Making qualifications fit for the future

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Making qualifications fit for the future

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Early recognition of qualification needs has been a problem for the UK for many years. Barriers include poor labour market data, long gestation times for developing qualifications and weak methods for collecting and analysing information about future qualifications needs. This contribution concentrates on the potential of a new methodology, based on scenario planning, for maintaining an up-to-date set of qualifications that can serve individuals, employers and the economy well.

Scenario planning has been used in identifying qualification needs in three transport sector industries in the UK: road haulage, motor vehicle sales and servicing, and rail passenger transport. The reactions of labour market experts in these industries to the new method are provided and also included are some pointers for future development of application of the method. Some issues have also been raised. Who should develop scenarios? When should they be used in the needs analysis process? How industry specific should they be? What is an appropriate future time projection for preparing scenarios?

Most experts reacted positively to the scenarios exercise and evidence suggests that needs analysis exercises in the industries were enhanced by the method. For example, tables were prepared which compared skills needs identified by traditional methods and those additional skills which were identified specifically by the scenarios exercise. Two key outcomes of the work were the capacity of the scenario method to combine qualitative and quantitative data and to deal with skills supply side information simultaneously with demand side data.
1. Introduction

Early recognition of qualification needs has been a problem for the UK for many years. There are barriers to building qualifications that recognise skills needed in the workplace now and in the not-too-distant future. These barriers include poor labour market data, long gestation times for developing qualifications and weak methods for collecting and analysing information about future qualifications needs. This article concentrates on the development of a new element of a needs analysis strategy called scenario planning which helps to create an up-to-date set of qualifications that serve well individuals, employers and the economy.

Major benefits (Leney and Coles, 2001) for individuals, employment and the economy can flow from a qualification system that is clear, helpful and efficient. A qualification needs analysis process is essentially a modernising process - a way of making sure that users of qualifications – and the framework of qualifications – feel confident about the content and structure of qualifications and the relationship between them. The logic then continues: if qualifications recognise the right skills, and people are inclined to achieve the qualifications, a positive effect on the career of the individual, skills supply to the economy, the economy of the sector and international competitiveness will follow.

2. How are UK qualifications developed?

The UK qualification system is based on certain well-established and well-defined qualifications. These have been developed and managed within universities and the professions and, accepting recent government activities to regulate the qualifications system, it is probably true that the UK has a qualifications system that is devolved and voluntarist. Government action has been aimed at rationalising the system; maintaining the demand of assessments and creating a recognition system for those who have poor access to qualifications, such as unemployed youth. Recently the government has been attempting to arrest the rapid decline in the use of apprenticeship as training and as a qualification.

Within the EU, the methods (Sellin, 2001) for early recognition of skills needs include:
(a) examination of job specific qualification needs,
(b) examination of individual occupations,
(c) comparative qualifications analysis (cutting across occupations),
qualification analysis at the level of society as a whole.

The UK engages in all of these methods to some degree and the nations of the UK have different agencies for some of the tasks. There is an infrastructure of organisations including the Learning and Skills Councils, The Skills for Business Partnership (which includes the Sector Skills Development Agency (SSDA) and a series of Sector Skills Councils (SSCs)) that works with specific occupational groups to ascertain skills needs. The work of these bodies is supplemented with analyses from specialist researchers in universities and other expert centres. The UK government commissions research on, for example, how occupations might change in the future.

Experts charged with carrying out reviews of qualifications are invariably asked to look to the future; the importance of developing highly skilled people to guarantee the future productivity of the UK is usually emphasised. However, the practice of producing future-oriented qualifications is highly problematic.

3. How are qualifications modernised in the UK?

There is no generic needs analysis process that is applied to all qualifications in the UK. Until recently the ‘refreshment’ of qualifications varied according to the type of qualification. Occupational qualifications have, for many years, been continuously developed to meet better the needs of users; the market for qualifications has been the main force for change. However, in the late 1980s wholesale rationalisation followed a review of occupational qualifications (Department of Education and Science and the Manpower Services Commission, 1986). This review was needed because qualifications had developed in diverse ways and the qualifications system had become very complex. Today, occupational qualifications are developed sector by sector. The Qualifications and Curriculum Authority’s (QCA) (1) accreditation programme, coupled with the establishment of an explicit national qualifications framework (NQF), has begun to set up a common system and timescale to revisions of all types of qualifications.

The system of developing occupational qualifications begins with the development of National Occupational Standards (NOS). Industry experts analysing occupations in their sector produce these industry standards. This

(1) QCA is a government agency that regulates qualifications by scrutinising them against criteria. If a qualification meets QCA’s criteria it is accredited and is admitted to the National Qualifications Framework.
is generally followed by functional analysis that defines the competence that needs to be demonstrated in each job type within the occupation; currently over 90% of the UK workforce is covered by NOS. These competences form the standards that are used to build qualifications. National Vocational Qualifications (NVQs) use them as building blocks, other vocational qualifications need to have demonstrable links with the standards if they are to be accredited by QCA and admitted to the NQF. There are currently about 700 NVQs and nearly 2000 other vocational qualifications.

4. Looking forwards not backwards

Official mention of building qualifications for the future comes in a 1995 statement from the National Council for Vocational Qualifications (NCVQ, 1995): ‘The analysis should go beyond simple reflection of existing practice. It should address and incorporate predicted future occupational needs and practices so as to permit the skills base of the UK workforce to be updated and upgraded.’

A major review carried out by NCVQ/SCOTVEC in 1996 (Beaumont, 1996) did not address the future skills issue. This is surprising since one of the characteristics of NOS is: ‘Ensure that the competence is broad enough to give flexibility in employment and be capable of adaptation to meet new and emerging occupational patterns.’

It was not until a statement from QCA (1999) that NOS were explicitly required to ‘take account of the future needs of the sector’, through:
(a) taking account of technology currently used within the sector;
(b) encouraging consideration of the sector’s anticipated needs;
(c) using innovative ways of capturing the views and needs of the sector.

However methods of achieving this were not specified.

A research report produced for QCA (Green and Hartley, 1999) concludes: ‘In order for future needs to be seen as a priority and to become embedded into the process and outcomes from the development of National Occupational Standards, QCA needs to:
• ensure that preferred tools, methods and processes are clearly identified, have been tested and shown to work, be valuable across a variety of sectors and become part of the funding criteria for the acceptance of tender documents and outcomes from standards and qualification development projects;
• develop guidance notes to accompany the tools, methods and processes;
• market the value of capturing future requirements to industry bodies,
especially in demonstrating how future needs of the sector when captured can be reflected in National Occupational Standards that people currently working in the sector can use.'

More evidence of the difficulty of identifying future qualifications needs emerged from a recent QCA-commissioned pilot study (Green and Hartley, 2000) that investigated the range of techniques used by consultants to identify qualification needs in different occupations. The results were generally disappointing for those who expected to see forward-looking analyses. Many projects only seemed to pay lip service to future-proofing qualifications. Evidence showed that a variety of techniques (see annex 1) were used to determine the competences to be included in the NOS and that there was little consistency in the use of these techniques.

The government has recognised that accurately identifying future skills and qualifications needs is fraught with methodological problems. For example, the National Skills Task Force (DfEE, 1999) (2), was asked to provide advice on such things as:
(a) the likely changes in the longer term skill needs of the economy and the extent to which these needs will be met on the basis of existing trends;
(b) how best to ensure that education and training respond effectively to needs identified.

Recent research carried out by Wilson on behalf of Cedefop (2001) states that while there has been a revival in interest in future skills forecasting, the methods used have focused on issues for employers and often do not attempt to collect quantitative data on future skill requirements. In the UK there are many agencies that collate and disseminate information about skills and qualifications needs; however, all this data gathering and processing still leaves a problem. The Skills Task Force (DfEE, 1999) extensively reviewed labour market and skills information available in the UK. It found: ‘Despite the extraordinary volume of data, there was an almost unanimous opinion from those we consulted that there was too much data overall, that what there was was inconsistent and incoherent, and that it was primarily backward looking, and of little use in helping either individuals or providers make sound judgements on future labour market opportunities and demand.’

This situation has been reported widely elsewhere. Focusing on the issue of future skills, Haskel and Holt (1999) cite the lack of consistent quantitative information about past skills patterns as a reason why accurate forecasts cannot now be made at this level.

(2) National Skills Task Force, 1999, chapter 7 ‘Informing the market – gaps in our current approach’ P87 section 7.35.
There are changes in the UK that might lead to improvements in processes for identifying future skills and qualifications needs. The UK has recently restructured the sectoral bodies that play a major role in identifying skills and qualification needs, and a new Skills for Business Network is now in place. At the same time, another relatively new organisation called the Learning and Skills Council is establishing its role (nationally and regionally) in meeting skills needs and funding training schemes to meet these needs. In 2002 the programme that generates and refreshes NOS was reviewed. In the same year the development of background or underpinning knowledge for jobs received attention. A technical certificate has been developed that covers this knowledge and can be taught off-the-job. The technical certificates have been developed by industry experts and, interestingly; some consultants report that it was easier to build future-oriented requirements into these certificates than into the National Occupational Standards.

Within the QCA, procedures are being developed for encouraging a systematic identification of the need for a qualification. Reports across a range of sectors help to provide a perspective of how qualifications serve the sector as a whole. It is in this area that the QCA has been looking closely at the potential of scenario methodology for providing the long view of qualifications needs. Scenario methodology was first developed by businesses. Its use can be traced to the early seventies in the large oil companies when they were recoiling from the shock of the doubling of the price of crude oil (Shell, 2000): the planning methods in use at the time had failed to take account of such dynamic variables. The methodology involves developing plausible scenarios for 10 or 20 years hence and testing strategies for achieving objectives in the context of these scenarios. The scenarios can be seen as a kind of lens or ‘wind tunnel’ through which to explore the potential and detail of different strategies. The methodology does not create a convergent tool that provides a best guess for a single, inevitable future. Nor does it provide a best possible strategic approach, and it is not a derivative of forecasting. It is fundamentally different from other strategic tools and is best used alongside them. The distinctiveness of scenarios lies in the way they tackle uncertainty, the richness of the data generated for discussion and the capacity to facilitate ‘out of the box’ thinking.

(3) For the latest developments in this area see Buchan and Roberts (Financial Times, 21 Jan 2002).
Several applications of scenario methodology have been reported recently. These include the United Nations (1998), the European Commission (Bertrand et al., 1999) and the Organisation for Economic Cooperation and Development (OECD, 1999). Some countries have used scenario methodology to look specifically at development of educational systems, for example New Zealand (Ministry of Education, 2001). In the UK the Future Learning Unit (2001) has developed socioeconomic scenarios for 2020 that include education and training. The QCA has completed a joint project with the Institute of Education in London looking at the future of vocational education and training in the UK; this was part of a Europe-wide project (van Wieringen et al., 2001) commissioned by Cedefop and the ETF (4).

Strategic planning based on scenario methodology is described in detail with a step-by-step guide to its application in a Cedefop publication, Scenarios Toolkit (Leney et al, forthcoming).

6. How can future scenarios help?

The QCA’s research team has been working on the use of scenario methods in qualification needs analysis for the last three years. The first application was in the financial services sector where an element of scenario planning was included in a sector-led project that aimed to produce a map of qualifications that might be needed in 10 years time by the fast changing financial services industries. This application of the method was insufficiently systematic to instil confidence in potential users of the data generated. The second application is in the transport sector and is a more substantial application of the methodology than the first. Four ‘meta scenarios’ for the transport industry in the UK in 10 years time have been produced in consultation with industry experts. Additionally more industry specific scenarios for three specific industries (rail, road haulage, motor vehicle servicing and sales) have been produced (Leney and Mackinnon, 2002).

The transport sector formed a good context for this study because:
(a) it suffers from skills shortages (e.g. in local authorities, rail middle managers);
(b) it faces new national and EU regulatory requirements;

(4) Cedefop: European Centre for the Development of Vocational Training, Thessaloniki, see: http://www.trainingvillage.gr, under ‘Scenarios and Strategies’; ETF: European Training Foundation, Turin, see: http://www.etf.eu.int
(c) it is influenced by international developments and some parts operate internationally;
(d) it has occupations that are regarded as safety critical or safety significant - thus placing considerable importance on achieving defined levels of competence;
(e) licensing is a requirement in a number of key occupations;
(f) changes in the business environment have led to high dependency on outsourced services and consequential need for means to provide assurance about consistency of competence standards.

These features make forecasting qualifications needs using traditional methods difficult and, in such circumstances, research literature suggests scenarios methods can be helpful. The methods used to build scenarios and test their effectiveness in identifying future skills needs is described in a Cedefop publication, Scenarios Toolkit (Leney et al., forthcoming).

At the same time as developing scenarios, the project team conducted an exercise of forecasting skills and qualification needs using evidence from traditional methods of skills surveys and expert consultation. The team proved clearly that the use of scenarios added a new dimension to needs analysis and provided an extension to the timeframe of normal skills needs analysis exercises. Work with transport industry experts has proven to be useful in confirming that scenarios methodology provides a useful additional perspective to that provided by traditional methods of forecasting. The work also revealed what further needs to be done to facilitate the use of the method across industries.

Experts involved in the research explained that it was normal practice to use foresight exercises to identify future skills. Uncertainties about skills needs in a sector in the medium term (three to five years) were used to inform workforce planning reports, this work either formally or informally done, with the outcomes captured within the plans but with the processes not being documented. This traditional modelling and forecasting used in the industries tended, however, to lead to a single, constant direction of change. Scenarios were able to provide feedback models and highlight a range of far-sighted ideas about the future that stakeholders could use to advantage. A labour market economist who works closely with the sector said that there was no contradiction between using labour market forecasts and developing scenarios as part of anticipating future skills and qualifications needs. He stated that: ‘The scenarios form a good complement to forecasts. Forecasting models tend to be based on the construction of patterns of behaviour, while scenarios can focus on changes in these patterns. The forecasting model tends to identify links, and describe them as much as
possible in a linear way. The scenarios are much less explicit and they may contain inconsistencies, but they can help to examine wider possibilities. You could run a forecasting model lots of times to look at different outcomes, but this would produce too much data to be useful – scenarios characterise changes in a way that is easier to understand. There are some clear outcomes that come through both methodologies, and this should produce interesting results.

Other experts commented:
‘The exercise promotes more lateral thinking before you go on to plan.’
‘A lot of the major influences can be outside the parameters that we control.’
‘The scenarios would be useful for steering groups within the industry. They would help you keep ahead of the game.’

Some issues about the development and use of the scenarios were raised.
(a) Which agencies should be involved in the development of the scenarios? Suggestions were for ‘people in a strategic role’, ‘thoughtful practitioners’, the consensus that the scenarios work called for ‘a well-informed audience’.
(b) When and how should the scenarios be developed and used to achieve optimal benefit? Several interviewees expressed the view that a scenarios exercise was ‘best undertaken at an early stage in a skills or qualifications needs analysis’.
(c) The industry specific scenarios were felt to be more appropriate and relevant – they needed to be written in simple, accessible language that clearly and concisely communicates the message to managers in the industry.
(d) Some interviewees considered that a 10-year perspective was too long and others that it was too short.

Experts considered that there is a need for published guidance to enable sector representatives and groups involved in the development of qualifications to be able compile and use scenarios effectively. They suggested the publication needs to:
(a) describe the scenarios approach;
(b) highlight how scenarios should and could be used;
(c) explain who should be responsible for the development and implementation of the scenarios, and why;
(d) outline the use of scenarios in highlighting future issues that might affect skills needs and qualification development;
(e) describe how the scenarios approach complements and supports traditional forecasting methods, indicating the differences that emerge from each and outlining how the scenarios approach can beneficially be
7. Is scenario methodology an answer?

There seem to be three main problems associated with modernisation of qualifications. The first is difficulty in obtaining unambiguous, dependable and detailed evidence of the need for change and the second is resistance or inertia to change within the stakeholder groups. A third is difficulty in managing an evolution from one qualifications model to another. How might scenario methods help with these problems?

7.1. Obtaining good quality evidence

The problem of evidence arises because forecast data gets less dependable as the period of the forecast is extended. Uncertainties grow and, consequentially, decisions are not easy to make with confidence. The production of scenarios centred on uncertainty can extend the value of forecasts and increase confidence in a limited range of outcomes. Scenarios also accommodate main areas of agreement among experts about what is likely to happen and what is not. This serves to raise the plausibility of the different futures.

In their work on transport scenarios for the UK in 2012, Leney and MacKinnon (2002) have also developed quantitative descriptions of futures to complement qualitative ones. This provides a richness of data types that offer a more secure common understanding of what each scenario means. This welding together of quantitative and qualitative data is another major strength of the scenario method.

In summary, data generated through scenario building and the testing of strategies seems to help overcome some significant data problems. However the need for good data sets describing current labour markets and work practices remains key.
7.2. Generating momentum for modernising qualifications

The process of developing scenarios requires the involvement of key experts at several stages, serves as an early warning system for change and predisposes some experts to the need to look carefully at options for modernisation. The building of scenarios has the potential to lower resistance to change among stakeholder groups because it involves these groups in early stages of the development process. However, the method goes further as a consultation and dissemination tool: the testing of new qualifications and qualifications frameworks against scenarios is proving to be a particularly powerful method for building consensus. It is the fact that the method generates models to which people can react that is important. Each scenario is a focus of attention that provides a language that stakeholders can share.

There is one aspect of scenario building work that is potentially helpful with this second problem, that is identifying the precise nature of the ‘drivers’ of specific proposals for change. There is no shortage of experts who are willing to express an opinion on how a qualification should develop, but few express opinions about how it will evolve. One reason for this might be that people worry about uncertain influences, such as technological developments. Another is the difficulty people seem to face in weighing up which influences will dominate in years to come. Some of these influences reinforce one another; others are in tension. Drivers of change do not exist in isolation. Lobby groups, public champions, legal instruments, financial backing and communication infrastructures may all be part of the driver anatomy. It is essential to consider the nature of these powerful influences on the qualification system to help experts decide which changes are likely to happen and which ones are not. Experience of the application of scenario methodology in several projects has shown that defining, as far as possible, the nature of drivers for change is an important and useful process.

7.3. Getting from here to there

The third problem is how to manage the transition from an existing qualification system to a new one. This remains difficult. It would be easy to place too much store on the consultative power of scenario method and conclude that it is likely to help with managing transitions. However experience to date shows that this is not likely to be the case. People do not easily understand scenario methodology until they have used it. It takes time to appreciate fully the strengths and weaknesses of the method and, often, managers do not have the time required.
8. Conclusions

Experience to date of using scenario methodology as a tool for identifying future qualifications needs is promising. There are signs that the method is practical, efficient and effective when used in the mainstream of methods. We need to provide practical guidance to stakeholders coming ‘cold’ to this new and challenging way of looking at the future and show them examples of how it adds value to current practices.

The issue of welding the scenarios method to other processes needs to be addressed. There is little research evidence that suggests particular combinations of methods are best suited to particular contexts. There is also a particular problem with engaging managers in the process of integrating the method into current strategic approaches.

The initiation of the QCA’s research on scenario method originated through involvement in Cedefop’s pilot work on Scenarios for VET in Europe. Already there have been three additional applications in different educational fields that have yielded useful and previously unobtainable perspectives on the future. The QCA is, therefore, grateful to Cedefop for the opportunity to research and learn in the project. It is also important that we continue to share experiences of applying the methodology in different ways that are suited to different contexts. This meeting provides an opportunity to do this and again will be pleased to receive commentary from experts from other countries.

9. References

Department for Education and Employment. Delivering skills for all: second
Green, L; Hartley, P. Developing national occupational standards. Report by
Green, L; Hartley, P. Final report on a pilot study to explore the methods used
to identify the content of National Occupational Standards. London: QCA,
2000.
Haskel, J; Holt, R. Anticipating future skill needs: can it be done? Does it
need to be done? London: DfEE, 1999. (Skills Task Force research, 1).
Available from Internet: http://www.qmw.ac.uk/~ugte153/WSiteDocs/
anticpskneeds.pdf [cited 4.2.2004].
Leney, T.; Coles, M. Analysis and synopsis of the outcomes of the scenarios
Leney, T.; Mackinnon, I. Scenarios for three transport industries. London:
QCA, 2002.
Leney, T; Coles, M; Grollman, P; Vilu, R. Scenarios toolkit. Cedefop
[forthcoming].
QCA. Developing national occupational standards for NVQs and SVQs.
Sellin, B. Antizipation von Berufs- und Qualifikationsentwicklungen =
Anticipating occupational and qualificational developments = Prévoir le
développement des professions et des qualifications. Brussels: Office for
Official Publications of the European Communities, 2001. (Cedefop
panorama). Available from Internet: http://www2.trainingvillage.gr/
download/publication/panorama/5115_deenfr.pdf [cited 4.2.2004].
United Nations, Population Division of the Department of Economic and
Social Affairs at the United Nations Secretariat. World population
Internet: http://iggi.unesco.or.kr/web/iggi_docs/05/952655858.pdf [cited
4.2.3004].
van Wieringen, F.; Sellin, B.; Schmidt, G. Uncertainties in education: handle
Wilson, R. Forecasting skills and requirements at national and company
levels. In Descy, P.; Tessaring, M. (eds). Training and learning for
competence: second report on vocational training research in Europe,
Annex 1

**Techniques used by UK consultants in identifying future qualifications needs**

(a) Workshops with experts: half or day-long structured sessions with high levels of interaction between participants and a sharp task focus throughout.

(b) Focus groups, discussion groups, working groups, sector expert groups, brainstorming sessions: shorter sessions which cover specific issues to exploratory discussion.

(c) Delphi methods: iteration of views by a structured method of engaging with experts.

(d) Questionnaires: these can vary in length, depth, openness, mode of contact with the interviewer.

(e) Interviews: taking the form of one to one interviews, small group or telephone interviews. Interviews can be heavily structured, semi structured or open.

(f) Desk research: looking at reports, statistics, recruitment data and other company documentation.

(g) Case studies: applying trend analysis to specific work groups to discover implications. This includes work place observations and HR practices.

ICT is playing a growing role in all of these methods. The lack of consistency in the way the techniques are used may signal a methodological problem in this area.