perspective

Architects respond to the United Nations' *2030 Agenda*

Transforming goals into governance and action

Goal-setting as a strategy to drive transformational development in the building industry

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In 2015, the United Nations adapted the so-called *2030 Agenda* to identify and define 17 Sustainable Development Goals (SDGs) and 169 targets. These resulted from a year-long process of dialogue and negotiation. The *2030 Agenda* followed previous UN visions and treaties, which themselves built upon on the Brundtland Report and specifically its vision of sustainable development, which 'meets the needs of the present without compromising the ability of future generations to meet their own needs'.[1]

The United Nations Sustainable Development Goals report of 2022[2] measures progress towards the *2030 Agenda* while reflecting on the COVID-19 pandemic's impact on sustainable development. The conclusions are clear: during the pandemic, several key areas of the *2030 Agenda* suffered setbacks and even reversals. According to the analysis, the crisis yet again demonstrated the interdependency and interlinkages across human and environmental dimensions of the 2030 agenda. The report stresses that transformational change is needed now if we are to succeed in reaching the SDGs, and all sectors of the global economy are called upon to contribute.[3] A central sector is construction.

In the article 'On the Role of Construction in Achieving the SDGs', Sherif Goubran argues that 17% of SDG targets are directly dependent on construction and real estate, while 27% of the targets across all 17 Goals are indirectly dependent on our sector's activities,[4] emphasising how the building industry is a key player in progress towards the *2030 Agenda*. According to the review, the building industry fails to address the full impact of its activities.[5] But, to achieve the SDGs, the building industry must not just take current carbon emissions, waste production, and resource consumption into account, but also the impact of buildings, cities, and landscapes on ecosystems and human conditions such as health and equality. The need for all actors and disciplines engaged in construction and planning to engage broadly with sustainability, as defined by the SDGs, is further underscored by expected population growth and migration patterns. These make staggering projections of the number of new homes that

1 Front page of the book *An Architecture Guide to the UN 17 Sustainable Development Goals volume 2*. Graphics by Lene Rose.

AN ARCHITECTURE GUIDE
to the UN 17 Sustainable
Development Goals
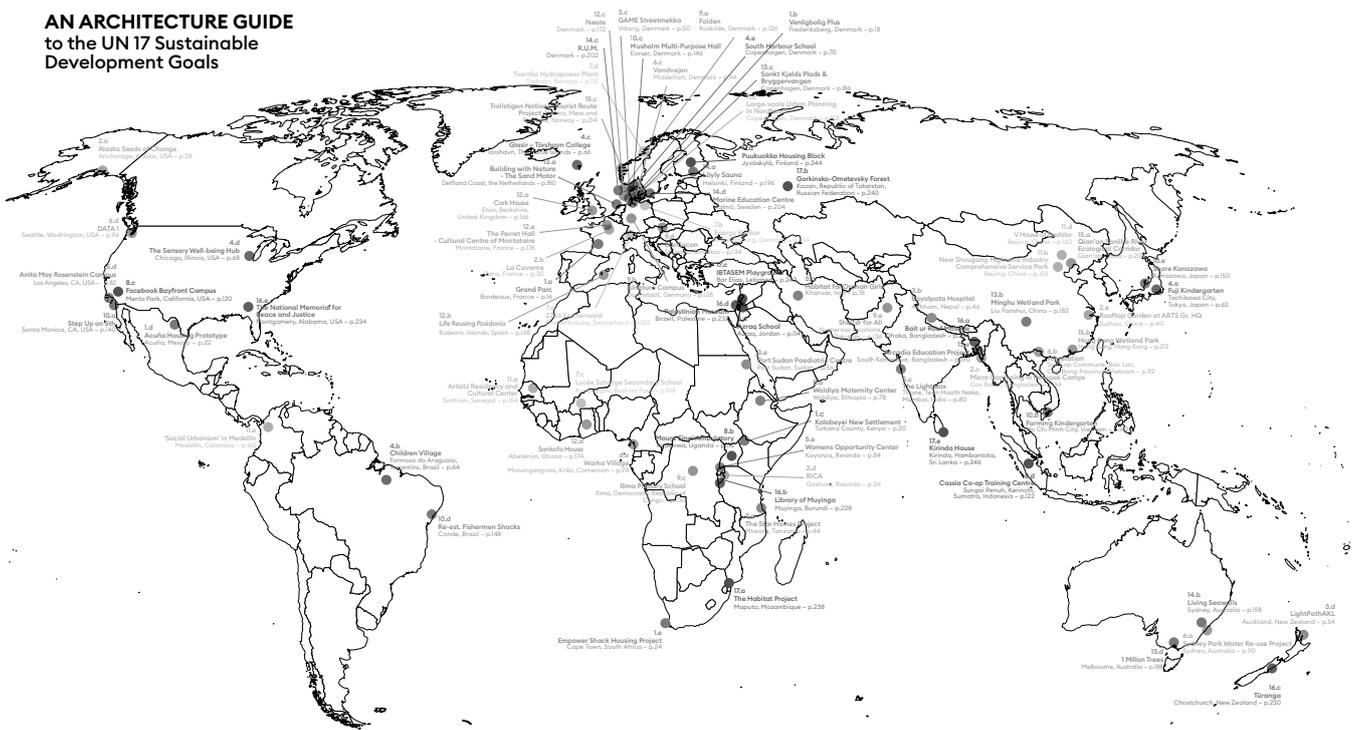
2   Overview map showing the geographical distribution of the featured architectural case studies in *An Architecture Guide to the UN 17 Sustainable Development Goals*. Graphics by Lene Rose.

need to be constructed in the coming years.[6] Achieving the Goals of the *2030 Agenda* will require a transformational rethinking of how we build and plan: in the construction industry as a whole, and across a broad spectrum of stakeholders engaged in the built environment.

In this **arq** perspective, we explore the concept and core characteristics of 'goal-setting', as they are presented in the book *Governing Through Goals: Sustainable Development Goals as Governance Innovation*, edited by Norichika Kanie and Frank Biermann.[7] The purpose is to discuss the relevance of goal-setting as a strategy to drive transformational development in the building industry, and to examine the ways in which goal-setting differentiates itself from legislation as a driver for change. We then use this theoretical framework to discuss how our own books *An Architecture Guide the UN 17 Sustainable Development Goals*, volumes 1 and 2, relate to goal-setting as a strategy for driving transformational development in the building industry *[1]*. Finally, we argue that architecture – understood as the process of designing and building – can be seen as an ethical undertaking, and that the architectural profession can play a key role in pushing towards a paradigm shift in the building industry.

Goals as a governance tool
According to Kanie and Biermann, the ratification of the SDGs indicates a shift in global governance strategy, which led to an operational knowledge gap and to calls for dissemination regarding the possibilities and limitations of goal-setting.[8] Similar to this, further scholars have emphasised the importance of directing attention towards the drivers and barriers implicit in goal-setting as governance tools for adaptation of the SDGs.[9]

To understand how the SDGs operate as a governance tool, it is important to examine the difference between goal-setting and legislation. Where goal-setting involves the formulation of aspirations and procedures that can generate support, mobilising efforts to reach a set of targets, legislation relates to rule making in a way that involves behavioural prescriptions as a matter of compliance and enforcement.[10] Goal-setting is, thus, a tool aimed at creating the longer-term development of shared norms around which states and stakeholders can craft policies, actors can mobilise, and which institutional mechanisms can then adapt to and support.[11]

For example, in a Danish context, the process of acknowledging the relevance of the SDGs for national policy has developed from the first formal action of the Danish

Government – which concluded that Denmark had largely achieved all 17 goals[12] – to, instead, a common acknowledgement of the relevance of working towards all 17 Goals for all sectors in Denmark.[13] The formation of a cross ministry parliamentary working group in 2018, established through the Ministry of Finance, can be pinpointed as a key point for the shift in government perception of the SDGs in a Danish context.

In Denmark, as in many other parts of the world, the implementation process for new legislation towards the *2030 Agenda* is lengthy and ongoing. However, the goal-setting quality of the SDGs has entered culture at large. This impact is emphasised by the aspirational character of the Goals, the legitimacy of the global intergovernmental backing of the *2030 Agenda*, and the Goals' readability to stakeholders, opening them up for non-governmental ownership and action. A Danish example of early popular and academic interest in the SDGs is found in the commitment in 2016 by The Royal Danish Academy – Architecture, Design, Conservation (at the time KADK), requiring all graduate students to relate their projects to the SDGs.[14] Danish industries and corporations have also responded to this 'top and bottom push', and in 2017 The Confederation

of Danish Industry launched a service aimed at assisting the Danish business community in working strategically with the sustainable development goals, articulating their growth potential for industries supplying products and services for a green transition.[15] Similarly, stakeholders in the Danish building industry, like The Danish Association of Construction Clients, have taken ownership of the SDGs by providing guidance to members on methods to implement SDGs, including innovations regarding how sustainable goals can be formulated in tenders and briefs.[16]

However, according to Young, the aspirational nature of goals makes it difficult to conceptualise them as trackable and measurable phenomena, and this lack of regulatory framework can result in a lack of action, lowest common denominators, or free-rider incentives.[17] Also, competing demands such as social or economic decline, which has been exacerbated by COVID-19, can cause reluctant or hesitant behaviour regarding compliance.[18] This creates some obvious challenges to implementation of actions towards the Goals. A greater uptake of the SDGs in corporations can involve 'green-washing' and 'impact-washing', calling for further institutionalisation, and for regulatory frameworks for compliance. It also has the positive side-effect of mobilising innovation and entrepreneurship to tackle urgent issues of sustainable development.[19] Young points out that the aspirational character of the SDGs allows for continuous rule-making, and for national and local prioritisation and contextualisation to take place.[20] Furthermore, local adaptation and continuous learning remain critical for implementation and towards the achievement of the Goals.[21] This aspect is fundamental to transformation in construction, because it operates with local climatic conditions, demands, and legislation, meaning that new sustainable practices do not necessarily deliver the same relevance or impact across different contexts. Therefore, the open-ness of goal-setting towards contextualisation remains crucial to secure the sustainability impact of new architectural practices.

The concise and robust formulation of the SDGs facilitates their dissemination across sectors

3 The Magoda Project is featured as a case study contributing to SDG 3. It is a series of eight prototype homes constructed in a rural village in the Tanga region of Tanzania. The project explores design elements of traditional Asian and African homes to generate a variety of new and improved housing designs to minimise diseases. Designed by Ingvartsen Arkitekter with a project team including Jakob Knudsen, Lorenz von Seidlein, William N. Kisinza, Konstantin Ikonomidis, Emi Bryan, Salum Mshamu, and Kiondo Mgumi.

and national borders, as proven by the fact that 74% of the global population claim awareness of their existence.[22] Though there is broad knowledge of, and commitment to, the SDGs, they are now used by policymakers, citizens, and professionals as a language for the transformational change we need. Because the SDGs have become a broadly shared language for sustainable development, reference to the Goals can now help politicians and governmental actors as they seek support for legislative action.

An Architecture Guide to the UN 17 Sustainable Development Goals
In August 2018, the UIA Sustainable Development Goals Commission, the Royal Danish Academy – Institute of Architecture and Technology, and the Danish Architectural Association made an international call for case studies of realised built projects (across architecture, landscape architecture, and urban planning), which could be included in the first volume of *An Architecture Guide to the UN 17 Sustainable Development Goals*.

The purpose of the publication was to assist architecture students, practicing architects and stakeholders within the construction sector to discuss and explore the Goals as they relate to architecture. Through examples of realised built projects, the book demonstrates how the built and grown environment interacts with each of the 17 UN Sustainable Development Goals. A guidebook

format was chosen to highlight the publication's intended function, as a guide to understand how architecture interacts with the Goals, and how the Goals relate to the built environment. Composed of one chapter for each of the 17 Goals, each chapter includes a short introduction to the UN definition of the Goal, an overarching introduction to how the Goal interacts with the built environment, and several case studies, each exemplifying how an architectural project has contributed to the Goal.

The case-based structure was chosen to make the interaction between architecture and each Goal concrete and specific *[2]*. The short length and composition of each case study had the purpose of keeping it focused on specific elements of its contribution to a Goal. The cases thus illustrate realised examples of architectural contributions to the process towards each Goal, but cases are not presented in full. The cases were also selected so that, in combination, they would span different elements of architecture's interaction with each Goal. Across the full set of cases, consideration was given to balance across geographies and scales. And finally, to secure inclusion, cases had to be vetted by the editors for their design qualities.

An Architecture Guide to the UN 17 Sustainable Development Goals was published in December 2018 featuring forty-six case studies from all over the world, but with many cases from Denmark and

less global balance than the editors had hoped for. The reasons were both time-constraints (the first volume was published in time for COP24, held in December 2018), and the barriers in language and availability of written or visual documentation for the editors to vet and verify cases from across the globe. To improve global balance across case studies, work on a second volume was set in motion right after the publication of the first volume. This second volume was published in October 2020, featuring a further eighty-two case studies.

For each volume, the cases were selected based on an international call through the global network of the Union of International Architects (UIA), and from editorial desk research. The selection of case studies was based on the following criteria:

- They must be built.
- Each case must contribute clearly to the Goal that it is used to illustrate.
- For each Goal, case studies must combine to illustrate architecture's interaction with the particular Goal across scales, geographies, and functions.
- Case studies must demonstrate design quality.

The selection was based on qualitative and communicative assessment of the criteria by an editorial committee, in which the three authors of this article took part. In choosing this method, whereby each case study illustrates contributions to one Goal only, a discussion of each case's contribution across Goals was sacrificed, including the discussion of possible conflicts, where a contribution to one Goal might be compromised by a negative impact on other Goals.

The case studies are not presented as definitive answers to the *2030 Agenda*, but as examples from which to begin discussing architecture's interaction with each of the Goals *[3]*. By illustrating the Goals with realised projects, the publication connects the overarching abstraction and global scale of the Goals' aspirations with relatable architectural approaches. Through this, each architect or stakeholder can potentially reflect on their own ability to contribute to the Goals on a project scale. The built case studies make use of the power of realised architecture to communicate and inspire, but also to link global agendas to avenues of contribution for non-nationstate actors.

The publications further make a distinction in speaking about architecture and the construction sector, but not about architects. The purpose of this was to focus on architecture's contributions to the Goals, and to acknowledge numerous actors who work towards this effort. Following the publication of the volumes, we have experienced sustained interest and have seen the work built upon by others.

Volunteers have translated both volumes into Japanese and Portuguese, and the second volume to French, Traditional Chinese, and Simplified Chinese.[23] Further, independent collections of local case studies have been compiled in Japan, Brazil, Thailand, Denmark, and in Hong Kong *[4]*. The authors and editors, as well as members of the UIA Sustainable Development Goals Commission, have exhibited cases as part of UIA events in Baku (2019), Rio (2021), Copenhagen (2023), while also giving numerous lectures and talks.

We ourselves have built upon the books to draft, and then lobby for, an accompanying statement: the Dhaka Declaration. It makes explicit the role of architects, which was deliberately not specified in the publications themselves. In April 2019, the UIA, Architects Regional Council Asia (ARCASIA), and Institute of Architects Bangladesh signed the Dhaka Declaration, which has pledged 3.2 million architects to commit to all 17 SDGs and, through their practice, change the world for the better.[24] That declaration was then the inspiration of the Danish Association of Construction Clients formuålation of an SDG Manifesto.[25] The books informed the thematic approach to the UIA World Congress of Architects held in Copenhagen (2023), under the title 'Sustainable Futures – Leave no one Behind'. They have also been an inspiration for the Copenhagen Lessons, ten principles for rapid and radical change in the built environment, launched at the conclusion of the Congress *[5]*.

Awareness and strategy

Using goal-setting as a strategy to drive transformational development requires first awareness of the goals, and then that they are adopted by advocates at all levels of society, who are then able to translate the goals into action, including legislative measures.

When reviewing our own work, we find that the books' potential for creating change lies in their goal-setting framing, which raises awareness, enables advocacy, and points to possible while open-ended avenues for action. In the books, we show that all 17 SDGs interact with the built environment and illustrate concrete architectural contributions from around the globe, but we also keep the framing overarching to stay focused on the aspiration of the Goals, rather than say, specific details of specific solutions. Thus, the projects are not instructions or templates, but become paradigmatic.

Since Thomas Kuhn's introduction in his 1962 text *The Structure of Scientific Revolutions*,[26] the idea of paradigms as fundamental frameworks for our understanding, and the nature of their transitions,

4 Toigetation is featured as a case study contributing to SDG 6. It is a bathroom and washing facility constructed in Son Lap Commune, Bao Lac, Cao Bang Province, Vietnam. The project follows three objectives: quick construction, low cost, and replicability. Designed by H&P Architect led by Dr Nguyen Tri Thanh with the Son Lap Commune and volunteers.

5 Sankt Kjelds Plads & Bryggervangen is featured as a case study contributing to SDG 13. The combined climate adaptation and urban space project is part of a designated Climate Resilient Neighbourhood in Copenhagen. The project adapts to climate change, protecting against cloudbursts while combining recreational urban spaces with biodiversity. Designed by The City of Copenhagen with HOFOR, SLA, Alectia, Via Trafik, Jens Rørbech, and Ebbe Dalsgaard A/S.

has been widely recognised. Paradigm shifts – the period surrounding the transition from one paradigm to another – were consequently defined with certain characteristics, allowing the concept to be used broadly in society.[27] The *2030 Agenda* and the SDGs can be seen as an expression of a new paradigm that allows us to imagine a future in which environmental, social, and economic considerations are balanced in the pursuit of healthy environmental development and a dignified life for all. We used the SDGs as a statement of what sustainable development must deliver. As has been demonstrated, the building industry is advancing slowly into the new paradigm, albeit with attention overwhelmingly focused on a few directly climate-related goals. Transformational development, therefore, is a development towards a new paradigm in the building industry: transforming the concept of building from an action with a narrow potential for advancing sustainability to one which has potential to advance the full scope of environmental, as well as human and economic development.

Paraphrasing the ideas of Kuhn, one could say that the forces pushing for a paradigm shift can have a variety of forms. There are push forces pointing at the anomalies of the old paradigm and prioritising active change agents. Here, the *Architecture Guide to the UN 17 Sustainable Development Goals* books, we argue, are one of many actions pushing towards a transition by creating a language for architecture's interaction with all 17 Goals. This creates a language for the full *Agenda 2030* as it relates to architecture, rather than a language of, say for example, energy concerns, which only remains an independent discourse and only engages with the SDGs by singling out a single Goal or targets related to a Goal. The books build an argument that the challenges we face as a global community are interrelated, and that architecture has potential to be an agent of sustainable development in its full and interconnected scope.

For the architectural profession specifically, this means that the scope of our actions can no longer be seen as limited to a response to the design brief for a particular assignment. This premise opens potential to redefine architecture's role in society, and it conceptualises the process of forming the built environment as an essentially ethical undertaking, which makes the process of design more than purely utilitarian. As eloquently stated by William M. Taylor and Michael P. Levine in their discussion about the philosophy of architecture, 'architecture is concerned with material realisations of visions of the good and what it means to live well',[28] and 'we should evaluate buildings according to how well they make possible desired forms of life.'[29] In the paper 'Changing Architectural Practice Paradigms and their Implications for Professional Education', Attila Lawrence examines 'practise paradigms' – that is the methods and tools of the profession as expressed in the

design process – through general systems theory, and remarks: '[...] the building industry may be viewed as a system within the larger socio-economic context where it functions inside boundaries of an intra-dependent activity network. Continuous exchange occurs not only among entities within the building industry, but with society because it is a participant in every exchange transaction. In this sense, an architect's activity is not only a function of one individual; it is also a function of society.'[30] This commitment and expectation is fundamental not only to the relationship between the profession and the surrounding society, but it also has formed the methods and tools of the profession.

Enacting change

The *2030 Agenda* reflects a global concern for human, environmental, and economic aspects of society. The 17 SDGs are intended to be translated into targets and deliverables, including norms and legislation at national, regional, and local levels. But to do so, they must first be adopted as a shared language for action by a broad range of actors, from private citizens and industry stakeholders to government. Within this context, the books contribute to creating a shared language.

To reach the *2030 Agenda*, we need legislative measures as well as a transformation of existing practices at industry level, and of individual building projects. In this text we have argued that *An Architecture Guide* to the UN17 Sustainable Development Goals is an example of goal-setting, operationalised towards use as a governance tool.

As one of many initiatives and actions aimed at enabling policymakers, citizens, and professionals to put the Goals into action, we believe that the books contribute by conceptualising architects as important players in the effort to move the global building industry forward towards the *2030 Agenda*, and by demonstrating, through examples, how architecture can play a role in meeting, not just a selection, but all of the 17 SDGs.

Notes

1. Gro Harlem Brundtland, *Report of the World Commission on Environment and Development: Our Common Future* (United Nations General Assembly, document A/42/427, 1987).

2. Jeffrey D. Sachs, Christian Kroll, Guillame Lafortune, Grayson Fuller, Finn Woelm, *From Crisis to Sustainable Development: The SDGs as Roadmap to 2030 and Beyond: Sustainable Development Report 2022* (Cambridge: Cambridge University Press, 2022).

3. Ibid*.*, p. 16.

4. Sherif Goubran, 'On the Role of Construction in Achieving the SDGs', *Journal of Sustainability Research*, 1:2 (2019), 1.

5. Ibid., p. 23.

6. Mason Bradbury, M. Nils Peterson, Jianguo Liu, 'Long-term Dynamics of Household Size and their Environmental Implications', *Population and Environment*, 1:12 (February 2014), 8.

7. *Governing through Goals: Sustainable Development Goals as Governance Innovation*, ed. by Norichika Kanie and Frank Biermann (Cambridge, MA: MIT Press, 2017), p. 1.

8. Ibid*.*, p. 23.

9. Lars Niklasson, *Improving the Sustainable Development Goals: Strategies and the Governance Challenge* (London: Routledge, 2019), p. 128.

10. Oran R. Young, 'Conzeptualisation: Goal Setting as a Strategy for Earth System Governance', in *Governing through Goals*, ed. by Kanie and Biermann, pp. 34–6.

11. *Governing through Goals*, ed. by Kanie and Biermann, p. 23.

12. Ministry of Foreign Affairs of Denmark, *Handlingsplan for FNs Verdensmål* (Denmark: Ministry of Foreign Affairs, 2017), p. 13 <https://www.regeringen.dk/aktuelt/publikationer-og-aftaletekster/handlingsplan-for-fns-verdensmaal/> [accessed 7 July 2022].

13. Klima og Energiministeriet, *Aftale om Klimalov* (Denmark: Klima og Energiministeriet, 2019) <https://kefm.dk/Media/1/D/aftale-om-klimalov-af-6-december-2019%20FINAL-a-webtilg%C3%A6ngelig.pdf> [accessed 14 September 2021].

14. Royal Danish Academy – Architecture, Design, Conservation, *Study Regulations for the Master Education in Architecture at Royal Danish Academy | Architecture, Design, Conservation*, revised in 2015, 2016, 2017.

15. Confederation of Danish Industry, *Verdensmålportalen* <https://www.xn–verdensmlsportalen-cub.dk/om/> [accessed 20 August 2022].

16. Danish Association of Construction Clients, *Værktøjer til Bæredygtighed* <https://bygherreforeningen.dk/vaerktoejer-til-baeredygtighed/> [accessed 20 August 2022].

17. Young, 'Conzeptualisation', p. 57.

18. Ibid., pp. 34–6.

19. Addisu A. Lashitew, 'Corporate Uptake of the Sustainable Development Goals: Mere Greenwashing or an Advent of Institutional Change?', *Journal of International Business Policy*, 4:1 (2021), 184–200.

20. Young, 'Conzeptualisation', p. 57.

21. Niklasson, *Improving the Sustainable Development Goals*, p. 128.

22. World Economic Forum, 'Global Survey Shows 74% Are Aware of the Sustainable Development Goals' <https://www.weforum.org/press/2019/09/global-survey-shows-74-are-aware-of-the-sustainable-development-goals/> [accessed 17 September 2022].

23. UIA 2023 – The Guides – *An Architecture Guide to the UN 17 Sustainable Development Goals* <https://uia2023cph.org/the-guides/> [accessed 7 July 2022].

24. International Union of Architects, *UIA SDG Dhaka Declaration English* <https://www.uia-architectes.org/wp-content/uploads/2022/02/Declaration-Dhaka_SDG_english.pdf> [accessed 7 July 2022].

25. Danish Association of Construction Clients, *Bygherremanifest* (29 November 2019) <https://bygherreforeningen.dk/?page_id=0&q=manifest> [accessed 7 July 2022].

26. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 2nd edn (Chicago, IL: University of Chicago Press, 1969).

27. Merriam-Webster.com Dictionary, s.v. 'Paradigm Shift' <https://www.merriam-webster.com/dictionary/paradigm%20shift> [accessed 22 August 2022].

28. William M. Taylor and Michael P. Levine, 'Philosophy of Architecture: Key Philosophical Issues', *The Internet Encyclopedia of Philosophy* <https://iep.utm.edu/philosophy-of-architecture/> [accessed 20 August 2022].

29. Ibid.

30. Attila Lawrence, 'Changing Architectural Practice Paradigms and their Implications for Professional Education', *Journal of Architectural and Planning Research*, 17:3 (autumn 2000), 196–205 (p. 200).

Illustration credits

Acknowledgements

Competing interests

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