

*Example Insights from Applying a Structure
and Agency Perspective to Key Interfaces in
Digital Built Britain*

Dr Reyhaneh Shojaei

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Example Insights from applying a Structure and Agency perspective to key interfaces in digital built Britain; a sensitizing device

As a parallel report argues, a structure and agency approach could be a useful sensitizing device to develop a research agenda. Therefore, we use the Structure and Agency approach to consider key parts of the Research Agenda, specifically the key social interactions found at the interfaces between stakeholders, public institutions, and private suppliers. There are some steps required to identify the research agenda:

- Understanding the capabilities needed and constraints to be overcome in moving to DDB;
- Deciding which of them could be improved by the outcomes of research;
- Predicting the implementation and implication (to value and prioritize the research);
- Identifying this research as part of the Agenda;
- Identifying and labelling other constraints that need changing and contribute to change.

In the process of digitalizing the built environment, constraints can be related to many different aspects, including structure, resources, process and strategy. It is vital to have an inclusive perspective to consider all elements and factors together including context, stakeholders, interaction between stakeholders, and between stakeholders and context.

Therefore, we began to work on four significant categories from those adopted (Figure 1) to find the required capabilities. First, depicting the whole picture by considering structural forces. Second, finding out what is happening inside each box, and third, exploring the interactions between the boxes.

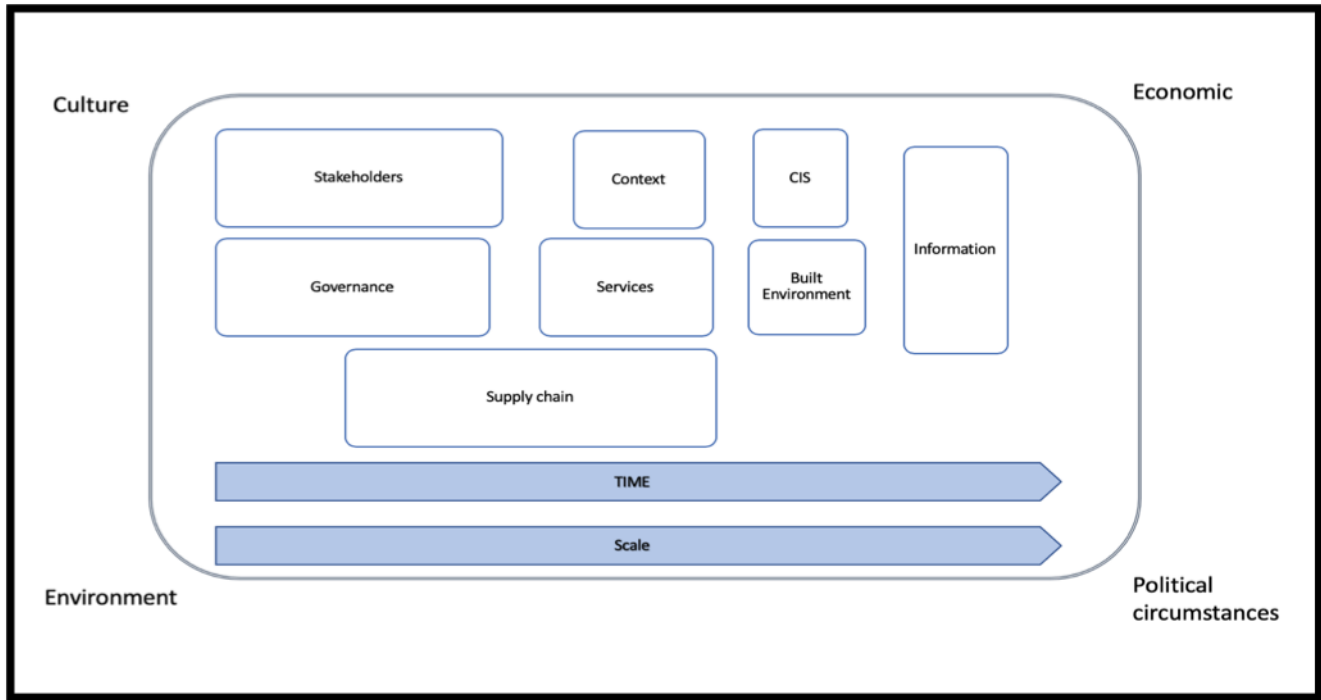


Figure 1 Adopted categories to explore the capabilities required

Before defining the structural forces, it is worth noting that structure is signified as the “medium and outcome” of social interaction. By providing the rules, structures act as mediating devices that characterize the social system. Meanwhile, agents reproduce these structures and the social system. This means that, in the analysis, we do not prioritize either the agency or the structure and we pay attention especially to the interaction of agent and system.

Structures have no existence independent of the knowledge which agents have about what they do in their day-to-day activities, and the duality of structure enables the ordering of social setting over time and space. Therefore, structural forces encompass economic, political, financial, environmental, and cultural circumstances. Regarding structure as a mediating device, it also contains policy, legal and organizational frameworks, laws and regulations, regulatory rule, administrative procedural rules, bureaucratic systems, and standard and contractual structures.

One of the elements of structural properties which is significant in a digitalization process would be political culture which encompasses the influence of traditional ways of accomplishing tasks and stakeholders’ perceptions and expectations.

Considering this point in developing the research agenda leads us to investigate and assess the impact of actors' decisions and actions on the process of digitalization of the built environment.

The exploratory framework below elaborates structural properties and an agency perspective which may enable us to discover capabilities needed by actors.

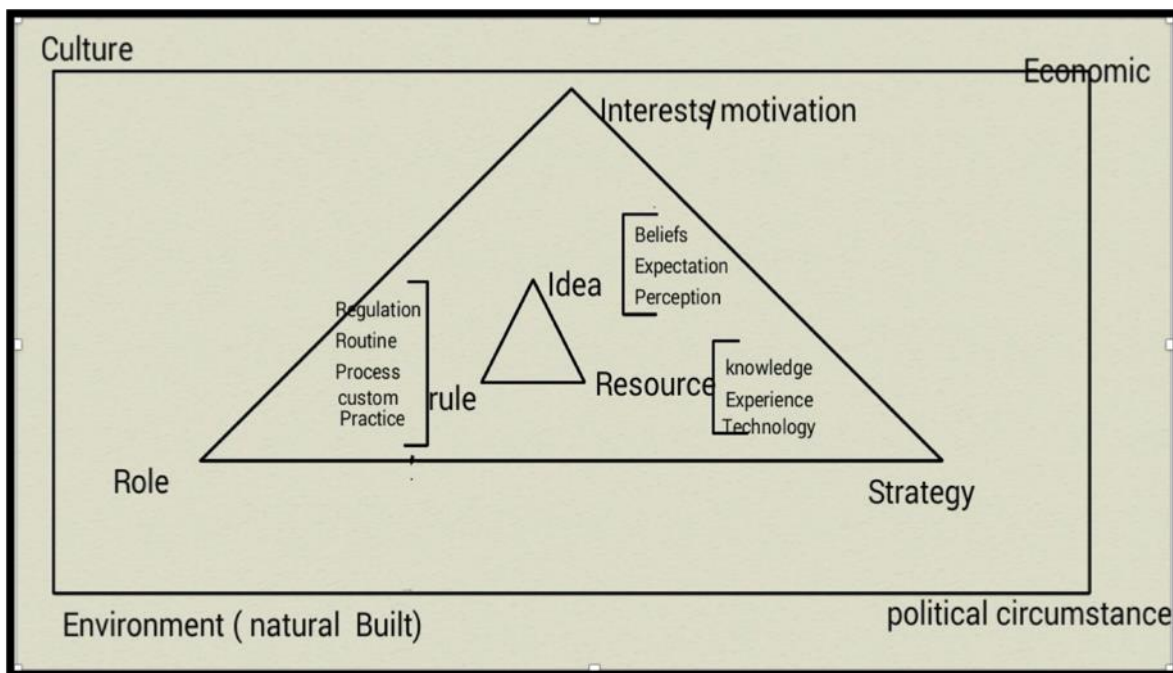


Figure 2 Exploratory Framework

In order to discern value and define stakeholders' interest more accurately, the actors were categorized in three groups encompassing the individual actor, the public organization, and the private organisation. Evaluation of the strategies and interests of actors is an initial step to explore their behaviour and reactions in the face of the process of digitalization of the built environment. It also enables us to explore power relationships between actors in a digital world and detect who might become more powerful in each interaction. This evaluation also relates to "resources", "rules", and "ideas".

Having considered the actors using these dimensions, we can then see what capabilities they need and what constraints they face. Stakeholders’ perceptions and expectations affect the implementation and adoption of digital innovation. We suggest that the concept of “interest sets” will be used rather than “stakeholders” to focus attention more upon the specific requirements of stakeholders in the context of their specific interests, to explore their interactions with service providers in pursuit of those interests, and thereby avoid the generality of the label “stakeholders”.

An individual may belong to multiple social systems or interest sets at once – but their interests drive their behaviour in this context. This interrelationship between interest sets and service and governance domains are shown below.

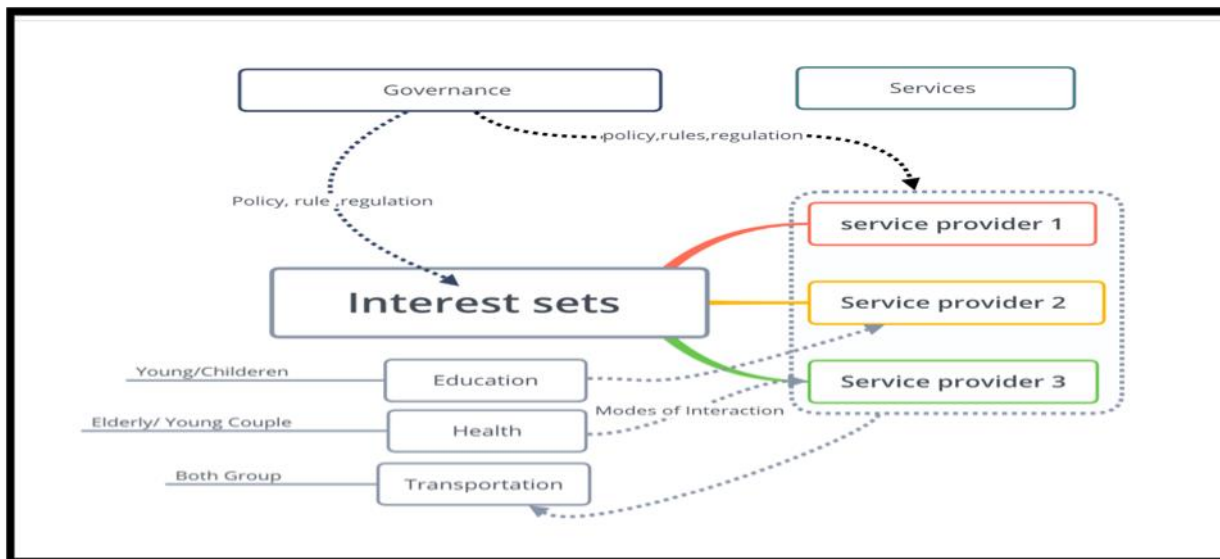


Figure 3 Interactions between Interest sets and Service providers

As we see, rather than considering young people, children and the elderly as different stakeholders, we use interest sets of education, health, and transportation which different groups of stakeholders could simultaneously be interested in. Also, each group could have more than one interest and requirements but with different priorities. For example, elderly and young couples are more concerned with health compared to other stakeholders. However, both groups require transportation.

Figure 4 displays interactions between various interest sets and governance bodies through different modalities of interaction.

The built environment is influenced by institutions through four modalities of interaction;

- 1) *Communicative*: Different institutions such as government, professional, and academia seek a common language for communication. The effectiveness of each negotiation depends upon employing the right language for that particular communication.
- 2) *Political domination*: how different institutions seek authoritative domination (Impose with rules and regulation).
- 3) *Economic domination*: taxation, finance, market power.
- 4) *Sanction*: the way institutional activities are legitimated.

Institutional action must take place within legal bounds and the law defines the sanctions open to institutions (criminal or civil law). However, even a nominally legal activity may lead to conflict with other institutions or individual actors. The law is then invoked to distinguish if the other party's rights are infringed. A good example of this issue would be data privacy in a digital world which needs a new law and regulation. The sanction might be imposed by institutions or private actors in the light of society's norms, customs, practices, and expectations. Analysing these interactions enables us to find out whether the different capabilities needed for each interaction or further research required in a digitally built Britain.

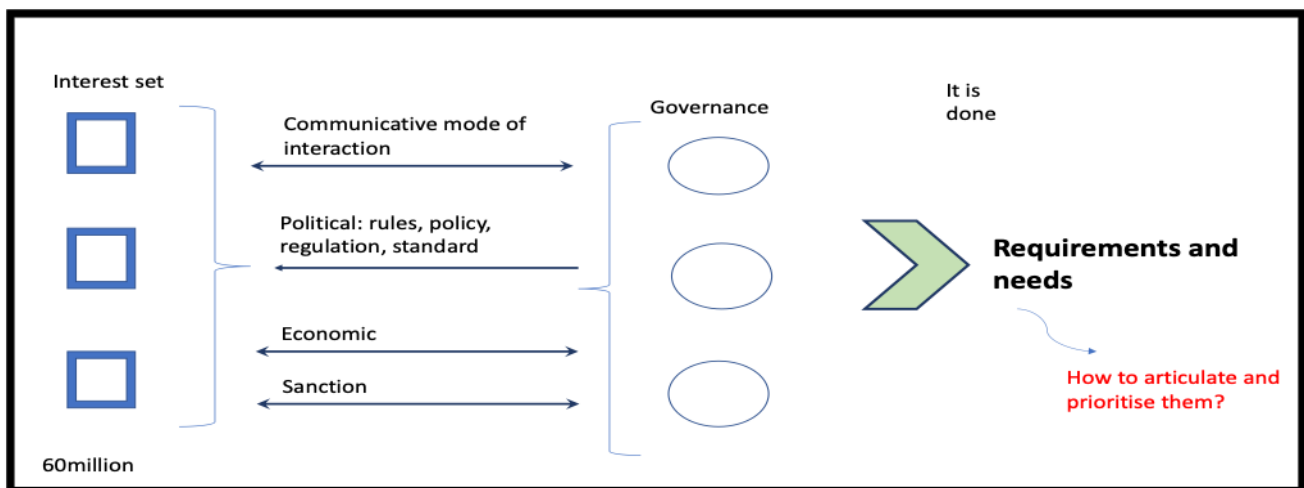


Figure 4 Interactions between Governance and Interest sets

The members of the interest sets also interact with a variety of service providers through different modalities of interaction. One point raised here which needs attention is whether the stakeholders need to be in touch with each service provider individually or whether interact with one organisation provides all types of services. The second issue is to what extent it is possible to have all service providers connected and presented as one provider (See figure 5).

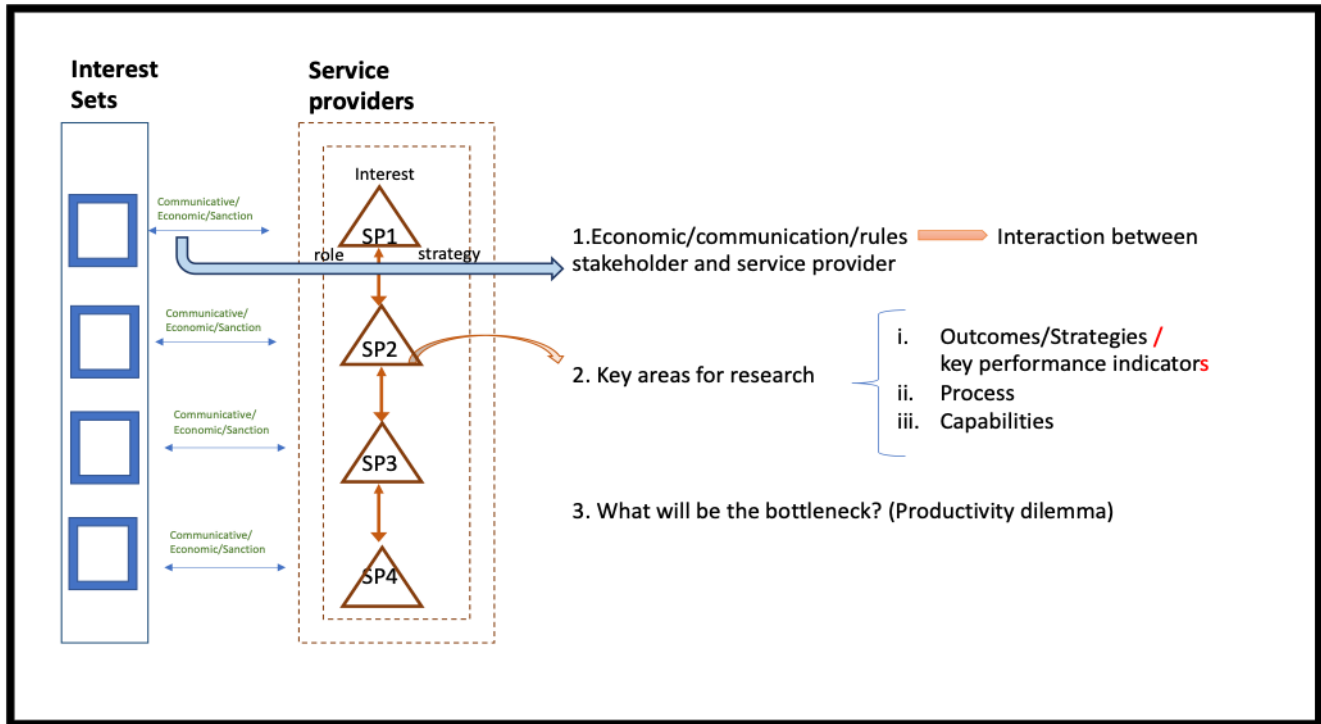


Figure 5 Interactions between Interest sets and Service Providers

Digitalization presents opportunities and threats for each public or private organization and for individual actors. We endeavour to discover how the interests and strategies of public or private organizations and individual actors leave them perceiving digitalization as a threat or an opportunity, affecting in turn its adoption. The process of implantation of digital innovation over time has an impact on the advancement of new technology. It is noteworthy that routine and practice, which now play the role as structural properties, are produced and reproduced over the time by actors in the process of employment of rules and resources. This highlights the importance of time, emphasized by Giddens to show the dynamic of the relationship between structure and agency over time and to consider structure as both a medium and an outcome of social processes

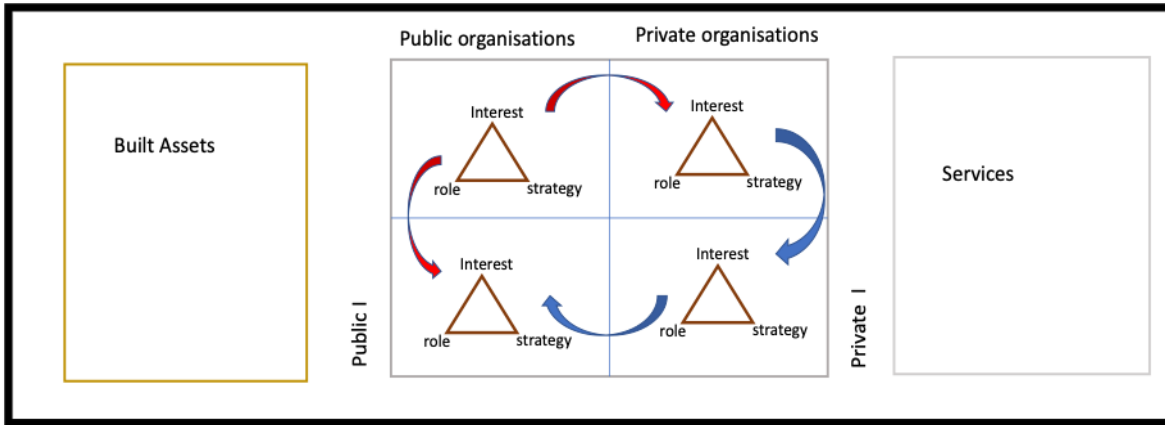


Figure 6 Public and Private Organisation

Regarding the structural level, digitalization is simultaneously considered as a rule and a resource that could be taken as an enabler or barrier for agents associated with their roles and interests. The supply chain is seen as vertical, for example, a series of subcontractors or as horizontal (e.g. we buy a portfolio of products from adjacent suppliers). As depicted in figure 7, to explore the impact of digitalization in the supply chain, we need to analyse its impacts on each organization's dynamic behaviour (1), that is, the interaction between the organization in both a vertical and a horizontal supply chain (2&3). In addition, there is potential research to detect how these interactions might be different between sectors.

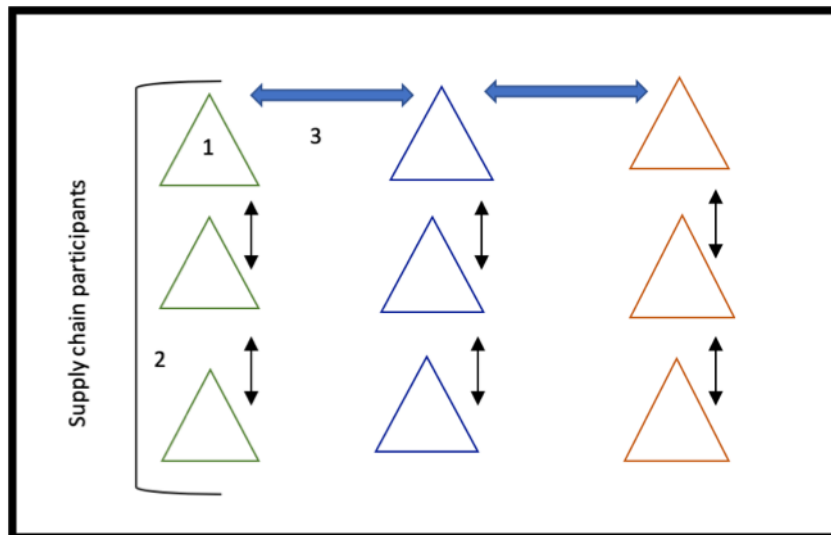


Figure 7 Interactions between Supply chains