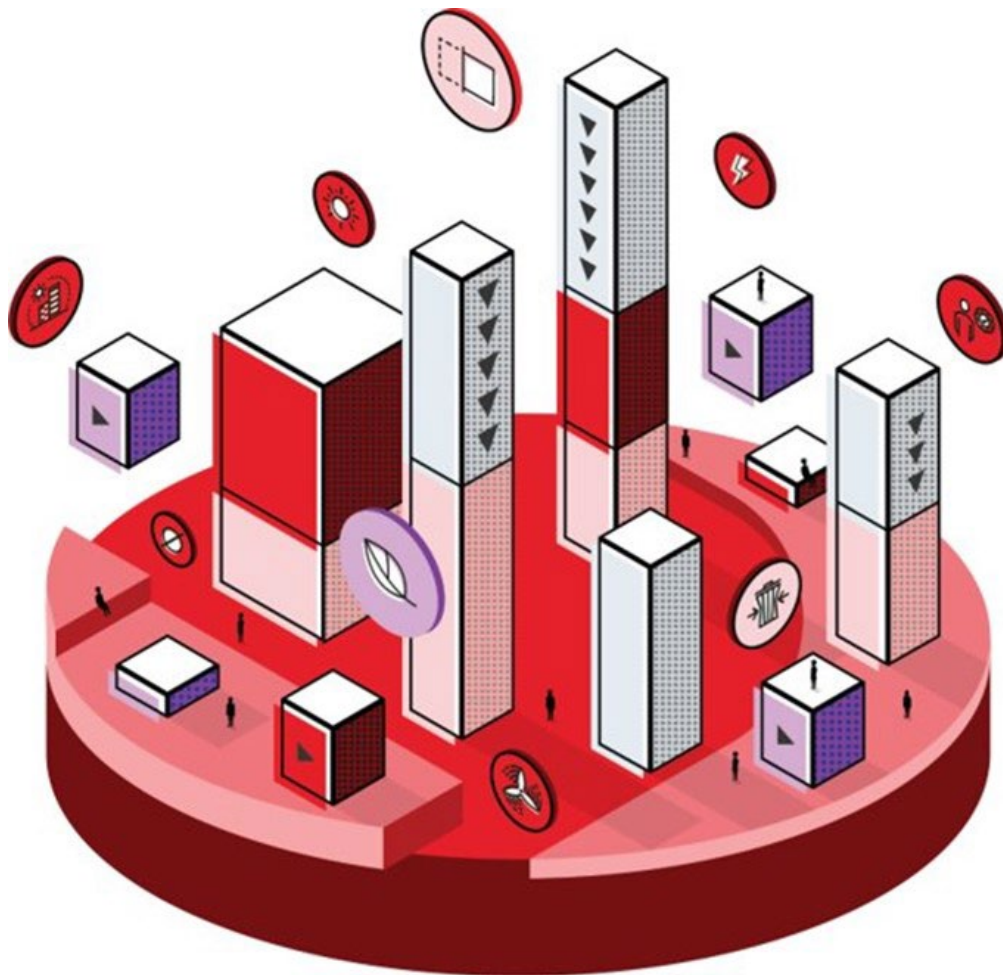# ARUP

Swiss Confederation – Federal Office of Culture

European qualification system for high-quality *Baukultur*

Market research and feasibility study

Reference

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Executive Summary

In January 2018, Ministers of Culture of the member states of the European Council approved the Davos Declaration 'Towards a high-quality *Baukultur* in Europe', stating the ambition to promote the case for *Baukultur* through joint action. In this context, *Baukultur* refers to the sum of all political and administrative actions as well as all steps of design, planning and construction that shape the built environment.

An outcome of the Davos process is the publication of the Davos *Baukultur* Qualification System (DBQS), a framework for high-quality *Baukultur* described through eight criteria.

This study explores the feasibility of the DBQS as a suitable framework for the development of a qualification system that appraises organisations for their contribution to high-quality *Baukultur*, as well as the feasibility to establish a *Baukultur* qualification system in general. The feasibility study was approached from three angles: assessing the landscape of certification systems, inquiring real world market appetite, and developing plausible scenarios of how a qualification system could look like.

Our study finds the market of certification schemes to be complex, dynamic and largely focussed on environmental sustainability. However, more holistic assessments of organisations are on the rise, that include social and governance aspects. This goes in line with policy-makers increasingly shifting their focus from qualifying assets to organisations, to include processes along with outcomes.

The assessment of market appetite amongst investors and developers drew a complementary picture: While *Baukultur* and its cultural role was broadly appreciated, stakeholders desire a qualification system that is easy to navigate and aligned with overarching policy and reporting schemes. Especially the alignment with EU initiatives and policy-frameworks was highlighted as a key enabler for a broad market uptake.

Building on an understanding of the underlying mechanics of qualification systems and market insights, three scenarios conclude the report, each of them expanding on a different hypothesis of how the – in some aspects – sociocultural term *Baukultur* can effectively be turned measurable. The presented scenarios outline the feasibility of a qualification system for high-quality *Baukultur* and provide a guideline for next steps towards developing a European qualification system for high-quality *Baukultur*.

Introduction

Context

The European Ministers of Culture have claimed for a high-quality *Baukultur* for Europe in order to limit misleading developments in the built environment such as urban sprawl or constructions driven by economic and technical factors only. Initiated in Switzerland, the 'Davos Declaration'[1] has defined *Baukultur* as follows: 'Baukultur embraces every human activity that changes the built environment. The whole built environment, including every designed and built asset that is embedded in and relates to the natural environment, is to be understood as a single entity. *Baukultur* encompasses existing buildings, including monuments and other elements of cultural heritage, as well as the design and construction of contemporary buildings, infrastructure, public spaces and landscapes. …' Arguably, implementing high-quality *Baukultur* is a multifaceted effort which involves many stakeholders in the built environment industry.

The declaration was adopted at the European Conference of Ministers of Culture in Davos in 2018 and since then impacted the development of the Davos *Baukultur* Quality System (DBQS) intensely aiming for an increase in the meaning and implementation of high-quality *Baukultur*. Consequently, the Swiss Federal Office of Culture (FOC) plans to design a qualification system in order to nurture the cooperation amongst stakeholders in the Architecture, Engineering and Construction (AEC) and Real Estate (RE) industries such as developers, investors, designers, architects, engineers, contractors, public authorities, built heritage conservations, not-for-profit organisations and the civil society.

The DBQS provides guidance for collaboration and potentially identifies quality shortcomings with regards to high-quality *Baukultur* on the European territory, as current *Baukultur* guidelines rather exist on national level and incorporate sustainability aspects only whilst neglecting socio-cultural indicators. In parallel, on behalf of the FOC, the London School of Economics (LSE) has investigated if high-quality *Baukultur* can coexist with economic market principles[2].

As academia observes that markets are hypothetically ready for a high-quality *Baukultur* qualification and that, in theory, there is no conflict of interests per se; the question of how such a qualification is seen by market participants remains, if this qualification is feasible and how it can be designed and maintained. Consequently, as part of this feasibility study, the FOC aims for direct feedback from respective industry representatives and decision-makers.

Building on the above, this study assesses context and logic of a potential qualification system for high-quality *Baukultur*. While the final format of the system is yet to be determined – hence this feasibility study – the authors of this study conceptualize that qualified organisations may become members of a *Baukultur* 'Allianz' – a platform to further exchange, research and practice on the topic.

Being established in 1946, Arup not only has been engaging in designing, engineering, and advising on the most prestigious built environment projects globally but since then is also looking after sustainable and socially feasible project outcomes. Due to its global network in the AEC and Real Estate industries, Arup serves as a capable partner to pursue this feasibility study. In a first instance, the focus groups for this study are Financial Investors such as Asset Managers, Insurers holding Real Estate assets, Real Estate Developers, and Contractors implementing construction projects.

Methodology

This feasibility study analyses existing qualification systems in Chapter 1 ('Understanding qualification systems'), summarising the status quo with regards to considerations and opportunities of qualification systems and provides an overview of best practices.

Chapter 2 ('Market appetite') explores the appetite of targeted stakeholders as a first cohort of qualification users, i.e., investors and developers, for awarding *Baukultur* in general and in particular with regards to the DBQS by interviewing a dedicated group of market participants across the European territory. As a second group, built environment industry and qualification experts are interviewed to complement the findings and provide additional input on the feasibility and potential implementation scenarios for a *Baukultur* qualification. Throughout this market sense-check, Arup partnered with Prof. Dr. Martina Löw (Chair of Sociology of Planning and Architecture at TU Berlin) whilst gathering information about the acceptance of the chosen criteria and its indicators.

Finally, Chapter 3 ('Feasibility of a European qualification system for high-quality *Baukultur*') and Chapter 4 ('Outlook') provide an indication of how such a qualification system could be set up and administered by advising on different approaches and outlining advantages and disadvantages.

1. Understanding qualification systems

1.1 Analysis of existing qualification systems

In order to understand the feasibility of a European label for high-quality *Baukultur*, and to give recommendations on potential approaches, we analysed existing qualification systems and their development. In addition, we conducted workshops with two experts in the field of qualification systems and *Baukultur* respectively. The information outlined in chapter 1.4 summarise our findings and directly informs the feasibility scenarios in chapter 3.

1.1.1 Development of qualification systems

Since the 1960s, the number and scope of qualification systems have steadily increased. Within the built environment sector, qualification systems now cover the evaluation of processes, products and organisations.

Some of these developments, as well as the increasing demand coming from organisations themselves, can be linked back to significant events starting in the 20th century: in the 1960s, investors started to exclude stocks linked to ethically reprehensible business; the Club of Rome, founded in 1968, brought the public attention closer to the topic of global resource depletion; the first Earth Day in 1970 highlighted the need for conservation; the Exxon Valdez oil spill in 1989 had a considerable impact on the financial market; and in 1992, the United Nations Framework Convention on Climate Change convened in Rio de Janeiro, partly resulting from an increasing global discussion around environmental protection.

In parallel to the emergence of qualification systems such as LEED, BREEAM and DGNB that evaluate the sustainability of buildings or neighbourhoods, a need for transparency and accountability of organisations and their processes, evolved. The Global Reporting Initiative (GRI), an international independent standards organisation, addressed this need with disclosing an early version of sustainability reporting guidelines. Based on the industry's demands, these were extended in order to include social and governmental criteria and developed into the most used ESG – Environmental, Social and Governance – reporting standard globally.[3]

Adopting ESG has become best practice for demonstrating the sustainability performance of an organisation. In contrast to Corporate Social Responsibility (CSR) reporting, ESG (reporting) has achieved higher recognition, as it takes a more objective approach by considering the bigger picture across a company's activities. Multi-criteria assessment methodologies provide transparency of an organisation's performance aside from financial aspects. In addition, legislation started to shift from rule-based – where a clear set of rules are prescribed – to principle-based systems – where a broad set of guidelines, rather than rigorous rules, are set, which is most apparent with the EU Taxonomy initiated by the European Union in order to provide guidance and push for environmentally sustainable activities and investments.

As of today, there is a plethora of qualification systems on the market. The following section reviews those in a structured way to establish benchmarks and potential links to a *Baukultur* qualification.

1.1.2   Categorisation of qualification systems

Qualification systems vary greatly in their set up, subject of qualification and reporting styles, amongst others. *Baukultur* is a broad topic, which touches on many aspects of the built environment, several of which are often covered in existing sustainability labels as well.

To get a better understanding of existing qualification systems, their set-up, differences, advantages and disadvantages, we completed a detailed analysis of twenty existing qualification systems (cf. Appendix A for profiles of the qualifications) and a workshop with two experts in the field – qualification systems and *Baukultur* respectively: Dr. Andrea Lück, expert for multi-criteria assessment methodologies, and Regula Lüscher, former Senate Building Director of the Federal State of Berlin. To ensure that we categorised and assessed the existing systems appropriately, we identified three categories with associated guiding questions:

> Recipient or object of qualification:
> '*Who is qualified?*'
>
> Subject of qualification:
> '*What is qualified?*'
>
> Method of qualification:
> '*How is it qualified?*'

These categories guided the development of the proposed scenarios for a high-quality *Baukultur* qualification (cf. Chapter 3).

Recipient or object of qualification – 'Who is qualified?'

Recipient or object of qualification refers to the entity (usually an organisation) which receives the qualification. This contrasts to the **subject** of qualification, which might be a specific project.

A typical example for a **recipient or object of qualification** is an architecture practice receiving a city's architecture award for a realised project (subject). For some qualifications, **recipient or object of qualification and subject of qualification** are the same. This is the case for product and project-focused qualification systems, such as WELL, LEED or BREEAM.

Subject of qualification – 'What is qualified?'

The subject of qualification, i.e., the specific project or outcome, varies across qualification systems, but can be broadly grouped in four categories: 'Organisational', 'Process', 'Project' and 'Mixed'.

- Certification/qualification systems with an **organisational focus** appraise criteria that result from the operation of an organisation. These systems often aim at creating comparability between organisations and utilise quantitative criteria through hard metrics and indicators. An example of a qualification with an organisational focus would be the assessment of companies according to their value.

- Certification/qualification systems with a **process focus** appraise how a certain result is achieved, as opposed to the result or outcome. This type of qualification often relies on qualitative and quantitative indicators to describe and measure the dynamic characteristics of a process and management approach (including having an overall strategy in place, processes for implementation and management systems, reviews of performance and continuous feedback loops). An example of a process focussed qualification would be an appointment decision for public participation processes in urban planning schemes. In this case, the qualification focusses on the processes described in the tender documents as opposed to expected outcomes.

- **Project or result focussed qualification systems** analyse and appraise the quality of the results of processes (e.g., projects). The qualification usually does not include an assessment regarding the characteristics of processes or organisations involved. Examples of project focussed qualifications are BREEAM, LEED or WELL certifications which describe the qualities of individual construction projects resulting from the collaboration of a group of organisations.

- **Mixed systems** qualify their objective of assessment with a combination of **organisational**, **process**, and **project focus**. Especially, as a result of the adoption of ESG reporting, the scope of qualification systems expanded to put more emphasis on social and governance considerations. Mixed systems respond to this increased complexity and rely on a combination of elements to assess the qualification interest. GRESB, for example, qualifies international real estate funds according to their organisational performance, internal processes as well as the quality of their developed and/or financed projects.

Method of qualification – 'How is it qualified?'

The method of qualification can be grouped into three broad categories: 'indicator-based', 'curated' and 'self-declaration'. These categories refer to the mechanism of assessment and come with varying levels of comparability (also between methods) and reliability.

- An organisation or a project can be qualified through an **indicator-based system**, based on its performance along a predefined set of indicators. Criteria, indicators, and metrics as well as their measurement are unequivocal and transparent to all applications. The qualification relies on the arithmetic of the predefined auditing process which is carried out either by the awarding organisation or a third-party institution. Most building certification systems such as WELL, LEED or BREEAM qualify projects based on their performance along such a predefined set of indicators. This type of qualification is typically very comparable and transparent, inconsistencies in reporting and evaluation can however not be ruled out.

- Another approach to qualify an organisation or a project is through a **curated system**, in which the qualification is usually awarded by an expert jury. This approach is often used when more intangible criteria – such as 'beauty' or 'appropriateness' – are an important part of the assessment. A curated system does not rely on clearly measurable benchmarks, but on the expertise of the chosen jury. Usually, principles and point systems to guide the decision of the jury are set in advance to ensure a minimum level of comparability and transparency. Appointing an architectural office based on their competition submission is the result of a curated system. One caveat with curated systems, is that they might be subject to a jury's subjective decisions.

- A third approach to qualification is a system based on **self-declaration.** In this case, an organisation self-declares its compliance with outlined standards and/or processes, without the need for a third-party audit. This approach allows to qualify and commit a large number of entities through a relatively unbureaucratic process. Self-declarations are often driven by reputational considerations and/or intended to communicate an organisations' values. As they do not hold an organisation accountable, actual achievements and changes in an organisation can be difficult to measure.

1.1.3   Components of qualification systems

The following section highlights the key components of qualification systems, including definitions, approaches and characteristics.

Target definition

Any qualification system requires a target definition, which describes the intended steering effect and normatively sets out the desired behaviour of market participants. The target definition defines the set-up of a system along with the embedded push and pull factors. In addition, a target definition also needs to speak to the theory of change, which describes how market participants are expected to adjust their actions when being subject to the assessment for a qualification system.

System boundaries

System boundaries define the qualified object (*Who* is qualified?) and the subject (*What* process, product, organisation is qualified?) and are typically defined in the early stages of developing a qualification system. System boundaries should be clear and precise. Some systems, however, allow for flexibility and varying importance of criteria for different qualification objects or subjects. This can display across sectors and geographies to account for local and contextual specifics.

Method and monitoring for awarding and auditing

The method for awarding and auditing a qualification needs to match the target definition and be appropriate to the nature of the qualified subject. Some aspects can be expressed effectively through quantitative data and measured along precise indicators and metrics, others are of qualitative nature and require expert judgement to be assessed appropriately. The monitoring system defines the rules that underline the assessment of potential qualification recipients. Monitoring systems should only be as complex as necessary to provide depth and quality to an assessment, while remaining transparent and easy to navigate, to ensure a system remains desirable to potential users. Score cards, with their underlying set of rules and metrics for performance measurement, are typically used as part of a monitoring system.

Criteria, Indicators and Metrics

Criteria, indicators, and metrics provide a framework by which the qualification system can evaluate performance. Depending on the chosen method of qualification, criteria, indicators, and metrics need to meet varying degrees of unambiguousness and measurability.

Criteria

'Criteria' are principles or standards through which an item is assessed or evaluated. Criteria are often overarching terms that are then expressed through a group of indicators. In sustainability qualification, for example, 'Biodiversity' would be a criterion under which various indicators, such as infiltration rate/capacity or size/variety of insect populations, are defined to report against that criterion. Criteria describe broad concepts in a concise and easy to communicate way.

Indicators

'Indicators' are most often a combination of several metrics that contextualise data points into information. Indicators are calculable and specific enough to guide strategic decision making and comparison of performance along established benchmarks. Due to the combination of several metrics, indicators are often expressed as percentage or ratio. An example of an indicator would be the share of affordable housing in an urban development (in %), as it brings together two metrics (m² of affordable housing and m² of total development).

Metrics

'Metrics' are measures and typically rely on one variable. Metrics provide simple data that does not facilitate decision making per se, as they are not contextualised or put in relation to other relevant factors. Typical examples for metrics are emitted CO^2 (t), cost (€) or time (s). To turn these metrics into expressive indicators, they need to be referred through a contextualising metric such as cost/surface (€/m²).

Awarding entity

A qualification system is granted by an awarding entity which defines components, moderates qualification processes, and adjusts benchmarks and requirements. As qualification systems intend to steer market behaviour into a specific direction, awarding entities are not expected to be neutral with regards to the outcome. Their impartiality and integrity during the awarding process, however, is paramount to maintain the qualification system's reputation.

Depending on whether a qualification is based on a point-/indicator-system or granted by jury decision, awarding entities may either exhibit a more bureaucratical/administrative character or operate curatorially. The frequency with which an awarding body qualifies applicants furthermore significantly determines its setup in terms of clearness of procedures, roles and responsibilities.

Many qualification systems in the built environment such as LEAD or BREEAM are economic actors themselves and thus operate with view to profit, often in conjunction with external auditors. These qualification systems often come with more sophisticated awarding authorities whose prestige and credibility underpins the relevance of an achieved qualification.

To build and retain market update, a clearly structured and transparently operating awarding entity is especially important to qualification systems aiming igniting competition between qualified entities.

1.1.4 Two selected qualification systems – GRESB and DGNB – in detail

In the following section, two well established qualification systems, are analysed – the Global Real Estate Sustainability Benchmark (GRESB) and the German Sustainable Building Council system (DGNB). Both follow a holistic approach to the assessment of the built environment and cover a wide range of criteria. GRESB, is focussed predominately on assessing large asset portfolios and has a broader overview of the organisation, processes, and asset performance, whereas the DGNB system focusses solely on individual assets and their whole life cycle.

GRESB[4]

The Global Real Estate Sustainability Benchmark (GRESB) is a rating system for real estate and infrastructure projects, including the sustainability performance of companies, real estate investment trusts (REITs), funds and developers according to ESG criteria. Its score is used by investors to compare assets and to integrate ESG data into their investment decisions to manage risks and opportunities. The annual Benchmark Report, which is produced as a result of the assessment, aims to help companies track sustainability goals and to improve internal processes.

GRESB was developed in 2009 through an industry-led initiative, started by Algemene Pensioen Groep (APG), Stichting Pensioenfonds Zorg en Weizijn (PFZW, formerly known as PGGM) and Universities Superannuation Scheme (USS) with the aim to provide standardised and validated ESG data for the financial market. The initiative collaborated with the University of Maastricht through the design of a real estate survey, that later developed into the GRESB system, counting over 1,500 participants today.

GRESB consist of a self-reporting standardised form (being offered on the GRESB portal) which is validated by a third-party assessment body, the SRI Quality System Registrar. Within the real estate industry, GRESB has been established as the global standard for ESG benchmarking, influencing financial investment towards obtaining more sustainable real estate assets.

Assessed criteria

The assessed criteria combine high-level overall scores and in-depth information across hundreds of ESG data points. This includes performance indicators, such as GHG emissions, waste, energy, and water consumption. The GRESB system also includes a component for management, performance, and development respectively, where different criteria are to be considered. In addition, all utilised data have to be publicly available.

The management component consists of measures regarding leadership, policy, internal reporting structures, risk management and stakeholder engagement. The performance component assesses an organisations' portfolio performance at an asset level, through indicators such as energy and water consumption or GHG emissions. The development component assesses the organisations' efforts in addressing ESG criteria throughout building design, construction, and renovation.

The Annual GRESB assessment can be undertaken both at asset level as well as at portfolio level, pooling multiple assets' performance as relevant. This helps participants to improve the monitoring of multiple properties regarding their effectiveness against ESG criteria. Since there are no entry barriers to the GRESB system, it is also possible for portfolio owners to participate in early stages and use the system for setting up individual benchmarks informed by the scoring system.

Organisation

GRESB as an organisation delivering the global benchmark is composed of an independent foundation and a benefit corporation. Working together as one, the GRESB Foundation focuses on the development, approval and management of the GRESB Standards while GRESB BV performs ESG assessments and provides related services to GRESB Members.

Headquartered in Amsterdam, the organisation consists of a management board, a supervisory board and a team with 60+ employees. The five members of the management board consolidate expertise in standards and innovations, business knowledge and experience in the field of ESG analysis and assessments as well as finance and product management. The team's knowledge covers areas of expertise such as research analysis,

climate change, marketing development, business development, sales and member relationship management. They are supported in the continual refinement and improvement of the standards and related processes by working groups pooling together a wide set of experts, through which they engage with relevant stakeholders and gather advice.

Data Management

All data from participant members is submitted to GRESB through a secure online platform and can only be seen by GRESB employees or third-party validation providers. For gaining access GRESB investor members have to request access to a participant's benchmark results using GRESB's Data Access Request Tool. This procedure ensures data privacy. The scores are not made public. Reported indicators on the asset-level are strictly confidential and are not shared with anyone without an explicit consent of the participant.

DGNB System

The German Sustainable Building Council (Deutsche Gesellschaft für Nachhaltiges Bauen, DGNB) was founded in 2007 by 16 initiators from a variety of backgrounds in the construction and property industry. Two years later, the DGBN certification system was developed: The system promotes holistic sustainability considerations in the planning, construction, and operation of buildings and districts. The DGNB is awarded in three categories: 'Platinum', 'Gold' and 'Silver'.

The DGNB System is one of the market leaders amongst providers of certification systems in Germany, and internationally being used for its progressive sustainability benchmarks. As of December 2021, more than 8,700 projects have been planned, built, and certified according to this system's standards worldwide[5]. The DGNB system's structure is unique as it is used alongside the design process of an asset. An independent auditor with no contractual relationship with the DGNB supports the development throughout the whole design period.

Assessed criteria

The system is based on a holistic understanding of the design process and its impacts on the environment and evaluates the overall performance of a building as opposed to individual measures. The system is built along six criteria: 'environmental quality', 'economic quality', 'sociocultural and functional quality', 'technical quality', 'process quality' and 'site quality'. DGNB considers both the total life cycle and the entire value chain during construction (LCA).

- Environmental quality includes life cycle assessment, local environmental impact, sustainable resource extraction, potable water demand and waste-water volume, land use, and biodiversity of the site. Its objective is to conserve resources, reduce, avoid, and substitute all hazardous and damaging materials.

- Economic quality includes life cycle cost, flexibility and adaptability, and commercial viability to evaluate long-term economic viability.

- Sociocultural and functional quality includes health, comfort, user satisfaction and functionality.

- Technical quality focusses on sustainability aspects of technical systems, including fire safety, sound insulation, quality of the building envelope and use and integration of state-of-the-art building technology.

- Process quality aims at improving the quality of planning processes. The indicators ask for planning competitions and recommendations through an independent design committee, for example. To guarantee objectivity and transparency a third party needs to be involved and financial resources for designing companies should be ensured.

- Site quality includes local environment, influence on the district, transport access and access to amenities with the objective to assess the impact of the project on its environment and vice versa.

To achieve a very high certification level, a building must excellently score in all six assessment areas. With this principle DGNB supports a holistic and sustainable certification approach.

Organisation

DGNB is a not-for-profit and non-governmental organisation. The DGNB presidium consisting of ten people is elected by the organisation's members. It represents both the association's opinions and interests to external third parties. The presidium takes care of all tasks related to the appointment, dismissal and control of the Executive Board.

DGNB'S Stuttgart-based office forms the interface for exchanging information to all members, builders and auditors. Its team consisting of 60+ employees is split in the certification body (the DGNB certification), network and consulting, research and development, PR, communications and marketing and finance and administration. This team controls the entire certification process.

At least once a year DGNB members meet for the general assembly for exercising their right of co-determination. This includes the election of the presidium, the adoption of the budget and amendments to the statutes.

The network's members represent the entire value chain of the AEC industry such as architects, planners, manufacturers of construction products, investors and scientists, members of the public sector and non-government organisations.

Data Management

In the DGNB certification process, the auditor is the only authorized person to review and submit the documents to DGNB. In general, there is a duty of confidentiality between the auditor and the client. The DGNB itself publishes the certification values within a performance index. No asset specific data is disclosed.

1.2 Assessment of the Davos *Baukultur* Quality System (DBQS)

The following sections present a description and systematic assessment of the Davos *Baukultur* Quality System (DBQS). The analysis especially focusses on fit for purpose and explanatory power of the set of indicators and metrics proposed in the DBQS, as they may establish comparability and measurability of *Baukultur* performance.

1.2.1 Overview of the DBQS

The Davos *Baukultur* Quality System (DBQS) is designed as a holistic framework to describe *Baukultur* in its multidimensional character. It targets the built environment industry and aims to facilitate the assessment and improvement of a place's *Baukultur* quality. *Baukultur*, according to the DBQS, '… not only refers to the superior appearance of the built environment, but also to the quality of the processes of creation and design and the capabilities and competencies of all those involved in the construction.'[6] The term *place* in the definition of DBQS spans from interiors, buildings, urban fabric, neighbourhoods, quarters and cities, to infrastructure, open and green spaces, as well as hidden structures such as archaeological sites.

The system is composed of eight equally important criteria, describing organisational, technical, functional economic and cultural aspects of the built environment. Each of the criteria is substantiated by definitions and references to current research and set in relation to one another. In addition, a normative indication of what constitutes high-quality is provided per criterion. In purpose of the study's readability, numbering has been added to the criteria (by no means does this indicate a weighting of their relative importance). The DBQS outlines *Baukultur* through the following criteria:

1. Governance
2. Functionality
3. Environment
4. Economy
5. Diversity
6. Context
7. Sense of Place
8. Beauty

The DBQS was developed as an open system, guiding an engaging, low-threshold self-assessment of places through a set of qualitative key-questions per criteria (e.g., '*Are all stakeholders familiar with the Baukultur concept and concerned with the quality of the place? Is the place functional over a long-term period, adaptable to changing conditions, needs and uses, while at the same time preserving its eventual built heritage?*'). Questions are phrased as closed questions (answerable with 'yes' and 'no'), however the answers are fundamentally based on subjective estimation and perception, rather than clear metrics.

Complementing these questions, the DBQS further established a set of indicators and metrics which could inform a more comparative approach to describing *Baukultur.* Indicators and metrics are not endued with benchmarks; DBQS assumes benchmarks to be established by the assessor as appropriate to context and typology. DBQS highlights that the list of indicators and criteria is non-exhaustive and that further testing and development will have to define and confirm its optimum useability in an indicator based qualification system. The assessment summarized in the chapter below may contribute to this through providing a structured breakdown of the indicators and metrics.

The concept of using criteria to define *Baukultur* also received criticism. The cultural phenomenon of *Baukultur* is said to lay beyond a set of criteria but rather between the lines of a formal description. The Swiss Foundation for *Baukultur,* for example, pointed out that the set of eight criteria represents a contemporary, but not universal, definition of *Baukultur*.[7]

1.2.2 Assessment of the DBQS indicators

The indicator system of the DBQS consists of 139 indicators that describe the eight criteria in depth. Each criterion is expressed through several indicators (4 indicators on *Beauty* (minimum); 30 indicators on

Governance (maximum)). To reflect the broad nature of *Baukultur*, indicators express qualitative and quantitative attributes alike.

The DBQS lists a large number of assessment methods to gain insight into a place: quantitative content analysis (data, structures, sources), standardised interviews, surveys, standardised observation, monitoring, mapping, observations, statistics, counts and estimates, as well as interpretation, value judgements, individual interviews (focus groups), polls, monitoring, mapping and design competitions.[8]

The DBQS indicators have been assessed according to their subject of reference (organisational, project process, asset, asset in operation) and the nature of the proposed metric (cardinal, ordinal, nominal). For the detailed assessment of indicators, please refer to the Appendix B..

- Indicators on an **organisational level** describe the qualities of an organisation involved in *Baukultur* projects (indicated as ***Organisation***).

- Indicators focusing on **project processes** describe the qualities of the design, planning, and building processes resulting in an asset/place (indicated as ***Project process***).

- Indicators focusing on **assets** describe technical characteristics of an asset/place that result from project processes. Indicators describing characteristics related to an asset's performance during operation (e.g., vacancy rate of an asset) are marked with an asterisk (indicated as ***Asset/Asset****).

To facilitate effective measuring, indicators should ideally be expressed through metrics in cardinal scales, as they allow easier comparability. **Ordinal scales** associate values with verbally defined concepts and thus - to some degree - allow measuring qualitative issues. **Nominal scales** (e.g., colour, yes or no, gender) do not allow for comparison, sequencing, or ranking, and it should be carefully considered whether they are suitable as a metric for the respective indicator.

1.2.3 Summary

The DBQS consists of 139 indicators which predominantly refer to **asset level** (75 indicators) or **assets in operation** (30). 33 indicators describe project processes, while only one indicator refers to **organisational level**. This distribution suggests that *Baukultur* is largely dependent on qualities of processes and results of processes, as well as on the operation of places, but less on the organisational aspects of organisations involved.

Criteria are predominantly expressed by indicators from one indicator category – they are focussed on processes, assets, or assets in operations, rather than on a mixture of them. The criterion *Governance* for example, is expressed through 30 indicators of which 27 refer to project processes, while *Functionality* is measured only through indicators at the asset level. Table 1 summarises the category to which indicators refer to per criterion and the scale type a metric is attributed to.

Indicator		Criteria								
		Governance	Functionality	Environment	Economy	Diversity	Context	Sense of Place	Beauty	Total
Indicator categories	Organisation	1	0	0	0	0	0	0	0	**1**
	Project process	27	0	0	0	0	6	0	0	**33**
	Asset	2	24	15	19	4	10	0	1	**75**
	Asset in operation	0	0	9	3	8	0	7	3	**30**
	total	**30**	**24**	**24**	**22**	**12**	**16**	**7**	**4**	**139**
Metrics of indicators	Cardinal	0	7	17	15	7	1	0	0	**47**
	Ordinal	0	11	0	3	3	4	7	3	**31**
	Nominal	30	3	5	2	2	7	0	1	**50**
	Not defined	0	3	2	2	0	4	0	0	**11**
	total	**30**	**24**	**24**	**22**	**12**	**16**	**7**	**4**	**139**

Table 1: Quantitative summary of indicator category and their attributed metrics per criteria

Out of 139 indicators, approximately one third (47 indicators) are measured through cardinal scales. Cardinal scales are desired scales for indicators, as they allow clear benchmarking and the comparison of results. 31 indicators are expressed through ordinal scales (e.g., low – medium – high), which enable a ranking of results, but also leave some uncertainty of measurement. The largest share of indicators (50) is scaled along nominal scales – dominantly through a 'yes or no'-selection, which makes them especially difficult to benchmark.

To allow for an effective measurement and statement on an organisation's contribution of *Baukultur*, it is important to express indicators with granular metrics. It would therefore be beneficial to transform the indicators measured in nominal scales into ordinal scales where possible. While ordinal scale metrics are not unambiguous, they allow the establishment of qualitative benchmarks for evaluation (*minimum requirement: 'good'*).

Mentioned cardinal indicators are currently often not defined as ratio but through a single unit of measurement. Reference figures, however, are important because they allow to compare performance of different assessments amongst each other. (*Construction costs/sqm* is a more meaningful metric than *Construction costs*). Completing cardinal indicators with an additional meaningful metric to express ratios should therefore be considered. This, however, poses a minor issue and could be dissolved with little effort.

Finally, 30 out of 139 indicators describe qualities of assets during operation, thus requiring aggregated data spanning over several years (the use phase of a building). This poses a significant challenge for reporting activities, as organisations need to manage and disclose information through consecutive years. Much of the required information for assets in operation is not part of established reporting practice in real estate thus increasing the effort organisations must undergo to pursue certification.

Overall, the current list of indicators and associated datasets needed – spanning from technical and organisational to sociocultural areas – appears to be highly complex and will require significant reporting effort. Consolidating and modifying the required datasets may help to ease reporting effort and increase the comparability of results.

1.3 Evaluation of built environment stakeholders and their influence on *Baukultur*

Key to a successful adoption of *Baukultur* is the understanding of built environment stakeholders and their influence, interest, and leverage of and on *Baukultur*. In the context of this research, key built environment stakeholders – which are involved in the governance, financing, planning and developing of buildings and quarters – were divided into four categories:

–   Financial investors
–   Real Estate developer
–   Planners and builders
–   Public bodies and building authorities

1.3.1 Role and Influence of Stakeholders

Following the clustering of stakeholders in four key groups, along with the definition of their focus areas, workshops were held to define and assess the influence on, and interest in, *Baukultur* of each stakeholder in detail. The eight criteria of the DBQS, as well as their indicators, were assessed per stakeholder group and to evaluate their influence on specific criteria. Based on this assessment and the discussions with experts, the influence was then evaluated and resulted in a scale of influence: 'low', 'medium', and 'high'. Please refer to Appendix C for this a detailing of this analysis.

Financial investors

Financial investors provide capital to real estate projects with the expectation of receiving financial returns. They rely on several investment means such as stocks and Exchange Traded Funds (ETFs) to accomplish financial objectives. Investors can be categorised into private investors, institutional investors, and public sector awarding authorities (cf. Table 2).

While private investors are usually individuals who invest their own capital, institutional investors are companies or organisations that manage and invest third party capital. The third group, public contracting authorities, are becoming more and more important for the built environment. These can be, for example, municipalities, federal and state governments, that invest in built environment projects, and can be roughly clustered into owner-occupancy and capital investment projects. (cf. Appendix C1.1 for assessment of influence)

Private Investors	Institutional Investors		Public Contracting Authority
Self-use	Open funds	Insurances	Self-use
Capital Investment	Closed funds	Pension funds	Capital Investment

Table 2: The three categories of the 'Investor' group and their means of investment

Real Estate developers

Real Estate developers (herein referred to as 'Developers') buy existing properties and/or land for development. Commonly, developers do not hold their assets upon completion.

Developer activities have a major influence on the built environment and thus on *Baukultur* as well. The developer market is distinct in each country. In Germany, for example, most developers are medium-sized organisations and often regionally oriented. Only a small percentage operates nationally and develops multiple asset types. There are also organisations which operate on a national level and are specialised in one market segment (e.g., residential, retail, logistics). In addition, some developers also act as general contractors, such as Hochtief or Deutsche Bahn in Germany. (cf. Appendix C1.2 for assessment of influence)

Planners and builders

Planners and builders (e.g., architects, planners, contractors) are the ones designing and constructing the built environment. Contractors are executers of construction projects, while planners are responsible for the design, closely aligned with a client's requirements. Planners and builders shape the quality of the built environment – they are, however, often limited in their influence on project outcomes, due to a reliability on clients and financing institutions. (cf. Appendix C1.3 for assessment of influence)

Public bodies and building authorities

Public bodies can have an impact on the development of *Baukultur* when requiring compliance with certain aspects of *Baukultur* or building these into local requirements. For mitigating the 'freeriding problem' (i.e., investing collectively for the benefit of externalities such as appealing facades as opposed to investing in single assets not considering spaces in-between buildings) public bodies should rather control the production of the built environment (based on transparent principles), opposed to regulating it (bases on rules) to the detriment of elastic markets.[9]

1.3.2   Summary

As part of this study, we identified the first two analysed groups as the first cohort of target groups for a potential qualification system. This resulted from the focus of the second Ministerial Conference on high-quality *Baukultur*, taking place in January 2023. 'The conference will address the role of the building and real estate industry in relation to *Baukultur* (…). It focusses on the following players in the real estate industry: the investors who finance projects (…), the developers and general contractors who offer, plan and implement projects.' In addition, the stakeholder analysis conducted for this research also found that investors and Real Estate developers hold the potential to impact the quality of the built environment that has not been utilised enough yet. In this regard, the EU Taxonomy and ESG reporting requirements made a start to steer the market in this direction. Targeting a *Baukultur* qualification on this group as well could potentially have a considerable impact on investment and development decisions.

It is also clear that high-quality *Baukultur* ideally needs the collaboration between different stakeholders to generate the biggest impact. Therefore, it is necessary to include planners and builders as well as public bodies as a potential secondary target group.

In addition, the stakeholder impact analysis demonstrated the various levels of influence on *Baukultur* from the different stakeholders. As a consequence, it is useful to consider different approaches to the qualification system for different stakeholders and/or a different weighting of the indicators in order to harness the best possible outcomes.

Swiss Confederation - Federal Office of Culture European qualification system for high-quality Baukultur

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1.4   Key findings from the qualification systems analysis

The following subchapter summarises our key findings from the analysis of existing qualification systems, and of the Davos *Baukultur* Quality System (DBQS), of the built environment stakeholders and of the engagement with experts. These findings serve as a basis for the subsequent analysis of the market appetite in chapter 2 and the outlined scenarios on chapter 3. The following nine key findings from our analysis are:

- *Finding 01:* Qualification systems can offer an added value to the market
- *Finding 02:* Straightforward procedures are necessary for ease of adoption
- *Finding 03:* Building a good reputation for a qualification system
- *Finding 04:* Availability and disclosure of data are important factors
- *Finding 05:* Involve a third party to guarantee objectivity and transparency
- *Finding 06:* Maintain the breadth of criteria while reducing the complexity of assessment
- *Finding 07:* Measuring the intangible
- *Finding 08:* Focus on managerial and organisational processes
- *Finding 09:* Balance the trade-offs between contradictory criteria or indicators

Finding 01: Qualification systems can offer an added value to the market
Qualification systems help to bridge knowledge gaps, reduce transaction costs for organisations by establishing clear standards in industry branches and clearly communicating a message to potential consumers.

Finding 02: Straightforward procedures are necessary for ease of adoption
Qualification systems should be developed based on straightforward procedures and use incentivisation so that they are embraced by the market. It is essential to find the right granularity of criteria and indicators for creating an attractive uptake for possible adopters. If a qualification system is too complex or misleading, potential users might not engage with it.

Finding 03: Building a good reputation for a qualification system
As previously observed, there is a myriad of qualification systems across various industry branches. Additionally, as many of these qualification systems are involved in greenwashing processes, this may aggravate their reputation, lead to scepticism on the part of the end consumer and make fewer companies want to certify themselves as they do not see the added value in doing so. It is therefore sensible to develop a qualification system with competent experts and credible assessment procedures, e.g., through regular audits. These procedures also ensure that the intended objectives are aligned with the proposed criteria. It is also important to note that qualification systems should present a certain challenge to its possible adopters. Sophisticated indicators and criteria need to be integrated to ensure that its stated objectives are being met while a good reputation is maintained. This also ensures that not every company is qualified to be certified by a reputable label.

Finding 04: Availability and disclosure of data are important factors
Another issue for the implementation of a qualification system is the availability of data and the willingness of stakeholders to disclose it. These two aspects should be taken into consideration during the test phase of the qualification system for subsequent adjustment of criteria and indicators, if deemed necessary. Data availability can also vary between different stakeholders and should be taken into consideration when establishing disclosure procedures for a qualification system. To keep these procedures simple, it is also possible to reduce the required data input to a minimum and align these with the different target groups. For ensuring privacy, data access can be restricted for both the participant and third-party validation members (see 1.1.4).

Finding 05: Involve a third party to guarantee objectivity and transparency
Often self-evaluations of ESG performance help to set benchmarks within a company but transparency in the process is not achieved, thereby increasing the risk of greenwashing. Therefore, an independent non-partisan third party should be involved in the accreditation process. With this, transparency and objectivity are ensured, with a possible increased credibility against the end consumer.

Finding 06: Maintain the breadth of criteria while reducing the complexity of assessment
Due to its holistic and often intangible nature, *Baukultur* needs a variety of criteria and indicators to be measured. A wide range of criteria should be covered while still ensuring that the system does not become too complex to increase market uptake. A straightforward way to reduce complexity is to limit the indicators of a criterion to a certain number, which aids on the objectivity and simplification of the qualification system. For the assessment, the approach used by qualification systems such as LEED or WELL can be used as a reference. These systems use simple assessment steps to breakdown the sustainability rating of assets into a score. The score then decides whether the asset will receive a certification or not. If the asset receives the certification, there is the opportunity to additionally classify within certain ranges, such as 'Platinum', 'Gold', or 'Silver'. An alternative is to expand on the work of more established qualification systems or third-party certifications and create a set of indicators to measure *Baukultur* as part of these systems, thus reducing complexity in the application process and potentially shift the focus of existing qualification systems from environmental or economic issues towards more holistic ones. A similar approach has been undertaken by the 'Grüner Knopf', a German label.

Within this, it is possible to weight all given categories equally for determining an average score (as in the case of Standard Nachhaltiges Bauen Schweiz, a Swiss sustainable building standard described in Annex A.1.1.), with attention towards compatibility with the overall objectives of the certification system. It is also possible to establish different weights amongst the criteria in accordance with their relevance with regards to a specific asset. This more flexible approach is already implemented by the GRESB qualification system (described in Annex A.1.7).

Finding 07: Measuring the intangible
Criteria and indicators of a qualification system can be evaluated either quantitatively or qualitatively. As for *Baukultur*, due to its holistic and sometimes intangible nature, qualitative methods are necessary. When developing qualitative indicators, ordinal scales are often used, and statements are made about how much 'better or worse' a criterion is in comparison to others. In an assessment, non-measurable indicators are often split into multiple aspects, rated within a scoring-range which states 'fulfilled', 'partially fulfilled' and 'not fulfilled', allowing the measurement of qualitative indicators. Examples of this have been employed systems of SNBS (see A.1.1) and B Corp (see A.1.13).

Finding 08: Focus on managerial and organisational processes
Qualification systems with a focus on managerial and organisation processes can support a more holistic perspective on qualification systems, as these not only assess the final product or asset of a company per se, but also focus on the processes that involved in it.

Finding 09: Balance the trade-offs between contradictory criteria
If criteria or indicators are contradictory with one another, there needs to be an assessment of the inherent compromises and ensure that this assessment not only achieves the best output through balancing existent trade-offs, but that the intended goal of the specific qualification system is accomplished. For this, there is the possibility of setting minimum standards for each indicator or criteria to limit the influence of rivalling criteria or to implement a weighting system on criteria that might conflict with another.

2. Market appetite

In order to gauge the market appetite within the built environment industry for the implementation and uptake of a *Baukultur* qualification system, we conducted interviews across two groups of key built environment stakeholders. The first group consisted of potential future users of the qualification, i.e., the previously identified target group of financial investors and developers. The second group consisted of built environment professionals with a wide range of experience with qualification systems, sustainability and *Baukultur*. Interviewees from both groups are experts in their field of work located in Germany, Luxembourg, Italy, Switzerland – many of them pursuing international roles. Thus, expert knowledge not only is limited to German-speaking countries per se; it includes expertise in the European and international markets as well.

The interviews followed a semi-structured format, consisting of fixed, closed questions with open-ended questions to supplement those as appropriate. This allowed for comparability across responses with room to gain specific insights from the interviewees. The findings from these interviews, documented in further below hereafter, together with the findings from the qualification analysis in Chapter 1, were then used to develop feasible scenarios for the implementation of a *Baukultur* qualification system in Chapter 3. It is important to note that there are similarities between the findings drafted from the qualification analysis in Chapter 1 and the findings elaborated below pointing to synergies between our desk research and the input received from the interviewees.

2.1 Interview findings

The following eight key findings were derived from the interview process:

- *Finding 01:* There is market appetite for *Baukultur* – but with reservations
- *Finding 02:* The integration of *Baukultur* into EU initiatives could be beneficial
- *Finding 03:* The EU Taxonomy, the New European Bauhaus and the ESG framework are driving the integration of social and governance considerations into the definition of sustainability
- *Finding 04:* An opportunity exists to integrate *Baukultur* into existing qualification systems
- *Finding 05:* A clear definition of *Baukultur* needs to be established to enable a stronger market uptake
- *Finding 06:* There is a necessity to simplify assessment processes to avoid too much complexity
- *Finding 07:* One approach to a *Baukultur* qualification system would not fit all stakeholders
- *Finding 08:* Neutral assessment and verification processes are necessary to ensure a high-quality *Baukultur*

Finding 01: There is market appetite for Baukultur – but with reservations
Interviewees perceived the implementation of some kind of a *Baukultur* qualification as an opportunity for the market and built environment as a whole and were optimistic with regards to the market's readiness for its implementation. Interviewees understand the added value that a *Baukultur*-focused qualification can bring to an organisation or an asset once implemented, to demonstrate value against the criteria which they perceived relevant. However, they noted the lack of current policies, regulations and frameworks which oblige stakeholders to implement social and governmental aspects in the built environment as one of the biggest impediments with regards to the current market uptake.

Finding 02: The integration of Baukultur into EU initiatives could be beneficial
Overall, interviewees expressed that *Baukultur* would not be readily implemented across built environment practices. They indeed reported that incentivising developers and investors to adopt a qualification, with additional criteria to those from established qualification systems or from regulating mechanisms, would constitute a challenge, to at least some extent.

Several interviewees indicated that there is potential to formalise the link of a *Baukultur* qualification to existing and recognised requirements such as the EU Taxonomy's[10] requirements, or ESG best practice

standards for reporting, as these mechanisms are widely accepted and have started to integrate wider considerations (similar to the criteria presented under *Baukultur*).

Interviewees mentioned collaboration and partnerships with policymakers for example, at regional or European level is essential for establishing a market demand or incentive to implementation such a qualification at such a scale. To this point, many interviewees reported that a qualification that is not EU-initiated might have difficulties into being widely accepted without the support of a sound regulatory framework from the EU. There is, however, also an opposing assumption: a qualification that is initiated from Switzerland could be an advantage for several reasons, i.e., as it would come from a non-EU country that is non-partisan and which enjoys a relatively good reputation with regards to architectural practices and culture.

Finding 03: The EU Taxonomy, the New European Bauhaus and the ESG framework are driving the integration of social and governance considerations into the definition of sustainability

Interviewees noted that there is a trend in the development of current regulatory systems around sustainability and ESG topics, of integrating social and governance considerations.

For example, the recently launched Social Taxonomy[11] report seeks to define what constitutes a substantial social contribution for economic activities at a European level. Together with this, EU initiatives such as the New European Bauhaus (NEB) and its labelling strategy for establishing a framework for principles, such as aesthetics, inclusion, and sustainability in the built environment, might bring aspects that align with *Baukultur* into the public discourse and regulatory frameworks.

This trend will likely support the acceptability for *Baukultur* criteria and suggest there is an opportunity for the qualification to lead the way in that direction.

Finding 04: An opportunity exists to integrate Baukultur into existing certification systems

Interviewees mention an overwhelming amount of certifications and systems for sustainability assessment and certifications. The market saturation is an impediment for the implementation of new certification systems and as a result, experts therefore recommend considering the feasibility of integrating a *Baukultur* qualification, or criteria into existing systems (e.g., LEED, BREEAM or DGNB).

These are already widely known and well established on the market and could provide a good starting point for introducing a *Baukultur* qualification or criteria integrated therein. Interviewees noted, however, that most of the popular certification systems are not sufficiently aligned to meet ESG performance requirements or the EU Taxonomy specifications for example.

It was noted to this point that the adoption of a *Baukultur* qualification, directly aligned with ESG best practice and the EU Taxonomy could be beneficial. An alternative would be to find a common denominator between existing, established systems, and update them to incorporate *Baukultur* criteria and on the EU Taxonomy, for example.

Finding 05: A clear definition of Baukultur needs to be established to enable a stronger market uptake

Interviewees mentioned that *Baukultur* is a built environment characteristic that is qualitative and linked to emotional reactions, making it difficult to be objectively and consistently measured. This is perceived a central barrier that needs to be addressed through the *Baukultur* qualification, as built environment stakeholders need a clear roadmap and defined parameters to measure, assess and disclose performance. This is not only an issue pertaining to *Baukultur* but is also seen around social and wider sustainability aspects in the built and real estate sector.

Interviewees note that upcoming developments in ESG reporting best practice and the EU Social Taxonomy[12] requirements for example, might help legitimise socio-cultural as well as governance criteria in the built environment (as mentioned under *Finding 03*). This, together with the reported trend from interviewees that the importance of *Baukultur* will increase with time due to social, political and environmental changes, might push for a stronger demand for *Baukultur* in the industry. Bearing this in mind, it is important to note that the definition of the term *Baukultur* should not be only aligned by external pressures, e.g., policy developments at a European level, but from a sound approach development in consultation and collaboration with experts and relevant stakeholders of the industry field. Interviewees mentioned that relevant stakeholders should work towards a clearer understanding of the term by raising in the public awareness through e.g., campaigns, trainings, and in partnership with existing initiatives Europe-wide, such as the Bauhaus der Erde[13].

Finding 06: *There is a necessity to simplify assessment processes to avoid too much complexity*
Processes for getting a certification are an essential factor for the successful implementation of new certification systems. Interviewees report that current certification procedures are often too complicated to enable further buy-in, for developers and investors, of more criteria or processes or procedures for further certifications.

Flexibility is perceived as extremely important to the real estate industry, therefore interviewees recommended simplifying the process that would accompany a *Baukultur* qualification system. This process could start, for example, in the form of guiding questions (as the ones listed in the Davos *Baukultur* Quality System Assessment form[14]) in a participatory way to establish a common understanding of the *Baukultur* criteria amongst relevant stakeholders.

Finding 07: *One approach to a Baukultur qualification system would not fit all stakeholders*
Considering the need to create an attractive qualification and ensure the broadest possible adoption, interviewees expressed the importance of creating bespoke processes or procedures for different stakeholders, e.g., procedures specifically aiming for granting qualification of investors and for public stakeholders.

In this sense, interviewees mentioned that the considered criteria should also apply to different stakeholders in different ways, e.g., by giving different weights to different criteria. To ensure a neutral assessment, this bespoke weighting system should be established by the awarding entity based on the requirements to be fulfilled by each specific target group. Furthermore, interviewees mentioned the importance of considering a qualification that is not limited to an organisational level, as this could possibly bring more difficulties to certify *Baukultur* aspects as compared to the certification of buildings and assets. They advised on having more flexible models for granting the qualification, e.g., considering the certification of specific assets within an organisation or aiming at specific funds of an investor.

Finding 08: *Neutral assessment and verification processes are necessary to ensure a high-quality Baukultur*
In order to ensure a neutral and consistent qualification process, interviewees suggested the creation of an independent institution or committee to ultimately award the *Baukultur* qualification and, where granted, this third-party institution should be responsible for monitoring and reviewing the asset or organisation over time. This third-party should also be in constant development to ensure that its awarding and monitoring processes are up to date and compatible with the principles of *Baukultur*.

It is noted that the need for such a third-party or neutral assessor party could be compensate or addressed, at least in the short-term, by allowing e.g., independent consultants to take that role as long as sufficient guidance and requirements are provided along with the qualification process, for them to use a basis for assurance and verification.

2.2 Summary of observed market appetite

This subsection synthetises conclusions from the findings outlined above. They were translated into considerations and have directly informed this feasibility study and the different scenarios formulated for the implementation of a European qualification system for high-quality *Baukultur* in Chapter 3 of this report.

Development of a variety of approaches

There is a necessity to analyse a variety of approaches to create a robust *Baukultur* system. Different approaches speak to different stakeholders, more or less effectively, and therefore lead to different levels of market uptake and impact on *Baukultur* overall.

The creation of a sound approach depends on a good understanding of stakeholders and the approaches that respond to their respective incentives and appetites. It might be beneficial to implement a *Baukultur* qualification system that is flexible and enables different approaches to accommodate for those.

Alternatively, an option would be to consider quick wins and long-term outcomes through an incremental approach with different scenarios or alternatives for the system. This could mean starting with a smaller scale, self-assessment process – as already considered in the existing DQBS evaluation system and expanded on in our suggested scenarios in Chapter 3 – which promotes *Baukultur* widely and ensures an early uptake and knowledge building in the built environment sector. Incrementally, this could lead to a full-fledged indicator-based qualification system once the market demand is high enough and the necessary resources have become available.

Integration in existing initiatives

In order to reduce the barrier to market adoption, it could be beneficial to integrate a *Baukultur* qualification in existing initiatives, such as the EU Taxonomy and other ESG reporting schemes. As *Baukultur* is not a mandated topic (yet) within those, the qualification system needs to provide a benefit for the organisation that chooses to follow it. One way into this could be the creation of a ready process for integrating *Baukultur* criteria with existing qualifications that organisation or asset managers have already committed to follow or where they see a relevance for the future (e.g., BREEAM, DGNB).

Integration and alignment with EU policies in particular represent an opportunity as organisations are looking for guidelines to approach the EU's social taxonomy and specifically the Social and Governance aspects of the ESG reporting approach.

Clear definition of Baukultur and comprehensive indicators

The intrinsic idea and value of *Baukultur* is a concept the built environment stakeholders do widely recognise. The difficulty arises once it comes down to defining what *Baukultur* actually is, in terms of criteria and measurable performance. There is thus a need to define which actions need to be taken, and how process and outcomes can be measured. An easy-to-follow guideline or roadmap for the target groups, formulated by experts in the field, with a clear definition of success would be a highly valuable tool for built environment stakeholders.

The eight criteria developed in the DBQS were considered relevant and comprehensive. With regards to the indicators, it is necessary to test them against a comprehensive and holistic coverage of all aspects as well as their measurability (cf. chapter 1.2). Due to the often intangible, abstract or subjective nature of *Baukultur* criteria, it might make sense to consider a combination of rules and principles for an organisation to follow and assess against.

The goal to award organisations, as opposed to projects, with a *Baukultur* qualification adds another level of complexity, and needs to be managed. It is fundamental to set out linear processes and steps, as well as to communicate clearly who is qualified, what is qualified and how the qualification can be achieved.

Meaningful incentives to create attractiveness

As previously stated, built environment stakeholders overall are interested in good quality *Baukultur,* as they recognise the benefits that such a qualification can bring to their assets, projects, and operations. The incentives to encourage the development and adoption of a process that formally recognises a high-quality *Baukultur* across the board, however, are not yet visible.

If the qualification system aims to create a difference to the quality of the built environment and enhance the value given to *Baukultur* criteria, the system needs to be as attractive as possible to the relevant stakeholders – it needs to be easy to implement, as much integrated and aligned with other initiatives, and provide a competitive edge for whoever adopts it.

Options to create value for organisations could also be to align the system with existing processes of organisations and the promise to create a competitive advantage in public procurement procedures or access to finance, for example. This also further motivate the importance of getting public authority support or collaboration in bringing the system to implementation.

As the qualification is primarily targeted at organisations, it might be beneficial to consider the qualification of only certain workstreams of an organisation in order to reduce complexity, or to make the processes for qualification flexible in that sense. Possibly, organisations that are already following an environmental sustainability approach could choose to "upgrade" some of their process to *Baukultur* (sustainability+).

Baukultur is also a matter of emotions, and the qualification needs to find a way to speak to the emotions of people in order to create positive outcomes across some of the more intangible aspects of *Baukultur*.

2.3   Interviewees

To gauge the market appetite, we talked to the following people across the target group of financial actors and developers as well as experts and ambassadors from Arup and public bodies. The findings are a synthesis of the conversations and do not represent any one individual or organisation.

Table 3: Overview of interviewees

3. Feasibility of a European qualification system for high-quality *Baukultur* (HQBK)

3.1 Three scenarios for a HQBK qualification system

This chapter introduces **three plausible scenarios** for a *Baukultur* qualification system for organisational level assessment based on the findings of Chapters 1 and 2. The proposed scenarios account for the range of different development profiles and serve as a basis for discussions, potentially leading to a future single system applicable to all relevant stakeholders.

Common to all scenarios is the assumption that there is a market appetite for a *Baukultur* qualification system at an organisational level. All scenarios assume the measurability of the concept of *Baukultur* - however to varying extend - and consider how the system supports benchmarks, potential target groups, challenges and opportunities, number of awarded organisations, cost, and partnership. As presented hereafter, each scenario is however characterised by its own opportunities and shortcomings and each proposition demonstrates the trade-offs between individual approaches as well as the unavoidable implications associated with different development options.

Recognising the need for the system to enable effective (and as-easy-as-possible) reporting, the scenarios describe different approaches to enhance market uptake such as through leveraging the use of indicators and metrics used within already established reporting systems, or through incorporating existing certification systems into the *Baukultur* qualification system. The scenarios also present different approaches to the scope, boundaries and stakeholder groups as well as accounting for regional and industry variations where possible.

While the scenarios are presented as standalone options for the implementation of a qualification system, the possibility exists to view them as iterations of the concept, starting with the easiest to implement (scenario 3), in order to create market appetite, and then move on to the more complex ones (scenario 2) to ignite higher competitions in the realm of high-quality *Baukultur*.

In addition to an iterative change of systems over time (scenario 3 develops towards scenario 2) a simultaneous combination of two scenarios seems possible as well: More technology-leaning criteria such as *Environment* and *Economy* may be expressed through indicators and metrics as proposed in scenario 1, while the performance of other criteria *Diversity* and *Sense of Place* may be qualified based on curatorial decision.

In addition, an alignment with EU level initiatives or policy-frameworks to increase the uptake and attractiveness of the systems should be considered. This alignment can be explored for each outlined scenario but might be most relevant for scenario one.

3.1.1 Indicator-based system

Summary
Scenario 1 proposes an indicator-based qualification system for Real Estate stakeholders. Based on a comprehensive grading system, best performing market participants are awarded for their contribution to high-quality *Baukultur*.

This scenario incentivises competition between market participants, as best performance is clearly visualised by the scoring system. Alignment of indicators and metrics with overarching policies facilitates industry uptake.

Hypothesis on measurability of Baukultur
The DBQS provides a robust framework to assess and qualify contribution to Baukultur. A Baukultur monitor enables measuring performance of candidate organisations based on well-defined indicators set out in the DBQS. Though complex, an indicator-based system may most effectively ensure comparability in awarding Baukultur.

Description

Candidate organisations annually report their contribution to *Baukultur* through various indicators in three performance categories against predefined benchmarks:

- Governance and internal operation of candidate **organisation** (organisational level)
- **Project process** applied in the realisation of assets (process focused)
- Characteristics and qualities of the **assets** held by an organisation (result focused)

Reporting and subsequent ranking of candidates takes place on an annual basis and is evaluated through a third party to guarantee consistency and transparency. Candidate organisations disclose required information to an auditor who then assesses completeness and checks the accuracy of statements on a sampling/test basis, as appropriate. As organisations report against various criteria at organisational and asset levels (including assets in operation), the reporting effort is deemed to be high, at least for the first reporting cycle. In subsequent years, reporting can rely on previous efforts but will require a review and update as appropriate across the indicators.

Benchmarks

A point system grades the candidates' contribution to *Baukultur* and visualises results on a public and easy to compare scoring board. A cohort of best performing 100 organisations constitutes the Alliance for *Baukultur* and are also invited to attend the annual *Baukultur* Forum. Scenario 1 assumes a positive competition between best-performing organisations; therefore, the number of awarded organisations is smaller than in the alternative scenarios. Area of application as well as market uptake will have to be considered to determine the suitable number of awarded organisations eventually.

As a variation to this scenario, minimum thresholds can be established, making any passing organisation a member of the *Baukultur* Forum. Consecutive reporting over several years visualises performance over time.

The indicator-based system could incorporate indicators from existing qualification systems such as BREEAM or LEED and aligns as much as possible with reporting standards and metrics from policies such as the EU Taxonomy to help facilitate uptake.

Target groups

The indicator-based system targets investors and large portfolio holders/owners. To maximise impact, the system is designed to match reporting practices of listed (global) companies in the Real Estate industry.

Challenges and opportunities

Challenges:

- High data and information gathering, reporting efforts, especially in the first year of reporting
- Some criteria might be difficult to measure based on their qualitative nature and will require clear guidance to limit subjectivity
- Relative inflexibility to account for regional or other particularly contextual differences, and/or give different weights to different criteria given definition of indicators
- Competition with (other) existing, established reporting systems
- High costs to establish and prepare third party auditing organisation

Opportunities:

- Can build on existing certification/qualification systems as demanded by market actors
- Objectivity and comparability of performance thanks to a well-defined approach to measurement of performance
- Can build on indicators shared with other reporting systems and regulatory/policy requirements (e.g., EU Taxonomy) to reduce overall reporting efforts and ensure market uptake. A detailed assessment of the overlap between criteria set out in existing reporting schemes and indicators relevant for a *Baukultur* certification may provide further insight here.
- Support to other reporting streams through the system's framework

Number of awarded organisations

In the indicator-based system, the highest awarded 100 organisations become member of the *Baukultur* Alliance; the number of reporting organisations meanwhile could potentially be unlimited. Once set up, the platform-based system is then easy to scale up. Auditing, however, is bound to the capacity of evaluation experts familiar with the system – it could however be considered to outsource auditing and verification to external organisations as along as those are given clear parameters and guidelines as to the quality of disclosure.

Cost indication

- High costs due to the need of the awarding entity to establish the framework, indicators, and metrics, and to establish and operate an auditing body as well as organisation and execution an annual *Baukultur* Forum

Partners

- Desirable partnership with EU bodies to ensure integration and broad uptake
- Potential partnership with existing certification systems to cover environmental aspects
- Potential partnership with GRESB given the proven processes and the similarity of the target group

3.1.2 Curated system

Summary

Scenario 2 proposes a qualification system which respects and embraces the cultural complexity of *Baukultur*. Rather than being expressed and measured through indicators, *Baukultur* is qualified through the expertise of a jury which base their judgement on the criteria of the DBQS as well as on cultural nuances. This qualitative assessment allows to qualify a wider stakeholder range for their contribution to *Baukultur*.

Hypothesis on measurability of Baukultur

Baukultur is a dominantly qualitative concern and touches on disciplines from different fields and skills from various stakeholders. While the DBQS provides a useful framework to structure the discussion around Baukultur, real substance and significance of Baukultur is difficult to be grasped or expressed through criteria and indicators. That is why a curated system might be more effective in terms of assessing and awarding Baukultur.

Description

Candidate organisations submit an application which describes their contribution to the various aspects of *Baukultur* within e.g., the last two-year cycle. The application process is based on the DBQS criteria and structured by templates to smoothen the appraisal for applicant and awarding organisation.

Efforts for application are moderate, as the reported information is extensive, however, not involving quantitative assessment. A jury reviews the application qualitatively with guidance of an assessment schedule. In a two-stage process, 500 organisations are shortlisted, of which 250 eventually are qualified as member of the *Baukultur* Allianz. Candidate organisations may need to reapply to remain members of the alliance or – in a variation to this scenario – remain a member indefinitely.

Scenario 2 aims at disseminating *Baukultur with a capital K* into the industry. The number of awarded organisations therefore is higher than in scenario 1. The two staged process (shortlisting and qualification) allows to cite a larger number of organisations for their positive contribution to *Baukultur* without relativising meaning and exclusivity of the qualification system by a large number or recipients.

The jury is composed according to predefined rules ensuring diversity and expertise of members as well as their gradual replacement over time. The jury is bound to guidelines with regards to its decisions whom and how to qualify; these guidelines in return are loosely based on the DBQS. To substantiate the award decision and provide transparency and retraceability, a brief explanation per qualified organisation is published by the jury.

Benchmarks

There are no benchmarks for qualification defined, as the award is based on expert judgement as opposed to metrics. The jury qualitatively evaluates how the respective organisation contributed to *Baukultur* in the last 2 years. The suggested two-year period of the review cycle is due to the generally measured project progress in the industry, as well as to allow for serious scrutiny of the submitted applications. Awarded organisations are invited (and expected) to attend the annual *Baukultur* Forum, which serves as an industry platform and provides opportunities to connect.

Target groups

The curated system targets all stakeholders in the AEC and Real Estate industries. As the qualification is not bound to indicators and metrics only certain stakeholders can report against, the system is open to stakeholders with a varying impact on *Baukultur*. Stakeholders are grouped e.g., as Investors, Developers, Contractors and Planners, to allow for better comparison of their contribution amongst peers.

Guidelines for the jury on how to evaluate a candidate's performance reflect the different workflows and business activities of each stakeholder group.

Challenges and opportunities

Challenges:

- Difficulty to rule out nepotism in qualification process due to large number of candidates
- Difficulty of comparability amongst stakeholders and their contribution

Opportunities:

- Qualifies large number of various stakeholders with little bureaucratic effort
- Does not get lost in details of making metrics measurable
- Reflects *Baukultur* in its multi-facetted beyond-measurement character
- Qualitative assessment allows for case specific weighing of different criteria

Number of awarded organisations

In the curated system, 250 recipients receive the qualification out of 500 shortlisted candidates. The exact number of awarded organisations however is to be determined depending on intended steering effect and exclusivity of the Alliance. Up and downscaling the number of recipients is possible.

Bureaucratic effort for preparation and assessment of applications is directly proportional to the number of applicants/recipients.

Cost indication

- Medium costs for the set-up and operation of system
- Main budget needs: organisation and execution of the annual *Baukultur* Forum, staff to review membership applications
- Budget and workforce requirements are on an irregular basis, with peaks during awarding months and the Baukultur forum

Partners

Academic bodies and organisations engaged in the discussion around *Baukultur* can partner with and/or constitute the awarding jury

3.1.3 Self-declaration system

Summary

Scenario 3 intends to unite a large group of various stakeholders behind the idea of creating *Baukultur*. Engaging market participants and promoting the concept of *Baukultur* is prioritised over a sharp ranking of every individual stakeholder's contribution. The system is designed as barrier-free and as accessible as possible, where organisations qualify to the system by means of a self-declaration.

Hypothesis on measurability of Baukultur

Baukultur is multifaceted and diverse, and many stakeholders contribute to it in various ways. Instead of a third-party assessor, organisations would appraise themselves for complying with ideals and standards of Baukultur. That is why a self-declaration system might be most effective with regards to the overall implementation of Baukultur.

Description

To achieve qualification, candidate organisations only need to declare their support to *Baukultur*. No formal application or involvement of third parties for this assessment is required for the qualification process.

Interested organisations within the built environment industry and beyond are invited to inform themselves through a brochure type report explaining the DBQS+ framework and the Objective Statement of the *Baukultur* Alliance. A holistic stakeholder engagement process has helped to broaden the DBQS framework and given regional depth to it. A multitude of organisations ranging from construction supply chain, Real Estate sector, as well as academic and public bodies have ratified the document and subscribed to developing *Baukultur* in their daily operation. The brochure consolidates case studies and best practices from stakeholder groups, thereby helping organisations understand how they can apply the *Baukultur* approach and how themselves can contribute to amplifying the *Baukultur* concept further.

After familiarising themselves with the concept, organisations declare their support on the official *Baukultur* Alliance website and define non-binding commitments to contributing to *Baukultur* on organisational, procedural and asset level over e.g., the next two or three years. The website hosts a digital platform to share and discuss questions related to *Baukultur* and get in touch with other stakeholders from the industry.

Benchmarks

There are no benchmarks resulting from an organisation's qualification process. This is due to the assumption that *Baukultur* is too diverse and implemented by a broad range of different categories of stakeholders to enable the establishment of objective thresholds. To qualify themselves, organisations commit to the Objective Statement of the DBQS declaration and set out how their contribution materialises in projects and processes in a central public register. Self-declaration is then reviewed and updated every three years. The slower-paced triannual review cycle ensures that the system remains low-threshold and attractive to busy organisations. A time horizon of three years is furthermore sufficient for organisations to complete their voluntary commitments to *Baukultur*.

Target groups

The self-declaration system targets all stakeholders from the AEC and Real Estate industries, and expands beyond to academia, NGOs, municipalities, etc. The qualification is not bound to indicators and benchmarks but based on candidates' commitments to the Objective Statement. Everyone who adopts and commits to the target definition is invited to self-qualify.

Challenges and opportunities

Challenges:

- Possibility of *culture-washing* and weakening the concept of *Baukultur*, as self-proclamation is not bound to delivered performance
- The qualification system may not incentivise the right behaviour, because the qualification is technically accessible for free

Opportunities:

- Qualifies a large number of stakeholders with relatively little reporting efforts and satisfies market demand for an open and pluralistic way of measuring contribution to *Baukultur*
- Helps to carry the discussion of *Baukultur* beyond sectoral boundaries
- Self-qualification allows for a flexible, case-specific evaluation of different criteria

Number of awarded organisations

In the self-declaration system, the number of qualified organisations is unlimited as there are no control procedures by committees or awarding organisations. The system builds on a 'the more the better' approach and profits from a large number of (self-)qualified organisations. The option for auditing on a sampling basis could be explored.

Cost indication

- Lower budget needed for operation of the system, once the initial system has been developed; relatively small number of staff needed
- The organisation of the *Baukultur* Forum periodically requires a large budget

Partners

- Stiftung *Baukultur* (from Germany) has developed a similar self-qualification (*Kodex for Baukultur*)
- Other foundations and institutions have committed to similar initiatives

4.   Outlook

This Chapter concludes the report with recommendations. This study has explored the feasibility of a qualification system for *Baukultur*, assessed its expected uptake and described plausible scenarios for its development. Overall, the development of a qualification system is feasible, if well integrated into the policy context and developed in collaboration with the right partners and in alignment to the right policies and frameworks (at an international level).

Market interest and relevance of *Baukultur* as being the foundational backbone of Europe's cultural identity **advocate the development of a qualification system** to uplift and disseminate the concept. **Measuring Baukultur is a complex undertaking**, however, three potential approaches for meeting the challenge are outlined in Chapter 3.

The following outlook defines a way to go forward towards developing and implementing a qualification system in three sequential steps.

Towards a normative vision – working with scenarios

To effectively guide the development of a qualification system, a clear definition of its role and function is needed. A structured stakeholder engagement process based on the scenarios presented in Chapter 3 can help to identify motivated partners to collaborate with. Discussing plausibility and desirability of each scenario as well as their challenges and opportunities informs a normative vision to guide the next steps.

As observed before, numerous qualification systems strive for the attention of organisations. It is therefore important that the vision not only defines a most desirable future, but clearly sets out which core aspects the qualification system pursues in distinction to existing qualification systems. This ultimately avoids competition between systems pursuing similar goals.

Assess the given – determining factors

Once a vision is formulated and political support assured, partnering organisations need to mutually agree on the determining factors of the qualification system. The definition of these factors needs to be as precise as possible to provide a clear and strong basis for the further development of the qualification. Internal organisational parameters such as available staff and financial capacities as well as their roles and responsibility need to be described. Additionally, parameters such as project specific boundaries that derive from the vision formulated above need consolidation. A clear definition of the desired behaviour of a clearly demarcated target group is basis for the conceptualisation of the qualification system's components in later steps.

Chapter 1.1.3 'Components of qualification systems' outlines the elements which should be conceptually described at the end of this step.

Roadmap towards a Baukultur qualification system

Once the previous steps have been completed, a roadmap, which operationalises how to achieve the defined vision along determining factors, should be developed. The roadmap describes the steps required to operationalise the qualification system and assigns attributes, roles, and responsibilities for their execution to the right stakeholders. It further carves out potential bottlenecks and milestone decisions to be taken as well as providing suggestions for mitigating risks.

The roadmap towards a *Baukultur* qualification system should be aligned with the five-year cycle of the Davos process, as this is the contextual framework of the qualification. It further provides a realistic prognosis of time needed for development, implementation, and adoption as well as a high-level forecast of expected uptake.

Finally, the roadmap should entail a strategic lobbying agenda to structure efforts for aligning the qualification system's concept with overarching European and international policy streams. In addition to alignment with the major systems of potentially related policy propositions, the concept design process should explicitly include alignment with reporting trends as well as established indicators and metrics to ensure success and seamless integration of a *Baukultur* qualification system into existing contexts.

Appendix A

A.1 Analysis of Qualification Systems

A.1.1 SNBS[15]

SNBS — Standard Nachhaltiges Bauen Schweiz

What does the certificate cover? Who is issuing the certificate?

The Standard Nachhaltiges Bauen Schweiz (SNBS) is an integrated certification system for buildings of different uses and infrastructure. It is issued by the Sustainable Construction Network Switzerland (NNSB).

Which criteria does the certificate monitor?

The certification is not limited to standard ESG themes. In total, 45 indicators are split into Societal, Economic, and Environmental, and then further classified into four subcategories each.

Which steering effect does the certificate pursue?

The certificate aims to define sustainability in the Swiss context and offers measuring, as well as steering instruments to applicants through online tools.

Does the system certify organisation, project process or product or is it a mixed approach?

The certification builds upon Swiss norms and guidelines to certify the building process holistically. It is goal- and effect-oriented and focuses on the use and the architectural quality of the object. Being rather vague in some cultural and architectural indicators leaves developers and planners leeway to fulfil the requirements during the design process.

Where is the certificate applied?

The certification system is based on national norms and is applied in Switzerland.

How is the qualification conducted?

The certification organisation conducts two conformity tests of submitted documents and conducts multiple site visits. After the realisation or commissioning of the object and the successful completion of the tests, the corresponding certificate can be issued. Therefore, the recipient of the certificate is the project.

A.1.2 DGNB System[16]

Deutsche Gesellschaft für Nachhaltiges Bauen System

What does the certificate cover? Who issues the certificate?

The DGNB (Deutsche Gesellschaft für Nachhaltiges Bauen) certification system makes sustainable construction practically applicable, measurable, and thus comparable. Today, the certification system is internationally recognised as a global benchmark for sustainability. It is available in different variants for buildings, neighbourhoods, and interiors.

Which criteria does the certificate monitor?

The DGNB certification system is based on an understanding of sustainability that pulls together three equal criteria: ecological, economical, and sociocultural factors. Further criteria are technical, process and location quality. The system focuses on the overall life cycle, thus considering the entire value chain during construction.

Which steering effect does the certificate pursue?

The certification system promotes a holistic and sustainable quality in planning, construction, and operation. Through this, it makes an essential contribution towards a sustainable construction industry.

Does the system certify organisation, project process or product or is it a mixed approach?

As the certification system covers the entire life cycle of a building is considered, a mixed approach to qualifying the project process and the product is taken.

Where is the certificate applied?

The DGNB is the market leader amongst certification system providers in Germany. In the certification of neighbourhoods, the DGNB is the European market leader. Worldwide, more than 8.700 construction projects have already been planned, built, and certified according to the principles of the DGNB in more than 35 countries.

When applied abroad, the DGNB system is adapted to regional conditions. In doing so, the DGNB works closely with leading local organisations in the individual countries.

How is the qualification conducted?

The DGNB certification runs alongside the design process. An independent auditor supports the contractor from the beginning and assists through the whole period. The auditor has no contractual relationship with the DGNB.

Finally, the DGNB examines the documents submitted for review and, if the assessment is successful, awards the certificate to the project.

A.1.3　　WELL[17]

	WELL

What does the certificate cover? Who issues the certificate?

The certificate focus on comfort, health, and well-being of occupants of buildings and their interiors.

WELL is managed and administered by the International WELL Building Institute (IWBI). The WELL Building Standard is third-party certified by the Green Business Certification Incorporation (GBCI).

Which criteria does the certificate monitor?

The certificate takes a holistic approach to health. Since the certification focus on health, other sustainability aspects are not included. Spaces can become WELL Certified by achieving a defined score in each of the seven categories, which can result in the award of a Silver, Gold or Platinum standard. The seven concepts are comprised of 102 features. Quantitative and qualitative indicators are normalised via a scorecard. Qualitative indicators are fulfilled by implementation approaches.

Which steering effect does the certificate pursue?

Buildings should be developed with people's health and wellness at the centre of design to increase the well-being of building users.

Does the system qualify organisation, project process or product or is it a mixed approach?

WELL measures attributes of buildings that impact occupant health. It is a performance-based system for measuring, certifying, and monitoring features of the built environment. Therefore, the WELL Building Standard is a project-based certification system, with the building being the object of certification.

Where is the certificate applied?

Individual buildings all over the world can apply to become WELL certified.

How is the qualification conducted?

The certification includes the submission of project documentation and an onsite audit. A project assessor will grade each Concept independently on a numeric scale. The final WELL Score is calculated based on the total Preconditions and Optimisations achieved across the board.

A.1.4 LEED[18]

Leadership in Energy and Environmental Design

What does the certificate cover? Who issues the certificate?

LEED (Leadership in Energy and Environmental Design) is a green building certification programme. It has been developed by the non-profit U.S. Green Building Council (USGBC). The projects go through a verification and review process by the Green Business Certification Incorporation (GBCI).

Which criteria does the certificate monitor?

Within the scoring card the following criteria are being monitored: location and transportation, sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. LEED is a holistic system that does not simply focus on one element of a building such as energy, water, or health, rather it looks at the big picture factoring in all the critical elements that work together to create the best building possible.

Which steering effect does the certificate pursue?

The programme aims to help building owners and operators to be environmentally responsible and use resources efficiently. Additionally, LEED helps investors meet their ESG goals.

Does the system qualify organisation, project process or product or is it a mixed approach?

LEED provides a framework for healthy, highly efficient, and cost-saving green buildings, available for virtually all building types. LEED is for all building types and all building phases including new construction, interior fit-outs, operations and maintenance and core and shell. The recipient of the certification is the project itself.

Where is the certificate applied?

The certification programme is used worldwide. By 2022, over 150.000 buildings had been LEED certified.

How is the qualification conducted?

The corresponding project goes through a verification and review process by the Green Business Certification Inc. (GBCI). The certification is done based on the points received during the review process as recorded using the scorecard.

A.1.5 BREEAM[19]

Building Research Establishment Environmental Assessment Method

What does the certificate cover? Who issues the certificate?

BREEAM (Building Research Establishment Environmental Assessment Method) is the world's longest-established method of assessing, rating and certifying the sustainability of buildings. It was published in 1990 by the Building Research Establishment (BRE), a centre of building science in the United Kingdom.

Which criteria does the certificate monitor?

BREEAM's criteria evaluate energy and water use, health and wellbeing, pollution, transport, materials, waste, ecology and management processes.

Which steering effect does the certificate pursue?

The system works to raise awareness amongst owners, occupiers, and designers of the benefits of using a sustainability-centred approach. It aims to reduce the negative effects of construction and development on the environment.

Does the system qualify organisation, project process or product or is it a mixed approach?

The system assesses, rates and certifies the sustainability of buildings. The BREEAM standards can be applied to virtually any building and location, with versions for new buildings, existing buildings, refurbishment projects and large developments.

Where is the certificate applied?

Since BREEAM launched as the first green building certification programme, over 594.000 certificates in 88 countries have been issued.

In Europe, several country-specific BREEAM systems have been developed.

How is the qualification conducted?

The assessment can be created by the auditor and evidence uploaded using the online tool. The auditor acts as an independent expert who checks the plausibility and completeness of all submitted evidence. An accredited certification body checks the assessment on a random basis. After a successful check, the certificate can be issued to the project.

Swiss Confederation - Federal Office of Culture · European qualification system for high-quality Baukultur

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A.1.6   Living Building Challenge[20]

| **Living Building Challenge** |

What does the certificate cover? Who issues the certificate?

The Living Building Challenge (LBC) is an international sustainable building certification programme that provides a framework for design, construction and the symbiotic relationship between people and all aspects of the community. The owner of the LBC programme is the International Living Future Institute (ILFI).

Which criteria does the certificate monitor?

The framework of the certification programme comprises seven performance areas/criteria: place, water, energy, health and happiness, materials, equity, and beauty.

Which steering effect does the certificate pursue?

The LBC aims for projects to move beyond limiting negative impacts to become truly regenerative. Working from the belief that only a few decades remain to completely reshape humanity's relationship with nature and realign our ecological footprint to be within the planet's carrying capacity. The institute requires advocacy for essential improvements to the building industry.

Does the system qualify organisation, project process or product or is it a mixed approach?

The LBC certification focuses solely on projects. The LBC applies to different project scopes (typologies): new building, existing building, interior, landscape or infrastructure. Some imperatives/criteria are not required for all typologies.

Where is the certificate applied?

North America is the focus of the certification programme. However, LBC projects can be built in any climate zone anywhere in the world.

How is the qualification conducted?

The ILFI request specific information from various members of a project team to determine compliance with the LBC Imperatives. Therefore, it is a system based on quantitative indicators, with the recipient of the certification being the assessed project.

A.1.7   GRESB[21]

GRESB

What does the certificate cover? Who issues the certificate?

GRESB assess the ESG position of assets under management. Asset managers self-report data in a standardised format to the GRESB Portal, where it is validated, scored, and benchmarked against industry peers.

Which criteria does the certificate monitor?

The public disclosure information includes 22 indicators for Real Estate: management (leadership, policies, reporting, stakeholder engagement, etc.), performance (risk assessment, targets, energy, water, waste, etc.) and development (ESG requirements, materials, building certifications, etc.).

Which steering effect does the certificate pursue?

GRESB makes comparable and validated ESG data available for investors, to understand and measure the performance of both their portfolio and other GRESB Assessment participants. Investors integrate ESG data into their investment decisions to manage risks and spot opportunities.

Does the system qualify organisation, project process or product or is it a mixed approach?

The GRESB Assessment for Real Estate entails a management component, a performance component, and a development component. Depending on the reporting entity different components are considered. The recipient of the assessment is a company or organisation.

Where is the certificate applied?

Companies and other entities in the real estate and infrastructure industries use GRESB to measure their ESG performance within a standardised and globally recognised framework.

How is the qualification conducted?

Asset managers self-report data in a standardised format to the GRESB Portal, where it is validated by SRI Quality System Registrar, a third-party validation assessment body.

A.1.8 GRI Standards[22]

GRI Standards

What does the certificate cover? Who issues the certificate?

GRI (Global Reporting Initiative) sustainability disclosure standards help organisations to be transparent and report their impact by creating a global common language and framework. An organisation is required to notify GRI when it makes an 'in accordance' claim in any report. Use of external assurance for sustainability reports is advised but is not required.

Which criteria does the certificate monitor?

The standard sets out guidelines for sustainability reporting under economic, governance, environmental and social issues.

Which steering effect does the certificate pursue?

The framework helps an organisation to report on ESG performance which provides value for the environment, the organisation itself and interested parties. By reporting in accordance with GRI, organisations can enhance their environmental performance, fulfil compliance obligations and achieve environmental objectives.

Does the system qualify organisation, project process or product or is it a mixed approach?

The standards focus on an entity's ESG commitments and deliver a framework for reporting. The GRI Standards are not subject to certification.

Where is the certificate applied?

In 2020 the publicly available database had over 63.000 reports worldwide.

How is the qualification conducted?

Organisations adopt the GRI Standards and report in accordance with them publicly.

A.1.9   MSCI ESG Rating[23]
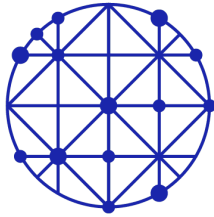
MSCI ESG Rating

What does the certificate cover? Who issues the certificate?

The MSCI rating measures a company's resilience to long-term industry ESG risks and rates it relative to the respective sector. MSCI, the American financial services provider issues and revisits the ratings yearly or on an incident basis.

Which criteria does the certificate monitor?

The rating covers Environmental, Social and Governance issues facing the respective industry.

Which steering effect does the certificate pursue?

The ratings are designed to help investors understand ESG risks and opportunities and integrate these factors into their portfolios. By factoring ESG topics into valuations and investment decisions, ESG capital should perform comparably better with increasing adoption of these principles.

Does the system qualify organisation, project process or product or is it a mixed approach?

MSCI rates organisations which mean that they base their evaluation on internal processes, news coverage and reports from either the organisations themselves or third-party research units. The data could be about the company or the macroeconomic situation within a sector or on a geographic level.

Where is the certificate applied?

The ESG Rating has been carried out by 8.500 companies (14.000 issuers, including subsidiaries) and more than 680.000 equity and fixed income securities globally.

How is the qualification conducted?

MSCI collects and standardises public data to create an overall ESG rating (AAA – CCC) of companies relative to industry peers. MSCI ESG Ratings form the foundation of many of the 1.500 MSCI ESG Indexes.

A.1.10   Considerate Constructors Scheme[24]

Considerate Constructors Scheme

What does the certificate cover? Who issues the certificate?

Construction sites, companies and suppliers voluntarily register with the scheme and agree to abide by the Code of Considerate Practice. The Considerate Constructors Scheme is a self-financing, independent organisation. The scheme is owned by the Construction Umbrella Bodies (Holdings) Ltd.

Which criteria does the certificate monitor?

The scheme monitors three sections under the Code: Respect the Community, Care for the Environment and Value their Workforce. Additional points are available for Innovations and Best Practices.

Which steering effect does the certificate pursue?

The scheme was founded to raise standards in the construction industry. The construction industry has a huge impact on all our lives, with most construction work taking place in sensitive locations. Significant positive outcomes could be achieved if all construction sites and companies presented an image of competent management, efficiency, awareness of environmental issues and above all neighbourliness.

Does the system qualify organisation, project process or product or is it a mixed approach?

The Scheme offers two main registration routes depending on the nature of the activity: either site or organisation (company) registration. The site registration relates to the assurance of specific sites. The organisation (company) registration is for assurance in relation to a company's role as a Main Contractor, Sub-Contractor or Supplier. Depending on the selection of the main registration routes, the recipient is either the product (site) or the organisation.

Where is the certificate applied?

The scheme is applied to thousands of UK construction sites and organisations.

How is the qualification conducted?

The Considerate Constructors Scheme is a self-proclaimed qualification.

A.1.11   ISO 9001 Certification[25]

ISO 9001 Certification

What does the certificate cover? Who issues the certificate?

ISO 9001 sets out criteria for quality management systems and is the only standard in the wider ISO 9000 family that can be certified to. In Germany, for example, TÜV Süd is allowed to carry out the certification process at the company in question. ISO does not perform certification itself.

Which criteria does the certificate monitor?

The certificate monitors several criteria that represent the quality management system of a company, such as customer focus, motivation and involvement of top management, process approach and continuous improvement.

Which steering effect does the certificate pursue?

Using ISO 9001helps ensure that customers get consistent, high-quality products and services, which in turn brings a plurality of business benefits.

Does the system qualify organisation, project process or product or is it a mixed approach?

The certification focuses on management systems inside a company. Therefore, the certification is organisation(process)-based. The certification does not serve to compare individual companies against each other as it addresses the individual situation of the company. The recipient of the certification is the corresponding organisation.

Where is the certificate applied?

There are over one million companies and organisations in over 170 countries certified to ISO 9001. The standard is applicable to all types and sizes of companies in all industries.

How is the qualification conducted?

Certification is awarded by accredited certification bodies such as TÜV Süd in Germany.

A.1.12   ISO 14001 Certification[26]

ISO 14001 Certification

What does the certificate cover? Who issues the certificate?

ISO 14001 specifies the requirements for an environmental management system that an organisation can use to enhance its environmental performance. The certification is issued by accredited certification bodies.

Which criteria does the certificate monitor?

The standard sets out the criteria for an environmental management system.

Which steering effect does the certificate pursue?

The certificate maps out a framework that helps an organisation achieve the intended outcomes of its environmental management system. A certified environmental management system aims to provide value for the environment, the organisation itself and interested parties: enhance environmental performance, fulfil compliance obligations and achieve environmental objectives.

Does the system qualify organisation, project process or product or is it a mixed approach?

The certification focuses on management systems, especially the environmental aspect, of a company. Therefore, the certification is organisation(process)-based. The recipient of the certification is the organisation.

Where is the certificate applied?

There are more than 300.000 organisations with ISO 14001 certifications in 171 countries around the world.

How is the qualification conducted?

Certification is awarded by accredited certification bodies.

A.1.13   B Corp[27]

Certified B Corporation	**B Corp**

What does the certificate cover? Who issues the certificate?

The certification rewards companies that are committed to adding value for society and the environment. It is issued by the independent non-profit organisation B Lab.

Which criteria does the certificate monitor?

The B Impact Assessment analyses the status of ecologically and socially motivated business activities of companies.

Which steering effect does the certificate pursue?

B Lab's vision is to develop and implement an inclusive, equitable, and regenerative economic system that considers the interests and prosperity of all stakeholders.

Does the system qualify organisation, project process or product or is it a mixed approach?

Companies seeking B Corp certification must complete the publicly available B Impact Assessment and provide detailed supporting documentation. The results are publicly available. However, the answers to from the questionnaire are not published.

Where is the certificate applied?

The certificate is applied worldwide and across industries.

How is the qualification conducted?

The B Impact Assessment is conducted by answering a series of questions about the company's practices and outputs. The questions are both qualitative and quantitative. The answers are supported by documents and data. After all the necessary information is successfully verified by different instances of B Lab, the certificate is issued to the corresponding company.

A.1.14   Grüner Knopf[28]

GRÜNER KNOPF
SOZIAL.ÖKOLOGISCH.STAATLICH.
UNABHÄNGIG ZERTIFIZIERT.

Grüner Knopf

What does the certificate cover? Who issues the certificate?

The seal is aimed at all companies that manufacture and/or distribute textile products. It is initiated by the Federal Ministry for Economic Cooperation and Development in Germany.

Which criteria does the certificate monitor?

The seal has a broad focus on social and environmental criteria. The entire company must demonstrate that it is taking responsibility for people and the environment in the textile supply chain. Individual showcase products are not sufficient to be granted the seal.

Which steering effect does the certificate pursue?

The objective is to contribute to the protection of people and the environment by highlighting clothing that is sustainably produced from a social and environmental perspective.

Does the system qualify organisation, project process or product or is it a mixed approach?

The label evaluates the company as well as the respective products. Only if the product and the company comply with all the requirements can the label be awarded. The label comprises 20 corporate criteria and 26 social and environmental product criteria. For the product to be tested, the label focuses and builds on approved recognised seals (e.g., Blauer Engel).

Where is the certificate applied?

The "Grüner Knopf" is a global seal. It can be used in Germany and in other countries. Companies from abroad can also apply for this seal. This is often the case since many companies are international.

How is the qualification being conducted?

The audit is performed by an independent certification body. The certification body checks the fulfilment of all company-related requirements as well as the presence of the recognised seals for the products to be awarded. A certificate is issued after the audit has been passed. The recipient of the certificate is the product.

A.1.15   The Michelin Guide[29]
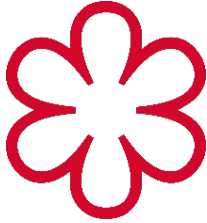
<div style="background:#D40000;color:#fff;text-align:center;font-weight:bold;">The Michelin Guide</div>

What does the certificate cover? Who issues the certificate?

It is the most respected award system in Europe for haute cuisine issued by the independent tire company.

Which criteria does the certificate monitor?

The focus of the award system is on food and service quality, but Michelin seeks to continue the expansion of its ratings to include sustainability aspects and lower budgets.

Which steering effect does the certificate pursue?

The identification of top restaurants in a given region is solely based on the dining experience and food quality. The recipients gain immense prestige.

Does the system qualify organisation, project process or product or is it a mixed approach?

The essential part of the label is the "essai de table", where only the products are rated and considered to gain insight into the organisational process. External impressions and general service is not accounted for in awarding the stars but are part of the criteria for another rating.

Where is the certificate applied?

The award is issued on a national and regional level.

How is the qualification conducted?

To be honoured with a Michelin star, you have to present yourself as well as possible in a secret examination of your restaurant by a Michelin critic. Michelin currently employs nearly 100 critics who constantly visit restaurants around the world and evaluate their cuisine. The stars are awarded to restaurants after joint consultation of the inspectors. They judge according to a fixed rating system based on objective standards, which has proven itself over many years.

Appendix B

B.1   Assessment of the DBQS indicators

The following tables display the assessment of the DBQS indicators according to their metric, scaling and subject (cf. Chapter 1.2). In cases where there is no apparent metric, Arup have assumed and recommended an alternative method of assessing the indicator in question.

Criterion	1. Governance			
Indicator group	Indicator name	Metric	Scaling: cardinal/ ordinal/ nominal	Subject: organisation/ project process/ asset (* = asset in operation)
Guidance	*Baukultur* regulation	yes/no	nominal	project process
	Baukultur standards	yes/no	nominal	project process
	Baukultur codes	yes/no	nominal	project process
	Baukultur policies	yes/no	nominal	project process
	Masterplans, parameter plans	yes/no	nominal	project process
	Baukultur guidelines	yes/no	nominal	project process
	Zoning plans	yes/no	nominal	project process
Incentives	State aided, e.g. state funded	yes/no	nominal	project process
	State encouraged, e.g. zoning bonuses	yes/no	nominal	project process
Control	State approved	yes/no	nominal	project process
	Building permit	yes/no	nominal	project process
Evidence	*Baukultur* research	yes/no	nominal	project process
Knowledge	Best practice guides for high-quality *Baukultur*	yes/no	nominal	project process
	Case-studies/libraries for high-quality *Baukultur*	yes/no	nominal	project process
	General education in high-quality *Baukultur*	yes/no	nominal	project process
	Access to complete information	yes/no	nominal	project process
	Organisation of public training and collective learning	yes/no	nominal	project process
	Professional training in high-quality *Baukultur*	yes/no	nominal	organisation
	Counselling services in high-quality *Baukultur*	yes/no	nominal	project process
Promotion	Design awards for high-quality *Baukultur*	yes/no	nominal	asset
	Targeted campaigns for high-quality *Baukultur*	yes/no	nominal	project process
	Private public cooperation	yes/no	nominal	project process
Assessment	Expert design review	yes/no	nominal	project process
	Design advisory boards	yes/no	nominal	project process
	Design competition	yes/no	nominal	project process
	Expert judgement	yes/no	nominal	project process
	Certifications	yes/no	nominal	asset
Assistance	Grant-in-aid	yes/no	nominal	project process
	Research by design	yes/no	nominal	project process
	Community participation and co-decision to project conception and assessment of the project	yes/no	nominal	project process
	Interdisciplinary teams	yes/no	nominal	project process

Criterion	2. Functionality			
Indicator group	**Indicator name**	**Metric**	**Scaling: cardinal/ ordinal/ nominal**	**Subject: organisation/ project process/ asset** (* = asset in operation)
State of the art	Planning, architectural and engineering rules and norms	n/a.	-	asset
	Planning/construction/engineering (also calling upon local skills)	n/a	-	asset
	Appropriate use of (local) materials	not indicated: low/middle/high (proposed)	ordinal	asset
Adaptability of structures	Access to technical equipment (easy adaptability)	not indicated: low/middle/high (proposed)	ordinal	asset
	Room height (flexibility of uses/functions)	not indicated: low/middle/high (proposed)	ordinal	asset
	Ratio of floor space to main usable area	%	cardinal	asset
	Ratio habitation/industry/ trade/crafts	%	cardinal	asset
	Ratio uses/building	%	cardinal	asset
	Availability of services (public, commercial, cultural, etc. services)	not indicated: low/middle/high (proposed)	ordinal	asset
	Multifunctionality and adaptability to diverse uses of landscapes, urban open spaces and green spaces	not indicated: low/middle/high (proposed)	ordinal	asset
Health/comfort	Measured values of pollutants (formaldehyde, etc.)	not indicated: measure of chemical concentration as appr. (proposed)	cardinal	asset
	Daylight in rooms	not indicated: lux (proposed)	cardinal	asset
	Ventilation possibilities	not indicated: low/middle/high (proposed)	ordinal	asset
	Maintenance of technical equipment (e.g., filters)	not indicated: easy/medium/complicated (proposed)	ordinal	asset
	Passive cooling/warming	yes/no	nominal	asset
	Possible shading in rooms	not indicated: yes/no (proposed)	nominal	asset
	Exceedances of daily limit value noise pollution	not indicated: hertz, decibel (proposed)	cardinal	asset
	Walkability, bikeability	not indicated: low/middle/high (proposed)	ordinal	asset
	Presence of healthy urban open spaces, green spaces and landscapes within easy access	not indicated: low/middle/high (proposed)	ordinal	asset
Safety and security	Risk according to the local natural hazard situation (incl. climate change)	not indicated: low/middle/high (proposed)	ordinal	asset
	Night lighting (bridges, underpasses, lifts)	yes/no	nominal	asset
	Number of security incidents	no.	cardinal	asset
	Orientation and overview in space, visual permeability	not indicated: low/middle/high (proposed)	ordinal	asset
	Density and appropriation (social security)	-	-	asset

Criterion	3. Environment			
Indicator group	Indicator name	Metric	Scaling: cardinal/ ordinal/ nominal	Subject: organisation/ project process/ asset (* = asset in operation)
Environmental impact	Environmental impact assessment	yes/no	nominal	asset
	Waste management	not indicated: yes/no (proposed)	nominal	asset
	Sufficiency	not indicated	-	asset
	Land use/building	%	cardinal	asset
	Floor space/occupant	m²/pax	cardinal	asset
	Population density (people/hectare p/ha)	p/h	cardinal	asset
	Apartment density (number of apartments/hectare)	no. apartments/h	cardinal	asset
	Building density (ratio-built surface/non-built surface)	ratio built surface/non-built surface %	cardinal	asset
Biodiversity	Ratio of unsealed surfaces	%	cardinal	asset
	Ratio of native species	%	cardinal	asset*
	Site-appropriate and site-typical species	not indicated: yes/no (proposed)	nominal	asset*
	Diversity of ecosystems	not indicated: yes/no (proposed)	nominal	asset*
	Interlinked natural areas	not indicated: yes/no (proposed)	nominal	asset
	Chemical fertilisers/pesticides/products	not indicated: measure of chemical concentration as appr. (proposed)	cardinal	asset
	Intensity of light emission in otherwise dark conditions	not indicated: lux (proposed)	cardinal	asset*
Materials and construction	Primary energy demand	not indicated: kWh/m² (proposed)	cardinal	asset
	Greenhouse gas emission	tonnes GHG (t)	cardinal	asset
	Types of material/construction	not indicated	-	asset
Operation/life cycle	Primary energy demand	not indicated: kWh/m²a (proposed)	cardinal	asset*
	Greenhouse gas emissions	tonnes GHG (t/a)	cardinal	asset*
	Share of energy supply through renewable sources	%	cardinal	asset*
Mobility	Primary energy demand	not indicated: kWh/m²a (proposed)	cardinal	asset*
	Greenhouse gas emissions	tonnes GHG (t/a)	cardinal	asset*
	Distance to public transport	km	cardinal	asset

Criterion	4. Economy			
Indicator group	Indicator name	Metric	Scaling: cardinal/ ordinal/ nominal	Subject: organisation/ project process/ asset (* = asset in operation)
Life cycle	Life cycle profit	not indicated: currency/a (proposed)	cardinal	asset
	Life cycle (time)	not indicated: year (proposed)	cardinal	asset
	Maintenance cycle	not indicated: year (proposed)	cardinal	asset*
	Adequate maintenance costs	not indicated: currency (proposed)	cardinal	asset
	Long-living building materials	not indicated	-	asset
Value	Market price/land price	not indicated: currency/m² (proposed)	cardinal	asset
	Property value indicated by willingness to pay (WTP)	not indicated: currency (proposed)	cardinal	asset
	Attractiveness of the place, closeness to facilities	not indicated: low/medium/high (proposed)	ordinal	asset
	Closeness to public service	not indicated: km (proposed)	cardinal	asset
	Closeness to heritage sites	not indicated: km (proposed)	cardinal	asset
	Closeness to green and open spaces	not indicated: km (proposed)	cardinal	asset
	Closeness to resources	not indicated: km (proposed)	cardinal	asset
	Vacancy rate	not indicated: month/year (proposed)	cardinal	asset*
	Rental amount/sqm	currency/sqm	cardinal	asset*
	Density	not indicated	cardinal	asset
Management	Cost management	not indicated	-	asset
	Ownership structures	not indicated	ordinal	asset
	Affordability of the place	not indicated: low/medium/high (proposed)	ordinal	asset
	Tourism strategy	yes/no	nominal	asset
	Masterplan/development strategy	yes/no	nominal	asset
	Cost construction/ renovation/ operation	currency	cardinal	asset
	Renovation cycle	years	cardinal	asset

Swiss Confederation - Federal Office of Culture European qualification system for high-quality Baukultur

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
Criterion	5. Diversity			
Indicator group	Indicator name	Metric	Scaling: cardinal/ ordinal/ nominal	Subject: organisation/ project process/ asset (* = asset in operation)
Social/economic mixity	Social, financial and age index	different socio-economic metrics	cardinal	asset*
	Education: ratio primary school/high school/professional school/university	ratio - %	cardinal	asset*
	Ratio of diverse ethnicities	ratio - %	cardinal	asset*
	Gender equitability	ratio - %	cardinal	asset*
	Number of disadvantaged persons/number of tenants	ratio - %	cardinal	asset*
	Barrier free yes/no	yes/no	nominal	asset
	Financial aid yes/no	yes/no	nominal	asset*
Interaction quality/frequency	Social interaction (interaction rates and quality of stay in private and public spaces)	not indicated: low/medium/high (proposed)	ordinal	asset*
	Ratio no. common rooms/total no. of rooms	%	cardinal	asset
	Availability of green and public spaces	not indicated: low/medium/high (proposed)	ordinal	asset
	Occupancy rate of common rooms	not indicated: % (proposed)	cardinal	asset*
	User satisfaction with interaction places	not indicated: low/medium/high	ordinal	asset

Criterion	6. Context			
Indicator group	Indicator name	Metric	Scaling: cardinal/ ordinal/ nominal	Subject: organisation/ project process/ asset (* = asset in operation)
Knowledge	Analysis of existing situation/context/characteristics	not indicated: yes/no (proposed)	nominal	project process
	Research and survey prior to formulation/design of a project	not indicated: yes/no (proposed)	nominal	project process
	Identification of regional specificities and cultural heritage	not indicated: yes/no (proposed)	nominal	project process
Scale, typology and materials	Integration into the landscape/situation/neighbourhood	not indicated: low/medium/high (proposed)	ordinal	asset
	Building density, urban grain	not indicated: low/medium/high (proposed)	ordinal	asset
	Typology of building, urbanisation, landscape, topography	not indicated	nominal	asset
	Infrastructure, open and green spaces and their integration in the surroundings/landscape	not indicated	-	asset
	Scale (height, volume, etc.)	not indicated	-	asset
	Colour	not indicated	-	asset
	Materials	not indicated	-	asset
Cultural heritage and regional specificities	Processes for preservation of cultural heritage and regional specificities	not indicated: yes/no (proposed)	nominal	project process
	Inventories	not indicated: yes/no (proposed)	nominal	project process
	Number of heritage buildings under protection	no.	cardinal	asset
	Use of cultural heritage and regional specificities	not indicated: yes/no (proposed)	nominal	project process
Surroundings	Relationship place, built and natural surroundings (landscape)	not indicated: low/medium/high (proposed)	ordinal	asset
	Relationship heritage, regional specificities, building stock, new constructions, infrastructure, public space: e.g., integration of new buildings into the historic fabric of a settlement	not indicated: low/medium/high (proposed)	ordinal	asset

Criterion	7. Sense of Place			
Indicator group	Indicator name	Metric	Scaling: cardinal/ ordinal/ nominal	Subject: organisation/ project process/ asset (* = asset in operation)
Place attachment	Place attachment (emotional bonds between groups/individuals with their built and non-built cultural and natural environment)	not indicated: low/medium/high (proposed)	ordinal	asset*
	Place identity (aspects of self-identity which involve and are reflected by the environment and its social and personal meanings, comprising memories, ideas, feelings, attitudes, values, preferences, meanings, and conceptions of and towards a place)	not indicated: low/medium/high (proposed)	ordinal	asset*
	Place dependence (how well a setting serves goal achievement given an existing range of alternatives, functional dependence, how it supports needs, goal, activities of a person)	not indicated: low/medium/high (proposed)	ordinal	asset*
Social bonding	Sense of belonging	not indicated: low/medium/high (proposed)	ordinal	asset*
	Social interaction	not indicated: low/medium/high (proposed)	ordinal	asset*
	Social bonding	not indicated: low/medium/high (proposed)	ordinal	asset*
	Privacy	not indicated: low/medium/high (proposed)	ordinal	asset*

Criterion	8. Beauty			
Indicator group	Indicator name	Metric	Scaling: cardinal/ ordinal/ nominal	Subject: organisation/ project process/ asset (* = asset in operation)
Emotional experience	Emotional experience (capacity of feelings bringing forth aesthetic quality by attribution of values): relationship place–surroundings–people	not indicated: low/medium/high (proposed)	ordinal	asset*
	Shared perception of beauty/beauties	not indicated: low/medium/high (proposed)	ordinal	asset*
Sensory perception	Sensory perception of the place: visual, acoustic, tactile and olfactory experience	positive → rather positive → neutral → rather negative → negative	ordinal	asset*
Attributed formal aesthetic values	balance – proportion – symmetry/asymmetry – simplicity/complexity – unity/variety – composition – rhythm – movement – emphasis/contrast – articulation – expression –space – alignment – materials –scale –transparency/opacity or openness/closedness – authenticity	yes/no, selection of applicable attributes	nominal	asset

Appendix C

C.1 Influence of stakeholders on Baukultur

C.1.1 Investors

Criterion	Description of potential influence	Impact of investor

Governance	• Investors will receive *Baukultur* training, so are therefore informed of which projects would be most relevant and appropriate for certification/qualification.
	
	• Investors will only finance *Baukultur* for projects that comply with building specific regulations.
	
	   o The extent to which these regulations align with *Baukultur* will need to be evaluated on a project-by-project basis.
	
	   o Building authorities are responsible for instilling existing regulations and can therefore have a great influence from the on-set of early design stages.
	
	• Investors, partners, and/or clients may recognise the value in some ESG criteria, and therefore would favour high-quality *Baukultur* due to the strong governance structures, processes and practises it enforces.
	
	• Investors (e.g., listed companies) may be required to disclose ESG criteria and align with taxonomy requirements.	

Functionality	• The interest in long-term investments is high for investors. For example, the investor might only finance assets that are able to adapt over time to changing conditions. • Investors are interested indirectly in the user's wellbeing in the asset as dissatisfied tenants may result in early termination of leases, which would lead to unoccupied spaces and thus to a lower market value of the corresponding asset. • Circular Economy related requirements (amongst others, such as ensuring long building life through standardised floorplans) may be incorporated through long term interest from investors. The longevity and thus the real estate value is increased.	

Criterion	Description of potential influence	Impact of investor
Environment	• Currently, institutional investors report against both environmental criteria and the EU sustainability principles. However, this is very much focused on decarbonisation routes, and less so on other environmental impacts which could also have a big impact, such as biodiversity. • Typically, investors are less interested in the selection of specific materials. However, in the future there might be the possibility that specific criteria will be scrutinised and might affect the value of an asset under the investors management. • Investors might be interested in the distance from the location to (public) transport. o Value is in general higher for properties with a shorter distance to transport possibilities. • Certain measures are relevant for the investor only if they increase the long-term market value of the object in question. • For listed companies, ESG criteria is required as part of disclosure obligations.	
Economy	• Financial success and all its related indicators are a key driving factor for investors. o Financial analysis could therefore distinguish long- and short-term holders. • The value of project (e.g., rentability of the asset or low vacancy rates) is relevant for investments by the investor. • Excessively high operating costs can potentially lead to a lower market value and thus decreases the asset's attractiveness to investors. • The extent to which the consideration of an entire life cycle of an asset may influence an investor's decision (depending on his investment horizon). • The renovation cycle will be more significant in the future, as the risk of an asset being outdated continues to increase with advancing technology developments (e.g., stranding risk of an asset). • The ownership structure as well as the cost management is a significant driver for the investor. • Job creation is a significant missing indicator within the Davos *Baukultur* Quality System. A high-quality *Baukultur* can indirectly influence the settlement of companies and therefore the job creation.	

Criterion	Description of potential influence	Impact of investor
Diversity	• The higher the diversity of a place, the more people are attracted. Therefore, it is assumed that the market value of the corresponding asset will increase and therefore the investor could demonstrate an interest in this criterion • Certain investors might invest in projects that comply with diversity requirements (including social housing in new developments, multi-generational cluster, etc.) • ESG criteria as part of the disclosure obligation for listed companies (report in taxonomy)	
Context	• Investor's interest on mid or high level in terms of materiality as potentially being included in environmental reporting (aspect of the materials double to the criteria environment and functionality) but reasonably low in terms of overall criteria	
Sense of Place	• Low impact as not relevant for investment decision • Nevertheless, a stronger expression of the criterion for the asset under consideration could lead to an increase in market value	
Beauty	• Low impact as not relevant for investment decision • Nevertheless, a stronger expression of the criterion for the asset under consideration could lead to an increase in market value	

C.1.2 Developers

| Criterion	Description of potential influence	Impact of developer

Governance	• Developer has to implement its projects in accordance with the applicable standards and local specifications (amongst others, development plan and land use plan).
	
	    o The extent to which these regulations correspond to *Baukultur* has to be evaluated from project to project.
	
	    o Building authorities are ultimately responsible for the existing regulations and can therefore have a great influence on how buildings should be built.
	
	• Developer has an influence on the extent to which the local community can be involved and whether they are allowed to participate in the planning of projects.
	
	    o Framework of public participation is regulated in the building code in Germany ("Baugesetzbuch" - BauGB)
	
	• Developer can control which expert groups (also regarding *Baukultur*) to assign and how the planning teams are generally composed
	
	    o Developers can also influence design, and subsequently have an impact on different aspects of the asset by ensuring that the expert groups complete a review or decision power at any point of the development phase.	

Functionality	• Developer ensures long-term value of assets by appropriate use of materials. • The choice of materials used (natural, non-toxic, and high-quality) can generally be decided by the developer. • The adaptability (e.g., accessibility of equipment, room height, technical preparedness to serve various functions) during construction can be significantly influenced by the decisions of the developer. • Functional requirements largely stem from programme (which may or may not be decided by developer). • Developer also ensures certain health and safety standards for the users of the asset. • Developer can decide the location dependent on local natural hazards. • Construction is regulated in existing systems especially regarding safeguarding the built heritage. • Depends on the site selection (which could be decided by developer).	

Criterion	Description of potential influence	Impact of developer
Environment	• The choice of construction materials and methods used can generally be made by the developer. • The developer can create conditions so that low energy consumption is possible during operation. ○ Ultimately, energy consumption depends on user behaviour during operation. • Distance to transport, responsible land use and conserving biodiversity depends significantly on the site selection (which may or may not be decided by developer).	
Economy	• The choice of construction materials (long-living building materials) used can generally be made by the developer. • Usually, developers have a low to mid-level interest in long term investments – they market them upon completion. ○ Therefore, developers' interest in minimising the total life cycle costs are not distinct, whereby an asset with low operating costs should have a higher market value. • The asset value, distance to certain facilities and integration into the tourism strategy depends significantly on the site selection (which may or may not be decided by developer).	
Diversity	• Developers might comply with diversity requirements (including social housing in new developments, etc.). • Overall, the interest of developers in diversity is low but their interest can increase when it comes to mixed use assets to bring the value up. • Depends strongly on the behaviour of the community whether the assets are accepted as desired.	

| Criterion	Description of potential influence	Impact of developer
Context	- Research identification of regional specifics and culture can be performed by the developer in the early stage of a project so that necessary measures can be taken into account for further planning phases. - The inclusion of local existing assets in new projects is possible. - The choice of material can be made by the developer. - Use of certain colours may be specified by the client or suggested by the architect. - The integration of projects into their surroundings is regulated by building law in Germany (amongst others, see §34 BauGB if there is no development plan). - The integration of the asset into the surrounding context has an impact on the long-term value of the real estate. - Developer has a certain interest in this and will exert his influence on it.	
Sense of Place	- Potentially relevant for developers as the asset values can be increased. - Depends strongly on the behaviour of the community whether the assets are accepted as desired. - Analysis of the environment and community is necessary to find points of connection and therefore contribute to the Sense of Place. - This analysis could be conducted by the developer at an early project stage. - Intentional non-standardised design solutions can be influenced by the corresponding developer.	
Beauty	- Big scale investors or developers usually have little interest in non-monetary calculated investments. - Depends strongly on the perception of the individual. - People's perceptions can be asked in the early stages and can be included in the elaboration to influence people's later thinking as much as possible.	

C.1.3   Planners and builders

| Criterion	Description of potential influence	Impact of planners & builders

Governance	• Planners must implement their projects in accordance with the applicable standards and local specifications (amongst others, these are development plan and land use plan).
	
	     o The extent to which these regulations correspond to *Baukultur* must be evaluated from project to project.
	
	     o Building authorities are ultimately responsible for the existing regulations and can therefore have a great influence on how buildings should be built in general.
	
	 • Architect is responsible for submitting the necessary building application.
	
	 • The planner can initiate public participation in planning processes.
	
	     o Participation processes are regulated in building law (in Germany).
	
	 • Collaboration in multi-disciplinary teams is consistent for more comprehensive projects and is usually initiated and coordinated by the architect.
	
	 • The planning office can offer trainings regarding *Baukultur* to their employees, so that a certain awareness for this topic is created within the workforce.	

Criterion	Description of potential influence	Impact of planners & builders

Functionality	• This criterion especially for the architect has a high relevance as the architectural design is providing occupier comfort (light, air quality, temperature).
	
	• The planning of MEP installations has a large impact on the well-being of the user inside the corresponding asset.
	   ○ Requirements are pre-defined by the client.
	
	• Functional requirements largely stem from programme (it is not decided by the planner or contractor).
	
	• The choice of materials used (natural, non-toxic, and high-quality) can be influenced by the planner and contractor.
	   ○ Requirements are pre-defined by the client.
	   ○ Tenders often do not include distinct criteria.
	
	• Contractors are liable in term of safety on construction site.
	
	• The planner has the possibility to recommend certain materials to ensure long-term value of the corresponding asset.
	
	• The location can be decided by the client due to external factors such as local natural hazards.
	
	• Construction is regulated in existing systems particularly regarding safeguarding the built heritage.
	
	• Depends on the site selection (is not decided by the planner or contractor).	

Environment	• In the early stages of a project the planner can initiate an environmental impact analysis.
	   ○ At the request of the client or as own recommendation.
	
	• Implementation of the client's specifications.
	   ○ Planners and contractors are responsible for the operative issues of the project.
	   • Tenders often do not include environmental criteria.
	   ○ Exception is to meet certain requirements for sustainability certification.
	
	• Technical criteria based on the EU Taxonomy will be anchored in binding legislation in the future.
	
	• Distance to transport, responsible land use and conserving biodiversity depends significantly on the site selection (is not decided by the planner or contractor).
	
	• Energy consumption of the building can be influenced by the planning of the technical building equipment.	

Criterion	Description of potential influence	Impact of planners & builders
Economy	- The actual asset operation (after planning) is usually not part of the planner's or contractor's scope of work. - Contractors are heavily dependent on suppliers' advertised prices. - Influence lies in the overhead (costs), which is normally not visible to the client. - Planners can limit themselves to regional contractors and thus contribute to the region economically. - The choice of materials used (long-living building materials) can be influenced by the planner as well as the contractor. - Requirements are pre-defined by the client. - Tenders often do not include distinct criteria. - The asset value, distance to certain facilities and integration into the tourism strategy depends significantly on the site selection (is not decided by the planner or contractor).	
Diversity	- Planners and contractors have a low influence on social and economic mixtures because often only the individual asset/project is processed, but the criterion is designed for cooperation & interaction of many projects. - This criterion is of high relevance for urban planners. - Planner is responsible for conceiving a barrier-free design. - Compliance of certain standards regarding accessibility have to be met.	
Context	- This criterion comprises output-oriented design activities. - The planner can influence certain aspects such as engaging in a respectful dialogue with existing, regional specifics, built heritage and new creation. - Research identification of regional specifics and culture can be performed by the architect in the early stage of a project so that necessary measures can be taken into account for further planning phases. - Requirements are pre-defined by the client. - The integration of projects into their surroundings is regulated by building law in Germany (see §34 BauGB in Germany).	

Criterion	Description of potential influence	Impact of planners & builders
Sense of Place	- The architect must assure that the project is accepted by its users and the community. - Client chooses location of the asset.	
Beauty	- Creating a space which yield an aesthetic, spatial and atmospheric impact is of high relevance for the architect. - Depends strongly on the perception of the individual. - People's perceptions can be heard especially in the early stages of planning processes and can be included in the development as much as possible.	

C.1.4 Public bodies and building authorities

Criterion	Description of potential influence	Impact of public bodies & building authorities
Governance	- Building authorities are ultimately responsible for the existing regulations and can therefore have a great influence on how buildings should be built in general. - Building authorities are responsible for the applicable standards and local specifications in the built environment (amongst others, these are development plan and land use plan). - The extent to which these regulations correspond to *Baukultur* is to be evaluated on a case-by-case basis. - Building authorities can approve or deny building applications. - Building authorities can also issue a construction stop order. - Frequent measures taken by the responsible building authority against property owners are the demolition order and the use refusal order. - Participation processes are regulated in building law (in Germany). - The office can offer trainings regarding *Baukultur* to their employees, so that a certain awareness for this topic is created within the workforce.	
Functionality	- The adaptability of structures can be partially determined by the local development plan. - E.g., ratio of uses per building or the general availability of services (public, commercial, cultural, etc.) in a specific area. - The choice of materials used (natural, non-toxic) must not violate applicable regulations. - Regarding health and comfort, for example, workplace guidelines must be complied with. However, these are not set up by the building authority. - Should safety not be guaranteed on the construction site or in the completed building, a construction-stop or a prohibition of use may be imposed. - This could be the case for safety-relevant systems (among others, fire alarm systems), for example. - Construction is regulated in existing systems particularly regarding safeguarding the built heritage.	

Criterion	Description of potential influence	Impact of public bodies & building authorities

Environment	• An environmental impact assessment must be conducted for certain projects. This is defined by law.
	
	    ○ Policy instrument of environmental precaution with the aim of checking environmentally relevant projects against potential negative environmental impact before they are approved.
	
	    ○ The impact assessment is limited to reviewing the impact on the environmentally relevant objects of protection.
	
	• Technical criteria based on the EU Taxonomy will be anchored in binding legislation in the future.
	
	• The choice of materials used (natural, non-toxic) must not violate applicable regulations.
	
	• Some indicators may be influenced by the local development plan (e.g., land use/building, population/apartment/building density or the ratio of unsealed surfaces).
	
	• A building authority may, for example, prohibit the construction of gravel gardens to increase the amount of unsealed land.	

Economy	• The financial attractiveness of a property can be influenced by the design of the corresponding development plan (for example, through the arrangement of public services, green and open spaces). • Individual federal states in Germany have introduced the 'Mietpreisbremse' to curb the rise of rents in areas with a tensed housing market. • The building authority cannot prescribe to which companies contracts are awarded. Consequently, it is not possible to specify that regional companies should be given preference. • The choice of materials used must not violate applicable regulations. • A target renovation rate of 2 % is communicated by the federal government in order to be able to achieve the climate protection targets.	
Diversity	• The design of a development plan can have a major impact on social and economic mixtures, as it provides a view of the interaction between projects and therefore between people. • Compliance of certain standards regarding accessibility must be met. Compliance with these regulations shall be verified. • The scope of green and public spaces is determined by public bodies and the responsible building authority.	

Criterion	Description of potential influence	Impact of public bodies & building authorities
Context	• The corresponding development plan includes specifications on certain indicators of this criterion (e.g., building density, typology of building, height, and volume of a building), which must be complied with. • The consideration of cultural heritage and regional specifics can also be achieved through the corresponding development plan. • The integration of projects into their surroundings is regulated by building law in Germany (see §34 BauGB in Germany). o Buildings have to be integrated into the immediate surroundings in terms of prevailing building style.	
Sense of Place	• The architect (and not the building authority) has to assure that the project is accepted by its users and the community. • Nevertheless, the building project has to be approved via a building application and is required to comply with the applicable regulations.	
Beauty	• Creating a space which yields an aesthetic, spatial and atmospheric impact is of high relevance for the architect, and not the building authority. • Nevertheless, the building project has to be approved via a building application and is required to comply with the applicable regulations.	

Appendix D

Interviews across two groups of key built environment stakeholders (financial investors & and developers and built environment professionals) have been conducted to gauge the market appetite for a possible implementation of a *Baukultur* qualification system. The questions asked for each stakeholder group can be found in the following. The interview findings are presented in Chapter 2.

D.1   Interview questions (Investors and developers)

Fixed questions

1. Do you think the implementation of a *Baukultur* qualification is a good idea?

2. Where do you see potential opportunities and challenges for the implementation of a *Baukultur* qualification?

3. Do you think the industry is willing/prepared to implement a *Baukultur* qualification?

4. Which criteria would you take into consideration when measuring *Baukultur*? And if you already had a chance to look at the Davos *Baukultur* System, is there anything missing or not necessary?

Targeted questions (Investors and developers)

5. Do you see value for your company/city resulting from the implementation of a *Baukultur* qualification?

6. In your current practice, do you already consider *Baukultur* criteria / the Davos *Baukultur* System criteria, and do you attach any value to them?

7. Which external factors/support would you need to make the implementation of a *Baukultur* qualification attractive to you?

8. Are you currently using qualification systems either for your projects or organisation, and if so, which ones? Why are you using them and where do you see the market leaning towards?

D.2 Interview questions (Built environment professionals)

Fixed questions

1. Do you think the implementation of a *Baukultur* qualification is a good idea?

2. Where do you see potential opportunities and challenges for the implementation of a *Baukultur* qualification?

3. Do you think the industry is willing/prepared to implement a *Baukultur* qualification?

4. Which criteria would you take into consideration when measuring *Baukultur*? And if you already had a chance to look at the Davos *Baukultur* System, is there anything missing or not necessary?

Targeted questions (Built environment professionals)

5. How do you think the *Baukultur* qualification should be implemented in terms of time, cost, certification process, etc., to be picked up by your clients/the industry?

6. Which external factors/support do you think need to be in place to make the *Baukultur* qualification successful and attractive to the industry?

7. How would your clients derive value from a *Baukultur* qualification, e.g., for internal and external communication/image, market value and competitive advantage, financing, public authorities support, attractiveness to users?

8. Are there any qualification systems that you promote/require your clients to use? And which qualification systems do you see the market leaning towards?

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