

EDITORIAL

Insights into Sustainable Construction and Risks

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The global built environment is undergoing profound transformation. The construction industry is one of the major direct contributors to development and transformation. Construction objects are unique and built only once, and their life cycle is full of various risks (Tamošaitienė et al., 2021a), originating from many sources, including external and internal environments, formal activity in the chosen sector, object analysis, size, processes, temporary project teams collected from different companies, construction site, etc. It encompasses various large- and small-scale activities, such as building, resulting in various structures as their main product. It also plays a role in determining quality of life through creating living and working conditions. Generally, sustainability aspects must be included in a building's physical and technical conditions and construction management by setting a high environmental standard. Recent studies also highlight that LCA can support broader sustainability assessments beyond environmental emissions by incorporating biodiversity-related impacts and ecosystem considerations within life-cycle-based evaluation frameworks (Correa-Cano et al., 2026). Modern infrastructure systems face compound pressures, including climate change-induced extreme events, accelerating urbanisation, revitalisation, complex engineering construction uncertainties, and increasingly stringent low-carbon and sustainable development regulations. Important considerations include the structure of a building, the materials used, conditions and regulations related to a green-building concepts, and sustainability aspects in construction standards. Another relevant topic is the numerous types of building certification systems, such as the Environmental Product Declaration (EPD) (Lenkevičius & Tamošaitienė, 2026). They support decision-making processes for companies, consumers, and policymakers, aiming to improve sustainability practices in the construction sector. The main concept for the future development is presented in Figure 1.

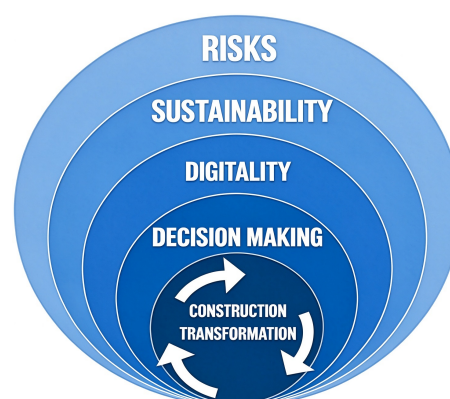


Figure 1 The drivers for the construction transformation

Also, the construction sector is associated with high risk and uncertainty. Projects are unique and implemented only once, and their life cycle encompasses various risks originating from many sources, including external and internal environments, formal activity in the construction sector, object analysis, size, processes, temporary project teams collected from different companies, construction sites, etc.

Moreover, the increasing size and complexity of construction projects requires more processes, adding to the risks (Tamošaitienė et al., 2021b). This factor is additional to the political, economic, and social conditions of a construction project. A risk can be defined as an uncertain event or condition that, if it occurs, has a positive or negative effect on at least one objective, such as time, cost, or quality. Risks, including occupational safety aspects, cause cost and time overruns and impact the quality of construction products. Risk management is a process that focuses on defining sources of uncertainty and is a central part of any organisation's strategic management. It helps organisations methodically address risks attached to their activities to achieve sustained benefits within each activity and across their entire portfolio. In construction, risk management is an important task, with objective functions changing during the construction project's life cycle. Traditional disciplinary research can no longer fully address the integrated challenges of infrastructure and buildings design, construction, operation, and improved buildings life-cycle conditions and risk control. Each situation in life brings together many type risks in all activity fields (Figure 2).

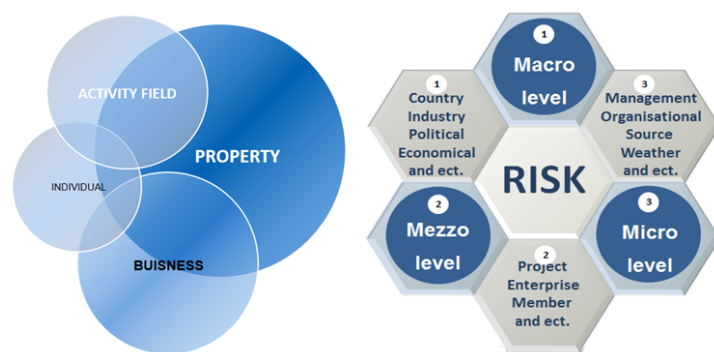


Figure 2 Areas and types of risks.

Risk evaluation should be a continuous and developing process which runs throughout the activity strategy and the implementation of that strategy. It should address methodically all the risks surrounding the activities past, present and in particular, future. It is integrated into the development of the object/scope with an effective policy and a program.

Risk management translates the strategy into tactical and operational, objectives, assigning responsibility throughout the organisation with each manager and employee responsible for the management of risk as part of their job description. It supports accountability, performance measurement and reward, thus promoting operational efficiency at all levels.

Risk can be defined as an uncertain event or condition that, if it occurs, has a positive or negative effect on at least one objective, such as time, cost, quality, or safety. Such risks can cause cost and schedule overruns, affect the quality of construction products, and impact occupational safety. Risk management is a process that focuses on identifying sources of uncertainty and is a central part of any organization's strategic management. It is the process whereby organizations methodically address the risks attached to their activities with the goal of achieving sustained benefits within each activity and across the portfolio of all activities. A short description of the risk management process follows: The first step is risk identification, followed by estimating the consequences of uncertain events or conditions (risk analysis), generating response strategies in light of expected outcomes, and finally, based on feedback regarding actual outcomes and emerging risks, repeating the identification, analysis, and response generation steps iteratively throughout the life cycle of a project to ensure that the project objectives are met. In construction, risk management, together with the creation of an overall risk portfolio, is a demanding task, as project objectives tend to change during the construction project life cycle.

Against this backdrop, SCR has been founded to break disciplinary boundaries,

integrate advanced scientific theories, computational technologies, and practical engineering experience, and promote innovative solutions for safe, resilient, low-carbon, and sustainable built environment development.

The journal aims to provide an overview of the most recent advances adheres to transparent, equitable standards for traditional/common and multidisciplinary research connected to Sustainable Construction and Risks in the construction sector. The journal covers a comprehensive and interdisciplinary scope that encompasses core and frontier research directions in the field. SCR welcomes high-quality original research articles, systematic review papers, practical case studies, and academic perspective pieces focusing on sustainable construction and green engineering, infrastructure risk quantification and intelligent management, computational modelling and data-driven analytics, structural integrity and resilient infrastructure systems, whole-life carbon assessment and low-carbon construction technologies, as well as industry policies, standard specifications, and risk governance mechanisms. The journal particularly encourages interdisciplinary, innovative, and problem-oriented research that bridges theoretical innovation and engineering practice, and contributes to the high-quality development of the global construction industry and urban infrastructure systems. The scope of the journal includes, but is not limited to, the following key areas:

- Sustainable Construction and Green Engineering;
- Risk Quantification and Management;
- Decision Making, Modeling and Data Analytics;
- Structural Integrity and Resilient Infrastructure;
- Policy, Standards, and Risk Governance;
- Interdisciplinary and Frontier Research.

We are pleased to announce the Sustainable Construction and Risks (SCR), a new international, open-access, peer-reviewed journal dedicated to advancing interdisciplinary research at the intersection of sustainable construction innovation and systematic risk governance for built environments. The journal has been established in response to the evolving global challenges of climate adaptation, urban sustainable development, infrastructure safety, and socio-economic uncertainty, and it aims to provide an open, rigorous, and inclusive academic platform for researchers, engineers, policymakers, and industry practitioners worldwide. We sincerely thank all editorial board members, peer reviewers, and the publishing team for their support and dedication in the journal's preparation and launch stage. We also welcome global researchers and practitioners to actively submit high-quality research achievements, participate in academic discussions, and jointly promote the innovative development and disciplinary progress of sustainable construction and infrastructure risk management research.

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