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Title: Vernacular budgeting and accounting routines : a longitudinal constructive case study

Year: 2022

Version: Published version

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Please cite the original version:

Mättö, T., Järvenpää, M., Peura, P., Kangasjärvi, M., & Lehtinen, H. (2022). Vernacular budgeting and accounting routines : a longitudinal constructive case study. *Journal of Public Budgeting, Accounting and Financial Management*, 34(6), 193-209. <https://doi.org/10.1108/JPBAFM-08-2021-0121>

Vernacular budgeting and accounting routines – a longitudinal constructive case study

Vernacular
budgeting

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Received 13 August 2021
Revised 23 November 2021
21 March 2022
10 May 2022
12 May 2022
Accepted 12 May 2022

Abstract

Purpose – This case study aims to report a longitudinal analysis of the development and use of local “vernacular” accounting practice and a digital rolling-forecast system known as TeamBudget in a public sector organization.

Design/methodology/approach – The study employs the constructive research approach which utilizes participative observation in the development of TeamBudget over the 15 years since 2004. The empirical data utilized includes eight interviews and documentary data for the system created.

Findings – The study demonstrates how the actions of employees responsible for developing a locally relevant financial planning system, TeamBudget, facilitated the emergence of new accounting routines associated with the newly created system. A locally created accounting system thus became institutionalized into a wider organizational setting over time. The current study presents findings that explain the routinization of informal accounting activities and the subsequent institutionalization process.

Practical implications – Understanding the potential influence of local action on the organization-wide accounting system may foster the creation of accounting tools that could spread participation and commitment throughout a public sector organization, contributing towards enhancing the enabling effect of an organizational accounting system. When designing a local budgeting system, decoupling it from the organizational system may promote its institutionalization.

Originality/value – Antecedents of informal accounting routines have received little research attention. This study illustrates actions relating to local accounting practice were antecedents of accounting routines and subsequent institutional changes in broader organizational practices in a public sector organization. The study demonstrates how vernacular accounting practice can facilitate the institutionalization process.

Keywords Vernacular accounting, Constructive research approach, Institutionalization, Accounting routines, Public sector, Case study

Paper type Research paper

Introduction

By the late twentieth century, old institutional economics (OIE) had developed an interest in institutions and action (ter Bogt and Scapens, 2019). OIE can be seen to have conceptually separated institutions and actions as means to analyse how the practices of individuals shape



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Journal of Public Budgeting,
Accounting & Financial
Management
Vol. 34 No. 6, 2022
pp. 193-209
Emerald Publishing Limited
1096-3367
DOI 10.1108/JPBAFM08-2021-0121

the emergence of wider institutions (*ibid*). Management accounting researchers interested in OIE have also utilized the concept of routines in relation to institutional theory to explain the changes to and stability of management accounting practices (Burns and Scapens, 2000; Lukka, 2007; Quinn and Hiebl, 2018; ter Bogt and Scapens, 2019). Quinn and Hiebl (2018) note that analysing how routines become institutionalized offers insights into the processes and actions that produce them.

Further, while it has been noted that formal, organization-wide institutional rules provide a frame of reference for local action, there might also be informal routines in place within the organization that differ from established norms (Lukka, 2007; Goretzki *et al.*, 2018). Quinn and Hiebl (2018) note that actions underlie the routines that evolve a consequence of accounting routines being a product of actors' re-enacted actions. According to ter Bogt and Scapens (2019), rules and routines connect actions and institutions. However, an informal accounting system and the associated accounting routines that become institutionalized through user action warrant more attention.

Wouters and Roijmans (2011) define enabling accounting systems as those perceived by the employees of an organization to facilitate the fulfilment of their responsibilities. The same authors also emphasize the iterative nature of the development of an enabling accounting system (*cf.* North, 1991). Studying the development of an accounting system longitudinally makes it possible to analyse its design through various iterations. Goretzki *et al.* (2018) studied the enabling nature of accounting systems, noting how local accounting systems can influence a global (or organization-wide) accounting system. A locally created, so-called vernacular accounting system (VAS; Kilfoyle *et al.*, 2013; Goretzki *et al.*, 2018) reflects local actors' context-specific knowledge, which is codified in such systems. The systems are specific to their workgroup and help local actors maintain the relevance of their specific knowledge (Goretzki *et al.*, 2018). In this study, we focus on an accounting system generated by managers and employees of a single unit of an organization. Specifically, this study analyses the development of an application for rolling budgeting (TB) in the public sector by the Levón Institute of the University of Vaasa (here, Levón). We describe and analyse the history and phases of the application's development, while anchoring it to the literature on VAS (Kilfoyle *et al.*, 2013) and the institutionalization of the informal accounting routines produced in the process.

Kilfoyle *et al.* (2013) describe three potential uses of a VAS; they theorize that a VAS can be a local source of information in a situation where there is a "disconnection between front line managers' information needs and the information available in formal management accounting and control systems" (Kilfoyle *et al.*, 2013, p. 387; see also Bukh and Svanholt, 2020). Moreover, such systems may be utilized as a defensive resource when managers strive to resist the use of a formal accounting system in their operational activities. Furthermore, a VAS may be used to shape organizational accounting and control practices (Kilfoyle *et al.*, 2013). This study aims to illustrate empirically how a disconnect between the information needs of local actors and the information available in the organizational accounting system spurred local actors to devise a local solution. The actions of the employees to develop a new informal accounting system led to the emergence of new accounting routines and the gradual utilization of the VAS in the broader organizational setting, resulting in it eventually modifying the organization-wide accounting system.

Goretzki *et al.* (2018) note that when they were writing, very little research had reported the influence of a VAS on organization-wide accounting systems. Empirical case research addressing the development process of a VAS and analysing the actions, (accounting) routines and institutionalization process related to the created VAS in an organizational context was markedly scarce. Quinn and Hiebl (2018) note that studying the emergence of management accounting routines can illuminate management accounting change in organizations.

We believe that while conceptually differentiating institutions and situated action in line with OIE literature on institutionalism (Burns and Scapens, 2000; Lukka, 2007; Quinn and Hiebl, 2018; ter Bogt and Scapens, 2019), a perspective combining a focus on the potential of situated (local) action to create accounting systems and the routines associated with it enables us to analyse how a VAS influences the broader organizational accounting system, thus potentially making it more enabling for users of that system. We suggest that actors initiate actions with the intent to make accounting systems more enabling, and in the process create accounting routines that reinforce the institutionalization of the locally created accounting system. Our guiding research question is:

How does the creation of a local accounting system, the associated accounting routines, and the subsequent institutionalization of the system influence the wider organizational accounting system in a public sector context?

Bukh and Svanholt (2020) analyse how employees of an organization design local solutions or alter the existing systems to comply with local conditions. Bukh and Svanholt (2020) demonstrate how these local systems are coupled with top management goals of, for example, performance levels. Our study illustrates how a locally created budgeting system may be decoupled from the organization-wide system, while over time, institutionalize to complement the global accounting system. This study describes the creation of a digital rolling forecast budgeting system, known as TeamBudget (TB), in a unit of a public sector organization (the University of Vaasa) and carries out a longitudinal analysis of the process by which TB gradually became institutionalized in a broader organizational context. Therefore, this study contributes to the literature by analysing the institutionalization of an accounting system and the way in which accounting routines are associated with it (ter Bogt and Scapens, 2019; Quinn and Hiebl, 2018). The study specifically analyses a situation where employees devised an informal accounting system to address their information needs and, in the process, created new accounting routines that came to influence the institutionalization process over time.

Further, this study empirically illustrates the association between the first and third uses theorized by Kilfoyle *et al.* (2013). That is to say, we demonstrate how the existing disconnect between local information needs and the information available via a formal management accounting (MA) system prompted local managers to develop a system that would ultimately shape organizational MA practices.

The current study also demonstrates TB as a genuine decision-support system that has contributed to the financial management system of the host organization. The study employs an interventionist approach, the constructive research approach (CRA) (Kasanen *et al.*, 1993; Lukka and Suomala, 2014; Suomala *et al.*, 2014). The CRA aims to create a practical solution for an organization referred to in CRA terms as a *construction*. In the context of the current study, the CRA serves to create the focal construction, TB. Another aspect associated with the CRA is the need to illustrate whether the created solution is of practical benefit to the organization. That benefit is measured through a *market test*, evaluated through the willingness of the managers to apply the created construction (Labro and Tuomela, 2003). The TB application created in the case organization is a result of participant observation and development work spanning 15 years. We conducted eight interviews to gather information on the institutionalization of TB and to assess its functionality in terms of market tests (Kasanen *et al.*, 1993; Labro and Tuomela, 2003). The basic premise of those tests was to ascertain if the created construction (TB) was actually used.

The paper has been organized as follows: following this Introduction, the second section presents the theoretical framing of the research. The third section provides the methodology, while the fourth section illustrates the study case. The fifth section presents the concluding discussion.

Theoretical background

Vernacular accounting

Hopwood (2009) called for studies on “alternatives to formal information systems”, emphasizing their potential relevance by stating that [they] “*are an important part of overall organizational functioning*” (p. 801). Similarly, Hall (2010) argued that a formal accounting system is only one element of the information sources managers use when carrying out their work.

Managers use the formal accounting systems of the organization but in addition, managers utilize personal information systems within and outside the organization (McKinnon and Bruns, 1992, p. 7). These include the locally created solutions called vernacular accounting systems (Kilfoyle *et al.*, 2013; Goretzki *et al.*, 2018). From an organization-wide perspective, these kinds of systems may be perceived merely as distractions that should be abandoned or replaced (Dechow and Mouritsen, 2005). However, another perspective is that they are an enduring and valuable component of functioning management (Frow *et al.*, 2010; Hall, 2010).

VAS (Kilfoyle *et al.*, 2013; Goretzki *et al.*, 2018; Hopwood, 2009) are not a product of centralized design but rather are the creation of individuals, embedded in their institutional and organizational environment. VAS are developed based on local context-specific knowledge, to explicitly enable actors to deal with local contingencies. They are embedded in the daily routines of single actors or task groups, who consider them to be legitimate and meaningful (Kilfoyle *et al.*, 2013). In this way, actors are willing to act on the data provided by their VAS, since “the data and the method of data collection reflects the[ir] epistemological preferences and values” (Kilfoyle *et al.*, 2013, p. 385). A VAS permits local actors to perform their tasks more efficiently, even though they may not be part of the formal bureaucracy (Goretzki *et al.*, 2018).

While a VAS can clearly be important to local actors, there has been little research to date on whether and in which way these systems affect the development processes of global (organization-wide) accounting and control systems. Goretzki *et al.* (2018) call for studies focusing on a VAS that guides managerial action with the potential to expand the understanding of management accounting innovation and change. Hopwood (2008) notes that the study of management accounting change would benefit from a more socially oriented focus with the potential to provide conceptual insights.

Kilfoyle *et al.* (2013) connected VAS to empowerment, knowledge and trust in particular. The use of vernacular accounting can lead to the empowerment of managers but may also result in components of organizations’ strategic knowledge becoming embedded in systems. A VAS can capture information key actors deem relevant in their organizational context. These systems, therefore, contribute to the fundamental bottom-up construction of knowledge (Kilfoyle *et al.*, 2013; Nonaka, 1994).

The longitudinal case study of Goretzki *et al.* (2018) showed that a VAS can affect the development of a global (organization-wide) accounting and control system and in doing so can assume three distinct roles. First, a VAS can serve as a *reference point* when evaluating a proposed global system. Second, a VAS is a *knowledge transformation device* that can help local actors. Third, a VAS can be mobilized as a *negotiation device*, thus strengthening its role as a knowledge transformation device.

VAS have the potential to facilitate productive debates and foster compromise (cf. Chenhall *et al.*, 2013), especially during the development of global systems intended to facilitate bottom-up decision-making (e.g. forecasting systems) rather than top-down control (e.g. performance measurement). Kilfoyle *et al.* (2013) called for studies on how vernacular systems emerge and their role in the routine practices of managers. The study reinforced the need to study accounting as a practice (see also Chua, 2007).

This study focuses on a local accounting system devised by the managers and employees of the Levón Institute, a subunit of an organization, the University of Vaasa. The case

illustrates the development process and the influence of a vernacular system in local decision-making and development, and its potential to influence broader organizational purposes.

Institutional theory

Institutional theory (Meyer and Rowan, 1977; DiMaggio and Powell, 1983) has been used to explain management accounting change and stability (Rautiainen and Järvenpää, 2012; Modell, 2020; Mauro *et al.*, 2019). Burns and Scapens (2000) presented a framework for institutional change in accounting that drew on the work of Barley and Tolbert (1997). It describes how institutional principles are encoded into rules and routines, how they are enacted and reproduced in organizational action, and how they are institutionalized as “the way things are” over time.

Pentland (2011) defined organizational routines as those practices that involve repetition and recognizable patterns of interdependent actions taken by multiple actors. In this way, routines connect the actions and institutions (ter Bogt and Scapens, 2019), if a routine comprising the repeated actions of multiple actors becomes institutionalized as an accepted practice. Quinn and Hiebl (2018) differentiate actions that reproduce management accounting practice (routines) from actions with the potential to shape management accounting but that do not yet involve repetition or patterns for routinization. That distinction is useful in that it underlines the possible antecedents of accounting routines. For example, in our case, employees who started to use the newly created accounting system for budgeting triggered potential management accounting change. Quinn and Hiebl (2018) see these actions as being the first occurrence of a pattern of actions that may potentially form a routine. They further suggest that accounting systems, particularly accounting software, might reinforce accounting routines because systems tend to transmit intended practice to other actors while facilitating the creation of routines in organizations. Accounting systems may thus influence how management accounting is conducted in organizations.

Institutions evolve through the routinization of human activity. Institutions comprise the taken-for-granted assumptions that inform and shape the actions of individual actors, while at the same time, these taken-for-granted assumptions are themselves the outcome of social actions; that is, they are socially constructed (Burn and Scapens, 2000). It follows that not all newly introduced rules or routines become institutionalized. They may, for example, challenge the prevailing institutions and consequently not be accepted and fail to become institutionalized (see, e.g. Rautiainen and Järvenpää, 2012; Mauro *et al.*, 2019). For example, accounting routines associated with the newly created accounting system may fail to become institutionalized if, from an organization-wide perspective, the created accounting system is merely perceived as a distraction that can be abandoned or replaced (Dechow and Mouritsen, 2005).

Mauro *et al.* (2019) note in the context of Nordic budgeting reforms, that the internal dynamics of key actors determine whether initiated reforms lead to change, resistance or continuity of practices. In their case, although the limits of traditional budgeting were understood, it did not motivate organizational actors to more systematic use of the developed budgeting system. They argue that budgeting routines represent strong institutionalized practices and hence make changes more difficult to achieve in that area.

ter Bogt and Scapens (2019) note that local institutions (e.g. organization-specific accounting techniques, operating practices or quality frameworks) have not received equal levels of academic attention. The above study extended the Burns and Scapens (2000) framework in light of recent work on institutional theory by developing an extended framework recognizing both external and internal institutions, the role of deliberation and human agency and the power of specific individuals and/or groups to create new rules or routines (practices) (ter Bogt and Scapens, 2019). This study aims to improve the understanding of the prerequisites of the institutionalization of VAS and the related

diffusion in an organization by analysing the accounting routines related to a newly developed VAS and the actions preceding them. The institutionalization of the new VAS would mean that the new system and accounting routines associated with it and would replace some parts of the wider organizational accounting system, potentially making the latter more enabling for its users.

Methodology

Interventionist research is an umbrella term for research in which practical solutions with theoretical significance are created to address organizational problems (Jönsson and Lukka, 2005). In interventionist research, the researcher takes an active role and often works with practitioners to create such solutions (Lukka and Suomala, 2014; Suomala *et al.*, 2014).

One such research approach, constructive research (Kasanen *et al.*, 1993) produces innovative and theoretically justified solutions to explicit and practically relevant problems; thus, they solve practical problems in scientific contexts. It is important that the CRA produces theoretical generalizations based on a comprehensive understanding of the issue. The innovation phase and the creation of a working solution are critical components of the CRA to ensure its practical usefulness. The solutions created are called *constructions* in the terminology of the CRA and can take the form of new knowledge, applications or results. The creation of construction is followed by the theoretical justification and testing of the solution (Kasanen *et al.*, 1993).

The functionality of the construction is demonstrated through market tests (Kasanen *et al.*, 1993), the basic premise of which is to determine whether the created construct is actually used. The market tests include the weak market test, which is passed when a manager is willing to apply the construction to an actual decision-making problem. The semi-strong market test requires proof of the use of the construction beyond the case organization, and the strong market test requires proof of financial benefits from the use of the construction in several businesses (Kasanen *et al.*, 1993; Labro and Tuomela, 2003).

The current qualitative case study traces the development of a scientifically based solution to a practical problem. Therefore, in terms of scientific and ontological orientation, this research employs the CRA. CRA is a type of applied study, aimed at producing constructions such as new knowledge, applications or results (Kasanen *et al.*, 1993). Our extended period of participatory observation allowed us to observe the institutionalization of the created construction in the case organization.

Qualitative research may include various approaches to data collection; however, Atkinson and Shaffir (1998) suggest participant observation is the most relevant. Participant observation was defined in the 1950s by Becker and Geer as research that involves the researcher acting as a (participating) observer involved in the everyday aspects of organizational life. Further, Quinn and Hiebl (2018) argue that participant observation might be well suited to studying the formation of accounting routines. The researcher observes the way employees work, listens to conversations and poses questions while observing. These observation periods may be of considerable length (Becker and Geer, 1957, p. 28). Atkinson and Shaffir (1998) note that this kind of research commits the participant–observer to defining the world from the perspective of those studied and requires that the observer gain as intimate an understanding as possible of their perceptions of life.

Related to the above, Jönsson and Lukka (2005) highlight the need for knowledge of both an emic and etic nature in qualitative interventionist research. While the researcher aims to obtain emic (insider) knowledge from the organization, they must be able to analyse the data obtained as if they were an outsider, that is, to adopt an etic perspective. While working in the organization and creating practical solutions for it, a researcher may obtain emic knowledge about the organization but that information must be analysed through theoretical lenses to ensure an etic understanding of the phenomena (*ibid.*).

This study utilizes a longitudinal approach, in which it utilizes a variety of data sources over a long period of time (2004–2018). The detailed description of the case and the development of the focal construction (TB) is intended to establish the chronology and substance of the case events over time. This approach also ensures that the study conveys a convincing narrative relating to the case and the focal construction (cf. [Golden-Biddle and Locke, 1993](#)). The chronological depiction of the development process also makes it possible to offer generalizations derived from the case research. This is because the knowledge gained from the development process and from the solution created offers insights that can guide development processes in other similar organizations ([Lukka and Kasanen, 1995](#)). One practical aim of this study is to provide implications applicable to a wider public sector context and to generalize the ideas from the study to other settings.

During the observed period of the study, TB was created and eventually absorbed into the organizational context. The study encompasses internal documents, including financial reports of the case organization. We also conducted eight interviews within the organization, five of which were conducted on its premises. Three of the interviews were conducted via e-mail, primarily because of the ongoing Covid-19 situation. The interviews aimed to gather information on the experiences of the users of TB. The interviews thus serve in part to validate the real-world practicality of TB. While interviews provided information about the development process, it was also observed and tracked longitudinally through participant observation (see also [Andrews et al., 2020](#)). For a full account of the empirical data utilized, see [Appendix](#). We started the study project officially as a research group in 2018. One author of the paper has been an integral part of the development unit at Levón since the very beginning. Two of the authors joined the unit later as part of the development project, and the last two authors joined the research group in 2018.

The interview material obtained was sorted into themes arising from the data. As the interviews aimed to validate the real-world practicality of TB and to provide the information necessary to address the market test required by the CRA, the themes revolved around those issues. They were categorized into modes of use of TB; experiences of the use of TB; the main benefits felt by the interviewees; problems encountered during use; and suggested improvements to TB (see also [Table 1](#) in [Section 4](#)). These themes were then compared to enhance the validity of the interpretations. As such, the analysis of interview data included features of content analysis, such as categorization and analysis that involves trying to understand the socially constructed organizational reality ([Silverman, 2001](#), pp. 122–129).

The observations concerning the project are partly based on the memories of three of the authors involved in the development process, supported by triangulation with documentary evidence and researcher triangulation. The other two authors analysed the documentary evidence, validated the interviews and further ensured the interpretations met the necessary level of objectivity and neutrality. The delimiting of the roles in part ensured that the emic and etic perspectives required in interventionist research were present. Three of the authors actively created the construction depicted in this study (TB), ensuring that the emic knowledge from working within the organization was obtained. Two of the authors ensured that the data obtained were analysed through an etic lens, that is, that the study theorizes on the observations.

Case study

Case description

Levón is a Finnish MBA educator. It functions under the University of Vaasa and comprises three subunits with different functions. It provides several different study modules, including an executive MBA, the sales function or human resources. The main body encompassing two out of

	Mode of use	Experience in general	Main benefits	Main deficits	Required improvements
<i>Person 1;</i> Director	Comprehensive understanding of the economy of the organization	Important part of everyday routines; Big picture for management, also the top management team	Big picture obtained; Forecasting enabled; Planning more efficient	Smaller technical details	Interfaces and linkage to other systems within the university
<i>Person 2;</i> Team Manager 1	Operative project management; Unit and team management; Daily use	Necessary for the whole team and unit; Commitment to and digesting of team economy	Guiding operations, systematic organization of work, both individually and for the team as a whole; Security of information; Minimization of mistakes, less time consuming; Total control	Need for technical app development; Need for new features which are required during use	User levels reorganization; Reporting tools (graphs, etc.)
<i>Person 3;</i> Team Manager 2	Management of vocational training; Team Management	Regular and active use, updating twice a month; Check with the team every month	Easy to use, real-time budgeting and follow-ups up to date; Planning	Minor technical issues, certainly easily repairable	Automatization with other systems; Facility to compare data with prior years
<i>Person 4;</i> Assistant Professor	Management of both teaching and research projects	Active use in own projects, awareness of the projects' and employers' situation	Excellent and easy usability includes much information from several sources	Still too much manual work	Visualization (charts, graphs); Interfaces to other systems; New user levels
<i>Person 5;</i> Controller	Economy and project management services at the university's level	Very important to have the big picture: - Budgeting - Follow-up - Recruitment	Resourcing is easier in units within the projects; Follow-up improved	Still too much manual work	More efficient automatization; Compatibility with other systems; Reporting tools; Expansion to education

Table 1. Summary of experiences and improvement ideas regarding TB, from the five in-person interviewees

the three subunits of the Levón operates entirely on external funding, which it has to obtain under highly competitive conditions. The funding is mainly derived from undertaking projects and the commercial sale of the educational products of the university. Every worker is tasked with acquiring external revenue by applying for external funding, negotiating with potential customers and marketing the MBA modules that comprise its services of Levón. In addition, workers take part in running the projects they have secured. The different subunits of Levón work collectively, and workers within the units are assigned different roles. If Levón were to be unprofitable in the long-term, the university would be forced to undertake cost-cutting activities, such as redundancies. That reality drives a for-profit attitude in this public organization.

Origins of the VAS: disconnect between information needs and the information available from the formal system

Levón's business is distinctly different from that of the mainstream academic parts of the university, and Levón staff felt that the university's formal financial management systems did not match their local needs.

The figures the university system was able to provide led to weak predictability. Financial information appeared slowly and there was an absence of overall control. – *Assistant Professor*

The university's systems were aligned with traditional public sector budgeting (see, e.g. [Grossi et al., 2016, 2018](#)) and were system-oriented and thus did not match the practical needs of its units, especially those relying on external funding.

Overly long delays (in obtaining reports) made it difficult to understand how much of the available financing had already been used up. – *Director*

Organizationally, this traditional system was justified, as most of the units in the University of Vaasa worked with regular budget funding and with little reliance on external funding. However, this caused a disconnect between the university's *global* financial management system and the *local* needs of the externally funded units of Levón.

We always had to separately request all reports from the financial administration. They were not easily available anywhere. – *Assistant Professor*

Levón's TB was originally created in 2004 as a response to the discrepancy between the organizational system and the needs of the local units exemplified above. One author of the study was a member of a development team integral to instigating the project. The initial requirements for TB were that it would cater for unit managers having to integrate workers in multiple projects within an operational unit of the organization, and in a way that would foster reliable planning and follow-up.

The specific differences between the Levón unit and the university that gave rise to the need for the new system are as follows:

- (1) The need for external funding in Levón;
- (2) Workers were affiliated with various projects concurrently;
- (3) The specific need for financial- and worker-related information, due to the project-based nature of contracts;
- (4) The need to allocate workload on a project basis;
- (5) The need for predictive reporting to safeguard cash flow.

Two employees described the needs as follows:

In work like this, where projects are very different from what is usual at universities in general, the system must be cleverer – such as allowing automatic counting of salaries. Also, bringing all the data together [in the new TB system] makes financial prediction easier. The system will have to integrate employees and projects, as well as budgets and realised (actual) situations. – *Team Manager 1*

The schools (i.e. academic units) are finding it difficult to get a clear picture of their options to recruit new employees because they do not have financial information available quickly. Also, it takes a lot of work to deliver financial information to the university's top management team. – *Controller*

The most important objective of the project articulated in a team memo of 2004 was to search for and develop a local financial management system that benefited the operational model of Levón within the university. It was also crucial to adjust the organizational

accounting system to accommodate the desired levels of budgeting and economy planning.

Developing the early version of VAS

The first version of TB was constructed in 2004 as a simple Excel model. The requirement was to integrate around 10–15 project managers and 15–20 projects, each with a project time varying from a few months to several years. Team memo from 2004 notes that at the time, there were no tools to facilitate those requirements in the university. In this regard, a team depending entirely on project funding with no subsidies from the university budget needed to have a clear understanding of the total budget of the team and the projects. This highlights the disconnection between employees' practical needs and the information available in formal organizational accounting systems as a starting point for the development of a local solution (Kilfoyle *et al.*, 2013; Bukh and Svanholt, 2020).

The original prototype model from 2004 consisted of several identical sheets, one for each project and a summary sheet. All sheets included columns for workers (project managers and others), cost categories and income, the 12 months (I–XII) of a calendar year, with a row for the total sum of costs and income from all months. Rows were also added to include the names of all team members with spaces for their salaries; blank rows were added for workers to be recruited in the future; and others for costs other than salaries. There were also columns for total costs and income and results by month and year (Version history of the TB).

Each project manager filled out their respective sheets relating to a particular project, and each was responsible for their own project; most project managers had several projects to coordinate. The main task was to allocate resources to their projects, such as other project managers and personnel. In this first version, the workload was estimated as a share of the monthly salary of respective workers by month for the whole calendar year and estimating the total workload (in salary) for the remaining project time beyond that particular year (Version history of the TB). Although income was estimated, cash flow and liquidity were not particularly important for a public organization as such; however, maintaining a positive financial situation overall was vital for every project. The model showed cost and income flow together with financial results for every project by month, while the summary sheet summarized all identical project sheets, highlighting the team's position for the whole calendar year.

Early prototypes of TB had to be tailor-made separately for each year. To plan for the autumn start of the academic year, it was necessary to construct the budget well in advance. Further, running this model in practice revealed that this first version had a number of shortcomings and required a great deal of extra work to prepare for each new version every year. For example, one team manager raised the problem caused by separate excel sheets without mutual connections.

"We needed a genuinely centralised system."– *Team Manager 1*

Those shortcomings prompted a decision to develop the model. The following version of the TB featured improvements: (1) the allocation of workers' salaries was estimated in percentages, which was considered an easily understandable means of allocating the share of the workload. Other than that change, the basic project sheets were essentially identical to those of the first TB version; (2) general information, specific to each worker, such as salary, and quantity of holiday earned per working month (expressed as coefficients) was now recorded on a separate sheet – the data being automatically collated on entering the name of each worker; (3) and new summary sheets were planned and installed, including a complete set of one-year data, relating to all workers, all projects and the whole team (Version history of the TB).

The new version of TB enabled the relevant project teams to update the actual situation after each reported month. The change ensured forecasting and the allocation of resources became more reliable and accurate. The fast-paced process of change present in project-based organizations makes forecasting unavoidable. Every project manager had to be aware of the situation in every project, and the team leader needed to accommodate the needs of the whole team.

Development phases in the creation of a web-based application for TB

The development of the vernacular, locally created Excel model revealed that it had become quite complicated and was difficult for people other than the main developers and core users to use.

The elaboration of tables was laborious, challenging, and slow. –*Team Manager 2*

Many employees required assistance in using the model.

If a user happened to change the wrong data on the form, it often caused problems. –*Team Manager 1*

The unsatisfactory situation spurred the idea of developing a web-based TB application (TB app) as the next step, and the team presented the development idea to the financial management department of the University of Vaasa. The CFO of the University felt that the application merited development funding.

The initiative was approved, and the programming of the new TB app began in 2015. The development team now included two programmers, who were employed part-time to develop the TB app while also managing other projects. The aim was to incorporate all the main elements and functions from the previous Excel-based model. While the initial TB app was intended to be easy to use with an easily understandable graphic interface, the programming was performed under resource constraints and the early version of the interface was not optimally developed. For example, one of the team managers recalled that important budget-related functionalities were missing from the web-based application. Two other interviewees (Table 1) mentioned the amount of manual work, particularly in the early versions of TB as being a major problem.

The evolving application underwent constant practical testing throughout the entire development process, and team members involved were in close contact with the programming side. Feedback was utilized to ensure that the system would gradually be increasingly used within Levón. Gradually, TB came to be used alongside the formal accounting system. Since 2017, TB has been a routinely used institutionalized tool in Levón. More recently, some of the other university departments have also adopted it.

The web-based application in its present form includes (1) rolling cash flow budgeting integrating details relating to workers, projects and units into a monthly and total allocation, including financial information. Moreover, monthly financial results are updated in accordance with the university's official bookkeeping regulations. The historical financial information now accords with the actual and current position at all levels; (2) forecasting, planning and allocation functions are unrestricted by time limits and can extend beyond the current year, thus removing the need to construct new budgets annually; and finally (3) there is a feature permitting each project management team to choose and allocate resources, enabling them to monitor developments at the unit level, but also to discuss and agree upon resources with the respective project managers.

Impact and spread of the VAS: towards the institutionalization of TB

Over the more than 15 years of development of TB, there have been numerous versions tested against the everyday demands of financial management. At the time of the interviews

informing this study, the TB app was the same as the current version and had been tested in use for three years, both by the unit responsible for developing it and by another two Levón units. Moreover, it has now been incorporated into routine use in Levón. As mentioned previously, to date, two other departments depending on external funding within the University of Vaasa have also adopted the TB app for their rolling budgeting approach. This indicates that TB is becoming institutionalized in the organization.

Two research platforms (of three) within the University of Vaasa have deployed TB as their main financial control tool. – *Controller*

Furthermore, the procedure of rolling budgeting and the use of the TB app has spread economic thinking to the grassroots, ensuring that all employees – not only team managers – take responsibility for the whole unit. Team manager 1 emphasizes this point:

The team members found that TB offered them more transparency and security. They also noticed that it had directed their work [much better]. It has been easier to allocate and schedule everyone's work when the employees could see the budgets and follow-ups of different projects. – *Team Manager 1*

The recent extension of the use of TB in the university's energy innovation centre (known as VEBIC) was at least partially because the team manager and a programmer moved from Levón to that unit. This extended use of TB started in early 2020 when the university embarked on a programme of strategic change and organizational restructuring. The university management decided that in future Levón would focus solely on continuous learning and supplementary training, and the institute's unit addressing energy and regional development would become part of a sister unit based on the VEBIC research platform. Accordingly, eight people were transferred to VEBIC, two to another unit in the University, and one internally to the institute's own development team. This restructuring expedited the diffusion and institutionalization of TB as those staff familiar with it took their working habits and associated accounting routines into other units in the University.

Another main reason for the diffusion was the ongoing need for such a tool in VEBIC. The transferred development manager started to move the project data onto the TB system and continued recording information into it while working in VEBIC. The development manager felt that the use of TB in the VEBIC team enhanced the effectiveness of the financial management, served as an enabling system and increased openness and transparency in the sister unit.

In general terms, the responses to the introduction of TB among the staff in this sister unit were also positive. Staff appreciate that the VAS addresses local needs, in terms of the ability to see the team and the overall status of the unit, including the management of personnel, projects and the economy. That was also the most important objective when the development was initiated. A new system considered enabling in this way also fosters a commitment to collective goals and team operations. A summary of the experiences of the in-person interviewees is provided in [Table 1](#).

Concluding discussion

[North \(1991\)](#) wrote that institutions evolve incrementally over time, thus connecting the past with the present. In organizations, a general set of organizational practices evolves as a result of new routines becoming institutionalized. This case study followed the longitudinal development and usage of a vernacular digital rolling forecast system ([Kilfoyle et al., 2013](#); [Goretzki et al., 2018](#)), known as TB. The study employs the CRA method ([Kasanen et al., 1993](#); [Lukka and Suomala, 2014](#); [Suomala et al., 2014](#)). It follows the development of TB over 15 years from 2004. Over time, user development action ensured TB evolved from being a simple system based on Excel worksheets to become an advanced web-based solution.

This study contributes to the work of [ter Bogt and Scapens \(2019\)](#), [Quinn and Hiebl \(2018\)](#) and [Bukh and Svanholt \(2020\)](#) by analysing how local actors initiate changes in management accounting by developing informal accounting systems. The current investigation was conducted longitudinally and in the public sector context. The study also contributes to [ter Bogt and Scapens \(2019\)](#) and [Goretzki *et al.* \(2018\)](#) by showing how the development of a VAS (TB) created accounting practices through iterative development phases. Utilizing TB enabled employees of the organization to instigate new accounting practices that repeated utilization ensured became routinized over time. We contribute to [Quinn and Hiebl \(2018\)](#) through our empirical findings which suggest that accounting systems, when in software form, may facilitate routinization of accounting activities when new users are steered towards a uniform type of accounting activities through the software interface. Reciprocally, routinized activities can facilitate the institutionalization of the accounting system when users maintain working habits in different organizational contexts. The study, therefore, also demonstrates one avenue via which informal, vernacular accounting practices can facilitate the institutionalization of the system in an organization. This study utilized longitudinal observation and empirical material to demonstrate how TB and the associated accounting routines became institutionalized and accepted practice in the case organization.

The new VAS known as TB became institutionalized as a common organizational practice ([Burns and Scapens, 2000](#); [ter Bogt and Scapens, 2019](#)), which was utilized alongside the organizational financial planning system – and eventually spread to three other organizational units of the university – during the period covered by the case study. The enabling nature of TB was perceived as the reason for its use ([Wouters and Rojijmans, 2011](#)). Over time, the university administration allowed TB to remain in use, partly substituting the role of the old accounting system in financial planning. We view this diffusion into other parts of the organization as a relatively rare and complete form of weak market test, where the diffusion of the created construct through the organization can be observed during a longitudinal observation period ([Kasanen *et al.*, 1993](#); [Labro and Tuomela, 2003](#)).

The current research illustrates actions in relation to local accounting practices working as antecedents of accounting routines and subsequent institutional changes in wider organizational practices in a public sector organization. The study demonstrates the capability of a VAS to facilitate the institutionalization process.

This study highlights the development process of a VAS and its use and diffusion into a global (i.e. broader) organization in the public sector. It also illustrates how the system was created in response to disconnects between local information needs and the capabilities of a formal organizational accounting system to account for local conditions (cf. [Kilfoyle *et al.*, 2013](#); [Bukh and Svanholt, 2020](#)). Furthermore, the current research illustrates a situation where a created VAS shapes organizational accounting routines in a university setting. This study also answers the call for more empirical evidence on the use and impact of a VAS ([Goretzki *et al.*, 2018](#); [Hopwood, 2009](#)). Furthermore, it demonstrates how, in a public sector context, a locally created VAS can influence the wider organizational accounting system, making it more enabling ([Wouters and Rojijmans, 2011](#)) in the process. While research has addressed the influence of field-level institutions on local practices ([Meyer and Rowan, 1977](#); [DiMaggio and Powell, 1983](#); [ter Bogt and Scapens, 2019](#)), locally created practices have attracted less attention.

This study and its findings emphasize the important role of local actors ([Bukh and Svanholt, 2020](#); [Mauro *et al.*, 2019](#)). We demonstrate how a disconnect between local information needs and the information available in a formal MA system prompted the local managers to develop an alternative ([Kilfoyle *et al.*, 2013](#)). Observing the iterative improvement phases revealed how the system gradually came to be used in the other units of the organization. Accounting practices associated with the system became routinized, thereby facilitating the system's institutionalization ([Burns and Scapens, 2000](#); [ter Bogt and Scapens, 2019](#)) within the organization in parallel with the old systems

(cf. Goretzki *et al.*, 2018). This finding adds to the VAS literature by exposing how a parallel but decoupled use of a local system alongside an old system can spur employees to use the accounting system in a more enabling manner (Wouters and Rojijmans, 2011, see also Bukh and Svanholt, 2020). It also highlights how the budgeting system may be decoupled from the organization-wide accounting system and over time institutionalize as a parallel system to it. This may provide one avenue to initiate budgeting reforms without directly challenging the organizational system with potentially strong institutionalized practices (Rautiainen and Järvenpää, 2012; Mauro *et al.*, 2019).

One unexpected event that expedited the institutionalization process was organizational restructuring. That meant that as people transferred between units, they took their working habits, tools and accounting routines with them. People familiar with TB had become accustomed to using the tool and continued using the tool in other units of the case university, thereby reinforcing the routinization of associated accounting practices (c.f. Mauro *et al.*, 2019). This routinization of accounting practices arguably contributed to the diffusion of the tool into the organization. This highlights the potential effect of organizational restructuring on the process of institutionalization.

All the units within the Levón Institute adopted TB for routine use and it is planned to roll TB out across the units and departments of the entire university, starting in two other departments that are already using TB. It can thus be argued that TB has gradually become institutionalized (Burns and Scapens, 2000; Modell, 2020) into a wider organizational setting.

Finally, this study also offers some practical implications. The personnel reported that the digitalized TB application is useful. The respondents' participation in the development process, the software form of the accounting system and internal employee transfers probably accelerated the diffusion process. Our illustration exemplifies how an organization can become aware of its own dynamics concerning the costs and effort invested in planning its operations. This understanding could help initiate development processes in public sector organizations, where the understanding of the essential features needed locally is combined with the participation of lower-level managers in the development process. Our results encourage the local development of new tools in public organizations (see also Bukh and Svanholt, 2020) capable of extending the understanding of the dynamics of financial processes and economic consciousness.

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Appendix: Sources of empirical data

In-person interviews:

Director
Team manager 1
Team manager 2
Assistant professor
Controller

E-mail interviews:

Team manager 3
Software developer
Project manager

Financial statements:

Levón's financial statements 2004–2018

Other data:

Status of the software development (TB) 2004–2018 (version history)
Budgetary statements from TB 2004–2018

Participant observation and development:

One author: 2004–2018 (still in the organization)
Two authors: years 2015–2018 (still in the organization)

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