

Bolli, T., Kemper, J., Parajuli, M. N., Renold, U., & Thapa, B. K. (2021). Drivers and barriers of scaling-up a dual VET-apprenticeship programme in Nepal. In C. Nägele, B.E. Stalder, & M. Weich (Eds.), *Pathways in Vocational Education and Training and Lifelong Learning. Proceedings of the 4th Crossing Boundaries Conference in Vocational Education and Training, Muttenz and Bern online, 8. – 9. April* (pp. 82–88). European Research Network on Vocational Education and Training, VETNET, University of Applied Sciences and Arts Northwestern Switzerland and Bern University of Teacher Education. <https://doi.org/10.5281/zenodo.4564064>

## **Drivers and Barriers of Scaling-Up a Dual VET-Apprenticeship Programme in Nepal**

**Bolli, Thomas**

thomas.bolli@mtec.ethz.ch, ETH Zurich

**Kemper, Johanna**

johanna.kemper@mtec.ethz.ch, ETH Zurich

**Parajuli, Mahesh Nath**

mahesh@kusoed.edu.np, Kathmandu University

**Renold, Ursula**

ursula.renold@mtec.ethz.ch, ETH Zurich

**Thapa, Binayak Krishna**

binayak.thapa@ku.edu.np, Kathmandu University

### **Abstract**

This paper analyses drivers and barriers to scaling-up a pilot project of a Dual VET-Apprenticeship in Nepal. We apply the 5C protocol based on semi-structured interviews among government and industry representatives. The results show that the 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 VET programmes.

### **Keywords**

dual VET-apprenticeship, implementation, scaling-up, determinant framework, 5c protocol

### **Acknowledgments**

We thank CTEVT and ENSSURE project for their support in communication and linkage with the apprentices and the host companies for necessary information. ENSSURE is a bilateral project of the Government of Nepal (GoN) and the Government of Switzerland represented by the Swiss Agency for Development and Cooperation (SDC). Council for Technical Education and Vocational Training (CTEVT) implements the project and Helvetas Nepal is providing technical assistance. We thank the SDC, the Swiss National Science Foundation and SDC Nepal for financing part of the research. We also thank the interview partners for their time and the KOF education system research division for their inputs.



## 1 Introduction

Vocational education and training (VET) represents an important policy issue around the world (see e.g., Eichhorst et al. 2012; Figueiredo et al. 2017). This priority is particularly important for developing countries since enhancing human capital represents a cornerstone for increasing growth and improving living conditions (see e.g., Frigotto, 2009). However, many countries struggle to implement successful VET programmes (see e.g., Afeti & Adubra, 2012).

The implementation of Dual VET-Apprenticeships that combine classroom education with workplace training at a company is particularly challenging (see e.g., Eichhorst et al. 2012; Valiente & Scandurra, 2017). Two important reasons for this are that Dual VET-Apprenticeships require companies to be willing to provide apprenticeship places (see e.g., Wolter, Muehleemann, & Schweri, 2006; Muehleemann & Wolter, 2014) and require coordination among several actors (see e.g., Ryan, 2000; Ryan et al., 2013). Hence, the complexity of the actor setting represents a challenge to implementing and scaling up Dual VET-Apprenticeship programmes. However, the literature provides little evidence regarding how to overcome these challenges and what drivers and barriers determine a successful implementation (see e.g., Fluitman, 1999; Holmes, 2009; Nielsen, 2015).

These challenges also apply to a pilot project of a Dual VET-Apprenticeship in Nepal that started in autumn 2018. To understand the challenges of implementing this new programme, this paper analyses the drivers and barriers of scaling up the programme. Therefore, this paper uses a determinant model based on the 5C protocol of Najam (1995). This implementation model has been used to analyse drivers and barriers in several policy areas (see e.g., Bayrakal, 2006; Nurani et al., 2018) across the world, including Nepal (Dongol & Heinen, 2012). However, these applications do not provide a unified empirical determinant framework. While Martin (2014) publishes the guidelines for the semi-structured interviews used to apply the 5C protocol, he studies the implementation of the Framework Convention on Tobacco Control. The most closely related literature about education implementation is Viennet & Pont (2017), who develop a framework for education policy implementation, but do not follow the 5C protocol. Therefore, we apply the determinant framework of Caves et al. (2019) and build on Renold et al. (2019a) to develop guidelines for semi-structured interviews. The resulting empirical determinant framework allows to analyse the drivers and barriers of scaling up the Dual VET-Apprenticeship in Nepal.

The following section describes the Dual VET-Apprenticeship pilot in Nepal, followed by a presentation of the analytical framework, the empirical determinant framework and the data gathering process. Section four presents the results and section six summarises the paper and draws conclusions.

## 2 The dual VET-apprenticeship 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 focuses on the component of the ENSSURE project that introduces a Dual VET-Apprenticeship programme, aiming to increase the skills of Nepali workers to improve labour market outcomes. These Dual VET-Apprenticeships last 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-Apprenticeship leads to a formal certificate equivalent to the Technical School Leaving Certificate (TSLC).

The implementation of the Dual VET-Apprenticeship is a cooperation between the Council for Technical Education and Vocational Training (CTEVT) and HELVETAS Swiss Intercoop-

eration Nepal (Helvetas). 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. Regarding the Dual VET-Apprenticeship, the four most important responsibilities of the CTEVT are 1) develop the apprenticeship curricula, 2) develop/conduct entry/completion exams, 3) hand out certificates and 4) accredit schools providing classroom education. The non-governmental organisation (NGO) Helvetas acts as technical assistance provider.

This description of responsibilities among different government levels might change substantially due to the ongoing federalisation process (Caves & Renold, 2019; Renold et al., 2018). Concretely, Nepal promulgated a new constitution in September 2015 that makes the country a federalised democracy. The governance structure extends the existing centralized model to one with federal, state, and local governments; each with dedicated roles, rules, processes, and institutions.

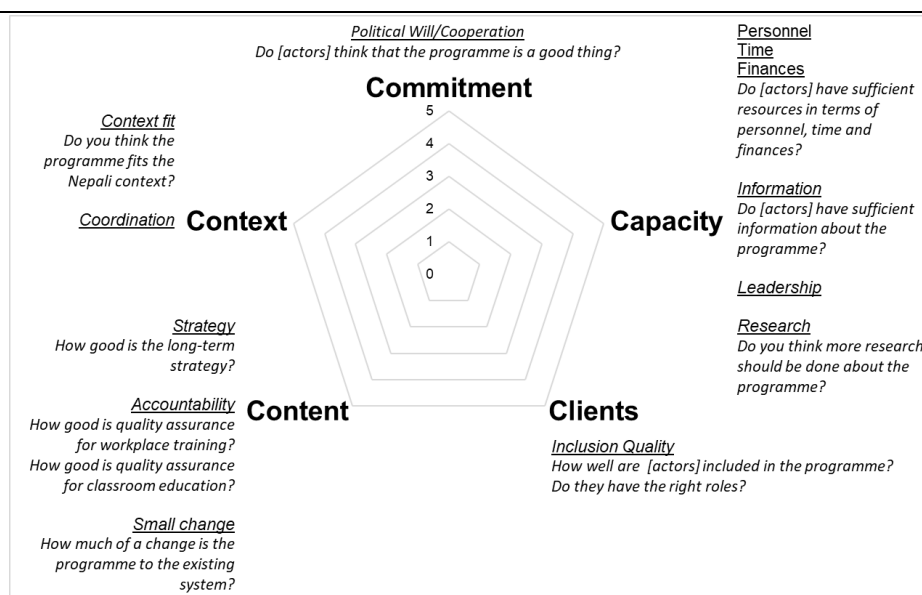
The first cohort of 181 apprentices started in autumn 2018. This cohort entails apprentices in two occupations: technicians in mechanical and electrical engineering. These Dual VET-Apprenticeships are delivered by four schools located in states 1, 3 and 5. The second cohort of 897 apprentices starting in autumn 2019 expands the scope to 22 schools in four states and three additional occupations: hotel management, information technology (IT), and automobile engineering.

### **3 Analytical framework, methodology and data**

This paper uses an analytical framework that builds on the theoretical framework of Najam (1995) whose 5C protocol differentiates five categories of implementation drivers, namely commitment, capacity, clients, content and context. The commitment category captures whether involved actors are committed to the goals and methods of the policy (Najam, 1995). The capacity category reflects whether actors have the administrative capacity to implement the desired changes (Najam, 1995). The clients category captures how well actors are included in the reform (Najam, 1995). The content category describes the reform content in terms of the goals and whether the methods to achieve these goals are appropriate (Najam, 1995). Finally, the context category captures the institutional context of the implementation process (Najam, 1995).

Building on this theoretical framework, the literature review of Caves et al. (2019) identifies the key aspects of each implementation driver category for VET. These key aspects represent the building blocks for the analysis of this paper. We build upon Renold et al. (2019a) to develop the guidelines for the semi-structured interviews. This allows to formulate a question for each of the key aspects, thereby building an empirical framework to measure the intensity of implementation drivers and implementation barriers. Figure 1 displays the interview questions for each key aspect.

**Figure 1**  
Questions of the Semi-Structured Interviews



*Note.* The figure displays the five categories (bold) of the 5C protocol, the key aspects (underlined) of each category and the questions of the semi-structured interview (italic) for each key aspect. [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.

The guidelines for semi-structured interviews were applied in eight interviews conducted in May 2019. Each interview lasted for about one hour. Four of the interview partners were industry association representatives. The other four interview partners were either members of the Nepali government or government consultants. The analysis discusses differences between these two respondent groups (government, industry) where they differ regarding their view on implementation drivers and barriers.

The interviews were conducted by one Swiss economist and one Nepali sociologist. Seven of the eight interviews were conducted in English and recorded. One interview was conducted in English and Nepali with notes being taken. The interview partners responded to the open questions as shown in Figure 1. Based on the answers, the 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).

## 4 Results

Commitment of actors involved in the Dual VET-Apprenticeship is generally high and represents an implementation driver. There are two main exceptions to this finding. First, schools and teachers might lack commitment to the new programme because they lack the resources to implement it. Second, trade unions are not involved in the programme so far, raising the question if and how they affect the programme as it scales up.

Capacity in terms of personnel, finances and time also represents an implementation driver. Resources of schools and teachers are an exception in this regard. Furthermore, capacity in terms of available information represents a potential implementation barrier. This lack of information exists for several types of actors and is particularly high for schools, teachers, and companies. However, this is common within first and second cohorts of pilot projects because many people need to understand the innovation.

The clients category captures to what extent actors have the appropriate roles in the programme. Generally, the interview partners assess this as an implementation driver. The main exception is that industry associations could play a more pronounced role in the future.

The content category represents the most critically evaluated implementation driver category. The assessment of long-term strategy is generally positive, though interview partners raised questions about the sustainability of the programme due to unclear future legal framework as Nepal currently is undergoing a huge change due to the new Constitution of 2015 (Renold & Caves, 2017; Renold et al., 2018). Furthermore, the interviews further revealed some concerns about quality assurance of both classroom education and workplace training. However, the most relevant implementation barrier is that half of the interview partners consider the reform a medium-sized change and half of the respondents even consider it 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 among more stakeholders than a conventional education reform. This complexity makes scaling up the programme more challenging. Nevertheless, the interview partners believe that the implementation can succeed.

Finally, the context category is an implementation driver as the interview partners believe that the Dual VET-Apprenticeship fits the Nepali context well. However, they underline that such a success depends heavily on the new TVET Act which will be developed in 2020.

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-Apprenticeship. All actors are concerned with quality, including the quality of classroom education, workplace training, graduates, curricula and the Dual VET-Apprenticeship 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 organized in the future. In the context of federalisation and an upcoming new TVET Act, questions about funding, authority, and institutional roles loom large.

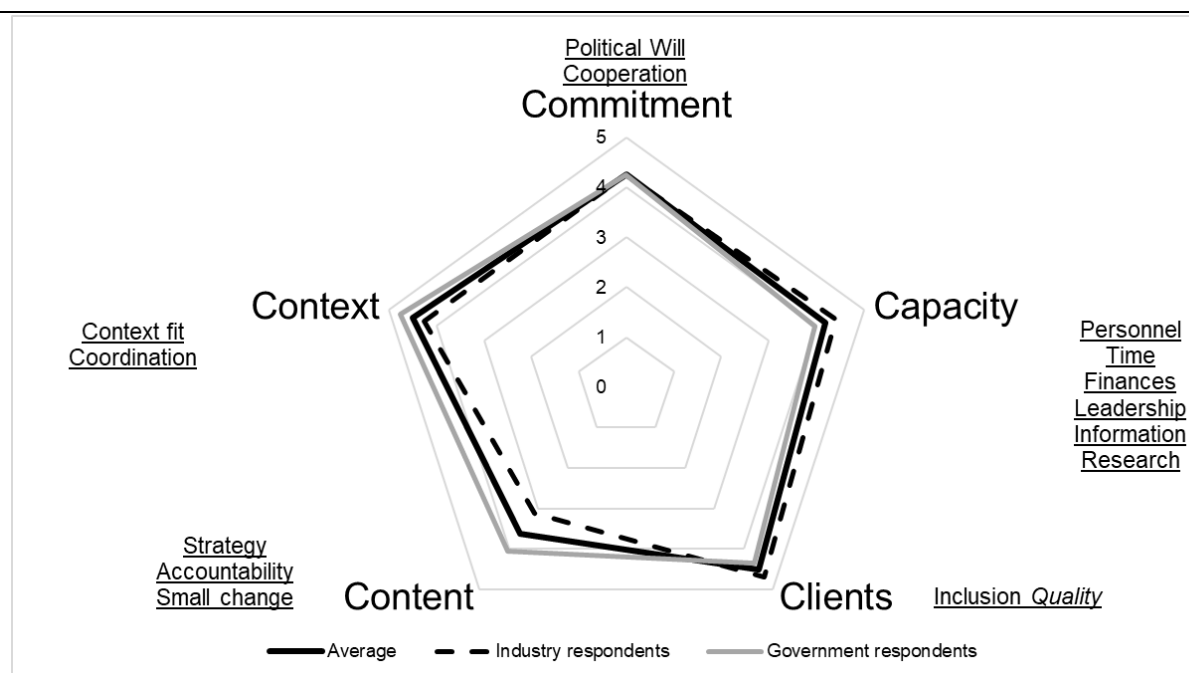
The high values in most of the implementation driver categories are consistent with the assessment of interview partners that scaling up the Dual VET-Apprenticeship will likely succeed.

## **5 Summary and conclusions**

This paper analyses drivers and barriers to scaling up a Dual VET-Apprenticeship pilot project in Nepal based on semi-structured interviews with eight government and industry representatives conducted in May 2019. The analytical framework follows the various key aspects of the determinant framework of Caves et al. (2019). 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.

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 implementation barriers that need to be considered carefully.

**Figure 2**  
Assessment of Implementation Drivers



*Note.* The figure displays to what extent the five categories represent implementation drivers on a scale from 1 (Not at all) to 5 (Very much). Underlined text describes the key aspects of each category. Data based on semi-structured interviews with government (grey,  $N=4$ ) and industry representatives (black dotted,  $N=8$ ).

## References

- Afeti, G., & Adubra, A. L. (2012). Lifelong technical and vocational skills development for sustainable socio-economic growth in Africa. *Synthesis paper—sub-theme 2. Presented at Triennale on Education and Training in Africa, February*, 12-17.
- Bayrakal, S. (2006). The US pollution prevention act: a policy implementation analysis. *The Social Science Journal*, 43(1), 127-145.
- Caves, K.M., Baumann, S., & Renold, U. (2019). Getting there from here: A literature review of VET reform implementation. *Journal of Vocational Education and Training*. <https://www.tandfonline.com/doi/full/10.1080/13636820.2019.1698643>
- Caves, K. M., & Renold, U. (2019). External evaluation: National vocational qualifications system project. *KOF Studies*, 126.
- Dongol, Y., & Heinen, J. T. (2012). Pitfalls of CITES implementation in Nepal: A policy gap analysis. *Environmental management*, 50(2), 181-190.
- Eichhorst, W., Rodríguez-Planas, N., Schmidl, R., & Zimmermann, K. F. (2012). A roadmap to vocational education and training systems around the world. IZA Discussion Paper, 7110.
- Figueiredo, H., Biscaia, R., Rocha, V., & Teixeira, P. (2017). Should we start worrying? Mass higher education, skill demand and the increasingly complex landscape of young graduates' employment. *Studies in Higher Education*, 42(8), 1401-1420.
- Frigotto, G., Ciavatta, M., & Ramos, M. N. (2009). Vocational education and development. In *International handbook of education for the changing world of work* (pp. 1307-1318). Springer, Dordrecht.
- Fluitman, F. (1999). The roots and nature of reforms in vocational education and training: An analytical framework and some examples. *Prospects*, 29(1), 55-65.
- Holmes, K. (2009). The Reform and Governance of Public TVET Institutions: Comparative experiences. In R. Maclean & D. Wilson, *International handbook of education for the changing world of work* (pp. 905-919). Dordrecht, Netherlands: Springer.
- Martin, E. (2014). Implementing an international health treaty in small Pacific Island nations (No. Ph. D). Deakin University.
- Mühlemann, S., & Wolter, S. C. (2014). Return on investment of apprenticeship systems for enterprises: Evidence from cost-benefit analyses. *IZA Journal of Labor Policy*, 3(1), 25.

- Najam, A. (1995). Learning from the literature on policy implementation: a synthesis perspective, *IIASA Working Paper*, WP-95-061, Luxembourg, Austria: International Institute for Applied Systems Analysis.
- Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation science*, 10(1), 53.
- Nurani, F., Mardiyono, M., Supriyono, B., & Wijaya, A. F. (2018). Analysis of policy implementation to decline mother and infant mortality rate through the five C's protocol (Study of East Java Province). *International Journal of Social and Local Economic Governance*, 4(1), 26-31.
- Renold, U., & Caves, K.M. (2017). Constitutional reform and its impact on TVET governance in Nepal. A report in support of developing understanding and finding the way forward for federalizing the TVET sector in Nepal. *KOF Studies*, 89. <https://www.research-collection.ethz.ch/handle/20.500.11850/128901>
- Renold, U., Bolli, T., & Caves, K.M. (2018). Constitutional reform and its impact on TVET governance in Nepal, *KOF Studies*, 114. <https://www.research-collection.ethz.ch/handle/20.500.11850/275454>
- Renold, U., Caves, K.M, Maldonado-Mariscal, K., Oswald-Egg, M.E., Markovic, J., Veselinovic, Z., Stankovic, D., Ceneric, I., & Todorovic, M., (2019a). Implementation of the Serbian law on dual education: First report on drivers and barriers in the pre-implementation phase, *KOF Studies*, 129, [https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/337794/No\\_129\\_Implementation\\_Serbian\\_Law.pdf?sequence=1&isAllowed=y](https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/337794/No_129_Implementation_Serbian_Law.pdf?sequence=1&isAllowed=y)
- Ryan, P. (2004). Apprentice strikes in the twentieth-century UK engineering and shipbuilding industries. *Historical Studies in Industrial Relations*, (18), 1-63.
- Ryan, P., Backes-Gellner, U., Teuber, S., & Wagner, K. (2013). Apprentice pay in Britain, Germany and Switzerland: Institutions, market forces and market power. *European Journal of Industrial Relations*, 19(3), 201-220.
- Valiente, O., & Scandurra, R. (2017). Challenges to the implementation of dual apprenticeships in OECD countries: A literature review. In *Vocational education and training in times of economic crisis* (pp. 41-57). Springer, Cham.
- Viennet, R., & Pont, B. (2017). Education policy implementation: A literature review and proposed framework. OECD Education Working Papers, No. 162. *OECD Publishing*.
- Wolter, S.C., & P. Ryan (2011). *Apprenticeship*. In Hanushek, E.A., Machin, S. and Wössmann, L. (Eds.): *Handbook of economics of education* (Volume 3, pp. 521-576). Elsevier.
- Wolter, S. C., Mühlemann, S., & Schweri, J. (2006). Why some firms train apprentices and many others do not. *German Economic Review*, 7(3), 249-264.

### Biographical notes

Dr **Thomas Bolli** is a Postdoc at the Chair of Education Systems of the Department of Management, Technology, and Economics of the ETH Zurich in Switzerland.

Dr **Johanna Kemper** is a Postdoc at the Chair of Education Systems of the Department of Management, Technology, and Economics of the ETH Zurich in Switzerland.

Prof. Dr **Mahesh Nath Parajuli** is a Professor at the School of Education of the Kathmandu University in Nepal.

Prof. Dr **Ursula Renold** is Professor at the Chair of Education Systems of the Department of Management, Technology, and Economics of the ETH Zurich in Switzerland.

Dr **Binayak Krishna Thapa** is Assistant Professor at the School of Arts of the Kathmandu University in Nepal.