

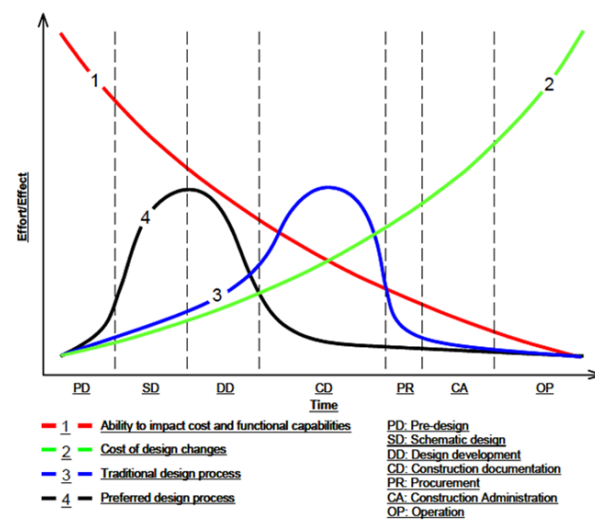
RP3015 INCREASING KNOWLEDGE AND MOTIVATING COLLABORATIVE ACTION ON LOW CARBON AN ACTIVITY THEORY STUDY OF BUILT ENVIRONMENT CULTURE

Research Question

How do multi-organisational project based teams enable a culture of integration using digital technology to plan and design low carbon buildings in Australia?

Digital technologies (i.e. building information modelling, computational assessment, and virtual design and construction) are reshaping the project based culture of the built environment. These technologies coupled with collaborative open dialogue enable project teams to address sustainability and improve building performance in the early design stages by modelling and assessing each stage of the building life cycle. As Figure 1 indicates, early assessment can have significant improvements in project costs, time and effectiveness.

Figure 1: Effectiveness, costs and time (image source: CURT, 2004)



Although research and industry practice in the built environment has progressed significantly in the last 15 years, project

complexity of one off projects, the diversity of stakeholders, temporary project based teams and varying rates of technology adoption have limited the successful integration of opportunities in industry practice. Figure 2 shows the complexity of the multiple layers of the socio-technological system.

Figure 2: A socio-technical view of building information modelling (image source: WPS Group)

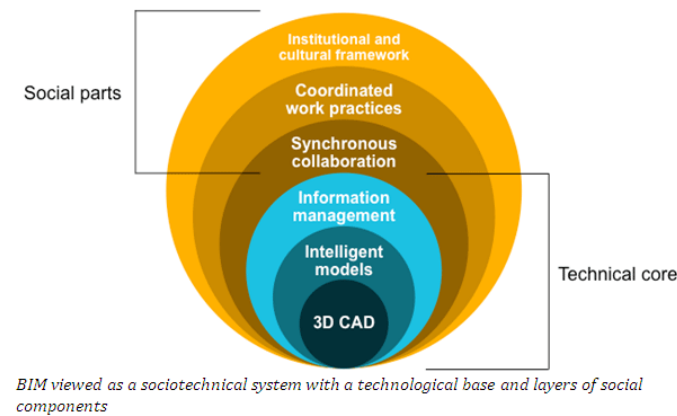
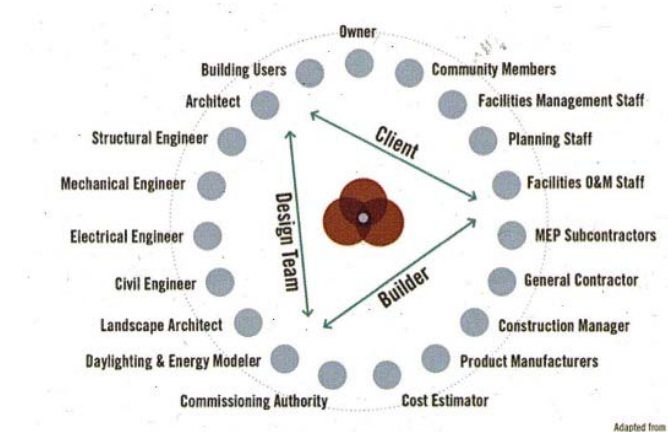
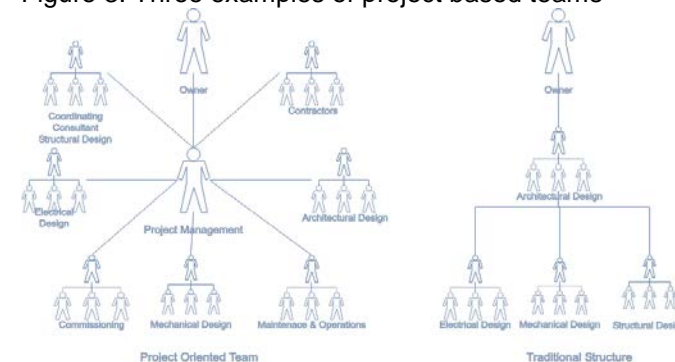


Figure 3 displays the various models of coordination and collaboration with stakeholders dependant on project needs. This research is aimed at understanding the third 'round table' model with diverse stakeholder groups from multiple organisations during the design and planning of a low carbon building.

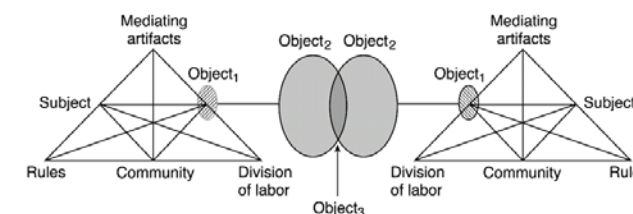
Figure 3: Three examples of project based teams



Methodology

Ethnographic methods will be used to gather data within a project team consisting of a diversity of stakeholders from various disciplines and organisations focused on a series of collaborative activities to gain an in-depth understanding of the methods, roles and underpinning culture in this context. The data collection will include participant observation, alongside a collaborative team, in planning, design, and construction documentation activities, informal interviews and a review of project documentation and technologies.

Figure 4: CHAT Analysis Model



Data will be analysed using cultural historical activity theory to identify and describe the roles, methods, tools and underpinning culture as displayed in Figure 4.

This is relevant to this research because collaborative teams have the opportunity to shape project outcomes at multiple stages of social interaction based on the collective goals, past experiences, and knowledge which may influence accepted industry culture.

Outcomes

The research is in progress, moving into the data collection stage after an intensive lit review etc. By gaining an in-depth knowledge of the shared artefacts (tools and technology), and shared meanings of one project team, the outcomes of the study will offer an in-depth understanding of cultural practices within the built environment supporting low carbon.

Anticipated impacts

The research will offer empirically grounded insights into the industry culture in Australia, based on situated, historical and cultural engagement with a range of diverse stakeholders to understand roles and responsibilities, artefacts / tools / technology and methods.

Further information

<http://www.lowcarbonlivingcrc.com.au/research/program-3-engaged-communities/rp3015-team-based-and-game-based-mobile-learning>

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