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# The role of projects in shaping businesses capabilities and structure since the 1960s

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## ABSTRACT

Project studies have emerged as a thriving subfield of management and organisation research. Central to project studies, is the idea that engaging in projects has long-term effects on businesses capabilities and structure. While understanding organisational change has been central to business history's mission, historians have paid little attention to the role projects play in shaping organisations. We address this gap. Based on three cases, we analyse why and how businesses in different contexts increased their engagement with projects, whether their engagement was part of a conscious strategy, and how it affected their structure and capabilities. The article contributes to business history by showing how concepts developed in project studies cast new light on projects as a historical phenomenon and provides a valuable theoretical framework for explaining organisational change. Based on this, we suggest projects constitute a fruitful avenue for further historical research and interdisciplinary dialogue with management and organisation research.

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## Introduction

In *Reimagining Business History*, Philip Scranton and Patrick Fridenson (2013) invoke multiple promising themes business historians can develop to further energise our stream of research. *Projects* are one of these. Following estimates based on World Bank data, Scranton and Fridenson hold that some 20% of global economic activity takes place within projects.<sup>1</sup> Attempting to develop a more reliable way of measuring the role of projects within different economies, Yvonne-Gabriele Schoper and colleagues (2018) recently argued that in the economies of Germany, Norway and Iceland respectively, projects account for 34.7, 32.6 and 27.2% of activity. If such estimates are even close to accurate, it would make projects key to understanding how businesses work and interact with each other.

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According to management research, such estimates should be understood as resulting from organisational trends dating back several decades. Summarising decades of research on project management and organisations, scholars have argued that, from the mid-1960s, the role of projects within business has increased, changing the capabilities and structures of companies. (Lundin et al. 2015; Packendorff & Lindgren, 2014; Schoper & Ingason, 2019). Since the 1980s, the effects on businesses of a globalised and more competitive economy have been debated within different strands of research. In general, scholars have noted a change towards more flexible organisational forms (Chiapello & Boltanski, 2005; Piore & Sabel, 1984; Whittington et al. 1999). Business historians have investigated whether networked and vertically specialised companies have, since the 1980s, eclipsed the large multidivisional companies as the most successful (Chandler, 2005; Lamoreaux et al. 2003; Langlois, 2003; Lazonick, 2010). Project scholars, meanwhile, see projects and project-based companies as vital to understanding how business organisations have been reshaped (Lundin et al. 2015).

Projects have been viewed as a flexible organisational response to a competitive environment that requires more dynamism. The salience of projects could thus represent a form of convergence, a new 'logic of organizing', within a changing world of business (Whitley, 2006). The 'projectification' concept, coined by Christophe Midler in his work on the French car-manufacturer Renault, encapsulates the project-oriented transformation of businesses (Midler, 1995).<sup>2</sup> This process is characterised by businesses developing capabilities tailored towards managing the particularities of doing projects and softening organisational boundaries to ease the flow of resources and personnel according to shifting needs. In its purest form, projectification is associated with a new organisational structure: the P-form organisation, in which projects are the primary mechanism for coordinating and integrating the main functions of the company (Hobday, 2000; Midler, 1995; Söderlund & Tell, 2009).

In this article, we draw inspiration from the field of project studies (Geraldi and Söderlund, 2018). Utilising theories and concepts developed by project scholars to analyse the effects doing projects has on organisations, we fix our gaze on three Norwegian businesses: Stord Yard (SY) – a subsidiary of the industrial conglomerate Aker ASA, the multidivisional company Kongsberg Weapons (KW), and Årdal og Sunndal Verk (ÅSV) – a large player within the Norwegian aluminium industry.<sup>3</sup> The case selection is based on the fact that these businesses, starting in the 1960s and '70s, each faced fiercer international competition and pressures to adapt, developments that coincided with an increased project engagement. The objective is to shed light on the relationship between increased project engagement and organisational change, whether, and in what way, these businesses became more project oriented, and whether becoming more project oriented was part of their strategic efforts to stay competitive.

Following this line of questioning, we take on the challenge from Scranton and Fridenson, exploring the gains for business historians from paying closer attention to the role of projects. Doing this, we contribute to business history literature, first by drawing attention to projects as a phenomenon worth pursuing analytically, showing that concepts and theories developed within project studies help illuminate aspects of organisational change largely overlooked within business history. Second, by discussing whether these organisations followed converging trajectories, we add new insights to business historians understanding of how firms adapt to a changing economy. In addition, there is a long-standing tradition of interdisciplinary dialog between management and organisation studies and business history.

Developing narrative arguments based on concepts and theories from project studies, we aim to add nuance to the understanding of projectification as an organisational trend.

In the following sections, we start by laying out our understanding of *projects* and *projectification* as a concept, phenomenon, and a field of research, and proceed by presenting our methodology. Through these steps, we develop more specific empirical questions that we answer through narrative accounts of the three cases. In a concluding discussion, we first highlight differences and similarities between the cases, before discussing how the theory of projectification and theoretical perspectives utilised within project studies helps to expand business historians understanding of organisational change within businesses.

## Projects, projectification and organisational change: previous research

Within project studies, a *project* is typically defined as a temporary form of organisation with a clearly defined goal, uniting 'actors' from different organisations or different parts of an organisation who interact closely to realise the defined goals, and who disband after the goals are met (Lundin et al. 2015). Defined by their temporary nature, projects constitute the opposite of the norm within business and working life: companies defined by their permanent nature (Lundin & Söderholm, 1995). The question is then whether projects, as temporary endeavours, have lasting effects on the permanent structures of organisations.

Project scholars argue that businesses have viewed projects as flexible organisational responses to an increasingly unpredictable business environment. More than just *doing* projects to reach specific goals, projects have become a *model* for organising business in general. Projectification, scholars elaborating on Midler's conceptualisation argue, results from strategic choices made by management, and has influenced the way businesses organise their production, their organisational structure, and routines – the sum of their resources and capabilities (Bergman et al. 2013; Davies & Hobday, 2005; Gemünden et al. 2018; Lindkvist et al. 1998; Söderlund & Tell, 2009).

The theories of projectification and project-based organisations build on and challenge Alfred Chandler's narrative of how businesses achieved success through the twentieth century. For Chandler, the rise of the modern industrial enterprise in the late nineteenth century was intrinsically linked with the strategy of diversification and the M-form company (Chandler, 1962). Expanding on his own notion of how to explain the emergence of successful firms and what separates them from the unsuccessful ones, Chandler posited that it is the development of organisational capabilities that enables and strengthens businesses' ability to effectively take advantage of economies of scale and scope (Chandler, 1990). Organisational capabilities reflect a company's ability to learn from the broad spectrum of 'knowledge-acquiring processes involved in commercializing new products', mirrored in physical facilities as well as human skills (Chandler, 1992).

Chandler's theories mirror the 'Fordist model', where markets are organised around standardisation and mass production. Since the 1980s, scholars have theorised the end of the Fordist model, arguing that businesses are turning away from mass production and reducing unit costs as a means for achieving success, striving for flexibility and innovation (Lamoreaux et al. 2003; Piore & Sabel, 1984; Sabel & Zeitlin, 2002). Building on Chandler's notion of organisational capabilities, project scholars have proposed the concept of 'project capabilities': Capabilities built through the knowledge-acquiring processes that derive from working in different organisational and industrial settings, while aiming to identify structures, routines

and competencies that ensure continual improvement of the organisation's ability to develop and execute projects (Brady & Davies, 2004; Davies & Brady, 2000; Söderlund & Tell, 2009). Project capabilities reflect the ability of business organisations to adapt their skill set and routines to effectively tackle shifting contexts (Davies & Brady, 2000).

Understood as a theory of organisational change, the notion of projectification could be construed as inherently historical. Historically oriented analyses of businesses going through such processes are, however, scarce. Scholars utilising the concept of projectification typically do so based on shorter timespans and real-time data.<sup>4</sup> Projectification is commonly asserted as the present state of things, in contrast to how things were in the past. Aside from Midler's work on Renault, Jonas Söderlund's and Fredrik Tell's analysis of the multinational engineering company ABB is the most prominent example of an empirical and historically oriented study of projects as a model for organisational change.

Söderlund and Tell (2009) argue changes in ABB's management and organisation were caused by strategic choices to engage in projects that deviated from their core business activities and fundamentally challenged their existing capabilities. These projects, by Brady and Davies (2004) coined 'vanguard projects', spurred changes in how ABB approached and executed succeeding projects (Söderlund & Tell, 2009). Söderlund & Tell provide a chronological empirical narrative organised around the concept of 'project epochs' that highlight this gradual development of project capabilities. The concept of project epochs draws attention to how logics of project-based production can be separated from the organisational capabilities built to exploit economies of scale and scope. In this way, they suggest a theoretical framework for understanding how projects, stage-by-stage, shape capabilities, strategy, and structure of firms. Each epoch serves as a stage for the evolution of new project capabilities, the P-form organisation thus represents the last step in ABB's evolution from the Chandlerian M-form.

Leading project scholars argue projectification represents a general trend in business life and societies (Lundin et al. 2015; Schoper et al. 2018). In combination with staged-based theory driven narratives like the one proposed by Söderlund and Tell, or by Midler, projectification reads as a general narrative of a changing world of business. One in which organisations and activities increasingly, and in certain ways, have become project-oriented. The idea that project-orientation represents a general trend, have however, been questioned by Richard Whitley (2006). While acknowledging the increased significance of project-based organisations, he argues that such organisations differ considerably, and that we need to consider the differing industrial contexts such businesses operate within. Project scholars like Sylvain Lenfle and Jonas Söderlund have also argued that paying more attention to the role of projects in history could 'give (...) a feel and understanding of a particular context, (...) to locate particular techniques and innovations in a specific context, and thereby create a better understanding of them, their use, and contours' (Söderlund & Lenfle, 2013). They pinpoint several areas suitable for investigation (Lenfle & Söderlund, 2016). While Lenfle has made considerable efforts in drawing lessons from singular projects like the Manhattan project (Gillier & Lenfle, 2019; Lenfle et al., 2016; Lenfle & Loch, 2017), one of the areas they suggest where research is lacking, is 'corporate project history', focussing on how companies over time become 'projectified' (Lenfle & Söderlund, 2016). Correspondingly, they too have called for business historians to engage (Söderlund & Lenfle, 2013).

The long-term evolution of management practices, strategies and organisational forms is a classical theme for business history, and the role of projects in history has in fact also received considerable attention. What we find lacking are efforts joining these two perspectives. In

business history, economic history and history of technology, projects often appear in stories leading up to the genesis of companies or new lines of business or in tales of 'megaprojects'. Historians have shown how infrastructure and construction projects laid the foundation for the Industrial Revolution and the capitalist economy (Chandler, 1990; Linder, 1994); how big businesses relied on R&D departments overseeing projects as their main mode of operation (Chandler, 1977; Hughes, 1993); and how, in the wake of WW2, big science projects paved the way for innovation, new products and businesses, while systems engineering and project management became part of the curriculum at universities and grew as a field of knowledge to be utilised in military-industrial projects (Johnson, 1997; König, 2008).

Some historians taking on projects in their research have thus acknowledged that projects as a phenomenon have shaped the technological systems that businesses are part of and may have affected the knowledge base of managers and organisations (Álvaro-Moya et al. 2021; Hughes, 2004; Scranton, 2014). Keetie Sluyterman, one of few who link organisational change to the need 'to tackle huge, complicated, and expensive projects', has shown how changing market conditions shaped organisational change in Shell (Sluyterman, 2007; Sluyterman & Wubs, 2010). In particular, Alex G. Gillett and Kevin D. Tennent have analysed megaprojects in the form of grand scale sporting events, showing how the project as a temporary organisation, its structures and capabilities, takes shape in the intersection between competing institutional logics of different firms and public agencies (Gillett & Tennent, 2017, 2018, 2022).

Gillett and Tennent carve out a window onto a part of business life that has received little attention and exemplify what historians may gain from analysing projects. In line with many project scholars, Gillett and Tennent make 'megaprojects' the object of study, and their analysis thus revolves around singular events and temporary organisations. Analysing the 1966 Soccer World Cup, they contend that this megaproject resulted in the softening of organisational structures and an effective interagency cooperation between businesses, the FA and state agencies. They conclude by showing that all this productive cooperation across organisational boundaries was dismantled as the project was finalised. For the actors involved, they argue, this represented a missed opportunity for sustaining successful relationships and building capabilities (Gillett & Tennent, 2017). As Gillett and Tennent study single events, the question of whether projects have lasting effects on structures and capabilities is not part of their research agenda. In general, it's a question that business historians have paid little attention to.

While historians are yet to investigate the role of projects in shaping modern-day business, they have engaged with theories of a changing economy, and how such changes affect organisations in terms of strategy, structure, or capabilities. Business historians have debated the 'boundaries of the firm', challenging the validity of the Chandlerian narrative, and have increasingly reflected on and investigated the effects of globalisation; generally observing 'a search for more flexible forms of organizations' (Jones, 2008a, 2008b; Kipping et al. 2016). William Lazonick analysed the possible transformation from an 'old' economy in which mass production and M-form companies could thrive to a 'new' economy that favours innovative and more flexible businesses (Lazonick, 2010). Niall G. Mackenzie and colleagues (2022) recently added to this strand of literature showing how businesses can stay competitive by developing dynamic capabilities that help them adjust quickly to shifting demands. Notably, business historians utilising the strategy, structure, ownership and performance (SSOP) framework have taken the M-form companies and Chandler's strategy-structure thesis as

their point of departure, analysing its prevalence and diffusion in Europe, asking how company strategies and structures have been influenced by globalisation and market integration (Colli et al. 2012; Higgins & Toms, 2011).<sup>5</sup>

The SSOP-framework is the most ambitious comparative endeavour initiated by business historians aimed at understanding how businesses react to changes within the economy. As Richard Whittington argue however, the SSOP-framework focuses on strategy and large-scale organisational change, while 'subtler dimensions of structural evolution' are left out (Whittington, 2011, p. 171). As we see it, concepts like project capabilities, project-based companies and projectification direct the analytical gaze beyond the formal structure and top management, towards routines and competences in the lower echelons of the organisation. Such concepts could help shine a light on organisational changes the SSOP-framework leaves out.

Thus, summing up, the following factors warrant a research agenda for business historians centring on the relationship between projects and organisational change. First, management and organisation scholars have documented the increasing significance of projects within the economy, and projects scholars have demonstrated how projects play a part in reshaping organisations. Second, while organisational change has been central to the field of business history, and business historians have paid attention to singular projects in history, they have largely overlooked the role of projects in shaping organisations. Third, while the term projectification implies a temporal perspective, within project studies there are few contributions that study change within a timeframe suited to discuss periodic trends – ruptures and continuities. Finally, the notion posited by project scholars, that projects and projectification might represent a form of convergence towards project-oriented business, is an empirical question well suited to historical analysis. A contextual analysis of our kind, where we compare differing forms of project activities across different organisational settings and look for continuity and change over time, will provide nuances and elaborations on projectification as a general trend.

## Methodology

To study how increased engagement with projects has affected the structures and capabilities of businesses since the 1960s, and to consider whether projectification represents a form of convergence, we analyse businesses that operate within different settings, where different forms of project activities played different but prominent roles. We thus follow Whitley in expecting that studying projects within different business contexts may show that project activities have affected organisational change in different ways (Whitley, 2006).

Our analysis in this article rests on our previous engagement with these businesses through research that gave us access to a wide range of sources: oral and archival. The field of project studies inspired us to revisit this material, viewing it through a new theoretical lens. The businesses analysed in this article were thus chosen because project activities had already been identified as vital in their history, and because they provide different entry points into answering the question of whether similar trajectories can be traced within different business contexts. In our line of questioning, convergence implies looking for similar patterns of organisational change in different contexts.



As objects of study, SY, KW and ÅSV represent different industries. With a core in weapons and shipbuilding/offshore-construction, both KW and SY have operated within industries characterised by varying degrees of mass production that have been transformed towards markets for small-batches and tailor-made design. As an aluminium producer, ÅSV has maintained the characteristics of mass production, and within ÅSV projects were introduced as R&D initiatives aimed at improving productivity. Within KW and SY projects became essential to a larger degree; partly for the development of new products, and partly as projects were a distinguishing feature of the products themselves. These cases thus allow us to investigate the role of projects in relation to a variety of structures, activities, and strategic considerations.

As the businesses analysed differ, and were chosen for that very reason, the material and focus within each case varies. SY has remained a single unit (firm) operating within the context of a conglomerate situated in a project-based market. The analysis is based on material that reflects SY's struggle to position itself both within the conglomerate and the market, on firm-level innovation, and on the composition and skills of the local workforce. KW/KOG is a conglomerate, and the analysis is based on material that illuminates the strategies of top-level management, the significance of project management training, and the role of projects in shaping capabilities. The third case takes on more of an industry perspective, while still narrowing in on ÅSV. The analysis is based on material that shows how involvement and collaboration in R&D-projects affected organisational capabilities and boundaries both within ÅSV and the aluminium industry.

Projectification was conceived as a descriptive concept, capturing the role of project organising in the development of Renault. Through its increasing use within management and organisation studies, the concept has grown into what we as historians interpret as a general narrative of change. Project scholars demonstrate the significance of projects within businesses and posit that businesses become more project-oriented through stages. In this way, they establish a chronology that shows how emergent new capabilities by necessity are tied to former developments.<sup>6</sup> Each stage serves as a premise for further development, which also means that the context for each evolutionary stage: the conditions from which new capabilities emerge, is the previous one. This way of contextualising through theory detaches project activities from their historical context, for analytical purposes, to highlight general patterns and historical ruptures. Such an approach is useful for the purpose of developing and testing general theories, but as historians, our analytical interest and methodology differs from that of project scholars. In line with Rowlinson, Hassard and Decker (Rowlinson et al. 2014), ours is a reflexive approach, aiming to uncover the historicity of projects. Rather than establishing an idea of chronology in the form of distinctive epochs or generations, our interest lies in situating businesses project activities in a broader historical context – analysing changes and continuities. And, to paraphrase Lenfle and Söderlund, in creating a better understanding of techniques and innovations associated with project activities – ‘their use, and contours’ (Söderlund & Lenfle, 2013).

Rather than presupposing a specific evolutionary trajectory in line with theory, we ground our approach on an open-ended ‘process-analysis’: an approach utilised within a comparative historical method to test theoretical constructs and provide nuance (Mahoney, 2004). Our analysis is based on triangulating secondary sources: previous research on these businesses and the industries they operate in, with primary sources, both archival and oral (Kipping et al. 2014). This process of triangulation allows us to make inferences between the market



situation (context), strategy, and organisational changes (effects). Through this we develop narrative accounts that illuminate the contexts within which project activities grew and the imprints they left. Specifically, our analysis focuses on three aspects of organisational change:

1. To uncover whether engaging in projects affected the permanent structures and capabilities of these businesses, we re-interrogate previous accounts that shed light on structural development and triangulate with primary sources. We investigate if there have been changes in the formal organisational structures: for instance, transforming the companies from M-form to P-form organisations, and whether these businesses have been marked by subtler organisational changes not mirrored in organisational charts, for example only visible through changed patterns of action.
2. Consulting material that provides insight into management training programs, the skills and composition of the workforce, and organisational procedures, we analyse whether the businesses developed project capabilities: knowledge, skills and routines aimed at improving their dynamism and ability to win or execute projects within different contexts.
3. Finally, we assess the imprint left by increased project activities on the organisation, and, based on existing accounts, interviews and documents that give insights into company strategy, evaluate if the observed changes have been part of a conscious strategic effort to re-model the organisation – whether, as theorised by project scholars, these businesses were shaped by strategic efforts that resemble projectification.

### **Stord Yard 1973–2015: from shipyard to project-specialist**

By the end of the 1960s, Stord Yard – under the ownership of Aker – had become one of Norway's largest, most technically advanced and productive shipyards (Mjelva, 2005, pp. 154–155). However, the 1973 oil crisis sent large parts of the Norwegian shipbuilding industry into a tailspin (Ågotnes & Heiret, 2019, pp. 333–336). Following the discovery of oil on the Norwegian continental shelf in 1969, both Aker and SY capitalised on the Norwegian government's strategy for developing the Norwegian shelf which provided Norwegian construction companies with favourable conditions (Ryggvik, 2015).

Transitioning to offshore construction meant, virtually overnight, taking on large-scale projects. Despite being an experienced construction company, SY struggled to adapt to the differing contexts of offshore construction and shipbuilding. Put simply, ships are built by blueprint and the bulk of the work consists of relatively simple metalwork requiring mostly blue-collar workers. In contrast, offshore construction is an engineering intensive industry. Every installation is a unique endeavour, often requiring adaptations during construction and a far stricter regime for quality control. SY could deliver several ships a year in a 'continuous production cycle' (Ågotnes & Heiret, 2019, p. 317). Offshore installations meanwhile typically engaged the yard for three years, drawing temporary workers by the thousands from different corners of Norway and Europe (Ågotnes & Heiret, 2019, pp. 331–332). As an organisation, SY thus needed to learn how to manage a workforce of shifting size, composition, and skill set.

Concentrating its efforts on the Norwegian shelf, SY achieved moderate success following its entry into offshore construction. From 1975 to 1995 the company completed several projects, but also experienced serious droughts forcing the company to strategize its future

and evaluate its capacity and capabilities.<sup>7</sup> As late as 1990 local leadership pondered re-entry into shipbuilding before winning a string of key offshore contracts.<sup>8</sup> After 1995 however, more fundamental changes were forced by a revamping of the political economy of the Norwegian oil and gas industry.

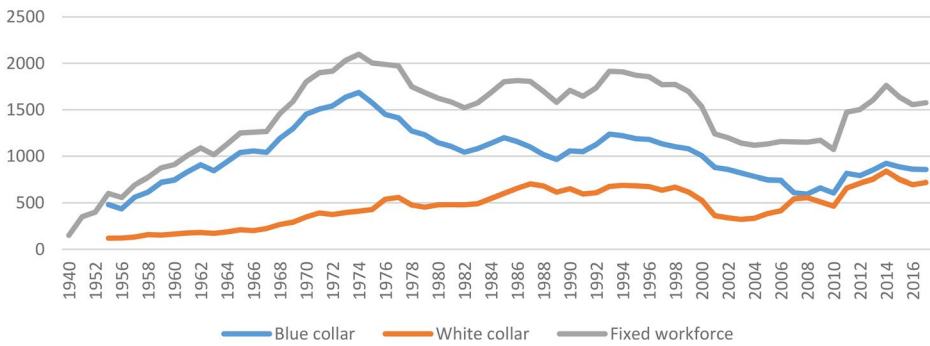
By the early 1990s, the Norwegian oil and gas industry was being criticised for a lack of financial discipline and poor project-management skills. Comparative analysis had shown that development costs on the Norwegian shelf exceeded those in comparable sectors. Initiated by the Department of Oil and Energy in the early 1990s, NORSOK was an industry-wide program aimed at improving operating conditions and cutting costs (Engen, 2009). For construction companies like Aker, however, the immediate effects of NORSOK were reduced time for project completion and even tighter cost margins. In the late 1980s, the government started moving away from its protectionist strategies. This exposed Norwegian contractors to the dynamics of the global offshore construction market, where companies in East-Asian low-cost economies became dominant during the 1980s and '90s (Kaiser & Snyder, 2013).

With shrinking cost-margins and growing competition on the Norwegian shelf, SY launched a new strategy. The goal was, as local leadership explained in 1995, to 'move up the value chain', concentrating on complex and knowledge intensive parts of projects.<sup>9</sup> In the ensuing years SY gradually transitioned from a traditional construction yard, barely able to handle one project, to becoming a 'project execution specialist' providing 'engineering, procurement and construction' (EPC).<sup>10</sup> Several significant developments can be traced back to this strategy.

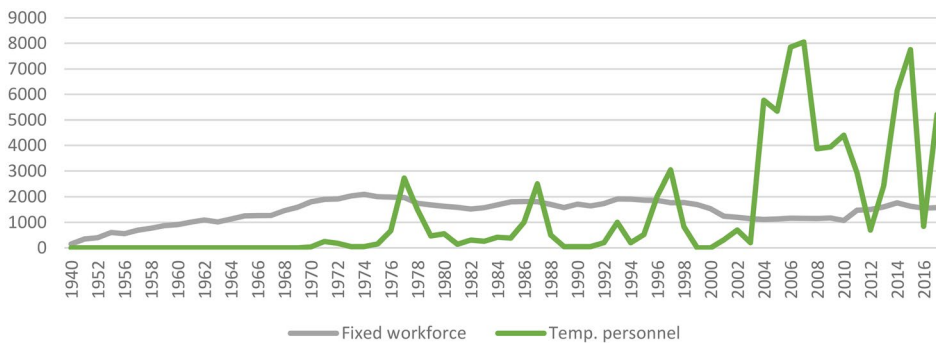
First, efforts were made to streamline the bidding-process: raising the quality of bids themselves and, based on an assessment of yard capacity and the stream of planned projects in accessible sectors, developing routines aimed at better differentiating between projects, their suitability to SY and the realism of winning them.<sup>11</sup> This effort in turn rested on a full reassessment of SY's logistical, procurement and coordination capabilities. Second, the actual fabrication of modules for installations has increasingly been outsourced to low-cost economies like Poland and China, while the SY organisation focussed on project design, coordination, and completion (Erlie et al. 2019). Third, the size and composition of the workforce, and the sum of its skills and capabilities, has changed. To further lower operating costs, functions not essential to running projects have been outsourced, and administrative functions and mid-level management reduced. Having employed 2,000 workers in 1995, barely 1,100 remained in 2010. In 1973, 1/5th of the workforce consisted of white-collar workers; by 1995 the white-collar share had increased to 2/5ths (Figure 1). After acquiring another Stord-based subsidiary of Aker in 2010, numbers grew to just over 1,500 employees, with a near equal share of blue and white-collar workers.

Concentrating local efforts on design and completion has increased SY's ability to handle several projects simultaneously, often working on 'split locations', dramatically increasing the demand for both sub-contractors and temporary workers (Figure 2). Consequently, SY has sought to cultivate project management skills and the ability of local staff and management to handle project-organisations of constantly shifting size, ensuring projects not only have enough workers but that workers have the required skills and project-specific know-how.

At SY, among personnel defined as essential to projects, large numbers have participated in locally tailored educational programs. Some blue-collar workers have earned engineering degrees, many becoming 'multidiscipline operators'. These processes have created a more flexible workforce of autonomous workers, many of them mastering several parts of the



**Figure 1.** Composition of fixed workforce, 1940–2017.  
Sources: SYA, *Oversikt antall tilsette 1955–2017*, Kværner 2019.



**Figure 2.** Personnel, 1940–2017.  
Sources: SYA, *Oversikt antall tilsette 1955–2017*; *Innleie etter 1994*; *Systemposten*, 1946–1951, 1986–1994, 1996–1998, Kværner 2019.

construction process, changing roles, and adhering to the needs of each project (Erlie & Grove, 2019, p. 265).

Central to SY's efforts in tackling shifting contexts is a locally-developed software called MIPS (Method Integrated Project System). Drawing experience from logistical tools developed in the shipbuilding era, MIPS was built, bit-by-bit, during the 1980s and 1990s.<sup>12</sup> In the beginning, MIPS was targeted at controlling the flow of tools and materials and was used and managed by a small group of white-collar workers. Since the late 1990s its scope has widened, integrating information on most aspects of each project. The number of users has expanded, giving access to a rising share of the local organisation and sub-contractors who exchange information and communicate through a web-based 'supplier-portal'.<sup>13</sup> A locally-developed phone-app harvests information from MIPS, giving workers access to digital 'job-packs' with the possibility to report progress. MIPS allows SY to run simulations of projects and provides the organisation with a 'real-time' picture of how each project is progressing. It thus helps create a shared understanding, easing communication between internal and external actors and strengthening coordination and quality control.

Since the 1950s Aker has developed from a freestanding company, first transitioning to a nationally based multidivisional company, and then becoming a multinational

conglomerate (Erlie et al. 2019). Aiming to streamline its EPC-activity and adapt to a more globalised market, Aker has gone through several bouts of restructuring.

Until 2014 Aker rooted its organisation in a traditional hierarchical model. From that point, however, Aker restructured towards a matrix, formalising operational patterns and informal structures that had been growing incrementally since the 1970s. The gradual restructuring of previous decades has meant centralising decision-making processes, easing Aker's ability to allocate personnel and resources within the larger organisational structure according to the shifting needs of different projects. Through this step-by-step restructuring, SY's relative standing within Aker has changed from that of an autonomous company and the pinnacle of a larger structure, to a piece within a much larger puzzle. SY is no longer autonomous but serves as a site for project development and completion, and as a base for key personnel utilised within the Aker-system. For the SY workforce, these organisational changes mean that in periods where Aker/SY has failed to win contracts and thus cannot sustain work at the yard, workers can be shuffled around the larger organisational structure (Erlie et al. 2019, p. 126). For SY's leadership, a more centralised decision-making structure means that they have lost authority within the company.

Starting out in the 1970s, SY approached offshore construction projects in much the same way as it did shipbuilding. In the ensuing decades, as operating conditions tightened, the company ceased viewing itself as a construction yard, instead consciously striving towards becoming an EPC-company, specialising in 'large and complex projects' within different construction markets as well as in the de-commissioning of obsolete oil and gas fields and installations.<sup>14</sup> Since 1995, both Aker and the SY organisation have been restructured – partly for long-term strategic purposes, and partly as a gradual adaptation to a changing competitive environment. As Aker and SY have oriented themselves towards an expanding variety of project-niches on- and off-shore, resources have increasingly been channelled towards activities related to developing, bidding for, completing, and evaluating projects, on and off-site.<sup>15</sup> Though the organisation is not defined as a project-based organisation, the way its skill set, routines and formal structures have been changed has contributed to making Aker and SY considerably more project-oriented.

### **Project organising in a multidivisional context: Kongsberg Weapons and the Kongsberg Group, 1959–2010**

KW was established as a state-owned company in 1814 for the purpose of manufacturing weapons for the Norwegian Army (Myrvang, 2014). From the late 1950s until the mid-1980s, KW increasingly developed and produced products of greater complexity. This change in product orientation was part of the government's plan to turn KW into a high-technology company able to compete for defense contracts in a global market (Wicken & Tamnes, 1983). From this vantage point, KW augmented the number of production lines, diversified, and moved into new markets. These developments were characterised by an increased involvement in projects, which brought both new opportunities and challenges.

In 1959, KW took on the role of manufacturer of the anti-submarine missile Terne, developed by the Norwegian Defense Research Establishment (NDRE) (Bonde, 1990). Terne was the first multidisciplinary project organised in KW and provided the organisation, which had no formal competence in running projects, with important first-hand experience of project management of complex products. To take on the project, KW expanded its newly

established Product Development Unit (PDU) from five people in 1956 to 70 people in 1960 (Øyangen, 2014, pp. 107–112). As few of the systems were sold, Terne did not become the financial success the company had anticipated. The project nevertheless demonstrated KW's ability to handle both the technical challenges related to the production of a new missile system, and the challenges of coordinating and integrating the necessary resources in the organisation to fulfil such a task.<sup>16</sup> It marked the beginning of KW's long-term engagement in missile production.

By 1962, the PDU comprised 110 people and the unit had expanded to include laboratories, workshops, design, and construction, as well as project groups working on different technologies. New projects were organised by pulling people together from different departments, based on their knowledge and availability. This created a situation where people 'pulsated' in and out of projects.<sup>17</sup> Experience from projects gradually led to changes in routines and softened organisational boundaries. The PDU thus became a centre for the introduction of project organising skills in KW.

During the 1960s, KW's role as partner and manufacturer of products developed by Norwegian research institutes, especially NDRE, as well as foreign defense companies, gave the company broad access to new technology (Njølstad & Wicken, 1997). Through its cooperation with NDRE, KW acquired knowledge about missiles and fire control systems, and developed computer technology skills from working on field artillery and submarine-calculations. This experience strengthened the company's ambitions of turning itself into a producer of modern military equipment.

In addition to building technological skills, in this period KW sought to formalise project management knowledge in the organisation. First, by sending engineers away on external project management training, and later by using this experience to introduce its own project management program, including topics such as 'what is team-work', 'project administration' and 'project economy'.<sup>18</sup> The size and complexity of new projects in PDU also demanded a more structured approach for the preparation of bids as well as in the actual project execution. Through the NATO-initiated Sea Sparrow missile project in the late 1960s, engineers from the PDU saw how the American defense industry executed projects, what type of documentation they used, and the level of detail required.<sup>19</sup> This experience led the PDU to develop new routines where projects were broken down into phases to achieve better control of the overall project process.<sup>20</sup>

By the 1970s KW had gained a stronger foothold in both national and international collaborative defense programs. Collaborative efforts and access to new technology were used as steppingstones in a new strategy to diversify production into civilian industries. Throughout the 1970s, KW extended its business to include turboshafts, mainframe computers, industrial electronic equipment, maritime electronics, car components, aircraft engine parts and components for offshore oil production. For a while these product lines turned KW into one of Norway's largest exporters (Øyangen, 2014, p. 14).

Diversifying into products like car components also meant that KW, which had invested time developing project capabilities to take on multidisciplinary projects for small unit production, experienced a renewed interest in mass production (Øyangen, 2014, pp. 127–128). This serves to illustrate how KW continued to expand its business in different directions. In 1973, the company implemented a divisionalised structure to adjust the organisation to the evolving diversification. Within the new structure top management maintained financial control, while project managers located at the divisional level were responsible for project

execution. This created a situation where at times project managers operated without necessary knowledge of their budgetary restrictions, while top management kept financial oversight without proper knowledge of running costs.<sup>21</sup> As a result, both the projects and the conglomerate were hampered by a lack of financial discipline, contributing over time to a considerable deficit for KW.<sup>22</sup>

Until the 1980s continued investments from the government allowed KW to expand its business despite a weakening liquidity position. However, by the mid-1980s, three sets of factors coincided to challenge the continued operations of KW. First, divisional augmentation combined with a lack of financial control and clear strategic direction had left the company fragmented and difficult to operate. Second, a dramatic drop in oil prices during the first half of 1986 hit KW hard, imposing massive losses on the subsea division and exposing the company's fragile financial situation. Third, shifting concerns in Norwegian industrial policy made it unacceptable for the state to continue operating an insolvent company.<sup>23</sup>

In 1987, KW was dismantled through the sale of its former subsidiaries and divisions, leaving only the former defense unit under state ownership. This division re-emerged as the Kongsberg Group (KOG), under a new management, but with the same defense portfolio as before (Sogner & Petersen, 2014, pp. 24–76). Following the dismantlement, KW's former divisions developed into not only viable, but also profitable companies (Moen, 2011). During the 1990s, KOG went through a part-privatization process and was listed on the Oslo Stock Exchange. Through new acquisitions and conscious efforts to develop product systems including civilian maritime products, KOG diversified its portfolio and adopted a multidivisional structure (Sogner, 2021).

Aiming to ensure stringent operations and financial discipline, and guided by market outlooks, in the early 1990s KOG shifted attention from new potential product areas and concentrated its efforts on developing existing products.<sup>24</sup> Delegation of decision-making and budget responsibility is another difference between KOG's and KW's organisational structure.<sup>25</sup> Although both companies were organised as conglomerates with a multidivisional structure, KOG imposed a stricter regime for financial control by delegating decision-making and budget responsibility to the divisional level.<sup>26</sup>

While KOG in some respects represents a break with KW's business model, there are signs of continuity. KOG has continued KW's practice of organising product development through autonomous projects, but within a clearly defined cost framework (Moen, 2011). In this setting, project capabilities related to organising and executing projects, as well as to collaborating with external partners, are considered important strategic assets by KOG's top management.<sup>27</sup> The high level of autonomy has enabled some innovative projects to develop and grow into not only new divisions, but new strategic business units under the corporate brand.<sup>28</sup>

Starting in the 1960s, projects had a significant effect on KW, changing routines, facilitating learning *and* complicating the organisational structure. Yet, efforts to develop project capabilities were not followed by structural organisational changes that reflected the new role of projects. It seems project organising was considered more a practical than a strategic issue. Project capabilities were built in response to the increasing importance of projects, for new product development and new contracts in international defense markets. KW's struggle to adjust its organisational structure to its evolving project portfolio indicates that top management at that time failed to acknowledge the financial consequences of the increasing role of project organising. This missing link was however identified and strengthened after the



restructuring in 1987, and project capabilities have become strategic assets for product development within the more decentralised and commercially oriented KOG.

### **ÅSV 1968–2000: projects' role in subtler changes in capabilities and structure**

Following WW2, the Department of Industry and Norwegian aluminium companies collaborated in making plans for a substantial expansion of the industry (Frøland, 2007). Elkem, Årdal and Sunndal Verk (ÅSV) and Hydro dominated aluminium production in Norway. Each company was part of a joint venture (Sandvik, 2008). For multinational aluminium companies, access to cheap hydropower made the Norwegian companies an attractive partner for joint ventures. The joint venture was especially important to ÅSV, as it specialised only in aluminium while both Hydro and Elkem were diversified conglomerates. ÅSV struck a deal with Alcan in 1966 (Rinde, 1997).

From the 1970s the Norwegian aluminium companies faced fiercer international competition (Henden & Frøland, 2008). In 1970, Alcan claimed that their Canadian plants were almost 50% more productive than the Norwegian ones (Rinde, 1997, p. 146). As ÅSV aimed to increase its standing vis-à-vis Alcan, the deal became an incentive for technological innovation, and they thus set up R&D projects to raise productivity. The way these R&D projects were organised broke with company practice in at least two ways. First, they drew personnel from multiple levels within the company and from outside organisations – predominantly the Norwegian Institute for Atomic Energy (IFA) and SINTEF. Secondly, the projects ended up in recurrent project cycles rather than being shut down at the planned end-date.

For ÅSV and the aluminium companies the smelters constituted their main impediment to making their production more cost-effective.<sup>29</sup> Inside the smelters, the temperature was just under 1,000 °C, making it practically impossible to measure and investigate the flow of energy and materials. IFA's researchers had accumulated software development skills as part of their research on nuclear technology, making IFA an attractive R&D partner for the Norwegian aluminium companies. ÅSV commissioned its first project in 1968, and both Elkem and Hydro commissioned projects at about the same time.<sup>30</sup> The aluminium companies' engineers and IFA researchers experimented with software developed by IFA to run simulations and find more effective process designs. These projects enabled computerised control, reduced unnecessary halts in production and extended the smelters' lifespan, altogether representing an important contribution to the aluminium companies' 30% energy input reduction during the 1970s and '80s.<sup>31</sup>

The projects gradually moved from the engineering offices to the production lines. As they continued and the smelter design experiments changed the way smelters were built and integrated in the production line, more personnel were involved. These operational changes were pushed forward by Jean Michelet, CEO of ÅSV, who was eager to develop the company's organisation into a 'living organism' which would spark innovation and creativity (Myrvang, 1997, p. 100). The goal was to cultivate organisational learning and new patterns of action and routines by including personnel across organisational boundaries.

Since all three competing aluminium producers in Norway had commissioned projects with IFA, they debated how to distribute the financial burdens fairly. These judicial, financial and administrative issues nudged the actors into more coordinated and formalised project organising.<sup>32</sup> In 1971, the software projects received funding from the Royal Norwegian Council for



Scientific and Industrial Research and were formally institutionalised as a collective endeavour between the three aluminium companies, IFA, and the state. During the 1980s, researchers from other research institutes, notably SINTEF and the Centre for Industrial Research, were drafted into these ongoing research projects. This institutionalisation created an environment characterised by increased exchange of knowledge and personnel, and as a by-product, the growth of new routines tied to the implementation of new production methods.

In 1986 ÅSV was acquired by Hydro. The acquisition made Hydro the largest aluminium producer in Norway (Lie, 2005, p. 172). The plants in Norway needed rebuilding to meet the newest technological standards. Before making such investments, Hydro lobbied for continued cheap energy. Hydro launched 'Project Norway' as part of its lobbying campaign (Lie, 2005, p. 341). The objective was to identify ways of rationalising production to secure the profitability of Norwegian plants. The aluminium division used Project Norway to show Hydro's board and management the benefits of continued operations in Norway, sketching out both technological projects and employee downsizing. While the project resulted in significant downsizing, it also spurred technological innovation and new production methods. As these new methods required new skills, it helped broaden the skill set of workers and increase flexibility within the organisation. The sum of these changes helped keep most plants in production.

As earlier, these organisational and operational changes were the result of projects involving people across organisational boundaries (Karlsen, 2008, p. 327). By integrating the production units with the marketing and sales unit in Project Norway, Hydro's aluminium division inadvertently wrecked the firm's longstanding ambition of entering into extrusion by refining their strategy as an aluminium provider (Lie, 2005, p. 362). Merging ÅSV and Hydro seems not only to have provided Hydro with new plants, technology and personnel, but also with skills and organisational routines. The imprints from projects ÅSV and Hydro had engaged in for decades inadvertently built capabilities improving the organisation's ability to plan and execute projects aimed at rationalising production.

Developing project capabilities was never the main strategy targeted by top management, but a side effect of the efforts to raise productivity through R&D projects. The projects that started in the 1960s seem to have exerted influence on the way ÅSV, and later the aluminium division within Hydro, structured their organisation. ÅSV developed into a part of Hydro that was, and has continued to be, formally structured as an M-form organisation, but its engagement in R&D projects spurred more subtle changes. Until the 1960s, changes in production processes or strategic reasoning would have been a venture for top management. But now project activities spread from the R&D departments to be an integrated part of day-to-day operations. It was the R&D projects – not company or institutional affiliation – that determined who contributed and co-operated in operations aimed at reaching more or less defined ends.<sup>33</sup> Project activities proved an efficient way to become adaptable and flexible, and thereby increase productivity and they seem to have led to an increased use of projects beyond mere R&D projects. The main effect of ÅSV's and Hydro's projects was organisational change resulting in new skills, softer organisational boundaries, and new routines.

## Discussion and conclusion

With Scranton and Fridenson's (2013) call for business historians to investigate the role of projects as our point of departure, we ventured to explore the idea that projects are not only

an ascending phenomenon, but that engaging in projects is associated with changes in the permanent structures and capabilities of businesses.

For the businesses discussed here, increased project activity affected organisational structures and capabilities in ways that warrant claiming that the businesses became more project-oriented. At SY, taking on offshore construction projects was an opportunity that arose in the wake of the 1973 oil crises. Within ÅSV and KW, projects surfaced during the 1960s as a means of reaching strategic goals. As these businesses faced a changing competitive environment, differing engagements in, and lessons from, project activities seemingly played some part in the way they responded. In this respect, their engagement with projects and the effects associated with it could be said to represent a form of convergence. While projects thus seem important to understand developments within these businesses, the way this re-orientation unfolded differed (as depicted in Figure 3).

Though offshore construction is easily defined as doing projects, from the outset in the 1970s SY approached its first projects in much the same way as it approached shipbuilding. The company neither had nor saw the immediate need to develop project management skills.

The figure highlights differences and similarities in the focus areas outlined in the methodological section and shows traces of strategic thinking related to project activities and organizational change and imprints on the organization related to project activities.			
	SY	KW/KOG	ÅSV
<b>Context for project activity</b>	<ul style="list-style-type: none"> <li>- External crisis (shipbuilding)</li> <li>- Entry into project-based market in mid 1970s</li> <li>- Maintained as means for securing single-market access</li> </ul>	<ul style="list-style-type: none"> <li>- Opportunity for market access</li> <li>- Entry into project-based market in late 1950s</li> <li>- Maintained as means for securing multi-market access</li> </ul>	<ul style="list-style-type: none"> <li>- External pressure for cost efficiency</li> <li>- R&amp;D-projects, enhancing productivity in the 1970s</li> <li>- Maintained as an integrated part of the innovation process and organizational development</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- At firm-level, a conscious strategy to develop project capabilities was implemented in the mid-1990s.</li> <li>- At conglomerate-level, since the late 1990s, there were constant efforts to identify the structure best suited to a project-based market</li> </ul>	<ul style="list-style-type: none"> <li>- Project activity and capabilities were cultivated in relation to product development and specific markets</li> </ul>	<ul style="list-style-type: none"> <li>- Project activity and capabilities were cultivated in relation to innovation projects aimed at securing market access</li> </ul>
<b>Structures</b>	<ul style="list-style-type: none"> <li>- At firm- and conglomerate-level, organizational boundaries gradually softened</li> <li>- At conglomerate-level, the company restructured toward a matrix-based organization in the mid-2010s, easing the flow of resources between units and projects</li> </ul>	<ul style="list-style-type: none"> <li>- Within the company, organizational boundaries gradually softened</li> <li>- The company maintained a divisionalized structure, but with a larger degree of decentralization under KOG than KW.</li> </ul>	<ul style="list-style-type: none"> <li>- At firm- and industry-level, organizational boundaries gradually softened</li> <li>- Top level management cultivated a divisional structure throughout the period</li> </ul>
<b>Capabilities</b>	<ul style="list-style-type: none"> <li>- Built gradually, encompassing both firm- and conglomerate-level, enhancing the organizations' ability to attract, develop and complete projects</li> <li>- The permanent organization shrank, while the capacity to build temporary project-based organizations grew</li> </ul>	<ul style="list-style-type: none"> <li>- Built gradually on a divisional level, enhancing the organizations' ability to attract, develop and complete projects of varying size and length</li> <li>- The permanent organization persisted, while the capacity to manage temporary project-based organizations within the permanent organization grew</li> </ul>	<ul style="list-style-type: none"> <li>- Built gradually within the organization and industry, gradually enhancing the organizations' ability to develop and complete projects</li> <li>- The permanent organization persisted, while the capacity to benefit from temporary project-based organizations within the permanent organization grew</li> </ul>
<b>Trajectory</b>	<ul style="list-style-type: none"> <li>- Incremental 1975-1995</li> <li>- Starting in 1995, company-wide project orientation</li> </ul>	<ul style="list-style-type: none"> <li>- Incremental</li> <li>- Project-orientation restricted to product-development</li> </ul>	<ul style="list-style-type: none"> <li>- Incremental</li> <li>- Project-orientation, restricted to R&amp;D, but affected organizational routines</li> </ul>

Figure 3. Trajectories – Project activity and organisational changes.

Until the mid-1990s, organisational changes at SY happened through incremental adjustments. Evidence of conscious efforts to enhance the organisation's project capabilities can be traced back to the mid-1990s. The strategy of 'moving up the-value chain' signified a break with how things had been done since entering the offshore construction market. In the 2000s the tempo of changes spurred on by SY's engagement in projects sped up, as local managers and top management responded to rapid shifts within the market. Within the larger structure of Aker, SY has become part of a company defined as a project delivery specialist structured through something resembling a project-based company. Though formally defined through a matrix, resources are increasingly geared towards projects. SY's role within Aker has been redefined through what can be classed as widespread projectification.

KW became an increasingly project-oriented company from the 1960s. Projects became the primary mechanism for developing new products, and a platform for the development of project management skills. While the projects helped give birth to new product lines and divisions, the skills enabling these new opportunities seem not to have been viewed a strategic asset in the development of the company. Project capabilities had a practical function; they were built because the organisation needed them to handle increasingly complex development projects. The relationship between the project-oriented divisions operating outside of centralised financial control and the divisionally oriented company where financial control was located centrally, demonstrates how competing institutional logics hampered economic performance. Since 1987, KOG has outgrown KW as a large conglomerate. It has a decentralised organisational structure and is better equipped to control the finances of a project-oriented company. KOG has, however, maintained a divisionalised structure. Specialising in systems building did not spur widespread projectification.

For ÅSV, the software projects were part of R&D-driven productivity measures that helped lower operating costs and raise productivity. Doing projects did not contribute to a rewriting of the formal organisational charts but has been associated with changes in the company's capabilities. Indirectly, and as a long-term effect, operational patterns originating in the projects spread, changing organisational routines, and softening organisational boundaries. These changes helped the flow of knowledge and organisational learning and strengthened the company's ability to develop and attract new projects. As the projects grew, they became part of an institutionalised cycle of projects funded by the Norwegian Council for Scientific and Industrial Research involving multiple research institutions and aluminium companies.

As we see it, our analysis indicates that calls from historians such as Fridenson, Scranton, Gillett and Tennent for business history to pay greater attention to projects clearly has merit. Our analysis exemplifies, in the words of Scranton and Fridenson, 'a rising tide of project-centered business practice', and demonstrate the usefulness of concepts and theories developed within project studies (Scranton & Fridenson, 2013, p. 151). For business historians, theoretical constructs like projectification, p-form organisations and project capabilities, builds on a familiar Chandlerian framework based on analysing capabilities, strategies and structures, while also drawing attention to new aspects of organisational change related to the logic of doing projects.

We recommend understanding the idea that projectification represents a form of convergence as an ideal type: one useful for analysing similarities and differences across time and different business contexts. In line with project scholars such as Midler, Söderlund and

Tell, our findings show how businesses in different contexts increasingly engaged in projects, became more conscious of the particularities of doing projects, and that the logic of projects in different ways influenced these businesses capabilities and structures. Our analysis also suggests that project capabilities developed in an evolutionary-like fashion: new project capabilities related to attracting, planning, and completing projects, where pendant on former choices and experiences.

When understood as an ideal type, projectification implies that project-organising is incompatible with certain organisational models, and that particular organisational traits, as part of a conscious strategy, gain prevalence over others. While we do identify patterns of change relating to routines and boundaries, looking at formal structures, there are important elements of continuity. Thus, drawing lessons from our cases, a narrative based on organisations converging towards the same project-based model through a continuous process, undervalues elements of chance and the particularities of context. Factors vital to understanding why SY, KW and ÅSV engaged in projects and how they were affected by increased project activities, fit poorly into this general narrative.

Reviewing our cases, an increased engagement with projects did not by necessity drive the businesses to develop project capabilities, though this would seem like a rational strategic path. Moreover, project capabilities sometimes emerged as part of a conscious intentional development and sometimes unintentionally for other reasons, sometimes incrementally and sometimes in a rupture-like fashion.

Our analysis demonstrates that a divisional structure in itself did not constrain these businesses' ability to win, plan or execute projects. As Mike Hobday (2000) has argued, functional lines help sustain the need for routines, coordination, and economies of scale. Project activities softened organisational boundaries and helped the businesses' adapt to diverging needs, but without necessarily impinging on the formal structures. KOG granted projects autonomy while maintaining a multidivisional structure. The company's development indicates projects of increasing complexity could be managed within the m-form. Aker has, over time, moved away from a multidivisional structure, and SY today operates within a matrix. Hydro, with the integration of ÅSV, has remained a divisionally structured company. As Hydro/ÅSV, in contrast to Aker/SY and KOG, has operated in a market characterised by process manufacturing and mass production demanding a high degree of regularity, this is perhaps to be expected.

The recurring pattern of softening organisational boundaries observed in these businesses could be interpreted as a form of convergence. However, as scholars have noted, businesses striving for flexibility has been an observable pattern since the 1970s and may have a variety of causes (Whittington & Mayer, 2000). In our cases, other factors than increased project activities probably also contributed to the organisational softening. In line with Whitley, our findings indicate that projectification, to the degree the concept represents a recurrent phenomenon, is contingent on market orientation rather than constituting a homogenous organisational trend. For companies whose business model is based on doing projects, projectification seems to throw light on processes associated with increased globalisation since the 1980s.

While project scholars' theories at times seem a tight fit for the businesses we analyse, they have proved useful tools in illuminating aspects of business life historians have paid little attention to. These findings reflect, as Behlül Üsdiken and Alfred Kieser (2004) argue, that the way different disciplines make use of history reflects differing goals and questions, and different ways of perceiving the possible gains that might exist in the intersection

between social science and the humanities. As historians, we employ general theories to draw attention to and enhance historical particularities. In turn, a business history centring on projects, providing analyses sensitive to the particularities of different contexts of project activities, their techniques and contours, might contribute to the theoretical rigour project scholars strive for.

As we see it, taking projects into account would entail business historians widening their gaze in terms of how they study organisational change. One fruitful line of questioning would involve investigating the growth of markets based on competing for projects: which markets were perhaps more prone to projectification? Another line, to analyse whether projects have inspired businesses and industries to, over time, redefine their activities – making them more project oriented: whether the logic of projects has become manifest through changes in formal structures, routines and patterns of actions, and the skill set of organisations, and whether increased project engagement has created tensions between the differing institutional logics of the temporary projects and the permanent structures of the companies. Drawing inspiration from project studies in this way offers to add insight to the ongoing debates about the strategies and structures of businesses and to deepen our understanding of how business organisations adapt to a changing competitive environment.

## Notes

1. Kevin D. Tennent (2021) has reiterated the claim made by Scranton and Fridenson, arguing there are gains to be made from looking into the role of projects.
2. For a review of projectification as an analytical concept, see: Jacobsson and Jałocha (2021).
3. These businesses have all changed their name several times. As these changes have little bearing on our analysis, for simplicity we will refer to them as ÅSV (Årdal and Sunndal Verk), SY (Stord Yard) and KW/KOG (Kongsberg Weapons Factory until 1987, and Kongsberg Group after 1987).
4. For a discussion of this methodology, see: Rowlinson, Hassard, and Decker (2014). For examples of this methodology in use, see: Bergman, Gunnarson and Räisänen (2013), Midler (2019), and Packendorff and Lindgren (2014).
5. Similar efforts are: Schröter (2008) and Whittington and Mayer (2000).
6. For a discussion of this methodology, see: Rowlinson, Hassard and Decker (2014).
7. For an overview of offshore projects 1974–1994, see: Myklebust (1994).
8. SY/Aker Archives (SYA), *Hvordan bygge skip ved Aker Stord A.S.: Fra fortid til nåtid – hva blir vår fremtid?* Aker 1990.
9. SYA, former Yard Director Lars Solberg, in: *Systemposten* (internal magazine, published since 1945), Aker 1997: 5.
10. 'Who are we and what we do', Kværner website, accessed 15 June 2020: <https://www.kvaerner.com/about-us/who-we-are-and-what-we-do/>.
11. SYA, Head of Business Development Sveinung Hansen, in: *Systemposten*, Aker 1997: 6–7.
12. SYA, *Historisk utvikling av fabrikkasjon/metode*, Kværner 2019.
13. SYA, *Method Integrated Project System*, Kværner 2013. Ensuring proper training in MIPS was a hot-topic in the organization after 2002. See Minutes, works council meetings, Aker/Kværner 2002–2014.
14. SYA, former Yard Director Stian Vemmestad, in: *Systemposten*, Aker 2003: 4; *AST-Strategy, 2011–2015*, Aker 2010.
15. SYA, *AST-Strategy, 2011–2015*, Aker 2010; *Project Execution Model*, Kværner 2014.
16. Finn Åge Østern (ed.), 'Avd Us historie – Hefte nr. 2 Nøkkelprosjekt: Terne. Forhistorie, utvikling og industrialisering', Norsk Bergverksmuseum (NBM)/KV-museet, 2014. This booklet forms part

of a series of documents about KW's Product Development Unit and its projects. The documents are produced by former employees of KW and are based on oral sources and personal notes as well as company records and published research. While colored by the actors' understanding of history, these sources do provide unique insight into what these local innovators perceived as important, and offer detailed descriptions of the projects, the way they were organized and progressed, and of existing documentation.

17. Finn Åge Østern (Head of product development unit in KW) in interview, October 29th, 2016.
18. Finn Åge Østern (ed.), 'Avd Us historie – Hefte nr. 1 Nøkkelprosjekt: Avd. U. hvem/hva var du?' (Norsk Bergverksmuseum/KV-museet, 2014), 42–43.
19. Finn Åge Østern (ed.), 'Avd Us historie – Hefte nr. 5 Nøkkelprosjekt: NATO Seasparrow Surface Missile System (NSSMS); Norsk Bergverksmuseum (NBM)/KV-museet, 2014.
20. Østern, Avd Us historie – Hefte nr. 1 Nøkkelprosjekt: 'Avd U. Hvem/Hva var du?'; 37–38.
21. Østern, Avd Us historie – Hefte nr. 1 Nøkkelprosjekt: 'Avd U. Hvem/Hva var du?'; Østern, Avd Us historie – Hefte nr. 5 Nøkkelprosjekt: NATO Seasparrow Surface Missile System (NSSMS).
22. Norwegian Official Report (NOU) 1989: 2. Kongsberg Våpenfabrikk.
23. White paper no. 28 (1987–1988), *Omstrukturering ved A/S Horten Verft og A/S Kongsberg Våpenfabrikk*.
24. KOG Archive, NFT. Strategic plan 1994–1999.
25. Tom Gerhardsen (Former CEO, Kongsberg Defence & Aerospace) in interview, January 23rd, 2013.
26. KOG Archive, 'Organisasjonsprosjekt '88' Styringskomiteens innstilling, 22.4.1988.
27. Jan Erik Korssjøen (Former CEO of KOG) in interview March 10th, 2017, Espen Henriksen (Former CEO Kongsberg Protech Systems) February 12th 2018, Torfinn Kildal (Former CEO Kongsberg Maritime) in interview May 16th 2017.
28. For example, a project to develop remote weapon stations for the US Army evolved from a small skunkwork project in 2001 into a subsidiary in 2009 (Kongsberg Protech Systems). KPS Archive, 'Kongsberg Protech Systems – Our history 1997–2009'; Digitally received internal company document/timeline, KOG annual reports 2001–2010.
29. This paragraph is based on: Arne Waagbø (IFA's Principal Scientist in the ÅSV-projects), interview by author June 12th, 2017; Dag Mortensen (Principal Scientist, Computational Materials Processing, Institute for Energy Technology (IFE, formerly IFA)), interview by author September 9th, 2015.
30. Letter from ÅSV to IFA, 30.6.1970; Letter from ÅSV to IFA, 26.8.1971; Letter from Elkem to IFA, 7.12.1971, IFE archives, 1948–1974, box 114.
31. Waagbø interview; Hans Erik Vatne (Chief Technology Officer, Hydro), email correspondence with the author, February 19th, 2018.
32. Letter from Elkem to IFA, 7.12.1971, IFE archives, 1948–1974, box 114.
33. Waagbø interview.

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## Disclosure statement

No potential conflict of interest was reported by the authors.

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