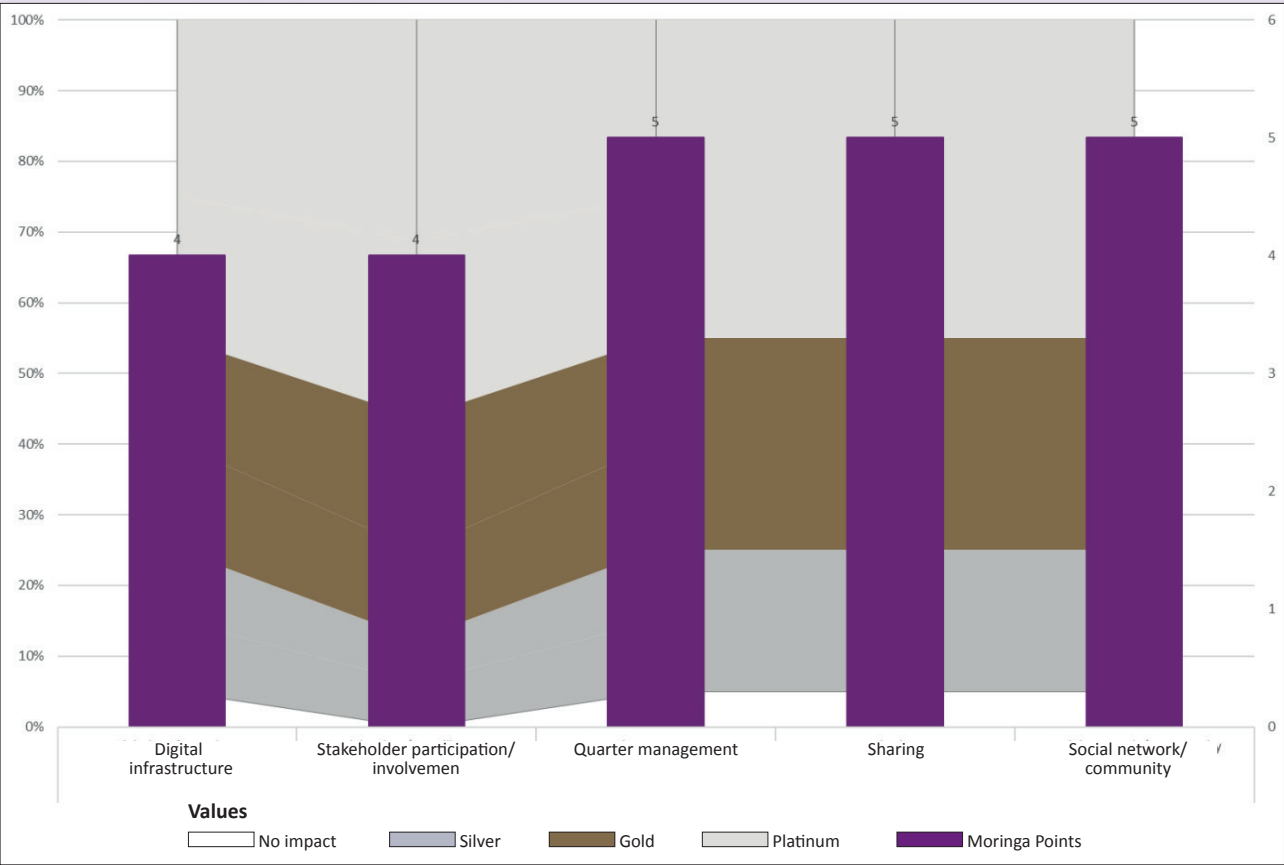
Urban Environment - Moringa

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Moringa	Points
Developed surroundings	Materials	Recycling quality of materials	Optimization of ecological living and quality of life in the neighbourhood	Recycling quality of materials	Recyclable materials (cradle-to-cradle)/regional materials/CO2neutral	5
	Architecture	Diversity/building design/user orientation	Optimization of ecological living and quality of life in the neighbourhood	Diversity/building design/user orientation/reuse of space	Consideration of regional/local construction methods with Landmarken character; close coordination with HH (monthly)	5
	Energy	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	active monitoring; district heating power plant (93% share of renewable energies) built in HafenCity which uses waste heat; solar system on the roof; self-sufficiency through e.g. geothermal energy is not possible in this area due to the foundation situation in the ground. In addition, a self-sufficient supply would lead to considerable additional costs, which would have a strong negative impact on social compatibility.	3
	Anthropogenic factors	Sun/light/wind	Optimization of ecological living and quality of life in the neighbourhood	Sun/light/wind	Construction open and translucent and protection from regional weather specifics (sun/wind /cold protection); wind report is available; balconies are attached to each apartment; large windows (almost every room); green facade; flood protection	5
	Smart building/IOT	Digitalization of communication, services, homes, offices, etc.	Optimization of ecological living and quality of life in the neighbourhood	Digitalization of communication, services, homes, offices, etc.	Smart building elements in the office area via community app	4
	Sustainability/certification	Quarter and building	Optimization of ecological living and quality of life in the neighbourhood	Quarter and building	HafenCity eco-label in Platinum (criteria based on DGNB)	4



Connectivity - Moringa

Impact Cluster	Indicators	Description of the indicators	Impact targets	Key Performance Indicator	Moringa	Points
Connectivity	Quarter management	Quarter management	Optimization of social housing and quality of life in the quarter	Availability/quality of a feedback systems	active neighbourhood management + neighbourhood events + events (children's festivals, street festivals); neighbourhood management as contact point	5
	Sharing	Sharing	Promotion of cultural and economic diversity in the quarter	Sharing platforms and sharing services	Networked sharing services inclusive + community	5
	Social network/community	Social network/community	Promotion of cultural and economic diversity in the quarter	Social network/community	CommunityApp	5
	Stakeholder participation/involvement	Stakeholder participation/involvement	Optimization of social housing and quality of life in the quarter	Stakeholder participation/involvement	Intensive involvement of the authorities and participation in the planning process; involvement of users by the planning department not yet feasible	4
	Digital infrastructure	Digital infrastructure	Optimization of social housing and quality of life in the quarter	Digital infrastructure	CommunityApp with building	4



Example Moringa

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