

IN SEARCH OF ORGANISATIONAL LEGITIMACY CONSTRUCTION SITES

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As a response to functional ineffectiveness and market pressures organisational restructuring is nowadays becoming an increasing reality of construction projects. Nonetheless, the task of redefining conventional structural and functional boundaries remains a diverse challenge of industry players. Empirical findings on ongoing efforts oriented towards attaining functionally and economically more advantageous governance structures on the sites are outlined. The conception and integration of semiautonomous multiskilled teamwork as an alternative mode of organising site operations governance is in terms of moral and pragmatic considerations theorised. Effective employment of the work strategy appeared to be primarily a matter of feasible dimensionalisation expressed in terms of consistency between the concept's structural configuration and a bundle of technical and institutional elements of the project environment that have a supporting relation to each other. It is outlined that understanding the logic of this texture presupposes adequate knowledge of the task environment. Lack of such consistency makes multiskilled teamwork on the site vulnerable to poor implementability or general failure.

Keywords: construction site, governance change, discrepancy, legitimacy

INTRODUCTION

A growing body of organisational research has examined the emergence of new organising modes across industries and settings, inquiring the cause and purpose of these transformations, and the ways in which they are enacted, given sense, and diffused. Moving beyond traditional hierarchies and functional compartmentalisation of construction projects has over the past decade become a challenging task for the Danish industry players. The need of restructuring conventional project governance structures has emerged in response to several under-achievements, but primarily to a negative productivity growth on - 0,5% yearly average fall (Governmental report 2003). In order to remedy the declining structural effectiveness of project organisations (ATV 1999, Project House 2000, EFS 2000), team-based hierarchies, featuring functionally and economically more advantageous interaction structures, have been encouraged. Research evidences on work organisational change indicate that evolved forms of the concept (i.e. multifunctional or self-directed teams) are particularly appropriate for operations processes requiring less routine and a great deal flexibility, enabling co-ordination and management of a highly interdependent work processes (Cummings & Worley 2001, Daft 1999, Procter & Currie 2000). Whilst acknowledging the mentioned features as highly characteristic to construction processes, the analysis present will highlight certain change conception determinants,

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which in the case studied represented impediments to unproblematic employment of cross-functional teamwork in the construction phase.

Research aims and assumptions

Whilst the principles and techniques of lean construction, conceived as one discrete process governance strategy, are increasingly becoming established components of the construction process control, seemingly on the way towards strategic internalisation, semiautonomous multiskilled teamwork has yet merely gained experimental status. The overall enquiry subject of this paper is the conditions under which the latter was by a project group conceived and enacted and the operational implications of this process. In more details, the study is engaged with the followings. Firstly, the analysis aims at identifying sources of the ongoing structural change in construction projects. Secondly, it conducts an investigation into certain task conception and integration features, assumed to have been exerting ill influence on the concept's technical viability. Rationales used by the actors concerned with the change are in this intent contrasted with a considerable discrepancy occurred between ambitions and practical outcomes. The empirical findings point out that effective employment of semiautonomous multiskilled teamwork as an alternative governance structure to the traditional site work strategy, is primarily a matter of compatibility between the formal structural configuration chosen and a set of complementary technical and institutional attributes of the project environment, expressed in terms of certain project particularities and initial skills of the site crew, respectively industrial relation ties, the incentives system applied. Understanding the logic of this interplay presupposes adequate knowledge of both the conventional site governance practice and its weak links, and the attributes of the work structure desired. As the case investigation will show lack of adequate functional knowledge of the task environment or awareness of the significance of this aspect when adopting a new governance structure leads to poor implementability.

METHODOLOGICAL SELECTION

The theoretical method used in constructing the case interpretation combines neo-institutional theory, organisational economics and elements of organisational change. Drawing on neo-institutional perspectives on organisational change, the ongoing project and site work governance transformations are envisaged as processes of institutional change, where the conventional governance modes are assessed as losing comparative technical and economical advantages, hence functional legitimacy. The case analysis uses legitimacy as a lens to empirically understand and theoretically explain the factors, which confer (or do not) the new governance structure functional legitimacy. Inspired by Sushman's (1995) typology on organisational legitimacy and Greenwood's et al (2002) conceptual framework on stages of institutional change, the concept of semiautonomous multiskilled teamwork as an alternative to site operations governance is in terms of moral and pragmatic considerations theorised. The research methodology used in the ethnography has comprised the following investigation tools: participation at various meetings during the whole project (project steering, pay bargaining, educational support, conventional and restructured site meetings, evaluation sessions, work shops); qualitative in-depth interviews with direct involved actors; study of project documents; informal discussions and field notes. The case study is moreover engaged with the assessment of the demonstration project. A forthcoming report (Marton 2004) on this process

specifies both elements featuring a developmental potential and failings, and makes suggestions for improvement.

Before getting to the analysis part a specification regarding the use of the term governance is for the followings seen necessary. By governance will in the context be understood a harmonising system consisting of a formal structural hierarchy that represents the official work boundaries (i.e. technical division of labour), and a complementary ensemble of handling and mechanisms (formal and informal) that within this structure pursue the organising, coordination, control and incentives of the construction process.

ORGANISATIONAL STRUCTURE, FEATURES AND CHANGE

Unlike service industries or manufacturing each construction project vary greatly in organisation, strategy, management and staffing, requiring altering specialists during different stages of the project life cycle, thus displaying a highly fragmentary interaction and control structure. In effect, the majority of problems associated with construction projects do not relate to their albeit high technical complexity, but are predominantly of managerial and organisational character (Walker 2002).

Transformations of structural character in construction project organizations have in the past decades not been that prevalent. Field scholars claim that main impediments for progress in this area, which simultaneously reduce sustainability and long-term productivity, have sources in the lack of consistency of first and second-tier project suppliers leading to high organisational and informational complexity (Langford 2002, More 2002, Winch 2002), in the industry's established regressive human resource management policy (Green 2000), professionals' fragmented objectives and "cultural non-interoperability" (Moore and Dainty 2001). The extensive decline of construction projects' efficiency, commonly understood in terms of the outlined features, clearly calls for more flexible, collaborative and effective project governance forms.

However, marked control elements infusing traditional hierarchical settings (Zenger 2002) across industrial populations have in the past decade exerted a considerable bearing upon this condition in construction. Aligning to such processes of mimetic character, which tend to reduce local diversity (DiMaggio & Powell 1983/1991, Meyer & Rowan 1987), represents industrial players' response to uncertainty about optimal means to goals, which is a fairly characteristic rationale of the construction industry. In effect, increasingly diffused and legitimated hybrid governance structures, which are intermediate structures of the two polar generic governance forms -market and hierarchy - (Williamson 1991), are presently emerging at both inter- and intra-organisational levels of projects. Assorted forms of team-based organisations like diverse partnerships, the lean production principles and the semiautonomous teamwork on the sites are a few examples of such governance structures.

Given that construction projects organisations are embedded in environments characterised by strong technical and institutional attributes (Walker 2002), and as each form of governance structure possesses "its own disciplined rationale" (Williamson 1991), the choice of a new governance form, whether it constitutes a whole alternative or it is merely a piecemeal solution, entails a proper understanding of its logic (i.e. the supporting relation of its attributes, *ibid.*).

Additionally, the ways in which alterations of traditional governance modes allocate emphasis on the human resource (Green 1999) that during such developments are expected to undergo a transformation from being functional specialists into process generalists is just as pertinent to emphasise in the context. Presently in Danish construction, the adaptation process of lean techniques and partnering acquires substantial support from a recently initiated knowledge program for process management, called "Life Long Learning in Construction" (BygSol, 2004), comprising a countrywide activation of various institutional players of the Danish construction sector, researchers and educational bodies, interactively engaged with designing supportive educational packages and enacting methods. The program encompasses several construction projects involving contractors that seek strategic integration of lean construction and partnering. Incorporating a vast program for inter-organisational collaboration and human resource development, the initiative substantiates a progressive and comprehensive thinking of facilitating structural change adaptation and of its implications for the human resource.

As outlined in the introduction, the focus in this paper is the operational level of the project, examining an attempt on applying semiautonomous multiskilled teamwork as an alternative governance structure to the traditional site leaders centered and work-based governance practice on the site. The extremely fragmentary organisational structure on the sites - both vertical and horizontal - complemented by articulated and strongly institutionalised craft authorities, and by the nomad attribute of the operational human resource, (white collar employment system in some contractor firms is however, an exception) displays a working culture, where the specialists are mainly interested in the efficiency and quality of own workmanship. Heavy coordination and control problems are the overall implications of these features, a condition where numerous boundary and accountability difficulties during the working process become the rule, rather than the exception of working on the sites. Accordingly, the need of applying more flexible, interactive and autonomous work strategies, which reduce vertical coordination and margins horizontal interaction difficulties, becomes evident.

The use of self-governed multiskilled teams in construction has only in the last few years been proposed as an alternative or complementary production governance device on the sites. A multiskilled team in this context is understood as a temporary work crew composed of at least two different crafts managed by a foreman. The assumption is that allocating multiskilled crews to larger work processes will reduce the constraints of trade boundaries and functional partitions, consequently making cross-functional skills development opportune.

Structural change seeks legitimacy

Generally, empirical evidences of structural changes, illustrated from various settings and through different analytical perspectives, are by organisational scholars characterised as fragmented and piecemeal, moreover, lacking understanding of the progression process and configuration of the change (Pettigrew 2000, Whittington 2001). Likewise, institutionalists argue that analysis on institutional change does not set enough emphasis on the sub-processes by which institutions weaken (Oliver 1992, Scott 2001), on theorising the drivers that lead the change from conception towards diffusion and re-institutionalisation (Zucker 1991, Tolbert & Zucker's 1996, Greenwood et al. 2002) or on the influence of agents' rationales on the course of the change (Townley, 2002). Greenwood's et al (2002) conceptual framework for

institutional change encompasses most of these aspects, envisaging the overall transformation and diffusion process as involving six relatively sequential stages, which respectively grasp the occurrence of pressures for regulatory change, the deinstitutionalising and pre-institutionalising features, theorisation, diffusion and finally the re-institutionalisation stage. The paper depicts the theorisation stage from this framework that due to paper size limitation will only shortly covered. Inspired by Tolbert & Zucker (1996) and Sushman (1995) this stage sets emphasis on specification of organisational failings and justification of new solutions in terms of moral and pragmatic legitimacy. In his synthesis on organisational legitimacy Sushman identifies three broad categories of legitimacy termed as pragmatic, moral and cognitive legitimacy, each sharing a “generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions” (Suchman 1995, p.574). As outlined earlier, the analysis present seeks to identify attributes that provide (or do not) pragmatic or moral legitimacy needed by the semiautonomous multiskilled teams in order to “justify” the deviation from the traditional work-based structure on the sites towards integration and diffusion. Pragmatic legitimacy terms a condition, which makes the new solution adopted functionally superior to the old structure or other alternative solutions, and, moral legitimacy is awarded when “nesting and aligning new ideas within prevailing normative prescriptions” (Tolbert & Zucker 1996, Suchman 1995).

THE CASE

The case studied was part of a larger best practice program deployed and led by the Urban Renewal Company in Copenhagen called “The Tool Box”, which encompassed several demonstration projects featuring product and process improvement in urban renewal. Allied with the foreman of the local Construction Trades Association a consultant engineer, an architect and occasionally involved educational bodies, the client advisor established the task developer group. Since the project contract chosen was traditional competitive tendering the contractor was absent from the task initiation and design stage. Devised by the mentioned project stakeholders, the new work strategy was handed over to the contractor, ready for implementation.

The structural division

However, the task of designing a functional architecture for the new governance mode, where redefined technical work boundaries supported by a bundle of complementary infrastructural elements would constitute a feasible change package, seemed not to be unproblematic. The redesigned horizontal organisation consisted of four multiskilled crews allocated to four demarcated building functions: roof, envelope, apartment and staircase, and plumbing and heating. The crews were supposed to interact in an extensively decentralised vertical work division as the function of middle managers was granted to the five foremen. A logistic crew was assigned to supervisory and administrative support tasks such as: material purchasing and distribution, safety monitoring, quality control, etc. and secondary site work activities.

Weekly foremen meetings, replacing traditional site meetings, attended by all foremen, the engineers and site leaders were representing the central cross-functional interaction device. These sessions invited foremen to a more engaged and direct communication with the engineers and site leaders. To some extent, the weekly

production planning resembled the Last Planner coordination structure. Higher extent of involvement in overall planning and coordinating allocated a different emphasis on foremen's responsibility for production, quality and safety. In effect, supplementary coordination meetings were seen necessary, and consequently daily informal meetings were by the foremen organized, requiring too the presence of one site leader.

Complementary governance attributes

A bundle of supportive elements containing enhanced project information, education, work performance assessment and incentives, were devised. The educational program, consisting of a package of one-day project introduction seminar and 12 periodically held teambuilding sessions combined with work process assessment, required active attendance of all operatives, site leaders, the engineers, construction union representatives, the client advisor and an evaluator. The assessment process consisted of systematically conducted work performance evaluations based on a collaborative analysis of 15 qualitative indicators related to factors such as: cross- functional interaction, staffing, safety, wage, work acceleration, delays, rework and progress. Assessment results were registered and represented in coloured schemes, which utilising a scale of red, yellow and green, indicated periodical states of the aspects assessed.

The pay system bargaining enclosed both quantitative and qualitative demands covering wage and pay supplement issues, respectively work safety, boundaries spanning and training. The design of an adequate incentive model, which would engage and motivate operatives for cross-functional interaction entailed extensive negotiations ending with an agreement upon an informal (i.e. still open to negotiations with the trades) cross-trade piecework payment model combined with a small collective pay supplement restricted by strict quality, safety and delivery indicators.

Outcomes

During the staffing process the wage model devised has by the trades employed been promptly discarded due to considerable differences in the trades initial rates of wages, which in a cross-trade piecework model would for some trades (i.e. bricklayers and carpenters) not provide a satisfactory earning. In effect the conventional trade oriented piecework payment became re-established. Similarly, due to a strong incompatibility between the work- and the building breakdown structure while allocating the four multiskilled crews to the selected building functions, no multiskilled teamwork has been accomplished. Thus, the traditional work –based horisontal structure, became already at the start period re-established. However, the weakly foremen meetings and the later on informally initiated daily coordination meetings, complemented by the evaluation and training sessions did set a certain degree of cross- functional interaction in movement, indicating a likelihood towards horisontal as well as vertical upskilling of foremen. Although this outcome represents a progress feature worth of note, when compared with a delivery delay estimated to 25% of the project time as the effect of implementation efforts, it might not have an overwhelmingly motivating effect on contractors for enrolment in future similar tasks.

DISCUSSION

Despite emerging signs on the concept's practical incompatibility during the integration process, visible struggles of interests in supporting the myth (i.e. the concept devised) and maintaining its legitimacy and the gathered reputation as change promoters were present and persistent throughout the project. Since a larger

community of the sector monitored the case this seemed to be important (Meyer & Rowan 1977; Meyer & Scott 1983), especially for the unions representative and the developer engineer. When the breakdown occurred, struggles turned into justifying failures in terms of divers “barriers”, however, others than ones divulging own faults related to the task organizing approach chosen. Facts such as engagement with the assignment whilst lacking adequate knowledge of the task environment or deliberate choice of a project contract, which excluded the contractor from the conception phase, assuring thus a very slight possibility for questioning its feasibility, were not invoked as justifying factors. The aspirations involved in engaging with the development were thus, various. It seemed that institutional arguments have dominated efficiency oriented ones, considerably weakening the pragmatic legitimacy of the concept.

As the project price did not include an appendix for the demonstration part, all developmental activities were carried out on the project budget. In effect, the contractor's factual commitment to the change became careful, engaging merely with those restructured activities, which did not seem to endanger the project time schedule. Yet, the efforts of performing these activities caused an extensive delivery delay. Some members of the developer group perceived the contractor’s initial attitude and the “occurred” wage divergences as " the main barriers to such developments " and consecutively as the sources of the project delay.

Prior to specifying some operational implications of the implementing efforts, there is a need to specify the kind of relation construction operatives have to the project and employer companies. Firstly, both display an eager sense of temporality, which leads to the second assumption, that is, site operatives demonstrate engagement of *behavioural* character (Guest 1987) pursuing interest in the task and the handlings connected to it, rather than engagement of *attitudinal* character (ibid), which expresses the degree of individuals' acknowledgement of employers’ – and in this case also project stakeholders' - objectives. In the context this would mean that craftsmen (in the Danish industrial relations system) would at best reject actions, which are not perceived to have a meaningful impact on the work or on its outcomes, and at worst, would quit the site, consequently the company. Due to indistinct and/or technically unworkable work boundaries as well as unsatisfactory incentives both kinds of episodes have occurred during the implementing stage, fostering consecutive uncertainty, frustrations, resistance, co-ordination difficulties and delays.

Inspiration for identifying and conceptualising the elements of cross-functional interaction in practice is taken from a general theoretical framework on teamwork developed by Thompson and Wallace (1996) – se fig 1. The model offers an analytical tool for testing or identifying teamwork functionality and its embeddedness in different organisational and institutional settings.: The governance, normative and technical attributes are conceived as the main dimensions of teamwork functionality, which by incorporating a range of competencies across the task such as analytical and problem solving, behavioural, and skills necessary to reduce horizontal and vertical work interfaces provide a flexible technical division of labour (Findlay et al 2000).

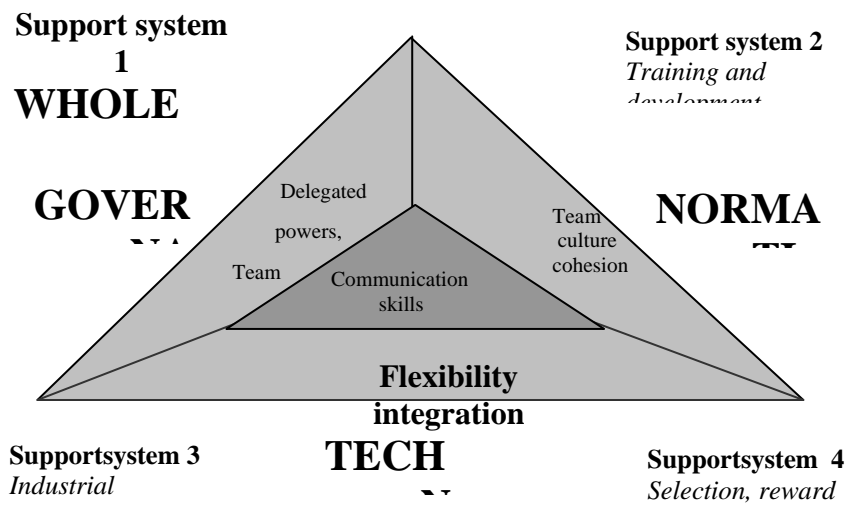


FIGURE 1. BASED ON THOMPSON AND WALLACE 1996 TEAMWORK DIMENSIONS MODEL

The functionality of the three dimensions entails involvement of four support functions, which are similar to the ones employed by the case investigated.

As mentioned earlier whilst the formal structure for crossing horizontal boundaries failed, the elements devised for vertical decentralisation, although impacting the project time schedule, showed to be applicable in practice, featuring a potential for cross-functional upskilling, however merely involving the foremen and the professionals. According to the teamwork dimension model the mentioned interactions types can be associated to the *technical* and *governance* dimensions of teamworking. The high extent of empowerment with decision rights allocated not only a sharper accountability for production and safety governance, but also new conducts of behaviour among the trades, indicating the presence of the *normative* dimension of teamworking. Consequently, albeit the major part of the initial multiskilled teams project failed, certain teamworking functionality was, nevertheless, present.

The findings also showed that aside an adequate structural division of the labour semiautonomous multiskilled teamwork also entails adequate communication and cognitive skills so that exchange of technical knowledge, especially valuable knowledge of tacit character, effectively can be pursued. Out of five foremen it was only one who possessed sufficient technical and cognitive skills to conduct cross-functional dialogs with the professionals and take cross-functional action. Decision right delegation to carry out managerial responsibilities couldn't thus be automatically equated with empowering as the foremen lacked the knowledge and skills required to carry out such tasks. The process of developing vertical skills seemed to require a substantial contribution in order to be able to fulfil the demands of production managerial responsibilities in the absence of experience. Accordingly, an essential condition for new knowledge production is the existence of a meaningful communication process, the rigour of which is partly dependent on the above-mentioned support systems and interaction structure, and partly on the team player's ability to interact and learn.

On the basis of these findings, a slight supplement to the team dimension model is attempted. Suggesting that by adding *communication skills* to the framework as an indispensable attribute for efficiently exchanging knowledge and “gluing” the dynamics of governance, normative and technical dimensions of teamworking, the model would offer a more comprehensive representation of this work form. The initial framework comprises all constituents of the figure, but the triangle in the middle.

CONCLUSION

Evidently, the structural and infrastructural attributes presented, which were meant to define semiautonomous multiskilled teamwork as a discrete governance structure, differentiating it from the initial strategy, displayed a weak functional validity. The implementation efforts sustained by the developers’ normative persistence on “giving a chance to the concept” has exerted a negative impact on work performance and, hence on the overall project efficiency. The initiative was by the operatives and the site supervisors assessed as a radically “oversized” or “much too idealistic” change experiment, not possessing substantial tangibility with “the real aspects” of working on the site. This was mostly interpreted in terms of inconsistency of the organisational structure and the wage system, which was neither “fitting” with the structure chosen, nor with own “objectives”. Regarding the human resource support, although the task conception did comprise training, economical incentives and involvement, these elements did not exert considerable effect on the development. Empowerment conceived as delegation of decision rights to foremen to carry out middle management responsibilities appeared roughly and extensively set out. Lack of functional knowledge of the task environment and the institutional arguments sustained by some of the developers throughout the process has not only led to a severe discrepancy between ambition and outcomes and an extensive delivery delay, but also to certain moral implications of experimenting with change on fairly vague premises. Thus, structural change at the operational level in Danish construction, a setting that exhibits strong institutional ties (i.e. particular industrial relations, wage agreements), needs to set emphasis on professional knowledge of the task environment prior engaging with such tasks, or on strategic considerations of this governance structure if resources and reputation are important. Cross-functional teamwork as an alternative or complementary governance structure to the traditional work practice on the sites necessitates a feasible architecture of its structural elements, which takes account of the specifics of the given project, as well as it entails a complementary infrastructure containing a valid incentive and control system and lastly, but not the least requires certain cognitive and communication skills. Lacking such consistency, the concept in a construction setting, is not likely to make the transition process from its theoretical conceptualisation towards integration or diffusion in terms of moral or pragmatic legitimacy, merely gaining, at best, a poor implementability, and at worst an experimental status.

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