

EXPLORING INDUSTRIALISED HOUSE-BUILDERS' PERCEPTIONS OF LOCAL REQUIREMENT SETTING - AN INSTITUTIONAL LOGICS PERSPECTIVE

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Industrialised house-builders (IHBs) are housing contractors who use standardised processes and building systems as a means to time and cost efficiently address the current housing shortage in Sweden. Recent governmental investigations argue that the mandate for local planning authorities (LPAs) to intentionally set stricter requirements than those prescribed in the national building code can stifle the potential for increased industrialisation. The aim of this paper is to explore IHBs' perceptions of local requirement setting (LRS). It seeks to use the concept of institutional logic to advance the understanding of how LRS affects IHBs. Data was collected through in-depth interviews with representatives of five IHBs encompassing a mix of building systems spanning the Swedish multi-family housing market. From the data we identify three distinct categories of LRS: intentional, interpretive and public procurement-related. The respondents' perceived issues with LRS are found to relate more closely to the process of setting requirements than to the requirements themselves. The political debate about LRS has entirely neglected interpretive LRS, LRS in public procurement as well as the entire process perspective. Institutional logics is shown to offer new and interesting perspectives on the agency/structure dominated cognitive and intra-organisational processes that shape the emergence of local requirements in interpretative LRS and LRS in public procurement respectively. Since LRS is affected both by individual planning officers (agency) and the LPA organisation (structure) further studies will explore their perceptions of LRS.

Keywords: housing, industrialised house-building, institutional logic, local planning.

INTRODUCTION

Sweden is suffering from an increasing shortage of housing. Statistics (Prop. 2013/14:126) show that during the last decade the increased housing demand on the housing market due to population growth has outweighed the increased supply from newly constructed housing. Increased industrialisation, due to being regarded as a way to meet clients' demands for lower production costs, shorter time frames and higher product quality in construction, is promoted as a potential remedy to the housing shortage both by governmental investigations (SOU 2012:86, Statskontoret 2009) and by national research agendas (Stehn *et al.* 2013). Swedish construction clients have significant barriers towards adopting technical innovations and do not actively drive the development towards an increased industrialisation (Hedgren and Stehn 2014). The practices of local (municipal) authorities related to local planning and public procurement have also been identified as barriers to increased industrialisation, both

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by suppliers and clients (Stehn *et al.* 2013) and by the government (SOU 2012:86). Little research attention has been given to external project conditions stemming from governmental agencies, particularly in a Swedish context. For example, a UK survey of the leading house-builders identified the slow process of obtaining planning permission as a significant barrier to the use of offsite MMC (the UK movement towards increased industrialisation), that the many potential benefits of offsite MMC were not realised due to the delayed planning process, and suggested that the UK planning system needed to become more flexible (Pan *et al.* 2007).

In Sweden the movement towards increased industrialisation is spearheaded by industrialised house-builders (IHBs). IHBs are housing contractors who use standardisation and repetition of processes, building parts and methods to create products which, as opposed to traditional construction projects, are concurrently based on the specifications of client and the limitation of the pre-defined building system (Engström and Stehn 2014). Each IHB's chosen engineering and production strategies dictate the level of pre-definition of their building system and the reduction of its design flexibility (Johnsson 2013). Design flexibility entails two interrelated dimensions: compliance with varying client/customer demand and adaptability of the building system. Demands that influence the adaptability and that are not configurable to the building system are difficult for IHBs to accommodate because they interfere with the engineering and production methods. Demands that are configurable can more easily be met through product development or even adjusted for a specific project. To counteract their reduced design flexibility IHBs are forced to make an early entrance into the design phase (Brege *et al.* 2014) and by extension also into the local planning process. Even so, IHBs are still dependent on external requirements on projects being transparent, predictable and adaptable in order to realise the benefits from the use of their building systems.

The right for local planning authorities (LPAs) to set requirements for local construction projects is central to Swedish construction law. Societal changes have led to an increased need for municipalities to profile themselves, thus inclining LPAs to exercise this right more extensively. SOU 2012:86 concluded that the municipal practice of local requirement setting (LRS), the action to set requirements which intentionally specify a higher standard than that which is prescribed in the national building code, has led to a situation with largely varying requirements between and sometimes within the 290 different Swedish municipalities. The practice of LRS is considered to disregard IHBs' needs for transparency and predictability and thereby stifling the potential for increased industrialisation (SOU 2012:86). The position taken in this paper is to question this standpoint. The public and political debates surrounding LRS has primarily focused on these intentional local requirements and the government proposition to forbid them. But, what if changing the legislation is not the solution to all problems related to LRS? What if LRS is an issue of the process of setting requirements rather than an issue of the requirements themselves?

The aim of this paper is to explore IHBs' perceptions of LRS. The study uses the theoretical concept institutional logic to advance the understanding of LPA's practices related to LRS and how these practices affect Swedish IHBs. Institutional logic offers a holistic perspective on the interplay between individuals and organisations and highlights enabling as well as constraining effects on social actors on both of these levels. Data was collected through exploratory interviews with five contractors, who encompass a mix of building systems and together give reasonable coverage of the multi-family housing market. By contrasting the data with institutional logic it

becomes evident that the problems perceived by the respondents extend beyond the requirements themselves. Rather, these problems relate to the process that shapes their emergence of local requirements.

RESEARCH DESIGN, DATA COLLECTION AND ANALYSIS

Empirical data in this on-going work was collected during August 2013 - January 2014. The data collection was performed through the use of explorative interviews with representatives from five different IHBs in order to provide insight into their perceptions of LRS. We consider an IHB's perceptions to be the collective of the perceptions of the individual that make up the organisation so by exploring the perceptions of its individuals we may draw conclusions about the perceptions of the entire organisation. The chosen IHBs encompass a mix of building systems which spans a large portion of the Swedish multi-family housing market and the respondents all have experience with the issues between IHBs and LRS (Table 1).

Table 1: Overview of the selected IHBs 1 - 5 and respondents R1 - R9

IHB	Degree of off-site production technology (Pan et al. 2012)	Respondent: IHB-experience in years (position)
1	Modular building	R1: 8 (CEO) R2: 7 (Marketing manager)
2	Modular building	R3: 20 (Marketing manager)
3	Modular building	R4: 10 (Marketing manager)
4	Component and subassembly	R5: 4 (Architect/Urban planner) R6: 4 (Concept manager) R7: 4 (Marketing manager)
5	Non-volumetric preassembly	R8: 7 (Marketing manager) R9: 7 (Development manager)

The respondents were asked questions about (1) what their overall perceptions of LRS was, (2) which consequences LRS has for them, (3) how they counteract these consequences of LRS, (4) how they perceive the actions of LPAs in relation to LRS and (5) why they believe that the LPAs act in such a way. These questions were derived from the collective pre-understanding present within our research group. We endeavoured to perform all interviews in situ as indirect interview techniques deprive the researcher of seeing the respondents' informal, nonverbal communication. Even so, a number of follow-up questions for clarification purposes were asked via telephone and e-mail. The interviews, which lasted for 60-90 minutes each, were recorded and subsequently transcribed.

Together with a review of recent governmental investigations of the legislative framework for housing construction and lead times in the planning and building process the data from question areas (1) and (2) were used to develop a contextual description. They were also used to formulate a categorisation (Figure 1) of different categories of LRS. Due to the size of the data from question areas (3), (4) and (5) a pre-analysis was performed prior to its analysis in relation to the aim. This preanalysis served the purpose of restructuring and condensing the data material in preparation for the main analysis. In order to preserve the depth and richness of the data we elected to perform this process manually. The main stage of the analysis entailed contrasting the

restructured interview data with two of the core concepts of Thornton's *et al.* (2012) model for institutional logic: dynamic constructivism and symbolic interactionism.

INSTITUTIONAL LOGICS: AGENCY AND STRUCTURE

The dichotomy of agency, the autonomy of social actors (individuals or organisations), and structure, the institutions which limit the choices of social actors, resides at the core of institutional theory. Institutions are understood as *“supraorganisational patterns of activity by which individuals and organisations produce and reproduce their material subsistence and organise time and space. They are also symbolic systems, ways of ordering reality; thereby rendering experience of time and space meaningful”* (Friedland and Alford 1991: 243). Early neo-institutional scholars typically emphasised the importance of institutional structure, and deemphasised the importance of agency, for shaping organisational practises. Institutional rules (Meyer and Rowan 1977) describe appropriate ways to manage organisations within certain organisational fields and provide legitimacy to organisations which conform to these rules. An organisational field can be thought of as a group of organisations that constitutes a recognised area of institutional life, e.g. suppliers, consumers, competitors and regulatory agencies (DiMaggio and Powell 1983). DiMaggio and Powell (1983) theorise that all organisations within one organisational field are subject to isomorphism, i.e. gradually become more similar over time. Early neoinstitutional theory's one-sided focus on structure, for which it has often been criticised, eventually prompted Friedland and Alford (1991) to develop the concept of institutional logic, in an attempt to reintroduce agency into the institutional debate.

The paradox of embedded agency

Institutional logics are defined as *“the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality”* (Thornton and Ocasio 1999: 804). The concept deals with three interrelated levels of analysis: individuals competing and negotiating, organisations in conflict and coordination, and institutions in contradiction and interdependency (Friedland and Alford 1991). Institutional logics scholars currently recognise seven institutional logics: family, community, religion, state, market, profession and corporation.

Friedland and Alford's (1991) efforts to reconcile agency and structure resulted in the model known as embedded agency. Embedded agency simultaneously enables and constrains agency. Opportunities for agency are provided through contradictions between institutional logics and constrains are provided through establishment of core principles for organisational activities and channelling of interests (Thornton *et al.* 2012). Some scholars, e.g. Holm (1995) and Seo and Creed (2002), have viewed embedded agency as a paradox: how can individual social actors change institutions if their actions, intentions, and rationality are all conditioned by the very institution they wish to change? Due to lack of explicit theory regarding embedded agency, this paradox remained unresolved for many years. Thornton *et al.* (2012) has recently developed a model for the cognitive and intra-organisational processes which make up embedded agency by adopting theories from social and behavioural psychology.

Social identities, goals and schemas in interaction

Thornton *et al.*'s (2012) model, adapts the concept of dynamic constructivism (Hong *et al.* 2000, Hong and Mallorie 2004) in an attempt to resolve the paradox of embedded agency. According to this view institutional logics are best understood as learned knowledge structures that, as a result of differences in social interaction and socialisation, are unevenly distributed across a population. Individual social actors' actions rely on the availability, accessibility and activation of the different institutional logics that individual social actors can learn (Thornton *et al.* 2012). Opportunities for agency through contradictions exist when at least two logics are available to an individual social actor, but all available logics are not equally accessible. Accessibility is determined by previous experiences which associate the situational context to particular institutional logics (temporary accessibility) and by structural elements such as organisational routines and practices which directs the actor's attention towards certain logics (chronic accessibility). In routine situations individual social actors are likely to activate chronically accessible logics. In novel situations temporary accessibility determines which logic is activated. If no highly accessible logic is deemed to be applicable to the situation agency is achieved as other available but less accessible logics may be activated instead.

Thornton *et al.* (2012) further posit that a number of social identities, goals and schemas are culturally embedded within all institutional logics. The identities and goals embedded in one logic can be either contradictory or interdependent to the identities and goals embedded in another. Schemas guide expected behaviours and are used by individual social actors for resolving ambiguities and drawing inferences. Under novel conditions the schemas embedded in the most accessible logics are incongruent with the situational context. In these cases the actor may attempt to resolve the incongruences by activate combinations of social identities, goals and schemas from multiple logics simultaneously.

Drawing on Mead's (1934) concept of symbolic interactionism Thornton *et al.* (2012) posit that a group of social actors use distinct symbolic languages of the institutional logics they activate to ritualistically interact with one another and generate a shared focus of attention. In these interactions schemas provide frames, different interpretations of the social reality. As individual social actors are embedded within different logics they may activate social identities, goals and schema which contradict with those activated by others. Such contradictions serve as barriers to cooperation and generate conflict and power struggles in social interactions (Thornton *et al.* 2012). Every social interaction is also a negotiation (Strauss 1978) and internal power structures influence the outcome of these negotiations, thus partly determining which of the competing goals and frames will dominate the group's shared focus of attention.

LRS IN A SWEDISH CONTEXT

According to the Swedish planning and building act construction projects need to be connected to a legally binding detailed development plan (in Swedish referred to as detaljplan). If no such plan exists, one must be created. Once a client's building permit application has been reviewed and accepted, construction may begin. Most often, however, there is no finished detailed development plan that fits the project so the client usually becomes involved in the detailed development planning. Parallel to the detailed development planning, separate development agreements (exploaterings/markanvisningsavtal) are often negotiated between client and LPA. The last decade has also seen a marked increase in the number of local design

programmes (gestaltningssystem) amended to detailed development plans and development agreements or used for judging building permit applications. In all these forums LPAs act as governmental agencies and as such any local requirements they set are passed on to the contractor via the client. Due to IHBs' reduced design flexibility they have more difficulties accommodating local requirements than traditional contractors do.

According to R3, when an IHB complies with a local requirement the implication is that there will have to be design revisions. R1 feels that the practice of LRS disfavours IHBs in relation to traditional contractors and reinforces a status quo.

LRS is commonly defined as the action of to set requirements which intentionally specify a higher standard than that which is prescribed in the national building code (SOU 2012:86). This intentional LRS, primarily related to energy requirements, is often discussed in politics. Yet, all respondents agree there are other instances of LRS besides from intentional LRS. Based on their answers we have identified three main categories (Figure 1).

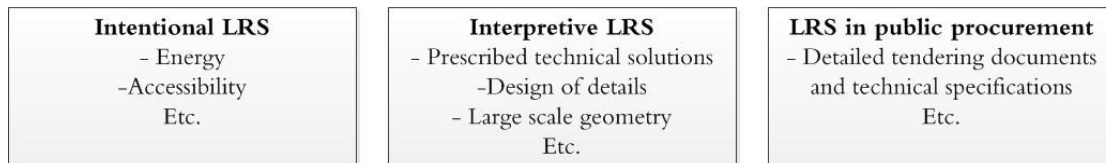


Figure 1: The three different categories of LRS

Intentional LRS is generally motivated by a wish to contribute to sustainable development or as a means to profile the municipality in order to attract citizens and economic resources. Intentional local requirements can be either quantitative, as in the case of energy requirements (observed by respondents R1 - R8), or qualitative, as in the case of accessibility requirements expressed as increased or extra increased accessibility (observed by R1, R2, R3, R4, R6, R7 and R8).

“Municipality A says one thing, municipality B says another and municipality C a third. If we are to build an ordinary multi-family apartment building we face different levels of energy requirements” – R4

According to R1, R2, R4, R8 and R9 intentional requirements are configurable via product development, for example increasing wall thicknesses to facilitate energy requirements. Rather, the problem IHBs perceive with intentional LRS is that they struggle to achieve sufficient repetition when the design solution constantly changes due to variance in requirements, which results in higher production costs. Some design revisions are so major that the project economy will be unable to sustain them.

Interpretive LRS entails the setting of all requirements that are interpretations of national and international goals which are mandated to the municipalities to enforce. Boverket (2011) identified over 100 national political goals, in addition to national strategies, plans, programmes and international strategies and initiatives, out of which at least 40 could be considered to be overarching. Given the abstract nature of these goals planning officers are forced to make interpretations in order to concretise them to a sufficient degree. Interpretive requirements are often qualitative, e.g. prescription of particular technical solutions (observed by R1, R2, R6 and R9) or regarding design of details (observed by R1, R2, R3, R4, R6, R8 and R9). Pre-defined building systems rarely include these prescribed components or solutions, but may include other components or solutions capable of performing the same functions. There are also quantitative interpretive requirements such as highly detailed restrictions on large

scale geometry (observed by respondents R1 - R4). Modular building systems, for example, are limited to certain geometrical dimensions and may not fit neatly into a detailed development plan with highly detailed geometrical restrictions.

R4 and R8 say that the variability of interpretive requirements promotes uncertainty for IHBs, as there is no way of telling which interpretations of which goals will be made for each project. Some interpretive requirements, such as prescription of nonstandardised openings, interfere with the engineering and production methods and as such are not configurable to the building system. These requirements cause serious issues for IHBs and may force them to relinquish projects altogether.

LRS in public procurement is different to other categories of LRS, because the municipality does not act in the capacity of a governmental agency in these situations. Yet, R1 pointed out that planning officers are more often than not involved in preparing the tendering documents and technical specifications. LRS in public procurement is synonymous with high levels of prescribed detail in these documents. R1, R2, R3, R4, R7 and R8 explain that this makes it difficult for IHBs to efficiently compete for the contracts, because compliance with the local requirements means a non-optimal use of the building system which results in a less competitive tender.

AN INSTITUTIONAL LOGICS PERSPECTIVE ON LRS

R1, R3, R4 and R8 think that LPAs have a positive attitude towards IHBs. Yet, R4 and R8 remark, their organisational practices do not necessarily reflect that. The best explanation for this is that representatives of IHBs likely activate different logics than planning officers do. Representatives of IHBs most likely activate market logic to a great extent whereas planning officers could be expected to regularly activate a more diverse set of logics, primarily dominated by state, family and/or community logics. Structural elements such as organisational routines and practices make these logics accessible to the planning officers and thus results in the activation of different social identities, goals and schemas than the activation of market logic would have.

“Even if they understand and respect our situation, their own ambitions and goals for their operation are overshadowing. They will always strive towards their goals and visions, and our situation is forced back.” – R8

R5 and R6 suspect that LRS in public procurements is a result of inexperienced planning officers. This inexperience implies that market logic is not available to the planning officers due to a lack of familiarity. R1, R2, R4 and R8, however, feel that the today's planning officers are very competent and professional. Instead, R1, R2 and R3 claim that the local requirements are caused by traditional organisational routines and practices. Here public procurement should be understood as a routine situational context. Over time particular logics have become highly accessible, severely limiting the chances of alternative logics being activated.

R1, R4 and R8 feel that, due to vague formulations, interpretive LRS often generate the most problems, as it entails that LPAs and IHB can make different interpretations of the requirements.

“Our opinion was that we had interpreted the descriptions in the detailed development plan in such a way that the spirit of the requirement was met, but the municipality made a totally different interpretation. Furthermore, to some extent they accepted deviations from their own interpretation because they liked certain parts of our solution ... but not all of it; just arbitrary.” – R8

In this situation the planning officers and the respondent had relied on different institutional logics when interpreting the requirements. What R8 sees as arbitrary is likely the result of agency. Hedgren and Stehn (2014) describe IHBs' as radical innovation and as such any project involving an IHB should present itself to most planning officers as a novel situational context, thus promoting agency. The difference in embeddedness and uneven distribution of institutional logics among the planning officers enables a wider variety of responses. In this case the planning officers responded by activating unexpected and somewhat incongruent social identities, goals and schemas. The respondents were reluctant to make general statements about interpretive LRS. We attribute that to the varying degrees of situational novelty each planning officer perceives in combination with the unpredictable nature of agency making it difficult to discern recurring patterns.

R1, R2, R4, R5, R6 and R8 noted that some planning officers have more influence than others. In one case R1 and R2 observed that the mid-process replacement of a key planning officer resulted in the LPA radically changing its behaviour. If one individual social actor is replaced by another, particularly when difference in embeddedness is great, this influences the groups shared focus of attention; even more so if that has a strong standing in the internal status hierarchy.

While Thornton's *et al.* (2012) model does not explicitly state it, it stands to reason that when the shared focus of attention between two organisations aligns, i.e. when social identities, goals and schemas resonate, there is a better foundation for cooperation. R1, R2 and R3 observed that municipalities are easier to cooperate with when they have been unable to find a tender with sufficiently low price in the first round of public procurement and since have had to readjust their expectations for the project. It is also supported by observations made by R3, R4 and R8 that it is easier to find good compromises to LRS issues if your arguments for the use of standardisation and repetition resonate with the LPAs' own ambitions for the project. All respondents agree that dialog is most fruitful when both parties focus on finding solutions, and thus finding shared values is viewed as an important factor for successful interaction with LPAs.

"You have to be able to break the code within the detailed development plan and decipher the ambitions that the municipality had for the area when making the design programme. You must be able to do that and still create housing with attractive apartments and reasonable costs for living." – R3

CONCLUSIONS

This paper contributes to practice in two ways. Firstly, we identify three distinct categories of LRS: intentional, interpretive and public procurement-related. Secondly our analysis reveals that not only are local requirements products of underlying cognitive and intra-organisational processes, the outcomes are influenced by the individual planning officers and LPAs themselves. Furthermore, we conduct a theoretical argumentation about how these processes function. Dynamic constructivism illuminates influences of both agency, in the case of interpretive LRS, and structure, in the case of LRS in public procurement. Symbolic interactionism further clarifies that internal power structures allow individual planning officers to greatly influence the LPA's shared focus of attention. The public and political debate about LRS has exclusively dealt with intentional local requirements and thus neglected not only interpretive LRS and LRS in public procurement but also that requirements do not simply emerge from thin air. In light of this, we argue that the

governmental proposition to forbid intentional local requirements is likely to have only a marginal positive effect on the potential for increased industrialisation.

The implications are that there is a continuing need to reform the organisational routines and practices of LPAs related to public procurement in order to better enable IHBs to participate in the tendering. Also the situational novelty IHBs represents to planning officers needs to be reduced, thus narrowing the variety of elicited responses.

This study is based on perceptions of representatives of IHBs. Moving forward this phenomenon will also be explored from the perspective of planning officers. The exploration of planning officers' perceptions of LRS should address the implication that congruent focuses of attention between LPAs and IHBs improve the basis for cooperation. We believe that our respondents' embeddedness within certain institutional logics did influence their responses, yet our analysis did not account for this. Similarly, we believe that when our respondents speak about LPAs or the municipality in general terms they may in fact be speaking of particular individuals. Any influence that the embeddedness of individual social actors has warrants further analysis.

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