



Ten years after: The evolution of projectification in Germany, Norway, and Iceland

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ABSTRACT

Theory of projectification suggests that an increasing use of projects is a reaction to an increasing need for innovation and adaptation to changes in the environment of firms. The degree of projectification of an economy was first measured in 2013 for Germany followed by Norway and Iceland. Over the last ten years, significant changes have taken place in the three countries which can be assumed to spur a further increase in projectification. This paper presents the results of a new series of studies. The results reveal a high level of projectification in the three economies, but also that a plateauing has been reached. In addition to the degree of projectification, the present study assesses and compares the project landscapes in the three countries and examines if the high projectification corresponds to a professionalization of project management in the form of project careers and central project organizations.

1. Introduction

The phenomenon of projectification has gained increasing interest in research and practice. This is reflected by the number of publications dealing with various aspects of projectification but also by a widening of the scope of research (Jacobsson and Jalocha, 2021; Voros Fregolente et al., 2022). Starting as an organization-level observation of important changes in the new product development process of the car maker Renault (Midler, 1993; 1995), it was repeatedly argued that projectification as organization-level phenomenon takes place in almost all industries (Lundin and Söderholm, 1998; Lundin et al., 2015; Maylor and Turkulainen, 2019). Projectification not only pertains to companies, i.e., for-profit organizations, but also to non-profit organizations such as public administration (Godenhjelm et al., 2015; Jalocha, 2023), government (Fred, 2020), (public) universities (Dollinger, 2020), religious institutions (Jalocha et al., 2019), and cultural organizations (Pauget et al., 2023).

Theoretically, an increasing projectification can be explained by an increasing need for innovation and adaptation to changes in the environment of firms. Choosing projects over permanent organizational structures has the advantage of enhancing flexibility and the ability to solve new, unique and knowledge intensive tasks (Hanisch & Wald, 2014). It creates strategic flexibility and innovative capacity as dynamic

capabilities needed for generating innovation and for responding to changes in the environment (Spanuth, et al., 2020).

Although theoretical underpinnings of projectification and case-based evidence was presented early, it took about twenty years until a first empirical measurement of the actual degree of projectification of an entire economy, including all industries, company types and project types was presented for Germany (Wald et al., 2015a, 2015b). A replication of the study in Norway (Wald et al., 2016) and in Iceland provided a first empirical basis for a cross-country and a cross-industry comparison (Schoper et al., 2018). For the years 2013/2014, the degrees of projectification, measured by the share of project work of total work, were 34.7 % in Germany, 32.6 % in Norway and 27.7 % in Iceland. These findings provided a comprehensive and differentiated understanding of the actual degree of projectification in an economy. They underlined the importance of project work in Western economies and empirically supported the repeated claims of an increasing projectification. Furthermore, more advanced research on the macroeconomic effects of projectification, i.e., on productivity/innovation, labor and household income was conducted based on the sector-level results (Henning and Wald, 2019).

After ten years of turbulent changes in the economic, societal, technological, and political environment in the three countries, one might expect a further increase in projectification. To further

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complement theory on projectification with evidence, a second series of studies was conducted in Germany (Wald et al. 2023a, 2023b), Norway and Iceland.

Using the same measurement and sampling approach in 2022 as in 2013/2014 allows for an analysis of the evolution of projectification on the industry level, the entire economy, and between countries. The results suggest a high degree of projectification in Western economies but also that a plateauing seems to be reached.

The aim of this paper is to present the main results of the three studies, analyze the evolution of projectification over the last ten years, and to reflect on current developments. The remainder of this paper is structured as follows. In the next chapter we elaborate on the theoretical foundations of projectification. This is followed by the description of the methodology and sampling procedures in chapter 3. In chapter 4, the most important changes in the three economies over the last ten years are presented. The empirical findings on the project landscapes are presented in chapter 5 and in chapter 6, the results on the degree of projectification and an analysis of the evolution over the last ten years is presented. In chapter 7, we elaborate on the relationship between firm-level projectification and the professionalization of project management. Chapter 8 points out limitations and avenues for future research and chapter 9 concludes this paper.

2. Theoretical foundation

Theory of projectification focuses on two main phenomena. First, the explanandum can represent the various consequences of projectification. In this case, the nomological core of projectification theory should include mechanisms which explain the outcomes of projectification, e.g., why an increase in projectification on the industry level leads to a growth in employment (Henning and Wald, 2019). Second, projectification itself can represent the explanandum and projectification theory needs to provide an explanation of what leads to an increase or decrease in projectification. As the main objective of the present paper is to study changes in the degree of projectification on the level of firms, economic sectors and the economy, we start by elaborating on the drivers of projectification before we turn to theory on the professionalization of project management as a consequence of projectification.

2.1. Projectification theory

Projectification is a multi-level phenomenon. Originally, the concept was introduced as an organization-level concept (Midler, 1993, 1994) but later expanded to the industry and economy-level (Lundin et al., 2015). Furthermore, the drivers of projectification were mostly identified in the competitive environment of firms. Accordingly, a theory which aims to explain projectification on the macro-level of the

economy must consider micro-level behavior, i.e., organization-level changes. This represents a typical explanation in social science where a macro-level phenomenon is the aggregate result of decisions/actions of micro-level actors. Introduced by Coleman (1990) in his Foundations of Social Theory, the general model of a social science explanation (also called the “Coleman bathtub” or “Coleman boat”) includes the elements presented in Fig. 1.

A phenomenon in society (macro-level) is an aggregation of decisions/actions taken on the micro-level (individuals or organizations). The latter are triggered by changes in the macro-environment. This requires first a macro-micro link (“logic of the situation”) followed by the action/decision of individuals/organizations in response to the situation (“logic of action/logic of selection”). The final step of the model is the micro-macro link from the individual level to the macro level (“logic of aggregation”). The explanation follows the sequence of the paths 1-2-3 as shown in Fig. 1. A potential direct macro-macro explanation, shown as path 4 in Fig. 1, would not consider individual action and therefore ignore (individual) human behavior when explaining societal outcomes. It is important to note that the micro-level does not necessarily imply individuals but can also consider organizations or organizational units as corporate actors (Coleman, 1990). What constitutes an actor on the micro-level is the ability to choose and execute a certain action. Coleman's general model of social science explanation was later introduced and applied in management, innovation and organizational studies (Abell et al., 2008; Felin et al., 2012; Felin et al., 2015; Palmié et al., 2023). In the following we will use it to develop a theoretical framework of projectification which is presented in Fig. 2.

Logic of the situation (1)

The macro-level conditions for the projectification on the firm level were identified and described in Midler's (1993; 1995) original work: Increased competitive pressures require firms to constantly develop new products. Successful product innovation requires flexible structures and processes, cross-functional teams and lateral communication (Aubry and Lenfle, 2012).

Logic of action / selection (2)

As a reaction to the macro-level conditions, organizations shift from more permanent organizational structures and processes to temporary project organizations. This shift represents an organizational innovation (Henning and Wald, 2019). Projects are temporary organizations which provide flexible structures and processes to accomplish new, risky, and knowledge intensive tasks and are therefore better suited to generate innovations than permanent organizations (Keegan and Turner, 2002; Blindenbach-Driessen and van den Ende, 2006). Spanuth et al. (2020) use the concept of dynamic capabilities to explain how the characteristics of temporary organizations increase the innovative capacity and strategic flexibility of firms. Innovative capacity is a dynamic capability allowing organizations to develop and market new products and services. It represents a more proactive, externally directed dynamic

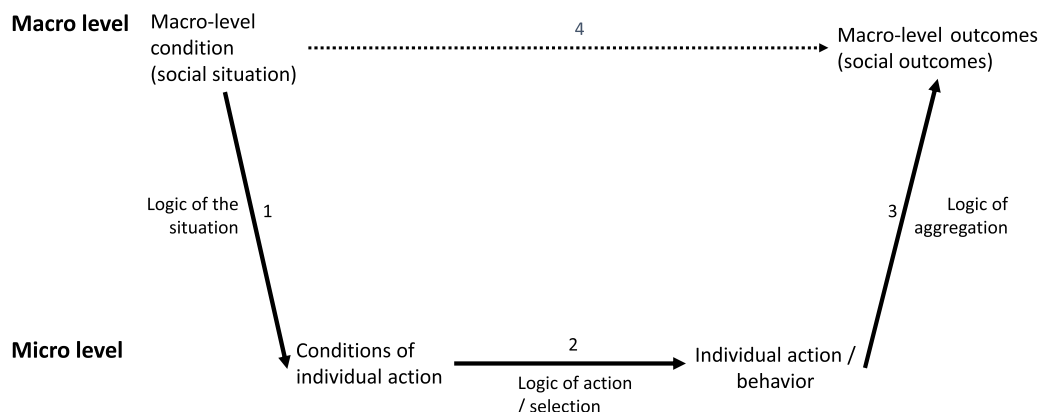


Fig. 1. General model of social science explanation (Source: adapted in modified form from Coleman, 1990: 8, 10).

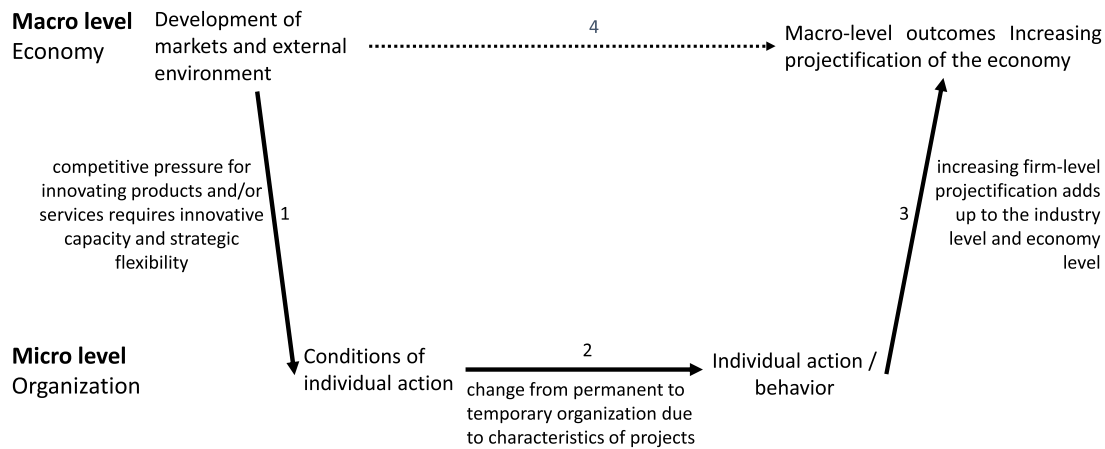


Fig. 2. Theoretical framework of projectification.

capability. Empirically, they show that an increased projectification leads to a higher innovative capacity. [Spanuth et al. \(2020\)](#) also consider strategic flexibility, a more reactive, internally directed dynamic capability which was also found to be positively influenced by an increasing projectification on the firm-level.

Logic of aggregation (3)

The micro-macro link from the firm-level to the industry and economy-level follows a simple logic of aggregation. The projectification of the industry and economy level is increasing as (the majority) firms react to increasing competitive pressures and changes in the environment by shifting from non-project work to project work. However, the same logic may also lead to a reversed trend, i.e., a de-projectification if the environmental changes and competitive pressures were lowering.

2.2. Professionalization of project management

Institutional theory offers a robust framework for understanding the mechanisms through which projectification leads to heightened professionalization within firms. Organizations adapt to their environments through institutionalization, a process where norms, values, and practices become deeply embedded in organizational structures ([DiMaggio et al., 2010](#); [Meyer & Rowan, 1977](#)). When applied to projectification, institutional theory elucidates how the increasing reliance on projects within firms influences and transforms organizational practices, leading to the institutionalization of project-based work as a standard organizational norm.

This transformation frequently necessitates the development of new roles, processes, and structures to support effective project management. These developments, in turn, drive both professionalization and further institutionalization. For instance, Renault's transition from a functional organization to one centered on project coordination required a redefinition of roles and responsibilities, thereby deepening the institutionalization of project management practices within the company ([Midler, 1995](#)). Similarly, [Bergman et al. \(2013\)](#) studied a large global project-oriented company and identified two parallel trends within its projectification history: a push towards project decoupling and a countervailing pull towards the standardization of project management practices. This standardization contributed to increased professionalization, ultimately tightening the coupling between projects and organizational strategy. [Lundin \(2016\)](#) observed that, from an institutional process perspective, projectification unfolds in sequential stages. It begins with the increasing use of project structures and the project-based approach to organizing work, followed by the adaptation of the organizational environment to accommodate project work. In a similar vein, [Maylor and Turkulainen \(2019\)](#) described organizational projectification as the process by which organizations incorporate or modify

project-related structures, processes, language, rituals, symbols, and professional practices across various levels.

The interaction between institutional theory and professional associations plays a critical role in this process and provides a comprehensive framework for understanding how projectification leads to professionalization and institutionalization within firms. Professional associations serve as institutional agents, shaping organizational fields and driving the institutionalization of new practices ([Scott, 2008](#)). By promoting standardized practices, certifications, and professional norms, the professional project management associations play an important role in the diffusion of project management practices across various sectors. As a result, they contribute significantly to the institutionalization of project management as both a discipline and a profession, further reinforcing professionalization within firms ([Wagner et al., 2021](#)).

The specific context of project management professionalization has been examined in different regions, including Germany, Italy, and the broader European Union. [Nicklich et al. \(2020\)](#) discussed the challenges of institutionalizing project management as a profession in Germany, providing insights into the relationship between projectification and the professionalization of project managers within firms. [Wagner et al. \(2022\)](#) applied institutional theory to analyze projectification at the societal level in Germany, highlighting its implications for professionalization and institutionalization at the firm level. [Sabini \(2014\)](#) explored the case of Italy, discussing how various project management professional associations contribute to the professionalization of project management. [Jalocha \(2019\)](#) examined the European Union's multi-level impact on projectification within member states, demonstrating how institutional pressures drive professionalization within firms across these countries.

The institutionalizations of project management can take various forms (e.g., [Ahlemann et al., 2009](#); [Blomquist et al., 2018](#)). Two notable examples include the establishment of central project organizations (PMOs) and the implementation of dedicated project career models.

3. Method and data

3.1. Measurement

As a reaction to previous endeavors of measuring the actual degree of projectification in an economy, for the original study in 2013 a comprehensive evaluation of different measurement methods was carried out ([Wald et al., 2015a](#)). On the level of the entire economy and economic sectors, national statistical offices and supranational bodies regularly publish indicators for economic performance and output (e.g., [Iceland Statistics, 2024](#); [Statistics Norway, 2024](#); [Statistisches Bundesamt, 2024](#); [Eurostat, 2024](#)). The most prominent measures are the

closely related gross national product/income (GNP/GNI), gross domestic product (GDP) and gross value added (GVA). GDP measures the monetary value of all goods and services produced in an economy. GVA is calculated by adding subsidies on products and subtracting taxes on products to the GDP. GNP/GNI measures the income generated by the citizens of a country regardless of its origin (including foreign income). These measures are regularly updated and published for most countries. Unfortunately, for none of these measures a distinction is made regarding the mode of production, i.e. project works vs. non-project work. Accordingly, it was decided to develop and apply a firm-level measure for projectification which can be aggregated to the sector level and economy level.

The requirements for a comprehensive measurement of projectification on the firm level are:

1. It should capture all project types, i.e., external (commissioned) projects and internal projects, such as new product development, marketing projects or IT-projects.
2. It should be applicable to all kinds of organizations, i.e. for-profit, public, non-profit.
3. It should be independent of any industry-specific characteristics.
4. It should be applicable independent of the size of the organization.

Although in some firms (e.g., consultants), management accounting includes a relatively precise account of project-related costs (input) and generated revenues (output), in most firms and in most industries, this is not the case. For measuring projectification on the firm one can therefore not use available secondary data but the collection of primary data is required (Wald et al., 2015b). Finally, the share of project work on total work in an organization was used as a measure of projectification on the organizational level as it fulfills all the criteria outlined above.

For the recent replication of the study in the three countries –Germany, Norway, Iceland –the exact same measurement was used to ensure comparability across countries and over time. Likewise, the same definition of what is considered a project was presented to the respondents (see Wald et al., 2015a: 8): “A project is an undertaking largely characterized by the uniqueness of the conditions in their entirety, i.e., a specific target has been defined for the project, the project is limited in terms of time (start and end), the project requires specific resources (e. g. financial, staff, ...), an independent process organization exists, which is defined as different from the standard organization in the company, the projects work on non-routine tasks, the project has a minimum duration of four weeks, the project has at least three participants”. Based on this definition, the respondents were asked to estimate the share of project work in their entire organization: “What is the share of project work (in %) to total working hours in your entire company, i.e. how much of the total working

time is spend in projects?”

To aggregate the organization-level findings to the sector level (see Fig. 2), the mean value over all organizations in a sector was calculated. In a final step, the degree of projectification on the economy level was calculated by weighting the sector values with the respective sector shares GVA (Wald et al., 2015a).

3.2. Sampling and data collection

Table 1 provides an overview of the measurement and data collection applied in 2013/2104 and in 2022 in the three countries. The sampling and data collection for the German study in 2022 followed a similar approach as the study in 2013. A stratified random sample of 730 German companies and public organizations covers all ten economic sectors and companies of different size. The stratification criteria include the relative importance of the economic sectors (measured by the sector's share on GVA) and the size (larger organizations, i.e., more than 500 employees and smaller organizations up to 500 employees). A notable improvement over the 2013 study was that companies of all sectors were surveyed using computer assisted telephone interviews (CATI) whereas in 2013 the degree of projectification of the sectors agriculture, forestry and fishing, construction, real estate, and corporate service providers had been estimated by industry experts (see Table 1). The study was funded and carried out in collaboration with the GPM the German Association of Project Management. For conducting the telephone interviews, a professional survey company was hired and the interviewees received detailed instructions before conducting the interviews. The detailed results of the study were published in a GPM report (Wald et al., 2023a).

Also, the Norwegian study in 2022 closely followed the approach of the first study in 2014. Using the company database Proff Forvalt about 13,000 e-mail addresses where randomly extracted. The respective companies where matched with the required NACE-industry codes and e-mails with a link to an online-survey (English and Norwegian versions) were sent. This resulted in 287 usable responses, a sample significantly smaller than in 2014 (1412 usable responses out of 54,101 addresses).

The Icelandic 2023 study adopted an identical approach to the 2013/2014 study. Detailed guidelines on questions and the flow of questions were arranged for the survey company. Data collection was conducted using computer assisted telephone interviews (CATI), administered by a professional research company with extensive experience. The study population comprised 1,078 companies in Iceland, each with 10 or more employees, as listed in the Icelandic registry of organizations. The data collection was carried out using a stratified random sample of 504 organizations, encompassing a range of sectors, different company sizes, and both public and private entities. A total of 98 fully completed

Table 1
Method and data.

	Germany		Norway		Iceland	
	2013	2022	2014	2022	2014	2023
Measurement	share of project work (in %) on total work in the organization	share of project work (in %) on total work in the organization	share of project work (in %) on total work in the organization	share of project work (in %) on total work in the organization	share of project work (in %) on total work in the organization	share of project work (in %) on total work in the organization
Sample	stratified random sample	stratified random sample	stratified random sample	stratified random sample	stratified random sample	stratified random sample
Sample size	500	730	1412	287	142	106
Sectors included	all sectors, but four sectors estimated by industry experts	all sectors surveyed	all sectors surveyed	all sectors surveyed	all sectors, but two sectors estimated by industry experts	all sectors, but two sectors estimated by industry experts
Data collection	computer assisted telephone interviews	computer assisted telephone interviews	web-based survey distributed via e-mail	web-based survey distributed via e-mail	web-based survey distributed via e-mail and telephone interviews	computer assisted telephone interviews
Funding	GPM - German Association of Project Management	GPM - German Association of Project Management	no external funding	no external funding	no external funding	no external funding

questionnaires were received from companies across eight economic sectors included in the survey. However, the construction (NACE F) and real estate (NACE L) sectors were excluded from the sample, and the share of project work in these sectors was estimated by industry experts (see Table 1). An expert panel consisting of representatives from four Icelandic construction companies and four real estate companies provided eight additional responses to the questionnaire. Thus, survey responses were collected from a total of 106 companies, covering ten sectors of the economy.

Overall, the data collection in Norway and Iceland appeared to be more difficult in 2022/2023 and resulted in smaller samples compared to the 2013/2014 studies. The funding of telephone-based interviews in Germany by the German Project Management Association (GPM) allowed for enlarging the sample. However, relating the obtained sample sizes to the population size in the three countries (Germany 83.8 million, $n=730$, Norway 5.5 million, $n=287$, Iceland 0.4 million, $n=106$) indicates that the sample sizes are roughly proportional to the population sizes.

4. Country context

Germany, Iceland and Norway represent advanced Western economies with a high per capita GDP (Germany 54,290, Iceland 84,590, Norway 92,646, USD in 2024) (IMF, 2024). This high level of economic development makes the countries comparable. However, significant differences in the size and the degree of diversification of the economies may also reveal differences in projectification on the sector and the economy level. Over the last ten years, the three countries have gone through turbulent times marked by important changes. Some of the challenges apply to all countries, e.g., the COVID-crisis, but some are more country-specific as will be detailed below.

4.1. Germany

Germany is the world's third largest economy and the most populous country of the European Union with 82 million citizens. The German economy has a strong export orientation based on competitive firms –including many small and medium sized – in industries like automotive, chemical, machinery, and pharmaceuticals (Baccaro & Höpner, 2022). The country has few natural resources, and its manufacturing industries depend on the import of raw materials, commodities and (cheap) energy.

The ambitious aim of the energy transition - replacing fossil fuels by renewable energy sources - include the shutting down of nuclear power plants has led to soaring energy prices which was further aggravated by the stoppage of gas imports from Russia because of sanctions. As a result, the traditional stronghold of the German economy, its manufacturing sector is struggling as many German firms may be losing their competitive edge (Sinn, 2022). The export-oriented Germany was also struggling with supply chain disruptions in the aftermath of the COVID-crisis.

Another important development is the ageing of society which is leading to a smaller share of productive population with potential labor shortages and a larger share of retirees with a higher demand for healthcare paired with an important burden on the social security system (Wilke, 2020). A constant high influx of immigrant and refugees so far has not counterbalanced this development, as the integration of often unskilled immigrants into the labor market is very challenging (Berbée & Stuhler, 2024).

Finally, digitalization and digital transformation are ongoing, major changes in the German economy corresponding to challenges at various levels. Germany is clearly lagging behind internationally regarding digital infrastructure (e.g., 5G) and connectivity and German firms are not ranked among the leading firms of the platform economy (Pfaffl et al., 2022). Altogether, the German economy recently underwent enormous changes, many of which are ongoing and challenge the

established economic success factors.

4.2. Norway

Ranking among the world's richest economies, Norway's wealth is heavily dependent on oil and gas revenues (Norskpetroleum.no, 2022). As a result of the sanctions on Russia, Norway has become the biggest supplier of gas in the European Union and the share of oil and gas on Norway's total exports has risen to 70 %. While this sector traditionally was the main contributor to Norway's wealth, it also leaves the economy vulnerable to external developments, shocks and fluctuations in commodity prices. Moreover, the negative environmental impact of fossil fuels has created pressure to diversify the economy (Bang & Lahn, 2019). Like in many Western economies, Norway aims at a green transition which includes a diversification of energy sources and related revenues. Accordingly, strategic investments in offshore wind, carbon capture and storage, maritime technology, batteries, and hydrogen are made (Kattel et al., 2021). This is facilitated by the important role of public investments in Norway. The sovereign wealth fund (also "oil fund") of Norway has become the largest in the world (Gasparini, 2023). The fund has strict criteria regarding environmental, social, and governance (ESG) investments and increasingly emphasizes ethical investments.

Another recent development in the Norwegian economy is a significant growth of the aquaculture seafood industry. This growth in volume was accompanied by a series of innovations in various parts of the seafood value chain (Afewerki et al., 2023).

Digitalization and the use of advanced digital technologies is another important dynamic in the Norwegian economy. This development took place in all sectors including public administration and healthcare. As a result, Norway occupies a top position in European digitalization rankings and unlike Germany, it is considered a role model. A high level of digital literacy among citizens, a widespread availability and use of digital services and platforms in both the private and public sector, and a trust-based culture facilitate information sharing and processing (Mikalef & Parmiggiani, 2022).

4.3. Iceland

The Icelandic economy has undergone significant changes over the past decade, marked by recovery from the financial crisis, increased tourism, fluctuations in the fisheries sector, and efforts toward sustainable energy production. Iceland has a small and volatile currency, much more sensitive to economic fluctuations than the more stable currencies of larger economies. For a long time, Iceland has had extremely high interest rates compared to other European Economic Area countries. These rates are primarily driven by the need to control inflation and stabilize the small currency. The interest rate in 2023 was higher than in 2014, although even higher rates have been experienced in the past. Recent changes in the Icelandic economy include several areas.

First, the lifting of capital controls in 2017 marked a significant milestone in the recovery process of the economy, allowing for more foreign investment and capital flow (Baldursson, et al., 2023). Second, tourism became a cornerstone of Iceland's economy, growing rapidly and contributing significantly to GDP. The number of tourists is estimated to be around 2.4 million in 2024, rising from less than 1 million in 2014 (Iceland Tourist Board, 2024). Tourism has generated substantial income, leading to the construction of hotels, restaurants, and related infrastructure.

Significant changes also took place in fish and seafood exports which have long been a backbone of the Icelandic economy. The sector faced challenges due to changing fish stocks and international market conditions. The industry had to adapt by increasing the value-added processing of seafood products and diversifying export markets. Moreover, aquaculture products are now important export products. In 2014 only 8.000 tons were exported but in 2022 the export had risen to 55.000 tons

(Iceland [Statistics, 2024](#)). Furthermore, the availability of cheap, renewable energy has made Iceland an attractive location for energy-intensive industries, such as data centers, which have grown in importance over the past decade. Some estimates state that as much as 7 % of renewable energy is now sold to data centers ([TH_Q, 2024](#)). Finally, the growth in sectors such as biotech, IT, and creative industries has been notable, supported by a well-educated population and strong governmental support.

In summary, the Icelandic economy has evolved from a post-crisis

recovery to a more diversified and innovation-driven model, while still relying heavily on tourism, fisheries, and renewable energy. The challenges of the last decade, including the COVID-19 pandemic and environmental concerns, have shaped Iceland's approach to sustainable economic development.

5. The project landscape

Research has shown that the project type and the respective project

Table 2
The project landscapes.

		Internal Projects					External Projects	Number of cases(n)
		Organizational /HR projects	IT projects	R&D/New product development projects	Marketing / sales projects	Infrastructure projects	Commissioned projects	
Germany 2022	Agriculture, forestry and fishing	16%	19%	18%	17%	11%	19%	30
	Manufacturing industry (excluding* construction)	14%	15%	20%	17%	9%	24%	280
	Construction	15%	14%	13%	12%	12%	35%	50
	Retail / transport / hospitality / tourism	19%	22%	8%	22%	13%	17%	63
	Information and communication	16%	21%	13%	17%	10%	22%	50
	Financial services & insurance	20%	26%	11%	18%	14%	11%	49
	Real estate	19%	18%	12%	13%	18%	20%	50
	Corporate service providers	19%	19%	9%	20%	7%	26%	50
	Public sector, education, health	21%	23%	11%	13%	17%	15%	58
	Other service providers	20%	21%	10%	20%	10%	19%	50
	Total	17%	19%	15%	17%	11%	22%	730
Total 2013		17%	20%	13%	22%	13%	16%	500
Norway 2022	Agriculture, forestry and fishing	14%	18%	20%	14%	14%	20%	14
	Manufacturing industry (excluding construction & oil and gas)	16%	15%	16%	16%	12%	25%	62
	Oil and gas activity	9%	14%	20%	15%	12%	30%	12
	Retail / transport / hospitality / tourism	16%	19%	15%	20%	14%	16%	36
	Information and communication	12%	17%	18%	17%	14%	22%	27
	Financial services & insurance	17%	19%	14%	16%	14%	21%	13
	Public sector, education, health	21%	15%	14%	15%	18%	17%	34
	Other service providers + real estate + corporate service providers	15%	16%	16%	15%	12%	26%	89
	Total	15%	17%	17%	16%	14%	22%	287
Total 2014		14%	16%	18%	16%	14%	22%	1412
Iceland 2023	Agriculture, forestry and fishing	20%	19%	19%	17%	17%	8%	13
	Manufacturing industry (excluding* construction)	17%	17%	17%	17%	17%	14%	23
	Construction	9%	9%	9%	29%	9%	34%	4
	Retail / transport / hospitality / tourism	19%	17%	16%	17%	16%	16%	14
	Information and communication	17%	18%	18%	16%	16%	16%	18
	Financial services & insurance	17%	17%	17%	17%	17%	13%	4
	Real estate	17%	17%	17%	22%	17%	9%	4
	Corporate service providers	16%	22%	15%	17%	15%	15%	17
	Public sector, education, health	15%	20%	18%	20%	15%	10%	5
	Other service providers	16%	14%	20%	20%	20%	10%	4
	Total	16%	18%	16%	19%	16%	15%	106
Total 2014		16%	19%	17%	17%	18%	13%	142

characteristics matter when selecting project management tools and leadership styles (Brockhoff, 2006; Müller and Turner, 2007; Besner and Hobbs, 2012). To assess the prevalence of different project types, the respondents were asked to estimate the (relative) prevalence of different project types in their organizations. The organizational level data was aggregated to the sector level and the economy level.

The main categories were external (commissioned) projects, i.e. projects that are carried out for a customer, and internal projects, i.e. projects carried out internally without external clients. Internal projects were further differentiated into organizational/HR projects, IT projects, R&D/new product development projects, marketing/sales projects, and infrastructure projects (Wald et al., 2015a). While in research much attention has been paid to megaprojects and the public debate often turns around the complexities and prominent failures of megaprojects (Flyvbjerg, 2014; Söderlund et al., 2017), the results of the first wave of studies suggested that external projects, of which megaprojects are a subcategory, account for only 22 % in Norway, 16 % in Germany), and 13 % in Iceland indicating that the vast majority of projects were internal in 2013/2014 (Schooper et al., 2018). This finding is corroborated by the recent wave of studies, although there was an increase in external projects over the last ten years. Table 2 includes the findings Germany, Norway and Iceland in 2022/2023.

In Germany, the share of external projects has increased from 16 % to 22 %. External projects are most prevalent in construction (35 %) and least prevalent in financial services & insurance (11 %). The relative importance of internal projects also differs across sectors. For instance, R&D/new product development projects are clearly more prevalent in the manufacturing industry (20 %) than in retail/transport/hospitality/tourism (8 %), IT projects are of particular relevance in financial services (26 %), and infrastructure projects play an important role in real estate (18 %).

In the project landscape for 2022 in Norway, the share of external projects remained stable at 22 % and is similar to Germany (Table 2). Only minor changes can be observed for the relative importance of internal projects. On the sectoral level, the highest prevalence of external projects can be observed in oil and gas, the most important sector of the Norwegian economy. On the other hand, organizational/HR projects are least important in oil and gas (9 %) and most prevalent in the public sector (21 %). Like in Germany, IT projects are most important in financial services (19 %).

In Iceland, the share of external projects has increased moderately from 13 % in 2014 to 15 % in 2022. External projects are most prevalent in construction (34 %) and least prevalent in agriculture, forestry, and fisheries (8 %) followed closely by real estate (9 %). The relative importance of internal projects also differs across sectors. For instance, IT projects score 22 % in the corporate sector but only 9 % in construction. On the other hand, marketing and sales projects score 29 % in construction but only 16 % in information and communication.

Taken together, the share of external projects and internal R&D and NPD projects is lower than the share of the remaining internal projects combined; a finding which is consistent across the three economies. It can be interpreted in light of theory on the drivers of projectification. The pressure for innovating requires firms to develop innovative capacity, a dynamic capability which is facilitated by projects as temporary organizations (Spanuth et al., 2020). The majority of internal projects are neither delivering value to external customers nor aiming at the development of new products and services. They are used to develop and implement internal innovations which are triggered by changes in the external environment, e.g. IT projects implementing new information systems. These projects require more reactive strategic flexibility, one of the dynamic capabilities facilitated by projects.

6. State and evolution of projectification

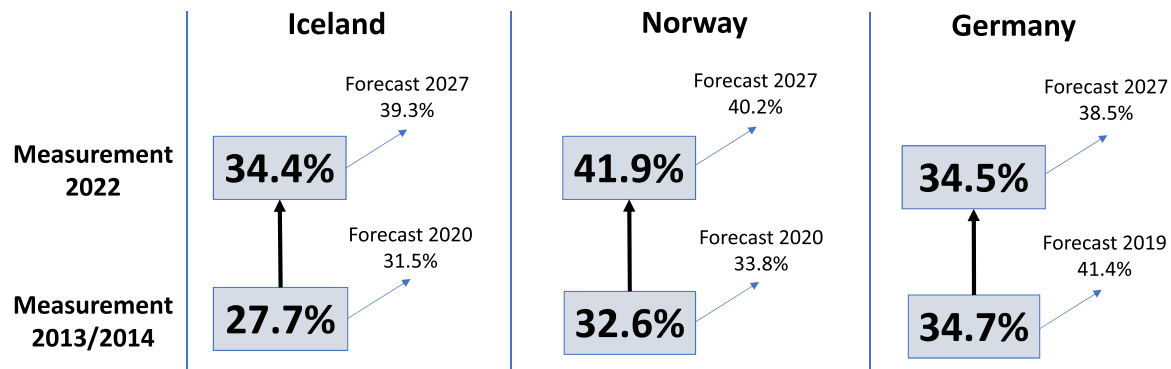
6.1. Economy-level projectification

The first waves of studies in 2013/2014 revealed a high degree of projectification of the German (34.7 %), Norwegian (32.6 %), and Icelandic (27.7 %) economies (Schooper et al., 2018). Although the degree of projectification varied on the country level, the findings underlined the high importance of project organizing and project work for Western economies. In 2013/2014, the respondents were also asked to estimate the further development of project work in their organization over the next five years. These estimates and the results of the measurements in 2013/2014 and in 2022 are shown in Fig. 3.

For the year 2019/2020, respondents had estimated a further increase in projectification in the three countries: Germany 41.4 %, Norway, 33.8 %, and Iceland 31.5 %. Following the theoretical reasoning that changes in the economy, i.e., the external environment of firms, in conjunction with innovation pressure, will cause an increase in projectification, one could expect a higher degree of projectification in the three countries. However, the measurements in 2022 revealed that only in Norway and in Iceland the share of project work in the economy has further increased. The most important increase in projectification of 9.3 % can be observed in Norway. The share of project work in the economy has increased from 32.6 % in 2014 to 41.9 % in 2022, largely exceeding the estimate of 33.8 % for 2020. A potential reason for this significant increase could be due to the strong dependence of the Norwegian economy of the highly projectified oil and gas sector (51.8 % in 2022) whose share on the GVA of the entire economy has also significantly increased between 2014 and 2022. It appears that smaller and less diversified economies may be more volatile regarding their degree of projectification. Accordingly, also in the Icelandic economy projectification has increased by 6.7 %. Exhibiting the lowest share of project work in 2014 (27.7 %), it rose to 34.4 % in 2022. Finally for the largest and most diversified economy, Germany, the degree of projectification remained stable, although the forecast for 2019 had predicted a further, significant increase. The degree of projectification of the German economy in 2022 was 34.5 % which is a 0.2 % decrease from 2013 (34.7 %).

Potential reasons for the evolution of projectification between 2013/2014 and 2022 can be manifold. In addition to the aforementioned size and diversity of the economies considered in this study, it might be due to changes in the measurement on the sectoral level. In 2013/2014 projectification of four sectors in Germany (NACE codes A, F, L, M-N) had been estimated by industry experts. The 2022 study is exclusively based on survey results and therefore an improved, i.e., more precise measurement can be assumed. Likewise, in the initial Icelandic study, several sector-level results were obtained from the estimates of industry experts.

Overall, the economy-level results of the evolution on projectification give rise to two main conclusions: First, the degree of projectification in Western economies remains at a high level, i.e. more than one third of work in the entire economy is carried out as project work. This underlines the high importance of project management in practice and the relevance of project management research. Second, while the degree of projectification is high and has partly increased, the share of non-project work, i.e., work in more stable organizational settings, remains more prevalent. The result of the 2022 studies may indicate that a certain “plateauing” of projectification may be reached (Schooper et al., 2018). Work in a temporary project organization is beneficial for generating and implementing innovation, solving unique and complex problems, and providing flexible structures (Lundin et al., 2015; Henning and Wald, 2019), but for more repetitive and routine tasks, more stable organizational forms like process-oriented structures (Brenner et al., 2024) are better suited. The plateauing of projectification may be due to a certain balance between change and stability on the economy level which corresponds to a certain balance between temporary



Source: Wald et al., 2015; Schoper et al., 2018, Wald et al. 2023a

Fig. 3. The evolution of projectification.

(project) organizations and permanent organizations on the firm-level.

In the context of current developments, a delicate balance between project and process organizing can be critical (Kier et al., 2023). For instance, the digitalization and digital transformation of organizations is often achieved by using projects (Simard and Aubry, 2024). An example would be robotic process automation (RPA) where software-based

robots are used to carry out tasks formerly performed by humans using the existing IT infrastructures and systems (Tauli, 2020). A highly repetitive labor-intensive process based on human work is replaced by a software robot. The implementation of RPA usually is done in projects, shifting work from permanent to temporary structures. After the implementation of RPA, project work ends and processes take over

Table 3

Projectification of sectors and economies.

NACE Code	Sector	Germany				Norway				Iceland			
		Share of project work 2013†	Share on GVA 2013**	Share of project work 2022‡	Share on GVA 2022***	Share of project work 2014†††	Share on GVA 2014***	Share of project work 2022	Share on GVA 2022***	Share of project work 2014	Share on GVA 2014****	Share of project work 2023	Share on GVA 2023****
A	Agriculture, forestry and fishing	4.0 %	0.9 %	20.5 %	1.3 %	28.6 %	1.7 %	14.7 %	1.7 %	4.0 %	7.0 %	11.4 %	5.0 %
B-E (F*)	Manufacturing industry (excluding* construction)	41.9 %	26.1 %	38.8 %	23.4 %	47.2 %	32.6 %	50.7 %	52.5 %	3.4 %	8.9 %	36.9 %	17.2 %
	of which manufacturing	-	-	-	-	37.6 %	8.8 %	47.7 %	14.2 %	-	-	-	-
	oil and gas activity	-	-	-	-	50.7 %	23.9 %	51.8 %	38.3 %	-	-	-	-
F	Construction	80.0 %	4.6 %	55.0 %	6.0 %	-	-	-	-	80.0 %	6.3 %	95.0 %	7.5 %
G-I	Retail / transport / hospitality / tourism	42.0 %	15.6 %	20.9 %	17.1 %	13.4 %	13.9 %	22.1 %	9.7 %	18.2 %	20.3 %	35.6 %	19.9 %
J	Information and communication	37.7 %	4.7 %	46.4 %	4.9 %	48.0 %	3.8 %	52.5 %	3.4 %	47.8 %	5.3 %	53.2 %	5.2 %
K	Financial services & insurance	23.0 %	4.1 %	19.2 %	3.6 %	21.4 %	5.1 %	18.3 %	3.5 %	34.2 %	8.8 %	36.7 %	5.5 %
L	Real estate	2.0 %	11.1 %	45.3 %	10.0 %	-	-	-	-	2 %	11.1 %	15.0 %	5.5 %
M-N	Corporate service providers	60.0 %	10.7 %	42.5 %	11.5 %	-	-	-	-	60 %	5.3 %	24.1 %	8.9 %
O-Q	Public sector, education, health	17.8 %	18.1 %	24.5 %	18.8 %	14.2 %	22.0 %	29.4 %	18.2 %	33.3 %	22.1 %	21.5 %	22.0 %
S	Other service providers	23.0 %	4.1 %	37.6 %	3.6 %	-	-	-	-	42.7 %	4.9 %	24.1 %	3.3 %
S + F + L + M-N	Other service providers + construction + real estate + corporate service providers	-	-	-	-	40.5 %	20.9 %	47.3 %	10.8 %	-	-	-	-
	Total ****	34.7 %	100 %	34.50 %	100 %	32,6 %	100 %	41.9 %	100 %	27.7 %	100 %	34.4 %	100 %

Values printed in italics are estimated values by industry experts (Germany 2013 and Iceland 2014)

* for Norway including construction (B-F)

** Source: Statistisches Bundesamt, *** Source: Eurostat, 2024, Statistics Norway, **** Source: Iceland Statistics (Hagstofan)

***** Total value weighted by the proportion of economic sectors to gross value added (GVA)

† Source: Wald et al. (2015); ‡ Source: Wald et al. (2023); †† Source: Wald et al. (2016)

again.

6.2. Sector-level projectification

The economy-level results are broken down to the sector level for the 2022 studies and the original 2013/2014 studies. Table 3 shows the degree of projectification for the different sectors in the three countries and the respective sector shares on total GVA of the economy.

In Germany, construction (55 %) was the most projectified sector in 2022 and in the first study in 2013 (80 %). However, in 2013 the share of project work was estimated by industry experts and not a result of the survey and might have been overestimated. The same applies to corporate service providers with a projectification of 42.5 % in 2022 (60 % expert estimate in 2013). Conversely, agriculture, forestry and fishing might have been underestimated by industry experts in 2013 with only 4 % and for real estate with only 2 %. The survey results for 2022 indicate a share of project work of 20.5 % in agriculture, forestry, and fishing and 45.3 % in real estate.

But also, for the surveyed sectors in 2013 some important changes can be observed in 2022. The share of project work in information and communication increased from 37.7 % to 46.4 % and other service providers from 23 % to 37.6 %. A significant decrease from 42 % to 20.9 % can be observed in retail, transport, hospitality, and tourism. Remarkably, projectification in the public sector, education and health further increased from 17.8 % in 2013 to 24.5 %. Finally, the degree of projectification in manufacturing (38.8 %) remained relatively stable (41.9 % in 2013).

For the Norwegian economy, the oil and gas activities were surveyed separately from manufacturing. This is due to the crucial importance of oil and gas which is not only reflected in its high share of GVA but also as it accounted for 73 % of the total value of the countries' exported goods in 2022 (norskpetroleum.no). The share of project work in oil and gas slightly increased from 50.7 % in 2014 to 51.8 % in 2022.

Information and communication is the most projectified sector in Norway with 52.5 % (48 % in 2014). The share of project work in manufacturing increased from 37.6 % to 47.7 %. In the Norwegian study, other service providers, construction, real estate and corporate service providers (NACE codes S, F, L, M, N) were not considered separately. The projectification of residual category increased from 40.5 % in 2014 to 47.3 %. A significant increase in projectification can also be stated for the public sector, education, and health with 29.4 % in 2022 (14.2. % in 2014). The only sector of the Norwegian economy which shows a decreasing projectification is agriculture, forestry and fishing. The share of project work was 28.6 % in 2014 and almost halved to 14.7 % in 2022.

On the sector level, also in Iceland several important changes can be observed (see Table 3). The construction sector had the highest share of project work in 2014, estimated by industry experts to be 80 %, which increased to 95 % in 2022. Following the construction sector, information and communication also saw a rise in project work from 47.8 % in 2014 to 53.2 % in 2022. In 2014, the sectors with the lowest share of project work were real estate, manufacturing, and agriculture, forestry, and fishing. Initially, real estate had been excluded from the 2022 study due to its low project work share in 2014. However, it was later added, revealing a significant increase in projectification. This indicates an undervaluation in the 2014 study which is in line with findings of a 2018 study for agriculture, forestry, and fishing (NACE code A), where data was collected directly from companies (instead of an expert panel) and project activities were found to be 9 % (Ingason et al., 2019). In the present study, the share of project work in agriculture, forestry, and fishing activities was found to be 11,4 %.

The evolution of the share of project work between the two studies varies significantly across economic sectors. Some sectors saw an increase in projectification, while others experienced a decrease. The manufacturing industry had the most significant increase, with project work rising from 3.4 % in 2014 to 32.7 % in 2022. Retail, transport,

hospitality, and tourism also saw a substantial increase. The construction industry experienced a growth of 15 percentage points in project work between the two studies, although its value was estimated by industry experts in both cases. Conversely, corporate service providers saw a significant decrease in project work, with a reduction from 60.0 % in 2014 to 24.1 % in 2022. The other service providers sector experienced a 44 % decrease, while the public sector, education, and health sectors saw a 35 % decrease in project work between the two studies.

7. Projectification and the professionalization of project work

The results of the 2013/2014 and 2022 studies demonstrate the high relevance of project work in Western economies. In the current studies, the degrees of projectification in the three economies were all above 34 %, i.e., more than one third of all work in the economies was carried out in projects. In light of this finding, and based on comprehensive earlier research, we further investigated whether the high share of project work corresponds to a professionalization of project management and project work on the sector and economy level (Maylor and Turkulainen, 2019).

The professionalization of project management and project work can have many forms such as standardization (Ahlemann et al., 2009), certification (Blomquist et al., 2018), project governance (Ahola et al., 2014), project career models (Bredin and Söderlund, 2013; Alkhudary and Gardiner, 2021) and the integration of project management structures in organizations (Aubry et al., 2012; Mitrev et al., 2017). In the German study, the existence of central project organizations was investigated along with the existence of dedicated project career models.

7.1. Central project organizations

In the German studies, a question on the integration of a project management structure in the organizational structure was asked in 2013 and 2022. A similar question was asked in the Icelandic 2022 study. The question was about the existence of a centralized project organization which in most organizations is called project management office (PMO). PMOs are organizational units that facilitate the management, coordination, control of projects and of project portfolios and their integration and interaction with the permanent parts of organizations and strategy (Hobbs and Aubry, 2010; Unger et al., 2012). The comprehensive body of research on the role, functioning and success factors of PMOs mostly draws on case studies and/or purposive samples of experts in organizations (e.g., Bredillet et al., 2018; Tshuma et al., 2022), or random samples of firms (e.g., Aubry, 2015). So far, there was no representative account of the prevalence of central project organizations in companies on the sector of economy level. The findings of the present study may therefore be a valuable complement to existing PMO research.

Table 4 shows the results for Germany in 2022 differentiating between economic sectors. On the economy level, almost half of all organizations (47.9 %) had a central project organization in 2022. This seemingly high value corresponds to the high share of project work (34.5 %) in the economy. However, when compared to the results obtained in the 2013 study –65,0 % - we observe an important decrease in central project organizations although projectification remained on a similarly high level. The reasons for this decline remain unclear but the findings indicate a de-professionalization of project management as it may weaken the project function in organizations (Aubry et al., 2012). Results from Iceland in 2022 show that 33 % of organizations have a central project organization, but no comparative data is available from the 2014 study in Iceland. This ratio is a much lower than in Germany. The reasons for this are unclear but one explanation might be that the general level of projectification has been lower in Iceland, even if this difference has been flattened out in recent years. Another possible explanation may be that Icelandic companies are likely smaller in size than German companies due to the significant difference in the scale of these two economies.

Comparing the economic sectors in Germany, important differences

Table 4
Projectification, central project organization and project career.

Sector	Germany 2022		
	share of project work (%)	central project organization (%)	project career index (1-100)
Agriculture, forestry and fishing	20.5 %	30.0 %	41.2
Manufacturing industry	38.8 %	55.0 %	50.0
Construction	55.0 %	52.0 %	53.0
Retail / transport / hospitality / tourism	20.9 %	46.0 %	34.5
Information and communication	46.4 %	62.0 %	46.4
Financial services & insurance	19.2 %	51.0 %	31.1
Real estate	45.3 %	50.0 %	50.1
Corporate service providers	42.5 %	50.0 %	39.0
Public sector, education, health	24.5 %	38.0 %	29.6
Other service providers	37.6 %	34.0 %	30.3
Total	34.5 %	49.7 %	42.4
		65.0 %	
		in 2013	

regarding the existence of a central project organization can be observed. Unsurprisingly, agriculture, forestry and fishing, the sector with the second lowest share of project work also has the fewest central project organizations (30 %). Conversely, a high degree of projectification does not necessarily correspond to an extensive use of central project organizations. The sector with the lowest share of project work, financial services & insurance (19,2 %) has central project organization in 51 % of the companies, whereas construction, the most projectified sector, only uses 1 % more central project organizations (52 %). It appears that a higher degree of projectification does not always equate to a higher level of institutionalization. The construction industry serves as a notable example—a highly project-oriented sector with a well-developed approach to project management, especially when compared to sectors like financial services and insurance, where projectification is a more recent phenomenon. But drawing on [Lundin \(2016\)](#), it is reasonable to assume that the formalization of central project organizations occurs in the earlier stages of the projectification process.

7.2. Project career models

The professionalization of project work not only pertains to the organizational structures and processes but concerns the individual project team members and project managers. Research has underlined that not every employee may be suited for (regularly) working in projects and that employees' attributes need to align with the characteristics of projects ([Hölzle, 2010](#); [Goetz et al., 2021](#)). A fit between the personal attributes and the project environment was shown to positively affect project performance in several dimensions ([Goetz and Wald, 2021](#); [2022](#)). Accordingly, organizations with a high share of project work and a high strategic importance of projects are advised to design and implement specific project career models ([Bredin and Söderlund, 2013](#); [Akkermans et al., 2020](#)). This may also help to mitigate potential negative effects of project work on employee well-being and performance ([Aguilar Velasco & Wald, 2022](#)).

In the 2022 studies in Germany and in Iceland, two questions were asked regarding the existence of dedicated project career models in the organization ([Wald et al., 2023a](#)). Respondents were asked to indicate on seven-point Likert scales (anchored 1 = not at all to 7 = totally applies) if there are dedicated project career paths in the organizations and if the project career models are clearly defined and transparent. The scale

values were combined (linear additive) to a project career index (values 1-100). The results are displayed in [Table 4](#) for Germany.

On the level of the entire economy, the high share of project work (34.5 %) corresponds to a project career index of 42.4 in Germany. This can be compared to the project career index 40.3 for Iceland in the 2022 study, which also shows a similar share of project work (34,4 %). Significant differences exist between sectors, as shown in the German study. While dedicated project career paths seem to be more prevalent in construction (index value 53.0), real estate (50.1), manufacturing (50.0), and information and communication (46.4) they are least common in the public sector (29.6) and other service providers (30.3). However, these values need to be interpreted against the original scale values. An index value of 50.0 indicates that the original values on the two scales might have been 4 and 3 or 5 and 2. This means that even in the sector with the highest index value (53.0) project career models are only moderately common and an index value around 30.0 indicates a low prevalence of dedicated project career models.

The professionalization of project management and project work in the important dimension of project careers seems to lack behind the high degree of projectification. [Wagner \(2021\)](#) highlighted that the German economy is largely composed of small and medium-sized enterprises, and the growth of projectification in this context can be best understood as a "pull strategy," driven by a positive image, role models, and success stories. It seems reasonable to suggest that the establishment of specialized project careers occurs later in the projectification process, marking a level of "maturity" that is likely more uncommon in sectors where projectification is still driven by a "pull strategy."

8. Limitations and future research

Although present studies are based on a relatively simple and straightforward measure of projectification—the share of project work on total work in an organization, data collection in Norway and Iceland turned out to be challenging. The data was collected from key informants who provided estimates on behalf of their entire organization. Accordingly, biases cannot be entirely ruled out. For example, in the Icelandic survey, only one out of five companies contacted responded. This may raise questions whether the sample accurately represents the broader population. However, it is common in project management and organizational research to rely on survey respondents' estimates for metrics such as the share of work carried out in projects ([Maylor and Söderlund, 2016](#)). Numerous high-quality, peer-reviewed studies support this practice, demonstrating that self-reported data can be both valid and robust when properly acknowledged and managed (e.g., [Zika-Viktorsson et al., 2006](#); [Aubry and Hobbs, 2010](#); [Mäkelä et al., 2012](#); [Spanuth et al., 2020](#)).

Furthermore, project-based and project-oriented companies may be more likely to respond to surveys about project management than other companies. This could result in a bias towards higher projectification. The possibility of measurement error cannot be ruled out, i.e., underestimation and/or overestimation in either study.

Another factor worth noting is the challenge of reaching individuals within companies and organizations in our current era of information overload. For instance, the Icelandic survey was delayed by three months due to difficulties in gathering responses from participating companies. Future research should therefore develop and apply other methods and measurements of projectification on the sector and economy level and compare results to our findings to evaluate the validity and applicability of different approaches.

9. Conclusion

The repeated claims of an increasing projectification of economies and economic sectors were first substantiated by a series of comprehensive studies in Germany, Norway and Iceland in 2013/2014. Using the share of project work on total work in organizations as measure of

projectification allowed for an examination of all project types and all types of organizations (companies, non-profit, public). After ten years and important changes in the economic and political environment, the studies were repeated in the three Western economies using the same measurement. This allows for a comparison of the results across countries and across time. The paper at hand presented the results of the second series of studies in 2022 and discussed the evolution of projectification on the level of economies, sectors, and regarding the prevalence of project types.

The findings show that overall, an increase of projectification on the economy level can be observed for Norway and Iceland with projectification the Germany remaining on a similar level. While parts of the changes might be attributed to more complete survey of some of the sectors previously estimated by industry experts in Germany and Iceland, the results further underline the importance of project work which now accounts for more than one third of all work in each of the three economies. The results also reveal that project work does not out-surmount work in the more permanent parts of the organization and that there seems to be a plateauing of projectification although in some sectors project works is more prevalent than non-project work. For the importance of different project types, we observed a slight increase in the prevalence of external, commissioned projects but the clear majority still takes place within organizations. Overall, the results suggest a continued high degree of projectification, although particularly in the Germany economy, the plateauing indicates that further significant increase may not be expected.

Finally, the high degree of projectification does not fully correspond to a professionalization of project management and project work. Central project organizations exist in up to 50 % of all organizations but their prevalence has declined in Germany over the last ten years. Dedicated project career models only exist to a moderate degree.

CRedit authorship contribution statement

Andreas Wald: Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Conceptualization. **Helgi Thor Ingason:** Writing – original draft, Formal analysis, Conceptualization. **Thordur Vikingur Fridgeirsson:** Writing – original draft, Formal analysis, Conceptualization.

Declaration of competing interest

None.

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