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Mobilising for change in vocational education and training in Sweden – a case study of the ‘Technical College’ scheme

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\textbf{ABSTRACT}

In this article, we analyse a recent industry-driven initiative in Sweden for the organisation and operation of Vocational Education and Training. In the context of a statist and school-based system for VET, this is an initiative which seems to be an example of an anomaly in the present system. The initiative is called the Technical College scheme and is a certification scheme for upper secondary school education in technology. The aim of this article is to describe and explain the establishment of the Technical College scheme in Sweden from a historical institutionalist approach. Based on this approach, the case is analysed as a process of incremental institutional change, with a focus on initiatives and strategies by different stakeholders driving the invention and implementation of the scheme, the importance of the power balances between central interests, and how the process has been shaped by institutional conditions. Our study shows how previously marginalised actors in a VET system can mobilise for change without radically changing the rules of the game. The process that we characterise can be explained by changes in the power balances between key actors, but also by changed institutional conditions that have provided windows of opportunity for new initiatives.

\textbf{1. Introduction}

Vocational education and training (VET) institutions are essential elements of education systems in advanced political economies. Programmes for VET contribute to the availability of a skilled and competent workforce and are therefore important for the industrial development of nations (Hall and Soskice 2001). Although there are many similarities between national VET systems in industrial countries, there are also major differences, especially concerning the involvement of the state and
industry and how these collaborate (Busemeyer and Trampusch 2012; Culpepper and Thelen 2008; Deissinger and Gonon 2016; Pilz 2016; Thelen 2004; Trampusch 2010, 2014). The Swedish VET system – the basis for the empirical case study in this article – is often referred to as a typical example of a so-called statist regime where public involvement is high and where VET is closely integrated into the general education system. In comparison with many other countries, industry is thus less involved in VET, and the system is primarily based on school-based education rather than work-based learning, such as apprenticeships (Busemeyer 2015; Nilsson 2010; Virolainen and Persson Thunqvist 2016). However, previous research has also pointed to how this Swedish model has during the last few decades been continuously challenged and criticised for being inflexible and insensitive to the needs of companies in a globalised economy (Fjellström and Kristmansson 2016; Lundh Nilsson and Nilsson 2015; Olofsson and Wadensjö 2007).

In this article, we analyse a recent VET initiative in Sweden, which seems to present an example of an anomaly in the present regime. This initiative is called the Technical College scheme (Teknikcollege in Swedish) and is a certification scheme for upper secondary school education in technology. It was initiated by stakeholders of industry and the trade union of the engineering industry at the beginning of the 2000s, and is administered by the Council of Swedish Industries. The aim of the scheme is to support the supply and quality of industrial and technology-oriented education programmes (through public and private schools) at the upper secondary level. The Council invites municipalities, providers of education and companies to build local and regional partnerships, which, by meeting the criteria of the Technical College scheme, increase the industrial relevance and quality of these VET programmes. The criteria for certification include a strong industrial involvement in education, a demand for high-quality work-based training, and the influence of regional actors on the planning of education. The providers of education that are embedded in such regional partnerships, and that fulfil these criteria, are certified as Technical Colleges (Technical College Homepage 2016. Accessed June 19, 2016. http://www.teknikcollege.se).

In a short period of approximately 10 years, the Technical College scheme has gradually become established in most parts of the country and covers most industrial technology programmes in Sweden. Across political parties, the scheme has been considered a role model for the development of Swedish VET programmes (Swedish Government 2015a, 2015b). The impact of the Technical College scheme contrasts with other recent efforts to increase industrial engagement in VET, for example through apprentice-oriented programmes, which have not been very successful (Olofsson 2015; Swedish National Agency of Education 2013). Thus, while VET in Sweden remains a comprehensive and state-regulated system, by the introduction of the Technical College scheme, the industry seems, in contrast to the established characterisation of the strongly statist Swedish VET regime, to have increased its involvement and commitment considerably.
The aim of this article is to describe and explain the establishment of the Technical College scheme in Sweden using a historical institutionalist approach. Based on this approach, the case is analysed as a process of incremental institutional change, with a focus on initiatives and strategies by different stakeholders driving the invention and implementation of the scheme, the importance of the power balances between central interests, and how the process has been shaped by institutional conditions. The approach is motivated by the argument of the literature about the importance of challenging and nuancing the understanding of rather stylised categorisations of VET systems (Busemeyer 2009, 2015; Trampusch 2014). As a typical example of a statist and school-based VET system, which has shown a strong stability over time, the Swedish system provides an interesting context for analysing a process of change that seems to challenge the institutional core of the prevailing system.

Our study shows, firstly, how previously marginalised actors in a VET system can mobilise for change without radically changing the rules of the game. The process, which we characterise using the concept of layering, can be explained by changes in the power balances between key actors, but also by changed institutional conditions (such as marketisation of the education sector) that have provided windows of opportunity for new initiatives and transitions. Secondly, our study also shows that the cross-sector alliance between industry and the unions, which was essential for the Technical College scheme, was based on a reactivation of an alliance with strong roots in the Swedish VET system. Hence, the study highlights how the widespread characterisation of Swedish VET tends to neglect the importance of existing cooperation between employers and the union system (see e.g. Busemeyer 2015). Finally, the study shows the importance of decentralised cooperation in the development of VET systems. It illustrates that analyses of incremental institutional changes in VET systems should not disregard the local level as a laboratory for innovation as well as diffusion processes in bringing forward policy innovations in VET systems.

The remainder of this article is organised as follows: Section 2 reviews the literature on VET, which is explored using a historical institutionalist approach; Section 3 describes the empirical study pertaining to methodology and data; Section 4 presents the results of the study, and Section 5 summarises the main results and provides conclusions.

2. VET using a historical institutionalist approach

The design and development of VET institutions and the provision of skilled labour have long been treated as central components in the understanding of political-economic systems. The literature on the political economy has stressed that the development of VET systems, or skill formation systems, has been strongly influenced by the character of market economies and labour market relations in different countries. For example, Hall and Soskice (2001) draw a broad distinction
between the different skill formation systems in ‘liberal’ vs. ‘co-ordinated’ market economies in their influential framework in ‘Varieties of Capitalism’. In liberal market economies, such as the U.K., the general education system primarily provides general skills, which can then be complemented by specific skills within firms. In co-ordinated market economies, such as Germany, stronger emphasis is placed on a dual system of VET (combining school-based training with work-based training), which is regulated by the labour market parties (trade unions and employers) but also supervised by the state (Hall and Soskice 2001).

In recent literature on skill regimes it is argued that this typology of skill regimes – between liberal and co-ordinated – is too broad to account for the variations in skill formation regimes, especially in co-ordinated market economies. For example, Busemeyer and Trampusch (2012) argue that in analysing different skill formation regimes, it is useful to distinguish systems on two dimensions. Firstly, according to the degree of industry involvement; that is, the willingness of firms to invest in skills for vocational training; secondly, according to the degree of public commitment to vocational training (including support of VET as an alternative to academic education) (Busemeyer and Trampusch 2012). Based on the two dimensions of public and industry involvement, Busemeyer and Trampusch formulate a typology of four ideal types of system. The liberal skill formation system is characterised by low firm involvement and low public commitment; that is, a system where the collective engagement in VET is very low. The segmentalist skill formation system is characterised by high firm involvement and low public commitment; that is, a system where the firms, usually large ones, take a major responsibility for investment in the skills of employees, such as in the case of Japan. In the collective skill formation regime, both the firms and the public sector are highly committed to skill formation, often in tri-party, cooperative arrangements between the state, trade and company associations, and unions, as exemplified in the dual system of skill formation in Germany.

Finally, there is the statist formation system, which is characterised by low firm involvement and high public commitment; this system is of specific interest here, as Sweden is considered a typical example. In Sweden, this system largely reflects a strong political strategy to integrate the vocational training system into the general education system (Busemeyer and Trampusch 2012). However, the literature on skill regimes has also pointed out that these kinds of typologies tend to hide important nuances within different VET systems (Heikkinen and Lassnigg 2015; Pilz 2016). Research into the Swedish skill formation system has, for example, shown how the role of industry has historically been important, but has varied over time (Dobbins and Busemeyer 2015; Lundahl 1997; Lundh Nilsson and Nilsson 2015).

In this article, we approach the development of the Technical College scheme and its implications for the Swedish skill formation system from a historical institutionalist viewpoint, which helps to conceptualise how VET institutions are transformed and changed over time. We take a definition of institutions by Hall and Thelen as a starting point for our analysis. They state that institutions are
‘regularised practices with a rule-like quality in the sense that the actors expect the practices to be observed and which, in some but not all, cases are supported by formal sanctions’ (Hall and Thelen 2009, 9). We also, as is common within this approach, emphasise that institutions can be both formal and informal, and include both basic organisational and legal structures and more mutable informal standard operating procedures and routines (Hall 1992). Furthermore, within this approach, the distributional aspects of institutions are emphasised. That is, the institutions are primarily important because their design has consequences for the distribution of power and resources (Mahoney and Thelen 2010). Important elements of VET institutions include the legal framework for education, labour market agreements, and also norms, informal agreements and conventional practices related to VET (Lundh Nilsson and Nilsson 2015). In our text, we argue that the Technical College scheme can be considered an institutional structure – since it involves organisational structures and control mechanisms – which has diffused into a nationwide system, and which involves the commitment of schools to align with a certification scheme and monitoring by a regional committee.

Within the historical institutional approach, institutional stability, rather than change, has often been in focus (Peters 2012). A dominant explanatory model explaining the persistence of institutional characteristics has been path dependency (Pierson 2000; Thelen 1999). The central mechanism for path dependency processes is usually described as one of increasing returns, or positive feedback. This means that when a particular institutional structure is in place, the actors will have strong incentives to adapt their behaviour and strategies to this structure in ways that reinforce the logic of the system (Pierson 2000). Scholars who adopt such an approach stress the importance of identifying the specific critical junctures; that is, the periods usually connected to some kind of crisis when stable institutional arrangements are ‘punctuated’, bring about relatively abrupt institutional change and set countries along different development paths (Rothstein 1992; Thelen 1999). Recent work on institutional change has, however, criticised the path dependency concept and its somewhat simplified view of institutional change (Mahoney and Thelen 2010; Streeck and Thelen 2005; Thelen 2004). Even in periods of overall institutional stability, institutions usually change, although incrementally (step by step). Over time, such small deviations might even lead to radical changes and disruptions (Streeck and Thelen 2005; Thelen 2004).

In our study, the Technical College scheme is, in line with this research, analysed as an example of what Streeck and Thelen (2005) and Mahoney and Thelen (2010), in their efforts to conceptualise different kinds of gradual institutional change, have defined as layering. Layering refers to the process of adding new institutional structures on top of or alongside existing ones. The addition of new rules to an existing VET system, for example, the introduction of a voucher system, can, although the main institutional structure is held constant, set in motion changes that over time interfere with the stable core (Mahoney and Thelen 2010, 17). Mahoney and Thelen (2010) argue that these kinds of processes, driven by what they call ‘subversives’,
actors who are opposing the current institutional order, are most likely in contexts where the cores of institutions are protected by powerful veto-players, and ‘few rule interpretation and enactment opportunities make it difficult for opposition actors to openly break or even bend the rule of an institution’ (Mahoney and Thelen 2010, 29). In the case of VET, we would assume that the long-lasting structure of the Swedish statist and school-based VET system, which constrains the possibilities for industrial involvement, is such a context, with strong veto-players and few possibilities of rule interpretation, for layering processes.

Consequently, through this article, we point out especially how institutional changes in the relationships between VET, state and industry can evolve due to pressures from previously marginalised actors. Under new circumstances, these actors may be closely involved in reforming prevailing institutions. So, we would like to draw attention to the role of change agents in building support for new or reactivated coalitions (Thelen 2004). As pointed out by several scholars, we also need to be aware that actors are often embedded in a ‘multiplicity of institutions’, and ‘actors disadvantaged by one institution may be able to use their advantaged status vis-à-vis other institutions to enact change’ (Mahoney and Thelen 2010, 9).

Struggles in relation to VET in practice concern both educational system institutions and industrial relations.

Busemeyer and Trampusch (2012) have identified a number of key aspects that they consider to be at the core of such political struggles over the design of VET institutions. Firstly, they claim that the characteristics of the firms, and types of cleavages, as well as the logic of cooperation, within the business sector are important. For example, whether or not the business sector is dominated by large firms or by small and medium-sized enterprises has consequences for the possibility of collective action and the industrial companies’ preferences on VET issues. Secondly, the unity of the unions is also important. Is the union divided and decentralised or, as has traditionally been the case in Sweden, strongly united and centralised? Thirdly, the overall balance of power between business and labour has an effect. In general, they argue that firms prefer investment in firm-specific skills, while the unions prefer investments in more general skills, although this assumed generic conflict is also found to be mediated by institutional arrangements and historical trajectories. Fourthly, they claim that the position of the state and political parties is decisive. In general, the state is decisive in, for example, the ways in which it mediates the relationship between business and unions, but also in how it shapes the general education system (Busemeyer and Trampusch 2012). In his later work, Busemeyer (2015) further argues that the role of partisan politics has been underdeveloped in the literature on VET. For example, he argues that in Sweden, the long history (from the 1930s until the 1970s) of Social Democratic Party dominance, in alliance with the trade unions, has played an important role in the evolution of the system (Busemeyer 2015).

As a complement to these aspects, we emphasise in particular how current historical institutional research on VET systems undervalues the local level and
decentralised cooperation between employers and municipalities as a source of change, since the literature mostly refers to national collective actors. In our study, we point out the importance of multi-layer negotiations, and the role of local governments as sources of institutional experimentation (Streeck and Thelen 2005). Literature on policy diffusion has, for example, pointed out that in highly decentralised political systems, subnational levels of government often function as policy laboratories for institutional innovation (Berry and Berry 2014; Volden 2006). New policy solutions are often diffused to other subnational governments, but also to the central level of government. Important mechanisms in this process might include competition, but could also include policy learning. In our case, the more recent trend of decentralisation of the Swedish school sector implies that policy processes in Sweden are increasingly characterised by multi-level governance and encourage experimentation, learning and competition between municipalities and regions (Lundin, Öberg, and Josefsson 2015).

In sum, our analysis takes as its starting point the historical institutional approach outlined in this section to describe and explain the development of the Technical College scheme in Sweden as a case of incremental institutional change, conceptualised as layering. This firstly implies a focus on understanding how the development of the initiative relates to the character and context of previous institutional structures in VET, but also, secondly, on how the incremental evolution of this institutional structure has interacted with contingencies and changes in power balance and coalition-building to provide opportunities for the new initiative. Finally, we emphasise the importance of decentralised cooperation and diffusion of institutional solutions among municipalities in the process.

3. The empirical study: methodology and data

We describe and explain the development of the Technical College scheme in Sweden through an empirical and qualitatively-oriented case study. The methodological approach can be defined as a kind of process-tracing, which means that we analyse the process of initiating and establishing the Technical College scheme through a focus on the central chain of events and initiatives by key actors and the institutional context of the case. This enables us to unveil the general mechanisms that explain the outcome of the case, but also generate new hypotheses (George and Bennett 2004). The analysis aims to demonstrate, in line with the theoretical framework, how the process is influenced by the previous path of institutional evolution, the mobilisation of interests and coalitions, and how it interacts with other policy areas and levels.

The analysis is based on different data sources. First, we studied different kinds of written documents relating to the Technical College scheme; for example, annual reports, policy documents, reports with statistical data, brochures and home pages. Most of this documentation was available through a database (Teknikportalen) constructed for the scheme, and to which we had access. We also
examined public documents, for example, reports from the National Agency for Education, governmental commission reports, and secondary sources (research reports, etc.).

Second, to complement these data, we carried out semi-structured interviews with key persons at the national level (representing different stakeholders behind the initiative), and with regional and local representatives from two regions (regional process leaders, representatives of municipalities and schools and local industries). The interviews were conducted in 2013–2016 through different packages of research work. The authors conducted interviews targeting the stakeholders at local and regional levels previously (see Hermelin and Edwardsson 2014; Rusten and Hermelin 2017; Westermark and Hermelin 2016). As part of the current study, additional interviews with national stakeholders have been conducted. Combined together, the supply of empirical data reflecting experiences of local, regional and national actors enables us to conceive the critical aspect of multi-level interplay in the process. In all, about 30 interviews were carried out with respondents involved in Technical College development and operations. Comparing and contrasting interviews across the sample of respondents representing different partners of the public sector, the school sector and the industry, and from different local settings, has been an important means of pursuing critical reflections for our analysis.

4. Industrial VET in Sweden and the development of the Technical College scheme

4.1. Industry and VET in Sweden: background

Although the general description of the present VET regime in Sweden is that of a state- and school-dominated VET system, this was preceded by a history of employer-dominated VET. In a longer historical perspective, the development of industry-oriented VET in Sweden has followed a rather disruptive path, encompassing several major changes during the nineteenth and twentieth centuries. In the late nineteenth and early twentieth centuries, the increased needs of the growing Swedish manufacturing industry led to growth in the number of special vocational schools, generally combining apprenticeship training with part-time, school-based education. These schools were run by municipalities and the industry, and were only weakly influenced by labour market parties and the state. However, during the 1930s and 1940s, corporatist institutions developed within the area of VET, which involved collaborations between industry, labour unions and the state. A national council for VET was set up by the social partners, as well as councils for particular industrial specialisations. At this time, there was generally strong agreement that VET was primarily the responsibility of the social partners in the labour market (Busemeyer 2015; Nilsson 2010).
The statist and school-based system associated with the present VET system and the ‘Swedish model’ became the predominant structure from the late 1960s. The extensive consolidation of the welfare state led to a stepwise development towards what has become a comprehensive system for upper secondary schools in Sweden, namely the *gymnasium*. In this wave, vocational education was largely integrated into the general education system. The reforms were mainly driven by the strong coalition of the Social Democratic Party, which dominated the national government from the 1930s to the 1970s, and the Swedish Trade Union Confederation (LO). They both favoured the idea that VET should be integrated into the general education system for upper secondary school education. Their positions were mainly based on a common idea of the importance of a general education system (to foster equal opportunities). The organisation representing the Swedish business sector was not strongly against this reform; the dominant large industries acknowledged the need for a large pool of workers with broad competences. However, it preferred a system which entailed a stronger influence of the industry on VET (Lundahl 1997; Lundh Nilsson and Nilsson 2015).

Although the fundamental institutional structure of the VET system is still in place, two reforms in the early 1990s involved important revisions. Firstly, in 1989, the local municipalities were given stronger responsibility for organising and executing public education (Blomqvist 2004; Nilsson 2010; cf. Lundh Nilsson and Nilsson 2015). Secondly, in 1992, a voucher system for primary and secondary education was introduced. This system entitled private schools (provided that they were approved by the National Agency for Education) to obtain public funding and compete with public schools on an equal basis. These reforms paved the way for the marketisation of the school sector in Sweden, including competition between private companies and public schools (Blomqvist 2004; Vlachos 2011).

In addition, the Swedish VET system has recently been increasingly criticised for not being capable of handling new challenges. Notably, the high youth unemployment and difficulties for many young people to enter the labour market led to an increased demand for a more apprentice-oriented VET system. In particular, the export-oriented engineering-based companies and related stakeholder organisations have been engaged in lobbying for more intense cooperation between schools and industry (Industrial Council 2014). In recent years, different initiatives to reintroduce apprentice-oriented programmes in the VET sector have been taken; for example, an alternative scheme for alternating school-based and workplace-based training (Dobbins and Busemeyer 2015). So far, however, the initiatives to reintroduce an apprenticeship system have not been perceived as very successful in Sweden (Olofsson 2015; Swedish National Agency of Education 2013). The latest reform of the upper secondary school by the centre-right-wing government in 2011, also led to a somewhat sharper division between higher education preparatory programmes and vocational programmes (Virolainen and Persson Thunqvist 2016). Nevertheless, the social democratic-led government that
came into power in 2014 has taken initiatives to cushion the consequences of this reform (Swedish Government 2015a).

In the context of this shift towards decentralisation and marketisation, it is important to stress that the regulation, financing and monitoring of schools remained in the hands of the state. The Swedish statist system, despite decentralisation and marketisation reform, was found to have remained relatively stable, which is partly explained by the critical juncture of the 1960s and 1970s (Busemeyer 2015). Furthermore, although this stability has been supported and nurtured mainly by an alliance between unions and the Social Democratic Party, there has also, in parallel to this system, been close cooperation on VET issues between the unions, the state and industry (especially large-scale export-oriented engineering-based industry) (Busemeyer 2009; Lundahl 1997). With this context in mind, the discussion will now move to more detailed account of the industry-led VET initiative which is the focus of this article: the Technical College scheme.

### 4.2. The initiation of the Technical College scheme

The initiative of the Technology College scheme has its roots in the transformation of industrial relations and wage bargaining in Sweden during the last two decades. This transformation was importantly triggered by the recession of the 1990s which deeply affected the manufacturing industry. For labour market relations, the period since the 1990s has been characterised by continuous decentralisation and fragmentation of the traditional Swedish model of centralised and solidaristic wage policy. In essence, the dominating blue-collar, peak-level organisation, LO, has gradually been fragmented and has not been able to hold together its different affiliated unions. In parallel, the central representative for the employers (the Swedish Confederation of Swedish Employers) has not, partly for ideological reasons, been very willing to maintain the national coordination of wage-bargain agreements (Pontusson 1997).

In contrast to these recently transformed industry relations in Sweden, especially for the engineering-based manufacturing industry, there have been great efforts, supported by the state, to withhold a central system for collective bargaining and cooperation to facilitate agreements on wages and employment. An important event in this regard was the establishment of the Agreement on Industrial Development and Wage Formation (Industriavtalet) between central representative organisations for the employers and the unions within the manufacturing industry. A cooperative body named the Industrial Council (Industrirådet) was set up to manage the agreement and different development projects. Apart from being a result of the strong common interest of unions and employers within the industry, the agreement was also a result of strong state pressure to stabilise industrial relations in the labour market (Elvander 2002).

It was in this context that the Technical College initiative was developed at the beginning of the 2000s. The background was that many employers in the
manufacturing industry were experiencing sustained problems with recruiting skilled labour. This was assumed to be an effect of the low quality of industrial VET, the low status of blue-collar vocations in general, and the problems of education programmes in technical skills and training in the upper secondary school regarding attracting applicants (Industrial Council 2014; Olofsson 2015).

In particular, Teknikföretagen (the trade organisation for engineering-based industries) and IF Metall (the national trade union for engineering manufacturing workers) which are the leading parties in the agreement on industrial development and wages, were closely engaged in endeavours to enhance the quality and quantity of a trained workforce for manual work in technology-dominated industries. Studies initiated by these actors concluded that the low degree of cooperation between the schools and companies, and the scarce resources of municipalities (which are responsible for the vocational schools), were core obstacles to the successful development of VET for technical skills. The cooperation these actors developed with Mälardalsrådet (a regional cooperative organisation representing a large number of the municipalities in central Sweden) was particularly important for how the industry partners became involved in the development of VET. This cooperation was aimed at improving the functioning of VET for manual skills within technology-based industries, primarily for manufacturing work (interview with representative Teknikföretagen, 2015; interview with representative IF Metall, 2015).

The initiative within this project resulted in the setting up of a scheme for certification and support for VET in technology and industrial techniques, which came to be called the Technical College initiative. It seems that Teknikföretagen and the member companies were the main driving forces behind the process of establishing the scheme. In the first place, the scheme was primarily handled by a cooperative effort by Teknikföretagen and IF Metall, but eventually, it came to be governed by a broader coalition of actors within the Industrial Council (see above). Hence, it was originally integrated within the structure setup to handle wage bargaining within the industrial sector.

In essence, the Technical College initiative was set up as a certification scheme. To become a certified member, the education provider, namely the school, is required to adhere to ten different criteria. These criteria refer to the profile of the education programmes, the organisational forms that the education will take, and the responsibilities of industry partners. The criteria for certification presuppose a substantial industrial involvement in education, demands for work-based training, and the influence of regional actors in the planning of education. The requirements also include demands for company commitment relating to the support that pupils should have, i.e. access to modern equipment and machinery for their training, and supervision to foster high-level work skills. Through the member companies, pupils are offered opportunities for project work and employment in the summer periods (Technical College Homepage; National Association of the Technical College scheme 2014b).
It is important to note the assigned role of a regional organisation to monitor programmes. Interestingly, certification not only demands the fulfilment of certain criteria at the school level, such as close firm–school cooperation, competent teachers and high-quality machinery, but also requires schools to be embedded in a regional organisation for cooperation with several municipalities and industries. The regional perspective is also emphasised through the criterion stating that the educational activities must be ‘linked to the needs of the regional industrial companies’ (Industrial Council 2016, 15). An important motive behind the regional perspective is that this helps education providers and companies to ‘share costs and to benefit from each other’s experiences and networks’ (6). The role of the municipalities is essential in the scheme. The municipalities that aim to licence Technical College education programmes need to create a regional committee with members from at least three municipalities and from companies (with companies having the majority of the seats) (National Association of the Technical College scheme 2014b). In this way, the establishment of the Technical College scheme may impact the municipal responsibility for providing the supply of education for the upper secondary level, as well as the strong central state dominance over the school sector.

While the introduction of the Technical College scheme may seem a radical innovation for the operation of VET, elements of path dependency have also guided its development. Existing local collaborations between some schools and the main industrial parties, such as Volvo and ABB, were important models for the initiative (Hermelin and Edwardsson 2014; interview with CEO National Association of the Technical College scheme, 2015). In our discussion, we refer to this group of early movers as ‘industry schools’, which is an informal label for upper secondary schools that are partly or totally owned by individual major manufacturing companies. The launching of these industry schools was made possible through the market reforms of the school sector in the 1990s, although some of them also had roots in previous company schools, established much earlier (Lundh Nilsson and Nilsson 2015; Nilsson 2010).

The setting up of the Technical College scheme was primarily a result of cooperation among a coalition of actors, with unions and, in particular, representatives of industry as the main drivers, but the state was not totally absent. In particular, state actors connected with labour market policy have encouraged the development of the scheme; for example, it was supported by the national government through the provision of project funding for the administration and development of Technical College partnerships at the regional level (Ljungzell and Jakobsson 2008). Furthermore, this funding was initially accomplished through cross-sector governance interactions between the state, industry and unions through a temporary committee on skill formation, which was set up by the government (Yrkesdelegationen) in the early 2000s (Andershed and Ljungzell 2009; interview with representative Teknikföretagen, 2015).
4.3. The establishment and diffusion of the Technical College scheme and its implications

Although pilot projects to test the Technical College scheme initially started in central Sweden at the beginning of the 2000s, other local partnerships and education programmes certified as Technical Colleges soon followed. Because the municipalities are the main authorities that are responsible for upper secondary school education, they have also been important targets for the marketing of the Technical College scheme. *IF Metall* and *Teknikföretagen* were active in the marketing campaign, which involved dialogues between local actors and authorities (interview with representative *IF Metall*; interview with representative *Teknikföretagen*).

According to our respondents, the interest among the municipalities grew through the mechanisms of reputation and competition. After the first education programmes were certified and showed positive results, neighbouring municipalities soon wanted to join the scheme so as not to be left behind in the ‘race’ to be the most attractive education provider (interview with CEO National Association of the Technical College scheme; interview with representative *IF Metall* 2015; interview with representative *Teknikföretagen*, 2015). To give the scheme a more formalised structure, an association for Technical Colleges was established in 2007. The role of this association is to co-ordinate the certification process, but also to organise different supporting activities; for example, the annual national Technical College conference for participating local partners and regional process leaders; and its existence demonstrates the importance – particularly as the Technical College scheme is not part of the regular national school system – of constant promotion of the scheme, in order that it is able to gain and sustain the support of societal policy partners, schools and industry (National Association of the Technical College scheme 2014a).

In 2015, 150 schools in total were certified to offer Technical College programmes and more than 2000 companies were involved in collaborations with such programmes. Indeed, a large proportion of the technical education programmes for upper secondary schools have been integrated into the Technical College scheme, corresponding to 75 per cent of students following programmes for manual work (Industritekniskt program) and another 40% are following technology programmes oriented towards academic studies (Teknikprogram) (interview with investigator National Association of the Technical College Scheme, 2015). This indicates that the scheme has become a complementary structure for state-regulated VET, in technical education programmes. Furthermore, the certification process of the scheme has, for the schools which belong to the scheme, become established as an important complement to the inspections and quality assessment by the Swedish Schools Inspectorate.

Interestingly, a large majority of the schools with Technical College-certified programmes are run by the municipalities (Table 1). So-called free schools (i.e. those that are privately owned) have proliferated radically in Sweden since the
voucher reform in the mid-1990s provided parents with the right to a free choice of schools for their children (Vlachos 2011). However, few of the programmes in free schools have become Technical College-certified. Rather, Technical College-affiliated respondents believe that some private schools represent a problem, since they have been difficult to integrate into the regional Technical College structure (interview with CEO National Association of Technical College, 2015; interview with representative Teknikföretagen, 2015). This problem has also been observed in a report by the Swedish National Agency for Education (Swedish National Agency of Education 2013). Important exceptions – from the viewpoint that the Technical College scheme primarily involves municipality-owned schools – are, as noted above, the industry schools, which in many ways have been the role models, and become the flagships, of the scheme (Lundh Nilsson and Nilsson 2015; Rusten and Hermelin 2017).

As indicated above, the process of establishing and implementing the Technical College scheme has to a large extent been dependent on the activities of local and regional actors (especially the municipalities). The management and monitoring of schools and school–industry collaborations are organised by 26 regions. These regions cover almost half of the Swedish local municipalities (i.e. 141 out of 290). The regional committee and process leaders are critical for the sustainability, continuity, consolidation and quality assurance of the Technical College scheme. The regional committee comprises representatives from municipalities, schools and industry. A process leader at the regional level is financed through different agreements between municipalities and industry (home page Technical College). Interestingly, the Technical College regions do not cover the same territory as the regional political councils. Although ‘regular’ regional bodies have been active in the development of regional Technical College structures, the Technical College regions have to a large extent developed through bottom-up initiatives from municipalities for mutual collaboration (Ljungzell and Jakobsson 2008; Rusten and Hermelin 2017; Westermark and Hermelin 2016; interview with representative Teknikföretagen, 2015).

The survival of the Technical College scheme for over a decade can be interpreted as a sign that the model has become an established part of the Swedish VET system. The concept of the scheme has also won legitimacy in the political system. In 2015, the government set up a commission to investigate the possibility

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Number of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools owned by municipalities</td>
<td>114</td>
</tr>
<tr>
<td>Industry schools owned by municipality–industry partnerships</td>
<td>4</td>
</tr>
<tr>
<td>Industry schools owned by private companies</td>
<td>4</td>
</tr>
<tr>
<td>Other privately owned schools</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>128</td>
</tr>
</tbody>
</table>

Note: ‘Industry schools’ is an informal label for upper secondary schools that are partly or totally owned by individual major manufacturing companies.

Source: Annual reports, regional TC committees 2015.
of using the college model in areas other than the industrial/technology sector, and decided to provide funding for other sectors that wished to initiate similar structures at a regional level (Swedish Government 2015b). Based on interviews with industrial actors involved in the Technical College scheme, a recent report describes how the certification programme for Technical Colleges has led to closer contacts between companies and the schools involved (Olofsson 2015), a description that we also recognise from our own interviews (interview with representative IF Metall, 2015; interview with representative Teknikföretagen, 2015; interview with CEO National Association of the Technical College Scheme, 2015: interview with representative municipality, 2015; interview with representative industrial school, 2015).

Although the Technical College scheme has rapidly expanded into a nationwide VET system, our empirical data also describes challenges. Some municipalities have been unwilling to adapt to this system, or may have chosen to step back from involvement. The task of financing the requirements of the scheme is to a certain degree left to the local partners. Municipalities which have been the strongest advocates of the scheme are typically in locations with strong manufacturing traditions and the presence of manufacturing companies. Municipalities hosting large global companies, major manufacturing plants or other engineering-based activities (such as power plants) and where there is a major demand for skilled blue-collar workers, are important strongholds for the scheme (Hermelin and Edwardsson 2014; Westermark and Hermelin 2016). Furthermore, the regional college idea – with its focus on cooperation for vocational education between municipalities and industry parties – has not always been easy to combine with the voucher system for upper secondary education. For example, competition between private and public providers of education has made it difficult to co-ordinate the distribution of places for work-based learning within municipalities and regions (Swedish National Agency of Education 2013), and interviews reveal some tensions between the state and the programme. Initially, the Swedish National Agency for Education was, according to the interviewees, sceptical of the idea behind the Technical College model because it was not fully in line with the national regulation of secondary education (interview with CEO National Association of the Technical College Scheme, 2015; interview with investigator National Association of the Technical College Scheme, 2015).

4.4. Discussion

Our study has shown that the drivers behind the Technical College scheme have been stakeholder organisations for industry, with especially strong support from a number of major export-oriented companies in Sweden (and the related industry schools). Close liaison between employer associations and the major industrial unions has been critical, as well as active cross-sector collaborations on a local scale between companies, schools and municipality representatives.
As we have shown, the initiation of the Technical College scheme can be traced to several factors, one being the acute problem at the time of recruiting personnel, and on this issue, both industry and unions were in agreement. Furthermore, the process reflects changes in the balance of power and the institutional conditions for this kind of cross-sector coalition during the last few decades. The continuous decentralisation and fragmentation of the traditional Swedish model of centralised and solidaristic wage policy, and weakening of the leftist-union coalition (both through a less centralised union movement, and a politically much weaker Social Democratic Party), have increased the scope of action for the industry and encouraged new, more industry-oriented arrangements for VET. The initiative of the Technical College scheme was to a great extent a by-product of efforts, supported by the state and especially Social Democratic governments, in this new context, to withhold a central system for collective bargaining and cooperation for wage agreements in the engineer-based manufacturing industrial sectors.

Another important institutional condition has been the decentralisation and marketisation of the Swedish system for secondary education, beginning in the early 1990s. This has made the school system in Sweden more open to new initiatives (and complementary governance structures) such as the Technical College scheme, has made possible the launching of industry schools (the flagships of the scheme) which have functioned as role models and experimental arenas in the process, and has turned municipalities and regions into more important actors. Even though the scheme has primarily been an initiative by industry in coalition with unions, it is important to consider that the municipalities have also contributed in important ways, through how they have chosen to direct resources to their schools and the different programmes.

Our study also shows that the alliance between industry and the unions, which is essential for the Technical College scheme, was based on a reactivation of an alliance with strong roots in the Swedish VET system. The Industrial Council represents an organisation that has mediated feedback effects for institutional trajectories of liaisons between industry, labour unions and the state, formed through the corporatist tradition of the welfare state in Sweden. Hence, the study highlights how the characterisation of the Swedish VET system tends to neglect the historical importance, although of varying intensity, of continuous cooperation between industry and the unions, nurtured by the state. Even though the formal influence of industry in the current Swedish VET system (established around 1970) can be characterised as limited, several studies point out that the engagement of industry in these issues from a longer term perspective has been important.

We argue that the scheme can be analysed as an example of incremental institutional change. The implementation of the scheme among schools does not challenge the essence of the Swedish statist and school-based model. In fact, in some respects, the Technical College model supports and even strengthens this skill regime, for example, its concentration on publicly owned schools and that the importance of general, not only skill-specific, education, is emphasised.
However, by identifying the governance structures, organisations and practices, and the objectives and certification criteria for the Technical College scheme, it is possible to discern how this initiative for VET in the upper secondary school in Sweden brings about a kind of incremental institutional change that can be described by the concept of layering. Layering here refers to the organisational system for the Technical College scheme that has diffused into a nationwide system, which involves the commitment of schools to align with a certification scheme and monitoring by a regional committee external to the state-governed system of control and monitoring.

As shown above, our study also in part confirms some of the hypotheses about the sources and conditions related to this process of layering, which was put forward in the model by Mahoney and Thelen (2010). The layering process has evolved in an institutional system with a relatively strong institutional core, which has constrained industrial actors’ possibilities of working within the system, or achieving their strategies through major reform, and instead encouraged this layering process. However, the study also emphasises the importance of the interaction between different institutional arenas in this kind of process. The initiative of the Technical College, which has affected the Swedish VET system, was made possible by changes in the labour market sector (the establishment of new structures for wage bargaining). Furthermore, the study emphasises how the process was made possible by previous incremental institutional changes, such as the introduction of a voucher system and the decentralisation of the education system. These changes encouraged local experimentation and regional mobilisation in the process.

There are indications that the introduction of the Technical College scheme might also have more long-term consequences for the institutional structure of the Swedish VET system. Through the scheme, it can be claimed that industry has achieved influence on school politics. The criteria of the scheme specify that collaborative partners must agree to supply the necessary resources to educational organisations, and in this situation, municipalities may need to prioritise Technical College-certified education programmes, which means fewer resources allocated to other education programmes for upper secondary education. In this way, industry is indirectly guiding the priority decisions of local government, which may be perceived as a political dilemma. Another inherent tension concerns the central state’s regulation of upper secondary schools, which is partly by-passed through the governance of the Technical College scheme. Contracts signed for schools certified as Technical College programmes are in part incompatible with national state regulations, for example, considering the objective of the Technical College scheme to integrate general subjects with practical training, which involves an expansion of education programmes compared with what is required according to state regulations.
5. Conclusions

The aim of this article has been to describe and explain the establishment of the Technical College scheme in Sweden from a historical institutionalist approach. Based on this approach, the case has been analysed as a process of incremental institutional change, with a focus on initiatives and strategies by different stakeholders driving the development and implementation of the scheme, the importance of the power balances between central interests, and how the process has been shaped by institutional conditions.

Our study shows, firstly, how previously marginalised actors in a VET system can mobilise for change without radically changing the rules of the game. The process, that we characterise using the concept of layering, can be explained by changes in the power balances between key actors, but also by changed institutional conditions (such as marketisation of the education sector) that have provided windows of opportunity for new initiatives and transitions. Secondly, our study shows that the cross-sector alliance between industry and the unions, which was essential for the Technical College scheme, was based on a reactivation of an alliance with strong roots in the Swedish VET system. Hence, the study highlights how the widespread characterisation of Swedish VET tends to neglect the importance of existing cooperation between employers and the union system (see e.g. Busemeyer 2015). Finally, the study shows the importance of decentralised cooperation in the development of VET systems. It also shows that a kind of ‘herding behaviour’ among municipalities led to the spread of the college scheme. It illustrates that analyses of incremental institutional change in VET systems should not disregard the local level as a laboratory for innovation as well as diffusion processes in bringing forward policy innovations in VET systems.

By analysing the governance of the Technical College scheme, which involves both bottom-up and top-down processes, we have identified how industry has become an important partner in the management and development of VET at national and local levels. The entry of industry partners into the school sector is challenging the state-dominated VET system in Sweden. In contrast to previous top-down-oriented reforms within VET and education policy in Sweden, the coalition behind the Technical College initiative is not primarily targeting a change to the national regulation of the VET regime, but instead is aiming to introduce new practices and organisational structures.

While it is important to remember that these affect a specific selection of industry-oriented and technology-oriented VET programmes, our study also indicates that this industry initiative is endorsed by other partners of the Swedish VET system. How the organisational form and content of the Technical College model will be diffused to other specialisations of VET in the Swedish system depends, as this study has shown, on the structural conditions and the historical development of these specialisations, as well as the capability of key actors to mobilise coalitions for change.
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