Opening the Black Box of Accessibility Regulation

Sidse Grangaard and Stefan Christoffer Gottlieb

Danish Building Research Institute, Aalborg University, Copenhagen, Denmark

Abstract

Purpose – The purpose of this paper is to open the black box of prescriptive requirements by analysing their role in shaping interests and decisions on accessibility, and discuss the consequences hereof for a future move to a performance-based accessibility model based on Universal Design principles.

Design/Methodology/Approach – A single case study based on 15 qualitative interviews with clients about their approach to accessibility and Universal Design is analysed by using actor-network theory (ANT) as the theoretical framework.

Findings – It is shown that the prescriptive requirements in the Danish building regulations constitute a black box, which is decisive in defining the clients' perception of the users and their level of ambition for accessibility by inscribing specific expectations, actions and ways of knowing about accessibility.

Research Limitations/Implications – The study is based on a qualitative single case study. We argue that analytical generalisations nevertheless can be drawn.

Practical Implications – Performance-based regulations can be a source of innovation but also entail negative consequences for the quality of the built environment if treated in an isolated manner alone.

Originality/Value – The paper contributes to the discussions on Universal Design and the implementation of performance-based accessibility regulation by illustrating how current prescriptive requirements are not mere "matters of fact" but play an active role in mobilising and shaping a network of users, technologies, norms and practices, which the introduction of performance-based requirements will radically alter.

Keywords Accessibility, Building regulations, Clients, Performance-based model, Prescriptive requirements, Universal Design

1. Introduction

In many countries, building regulations are under transformation towards adopting performance-based requirements. This development has also taken place in Denmark with the exception of the field of accessibility, where the requirements since their introduction into the Danish Building Regulations in 1977 have been prescriptive.

The concept of accessibility has been criticised for leading to the retention of a segregation of people with and without disabilities because of the stigmatising role of specialised, accessible design (Mace, 1985). The response to the critique has been the

development of Universal Design (UD) that operates with a diverse user perception encompassing everybody from a life-span perspective to avoid stigmatisation. With the UN Convention on the Rights of Persons with Disabilities (CRPD), UD has been transposed into Danish law. UD refers to "the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (UN General Assembly, 2007).

Despite Denmark ratifying CRPD in 2009, UD was not implemented in the Danish Building Regulations until 2018 in the form of a guideline on the concept of users. Nevertheless, the prescriptive accessibility requirements have been criticised for being unreasonable and too homogeneous and preventing differentiation (Grangaard, 2016). With the launch of the 2018 governmental initiative on the improvement of public access to buildings, there is now political focus on the development of performance-based requirements for accessibility and, thus, UD. Voices of concern have, however, been raised concerning the risk of poor quality of designs in a situation without prescriptive requirements.

Drawing on actor-network theory (ANT) and empirical material from a study on clients' approach to accessibility and UD in Denmark, we focus on the role of prescriptive requirements in shaping interests and decisions on accessibility, and the implications hereof for a future performance-based regulation.

2. Theory
Prescriptive requirements describe how specific building parts should be designed, built and procured. In contrast, performance-based requirements describe and specify functional attributes, which can be met in a variety of ways in the design process. We see requirements not as mere technical documents but as strategic resources that inscribe associations and programmes of action, and play an active role in shaping the interactions between actors, objects, instruments, etc. in the actor-network that constitutes the building project (Akrish *et al.*, 2002).

ANT provides a lens for exploring the interactions and networks between these heterogeneous elements. According to Law (2008: 141), ANT is a family of material-semiotic tools and methods of analysis that "treat everything in the social and natural worlds as a continuously generated effect of the webs of relations within which they are located." In ANT, everything is an effect of heterogeneous networks, where people, technologies, etc. are interconnected and act upon each other. As such, ANT directs attention to the agency of humans as well as non-humans in the production of social relations. In particular, we mobilise the concept of "translation" (Callon, 1986) to analyse the processes through which the relations between elements in an actor-network, e.g. a project, become stabilised and attain the status of a "black box" (Latour, 1987). A black box is formed when knowledge on the inner workings of a technology or a process becomes "fact" and is taken for granted.

On this basis, we attempt to open the black box of prescriptive requirements in projects. We investigate what role such requirements play in shaping interests and decisions on design of accessibility. This is important as designs can fail owing to their inscriptions and representations of various concerns, either by, e.g., simplifying or excluding users (Harty & Tryggestad, 2015) or by failing to translate the interest of other actors.

3. Methods
The research is based on a qualitative single case study drawing on qualitative interviews (Kvale, 1997), with managers from 15 client and developer organisations. The strategy for the selection of informants was information-oriented focusing on maximum variation (Flyvbjerg, 2006). The criteria for variation concerned the clients' portfolio, including the

function of the buildings, type of construction, size of portfolio and kind of ownership (public and private) and geographical location.

The clients represented one or several of these categories: housing, education, health, service, culture and infrastructure. Overall, the portfolios consisted of a plethora of different kinds of building types, e.g. an airport, hospitals, nursing homes, offices, a hotel, universities, court buildings, museums, schools or kindergartens.

The interviews were conducted as a conversation with the informants about their practice and portfolio. Each interview lasted between 30 and 60 minutes and were tape-recorded and transcribed. The main theme was the handling of accessibility and UD in the projects in relation to user needs, economy, etc. In addition, the interviews probed their experiences of the market in relation to social responsibility, value creation, future proofing and accessibility in the future.

4. Findings
In the findings, we focus on two aspects of the client's efforts to incorporate accessibility concerns into projects. None of the clients has incorporated UD in their practice.

4.1. The design brief
In general, clients have a very diverse approach to the issue of ensuring that accessibility is included in their projects. Common among several clients in the study is the unspoken expectation that architectural firms are able to satisfy the clients' requirements and ambitions singlehandedly, once these are formulated in a brief. We, however, suggest that the understanding of accessibility, and how it is implemented, is defined by the prescriptive requirements in the building regulations, which sets the ambition level mentioned in the brief.

We, therefore, argue that the brief is a rather weak interessement device, if it is not shielded against the many competing associations that are crafted in the project, thus failing to support a design room for accessibility innovations. Budgets play an important role in the projects, and the majority of clients stated their reluctance to spend money on solutions that exceed the requirements in the building regulations. Clients are not the only group of actors caught between competing concerns. In the design process, clients blame the architects for prioritizing aesthetics over concerns for accessibility when faced with budgetary limitations, despite being aware of the clients' ambitions. In these situations, the prescriptive requirements in the building regulations provide a minimum threshold, even though there are potential user needs that are not met by these.

The second highlighted issue concerns the lack of representivity. Even though the clients prepare the brief, they are often not representative of the entire client organisation with separate ordering and executive units. This creates a situation where the unit responsible for the practical implementation of the brief has other priorities and interests (e.g. budget and schedule) than the ordering unit. This issue is accentuated further by the fact that client organisations in general only have focus on accessibility in the design and operation phases, and lack measures for maintaining this focus in the project execution phase. The lack of representivity also includes regulatory authorities in the form of building inspectors. The clients in general see the processing of building permits as a quality assurance process, in which they delegate responsibility for assuring compliance to the requirements to the building authorities. Even though there is a varied practice from municipality to municipality, accessibility is not subjected to rigorous scrutiny when issuing building permits, as it is in other countries, e.g. the UK (Grangaard *et al.*, 2013) meaning that there is a

failed translation. This is, as we see it, a consequence of the black boxed character of the accessibility regulation.

4.2. Defining the user

When a building is designed, a clarification of the specific level of accessibility is based on how the users are viewed and understood by the client. Here, we illustrate how the prescriptive requirements reproduce a narrow definition of the user instead of a broad understanding encompassing everybody despite disability, size or age.

In comparison with the prevailing patient-oriented user perception among the architectural firms (Grangaard et al., 2016), the user perception was much more diverse and citizen-oriented among the clients in the study. Some clients explained that "we don't know what tomorrow brings" understood as even though users with disabilities do not use a building today, it should not prevent them from doing so in the future.

The majority of clients had in common that the task of identifying needs and programming took place in a decentralised organisation characterised as the ordering unit, e.g. the communal children and youth administration, or an estate in a social housing organisation. Sometimes, the ordering unit had a much narrower user perception than the client's executive unit, only focusing on the primary users, e.g. the people working in a kindergarten and the children, but not on the secondary users in the form of parents or other family, such as a grandmother with a walker.

According to some of the clients, the prescriptive requirements constitute initiatives for people using wheelchairs or white canes only. As one client mused: "The funny thing is that, in Denmark, it appears as if we do not make demands for anything else than what is almost visually apparent." Nevertheless, a majority of clients let these requirements define the level of accessibility, without questioning that this reproduced a narrow user perception.

The situation was another in the airport. Drawing on EU Regulation No 1107/2006, concerning the rights of disabled persons and persons with reduced mobility when travelling by air, the client managed to account for a wide and diverse user perception in the projects. We argue that about.this is honesty to the obligation to ensure assistance to so-called passengers with reduced mobility (PRM passengers). In the airport, every PRM passenger was tagged with one of seven codes to provide the correct service for chronic as well as temporary disabilities. As stated: "There is no reason to bring along a wheelchair, if you should assist a blind person". In essence, the seven codes encompass the whole spectrum of disabilities including deafness and cognitive disabilities.

Another possible explanation for the ability of the airport client to consider a more varied user perception could be found in the close affinity between financial performance and accessibility. According to statistical material, 0.44 per cent of all passengers in 2016 were PRM passengers, which on a busy day corresponds to 440 passengers in need of assistance and accessible solutions. In addition, also a growing number of elderly passengers requested increased accessibility, making it a business case for the airport, and something that had to be considered in the building designs.

4.3. Across the findings

The findings illustrate how the prescriptive requirements for accessibility inscribe a specific understanding of users by mandating the use of solutions focusing on the physically and visually impaired. Even in situations where the clients had a quite nuanced understanding of the variety of impairments among users, the paradoxical fact was that buildings were only designed to meet the legal requirements, which might exclude users with other impairments. The reason is, we argue, that prescriptive requirements become an

unnegotiable minimum threshold and, consequently, that actors, when faced with irreconcilable demands or opposing concerns (e.g. to cut costs and still observe the legal requirements), implement solutions in accordance with the building regulations. Only in cases where an inscription device (e.g. PRM passengers) with the same relative strength as the prescriptive requirement was used, the design reflected a more varied user base and wider considerations for accessibility.

Secondly, the findings also illustrate an aspect related to translation of actors according to the clients' concerns for accessibility. The level of accessibility that was achieved in the projects was to great extent defined by the prescriptive requirements rather than the clients' ambitions. An explanation is that the clients failed to maintain a focus on accessibility in their negotiations with the other actors and concerns in project. The competition brief might be an interessement device, and the users might be represented (in person or by proxy), but the accompanying "trials of strength and tricks" (Callon, 1986) that enabled these devices to succeed were missing.

5. Discussion: opening the black box of prescriptive requirements

The analyses of the design brief and how users are defined show that the prescriptive requirements are not mere "matters of fact" but define and shape the way that accessibility is handled, understood and designed. We illustrate that prescriptive requirements act as a mediating element that inscribes certain expectations, actions and ways of knowing, thus constituting a "black box" in the projects. In other words, accessibility is black boxed leaving the premises of the design decisions unquestioned. In the analysis, the clients expected that the architects understand their requirements for accessibility and that the authorities do the quality assurance. As this is not the case because of a failed translation of interests, the result is that the prescriptive requirements reproduce a fixated perception of users, which defines the design.

We suggest that a future situation with the introduction of performance-based requirements for accessibility, in guise of UD, open up for the possibility of working with other types of solutions than what is prescribed by the Building Regulations. This entails a considerable degree of innovation, which, however, will depend on how the performance-based requirements are handled in the projects. If the professional field of accessibility is black boxed, the question that remains is how the industry can, and intend to, administer a new type of requirements. Owing to the collective taken-for-grantedness concerning the prescriptive requirements, there is likelihood that the degree of freedom for UD afforded by the new requirements will remain unfulfilled, unless new working methods, other types of briefs, etc. are developed. The reason for this is that accessibility will become something other than a question of choosing the solutions that Building Regulations prescribe.

As second question is what influence performance-based requirements will have on the clients' ambitions for accessibility. With performance-based requirements, the clients' ambition levels will have to be defined anew with every project, necessitating a new and redefined understanding of users. If potential users are to become "all people" (CRPD, 2007), the current Building Regulations' inscription of a user as either a blind person or a wheelchair user in the specific requirements is insufficient. Concerning the way accessibility is addressed in the design brief, there is an understanding among clients that the mere mentioning of accessibility in the brief is a guarantee that also the final building will be accessible. This might also be the case in a situation with prescriptive requirements. However, we suggest that with the introduction of performance-based requirements; it will become crucial to open the black box of accessibility and define and commutate clearly what is meant by accessibility and for whom accessibility is provided. Here, the entire industry

should take part but clients are responsible for defining the ambitions and work with accessibility as a strategic element from the start. This will require competences about UD and the users' needs in organisations.

6. Conclusions

In this paper, we have applied ANT in an analysis of Danish clients' approach to UD and accessibility, and the role of prescriptive requirements in shaping interests and decisions on accessibility. Although the paper is based on a qualitative single case study, we argue that analytical generalisations nevertheless can be drawn. We have thus shown how prescriptive requirements are not mere "matters of fact" but play an active role in mobilising and shaping a network of users, technologies, norms and practices, which the introduction of performance-based requirements will alter. In conclusion, we suggest that a transition to performance-based regulation will enable the development of innovative and accessible solutions, which, in turn, will require a new methodology to escape the black box of prescriptive requirements.

References

Akrich, M., Callon, M., Latour, B., & Monaghan, A. (2002), "The key to success in innovation part I: the art of interessement", *International Journal of Innovation Management*, Vol. 6 No. 2, pp. 187–206.

Callon, M. (1986), "Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay", in Law, J. (Ed.), *Power, action and belief: a new sociology of knowledge?*, Routledge, London, UK, pp. 196–223.

Flyvbjerg, B. (2006), "Five misunderstandings about case-study research", *Qualitative Inquiry*, Vol. 12 No 2, pp. 219–245.

Grangaard, S. (2016), "Towards Innovative and Inclusive Architecture", in Lloyd, P. and Bohemia, E. (Eds.), *Proceedings of DRS2016: Design + Research + Society - Future-Focused Thinking*, Vol. 8, Brighton, 27-30 June 2016, pp. 3,393–3,405.

Grangaard, S. and Frandsen, A.K. (2016), "Do Performance-Based Codes Support Universal Design in Architecture?", in Petrie, H., Darzentas, J., Walsh, T., Swallow, D., Sandoval, L., Lewis, A. and Power, C. (Eds.) *Proceedings of the 3rd International Conference on Universal Design (UD 2016): Learning from the Past, Designing for the Future*, York, United Kingdom, August 21-24 2016, pp. 98–100.

Grangaard, S. and Ginnerup, S. (2013), "Regulering af tilgængelighed i udlandet SBI 2013:28", Statens Byggeforskningsinstitut, Aalborg Universitet.

Harty, C., and Tryggestad, K. (2015), "The hospital building as project and matter of concern: the role of representations in negotiating patient room design and bodies", *Engineering Project Organization Journal*, Vol. 5 No. 2-3, pp. 95–105.

Kvale, S. (1997), *Interview. En introduktion til det kvalitative forskningsinterview*, Hans Reitzels Forlag, København.

Latour, B. (1987), *Science in action: How to follow scientists and engineers through society*, Harvard university press, Cambridge, Massachusetts.

Law, J. (2008), "Actor network theory and material semiotics", in Turner, B.S. (Ed.) *The new Blackwell companion to social theory*, Wiley-Blackwell, Malden, Massachusetts, pp. 141–158.

Mace, R.L. (1985), "Universal Design, Barrier Free Environments For Everyone", *Designers West*, Vol. 33 No. 1, pp. 147–152.

UN General Assembly (2007), "Convention on the rights of persons with disabilities: resolution/adopted by the general assembly, 24 January 2007", *A/RES/61/106*.