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Occupational Licensing Versus Company-led Training

The Controversy over the Competence Assurance System for European Aircraft Technicians

Joachim Haas[*]

Abstract

The paper provides an analysis of the major controversy which occurred between national aviation authorities during their work on the European harmonisation of the aircraft technicians' competence. The debate focused on the institutional method to assure the high skills level required for that profession: Should Europe introduce a system of personnel licensing or a system of company-led training? Should competence assurance and monitoring, then, be assigned to the aviation authority or should these responsibilities be delegated to approved companies? A series of twenty extensive interviews with aviation stakeholders in France, Germany and the United Kingdom showed: (1) The company training option highlights the fact that "organisation" is a traditional strategy for competence assurance in high-reliability contexts (like aircraft maintenance), the other main alternatives being occupational regulation and sorting by well-informed markets. (2) The quality recognition required for the international outsourcing of safety-critical services favours the licensing system. In contrast to licensing, the design of the company training system fails to generate the transparency and trust necessary to reassure foreign customers. (3) Both systems of competence assurance are densely intertwined with specific industrial relation patterns and vested interests. The distortion of these – national or local - equilibriums by European harmonisation encounters strong opposition from the industry and/or unions.

∗ Direct all correspondence to Dr. Joachim Haas, CEREQ/LIRHE, Université Toulouse 1, Place Anatole France, F-31042 Toulouse Cedex. E-mail: jhaas@univ-tlse1.fr

Introduction

The European states' aviation authorities have achieved the impossible: They have succeeded in harmonising vocational qualifications and having them automatically recognised across Europe. These qualifications consist of training syllabuses and licences for mechanics and technicians in aircraft maintenance. After seven years of discussions and a further seven-year implementation phase, the licensing system will be introduced in Europe in October 2006. While the aviation authorities are responsible for managing and monitoring the system within their respective states, the newly established supervisory authority EASA (European Aviation Safety Agency) will take charge of these functions in Europe.

The regulations allow various different ways of achieving a licence. The path of full-time, initial vocational training requires one year's training for a mechanic and a total of two years' training for a technician. Two additional years of practical maintenance experience on operating aircraft are required to reach these licenses. We are not aware of any other standardised European qualifications below higher education level that demands such a long period of training.

The negotiators agreed on a uniform competency profile without any great disputes. The reasons why it was so easy to reach a consensus on the range, content and depth of the training are discussed in Chapter 1 of this paper.

The fact that it then took seven years to discuss and prepare the regulations was due to the large number of controversies over the institutional precautions for assuring the agreed profiles. Our article focuses on a topic of debate that continues to affect some of those involved even today. The debate turned on the question as to whether a licensing system or a company training system should be introduced to ensure the agreed competency. The result was as we have described: The licence option was chosen. This solution and the path towards it are of interest from both a sociology viewpoint and in terms of the globalisation of education. These aspects are analysed in Chapter 2.

Chapter 3 presents some of the study's conclusions. Our results support the domestic issue linkage concept of Falkner et al (2005), for example. According to this, a political project can generate unintended side-effects that come into conflict with processes in other political fields. In our case, the European qualification project interfered with essential strategies and interests in the industrial relations field, nearly failing because of the opposition triggered by this.

The data for the study was mainly gathered during 20 semi-structured interviews with experts from Germany, France and the United Kingdom [1]. When the European maintenance qualification was created in the 1990s, the interviewees were either acting as decision-makers or privileged observers. The study was financed by the French Ministry for Education.

1 Factors and supportive forces

One of the key driving forces behind the standardisation project was the companies' real need for uniform skill profiles. The project therefore did not suffer from the common lack of interest in the European authorities' educational initiatives. A factor that was particularly helpful

in realising the project was the limiting of the standardisation to a special function group with an internationally similar competence profile (certifying staff). This avoided the usual conflicts regarding the outline of the profession and training content. Furthermore, the safety regulations for the maintenance sector forced the training to be established at a homogeneously high level. This avoided disputes about the level and interpretation of the standards, which commonly occur in other projects.

Need for standard qualifications

The standardisation of qualifications for aircraft maintenance is an exceptional case in Europe. Although the states have built up an economic union, they have not built up an area of uniform or mutually recognised vocational training. According to analysts, budding efforts in this direction have failed again and again owing to a lack of demand (Bjornavold and Sellin 1997, Orzack 1983, Rolfe 2001, Severing 2005). Employees did not need it because interest in cross-border mobility is very low in general. And there was also a lack of interest on the part of the companies – the idea of reducing capital mobility costs (foreign investments) by harmonising training has not yet found any support worth mentioning.

The fact that skills and qualifications have been standardised in the area of aircraft maintenance in particular is thanks to the strongly growing need for a special – third – type of mobility: the outsourcing of safety-critical services. Since the 1980s, many national airlines have developed a strong interest in transferring maintenance tasks to third-party companies in other European countries, owing to capacity and cost reasons. However, this outsourcing has so far been massively hindered by Europe's fragmentation into national maintenance regimes. Because of its particular potential for danger, aircraft maintenance may only be carried out by organisations that are regulated and recognised by the national supervisory authority. By outsourcing maintenance tasks to other European countries, the aviation authorities of the outsourcing state were forced to approve the companies in those other countries. Acquiring this approval was expensive, complicated and long-winded for everyone involved. The maintenance companies abroad had to adopt the special national regulations of the outsourcing state. In addition, the outsourcing company and its national supervisory authority had to make regular onsite checks to ensure that the regulations were adhered to.

In light of the increasing demand for a European maintenance area, the fragmentation into national regimes was phased out in stages during a lengthy, 25-year process. An initial phase tackled the technical guidelines of aircraft construction and maintenance. This was followed by regulations for the internal organisation of maintenance operators. At the beginning of the 1990s, work finally began on the component that was still needed to achieve full mutual recognition of maintenance services – the standardisation of the maintenance personnel competency profile.

One target group: certifying staff

The negotiators quickly agreed that harmonising the competency profile of a specific, strategic subgroup would be sufficient to recognise a maintenance company as being qualified. The target group in question is the certifying staff. According to estimates, there are around 50,000 persons belonging to this group in Europe. They constitute around one third of the total maintenance personnel. The remaining two thirds are mainly technical personnel who carry out maintenance tasks under supervision.

Certifying staff are mechanics and technicians to whom the company has assigned the role of certifying the correct state of the maintained technical systems because of their competence (engines, hydraulics, radar, etc.). With their signatures,

- they certify that the aircraft or part complies with the airworthiness requirements in force,
- they certify that the aircraft or part is in a condition for safe operation,
- and they release the system for reemployment in the air service.

The certifier will be required to have the European license. Release authorisation requiring a licence for the first time in some states, the certifying staff will thus become a regulated, access-restricted occupation across Europe. The licence is portable, but the release authorisation is not; when staff change companies, the authorisation is lost and can only be issued by the new company after a familiarisation period of several months.

The naming of personnel with authority to release to service and the quality statement by signature are two institutions that apply worldwide. They reflect the fact that aircraft maintenance is rated as an area of high potential danger. Maintenance thus needs to be incorporated into a high reliability organisation (HRO) whose precautions protect company-internal and external customers from risks and disasters. The precautions of an HRO include the two institutions mentioned previously. As well as setting up a competent gatekeeper, they ensure that responsibility can be retraced and attributed to specific persons.

To fulfil their assignment, the certifying staff are often given the dual role of technical specialists and inspectors. As technical specialists, they have the exclusive right to make safety-critical interventions themselves (trouble-shooting) and to monitor routine tasks; as inspectors, they have the exclusive right to carry out the final acceptance of the system that has been maintained, in other words, to decide whether it can be used once the checks have been completed.

The previously widespread existence of this dual role in the world norm is, without doubt, a key factor in facilitating the skills standardisation. The wide distribution enabled a consensus to be reached quickly on the range of competencies. The competencies were to include both those of a technical specialist (systems, experience and skills) as well as those of an inspector (system interdependencies, quality and regulations).

A rapid agreement was also reached on the syllabus. This can be explained by the existence of established reference lists. These registers found general recognition owing to their quality and neutrality. Those that should be mentioned are the skills catalogues of the UN agency ICAO (International Civil Aviation Organization) as well as the association of US airlines ATA (Air Transport Association). The implicit textbook function of the maintenance handbooks issued by major manufacturers should also be mentioned. The manuals from Airbus, Boeing, Rockwell, Rolls-Royce etc. inform the international maintenance community of "…what good certifying staff need to know and be able to do" (quotation from the interviews).

Uniformity and level of training

A special feature of the harmonisation project was the structural obligation to establish training at a homogeneously high level. The failure rate of more than 70 percent in some countries

during the first examination years shows that the European partners have designed an extremely high standard with the common licence.

Non-standard or moderate minimum standards would have failed in the goal of creating an effective internal European market for safety-critical maintenance services. In an area with high quality demands, only homogeneously high skills standards can build up the trust required for the recognition of foreign services. The European partners had the negative example of the ICAO licence in mind. This was created in the 1950s and has been updated ever since. It was supposed to become a globally recognised basic qualification for maintenance personnel (ICAO, 1957). However, national practices are so full of variants in terms of completeness and level of ICAO training that the resolution of mutual recognition of this licence failed.

2 The controversy: Individual licence or company training system?

The inquiry on debates which eventually took place during the European works on maintenance skills revealed one overarching controversy. This dispute focused on the institutional method to assure the high skills level required: Should Europe introduce a system of personnel licensing or a system of company-led training? Should certifying staff, hence, hold a licence or a company authorisation? Should competence assurance and monitoring, then, be assigned to the aviation Authority or should these responsibilities be delegated to companies?

Company training or individual licence – this debate is by no means new in the maintenance field [2]. A historical example is the ICAO licence project mentioned. This project planned to give states the choice between a licensing system and a system of company training. The express acceptance that both systems were to be viewed as equally valid provoked controversy even back then. While such diverse countries as Australia, Finland and Venezuela expressly rejected the company training option, other countries such as Ethiopia, France and the United States had introduced this system and insisted on its recognition (ICAO, 1958).

What are the key characteristics of a licensing system and a company training system?

One factor that the two systems have in common is that the company names the certifying staff. In a licensing system, it is the state (the Civil Aviation Authority) that satisfies itself that the candidate possesses the necessary competence. In a typical case, the authorities require the candidate to attend a series of accredited training courses, offer proof of a qualified work history and pass a demanding examination. In return, a licence is issued that serves as both a proof of competence and a permit. Under a system of company training, by contrast, the competence assurance is delegated to officially accredited maintenance companies. The role of the supervisory authority is restricted to approving and making spot checks of the internal organisation at the company. Typical precautions taken to ensure competence include (a) establishing an internal quality department, (b) constant evaluation of personnel and training results using a technical and hierarchical superstructure and (c) determining and budgeting for a programme of initial and further training. The latter includes the highly selective recruitment of young graduates of technical vocational training programmes, the training of these new recruits in an internal course and testing system and the assignment of these new recruits to in-house careers with an integrated professionalisation plan (training on and off the job). A waiting list of qualified and experienced candidates is created; the company uses this to determine the certifying staff. Unlike in the licensing system, the company does not require approval to

authorise a person. A career in an accredited training system of the company is sufficient as proof of competence. There is no licence in this regime of internal training and job markets.

25 of the 27 states involved in the European project already had a national licensing system for maintenance personnel. But the systems were so divergent that cross-border recognition was not granted. In addition, the countries often had a mixed structure of licences and company training systems. The latter were conceded to major airlines as a special ruling. Only two countries decided historically on a system of company training: Belgium and France.

The controversy split the European maintenance community into two camps with France on the one side and the rest of Europe on the other. France pleaded for both systems to be given equal value and demanded a free choice of options for each country. It called on the subsidiarity principle as well as the statistically proven fact that both systems possess an equally favourable safety standard. It was clear that France would choose the option of company training. This variant was rejected by the rest of Europe. The countries demanded an exclusive licensing system. This, in turn, was subject to great opposition from France.

The following passages present an analysis of the points of view of the main actors involved. It made sense to divide the French community into trade unions and companies (management).

French trade unions

Each of France's five major trade union confederations, all represented in the maintenance sector, were very reserved when it came to the licensing idea. The strongest union in this area, the CGT, even rejected a licence strongly. The reserved behaviour of the trade unions is surprising. It goes against proclamations by the international association of transport workers' trade unions ITF. This had spoken out clearly in favour of a licensing system and against the company system. The rejection is also astonishing in view of the fact that a licensing system typically brings wage benefits with it. So why did a trade union like the CGT still reject the European licence?

The experts who were interviewed often tried to give "politically correct" answers to these questions. Our research therefore only allows us to form a supposition based on the evidence. According to this, the rejection of the licence was linked to the organisation's interest in protecting its survival and influence. One interview partner worded this interpretation as follows:

"Every time a licence was introduced, the major confederations were driven out of the occupation by craft unions."

This driving out can be seen in all fields of French aviation where a licence is required. The interests of pilots, cabin crews, navigational engineers and air traffic controllers are represented in the vast majority by small professional associations ("craft unions") and not – as in the other areas – by large encompassing confederations ("general unions"). The underlying process leading to this shift is well-known (cf. Wagner 1971): The licence creates a special group of people who have a great organisational ability owing to their particular interests and who are extremely willing to organise because of their strategic position. This situation offers political entrepreneurs favourable opportunities to organise, channel in and implement a special interest group.

The correlation between licences and craft associations is the first clue to the plausibility of the (general) union protection argument. A second clue lies in the high fragmentation of the French trade union landscape. The major confederations are trade unions that are linked to one ideology or party and that are in an ideological conflict. They are surrounded by a circle of particular interest groups. Air France, for example, currently (2006) has a total of 19 craft or special interest associations in its ranks in addition to the five large confederations.

The union protection argument is also backed up by the CGT's strategy of preventing any chance for occupation-specific policy to make its mark while the licence is being introduced. The representative of this policy, the small craft union for maintenance mechanics (SNMSAC), was not able to position its topics. By using its dominant position on the committees, the CGT stopped the issue of wage dividends for release authorisation from being put on the agenda, for example. It also made sure that not just the certifying staff, but also those on the waiting lists received a licence during the system introduction. Its (successful) resolve to regulate sanctions against licensees by law and not via company agreements is also in line with the exclusion of image building opportunities for craft unions.

An additional clue to the union protection argument is that the licensing system builds up a platform for strongly competitive alternative views in an ideological and material field. The competition becomes especially clear when looking at the remuneration for the release authorisation. In the case of the company training system, this authorisation does not bring special wages with it. General unions, such as the CGT, justify this on the basis of the principle of preventing dualisation of staff as high and low-qualified employees. According to their arguments, companies are obliged to train and further train all staff equally well. The release authorisation would thus not require any additional skills and would therefore also not permit any special rewards. The licensing system stands in sharp contrast to this. With this system, the authorisation causes a clear leap in income. This is legitimised by the constructs of "special responsibility" and "individual competence" of the certifying staff. The competitive strength of this alternative view, and thus the risk to the survival of an egalitarian-oriented trade union in a licensing system, is clearly shown by the relative remuneration position of the best-paid maintenance technician. This is the head of the complete maintenance for a Boeing 747. Under the licensing system at British Airways, he or she earns the same as an experienced head pilot for this extremely complex job. Under the system of company training at Air France, he or she earns half the salary of a young co-pilot (source: interviews).

The comparatively moderate wages under the system of company training are based on a specific arrangement of training and work organisation. To keep costs resulting from the egalitarian professionalisation of everyone within limits, the company structures the training – and thus the skills – of individuals in rather small claims. Unlike in the licensing system, maintenance personnel thus frequently specialise in just one or two aircraft components. This legitimises a moderate positioning of their wage level and leads to an overall flatter grading of wages.

Company managers and aviation authority in France

The supervisory authority and maintenance companies in France also led a tough defensive battle against the licensing system. But the central motive for this was not the cost. According to our research, the rejection of the licences was based more on the interest of preventing an (additional) disruptive group from settling in to the workflow. One interview partner explained the motive as follows:

"The licence enables air traffic to be brought to a standstill with simple measures – as is the case with pilots. The companies were afraid of this situation. This is also the reason why France never considered introducing the maintenance personnel licence that was proposed by the ICAO."

Air traffic safety regulations specify that a maintenance programme has to be carried out during each stopover. If a licence is required to carry out this intervention, a small group can hit an airline hard or even totally block it with a wildcat strike or walkout. In the system of company training, on the other hand, it is far more difficult for disruptive powers to develop, with industrial action requiring a far broader mobilisation. Unlike in the licensing system, companies have reserves that they can recruit quickly to maintain a minimum service. These include the waiting lists of qualified candidates mentioned earlier. In addition, it was also common for middle technical management to be assigned release authorisation.

In countries with a strong licensing tradition, such as the United Kingdom and Germany, the potential disruptiveness of maintenance personnel did not cause any worries. So why did it in France? The problem, implied in the quotation above, is the "gréviculture" (Eymond-Lariaz and Javault 1999) that is prevalent in France. The term refers to the widespread use of small, very sudden walkouts. This type of industrial action is generally used by strategically placed groups in the area of state or state-controlled infrastructure (transport, education, healthcare, etc.). The "gréviculture" can be illustrated using the example of Air France. As the privatisation of this flag airline drew politically nearer in 1997, there were a total of nine walkouts within the space of 12 months, carried out alternately by seven different employee groups (Autier et al. 1997, Bouaziz, 1998). The pilots' strike achieved world fame during the weeks when the football World Cup was being battled out in France. It is thus understandable why the French aviation industry managers were opposed to the licence. They wanted to prevent the already pronounced "gréviculture" from becoming stronger.

The pattern of small, sudden walkouts is preformed by a system of institutions that is very different from the industrial relations in northern Europe. Three factors that act in favour of the "gréviculture" must be highlighted at this point (cf. Andolfatto and Labbé 2006, Eymond-Lariaz and Javault 1999). These concern the legislation on strike, corporate co-determination and the securing of the trade union survival. In France, there is no law that regulates industrial action. Obligations on employers and employees to avoid conflict and to negotiate and ballots are unknown. Corporate co-determination is restricted to consultation rights; local walkouts are thus, above all, a means of expressing dissatisfaction, demanding company measures and pointing out shortcomings. After all, the French trade unions are not member organisations – they are solely associations of activists. They do not base their organisation's survival on selective services for members as the trade unions in northern Europe do – instead, they base it primarily on measures for increasing visibility in the local arena, in other words, on confrontational tactics in the company.

The rest of Europe

Outside France, a chorus of European aviation authorities, companies and trade unions developed, which spoke out for the licence and energetically against company-organised training. At heart, these stakeholders did not believe that the company system was robust enough to shield training quality in the face of economic pressures. The following quotation from our interviews illustrates this scepticism.

“If companies are given the responsibility for training, they will abuse this opportunity. The cost pressure is so strong these days that even the most respectable companies give way.”

According to Gómez-Ibáñez et al (1999, p. 544), maintenance operators are tempted to abuse the technical robustness of modern aircraft systems. The robustness significantly extends the length of time it takes for maintenance deficits to be observed. “Some carriers that take little effort… can take advantage by masquerading as high-safety carriers, and charging a premium price. The incentives to engage in this kind of behaviour are strong because the costs of crash prevention are borne in the present, whereas the effects of crashes occur at randomly defined points in the future. Even a carrier that becomes very careless may not suffer a visibly increased crash rate for several years. In the interim, the carrier can earn excess profits.”

Another example refers to the effects of business cycles. The aviation sector, and thus the maintenance area, is traditionally shaped by shifts between pronounced periods of activity and slumps. During phases when the economy is on the up, companies must quickly increase their maintenance personnel. This incites them to “cut corners” – in other words, to cut back on the length of training, thin out professionalisation programmes, lower the required level of experience, not send personnel on training courses because they are indispensable, etc. Note that these measures are not necessarily illegal. However, they do remove the skills surplus that is essential for sustained quality production in HROs. During phases when the economy is in decline, internal company training also comes under pressure. Company training budgets are more flexible than most other areas of expenditure, owing to their lower standardisation. Furthermore, they count as expenditure that is particularly high, but that does not result in any (positively measurable) profit. In the case of an economic slump, the risk therefore arises that the companies reduce their training expenditure to an inadequate level. This correlation is well-known in aviation. It is the reason why finance observatories have been established within many supervisory authorities, for example. They use these to scrutinise the financial data of the aviation companies. The information is used to consolidate the supervision of companies in difficulties, promptly and visibly for everyone.

The large majority of stakeholders outside France opted for the licence because of the instrument’s economic independence. The point of view of the international transport workers’ trade union ITF (1997) is representative of this view: “Aircraft maintenance technicians should be qualified under a state-issued licensing system with the privileges of the licence vested in the individual, not the maintenance organisation…. The absence of requirements for state-issued licensing removes one of the most effective checks against the downward pressures of commercial interests on day-to-day maintenance practices and standards.”

The strive for “immunisation” against economic opportunism can be seen throughout the new European licence framework. Take the rules guiding the centres for aircraft maintenance training. There are precautions for protecting from underinvestment: Instructors shall undergo updating training at least every two years relevant to current technology, practical skills and the latest training techniques; the maximum number of students undergoing practical training during any training course shall not exceed fifteen per supervisor. Other measures clearly tend to suppress local deviations from the agreed syllabus: Only multiple choice tests are to be used in examinations, and the test questions are taken randomly from a central European database of questions [3].

Deus ex machina

The dispute surrounding the system of competence assurance seemed to be unsolvable. Both sides persisted in their viewpoints. A majority decision was not possible because the assembly of European aviation authorities only made decisions unanimously. France was one of the major centres of aircraft maintenance so it would have been barely conceivable to exclude it from the standard. So why was the licensing system finally accepted?

The system was accepted as part of a political trade-off between the aviation authorities and the European Union. The European Union offered the aviation authorities an agency with which aviation norms could be more effectively standardised. In return, the aviation authorities (including France) conceded the licensing system, allowing the Union to achieve the first automatic cross-border recognition of educational certificates below degree level.

The aviation authorities' weak point was the way in which they were organised at European level. They had formed themselves into a type of independent club without any organisation worth mentioning. Their agreements required unanimity, and the conditions for the national implementation of norms were dependent on the good will and local power of the respective authority. The mutual checking of the implementation remained rudimentary. The result was sluggish progress, agreements being made only tentatively and standards, especially technical norms, continuing to vary noticeably. This was a disadvantage, particularly for Europe's influential aircraft manufacturers concentrated in France. They did not see why they had to build any number of variants of the same aircraft for different countries and/or to invest time and costs for duplicative certification by multiple authorities.

The European Union – or more precisely, the EU Commission – joined the situation as a deus ex machina. It offered to set up a central, well-equipped agency (EASA) to replace the club and to standardise technical norms in the construction and maintenance area more effectively. It linked this offer to the condition that a licensing system be introduced in aircraft maintenance and put under the direction of EASA. This demand can be explained by the European Commission's constant struggle to establish mutual recognition of educational qualifications in Europe. Until then, it had only succeeded in this for a series of liberal professions and after considerable difficulties. However, at vocational training level, the Commission had experienced a chain of defeats. Campaigns for the recognition or equivalency of vocational qualifications, mounted since the 1970s, failed and the European Treaty of 1992 even expressly forbade the Union from intervening in national vocational training systems. The licence issue in the maintenance area was thus a welcome opportunity to win a few points for the European diploma policy [4].

3 Conclusions

Market, licensing, and organisation

Aircraft maintenance is not entrusted to the spontaneous self-regulation of the market in any country. An intolerable learning process would be required (aircraft disasters) to sort out poor providers. The complex character of the maintenance services also prevents customers from being able to judge the quality topically, economically and clearly. How is a homogeneously high quality standard realised for the offering under these conditions? In this section, we focus

on the institutions which ensure that providers offer a homogeneously high level of competence.

Both in the political arena and social sciences, discussions primarily encompass two fundamental institutions of competence assurance (Law and Kim 2004, OECD 2000): market transparency and occupational licensing. The controversy over the European maintenance qualification leads us to recall "organisation" as a third institution that can be observed empirically.

Market transparency serves to produce reliable information about the competence of the providers and thus to increase the incentive to make adequate investments in human capital (OECD 2000). The appropriate methods of creating transparency include, in particular, networking, building up and spreading reputations, as well as public valuation by recognised rating agencies. For some authors (Friedman 1962, Stigler 1971), transparency is sufficient to generate equilibrium at a high competence level in the market. A licensing system is, from this point of view, a disruptive factor for the market and is thus suboptimum. It occurs as a consequence of weaknesses in the information flow or results from the social closure of a group for the purpose of reaping monopoly profits.

The transparency-based market solution is considered poor by other authors (Akerlof 1970, Leland 1979). They refer to the permanent, latent risk of adverse selection: The investments required to ensure competence lead to a high price level; this attracts providers that offer price discounts through lower investment; with lower prices, entry becomes unattractive to new quality providers and existing quality providers quit the market; the quality level sinks and a second class segment or low competence equilibrium arises. Homogeneously high competence equilibrium can only be established under a licensing system according to these authors, the key mechanism here being to secure the full returns to high investment. With its entry regulations, the licensing system prevents low "investment – low price" substitutes from penetrating the market. High investments in certification and, hence, skills get rewarded; entering and staying in the market thus remain attractive to quality providers.

The system of company training that prevails in the maintenance area causes us to recall a third variant of competence assurance. It is sometimes overlooked in the (academic and political) dispute between free market and regulation. The variant can be labelled "organisation" or "self-regulation" and "private government". A key characteristic of this variant is that the state delegates the competence assurance to the companies. These can group themselves together in industry associations or, as in the system of company training, operate company-internal structures under state supervision. In the latter case, the company quality department is the central agency for competence assurance. According to the regulations, it is completely independent from other departments, assigned immediately below the company director and equipped with a staff of experienced inspectors to ensure that it is effective. The internal quality framework shall include a robust feedback mechanism of audit findings to ensure, as necessary, corrective action.

The system of company training offers those involved some advantages in comparison to the licensing system. The supervisory authority has the advantage of passing on monitoring costs to the companies (testing, traceability of work histories, record keeping and release authorisation checks). And, as demonstrated, the companies have more leeway: company-specific instead of standardised skills profiles, allowances in assigning release authorisation and moderation in wage levels.

Licensing wins through

Among the three competing systems of competence assurance, the licence solution seems to be winning through in the course of European harmonisation.

No states have regarded the market transparency method as adequate since post-war times. According to our estimate, the distancing from this option is based on the coming together of several structures that prevent market transparency in the maintenance area or that render this ineffective. These structures include incubation (quality deficits only become identifiable after a long time), the identification problem (it is difficult to assign individual blame) and market sensitivity (an accident assails the market presence of the "victim" above all, i.e. the airline).

The system of company training is also on the retreat, despite the advantages in flexibility. The retreat is no longer restricted just to aircraft maintenance – it has also reached many safety-critical functions in the transport sector. There is an impressively long list of European standardisation projects where the substitution pattern found in the maintenance area is repeated: Whether it involves flight operation officers, cabin crews, air traffic controllers, train drivers or ship's officers – the company training systems are constantly being replaced by a standard licensing system.

The paper has given a political and an economic explanation for the substitution process. The political explanation refers to the political trade-off between the European Commission and the supervisory authorities. The authorities' monitoring and rule enforcement problem gives the Commission a welcome opportunity to make progress at the level of cross-border diploma recognition. The economic explanation highlights the licensing system's advantage of being relatively resistant to market pressures and opportunism.

There is another – social - explanation in addition to these two explanations. The idea starts out with a reference to a paradox. Companies that are in a national mixed structure of licences and company training systems treat the company system with suspicion – if it is located abroad. If, however, it is in a domestic company, they trust this system. France is a textbook example of a flourishing domestic market that is structured exclusively on in-house systems. In our view, the explanation for this paradox lies in the fact that foreign companies are excluded from the domestic professional "milieu"-like community of staff, competitive companies, schools and supervisory authority. This exclusion from the national milieu makes key information about the respectability of a domestic provider inaccessible. With this argument, we follow Perrow's view of the importance of the network factor in the quality control of safety-critical tasks and HRO organisations. "Simply put, the more organisations and groups are involved in protection, the less likely the cover-up. If the organisational field is rich, and thick, the cover is hard to pull over the crime… One should have the rich environment of diverse interests that makes a cover-up just too risky in the first place" (Perrow 1999, p. 153).

In the course of our investigations, we got to know the vitality of this milieu in many places. What the national authorities overlook in their audits circulates in the network as gossip. As one of the UK observers puts it, in describing the community of over 500 aircraft maintenance operators in his country:

"The world of aviation is often very small. Word gets passed around off the record and things can come and bite you even a few years down the line."

The milieus are, however, also sealed off by state, according to our observations, in spite of the internationalisation of the transport sector. Foreign companies and authorities are thus barred from the community-based control component. This exclusion, according to our theory, explains why the foreign parties involved are keen on the licence; its density of rules replaces the social density.

Domestic issue linkage

In their research into the EU social policy directives, Falkner et al (2005) found significant differences between countries' adherence to these regulations. After examining a variety of explanations for this variance, they favoured the concept of "domestic issue linkage": "We have found that national adaptation is frequently linked to other political processes at the domestic level. (…) The sheer number of cases in which issue linkage has played a role indicates that this is far from being a negligible phenomenon. (…) One fundamental lesson to be drawn from our research is that we should always be aware of the possibility that the 'downloading' process of EU policies may become intertwined with the idiosyncratic logics of domestic policy-making" (p. 313, 314).

In our study, France is an excellent example of this concept. The stiff rejection of the licence by the main French parties involved was not a result of inherent deficits in the licensing system; the qualities of the licence as a means of competence assurance were not questioned. But the project was still strongly rejected – because it (unintentionally) came into conflict with political strategies in a different field. In our case, these were strategies in the field of industrial relations. The licence – a project solely concerned with qualification policies – threatened to thwart projects of power politics. From the point of view of the major trade unions, the license weakened the association's presence and influence in a context of interorganisational rivalry. Added to this was a situational factor whereby this rivalry increased strongly during the licence debate: In 1990, 14 trade unions were operating in the Air France company. Fifteen years later, the number had increased to 24. Even the management of the aviation companies did not reject the licence because of quality reasons, but because of power-political reasons, as we described. They wanted to prevent another strategic group from gaining access to the "gréviculture" instruments. This motive was situationally strengthened by the intensification of the conflict climate which arose along with the preparations for privatising the French flag airline.

Educational policy is, without doubt, at a crossroads from which many domestic issue linkages are possible. To us, it seems to be a sensible orientation hypothesis to look for the explanation of the repeated failure of European certification comparability among the opposition resulting from this linkage.

Notes

[1] My thanks go out to Maurice Ourtau from LIRHE, Université de Toulouse 1, with whom I conducted this research.

[2] Furthermore, the in house training versus licence contrast has many things in common with the different emphasis on systems based on competence, such as NVQs in Britain, and exam and assignment-based systems which operate in other European member states. Rolfe (2001, p. 91) for example writes in her report on qualifications within the European chemicals industry: "(Respondents) widely agreed that there are no common qualification standards within the chemicals industry in Europe for jobs below degree level… It is difficult to ensure precise comparability between competence-based and assignment-based systems and there is likely to be opposition from the industry to attempts to bring either system into line with the other."

[3] The database is currently under construction.

[4] The intention behind the diploma recognition policies is that everyone should have the right to practice his/her profession in all EU/EEA countries. The issue of the diploma directive 92/51/EEC of 1992 witnesses this for vocational qualifications. The Directive covers quasi-automatic recognition of certificates (documents issued after completion of a vocational course) and attestations of competence (evidence of qualifications that does not necessarily involve formal training but can be awarded upon assessment).

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