# Drivers and barriers of implementing a dual VET programme in Nepal

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## Abstract

**Purpose** – The authors analyse drivers and barriers of implementing and scaling-up a pilot project of a dual vocational and education programme in Nepal.

**Design/methodology/approach** – The 5C protocol distinguishes five categories of drivers and barriers of education reforms: commitment, capacity, clients, content and context. The authors build on the 5C protocol to develop a qualitative empirical framework based on semi-structured interviews amongst stakeholders.

**Findings** – The results show that involved actors are committed. Capacity in terms of available resources also represents an implementation driver, but companies lack information about the programme. Consequently, industry associations should receive a more prominent role in the motivation of companies to provide training places. The content category is the most challenging implementation barrier because the programme represents a substantial change, compared to the current vocational education and training (VET) programmes in Nepal.

**Originality/value** – First, the authors propose a framework for a qualitative content analysis to analyse the drivers and barriers of implementing and scaling-up education reforms. Second, the authors provide novel information about drivers and barriers of an education reform in Nepal.

**Keywords** Education reform, Implementation, Scaling-up, Dual vocational education and training, Determinant framework

**Paper type** Research paper

## 1. Introduction

Education represents an important policy issue around the world (e.g. Eichhorst *et al.*, 2012; Figueiredo *et al.*, 2017). However, many countries struggle to implement and scale-up education reforms successfully (e.g. Afeti and Adubra, 2012; Young and Lewis, 2015; Cohen-Vogel *et al.*, 2015; Piper *et al.*, 2018). Therefore, it is important to improve our understanding regarding how to overcome these challenges and what factors represent drivers and barriers that determine successfully implementing and scaling-up of education reforms (e.g. Fluitman, 1999; Holmes, 2009).

Implementation research analyses the factors that affect the degree to which these planned reforms are taken up in practice (Domitrovich and Greenberg, 2000; Li and Pilz, 2017). However, the existing literature of implementation research for VET remains incomplete. Whilst an extensive literature regarding policy design for VET exists (e.g. Gillis, 2023; Ceric et al., 2022; Dumbrell and Smith, 2013), most of the existing literature on implementation processes in VET consist of case studies that analyse the implementation of new programmes (e.g. Schmees, 2020; Brodie et al., 1995), practices (e.g. Runhaar and Sanders, 2013; Tudor, 1991) or policies (e.g. Zancajo and Valiente, 2019; Dalby and Noyes, 2018). Hence, further progress in comparing findings across VET studies is important (e.g. Scheuch et al., 2021; Gessler and Siemer, 2020).

Therefore, this paper contributes to the existing literature in two ways. First, we propose an empirical framework for a qualitative content analysis of factors that affect implementation of VET reforms, distinguishing between drivers and barriers. Thereby, this paper builds on the theoretical framework of the 5C protocol suggested by Najam (1995). Yet, the existing applications of the 5C protocol either do not provide an empirical framework (e.g. Bayrakal, 2006; Dongol and Heinen, 2012; Nurani et al., 2018) or refer to a different topic such as health care (e.g. Martin, 2014). Therefore, we apply the determinant framework of Caves et al. (2021). Building on Renold et al. (2019a), we propose an empirical framework that uses a qualitative content analysis based on semi-structured interviews amongst stakeholders.

Furthermore, little is known regarding the outcomes of implementation of education reforms in Nepal. Therefore, the second contribution to the existing literature consists of analysing the drivers and barriers of scaling up a dual VET [1] programme in Nepal. This pilot project started in autumn 2018 and aims to implement a formal secondary education programme that combines classroom education with workplace training at a company. Implementation of a dual VET programme is particularly challenging (e.g. Eichhorst et al., 2012; Valiente and Scandurra, 2017) because it requires companies to be willing to provide apprenticeship places (e.g. Wolter et al., 2006; Muehlemann and Wolter, 2014) and requires coordination amongst several actors (e.g. Ryan, 2000; Ryan et al., 2013). Therefore, it is particularly important to understand the drivers and barriers to implementing this pilot project.

The following section describes the dual VET programme pilot in Nepal. Section three presents the analytical framework, followed in section four by a description of the empirical determinant framework and the data gathering process. Section five presents the results and section six summarises the paper and draws conclusions.

## 2. The dual VET programme in Nepal

The ENSSURE project is a bilateral project of the Government of Nepal and the Government of Switzerland represented by the Swiss Agency for Development and Cooperation (SDC). This paper focusses on the component of the Enhanced skills for sustainable and rewarding employment (ENSSURE) project that introduces a dual VET programme, aiming to increase the skills of Nepali workers to improve labour market outcomes. This dual VET programme lasts for 24 months. The first three months consist of classroom education in a school or polytechnic. The following 20 months combine four to five days of workplace training per week with one day of classroom education per week. Finally, the last month of the programme consists of classroom education. The dual VET programme leads to a formal certificate equivalent to the Technical School Leaving Certificate (TSLC) [2].

The implementation of the dual VET programme is cooperation between the Council for Technical Education and Vocational Training (CTEVT) and HELVETAS, a Swiss non-government organisation. The CTEVT is an autonomous apex body, coordinated by the Ministry of Education, Science and Technology, that is responsible for the VET sector of Nepal. As the main implementing body of the dual VET programme, CTEVT is responsible for developing the programme curricula and conducting examinations and certification. HELVETAS acts as technical assistance provider.

This description of responsibilities amongst different government levels might change substantially due to the ongoing federalisation process (Caves and Renold, 2017, Renold *et al.*, 2018). Nepal promulgated a new constitution in September 2015 that makes the country a federalised democracy. The governance structure extends the existing centralised model to one with federal, state and local governments; each with dedicated roles, rules, processes and institutions.

The first cohort of 181 apprentices started in autumn 2018. This cohort entails apprentices in two occupations: technicians in mechanical and electrical engineering. This dual VET programme is delivered by four schools in three states. The second cohort of 897 apprentices starting in autumn 2019 expands the scope to 22 schools in 4 states and three additional occupations: hotel management, information technology (IT) and automobile engineering.

## 3. Analytical framework

This paper uses an analytical framework that builds on the theoretical framework of Najam (1995) whose 5C protocol differentiates five interrelated categories of implementation drivers and barriers, namely commitment, capacity, clients, content and context. Building on this theoretical framework, the literature review of Caves *et al.* (2021) identifies the key aspects of each category for VET reforms. These key aspects represent the building blocks for the analysis of this paper. Figure 1 visualises the five categories and the corresponding key aspects.

The **commitment** category captures whether involved actors are committed or not to the goals and methods of the policy (Najam, 1995). The key aspect of political will can be a driver if actors demand the changes induced by the implementation process. However, it can result in an implementation barrier if actors resist the changes.

The capacity category reflects whether actors have the administrative capacity to drive the implementation of the desired changes or whether a lack of the necessary resources and
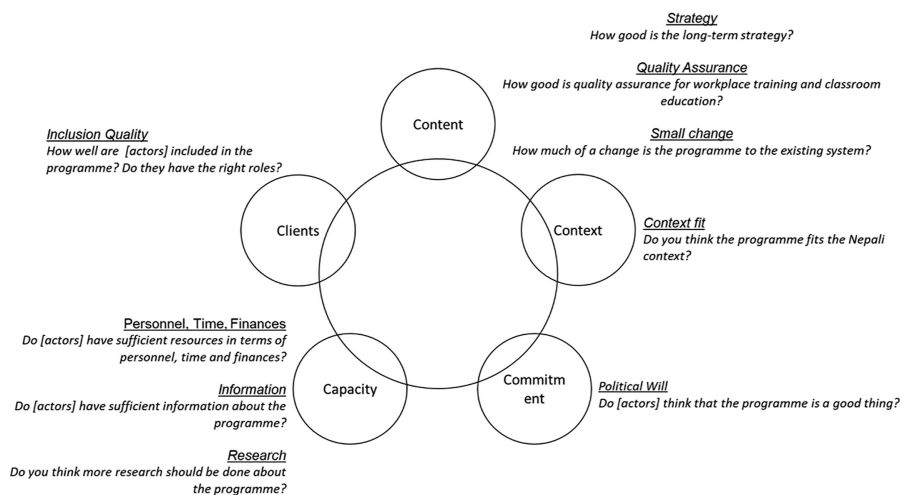


**Notes(s):** The figure displays the five categories of the 5C protocol, the key aspects (underlined) of each category and the questions of the semi-structured interview (italic) for each key aspect. The notation [actors] indicates that the question is asked separately for each actor group: government, schools/teachers, companies/industry associations and trade unions. Additionally, we asked about the commitment of the actor apprentices
**Source(s):** Authors own creation

**Figure 1.**
Questions of the semi-structured interviews

abilities presents a barrier to implement the reform (Najam, 1995). Actors need to have various resources (Caves *et al.*, 2021) like personnel and human capital, financial and material resources and time. Though Caves *et al.* (2021) have not found time to be a key success factors, we included this to capture all relevant aspects. Furthermore, we capture whether actors are well informed and whether enough research has been conducted.

The **clients** category captures how well actors are included in the reform (Najam, 1995). Appropriate role assignment increasing commitment but inappropriate roles can create implementation barriers.

The **content** category describes the reform content in terms of the goals and whether the methods to achieve these goals are appropriate (Najam, 1995). Caves *et al.* (2021) highlight that quality assurance represents a key aspect of appropriate methods for education reforms. Good quality assurance drives implementation by fostering commitment whilst a lack of quality assurance creates resistance. Quality assurance in the context of VET can be further differentiated into quality assurance of classroom education and workplace training. The second key aspect of the content category refers to whether a clear long-term strategy drives long-term commitment of actors and ensures sustainable use of existing capacities or whether short-sightedness can create barriers to implementation. The third key aspect is whether the small change magnitude drives the reform by making implementation easy or whether the reform magnitude is so large to create a barrier because of being overambitious (e.g. Hummelsheim and Baur, 2014; Comyn and Barnaart, 2010).

Finally, the **context** category captures the institutional context of the implementation process (Najam, 1995). The key aspect "context fit" is a relatively broad category that captures whether the reform is driven by the local social, cultural and economic conditions, policies and objectives (e.g. Hoppe *et al.*, 2011, ETF, 2012; Hummelsheim and Baur, 2014; Karami Akkary, 2014). Conversely, context fit represents an implementation barrier if it arises from policy borrowing or policy copying and lacks connection to the local context.

## 4. Methodology and data
This section describes our qualitative content analysis (Mayring, 2014), thereby clarifying how we operationalise the key aspects of Caves *et al.* (2021), how we gather data in semi-structured interviews and how we develop a coding frame for the responses (Schreier, 2012).

Our analysis aims to answer the concrete research question to what extent each key aspect of the 5C protocol categories represents a driver or barrier to the implementation of an education reform. However, whilst the 5C protocol has been applied many times, the existing literature provides little guidance regarding operationalisation of this protocol. Some rely on desk-research (e.g. Bayrakal, 2006; Kurul *et al.*, 2012; Nurani *et al.*, 2018), some use semi-structured interviews without providing survey guidelines (e.g. Dongol and Heinen, 2012) and some are thematically far away from our topic (Martin, 2014). Therefore, these methodologies cannot be applied in this paper.

Thus, we build upon Renold *et al.* (2019a) to develop a questionnaire for semi-structured interviews. Figure 1 shows that we propose a question for each key aspect. The key aspects commitment, resources, information and inclusion quality can differ across actors. Hence, the corresponding question was asked separately regarding different **actor types** as indicated by the notation *[actors]* in Figure 1. The first actor type entails actors of the **government**, including the federal government, state and municipal governments as well as the CTEVT. The second actor type includes **schools and teachers**. The third actor type comprises **companies and industry associations**. The fourth actor type comprises the **trade unions**. Regarding commitment, we further asked respondents about the commitment of **apprentices**. The key aspects of the content and context categories and the research aspect of the capacity category are general rather than actor specific. Therefore, we did not differentiate these questions by actor.

We conducted **eight interviews** in May 2019. Since we rely on a relatively small sample, we improve information by using purposeful sampling (Patton, 1990). Four of the interview partners were industry association representatives. The other four interview partners were either members of the Nepali Government or government consultants. These interview partners were selected to represent a variety of industries and government branches. The existing stakeholder network of the Kathmandu University, the SDC and the ENSSURE team allowed to reach out to these interview partners by phone and schedule a face-to-face appointment.

These face-to-face interviews were conducted by one Swiss economist and one Nepali sociologist in Kathmandu, Nepal. Each interview lasted for about one hour. Seven of the eight interviews were conducted in English and recorded after asking for permission. One interview was conducted in English and Nepali with notes being taken. The language of quotes that are shown in the paper has been edited slightly to improve readability of the quotes.

The interview partners responded to the open questions shown in Figure 1. We coded the responses based on the qualitative content analysis (Mayring, 2014). Our simple coding frame structures the interviews using the key aspects as subcategories (Schreier, 2012). Based on the recordings and notes of the answers in the semi-structured interviews, two researchers jointly coded the corresponding values of each key aspect on a five-point Likert scale ranging from 1 (Not at all) to 5 (Very much), corresponding to the interpretation as strong barrier (1), barrier (2), neutral (3), driver (4) or strong driver (5). We ensure mutual exclusivity of each subcategory by using a separate interview question for each key aspect (Schreier, 2012).

Aggregation of actors into the key aspect and key aspects into the five categories uses equal weights. Therefore, the numerical codes mainly serve as a summary of the responses that should be interpreted in the light of the associated citations rather than as an accurate measure.

## 5. Results
This section presents the results of the interviews following the framework presented above. Exemplifying citations are shown in italic within parentheses.

### 5.1 Commitment
The commitment category captures whether actors are willing to implement the dual VET programme and whether they cooperate with this goal in mind. Average commitment is very high. However, substantial differences across actor exist. The results show a very high commitment of **government** actors. None of the interview partners raised concerns in this regard. The interviewees also described **schools and teachers** as committed. However, commitment of schools and teachers is higher according to industry representatives than according to government representatives. The interviewed government representatives pointed out that schools and teachers do have some reservations against the programme. One reason is that they are afraid of losing power and control as summarised by one government representative:

> What happens in Nepal is that if you have to coordinate and you feel you are the leader, it's fine. But in the apprenticeship, industries are actually the leader.

The interview partners largely agree that **industry associations** are committed as shown by the following quote from an industry representative: "*This apprenticeship does 20% theory and 80% practical training. It is very good*". However, there are some concerns regarding whether **companies** are interested in providing dual VET programme places: "*First of all, we have to convince the industry*".

Interview partners also have some doubts regarding the commitment of **apprentices** for several reasons. The first reason is that not all occupations are attractive for apprentices, who

are often more interested in a white-collar job than in a blue-collar job. A second, related reason refers to the reluctance of potential apprentices to actually working whilst learning rather than learning to work in the school:

> Our Nepali workforce, our Nepali students, are not used to work. Therefore, they are complaining that they have to clean, work like labour, and are not treated as a student.

A third reason is that some apprentices might be more interested in receiving short-term training and going abroad thereafter rather than investing into a formal degree that takes two years to complete. Hence, a lack of patience can lower the commitment of apprentices. Relatedly, one interview partner suggested that "*students are looking for more incentives*".

### 5.2 Capacity
The results regarding resources show that interview partners believe that the **government** actors have enough resources. Industry representatives have no doubts about the sufficiency of resources of **schools and teachers**. However, this might reflect their lack of familiarity with this issue as several respondents from the government questioned the available resources of schools and teachers in terms of time and financial resources.

Respondents believe that **companies and industry associations** have sufficient resources for the implementation of the dual VET programme. Since **trade unions** currently do not have a role in the implementation of the dual VET programme, it is not surprising that none of the interview partners raised a lack of resources by trade unions as a potential implementation barrier.

The results show that the average assessment of available knowledge of involved actors about the programme is substantially lower than for resources. The results suggest that the **government** actors are sufficiently informed about the dual VET programme, though two respondents argue that they "*do not really understand what an apprenticeship is*". Hence, though the government actors are generally well informed, there is some remaining lack of clarity. **Schools and teachers** on the other hand need to be informed better since they ". . . *are not well aware of what dual VET program is.*" Whilst **industry associations** have sufficient information, **companies** are not familiar with the concept of a dual VET programme. **Trade unions** also lack information about the programme.

Whilst all respondents consider **research** important, some respondents from the industry pointed out that some unnecessary research has been done in the past: "*Research is important, but in Nepal, [. . .] lots of money is spent on research and paperwork*".

### 5.3 Clients
On average, the roles of included actors are assigned well, though there are substantial differences across actors. Most interview partners consider the role of the **government** actors, **schools, teachers** and **companies** in the programme appropriate. However, several interviews suggested that the relatively minor role of **industry associations** should be enhanced in the future: "*The interaction between the program and the private sector industry should be increased. . .*"

**Trade unions** currently play essentially no role in the dual VET programme. However, interview respondents generally consider this appropriate and do not see a substantial role of trade unions in the programme.

### 5.4 Content
The results suggest that a lacking quality assurance of **workplace training** represents a potential implementation barrier. Whilst government respondents consider quality

assurance of workplace training as relatively good, industry respondents have doubts in this regard. One potential solution suggested by a government representative consists of giving industry associations a more pronounced role in assuring the quality of workplace training across companies: "*. . . Hence, one shared strategy, one uniform strategy that can be provided by the industry association*".

Similar to workplace training, the average assessment of the quality assurance of **classroom education** represents a potential implementation barrier for industry respondents. This assessment stems from their negative experiences with the quality of graduates in the past: "*There is a lack of trust between the company and the skills of the graduates*". Some respondents associate this with a "*lack of effective monitoring*" or a lack of motivation: "*Most are really motivated but some are only training for the sake of training*".

The responses show that the interview partners generally consider the long-term strategy an implementation driver because "*this is needed*". A concern raised by two industry representatives was the long-term strategy in terms of funding and the commitment of the government to the dual VET programme:

> Is it (the apprenticeship) sustainable upon completion? [. . .] Government is going to draft and endorse a kind of act. [. . .] Once government adopts this policy and institutionalization is taken ahead, the future is good.

Half of the interview partners consider the reform a medium-sized change and the other half of respondents consider it even a substantial change. This suggests that the implementation requires substantial adaptations from the involved actors. Furthermore, since the programme involves companies and industry associations, the reform requires coordination amongst more stakeholders than a conventional education reform. This complexity makes scaling up the programme more challenging. Hence, change magnitude represents an implementation barrier, since the programme requires a change in the goals, values and institutions of VET actors (Abrahart and Tzannatos, 2000).

*5.5 Context*
The results suggest that context fit represents an implementation driver. However, the context of the implementation and scaling-up of the dual VET programme is undergoing a substantial change due to the federalisation (Caves and Renold, 2017, Renold *et al.*, 2018). A first insight stemming from the interviews is that there is a difference between the short-run and the long-run regarding the effect of the federalisation process. All interview partners agree that regarding the short-run effect of the federalisation process: "*In the short-run it will not affect [the dual VET program]*". However, no clear picture regarding the long-run impact of the federalisation process on the dual VET programme can emerge from the interviews, reflecting the substantial amount of uncertainty surrounding this process.

*5.6 Overview*
Figure 2 summarises the results for each category. On average, **commitment** of actors is an implementation driver, not an implementation barrier. Industry and government representatives agree in this regard. Similarly, interview partners believe that the actors have the **capacity** to implement the programme. The **clients** category shows that respondents also consider the roles of actors as adequate. However, it is unclear whether the **content** category represents an implementation driver or barrier. Particularly industry representatives are sceptical in this regard. Furthermore, whilst government representatives consider the **context** an implementation driver, industry representatives have some concerns in this regard.
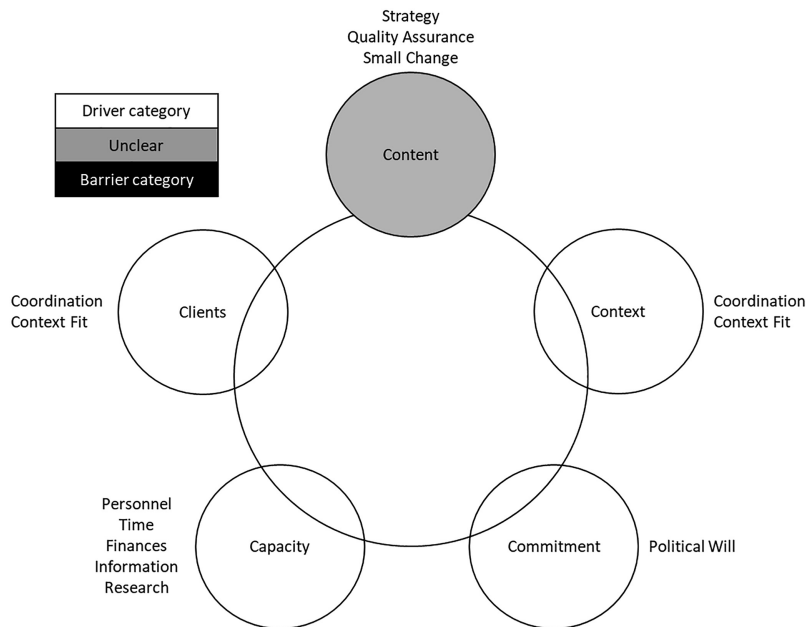
**Note(s):** The figure summarizes the results regarding to what extent the five categories and their key aspects represent implementation drivers or implementation barriers. Data based on eight semi-structured interviews with government and industry representatives

**Source(s):** Authors own creation

## 6. Discussion

Whilst our interviews present a generally positive view, the analysis also reveals a number of potential implementation barriers that need to be considered carefully.

The results suggest that industry associations might play a more important part as suggested by OECD (2009). First, industry associations could take a more prominent role in the process of developing curricula so that the programmes could respond to the changing needs of the industry in a timely manner. Second, industry associations could play a role in motivating companies to provide dual VET programme places "*because they trust us*" (ETF, 2017; Atchoarena and Delluc, 2002). Third, interview partners suggested that "*industry association can play a role in assessment and evaluation*".

However, adjusting these roles in this way can be difficult because it means a shift in the distribution of power between the government actors and the private sector: "... *bureaucrats think they are the best and they don't want to share their power with the private sector*". This shift is also not easy because companies and industry associations are not used to fill these roles, suggesting that they need to build the capacity to do so.

The concerns about the commitment of the government further highlight the relevance of creating a VET act that clarifies the roles of the different actors (Grootings and Nielsen, 2005). Thereby, the act can provide the basis to develop the institutions governing the complex relationship amongst the various actors (e.g. Renold *et al.*, 2019b) and is a necessary regulation for allocating conditional grants to the three tiers, namely the federal, state and local government. This also matters for the motivation of industry associations to develop the capabilities necessary for a more intense involvement in the programme.

The substantial change of the reform suggests that the pacing and sequencing of scaling-up the programme across occupations and provinces needs to be considered carefully (Oates, 2008) to avoid being overambitious (Hummelsheim and Baur, 2014; Comyn and Barnaart, 2010). Therefore, the scaling-up should proceed carefully allowing necessary time to enable actors, such as teachers, to adapt to the new programme (Mitchel *et al.*, 2003; Dorleans *et al.*, 2011). At the same time, firms and employer associations might become impatient if the process is too slow (Ertl, 2000). Therefore, allowing the pilot to grow roots in pilot occupations might allow a balance of incentives across actors (Oates, 2008; Cedefop, 2009).

Furthermore, in order to scale up the programme and ensure its sustainability, it is important to raise awareness about the programme amongst actors. Particularly companies, schools and teachers need more information about the characteristics and benefits of the programme as the programme represents a substantial shift from companies as a consumer of skills towards a co-production of skills between companies and schools.

## 7. Summary and conclusions

This paper contributes to the existing literature in two ways. First, it develops an empirical framework to analyse drivers and barriers of education reforms. Second, the paper applies the empirical framework to a dual VET programme pilot project in Nepal based on semi-structured interviews with eight government and industry representatives conducted in May 2019. The empirical framework follows the various key aspects of the determinant framework of Caves *et al.* (2021). These key aspects are sorted into five categories of the 5C protocol (Najam, 1995): commitment, capacity, clients, content and context. Hence, this paper provides insights regarding potential challenges and implementation barriers to scaling up the programme in the future.

The major themes that cut across all programme implementation discussions concern quality, programme ownership and the long-term structure of VET including the dual VET programme. All actors are concerned with quality, including the quality of classroom education, workplace training, graduates, curricula and the dual VET programme brand that reflects well on all involved. Programme ownership is a matter of who will take the lead, how roles and responsibilities will be distributed and where the authority over the programme will lie – this is especially relevant for the role of industry associations. Finally, and related to the issue of ownership, is general uncertainty about how the VET sector will be organised in the future. In the context of federalisation and an upcoming new TVET Act, questions about funding, authority and institutional roles loom large.

In summary, the interviews present a positive view about the presence of implementation drivers to scaling up the programme. However, the analysis also reveals a number of potential implementation barriers that need to be considered carefully. These potential implementation barriers show the relevance of an encompassing empirical framework. Such a framework needs to account for drivers and barriers on the level of the institutional context, such as the presence of a suitable legal framework. At the same time, such a framework also needs to address drivers and barriers on the level of individual actors as well, for example the availability of resources. The framework also needs to comprise the full range of involved actors and capture differences in the perspectives amongst them. An empirical framework that lacks breadth in terms of the analysis level or the actor perspective might miss crucial implementation drivers and barriers.

The paper also faces several limitations. First, the sample of interviews remains relatively small and focusses on actors from the government and industry associations. Expanding the sample and including respondents from schools, teachers, companies and unions might complement the existing evidence. Second, whilst the framework provides useful insights for the analysed case study, the applicability of the framework in other countries and contexts

should be evaluated in future research. Third, future research should test the suggested framework empirically by relating drivers and barriers to the successful implementation of education reforms. Despite these limitations, the study reveals important aspects and empirical findings that are highly relevant to the development of the technical and vocational education and training (TVET) system in Nepal.

## Notes

1. We use the term "VET" to refer to education programs that prepare for labour market entry in an occupation. Other authors use different names. For example, in the Nepali context, it is usually referred to as "Technical and Vocational Education and Training (TVET)" whilst it is usually called "Career and Technical Education (CTE)" in the USA.

2. The TSLC is a formal secondary VET program.

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