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ON DWELLING IN THE COLD AND DARK NORDIC COUNTRIES: TWO CONTEMPORARY ISSUES IN HOUSING

Turid Borgestrand Øien

ABSTRACT

The cold and dark winters of the Nordic region place high demands on our built environment, and with forecasts of aging populations, climate change, and the increasing complexity of building technologies and construction, the problems will accelerate further in the near future.

In the field of critical regionalism, the notion of the Nordic has been seen as a way to re-establish the human connection to the lifeworld of places, something that has been lost in modern architecture. Universal, theoretical, or technical approaches seldom take into account the complexity of contemporary life; while, on the other hand, social studies rarely include the technical. By examining complex contemporary life as concurrently technical and social, this article expands on and discusses the notion of the Nordic as being relational in scale. In order to explore the complexity of how context-specific challenges are understood and handled, the analysis is supplemented with the flat ontology of the actor-network theory.

The two case studies—1. mould issues in housing; and 2. domestic lighting for rehabilitating low vision—show that both the problems and the approaches to addressing them take place across a continuum of scales. Various practices translate between levels of abstraction, from the individual to the social to the scientific, an interaction of levels that is further discussed in relation to Norberg-Schulz's notions of accommodation and assimilation. The two cases illustrate different approaches to the mode of translation, and show that it is fellow actors who cause and also resolve any problems. The crucial task of professional practices, including architecture, is thus managing, navigating, and coordinating between them.

KEYWORDS

Living entanglements, mould issues, domestic lighting, actor-network theory

INTRODUCTION

Throughout the history of inhabited northern Europe, the climatic conditions have put great demands on our buildings and their performance in order to generate and maintain an acceptable visual and thermal indoor climate as well as an overall level of comfort. According to the World Health Organization, Europeans spend 90 per cent of their time indoors, and two thirds of it at home.¹ People in the Nordic region typically spend more time indoors during the cold and dark winter months, compared to the summers, when they generally spend more time outdoors. As our population ages and the climate changes, these demands will increase in the near future. Areas north of the Arctic Circle now hold an unfortunate world record when it comes to the speed of climate change, which is manifested in an increased frequency of flooding, heavier rainfalls, and higher water levels.²

Even though our built environment has a huge impact on our lives, issues concerning the human-environment interface that are situated in the micro-scales of the indoor environments have been neglected in human geography³ and in architecture.⁴ The architectural theorist Christian Norberg-Schulz argued that the modern buildings of the final part of the twentieth century had lost important qualities, including their relationship to the landscape and the urban structure. This loss of place also applies to the indoors, since people ‘... live their abstract life in a kind of mathematical-technological space ... [in which] ... windows have been reduced to a standardized device which lets in a measurable quantity of air and light’.⁵ Furthermore, in most housing, the indoors have been regarded as a field for the engineers and their technologies or for the interior designer dealing with the individual client. Both areas have continued to develop in the past century, which has resulted in more specialized and controlled indoor climates. In comparison, the basic layout and spatial distribution of housing in this period have remained more stable. The technical innovations have been pushed forward particularly by health science, in which the indoor environment has been one of the focuses of occupational health since the 1960s, thus leading to an investigation of the negative health effects of the built environment, from pathogenic building materials and particle pollution to other more inexplicable conditions, classified under the term sick building syndrome (SBS). Construction and household technologies driven by science and engineering have been widely implemented in the built environment in order to control or modify the indoor climate. In discussing critical regionalism and architecture of resistance, Kenneth Frampton has argued that ‘modern building is now so

universally conditioned by optimized technology that the possibility of creating significant urban form has become extremely limited.⁶ In contrast to the universality of modern, abstract, avant-garde architecture, he describes the 'place-conscious poetic' that can be found in local lighting and ventilation as a 'form of filtration compounded out of an interaction between culture and nature . . . '—a direct and dialectical relationship with nature that is approached through human perception and tactile sensitivity.

Recent research on Nordic light in architecture has rediscovered aspects of the situated and the local in our indoor environments that relate the indoor to the outdoor environment and climate, including studies of differences in natural light due to time and place⁷ and studies of design strategies for balancing and differentiating daylight and sunlight in architecture.⁸ However, such studies have focused on meteorological factors or the physical design, without addressing the complexity of the social in these environments.

The fact that homes are highly associated with privacy and intimacy⁹ can of course be a causal parameter for the lack of architectural research interest. But this private and intimate sphere is simultaneously very central to architectural quality. By considering this missing link between situated, individual, social, and technical indoor environments, this article explores the everyday life of dwellings in the Nordic countries, guided by the question: In a situated, complex, and changing everyday life, how are local issues in indoor environments understood, enacted, and solved by professionals and non-professionals?

THEORY

Ethnographic examinations of everyday settings draw on various theoretical positions related in some way to environmental psychology, and more specifically to James J. Gibson's work on the relationship and interaction between people and their environment.¹⁰ Norberg-Schulz embraced the life-world present in places, the phenomenon of things 'interrelated in complex and perhaps contradictory ways.'¹¹ Norberg-Schulz presented a phenomenological approach in which lifeworlds include taken-for-granted, everyday experiences or the manner in which we live our day-to-day lives, the 'intentional relationship between the phenomena and us'.¹² Tim Ingold¹³ shares his attention to atmospheres, and, as an anthropologist, his work on lifeworlds and living entanglements focuses on understanding the environment as what envelops and reconstructs people at the same time as people reconstruct it in

an ongoing process, as a fluidity that is 'intrinsic to each place [and] which can be interacted with, modified, recreated, but not delimited'.¹⁴ The notion of living entanglements is seen in works on the Anthropocene as material entanglements in multiple temporalities¹⁵ or in the work of taking note of entanglements of bodies in multispecies ethnography.¹⁶

For Ingold, the difference between the local and the global does not have a hierarchical scale, but is instead of kind. The local is not more limited, but based on 'practical, perceptual engagement with components of an inhabited or dwelt-in world, rather than being a detached, disinterested world that is merely occupied'.¹⁷ Positioned between the local and the global, the Nordic represents a region, a physical-theoretical scale often used in geography. 'Countries, regions, landscapes, settlements, buildings (and their sub-places) form a series with a gradually diminishing scale.'¹⁸ As a result of their confusion of scales, Norberg-Schulz argued that modern cities have lost their sense of place: 'a pattern which might be valid on one level is blindly transferred to another'.¹⁹ He described the interaction of levels as a double description: a) from the top down as a concretization from a higher to a lower level, from the general to the local, as accommodation; and b) the bottom-up projection to the environment as assimilation.²⁰ In the social sciences, Bruno Latour, a scholar of actor-network theory (ANT), has described how the world is made up of networks including human and nonhuman actors across these theoretical, constructed scales.²¹ In studies of laboratory work and the social construction of scientific knowledge, the actor-network includes a broad register of actors, from microbes to laboratories, as well as the instruments, protocols, and researchers, and the health regime of hygiene.²² This network can also become an actor itself, become a 'black box', for instance a vaccination program used around the globe. When a network is stabilized and in a state in which complex conditions are simplified into input and output, it is called a 'black box', and is typically used for generalizing and producing a scientific outcome across a number of samples.²³ These engagements bypass the dualisms of local and global or micro and macro, and ANT studies take their departure in linkages between these categories, in combinations that 'allow us to pass with continuity from the local to the global, from the human to the nonhuman. It is the thread of networks of practices and instruments, of documents and translations'.²⁴

In order to discuss the empirical local reality of the case studies in relation to the concept of the Nordic and to recognize the different modes of knowledge

that are active in this reality, the concepts of inscriptions and immutable mobiles are included in this analysis. Translations in the form of a representation or association constitute an inscription—one's interest translated²⁵—and mediate between different actors in a given network. An inscription can be a practice, arrangement, or documents and other representations, and can play a significant role in negotiating and mobilizing a given network.²⁶ Inscriptions that retain their meaning when applied in different contexts and that are 'presentable, readable and combinable with one another' are regarded as so-called 'immutable mobiles,'²⁷ since they are mobile, but their inherent characteristics do not change. Scientific or explicit knowledge such as mathematical formulas, diagnoses, physical laws, units, or conditions that can be measured as temperature, pressure, or lux levels represent immutable mobiles: black boxes that have been mobilized and negotiated within one or several networks. Making immutable mobiles includes the acts of simplifying and generalizing, since the real world is complex and empirical science more mutable than the theoretical sciences.

These translations across scales resemble Norberg-Schulz's feedback model, which differentiates between three levels of generalization. While concepts of the private and/or individual have a low degree of articulation and imprecise boundaries, and are characterized by the social interference of overlapping or competing concepts and/or values, public and/or social structures are more stable and objective, and scientific and/or objective objects are 'precisely defined and lawfully interrelated.'²⁸ The feedback model attempts to relate the physical, architectural space, and its psychological counterpart, existential space. Existential space is one of five different levels of space (of increasing abstraction): pragmatic, perceptual, existential, cognitive, and logical, and the main entry point of Norberg-Schulz's work concerns thus the interaction between human beings and their environment. Abstractly, existential space is described as a general topological or geometrical schemata of relations (centre / periphery, inside / outside of a given territory) and continuity (directions and paths).²⁹ Moreover, it is described as a complex, dynamic field of overlapping interpenetrating and interacting systems, ranging from the geographical, topological, and urban, to the more precise forms of buildings and things.³⁰

METHOD

The two ethnographic studies were originally conducted separately, but they have been brought together in this article to illustrate and discuss two

contemporary issues in the field of the indoor environment and how professionals approach resolving and/or addressing them: a) mould issues in public housing,³¹ and b) low vision rehabilitation and the role of domestic lighting.³² The two studies share the objective of examining the living entanglements of everyday life in connection with an issue related to human-environment interaction. Moreover, by adhering to professional and non-professional practices, actions that involve several entanglements 'in strings of interrelated events',³³ this article examines the specific issues across situated everyday practices, individual and sensory experiences, social understanding, and professional approaches to solving the problems.

The mould issue was examined in the fall and winter of 2015–16 in eleven public housing complexes undergoing renovation. The empirical material included interviews, observations, and visual recordings of different housing complexes, and analyses of the various documents associated with the renovation projects or the initial mould issue. In all, forty-one interviews were conducted with tenants, building superintendents, and representatives of the housing association, followed by walkthroughs and observations in different housing units, since the cases were situated in different stages of the renovation process, the initial building assessment, or the destruction or construction phase, or were undergoing modifications after the tenants had moved back into their renovated homes.

The study of low vision rehabilitation, including domestic lighting interventions, was conducted in the winter months of 2018–19. The lighting assessments and interventions were conducted by two low vision consultants with a background as occupational therapists, and included sixty visually impaired citizens. A relative or friend accompanied the participants and the overall procedure involved three sequences: 1. a home visit and an assessment of the domestic lighting in relation to up to three activities, which were identified by the participant in a narrative interview; 2. a lighting intervention in the lighting lab at the communication centre; 3. a follow up in the home or conducted by phone. The ethnographic observation included participatory observations in fifteen of these consultations, and the empirical material included field notes (written logs, illustrations, photos, and transcriptions), the low vision consultants' project material, and transcriptions of semi-structured qualitative interviews with the low vision consultants and experts in rehabilitation. Finally, the researchers conducted a follow-up visit without the consultants in 2020 in seventeen of the homes that had implemented new

lighting solutions or otherwise changed their arrangements as a result of the intervention.

Both cases deal with issues that are situated in the interaction between human beings and their environment, and respond to the seasonal differences that characterize the Nordic climate. In addition to elaborating the human-environment relationship and interactions in contemporary Nordic life, the studies also reveal different ways of working across ontological and epistemological scales.

THE NORDIC GEOGRAPHY, WEATHER, AND PEOPLE

The Nordic geographic region includes the countries of Denmark, Iceland, Norway, Sweden, Finland, the Faroe Islands (DK), Greenland (DK), and the Åland Islands (FI)—a group of countries and associated territories with ‘affinities with one another and a distinctness from the rest of continental Europe.’³⁴ The size and population of these territories differ quite a bit across the region, and their internal units show huge variations, with municipalities ranging in size from 10 km² to 531,900 km².³⁵

Furthermore, Nordic geography is quite heterogeneous, from mountains and fjords to flatlands, lakes, and archipelagos. The area extends over twenty-six latitudes, from Svalbard at 81°N latitude and Southern Denmark at 55°N, with an overall climate characterized by changing seasons. Temperature recordings from 1961 to 1990 in Fennoscandia (not including Iceland and Greenland) show a range of nearly 90°C between the coldest (-52.6°C), and the warmest (36.8°C) temperatures measured.³⁶ Due to the Gulf Stream and the North Atlantic, the climate on the coasts of Norway, Iceland and other islands currently have higher average temperatures than other areas of similar latitude, which causes huge differences in the locale climate between inland and the coasts. This milder weather also brings a lot of rain.

Generally, the landscape, from steep mountains and narrow valleys to flatlands meeting the ocean, affects the amount of sunlight in a given position. Combined with daily and seasonal changes, this results in a great diversity of light conditions across the region. The winter solstice, when the North Pole is tilted the farthest away from the sun, is the darkest period of the year. In the northernmost part of the Nordic region the sun is absent from the sky from mid-October to mid-February, compared with the southernmost part, where the shortest day, 21 December, still has seven hours and fifteen

minutes of daylight. At the same time, the weather conditions at a specific time make a huge difference in the amount of light during the day: for instance, a snow-covered landscape can compensate for the limited daylight hours, at least when compared with surroundings of dark and rain-soaked asphalt. In summary, there are local differences in the weather, which sometimes changes several times during a day, depending on the climate and the surrounding landscape. These shifting seasonal conditions have a great impact on people's day-to-day life, and constitute opportunities and obstacles for activities outdoors, but also set the scene for indoor life.

Another common denominator in the Nordic region is the Nordic welfare model, which strives for social security, social cohesion, and along with the high level of trust, is regarded as different forms of well-being supported by social capital.³⁷ Since its introduction in the 1930s, the Nordic model has comprised political democracy, respect for human rights, a high standard of living, and social equality. Since then, the Nordic countries have had social democratic governments and large public sectors with tax-financed welfare benefits and services. Since the golden age from the 1950s to the 1980s, the Nordic model is today facing an era of new challenges, whereby a range of global crises (environmental, economic, and public-health-related) are challenging both the democracies and the small, open economies.³⁸

These democracies represent twenty-seven million people, a figure that is currently changing due to ageing populations and net migration,³⁹ and combined with falling fertility rates, the demography of the Nordic population is thus also changing. Whereas previous migration was predominantly from other Nordic countries (due to shared ethnicity and religion), migration today is much more diverse, and includes groups from the European Union, the former Soviet Union, and countries in which there are major conflicts or civil unrest.⁴⁰ Furthermore, differences between urban and rural areas are increasing due to the internal migration to larger cities.

The Nordic in Architecture

The notion of the Nordic was largely manifested in the period of national romanticism as of the mid-nineteenth century, and has influenced language, literature, music, the visual arts, and architecture. During the early and mid-twentieth century, the Nordic in architecture was understood as comprising craftsmanship and comprehension and understanding of materials and human wellbeing,⁴¹ as seen in the work of Aalto, Jakobsen, and Asplund.

Today the Nordic is largely associated with branding and marketing strategies, based on activist dogmas expressed in manifestos of food, film, and living.⁴² In this approach, Nordic branding represents the 'modern values of equality, freedom and community . . . combined with Nordic culture', and constitutes 'a special form of desire for mutual trust'. At the same time, there is an awareness of the tension between a) wanting to create a good business, and b) being honest and sober, and not proclaiming ones values or superiority.

This holds parallels to Erik M. Champion's comments regarding Norberg-Schulz's exclusively discussing wonderfully enriched and rewarding architectural (and landscape-related) places, thereby excluding the less rewarding, and perhaps dangerous or hazardous situations. 'What of places of horror and terror, places that actually exclude rather than help center people?'⁴³

Challenges of Living in the North

Even if his architectural case studies were limited more to grand architecture, Norberg-Schulz nevertheless addressed the need for places that take into account the complexities and contradictions of contemporary life, including the relationship between the people and their environment, as something existentially rooted in our everyday lifeworld.⁴⁴ Challenges identified in this day-to-day lifeworld of the Nordic, would include a range of different issues. The global crises affecting welfare societies, the paradoxes that characterize academic discussions of the field of architecture, and the everyday issues that result in challenges in the domestic lives of ordinary people represent different perspectives, but can all be linked to living in the north. The question is how the issues in our contemporary built environment are understood and handled. Do the day-to-day issues (of everyday people in the lifeworld) address other truths of living in the north than the fundamental theoretical, political, or branded truth(s)? What knowledge is included in the interpretation of a problem and how it is solved? Moreover, can we incorporate these understandings in our community of architectural research and practice?

MOULD ISSUES IN PUBLIC HOUSING

Mould issues have received political and scientific attention in Denmark in the past forty years, as communicated by guidelines and regulations broadly aimed at design, construction, user behaviour, diagnostics, and remediation intended to address and prevent potential health risks.⁴⁵ Difficulties in determining the cause of such problems and, hence, how they should be handled

have contributed in many respects to the myth in rental housing that mould growth is caused by tenants' inappropriate use of the dwelling.

The instrumental case study included eleven public housing complexes where mould issues had, at the time of the fieldwork, led to the initiation of ongoing renovation. The analysis of interviews, observations, and documents revealed a multiplicity of interpretations and understandings, and associated solutions to the problem over the forty- to seventy-year period since the housing complexes were originally constructed. The materialities, everyday practices, and conventions (seen in Figure 1) had, however, been negotiated and altered with respect to how they interact with one another over time.

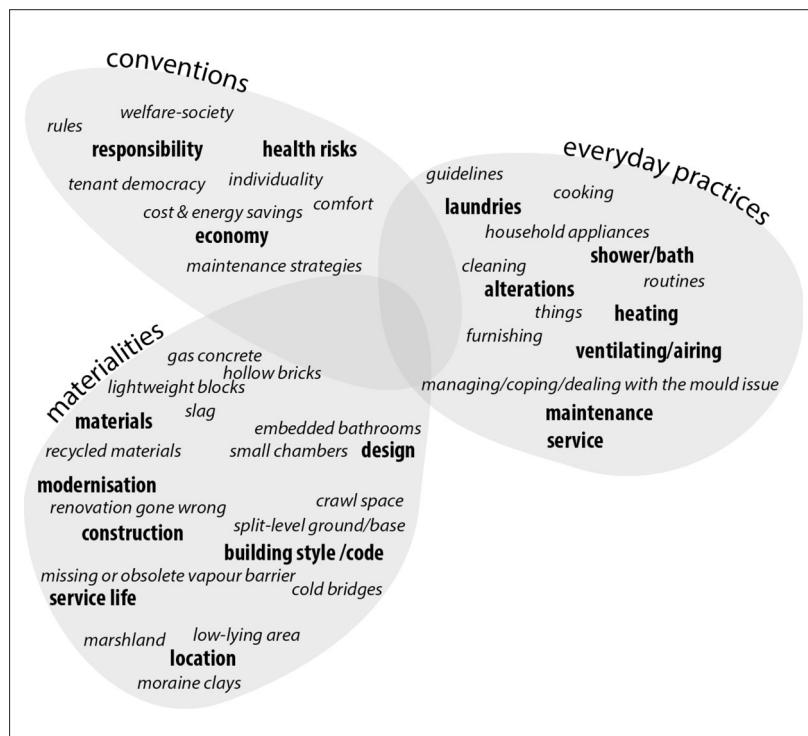


Figure 1. Materialities, everyday practices, and conventions connected with the mould issue: causes, workarounds, and remedies, mixed-up and changing their roles. Figure based on Øien 2017, p. 25.

The cases included clear, technical, easy-to-identify, and easy-to-handle issues,⁴⁶ as well as other issues that had turned into bitter conflicts with respect to blame and responsibility, whereby the causes and solutions to the problems were a more complex matter.⁴⁷ In all the cases, the initial building surveys had identified technical reasons for the problem, thus providing a new explanation for problems that, in several cases, had hitherto been addressed as a question of behaviour. In contrast to its scientific definition, when experienced as part of people's everyday lives, the mould phenomenon is quite often abstract and inaccessible.⁴⁸ The tenants described sensory experiences—visual signs of changes in material surfaces, an odour, or merely a feeling, or tacit knowledge ‘. . . embedded in materials and embodied in individual, personal experiences . . .’⁴⁹ This vague and personal knowledge, sometimes experienced solely by a single member of the household, could not be easily measured and translated into a conventionally agreed measure of diagnosing mould growth. However, a similar sensitivity towards the indoor environment was observed in some of the neatly tailored routines that one of the participants had particularly evolved in her workarounds to fight the problems of dampness. Closely adjusting to the current weather outside, she opened and closed windows and doors, wiped condensation off the windows, hung cloths and towels to dry outside, cleaned and even disinfected her shoes, which was stored in a shoe-rack on top of a table. She further observed any changes in order to keep the mould growth at a minimum. However, her effort to reduce the problem from escalating, also maintained the mystery of her enchanted house. A range of people, professional and non-professional had tried to understand and solve the problem during the last sixteen years. As they did not succeed in identifying any physical cause of the mould growth and the measures was not too alarming, she represented the ‘usual suspect’, until the roof structures were opened as part of the renovation⁵⁰ Since a robust building might tolerate greater moisture loads, in this case, the persistent tenant was the key to the remedy, and a variable that added to the complexity of the phenomena.

The multiplicity of scientific definitions of the phenomena represented yet another level of complexity. Examining the various professional practices involved in the assessment and problem-solving revealed three different approaches:

- Building professionals understand mould as an aesthetic disfiguration of surfaces caused by humidity, which could potentially develop into rot or decay.

- Medical or health professionals understand mould and its particles as a potential health risk, allergen, or carcinogen that causes symptoms on skin or lungs.
- Microbiologists recognize mould as living or dead species to be identified in a laboratory.

Based on these definitions, the phenomenon was understood by assessing the building, the occupant, or the microbe. Translations of each of these assessments formed inscriptions, based on scientific knowledge and models that were well known in the specific professional network, but were nonsense to ordinary people in an everyday network. Inscription devices—temperature gauges, moisture meters, and infrared cameras for thermography—translated the environmental conditions into quantitative measures of, for instance, humidity or temperature. These measures worked as immutable mobiles, and their explicit character meant that they could be combined and compared to averages or standards and retained their content when moved to another context. The diagnosis objectified a condition ‘. . . on the basis of a number of known signs or symptoms, and this new object, this inscription . . . [was] disseminated further in the network without losing its shape.’⁵¹ The cultivated and identified mould species collected in the dust or air samples or blood samples were similarly translated into a figure representing a given quantity, which supported the specific diagnosis. Preceding their final verdict, each of the professional practices undertook a process of negotiation and adjustments between the given sample, its context, and the prevailing knowledge paradigm in the specific professional network. This meant that, in practice, even the diagnoses were situated.⁵² However, in the report given to the tenant or housing association, any workarounds were black boxed, and the actors in the everyday network thus did not have a shared understanding of the quantitative measures to be taken. Information and knowledge characterized as immutable mobiles and black boxes in the context of a given professional network were renegotiated in the everyday network.

Various inscriptions—from different and sometimes competing professional networks—were used as arguments in negotiating conditions, responsibilities, and problem-solving strategies. Several of the conflicts observed were associated with different scientific definitions of the phenomena. In some cases, an otherwise immutable and strong argument was dismissed, or a rather weak scientific argument was highlighted due to local political considerations or as a precautionary principle. Furthermore, the most effec-

tive approach to handling the mould issue seemed to be situated: a building superintendent or attentive housing association that was able to assess the given situation as more or less technical and social, and that was able to adjust and navigate towards a solution in this respect. Some of the eleven renovation projects were successfully related to the specific local conditions of the physical context. Yet the cases that also succeeded in activating and incorporating the social context, thus coordinating the different types of knowledge and the efforts of the different networks, seemed to have come up with a more resilient approach.⁵³

The mould issues faced were understood as relatively technical—caused by inappropriate or insufficient materials, technique, or maintenance; relatively social—caused by insufficient use, conflicts, or unresolved responsibilities and considerations; and relatively local—limited to affected individuals, buildings, or localities, and solutions drawn from more or less extended networks.

DOMESTIC LIGHT AND LOW VISION

Whereas the main objective of the first study was to investigate the mould issues as they were perceived, understood, and acted upon as part of people's everyday life, the objective of the second study was to describe and participate in the development of a low vision rehabilitation practice in Denmark. The project was a close collaboration between the Centre for Special Education in Slagelse (DK) and its vision department. Their intervention based on a 'holistic lighting assessment'⁵⁴ is the major case analysed in the study.

Low vision services have largely been informed by diagnostics of the visual impairment, hence lighting assessments in clinical settings include assessments of the visual acuity in different lighting conditions, with the participant positioned at a certain distance from an eye testing chart. In the recovery-based approach, one of the major characteristics of the intervention was basing the rehabilitation on the clients' knowledge of their specific everyday life, and adapting the lighting assessment to the specific physical and social context.⁵⁵ Consequently, consultations had to take place within the context of a place initially identified as problematic, such as the home or work environment. Shifting the assessment to the context of the visual impairment can be seen as a first move towards situating the knowledge. The next move was to situate the understanding of the impairment—from the diagnostics to the activities—within the participant's everyday practices. Guided by the consultant

in a narrative interview, the client then identified the three most current activities of issue, which provided the basis for the further assessment.

Activities ranged from socializing, reading, dining, housework, and self-care,⁵⁶ whereby the majority of activities involved lighting for the specific task. Dining or preparing food at the kitchen counter was often a challenge. Older kitchens lacked electrical outlets and were often dark, lit solely by a single ceiling lamp, or by a wall-mounted lamp with a traditional, opal-white glass shade. Other homes had wall cabinets equipped with fluorescent lamps, which, although they had lasted for decades, their quality had deteriorated, because, for instance, of the early versions of energy-saving bulbs that had frequently been installed in the homes.

The intervention was conducted from approximately the winter to the summer equinox, since, by virtue of their practice-based knowledge, the consultants knew that most of the problems reported were related to this dark period. Earlier studies from Norway show that the elderly often live in darkness.⁵⁷ Moreover, the notion of cosiness (DK: *hygge*; NO: *kos*; SE: *mys*; FI: *kodikas* or *tunnelmallinen*; IS: *notalegt*) has a great impact on the use of lighting in the Nordic countries, and that also turned out to be a prevailing paradox in the situation of several participants. Due to their family and other relatives, and for the sake of cosiness, participants preferred poorer lighting—in relation to their needs when performing an activity—in order to maintain social relations and offer hospitality. For most residents today, lighting is an additional purchase, and rental housing come with a minimum of lamps, unless it is fully furnished. The cases showed a huge variety in lighting, from design lamps to fully equipped special lighting. As design items, lamps also embed cultural values, and the Danish design classic, the PH 5 pendant lamp, for instance, was seen in several dining rooms. This lamp is known for its complex of curved metal shades, which provide pleasant indirect lighting; however, the luminance achieved on the table and the plate is far from sufficient for many visually impaired individuals. Furthermore, other relevant contextual aspects in the indoor environment included adaptation to light or dark spaces, colours, the patterns of surfaces, the location of lighting, and the interrelationship between light, activity, and the position of the body.

Even though the focus of the intervention was originally on the hours of darkness and domestic lighting, the discussions often touched upon possibilities and problems related to sun- and daylight. Many of the participants

described the daylight as an important aspect of their functioning in everyday life. Errands outside the home were often scheduled in the daylight hours. Some preferred partly cloudy weather, while others tried as much as possible to avoid hours when the sun was aligned with a specific street. Since many modern cities are planned with straight streets, the low angle of the sun can cause a great inconvenience for people in general, and constitutes a great barrier for visually impaired individuals in particular—with both sharp shadows and glare leading to difficulties. Many of the participants had thus developed workarounds with respect to the timing and location of their activities.

In order to shift the contextualized knowledge from the particular case to the lighting lab, the consultants performed a range of translations, including measures relating to lighting conditions and the visual performance of the participants. While these measures had previously been the primary outcome of assessments, they were now supported contextualized knowledge. Besides documenting the intervention, the measures were used in funding applications and, in some cases, served a pedagogical purpose when explaining the physics of light to a participant or their relative.

The decontextualized knowledge was recontextualized in the lighting lab. Starting from the lighting conditions measured and using lamps similar to those in the home environment, the participant was positioned next to the kitchen counter, at the dining table, or in an armchair, and the consultant tested various alternative solutions, bulbs, lights, and arrangements in a 15m² room furnished for different scenarios. During the assessment and testing, the consultants provided information about lighting in general and in relation to the specific visual diagnostics, in order to acknowledge and support the considerations of the visually impaired, but also to elucidate the situation to the accompanying relative. Lastly, the results and recommendations were summarized in a specification of lighting for each activity, which was visualized on printed photocopies of the home environment by sketching the position and orientation of the lamps suggested.

In the final phase of the intervention, it was up to the participants to get the recommendations implemented. The consultants then conducted a follow-up enquiry as a home visit or by phone a couple of months after the assessment in the lighting lab.

Figure 2 visualizes the three locations where assessments took place: the home environment, the light lab, and the follow-up, including their positions on the continuum between the specific and generic. The consultation involved the consultants addressing a range of different types of knowledge: the embodied sensory knowledge of the participants, embedded knowledge in their interactions with their environment, knowledge of cultural value embedded in environments, objects, and things, medical knowledge regarding diagnostics and visual acuity, and explicit knowledge concerning the physics of light. All the more or less context-specific knowledge was identified and coordinated based on their practice-based knowledge. The dotted line in the upper part of the diagram illustrates the process of BLBL, whereby the level of abstraction situated in the participants' everyday life was levelled by the knowledge added in the lighting lab and the follow-up.

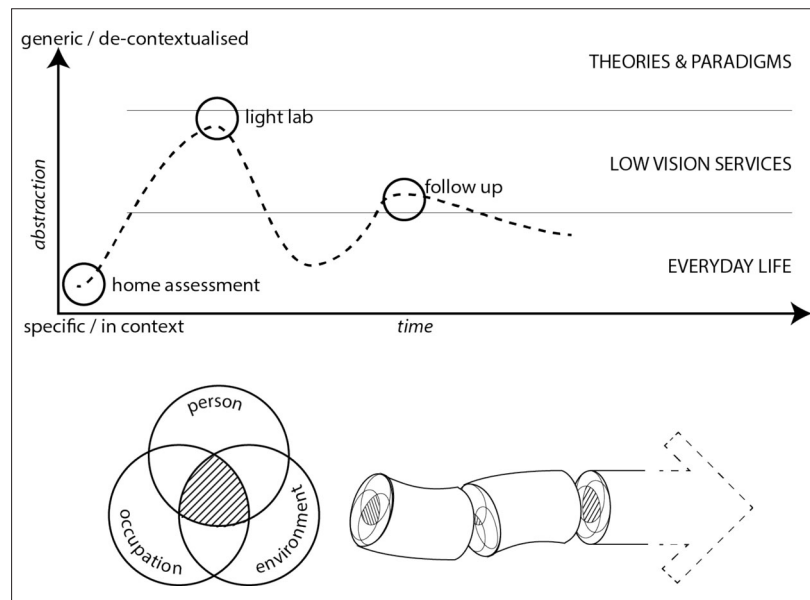


Figure 2. The intervention included more or less context-dependent knowledge, and the assessment and testing helped coordinate the knowledge of the specific social and physical context. The dotted lines illustrate the levelling of the participants' explicit and implicit knowledge during the rehabilitation process. Collage of diagrams from Øien 2021.

COMMON DENOMINATORS AND THE NOTION OF THE NORDIC IN THE TWO CASES

In order to embrace the complexities of the living entanglements, both studies make use of a framework that understands lifeworlds as interactions between materialities, practices, and conventions. In both cases, the indoor environment or the atmosphere is the product of the specific individual in the specific social and physical context.

Perception: The Mind/Body Context of the Individual

The otherwise invisible aspects of mould or light were explored by acknowledging the multisensory perception of the individual. There are aspects of this perception that cannot be directly translated or measured, such as the experience of living with mould growth or the perception and role of light for the visually impaired.

Moreover, relational and temporal aspects were of huge relevance for perception. As one of the participants pointed out during the lighting assessment, her eyes got tired, but they might already have been exhausted by the drive home from work earlier that day. This relational aspect added to the complexity of the everyday and was also experienced by an occupant suffering from multiple allergies, making it difficult to determine whether or not the mould growth might be the cause of his pains and frustrations. Both allergies and visual impairments develop, and allergies worsen and vision deteriorates in many cases. These extremes show the complex entanglements between indoors, outdoors, day-to-day life, and changes in it. But what about our buildings?

The Role of Physical Context

Both lighting and damp conditions consist of a range of other aspects. These include the specific climate and the changing weather, but also the microclimate, such as shadows caused by a tree or a neighbouring building or damp rising from underground currents, affected the conditions of the indoor environment.

Local conditions, such as location and orientation also influenced the problem and how it was handled. There might be problems in one particular dwelling, whether due to the building, the occupants, or both. There might be a lack of maintenance, leaky drainpipes, tight gutters, or condensation on cold surfaces. Similarly, some spaces are darker, depending on the orien-

tation, distribution, shape, and location of windows and the characteristics of the surroundings. The indoor conditions are dependent on the dwelling's context, its situatedness. Additionally, the rhythmical change of the days and seasons, the features of the interior spatial organization, colours, patterns, textures, and materials all play an important role. The fluxes and changes are also affected by time and material decay, such as the deterioration of materials caused by the growth of mould and the fact that lamps and the lighting they provide degenerate over time.

At the same time, our buildings are becoming more and more specialized, controlled, and conditioned indoor environments, where scientific and universal average norms govern the indoor climate. We are familiar with such heating, ventilation, and lighting systems from office spaces, but these technologies are now entering our domestic spaces to a great extent. In several of the architectural works that we regard as Nordic masterpieces from the mid-twentieth century, ventilation and lighting served as design parameters incorporated and synthesized with form, space, and programming, as part of an 'architechnique'.⁵⁸ Since then, various technologies have replaced the original ones, with new systems and requirements exceeding the previous ones in the ongoing rapid development. Overall, our buildings have thus become more specialized so as to meet requirements for optimizing energy or material resources in construction, or to control and manage them during operation. These requirements have been addressed with increased thermal insulation, virtually hermetic building envelopes, and larger glass facades. In order to ensure the required change of air, prevent or manage overheating, and avoid condensation in the construction, even more technology has been added. Vapour barriers, mechanical ventilation, and/or AC systems, solar shading, and automatic lighting systems have become part of our contemporary architecture. However, due to the rapid innovations in these technologies, they are more or less outdated before they hit the market. With the new technology, the connection to and responsibility for the environment disappears. The technology represents a scientific understanding of the fluxes of temperatures, humidity, and light conditions in a way that resembles the climate rather than the weather.

Ventilation systems were part of all the eleven renovation projects examined in the mould study, and gave rise to a new feeling of uncertainty concerning the practice of airing established prior to the renovation. In some cases, the tenants were told not to interfere with the system and that it had been cali-

brated to their individual requirements and/or the recommended standard air exchange. Some continued to open their windows despite the recommendations. Since this is detached from the context, Frampton accuses the ubiquitous air conditioner to be the main antagonist of rooted culture, since it is:

. . . applied in all times and in all places, irrespective of the local climatic conditions which have a capacity to express the specific place and the seasonal variations of its climate . . . the fixed window and the remote-controlled air-conditioning system are mutually indicative of domination by universal technique.⁵⁹

In order to deal with the 'issues' of darkness and cold, modern architecture has created a uniform, average environment of 'comfort'. When unwanted side effects such as the discomfort and distress resulting from uniform and average lighting are addressed by adding another layer of technology, such as a lighting system, to offer variation, where is the honesty? Might our passivity with respect to light, the fact that we often live in darkness, be connected to our relation to the weather, be based on an urge to be surrounded by its changes?

In this sense, the Nordic is perhaps not so much a uniform character, but rather the very sensitivity of being situated as part of a Nordic living entanglement, an embodied feeling of being in the Nordic landscape.

The Social and Societal Context

The context of the welfare society serves as a structural site for both of the issues studied. It is present in the various opportunities for support, either established by building acts intended to ensure safety and health in construction,⁶⁰ or laws relating to social services,⁶¹ and implemented in the rehabilitative services for citizens with impaired functioning. In addition to political democracy, the welfare systems also reflect the Nordic model's objectives of high standards of living and social equality. Danish studies show that the problem of damp and mould is found in every sixth to eighth home,⁶² and 1 per cent of the Danish population is visually impaired.⁶³ However, the security of the welfare state also contributes to the problems perceived, both in discussions of individual responsibility vis-à-vis the democratically negotiated common good, and in questions of whether tenants should jointly finance the upcoming renovation of the apartments when they already had invested money in individual renovations,⁶⁴ or whether the visually impaired

would invest in ordinary lighting appliances or restrict themselves to 'special lighting' and assistive technology subsidized by municipalities. These are thus democratic or public decisions, which are correspondingly socially negotiated.

RECONTEXTUALIZING KNOWLEDGE: THE ROLE OF ASSOCIATIONS

In keeping with the socially flat, Latour argues that abstract ideas need to be linked to the real and material local world,⁶⁵ and suggests three steps towards an alternative topography:⁶⁶

1. Relocate the global from interaction to context.
2. Redistribute the local in order to understand interaction as abstraction.
3. Connect the sites by highlighting vehicles and/or associations.

In the analysis of the two studies, the global has been relocated to specific contexts and issues, and analysed as abstractions in the different types of knowledge. In the following section, we will look at what the sites do by highlighting the vehicles and/or associations.

In the case of the mould issue, the expert translations were limited to a narrow (yet multifaceted) part of the physical context: the building, the body, or the microbe. The contexts of the different positions are made visible when viewed from a historical perspective and in relation to each other.⁶⁷ The fixed notion of the immutable mobile makes it impermeable to time, interaction, and change. As shown in the mould study, this hardness is also a challenge when different arguments conflict. The process of translation also reminds us that an immutable mobile can nevertheless be made relevant to a given context. At the same time, in the process of translating knowledge to a given context, professional knowledge needs to be responsive to the specific individual, physical, and social situation. The Person-Environment-Occupation (PEO) model used by the low vision consultants trained as occupational therapists has an elasticity that:

. . . enables interventions that assess the congruence between the parameters in different contexts over time, where the notion of the mutable mobile seems useful. The context- and time-specific scope . . . , in which the outcome of the service depends on the active participant, also calls for a more collaborative approach. After

all, citizens are the experts regarding their own lives, bodies, and everyday settings.⁶⁸

While the quantitative measures played a part in the lighting assessment, they always did so in relation to the specific social and physical context. The work of the low vision consultants represents a translation process closely related to the social and physical context of the visually impaired individuals. However, this process of translating between contexts and between different modes of knowledge was not consciously articulated. When this process was described and analysed in the research project—redistributed as abstract interaction—the consultants recognized new aspects of their practice. Later, in discussions with other practitioners, many of them replied: ‘But this is what we do!’ followed by reflections on what their approach actually does. In contrast to scientific practice, which aims for immutable mobiles, the problem-solving strategies required open-ended approaches in order to adjust to the given local and social context, and to invite different forms of participation so as to arrive at the right solution. Due to their property of being mutable and less mobile, these encompassed forms of knowledge are also more difficult to recognize.

Examples of an open-ended approach were found in connection with the mould issues as well, but not by the detached professionals and based on scientific knowledge, but instead by neighbours, building superintendents, and project managers trying to understand and find solutions adapted to the specific situation.

In summary, associations or vehicles, play important roles in the interactions in question in the issues studied. However, the way they are handled in the different professional approaches tends to be even more crucial.

DISCUSSION: CONNECTING THE SITES—THE NORDIC COUNTRIES AND ARCHITECTURE

In order to relate this coordination of an alternative topography to the practicing community of architects, Norberg-Schulz is now brought back into the discussion. He problematized the way that the architectural theory and practice of the twentieth century have remained in place on the cognitive or logical level: ‘free us from abstractions and alienation, and bring us back to things.’⁶⁹ Modern cities have lost their sense of place and patterns are blindly transferred between different levels in a confusion of scales. As act of accom-

modation, he called for a more conscious move from the general to the local, and for assimilation the other way around.⁷⁰ The acts of concretization and projection resemble the processes of translation, which have a basis in many ANT studies. The immutable mobiles of science largely represent empirical knowledge that has been generalized and taken out of its original lifeworld context. However, scientific as well as other professional practices are situated in time and place. When decontextualized knowledge is implemented in a new context, it is recontextualized.⁷¹ As shown in Figure 3, the process can be seen as moving from the individual to the social to the scientific, or the other way around.

Norberg-Schulz argued that cognitive space needs an abstract construct for describing it in order to systematize the possible properties from architectural space.⁷² However, what does this abstraction lead to? Description is a form of translation, and in Norberg-Schulz's example, a translation from architectural space could be described as a translation from the material and physical reality to be communicated to others. The target of the translation influences the content and the message, and in order for this description to invite several perspectives, mutable mobiles as in the case of the low vision consultants would be called for. Contrary to the consultants' focus on the needs of the

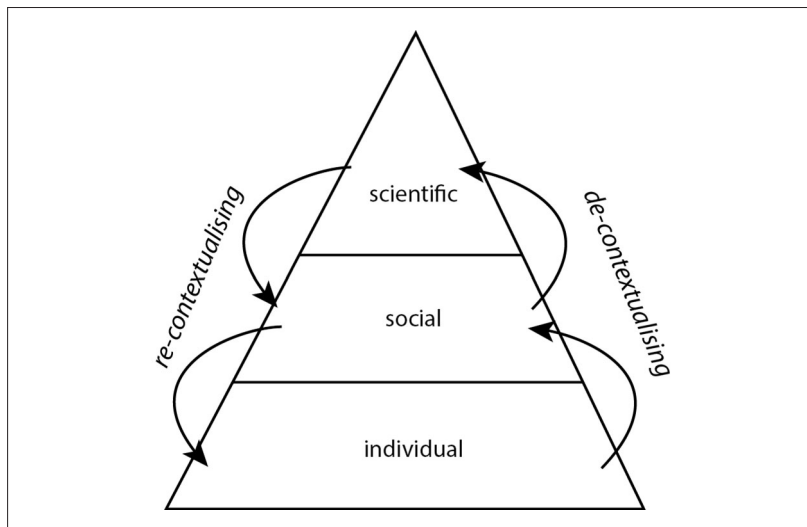


Figure 3. The process of structuration as translations to or from a given context. Drawing by the author.

visually impaired individuals, architects make decisions on behalf of many future users over several future generations. The choices made by the architect will affect each of them. But this is a difficult twofold translation: from the individual to the collective, in other words, finding a common solution, and from the collective to the individual, that is, how the solution works. The aspect of time makes it impossible to actually obtain user involvement in a solution that is not yet real.

Fortunately, architects are not entirely on their own in the task of making good architecture, and what they need are methods and properties that facilitate translation from existing knowledge, in which the notion of the Nordic might serve as an intermediate for calibrating when connecting tacit individual knowledge, to universal, explicit and scientific knowledge. The two studies examined in this article emphasize the tacit and local aspect of the challenges of architecture by examining specific buildings and individuals. At the same time, they also show that the specific is linked to the general in our complex and changing lifeworld. The 'complexities and contradictions of contemporary life'⁷³ identified in the studies go beyond the physical and material context through being supplemented by aspects of practice and conventions. Figure 4 visualizes the unfolding continuums of abstraction

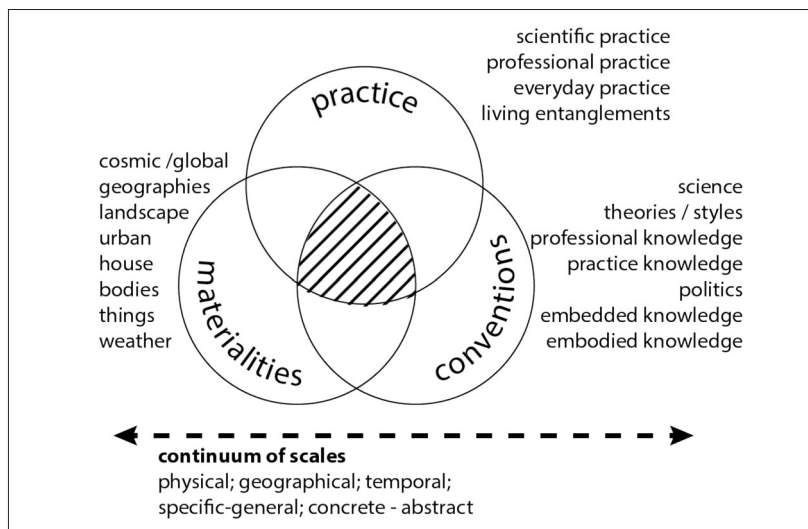


Figure 4. The interrelation of materialities, practices, and conventions unfolds as continuums, continually interconnected across sites. Drawing by the author.

that are represented in materialities, practices, and conventions. In these continuums, the middle field represents a field of opportunities in which a translation either specifies or generalizes. They are thus continuums in which Norberg-Schulz's 'vehicles', his notions of 'relations and continuity', can help us to connect the sites. The processes of de- and recontextualizing enable us to work with complexities and contradictions, including those between different practices, whether professional or everyday.

Seeing scales as positions in a continuum is thus suggested as a way for architects and other practitioners to navigate across levels of abstractions and contexts. In between what we consider the local and the global, the Nordic can provide an appropriate scale for calibrating and navigating the course forwards.

Nordic Living Entanglements

Norberg-Schulz's attention to the Nordic climate, to the changing character of a place due to 'the seasons, the course of the day and the weather', and the cold, and to how the 'Nordic man has to be friend with fog, ice and cold wind'⁷⁴ also has relevance beyond the professional network of architects as the everyday character of both the built environment and its inhabitants. 'Local and specific' testimonies of our built environment, as shown in the studies presented in this article, have largely been disconnected from architectural practice. At the same time, they can help us understand some of our current societal challenges, including housing issues, universal design, sustainability, and climate change.

The built environment causes and potentially mitigates problems in people's lives, which are of great concern for the people affected as well as a matter for their fellow citizens and society as a whole. The fact that anybody's vision might change during his or her lifetime and that the quality of light makes a huge difference for most of us makes it a subject for everyone. It affects the overall configuration, just as when any other aspect of our living entanglements, our body, or our environment is modified,.

There are multiple understandings and workings of the Nordic, and its definition and values are constantly being renegotiated. Different interpretations are found in the different countries and within different fields and industries.⁷⁵ Just as the specificity of any place or practice is rendered visible through comparisons, lifeworlds and weather are also understood based on

differences. An everyday thing like the weather forecast illustrates the diversity of approaches to the weather across the Nordic countries. On Danish radio, it is covered by a single forecast of just a few seconds, for instance: 'Cloudy with rain or showers, temperatures between 14 and 17 degrees, and a light to fresh wind from the north and northwest.' This local and specific is put into perspective by my memory of the seven-minute-long radio forecast covering the Norwegian fishing banks as well as twelve different geographical areas.

Low vision and mould growth are not unique to the Nordic context. They are, however, two issues in the indoor environment in which the situatedness related to the position of the northern latitudes results in different conditions for each season. Even though these changes are relatively predictable, they touch upon a dynamics in which local differences challenge the more 'global' approach of science. Due to current demographic and climatic development, such issues will increase in the near future, and this is why the way we handle them, individually, socially, and professionally, could make an important difference to general health and well-being.

If the Nordic attentiveness to the weather and the seasons were to be translated to other types of situated and contextualized knowledge, understanding challenges, breakdowns, and workarounds could support reflected practitioners. In learning from other communities of practice and different scales, the Nordic can be a good point of reference and a space for opportunities between the local and the global. Even though the two studies are situated in the Danish context, the conditional challenges resulting from harsh winters apply to all the Nordic countries, perhaps even more distinctly the further north one lives. Or do the extremes make people better at handling challenges? Further studies would be required in order to find answers to this question.

CONCLUSION

This article has examined the complexities and contradictions of contemporary life in relation to two challenges of living in the Nordic region. More specifically, it has shown how these problems are part of people's everyday lives and how various professionals attempt to solve them.

The studies show that higher levels of abstraction are embedded in local and situated living entanglements, since the Nordic is present in the change of

the seasons, as well as in individually, culturally, and socially perceived and enacted indoor environments. However, for this knowledge to be utilized, different professional and non-professional practices must coordinate their efforts.

The study of the mould issue shows that the problems, beyond being technical, are also social, and that conflicting scientific, professional, and non-professional understandings of the same phenomena can complicate the problem. The studies on low vision rehabilitation and domestic lighting show a different approach to knowledge by acknowledging and supporting a range of different types of knowledge of relevance to the specific individual and the specific social and physical context in question: by supporting citizens in sharing embedded knowledge on how light and vision interact, translating the problem embedded in the intersection between human and built environment into practical tasks to be tested, and coordinating and navigating the joint process of problem-solving.

While architects are usually preoccupied with planning and design, both studies examined in this article highlight the use of and adjustments to existing home environments. Whether the planning, construction, use, decay, renovation, or modification of buildings is concerned, it is only by connecting these phases, levels, and actors that we can embrace the entire lifecycle of a building. The position of architects, who engage with individual, social, and technical lifeworlds in their practice, is important in this synthesis. However, more knowledge is needed on how to more systematically incorporate comfort and usability, the situated and embedded knowledge of materialities, and the role of time and changes in human-environment interaction in architectural practice.

The complexity that develops calls for a transdisciplinary approach in order to connect, translate, and coordinate scientific with situated professional and non-professional knowledge. The question is whether the spirit of the Nordic can foster a new approach: by turning the tables and not seeing honesty and good business as opposites, but instead by combining honesty when assessing the complex problems with good business and investing in valued collaboration. Only time will tell.

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