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1. TASKS

In response to a Review of Support Structures for Enterprise, Education and Skills launched by the Scottish Government, this report focuses on education and skills and considers the systems in place in 10 smaller economies which may have lessons of value for educating the current review in Scotland.

The Brief for the study requested the development of an international small, advanced economy perspective on education and skills policies and agency support structures. The broad question areas to be covered included the following:
- What are the key policies and programmes?
- How is support delivered?
- Who are the key stakeholders?

The Brief also asked for the identification of examples of best practice in relation to support agencies.

In practical terms the focus of the Review of Education and Skills in relation to functions revolves around the activities currently carried out by Skills Development Scotland (SDS) and the Scottish Funding Council (SFC).

In broad terms, SFC carries out the following functions.
- The funding of colleges and universities.
- The development and monitoring of outcomes agreements.
- Supporting research and innovation in the sectors.

Again in broad terms, SDS performs the following functions.
- Contracting and contract management in relation to modern apprenticeships (MAs). This includes taking a view on relative demand and supply issues and funding by level and framework.
- Provision of Careers Information Advice and Guidance (CIAG) intelligence and service delivery.
- A growing role in skills investment planning for sectors and regions.
- A small role in employability service commissioning and contract management.
- Supporting new product development in the areas described briefly above.

Another key element in the Brief was the requirement to align with the previously commissioned study on enterprise support structures and agencies. A starting point in this alignment was to select the same small economies already identified for the enterprise study, namely Denmark, Finland, Ireland, Israel, Netherlands, New Zealand, Norway, Singapore, Sweden and Switzerland.

2. IMPLEMENTATION OF THE STUDY

Given the short timescale and the wide geographical scope of the work the study was carried out exclusively on the basis of documentary materials. Key sources were international agencies such as OECD, EC, and CEDEFOP. Some statistical information around a small number of key indicators (e.g. productivity and employment rates, achievement rates in terms of qualifications, etc) were also collected for each of the economies – except Singapore which is not included in OECD.
The methodology carried a number of implications for the study, principally in terms of the capacity to make robust statements about a number of aspects of education and skills support systems. For example:

- There is limited discussion in the report, due to relative scarcity of the documentary material, on processes for stakeholder engagement.
- There is very little evidence on the performance of the different education and skills systems (e.g. outcomes for learners).
- There are examples of ‘best practice’ but these tend to have little by way of an independent evidence base around their effectiveness and cost effectiveness. Additionally, practice named as ‘best’ of ‘good’ really needs to be evaluated in relation to the local economic and institutional contexts. For example, it is much easier for publicly supported education and skills bodies to engage with employers where labour markets are tight and skills are in short supply.

A number of consequences flow from these limitations.

- The key findings tend to focus around the structures and functions of education and skills agencies for which there is more documentary material.
- The study supplemented the international evidence form the 10 small economies with key findings from synthesis reports prepared by international agencies focusing on a wider set of economies.
- Some ‘best practice’ case studies were drawn from the same reports published by international agencies rather than depending on examples on the government websites in the 10 selected economies.

The final element of the study involved a workshop with key officers drawn from various parts of the Scottish Government with a responsibility for education and skills support structures. The feedback from this workshop was used to refine the initial set of lessons extracted from the review of the 10 small economies.

3. EDUCATION, SKILLS, ECONOMY AND SOCIETY

A Conceptual Framework
The Scottish Government’s broad goal as set out in Scotland’s Economic Strategy is inclusive growth. In simple terms this is about achieving higher rates of growth and ensuring a more even distribution of the benefits of that growth.

To achieve a higher rate of per capita growth, we need to deliver the following at the Scottish level.

- Greater participation in employment – if more people are working growth is increased.
- Higher productivity – if each person employed becomes on average more productive growth is increased.

To the extent that both can be delivered simultaneously – and this is not necessarily easy as there may be a short run trade-off between the two – a significant growth spurt can be achieved.

To make growth more inclusive, we need progress on the following.

- More equal access to the employment that is available.
- Less inequality in earnings from employment.

Again, to the extent that both of these beneficial outcomes can be achieved over a reasonable period of time the faster and more deep seated will be the increase in inclusion.
In theory, education and skills can contribute to:

- Increasing productivity. However, there are many other - probably much bigger – influences on productivity. These include capital investment, and innovation and new technologies.
- Increasing employability. However, again there are many factors involved here beyond the education and skills dimensions, including health, basic education at school levels, etc.
- Improving access to higher earning opportunities. Education and skills are clearly highly correlated with different levels of earnings, but other factors intervene such as health, criminal background and other disadvantages, but also gender, ethnicity, etc.

Constraining all of the above is the influence of the demand side on the volume and type of jobs generated in the economy. We have seen during the recession, for example, a significant drop in the number of job opportunities (although this situation has been reversed to a significant extent), but also a significant shift in the type of job opportunities with the growth of zero hours and part-time employment, as well as temporary employment and self-employment. These trends can act against the contribution of improved education and skills to inclusive growth. Two further points need to be made.

- In the long run, higher education and skill levels may influence these demand trends. For example, a highly skilled workforce may help attract and retain more effectively foreign direct investment.
- In the short run, however, there is a danger of the supply of higher level skills running ahead of skilled employment opportunities. At the regional level, when migration to other regions is relatively straightforward, this will tend to generate out-migration.

Higher education in particular can also help drive growth and productivity to the extent that the research carried out in the sector can help stimulate innovation. This may involve the development of new products and processes which can be embedded within the existing economic structure of businesses and industries, but it can also help develop new businesses and industries. The contribution here is principally on the demand side of the labour market by influencing the volume and character of jobs on offer – and in turn this creates a demand for, in the main, higher levels of skill and different types of skill to support the human resource needs of enhanced and new businesses and industries.

**Some Evidence on Comparative Performance**

In 2004 TERU carried out a study for Futureskills Scotland which compared Scotland with OECD economies, as well as EU and UK regions. In relation to the comparison with member countries of OECD, divided into 4 league tables, the key findings were that Scotland was:

- Around the bottom of Division 2 for GDP per capita and productivity.
- Well established in Division 1 on skills indicators, mainly qualifications based.

A presentation by Scotland’s Chief Economist in July 2016 shows that Scotland is:

- Roughly in the same place on GDP and productivity indicators – but also around the bottom of Division 2 on earnings inequality.
- Well up Division 1 on skills (proxied by qualifications) indicators, and top of the league in terms of percentages with tertiary sector qualifications.
There are 2 interesting observations on these findings.

- There seems to be a significant gap in comparative performance between where Scotland stands on skills and qualifications versus growth in productivity, and also earnings and equality.
- There seems to have been little change over time in this pattern, although the earlier analysis did not consider earnings inequality.

An understanding of the factors behind the apparent contradiction between these international rankings would help to educate the Review process. Additionally, why is it that Scotland’s significant growth in investment in education and training over the last decade or so and its rise up the international qualifications hierarchy has not led to an improvement at least in international rankings on growth and productivity.

- Are we providing skills (qualifications) to too many people relative to demand, leading to extensive graduate under-employment, for example?
- Are we providing the wrong types of skills in terms of level and specificity?
- Or what else is going on?

The long term picture across the developed economies shows a substantial rise in qualification volumes. This has been going on for many decades in most developed economies. The literature on the economics of credentialism is interesting.

- The more people that join the labour market with qualifications, the more qualification levels set by employers for specific jobs tend to inflate.
- Associated with the above, there is no necessary corresponding increase in productivity. It may actually have the reverse effects with higher qualified people expecting better quality and more financially rewarding jobs, but suffering demotivation when they fail to achieve this.

From the point of view of reviewing the government’s investment strategy in relation to education and skills, it would be really good to know the rate of return to the individual, the economy and society of different large blocks of education and skills expenditure. This would include rates of return between:

- Pre-school, primary and secondary education.
- College, university and work-based leaning.
- School and post-school learning more generally.

We do not have this information. It would be a remarkable coincidence if the rates of return were similar never mind equal. If the rates of return are significantly different then reallocating budget from low return to high return investment areas could make a very significant impact upon inclusive growth.

Although enterprise is beyond the brief for this study it would also be good to know the rates of return on major enterprise and economic development investments, distinguishing between, for example:

- Infrastructure investment.
- Support for business starts.
- Support for business growth.
- Internationalisation.

Finally, all of these major blocks of investment could be looked on the one page to inform the government about the relative returns on:

- Education and skills …
- … versus enterprise and economic development.

In all of this it needs to be noted that the wider economic circumstances are likely to impact on the rates of return at any particular point in time. For example, arguably in a recession more resource should go to enterprise and economic development to
slow the decline in employment, but typically education and skills investment rise in a recession largely because it is easier for governments to ‘turn the tap on’ to expand funding in these areas.

4. FINDINGS FROM SYNTHESIS REPORTS

As a preface to reviewing the evidence from the 10 small economies, a scanning exercise was carried out focusing on recent synthesis reports on education and skills issues from OECD, EC and other international bodies. These reports build on experiences across a range of economies, exploring cross cutting issues and often identifying good practice.

Below a number of key findings are summarised.

- Policies to increase the skills of the low skilled are critically important for promoting regional growth, and appear to have greater impact than expanding higher education (OECD 2012). This featured as one of the top 10 findings from this report which has been highly influential in regional economic development terms. It raises the question - how much does Scotland invest in this?
- Providing more people with high levels of skills and qualifications only drives up productivity if the skills are effectively utilised by employers (OECD 2014a). This is the skills underutilisation agenda which featured strongly in skills discussion in Scotland a few years back but seems to have dropped off the radar. The challenge here is how can public policy influence employer practices? For example, the UK CES co-investment experiments (Employer Investment Fund and Growth and Innovation Fund) which aimed to, amongst other things, improve employer deployment of skills found very limited impacts, particularly in relation to proficiency of staff, productivity and profitability where no impact could be detected (UK CES 2016).
- Recent OECD work (OECD 2015) appears to demonstrate that skills inequality impacts upon earnings inequality. This raises a potentially big set of issues, largely unexplored in Scotland and the UK. For example, how well distributed are our skills investments across different segments of the population? On the average, for example, how much public money do we invest in a graduate of a university versus a college graduate versus an apprentice versus a young person leaving school with no qualifications and not entering any of these routes to skills development?
- For post-school vocational education and training (VET) in particular, engaging with social partners, principally employers, is key to designing appropriate and delivering effective skills (OECD 2014b).
- There seemed to be few good examples of effective systems for assessing current and anticipating future skill needs. However, Canada has a strong reputation in this area (OECD 2016). Key elements of the Canadian system include:
  - A strong focus on the current position as well as medium term forecasts.
  - Applying labour market and skills intelligence to range of policy goals and services (skills, CIAG, educational curricula, employment policy, meeting employer needs).
  - Securing stakeholder buy-in to the design, implementation, interpretation and dissemination of key messages to help inform the education and skills systems.
- Again for VET in particular, there is a significant value in clear pathways for learners which lead to higher levels of skills and qualifications – but this also
needs more effective CIAG to help learners select the pathways appropriate for them (OECD 2014b).

- There is very little evidence on effective mechanisms for managing the performance of education and skills agencies and delivery bodies. For higher education, some interesting developments in Netherlands and Ireland (EC 2014) have been identified.

### 5. SKILLS AND ECONOMIC INDICATORS FOR CASE STUDY ECONOMIES

The study was not set up to conduct quantitative analysis across the 10 comparator economies. However, a brief review of relevant the data was carried out, although Singapore was not included as this country is not a member of OECD. Some key findings from this review are highlighted below.

- In relation to GDP per capita, Israel and New Zealand sit below Scottish levels.
- Finland, an economy whose education and skills systems are often put forward in a favourable light from which Scotland could learn lessons, is no better than Scotland on GDP per capita, only marginally better on productivity, but marginally poorer on employment rates.
- The other 7 case study economies significantly out-perform Scotland (and the UK) on GDP, productivity and employment rates – but this might well be down to many factors other than or in addition to the effectiveness of their education and skills systems.
- Netherlands operate with a lower investment in tertiary education, but with more post school vocational education, and are as successful as the other comparator economies who focus more on tertiary education. Austria displays the same pattern although it was not one of the 10 small economies selected for review. These examples show that two quite different approaches to education and skills investment can generate very similar economic outcomes.

There is potentially significant value in this type of analysis but due to the orientation of the study and the timescale for the work it was not possible to deliver a more detailed approach.

### 6. FINDINGS FROM CASE STUDY ECONOMIES

#### General Approach

The general approach to scanning education and skills approaches in the 10 comparator economies was as follows.

- A set of detailed questions was put together addressing the main issues raised in the Brief for the study.
- These questions were converted into a template which was completed on the basis of an intensive scan of documentary materials for each of the 10 countries.
- Drawing on the detailed information in the template 10 country summaries based on key findings on key issues were generated – and these appear at Appendix 1.

The key findings are discussed below under a series of headings.

#### Education and Skills Policies

The picture is mixed, with no clear pattern emerging.

- There are a number of countries with no clear education and skills policies (Denmark, Israel, and Norway). Netherlands is currently undertaking a major review with a strategy due in 2017.
Ireland has introduced a new skills strategy in 2016. The main elements are as follows.
- A strong focus on research and forecasting through the new National Skills Council.
- Regional Skills Fora to enhance the effectiveness of employer engagement.
- A stronger focus on vocational and work based learning.
- A review to be undertaken of CIAG services.

In New Zealand, the strategy covers all tertiary activity, including vocational training.
- There is a strong focus on quality enhancement and improved outcomes to boost productivity.
- A key objective is to reduce spatial and ethnic disparities in attainment.

Although Norway has no strategy or specific skills policy document, a lot is going on, including:
- A major review of post school education and skills, because there is a concern that high funding levels are not producing quality provision, possibly because of the diverse and complicated system.
- Reforms such as the merger of HE institutions, and increased performance-related funding.
- Reform of the colleges with a focus on increasing quality and an enhanced employer input.

Singapore has a skills policy and Sectoral Manpower Development plans.
- There is a strong policy focus on encouraging lifelong learning and increasing productivity.
- A key element is developing a highly responsive and high quality skills system.

Sweden has no skills policy, but available government documentation highlights the importance of:
- High quality provision.
- Stronger employer and workplace linkages.
- Equality of opportunity for young people.

Switzerland has no skills policy in the formal sense, but publishes every 4 years a detailed Swiss Education Report, which is used to guide the development of education and skills policy.

Governments and Agencies
There is great diversity across the case study economies in the role of governments and agencies in education and skills.
- Most have a single ministry with overarching responsibility for FE, HE and WBL, with the exception of Denmark, Israel, and Singapore.
- Most have agencies responsible for the funding and/or management of the organisations delivering FE, HE and WBL, with the exception of Finland (which has no HE agency) and Netherlands.
- There is a mix of practice in terms of whether a single agency handles FE, HE and WBL, or whether this involves a mix of agencies.
- None of the economies seems to have a single agency covering economic development, FE, HE and WBL – although Singapore has just set up a Council for Skills, Innovation and Productivity (involving a range of stakeholders) to maximise intervention synergy.

In Scotland, CIAG sits in SDS, the national skills agency. Again the position on how this is handled in the 10 economies is very mixed.
- In New Zealand, CIAG is organised through a national agency – Careers New Zealand.
In Netherlands, private providers have a significant role in delivery under the oversight of Regional Education and Training Centres.

In Norway and Singapore, CIAG sits within national agencies with wider remits – for lifelong learning in the case of Norway and workforce development for Singapore.

In the Swiss system, CIAG also sits inside of a national agency but where the cantons are responsible for ensuring effective delivery.

Finally in a number of countries, including Sweden, delivery is through the education system and the public employment service.

Approaches to Funding
There is again a great diversity of approaches.

Most countries fund directly through government departments or ministries. In some countries (Finland, Netherlands and Singapore) only one department or ministry is involved for FE, HE and WBL.

In a smaller number of countries (Ireland and New Zealand) funding is in the hands of relevant agencies.

Unfortunately there is no rationale in documentary materials for the choice of funding approach in terms of agencies versus ministries. Additionally, there are no evaluations of the effectiveness of these 2 different approaches to funding.

Typically funding is centralised. However:

- Funding for colleges in Ireland is run through regional boards. Additionally, Switzerland has a long tradition of decentralised funding, and the management of that funding, through cantons.
- In some of the countries (Finland, Norway, Sweden and Switzerland) municipalities are co-funders. This is principally the case in relation to vocational training and work-based learning, and possibly reflects the perception of a need for this provision to tie more closely to employer and local labour market requirements.

Again no evidence could be found on the relative effectiveness of centralised versus devolved funding.

Across the 10 economies, funding seems to be based largely on activity levels and volumes, and in a number of countries is quite long term with a high degree of delivery autonomy for universities and colleges. The move towards an element of funding by outcomes in Netherlands and Ireland was, however, noted earlier in this report.

Innovation and Knowledge Exchange Funding
Diversity of approaches is again the main message.

- Commissions or Councils for Innovation and Technology funded by government are relatively common. Sweden’s Vinnova is a famous longstanding example. Switzerland’s Commission for Innovation and Technology supports knowledge exchange and commercialisation, as well as start-up support.
- New Zealand is an example where this type of funding comes directly from central government.
- Enterprise Ireland is an example of a situation where the national enterprise agency is charged with funding a number of key aspects of innovation and knowledge exchange, including commercialisation, technology transfer and university/industry collaboration.
- Singapore’s National Framework for Innovation and Enterprise is a national programme administered jointly by the National Research Foundation and
the Prime Minister’s office. The focus is on a range of well-established mechanisms such as proof of concept grants, technology incubation schemes, and additionally an Innovation Cluster Programme to build innovation capacity and bring ideas quickly to market.

**Stakeholder Engagement**

It is very hard to establish from documentary evidence the nature and effectiveness of stakeholder engagement, in relation to the design and delivery of education and training, in the different countries.

- In a small number of countries, including Denmark, key organisations such as universities are self-governing with boards which include key stakeholders. This is similar to the Scottish model for colleges.
- In most countries, the planning and/or service delivery for vocational training involves a major employer input, typically at the national level but with some regionalised approaches in some countries – such as the Knowledge Centres in Netherlands, and Regional Fora in Ireland.
- In some countries (Ireland and Sweden) these inputs are fed through Expert Groups where employers are strongly represented.
- Tripartite approaches involving government, education and industry are important in Netherlands and Singapore.
- New Zealand has a traditional Industry Training Organisation (ITO) approach involving employers around standards, qualification development, etc.
- There is limited evidence across the 10 economies of significant employer engagement on the part of the HE sector.

**Managing Performance**

The documentary evidence suggests a high level of autonomy for institutions, such as universities and colleges, across the 10 comparator economies. However, there is significant variation within this.

- There is a trend in some countries towards the use of performance agreements set between funder and institution, with Ireland and Netherlands including a ‘payment by results’ element – and outputs and outcomes are part of agreements in most instances.
- Switzerland produces national reports every 4 years, but these are used more to drive the policy revision process than to manage organisational performance.
- Sweden, on the other hand, is focusing more on quality assurance around learning outcomes rather than student destinations.
- Singapore appears to exercise influence on performance by putting government officials on boards.
- New Zealand has powers around board membership, and the system looks similar to Scotland’s. However, New Zealand is now making greater use of performance data, and the Tertiary Education Commission and NZQA are becoming more active by intervening where there are concerns about specific institutions. The government in New Zealand has significant leverage on its universities because government funding is a high proportion of their total income.

**Evaluation Evidence on Systems Effectiveness**

There is very limited evaluation material on the effectiveness of the FE, HE and WBL systems for the comparator economies.

- OECD have been working with Norway. They are essentially reporting on systems failure, and are working to help reform system. The key OECD recommendation is for a whole government approach to skills with better horizontal coordination.
Evaluation work in New Zealand has evidenced an increased focus over time on effective outcomes rather than student demand as the driver of system curricula – but funding is not outcomes focussed, and evaluations note that high tertiary qualification levels do not necessarily produce high productivity.

The Netherlands system evaluates well on joint working with stakeholders, clear and simple structures, flexibility to change in response to economic change and new policy directions.

Evaluations for Singapore highlight the strategic approach to workforce development, involving big changes in priorities at different stages of the economy's development. Also incentives have been offered to foreign investors to co-invest with government in training.

OECD describes Sweden’s Higher Vocational Education as innovative and flexible, with strong employer involvement in the workplace training component.

Switzerland evaluates well in relation to:
- The big role given to employers in system design and delivery, making education and vocational training highly responsive to labour market needs.
- Good pathways from vocational training to higher professional education, and into HE which makes it more likely employers get the specialist skills they require.

**Significant Recent Changes**

In most of the countries there have been significant changes in the education and skill system in recent years, for practical purposes from 2013 onwards. There are some common directions of travel.

- An increased emphasis on vocational skilling can be seen in a number of the countries (Denmark, Finland, Ireland and Singapore). For some this has meant a growth in apprenticeships (Ireland and Norway, for example). In others it is generally about raising the profile and improving the effectiveness of vocational pathways (Denmark and Finland), including stronger links to the tertiary sector.
- In some of the countries there have been institutional changes to strengthen the arrangements for vocational training by, for example, bringing colleges and work based learning under the one agency (Ireland) and creating a strategic board for vocational education and training (an OECD recommendation for Israel).
- Building institutional capacity through mergers, for example regional colleges in Norway.
- Placing an increased emphasis on work based learning and more generally skills which play directly into productivity (Singapore).

**Emerging Challenges**

A number of emerging challenges were identified.

- In some education and skills systems (New Zealand and Sweden) there are concerns that high levels of tertiary qualifications are not reflected in economic growth and productivity.
- It is common to find challenges around the level of employer engagement in the design and delivery of education and skills services. This is seen as an important issue in Finland, Netherlands, New Zealand, Norway and Sweden.
- There are issues with vocational education and training – around its status (Denmark and Switzerland), and the inability to fill apprenticeship places due to declining numbers of young people and a very tight labour market (Switzerland).
• Problems are also noted in relation to the lack of integration across the educational and vocational skills systems in Denmark and Norway.
• Challenging governance issues are raised in New Zealand where there is concern that higher education is not producing enough by way of growth and productivity outcomes. Although the universities are highly autonomous, government is the major funder and is able to place individuals on university boards of management.

7. CONCLUSIONS

This study has involved a documentary analysis of educational and skill issues in 10 smaller economies. Some key indicators have been scanned for the 10 comparator economies but no in-depth data analysis has been carried out. Additionally, a review of international reports synthesising the performance of education and skills systems has been carried out to establish some key findings. Some examples of potential good practice have also been identified and are provided at Appendix 2. They are described as ‘potential’ as there is no independent evidence to validate these as good practice. On the basis of the above, the following broad conclusions can be drawn.

1 An overarching conclusion is that there is virtually no current and systematic evaluation evidence on the effectiveness of education and skills systems in the 10 countries selected for study, and indeed this is also the case for Scotland. This means it is difficult to say that a particular configuration of agencies dealing with education and skills issues is more effective than alternatives. Also we are unable to say whether greater control through government departments is inferior or superior in relation to governments devolving management authority to freestanding agencies.

2 In addition to the above, for the 10 economies there appear to be no robust and recent estimates for rates of return to individuals, the economy, and society more generally for public expenditure committed to further education versus higher education versus work based learning. This is also the case for Scotland.

3 We could find no systematic and recent evaluations of key processes which underpin the effectiveness of the education and skills systems in the 10 economies, or indeed in Scotland. This includes processes such as CIAG, labour market intelligence, employer engagement, and performance measurement and management systems.

4 The statistical data on GDP rates and productivity suggest that Scotland already out-performs Israel and New Zealand quite significantly. Additionally, there is very little difference between Finland and Scotland on GDP per capita, employment rates and productivity. This suggests that these are not the best places to look for lessons on the effectiveness of education and skills systems.

5 The other economies reviewed as part of the study do appear to be more successful in terms of aggregate economic indicators. However, in relation to FE, HE and WBL, it is easier to identify the variations across economies than the similarities. They vary in terms of:
• The relative prioritisation of resource for FE, HE and WBL.
• The mix of direct governmental and external agency funding and management of FE, HE and WBL.
As noted above, there is no serious evidence that indicates whether one approach works better than others in terms of converting education and skills investment into economy productivity and performance – both in terms of growth and inclusion.

6 Additionally, a number of the trends of the Scottish education and skills system are evident in some of the comparator economies, such as:
   - Growing importance given to work based learning, particularly apprenticeships, over recent years.
   - A greater emphasis on measuring, and to some extent funding, in relation to outcomes achieved.
   - A growing awareness of the need to involve employers much more in the design and delivery of particularly vocational training, but with no clear sense of how best to do this effectively.

7 Arguably, many of the weaknesses in other countries can also be found in Scotland, such as no or low level systems for assessing current and prospective skill needs in a sufficiently detailed way to inform education and skills investment.

8 A number of interesting conclusions of international reviews carried out by OECD are worth highlighting in the Conclusions as they raise important issues for Scotland, and other similar economies.
   - An emphasis on increasing the skills of the low skilled appears to be critically important for promoting regional growth, with a higher impact than expanding higher education. There seems to be little appreciation of this in the skills policies of the 10 comparator economies.
   - Driving up skill levels and qualifications feeds through into productivity gains only where the skills are subsequently fully utilised by employers. There is little evidence among the 10 comparator economies of effective measures to tackle skills under-utilisation.
   - Inequality in the distribution of skills across the working age population is one of the factors which is associated with earnings inequality. There seems to be no appreciation of this relationship in the analysis of the documentation for the 10 comparator economies, and it is not an issue which has much salience within Scotland.

9 Finally, to underline the need for change, it is important to recall the evidence noted earlier that although Scotland has over the last 10 years improved its international ranking on qualifications measures (and indeed in terms of a four league set up is top of League 1 on tertiary qualifications) there has been no improvement in our ranking on growth and productivity rates where we are still at the bottom of League 2/top of League 3. This is also our ranking in relation to earnings inequality. Whatever we have been doing on education and skills has not had the desired impact, although of course there are many other influences on these indicators, and additionally skills investments take time to come to fruition.

8. RECOMMENDATIONS FOR SCOTLAND

1 The evidence suggests that 7 of the 10 comparator economies achieve good economic outcomes, but with very different institutional arrangements. It is, therefore, difficult to make clear recommendations as to the arrangement of our agencies and interventions, and the relative roles of government and its agencies.

2 A first step might be the identification of the improvements necessary in the fundamental processes that need to work effectively, irrespective of the number
and type of agencies and their relationships with government. Introducing these
process improvements will raise issues about the appropriate function of our
education and skills systems and enable the identification of further required change.

3 Separately, we recommend that a start needs to be made on the following two
processes.
- The development of a new system to estimate rates of return at the
  Scottish level on public investment in FE, HE and WBL. Making more, well
  informed decisions on the appropriate allocation of resources across these
  large budget headings is almost certain to impact much more significantly on
  economy-wide outcomes than changes to institutional structures.
- Significantly enhance Scottish LMI, with a strong focus on current and
  prospective shortages and skill needs, in order to underpin education and
  skills investment planning. One organisation, either within government or in
  an existing agency, should be tasked with developing this.

4 Because of the lack of evaluation evidence it is dangerous to be prescriptive
about the potential effectiveness of approaches in comparator economies but, in
terms of programme design, the Singapore model to promote a more effective
approach to lifelong learning (see case study 10) is attractive as arguably
Scotland’s efforts in this area are piecemeal. This could be tied into a more concerted
attempt to raise the skills and productivity of low skilled low earners. This
recommendation could be more focussed if there were systematic evaluation
evidence on the Scottish approach to lifelong learning, but this does not exist.

5 In relation to commercialising and embedding the product and process
innovations emerging primarily from higher education, the Singapore model (see
case study 11) appears to have positive elements – principally the fact that it involves
an agency, and government through the Prime Minister’s office. This signals the
importance of the initiative. Possibly all of the individual elements in one form or
another exist in the Scottish context but it is not clear they are managed centrally.
Again, this recommendation would be stronger if robust and comprehensive
evaluation evidence were available on the effectiveness of what we currently do in
Scotland in this area of activity.

6 In light of some of the key findings from OECD synthesis reports, and the
apparent lack of attention to the issues raised in the comparator economies and in
Scotland:
- Some practical and effective proposals need to be developed around
  investing more and more effectively in upskilling those who are currently
  employed in low skilled and low earning positions.
- Some concrete actions are required around tackling the under-utilisation
  of skills across Scotland. There has been a great deal of discussion in this
  area and some pilots in the college sector but it is far from clear what
  progress has been achieved.
- The relationship between inequality in skills and inequality in earnings
  needs to be reviewed for Scotland. An interesting starting point would be to
  consider how much public investment per learner goes into a modern
  apprentice versus a college graduate versus a university graduate – versus a
  school leave not gaining from these opportunities. Additionally, of course, we
  need to know the rates of return on these different investments, as noted at
  Recommendation 2 above.

7 There should be a process of ongoing monitoring of how Scotland compares
with comparator economies in terms of the effectiveness of its investments in and
approaches to education and skills. A small number of comparable economies should be selected for benchmarking purposes, drawing on the longer list involved in this study. There would be considerable value in adding Austria to the potential list as it follows the dual system with a strong emphasis on apprenticeship training, and is essentially a smaller country application of the highly effective German model.

**REFERENCES**


UK CES (2016). Employer Investment Fund (EIF) and Growth and Innovation Fund (GIF) Programme Level Evaluation.
APPENDIX 1: COUNTRY SUMMARIES

DENMARK

Policies
- Denmark does not appear to have a skills policy/strategy in place.

Government
- There are two government departments that oversee education and skills:
  - The Ministry for Children, Education and Gender Equality is responsible for education up to the upper-secondary level, as well as adult education and continuing learning.
  - The Ministry of Higher Education and Sciences is responsible for higher education.

Agencies
- There are two agencies under the Ministry for Children, Education and Gender Equality. In both cases, their remit is for education up to the upper-secondary level, as well as adult education and continuing learning.
  - The National Agency for Quality and Supervision. They are responsible for:
    - Allocating funding and undertaking financial supervision of institutions.
    - Ensuring the quality of provision and regulatory compliance. Inspections form a key part of this function.
    - Development of courses and qualifications.
  - The National Agency for IT and Learning works with educational institutions to help them make effective use of technology and digitalisation. They regulate the IT administrative systems that manage the progression of young people onto upper secondary school and higher education.
- The Danish Agency for Higher Education is an agency of the Ministry of Higher Education and Sciences and is responsible for the development, management and administration of higher education.

Other agencies:
- All educational institutions at upper-secondary and above level are self-governing. This gives them a high degree of flexibility in tailoring provision to meet local needs.
  - Colleges deliver the theoretical aspects of vocational education and training programmes (and come under the supervision of the National Agency for Quality and Supervision). A range of different types of institutions are in place including business colleges, technical colleges, combined colleges, agricultural colleges, basic healthcare colleges and specialist institutions. Over the last 10 years there has been a significant consolidation of the number of institutions offering vocational education and training options – but a key principle has been to maintain local provision even where institutions have been merged into larger units.
  - Higher education is offered by five types of institutions (all of which come under the supervision of the Danish Agency for Higher Education):
    - Business academies offer professionally oriented Bachelor’s level degree programmes and short courses.
University Colleges offer professionally oriented Bachelor’s degree programmes.

Maritime Education and Training Institutions offer professionally oriented Bachelors degree programmes and short courses.

General and specialised research universities (Universitet) offer Bachelors, Masters and PhD degree programmes in academic disciplines.

University level institutions offering first Bachelors, Masters and PhD degree programmes in subject fields such as architecture, design, music, and fine and performing arts. Unlike other institutions, these are regulated by the Ministry of Culture.

- Economic development and enterprise issues are the responsibility of the Ministry of Business and Growth.
  - There are 7 agencies under the Ministry – with the Danish Business Authority tasked “to create the best conditions for growth in Europe” and to “… make it easy and attractive to run a business in Denmark.” Whilst much of their focus is on reducing government burden on businesses and creating a competitive environment, they also provide support around entrepreneurship, innovation and internationalisation.
  - There are no clear linkages or connections between the skills and economic development activities.

**Stakeholder Engagement in Service Design and Delivery**

- All institutions at the upper-secondary and above level are self-governing (including universities) and local and regional partners are commonly involved at the board-level for individual institutions.
- In addition, social partners are also involved in the design and delivery of VET programmes.
- In relation to careers information, advice and guidance, a National Dialogue Forum on Guidance has been established to encourage dialogue between the Minister and relevant organisation (including institutions delivering CIAG, guidance counsellor associations, end users and others).

**Funding of HE, FE and Work-Based Learning**

- Funding for skills is allocated by the Ministry for Children, Education and Gender Equalities (specifically in relation to vocational education) and by the Danish Agency for Higher Education (in relation to universities) through the taximeter system.
  - Funding is distributed to individual educational institutions based on levels of activity (e.g. number of students) and the rates for those activities (known as the taximeter rates).
  - The taximeter rates are established in the annual Appropriations Acts.
  - The funds are allocated as a block grant – which the institutions can use as they see fit within the frameworks and rules in place.
  - Funding for an institution increases if student numbers increase. This provides flexibility in institutional structures (with mergers/splits possible).
  - The taximeter system is supplemented by basic grants, targeted research and development funds and multi-year agreement models to ensure financial management is flexible enough to meet political, administrative and institutional needs.
- Taximeter management was established to:
- Ensure financial management is aligned with achieving results and delivering improvements.
- Ensure funds are effectively transferred from programmes that are declining to those that are growing – without the need for negotiations or administrative redistributions.
- Prevent increases in unit costs or declines in financial management standards in cases where activity levels are falling.

**Funding Long-Term HE Innovation**

- **Innovation Fund Denmark** invests in projects that have the potential to create growth and employment in Denmark. One of its three main strands is ‘Grand Solutions’ which funds substantial investments and long-term projects in research, technology, development and commercialisation. Funding is not restricted to universities. Current priority themes include energy, future welfare, foods and resource-efficient biological production, environmental technology, psychiatry, strategic growth technologies, health and clinical research, transport and infrastructure and tourism.

- The Ministry of Higher Education and Science funds 22 **Innovation Networks** which offer companies access to the latest research and innovation trends within their field. Innovation Networks can:
  - Help develop ideas into new competitive products or services.
  - Provide inputs and advice for solving problems with product development and innovation.
  - Provide access to a comprehensive network of researchers from universities, technological service providers as well as other private companies.
  - Provide overview of and contact to the public research and innovation promotion system.
  - Provide specific professional resources so relieving companies of the burden to invest in manpower or the latest technological knowledge themselves.
  - Be a stepping stone for an internationalisation of companies.

- The **Danish Council for Research and Innovation Policy** (DFiR) provides independent and expert advice to the Ministry of Higher Education and Science on research, technological development and innovation.

**Regionalisation of Funding**

- There does not appear to be any regionalisation of funding – with funding allocated by the Ministry for Children, Education and Gender Equality and the Danish Agency for Higher Education through the taximeter mechanism.

**CIAG Services**

- The Ministry for Children, Education and Gender Equality and the Ministry of Higher Education and Sciences are jointly responsible for careers information, advice and guidance (CIAG). There are 4 different CIAG services in place – each serving slightly different cohorts:
  - **Youth Guidance Centres** support young people as they make the transition at the end of lower secondary education (age 16). They also support those that drop-out from upper secondary and vocational education.
  - **Regional Guidance Centres** support young people moving into higher education.
  - **eGuidance** provides information, advice and guidance to young people and their parents online and by telephone.
- **Centres for Adult Education and Continuing Training** support adults.
  - There is also a national guidance portal – www.ug.dk. This provides information on:
    - Education and training opportunities.
    - Careers.
    - Labour market information – including statistics.
    - Study programmes in English at Danish colleges and universities.
  - As outlined above, a National Dialogue Forum on Guidance has been established to ensure ongoing dialogue on CIAG issues.
  - A key focus is on improving the qualifications held by CIAG practitioners. Six university colleges in Denmark offer a one-year modular common training programme at diploma level for CIAG practitioners and the Danish University of Education offers a one-year Master of Education programme in guidance counselling. Since 2007, all CIAG practitioners must now complete the diploma programme or demonstrate through recognition of prior learning that they hold the required qualifications.

**Managing Performance**

- In general terms, the use of the taximeter system is intended to link funding to performance – although this focuses on activities rather than broader policy goals.
- All educational institutions are autonomous – and have a high degree of independence.
- In relation to vocational education, the National Agency for Quality and Supervision is responsible for managing performance. This includes monitoring progress against the 4 objectives set out in **Better and More Attractive Vocational Education** reforms introduced in 2014.
- In relation to higher education, since 2011, **performance contracts** have been in place between each university and the Ministry of Higher Education and Science. These are three-year binding contracts that allow the university to agree its goals and ambition with the Ministry – but remain autonomous in delivery.
  - In addition, all higher education programmes must be accredited to receive public money with accreditation relating to both the quality and relevance of programmes.

**Evaluations of Systems**

- Limited evaluations of systems.
- Research by Carstensen and Ibsen (2015) in relation to vocational education and training suggested that the ongoing involvement of social partners in all aspects of the VET system was a key strength of the system.

**Emerging Issues and Challenges**

- A number of challenges have been identified in relation to vocational education and training including:
  - VET does not reflect the changing needs of Denmark’s economy.
  - Linkages between school-based learning and work-based learning aspects of VET are weak.
  - Academically strong students do not pursue vocational educational and training options.
  - Limited opportunities for unskilled adults to develop their skills through VET.
  - Large numbers of young people do not complete their VET due to lack of basic skills.
The Better and More Attractive Vocational Education reforms (discussed in more detail below) have been introduced to address these.

**Significant Recent Changes**

- The Universities Act of 2011 gave universities autonomy in relation to the management and organisation structures they adopted. The Act also introduced three-year performance contracts.
- The Better and More Attractive Vocational Education reforms introduced in 2014 are intended to:
  - Encourage more young people to choose a vocational pathway.
  - Improve completion rates for vocational pathways.
  - Make vocational pathways more challenging – and more attractive to more able students.
  - Increase satisfaction of employers and students.
  - Introduce a new vocational pathway for adults aged 25 and over.

**Summary Overview**

- There is no policy or strategy in place – and it is unclear how skills planning happens (if at all) at regional or sectoral levels.
- Funding is allocated by the National Agency for Quality and Supervision (which sits under the Ministry for Children, Education and Gender Equality) and the Danish Agency for Higher Education (which sits under Ministry of Higher Education and Sciences).
- The majority of funding for higher education and vocational training is allocated through Denmark’s ‘taximeter’ mechanism. Under this system, funding is allocated on the basis of activity (i.e. number of students) and agreed rates for each that will be paid for different activities. These rates are set by government in its Appropriations Acts annually. As funding is linked to the number of students, this means funding for institutions varies year on year without need for major re-negotiation – and this has led to some organisations merging/splitting to reflect changing needs.
- The introduction of performance contracts for universities should be helping ensure that the universities are more closely aligning their efforts with Government’s priorities.
- A range of different guidance services available for individuals at different stages in education system – although these are primarily focused on meeting the needs of under 25s.

**References**

• OECD (2014). *Education Policy Outlook: Denmark*.

**Websites**

- Ministry for Children, Education and Gender Equality – [http://eng.uvm.dk/](http://eng.uvm.dk/)
Policies

- Legislation requires a national education and research development plan to be developed every four years. The current plan is *Education and Research 2011-2016: A Development Plan*. This sets out 188 measures to be undertaken. The plan indicated that it would be evaluated in 2015 but this does not appear to have taken place.

- **Finland, A Land of Solutions: Strategic Programme of Prime Minister Juha Sipila’s Government** (2015) sets out the main functions of the government and includes both a ten-year objective and government-term objectives under the theme of ‘Knowledge and Education’. The ten-year objective is “*Finland is a country that encourages people to continuously learn something new. Skills and education levels in Finland have risen, promoting the renewal of Finnish society and equal opportunities. Finland is in the vanguard of education, skills and modern learning techniques.*” The government-term objectives are:
  - Learning environments have been modernised and the opportunities offered by digitalisation and new pedagogical approaches are grasped in learning.
  - The number of young people who have dropped out of education or working life has fallen. The drop-out rate in education has declined.
  - Dialogue between educational institutions and working life is more active.
  - The quality and effectiveness of research and innovation have begun to improve.
  - Education and research have become more international and obstacles to education exports have been removed.

Government

- The **Ministry of Education and Culture** is responsible for preparing educational legislation and for all publicly funded education in Finland including:
  - Higher education.
  - Vocational education and training (VET). The Ministry leads the development of VET at the national level – in terms of setting objectives and outlining the structure of the qualifications. It also grants the authorisations to provide VET to institutions.

- The **Ministry of Economic Affairs and Employment** is responsible for:
  - Promotion and regulation of business activities.
  - Enterprise financing.
  - Energy.
  - Competition and consumers.
  - Working life – including labour legislation, employment and integration services
  - Regions – including regional development and structural change

- There are no clear links between skills and enterprise/economic development activities.

Agencies

- The **Finnish National Board of Education** is the national development agency responsible for education up to the vocational upper secondary education level and adult education and training. It designs the core curricula for VET and sets the requirements (aims and content) of competence-based qualifications.
Other agencies:
- There are no colleges in Finland.
- There are two types of university in Finland:
  - **Universities** undertake research and provide education based on it. There are currently 14 universities.
  - **Universities of applied sciences (UAS)** provide education in response to labour market needs and conduct research, development and innovation to support their teaching and to promote regional development. There are currently 24 UAS.
- 26 sectoral **National Education and Training Committees** help ensure vocational education and training reflects the needs of their sectors.
- 18 **Regional Councils** are responsible for regional development, including around developing plans in relation to employment, education and innovation.
- Information, advice and guidance is embedded into all stages and types of education (i.e. it is not a stand-alone service). The public employment service (**Employment and Economic Development Offices**) also offer information, advice and guidance services to adults and young people (who use it to supplement the support available through educational institutions).

**Stakeholder Engagement in Service Design and Delivery**
- **National Education and Training Committees** are responsible for planning and developing vocational education and training. There are currently 26 committees in place – with examples including motor vehicle and transport; energy; chemistry, paper and wood; electrical, electronics and IT; building services and construction; communication; and entrepreneurship, business, administration and finance. The committees are made up of members from “a broad spectrum of working life and stakeholder representatives”. The key tasks of the committees are:
  - To monitor, evaluate and anticipate the development of education and training and working life skills needs in their sector following an action plan drawn up by the steering group.
  - To submit initiatives to the Ministry of Education and Culture, the Finnish National Board of Education and other key actors with the aim of developing the contents of VET and, on this basis, qualifications.
  - To propose initiatives to higher education institutions with the aim of promoting the consideration of working life skills needs when developing education contents.
  - To perform any other tasks assigned to them by the Ministry of Education and Culture and the Finnish National Board of Education.
- One of the projects set out in the Strategic Programme is to strengthen cooperation between higher education institutions and business.

**Funding of HE, FE and Work-Based Learning**
- Universities and UAS are funded by the Ministry of Education and Culture.
  - However, they are also expected to raise external funding. The external funding raised does not reduce the amount of state funding they are entitled to.
- The main funding for vocational education and training also comes from Ministry of Education and Culture and is based on the number of students reported by the school as well as on the unit prices set by the Ministry.
- Other sources of financing for vocational training include from the municipalities, the maintaining bodies of the institutions and student and course fees.
Local authorities have a statutory obligation to contribute to funding adult education at vocational upper secondary levels. However, there is no statutory municipal contribution for more advanced vocational training (further and specialist qualifications).

**Funding Long-Term HE Innovation**
- An expert body – the *Research and Innovation Council* – responsible for the development of Finland’s policies on science, technology and innovation. Reflecting the importance of innovation, the Council is chaired by the Prime Minister.
- The Ministry of Education and Culture and the Ministry of Economic Affairs are the two key government departments:
  - They are jointly responsible for the formulation of science and technology policies.
  - Combined, they provide about 80% of public funding for research and innovation.
- There are 3 government agencies responsible for funding research and innovation.
  - **The Finnish Funding Agency for Technology and Innovation (Tekes)** is the main government agency for research and innovation in Finland. Tekes funds projects in both universities and research institutes and in companies (large and SMEs).
    - Funding for universities and research institutes includes funding for research projects that generate new solutions to meet identified business and sectoral needs, funding to help develop ideas for commercialisation, funding to create expertise in areas that are thought to be likely to be important to businesses in the future and administration of EU Horizon 2020 funding for innovation.
  - **The Academy of Finland** provides support for research and innovation in relation to helping develop research careers, creating opportunities for international exchange and creating research environments. This includes:
    - Funding for **Centres of Excellence** – research and training networks working on specific research issues. Each Centre of Excellence is funded for 6 years to allow long-term planning and risk taking. In addition to Academy of Finland funding, Centres of Excellence also receive funding from universities, research institutes and the private sector.
    - Funding for **Strategic Centres for Science Technology and Innovation (SHOK)**. These bring together researchers from universities and research institutes together with companies to develop innovative products, technologies and other outcomes.
  - **The Finnish Innovation Fund (Sitra)** focuses on encouraging innovation in social priority areas (such as the ageing population, clean energies, etc.).

**Regionalisation of Funding**
- The main structure for regional planning in Finland is **Regional Councils**. There are 18 Regional Councils in place. The Regional Councils are made up of the municipal authorities in the region – with each municipality providing funding to the Regional Council. The Regional Councils are responsible for regional development and regional land-use planning and develop regional plans in relation to a number of functions including ‘employment, education and innovation’. Whilst Regional Councils provide
funding for some projects, they are not major funders of skills – with the Ministry of Education and Culture and municipalities the main funders.

**CIAG Services**
- CIAG is built into all stages of education and skills provision including vocational training and education. This is delivered by both teachers and specialist CIAG counsellors. This comes under the responsibility (funding and setting policy) of the Ministry Of Education And Culture, and also its agency – Finnish National Board of Education – in terms of staff development.
- CIAG services are also available through the Employment and Economic Development Offices (Finland's public employment service), which comes under the responsibility of the Ministry of Economic Affairs and Employment.
- A **National Development Programme for Information Guidance and Counselling Services** (2007-13) aimed to develop online CIAG services, support staff development and carry out evaluation and research into CIAG. It also included projects to reduce dropout rates at upper secondary level, focusing on one-to-one support and pulling together student support teams that drew on a wide range of different professions/specialisms.

**Managing Performance**
- Universities and UAS agree operational and qualitative targets with the Ministry of Education and Culture every 4 years. This agreement also covers the resources to be provided over this 4 year period and the process for monitoring and evaluating the targets.
  - Universities and UAS decide how to use the funding allocated to them – i.e. it is not tied to the delivery of specific projects or services.
  - Funding is linked to the achievement of the policy objectives set for higher education.
  - In the interim years when there are no negotiations, the Ministry gives universities and UAS written feedback on performance.
  - The KOTA database is the key tool for universities and UAS to share details of their performance with the Ministry.
- As with universities, the Ministry of Education and Culture negotiates performance targets with vocational education providers – with funding based on these performance agreements.

**Evaluations of Systems**
- Ahola *et al.* (2014) suggest that the reform of governance and financing of universities poses both opportunities and threats – with particular concerns that whilst this frees up universities from bureaucratic state budgeting procedures it does (at least in principle) raise the risk of bankruptcy.
- Melin *et al.* (2015) highlight that:
  - The influence of performance agreements between the Ministry and universities/UAS has declined as a result of the introduction of an indicator-driven performance based funding system.
  - That the indicator-based system has made the funding formula increasingly complex over time.
  - There is no higher education accreditation system meaning each institution is responsible for monitoring the quality of their own provision.

**Emerging Issues and Challenges**
- The objectives set out in the Strategic Programme suggest key issues and challenges include a need for modernisation in education (especially in relation to digital technologies), tackling high levels of drop-out by young
people from education and employment, the need to build greater links between education and employers, and improving the quality, effectiveness and internationalisation of research and innovation.

**Significant Recent Changes**

- The Strategic Programme sets outs a number of reforms to both higher education and vocational education and training. These include:
  - Improving cooperation between upper secondary level education and higher education.
  - Reforming the entrance requirements for higher education.
  - Improving the status of vocational education and training options.
  - Reforming the funding for vocational upper secondary education to become more integrated.
  - Increasing work-based learning – including encouraging greater use of apprenticeships by reducing the administrative and financial burden on employers.
- In late 2014, the Ministry of Education and Culture set up a working group to review the funding model for universities. This will come into effect in 2017. The proposed reforms appear to mainly relate to changes in what activities are eligible towards funding calculations.

**Summary Overview**

- Having legislation in place ensures that a development plan for education and skills is developed on a regular basis (every 4 years).
- Similarly, the strong legislative basis for education helps ensure its status within Finnish society and secure resources. The Ministry of Education and Culture plays the key role – both in terms of setting out policy and providing funding.
- VET appears to be a more popular option in Finland than other Nordic countries – reflecting its status and that there are clear articulation routes into university. This is funded mainly by the Ministry of Education and Culture – but municipalities, maintaining bodies of the institutions and students also contribute.
- Universities and universities of applied sciences (UAS) agree operational and qualitative targets and funding on a 4-year basis with the Ministry of Education and Culture. These are based on the delivery of key policy targets – but individual institutions have discretion around how funding is used.

**References**


Websites
• Academy of Finland – http://www.aka.fi/en
• Finnish National Board of Education – http://www.oph.fi/
• Ministry of Economic Affairs and Employment – http://tem.fi/en/frontpage
• Sitra – http://www.sitra.fi/en
• Tekes – https://www.tekes.fi/
IRELAND

Policies
- The key policy document is **Ireland’s National Skills Strategy** published in January 2016. Its main objectives are:
  - Establishment of a new National Skills Council to oversee research, forecasting and prioritisation of skills needs in the economy.
  - Further development of the Regional Skills Fora across the country to support increased employer engagement with education and training providers to meet the skills needs of each region.
  - 50,000 Apprenticeship and Traineeship places to be supported over the period to 2020.
  - Further Education and Training and Higher Education providers to produce employability statements for courses.
  - Development of an Entrepreneurship Education Policy Statement which will inform the development of entrepreneurship guidelines for schools.
  - Making sure that all Transition Year, Leaving Certificate Vocational Programme (LCVP) and Learning Certificate Applied (LCA) students in schools and full-time students in further education and training and higher education benefit from work placements, and tracking this activity.
  - A review of guidance services, tools and careers information for school students and adults to identify options for improvements.
  - A review of the School Leaver Age with a view to increasing it.
  - An increased focus on lifelong learning and a target to increase participation in lifelong learning to 15% by 2025 (from 6.7% in 2014).

Government
- The lead government department for education and skills is the **Department of Education and Skills** (DES) and it covers all aspects from school, FE and work-based learning.

Agencies
- **Higher Education Authority** is Ireland’s statutory planning, policy and funding body for HE (i.e. universities, Institutes of Technology and a number of designated higher education institutions). HEA then has service level agreements, as part of a strategic dialogue, with higher education institutions establishing the key outputs, outcomes and levels of service to be delivered and the resources allocated to achieve them (DES, 2011).
- **SOLAS** is Ireland’s Further Education and Training Authority, and its role includes the management of the apprenticeship system. It was established in 2013 to develop and give strategic direction to the Further Education and Training Sector in Ireland. SOLAS has to develop and agree with DES an annual ‘Further Education and Training Services Plan’ which provides information on the planning cycle and process, funding allocations, programmes, services and supports and projected programme inputs, outputs and outcomes for the year ahead (SOLAS, 2015).

Other agencies:
- **16 Education and Training Boards** (ETBs) – statutory education authorities which have responsibility for education and training, youth work and a range of other statutory functions. The 16 ETBs manage and operate secondary-level schools, further education colleges, pilot community national schools
and a range of adult and further education centres. They appear to have funding for provision in their regions, but through Service Level Agreements with SOLAS.

- In response to the Review of Apprenticeship Training in Ireland (DES, 2013) the Apprenticeship Council was launched in November 2014. The Council is tasked with the expansion of Apprenticeships into new sectors of the economy and mapping out the sectors where new apprenticeships can make a real difference to both employers and employees. The Council is enterprise led and has representatives from business, trade unions, further education bodies and DES.

- Enterprise and economic development functions in Ireland sit in the Department of Jobs, Enterprise and Innovation (DJEI).
  - Its agencies include Enterprise Ireland and IDA Ireland (charged with attracting inward investment).
  - There appear to be limited connections to skills but the Expert Group on Future Skills Needs (see below) reports to both the DJEI and DES, while DJEI will also be represented on the National Skills Council.

Stakeholder Engagement in Service Design and Delivery

- The Expert Group on Future Skills Needs (EGFSN) – which advises the Irish Government on skills needs and labour market issues that impact on enterprise and employment growth. However, following the publishing of Ireland’s National Skills Strategy (in January 2016), it appears that EGFSN’s activities will fall under the aegis of the newly established National Skills Council. Its role will be to oversee, research and advise on prioritisation of identified skills needs and how to secure delivery of identified needs. The Council will have representation from employers, key skills and enterprise agencies, and the DJEI and DES.

- 9 Regional Skills Fora have recently been created as part of Ireland’s National Skills Strategy to provide an opportunity for employers and the education and training system to work together to meet the emerging skills needs of their regions.

- Skillnets Ltd – a state funded, enterprise-led body established in 1999 and funded from the National Training Fund through DES. It funds training networks that provide subsidised training to companies and employees, and free training to job-seekers, through a number of key programmes.

Funding of HE, FE and Work-Based Learning

- For HE, the HEA is the statutory planning, policy and funding body and it has service level agreements with HE institutions establishing the key outputs, outcomes and levels of service to be delivered and the resources allocated to achieve them (DES, 2011).

- For FE and work-based learning, SOLAS develops and agrees with DES an annual ‘Further Education and Training Services Plan’ which provides information on the planning cycle and process, funding allocations, programmes, services and supports and projected programme inputs, outputs and outcomes for the year ahead (SOLAS, 2015). The 16 ETBs then secure funding from SOLAS (via service level agreements) for the secondary-level schools, further education colleges, pilot community national schools and adult and further education centres in their regions.

Funding Long-Term HE Innovation

- There are a number of government departments and agencies that provide funding for research usually on the basis of competitive bidding.
- **Science Foundation Ireland** (SFI) is the national foundation for investment in scientific and engineering research. SFI invests in academic researchers and research teams who are most likely to generate new knowledge, leading edge technologies and competitive enterprises in the fields of science, technology, engineering and maths (STEM).

- The **Higher Education Authority** (HEA) is responsible for the management of the Programme for Research in Third Level Institutes (PRTLI) which provide funding for research infrastructure and structured PhD programmes.

- The **Irish Research Council** was established in January 2012 and is a merger of the two research councils for Science, Engineering & Technology and Humanities & Social Sciences. The Council funds both individual scholars and projects/programmes across all disciplines. Additionally it funds the Enterprise Partnership Scheme, which co-funds industry-academia projects through the recruitment of doctoral candidates.

- The **Health Research Board** funds both direct medical research and also health economics and delivery. It also provides advice on health policy and practice.

- **Teagasc** - an agency of the Department of Agriculture and Food and its objective is to support science-based innovation in the agri-food sector and the broader bio-economy that will support the profitability, competitiveness and sustainability of associated Irish enterprise in these areas.

- **Enterprise Ireland** provides the interface between HE and business – and provides support for HE institutions around:
  - Research commercialisation support.
  - Technology transfer support system.
  - Spin-outs.
  - Collaboration with industry – via Innovation Vouchers and an Innovation Partnership programme.
  - Portal for EU programmes and networks.

- **HE** to play pivotal role in implementation of Innovation 2020 – Ireland’s new strategy for research and innovation.

**Regionalisation of Funding**

- Regionalisation of funding is organised through the **16 Education and Training Boards** (ETBs) and they manage and operate secondary-level schools, further education colleges, pilot community national schools and a range of adult and further education centres. The ETBs secure funding from SOLAS via service level agreements.

**CIAG Services**

- CIAG is predominantly delivered through the web-based CareersPortal.ie (Ireland’s National Career Guidance website) and it provides the most up-to-date and relevant career information and resources to those needing or providing career guidance. Face-to-face and workshop sessions are available and can be arranged.

- CareersPortal.ie was developed as a direct response to a report generated by the Expert Group on Future Skills Needs in 2007, which recommended that: “The Department of Enterprise, Trade & Employment and the Department of Education & Science should explore the feasibility of developing a central Irish careers portal or coordinated gateway site. This would contain information on careers, courses and the labour market,
organisational/company profiles, a range of assessment tools and testimonials, a guidance helpline and appropriate linkages to related sites”.
- The Department for Education and Skills has lead responsibility for the CareersPortal and CIAG in general.

Managing Performance
- DES manages performance via a system of Service Level Agreements with its agencies, and then between the agencies and the institutions.
- No evidence found on the impact of performance-related payment in Ireland to date – but a performance system has been/is being developed – see below with the extensive range of indicators in place for HE.
- A substantial number of indicators have been identified to be used in relation to HE (HEA, 2014).

Evaluations of Systems
- Previous to SOLAS being established, there was an absence of co-ordinated strategic direction to funding of Further Education and Training (DES/SOLAS, 2014). In developing the Further Education and Training Strategy 2014-2019, consultations found there was a need to:
  - Improve evidence-based decision-making for Further Education and Training policy and practice.
  - Implement a co-ordinated and integrated planning and funding approach to Further Education and Training based on the evidence.
  - Continually evaluate programmes at all levels using appropriate measures
  - Strengthen engagement with employers both locally and nationally.
  - Meet the needs of learners.
  - Improve the course matching process so that individuals receive meaningful interventions.
- Similarly the OECD (2014) report instances of duplication and competition in the previous system (which consisted of 33 Vocational Education Committees and FAS training centres).

Emerging Issues and Challenges
- Overall, Sweeney (2013) notes that the quality of data collection in Ireland’s skills system (inputs, outputs and outcomes) undermines effective evaluation of its performance.
- In HE, universities are being impacted on by falling resources since 2008, a deteriorating student:staff ratio, inadequate facilities and other pressures. This limits their ability to provide high-quality undergraduate programmes. There are also high non-completion rates in parts of the HE system, pressure on students and families to meet the €3,000 fee and living expenses, and a risk of a social class gradient at post-graduate level (Expert Group on Future Funding for Higher Education, 2016).

Significant Recent Changes
- In addition to the introduction of SOLAS, the National Skills Council and the Regional Skills Fora, other changes that can be identified in the last 3-4 years (all following government-commissioned reviews into Higher Education, Further Education and Training, and Apprenticeships) are as follows:
  - Comprehensive reform of further education and training, and HE sectors. For example, the Further Education and Training Strategy 2014-2019 is leading to a new funding model based on performance levels, with annual service plans agreed. The aim is that only courses
with a positive track record for participants will be funded going forward. In HE, there is ongoing discussion on how best to fund HE – weighing up state funding versus (increased) student contributions.

- Reform of apprenticeship system leading to expansion of industry and apprentice participation and new industry-led apprenticeships.
- Ongoing roll-out of targeted upskilling and re-skilling (employability) courses – e.g. Momentum and Springboard+.
- Establishment of Technological Universities.

- In relation to FAS, reports state that under the previous structure there was an absence of co-ordinated strategic direction to funding of Further Education and Training (DES/SOLAS, 2014). For example, there were instances of duplication and competition in the previous system (which consisted of 33 Vocational Education Committees and FAS training centres). SOLAS should also ensure greater alignment of provision with employment opportunities through the LMI they have access to, while the training function of FAS was absorbed into the restructured local Vocational Education Committees which were re-titled Education and Training Boards (ETBs) in July 2013.

Summary Overview

- Ireland’s education and skills system is in a state of change. During the recession, the focus appears to have been on tackling youth and long-term unemployment, but since then there has been a greater focus on ensuring that Ireland’s education and skills providers are meeting the current and future skills needs of Ireland’s employers.
- While HE remains separately overseen by the Higher Education Authority, SOLAS provides a more strategic overview of the FE and apprenticeship system – and through it there is greater focus on FE achieving better outcomes (through a transition to an outcomes-based funding model), and the apprenticeship system expanding.
- Enterprise/economic development looks to have been quite separate from skills but this is changing – most notably through the new National Skills Council and Regional Skills Fora where employer input is more prominent. Key skills strategies also make explicit reference to the skills needs of the economy and employers.

References


**Websites**
- Careers Portal – [www.careersportal.ie](http://www.careersportal.ie)
- Education and Training Boards – [www.etbi.ie](http://www.etbi.ie)
- Department for Education and Skills – [www.education.ie](http://www.education.ie)
- Higher Education Authority – [www.hea.ie](http://www.hea.ie)
- SOLAS – [www1.solas.ie](http://www1.solas.ie)
ISRAEL

Policies
- There are no clear education and skills policies that can be identified.
- Education is free and obligatory up to the age of 18 – with upper secondary school lasting three years (from age 15) (OECD, 2014).

Government
- **Ministry of Education** determines education policy and is in charge of funding up to upper secondary education.
- **Ministry of Economy** is responsible for Israel’s industrial schools and schools for apprentices. As part of it, the Ministry’s Institute for Training in Technology and Science supervises the training of technicians and practical engineers for adults leaving military service.

Agencies
- **Council for Higher Education** – sits between Government and HE institutions to deal with all issues connected with HE in Israel. Includes setting policy in key issues while ensuring the independence of the HE system, and the development and preservation of its quality.
- As a sub-committee of the Council for Higher Education, there is **Planning and Budgeting Committee (PBC)** which puts forward the HE budget in Israel and distributes the allocation to HE institutions. For clarity on its role:
  - It is an independent body.
  - It proposes the basic budget and the development budget for HE – and puts it to Government.
  - It is the sole body that distributes approved funds among HE institutions.
  - It promotes efficiency in the institutions of HE and works to coordinate their activities to prevent duplication.

Stakeholder Engagement in Service Design and Delivery
- No evidence found.

Funding of HE, FE and Work-Based Learning
- Funding for HE is decided and allocated by the Planning and Budgeting Committee of the Council for Higher Education. Private funding/student fees make up approximately 50% of HE budgets.
- Funding for vocational education and training comes from multiple sources, such as Ministries of Education, Economy and Industry, and Security (OECD, 2016b).

Funding Long-Term HE Innovation
- The primary source of Israeli R&D funding is government and public organizations. More than 40 percent of funding is used for national, binational, government, and university research.
- The Israel Science Foundation is another important source of funding and offers grants for approximately 1,000 researchers, which is matched with university funding.
- In addition, Israel’s significant defence-related R&D plays a major role and has great impact on Israel’s industrial sector, science and engineering, research community, and its overall workforce (Source for these bullets is www.entrepreneur.com).
Regionalisation of Funding
- No evidence found.

CIAG Services
- No information found about Israel’s CIAG services.

Managing Performance
- In 2003, the Council for Higher Education established a system for quality assessment of Israeli HE with the aims of:
  - Improving the quality of HE in Israel.
  - Strengthening quality assessment and improvement processes in HE institutions.
  - Ensuring the continual integration of the Israeli academic system within the global academic systems.
  - The system includes self-evaluation and review by the CHE.

Evaluations of Systems
- A number of public and private stakeholders express concerns about the state of vocational education and training at the upper secondary level and the lack of technical and professional skills (OECD, 2014). These concerns relate to:
  - Israel having less vocational provision than many other OECD countries. Funding in the sector is low and student uptake of vocational programmes is average/low (OECD, 2016a).
  - Different parts of vocational education and training system are subject to uncoordinated governance systems, making the system difficult to navigate for students and inhibiting social partner engagement (OECD, 2016a).
  - The complicated and fragmented governance of the system means that it cannot be ‘championed’ by a particular ministry or agency (OECD, 2014). Vocational education and training programmes are currently viewed as an ‘add on’ rather than an embedded part of the wider education and skills system.
  - Work-based learning is little used in Israel’s vocational system (OECD, 2016a).

Emerging Issues and Challenges
- From recent studies completed by the OECD, Israel’s biggest challenges are:
  - Tackling educational inequalities among Haredi and Arab Israelis.
  - Tackling technical skills shortages through investing in and better coordination of the vocational education and training system. The system is very fragmented with split ownership between the Ministry of Education and Ministry of Economy.

Significant Recent Changes
- OECD (2014) recommends the setting up of a strategic board to oversee and provide direction to the VET system and collaborate with all key partners.

Summary Overview
- Israel appears to place a strong emphasis on HE with limited attention to a complicated and fragmented vocational education system.
- In terms of HE, its operation and funding is quite separate from Government control with the independent Council for Higher Education (which has two-thirds Council/Board membership from the HE sector).
Other points to note with Israel are that schooling is compulsory to the age of 18, and there is also the requirement for military service after the age of 18.

References:

Websites
- www.entrepreneur.com
NETHERLANDS

Policies
- There is currently no overarching skills policy/strategy. The OECD and the Dutch government are currently undertaking a strategic review of the national skills system in the Netherlands that will lead to the development of a National Skills Strategy. This is expected to be completed by 2017.
- The Value of Knowledge: Strategic Agenda for Higher Education and Research 2015-2025 was published by the Ministry of Education, Culture and Science in 2015.
- Both strategies set out a wide range of actions to be taken forward in relation to issues such as improving quality, encouraging take-up, improving progression and building stronger links to employers/industry.

Government
- The Ministry of Education, Culture and Science is responsible for skills policy and interventions. More specifically, the executive services within the Ministry with most relevance to skills are:
  - Directorate of Higher Education and Student Grants.
  - Directorate of Adult and Vocational Education.

Agencies
Other agencies:
- Regional Education and Training Centres (ROCs) deliver sectoral-specific vocational education and training (known as MBO). They also provide some adult education – although this has been in decline for some time.
- University education (WO) provided by universities, while higher professional education (HBO) is delivered by HBO institutions. HBO institutions provide theoretical and practical training for occupations for which a higher vocational qualification is either required or useful.
- Most careers information, advice and guidance is provided by private institutions – although schools, the public employment and reintegration services and some sectoral organisations and trade unions also offer information, advice and guidance.
- The Education Inspectorate examines the annual reports provided by publicly-funded educational institutions.
- Knowledge Centres (KBBs) develop VET on a sectoral basis. There are 17 KBBs in place.
- Industry Advisory Committees help ensure effective planning of VET at the regional level. In addition, ROCs have some discretion to amend the curriculum to meet local or regional needs.
- Economic development and enterprise issues are the responsibility of the Ministry of Economic Affairs.
  - There are no clear links between the work of the Ministry of Education, Culture and Science and the Ministry for Economic Affairs – although the Ministry for Economic Affairs is responsible for funding agricultural VET.
  - The Netherlands Enterprise Agency supports entrepreneurs and businesses – especially in relation to sustainability, innovation and internationalisation.
Stakeholder Engagement in Service Design and Delivery

- **Knowledge Centres** (KBBs) are the main structure for ensuring employers are involved in the design and delivery of VET. There are 17 KBBs – each covering a separate sectoral ‘footprint’. KBB key roles include:
  - Developing and maintaining qualifications, including ensuring they meet employer’s need.
  - Recruiting and accrediting employers to provide workplace training – and more generally creating a culture and commitment to training in the sector.
  - Co-ordinating and promoting sectoral training.

- The **Foundation for Cooperation on VET and the Labour Market (SBB)** was established in 2012 and includes representation from all social partners (employers, employees and training providers) and provides a unified, single voice to advise the Ministry of Education, Culture and Science on VET policy.

Funding of HE, FE and Work-Based Learning

- In addition to setting policy, the Ministry and its Directorates are responsible for **funding skills**. There are no intermediary agencies.

  - In relation to colleges:
    - The Ministry funds ROCs to provide vocational education and training (MBO).
    - This is based on a ‘T minus 2’ system - i.e. it is determined by the number of students the ROC had two years ago.
    - The ROC receives 80% of MBO funding on enrolment and 20% on completion.
    - Most ROCs also receive funding for infrastructure (buildings etc.). This typically accounts for around 10% of their budget.
    - Whilst the majority of ROCs’ income comes from delivering MBO, they also have other income streams such as for delivering adult education and continuing VET. Funding for adult education has been in decline over a number of years.

  - In relation to higher education:
    - The Ministry provides grants to universities, based on their performance against a number of indicators, such as the number of first-year students and the number of bachelors and masters degrees awarded. Universities have discretion to use the funding as they see fit. Universities must raise other funds to cover accommodation and infrastructure costs.
    - HBO institutions receive funding from a variety of sources, including grants from the Ministry, tuition fees and revenues from contracts with third parties (primarily to provide education). Nearly 92% of the total government grant is paid as a block grant that the institution may spend as it sees fit on personnel, material and housing costs.
    - The Strategic Agenda for Higher Education and Research highlights that growing student numbers, coupled with the ambitions set out in the Strategic Agenda will mean additional funding will be needed. A new student loan system is due to be in place by 2018. The additional funding that will become available over the period 2018-2025 will be almost €1 billion per annum. The majority of this funding (90%) will be distributed as grants from the Ministry to institutions – with the remaining 10% financing specific programmes.

  - In relation to vocational education and training and adult education:
    - The Ministry of Education, Culture and Science administers the majority of central government expenditure with the exception being agricultural VET – which the Ministry of Economic Affairs funds.
Institutions receive a fixed block grant from the government to cover their personnel and running costs.

**Funding Long-Term HE Innovation**
- The Dutch government invests around €4.5 billion into research annually – through a combination of block grants and project-specific grants. Universities and research centres – as well as international organisations, universities hospitals and other organisations – are funded to undertake both basic and applied research. Funding is allocated by both the Ministry of Education, Culture and Science and the Netherlands Organisation for Scientific Research (NWO).
- NWO allocates €275 million annually to supporting government, industry and universities to work together to develop products and services that serve the ‘top economic sectors’.
- The **Science Strategy 2025: Choices for the Future** is the key strategy. Its aims are:
  - Dutch science must be world-class.
  - Dutch science must have stronger links with and maximum impact on society and industry.
  - Dutch science must be a breeding ground for talent.
- There does not appear to be specific funding for innovation centres.

**Regionalisation of Funding**
- Whilst there does not appear to be any regionalisation of funding, a number of processes are in place to help ensure that provision meets regional needs.
- **Industry Advisory Committees** are the main mechanism for planning skills at a regional level. Industry Advisory Committees include representatives from ROCs, Knowledge Centres and employers and act as a forum to build relationships, share knowledge and influence the design and delivery of vocational education and training.
  - In addition:
    - ROCs can amend the curriculum of nationally recognised qualifications by up to 20% to meet the needs of local and regional labour markets.
    - Knowledge Centres can approach ROCs to provide specific, tailored programmes of continuing VET in response to local and regional needs.

**CIAG Services**
- There are a number of different providers of careers information, advice and guidance.
- Most careers guidance is provided by private sector organisations. Advisory training services (AOBs) are one of the main types of private sector providers. Up until 2000, AOBs were funded by government but they were then privatised.
- Educational institutions have a remit to deliver CIAG.
  - The Secondary Education Act states that “one or more members of the staff shall be assigned the task of careers teacher/coordinator”. It is, however, up to the school to decide how this role is defined and how much time and resources are allocated to it.
  - The MBO Council’s document **Learning, Career and Citizenship in Secondary Vocational Education** sets out that one of the main tasks of MBO is that students are able to manage their own careers. However, implementation of how this is achieved is left up to individual MBO institutions.
• Guidance for unemployed people is provided by the government public employment service (UVW Werkbedrijf). This focuses on helping individuals find work as quickly as possible – rather than career development.
• Some sectoral organisations and trade unions also provide CIAG.

Managing Performance
• Since 2012, performance agreements have been in place between universities and higher professional education (HBO) institutions and the Ministry. These are intended to ensure the teaching budget is allocated in line with performance.
• The performance agreements are due to be evaluated in 2016 – with a key focus being whether they have led to improvements in quality.
• More generally, every educational institution that receives government funding is required to produce an annual report that sets out their performance. These are reviewed by the Education Inspectorate.

Evaluations of Systems
• Some key issues raised in relation to the vocational education and training system include (UKCES, 2013 and Fazekas and Litjens, 2014):
  - There is strong consensus and joint working across partners – with employers playing a key role in the system.
  - There are clear and simple structures in place – with government providing strategic leadership and funding, Knowledge Centres designing qualifications and programmes and ROCs delivering these.
  - The system is flexible to changing economic needs and policy needs.

Emerging Issues and Challenges
• Increasing students numbers, reform of the student loans system and a need to meet the policy priorities set out in the Strategic Agenda for Higher Education and Research will mean a significant increase in funding for higher education is needed. The Strategic Agenda has set out a funding package for the period 2018-2025 – although this will follow the current model of being allocated directly by the Ministry to institutions.
• In relation to work-based learning, there are challenges in getting employers to offer sufficient apprenticeship and internship places to meet needs.

Significant Recent Changes
• No major recent changes in agencies or funding mechanisms.

Summary Overview
• The Ministry of Education, Culture and Science administers almost all central government expenditure on education and skills (with the exception being agricultural education – which the Ministry of Economic Affairs administers). There is a high degree of institutional autonomy.
  - Every year, all government-funded educational institutions receive block funding to meet their staffing and running costs. They are free to decide how to use this money.
  - Educational institutions can also generate income from other sources, including from municipal authorities, from contracts, sponsorship or donations. Many courses – including VET – also attract fees.
• In 2012, performance agreements were agreed between individual universities and HBO institutions and the Ministry of Education, Culture and Science. These sought to link funding (specifically in relation to teaching) to performance. The performance agreements are due to be evaluated in 2016.
• There appear to be long-standing and well-established processes for ensuring that VET responds to sectoral needs. However, some concerns have been raised in research about the willingness of employers to provide internships and apprenticeships. Clearing the Way for Workmanship highlights this as one of the areas where action is needed.

References

Websites
NEW ZEALAND

Policies
- Noting that tertiary education in New Zealand covers all post-secondary learning types (including HE, applied and vocational training, and training in foundation skills), the key strategy is the **Tertiary Education Strategy 2014-2019**. It has six strategic priorities:
  - Delivering skills for industry – including for key sectors and key transferable skills.
  - Getting at-risk young people into a career.
  - Boosting achievement of Maori and Pasifika.
  - Improving adult literacy and numeracy.
  - Strengthening research-based institutions.
  - Growing international linkages.
- In the strategy (and other documents), there is a clear emphasis on increasing quality, improving outcomes to help boost productivity in New Zealand, building better connections with industry, and addressing spatial and ethnic disparities in attainment.

Government
- **Ministry of Education** – the Government’s lead advisor on the education system, shaping the direction for education agencies and contributing to the Government’s goals for education. The Ministry is seen as the ‘steward’ of a system which has a number of autonomous and semi-autonomous agencies and institutions.

Agencies
- **Tertiary Education Commission** – guided by the Tertiary Education Strategy, it is the key agency and funds all post-secondary learning types, including HE, applied and vocational training, and training in foundation skills. Institutions and providers include (Cannicott, 2016):
  - Universities – there are eight universities providing extensive degree and postgraduate education, which also host New Zealand’s Centres of Research Excellence.
  - Wānanga - New Zealand’s three wānanga provide education using Māori styles of teaching and learning.
  - Private training establishments (PTEs) – over 200 PTEs, which are not state owned and often specialise in a specific industry or area of study, usually with a vocational focus. Most are approved by the Tertiary Education Commission so receive direct Government funding. Students enrolled on their programmes can receive a subsidised student loan.
  - Institutes of Technology and Polytechnics (ITPs) – 14 government-owned institutions delivering technical, vocational and professional education.
Degree-level programmes are delivered across all types of tertiary provider, but most undergraduate and postgraduate students are enrolled at a university.

Other agencies:
- **Education New Zealand** (ENZ) – involved with international student recruitment to New Zealand and also business development in working with New Zealand’s international education industry to develop education business products and services and deliver/sell these overseas.
- **Careers New Zealand** – delivers CIAG via their website, provides a helpline, offers training and development, and works with/references to other related organisations to address local and national education-to-employment needs.
- **New Zealand Qualifications Authority** (NZQA) – administers the New Zealand Qualifications Framework (NZQF), including the secondary school assessment system. The body approves qualifications offered by all institutions apart from universities, which do not require NZQA approval.
- **Universities New Zealand** (UNZ) – sector representative body of the country’s eight universities, which also has responsibility for the quality of university programmes and administers a range of scholarships. It must approve new programmes proposed by universities.
- **Ministry of Business, Innovation and Employment** (MBIE) – with their role including to ensure that businesses have access to the skills they need and that current and future demand for skills is met. To bring skills and economic development together, the Ministry of Business, Innovation and Employment (MBIE) and Ministry of Education work together under the **Tertiary Education, Skills and Employment portfolio** (and one single minister).

**Stakeholder Engagement in Service Design and Delivery**

- **Industry Training Organisations** – brokers between employers and tertiary education providers. ITOs set national skill standards, lead qualifications development, arrange workplace training, and work with tertiary education providers to develop and deliver skills needed by trainees and industry. (NZPC, 2016) There are 11 ITOs in total.

**Funding of HE, FE and Work-Based Learning**

- Tertiary education (which covers all post-secondary learning types, including HE, applied and vocational training, and training in foundation skills) is funded by the **Tertiary Education Commission**.
  - It invests approximately $2.8 billion per annum across institutions.
  - It does so through Investment Plans that are negotiated between providers and the TEC, with performance targets included.
  - Funding allocations are based primarily on student numbers or research funding.
- The New Zealand universities receive approximately 40% of their annual income from government grants - $1.4 billion of the combined total income of $3.5 billion recorded in 2013. The remaining income is split evenly between student fees and other sources – principally research contracts and trading income.

**Funding Long-Term HE Innovation**

- Funding is made available directly from central government, with a May 2016 announcement stating:
  - $410.5 over 4 years for science and innovation funding which includes increases in contestable funds, which include the:
    - **Endeavour Fund**, previously known as the Ministry of Business Innovation and Employment Contestable Fund, which has been re-focused towards longer-term, high impact, mission-led programmes of science.
    - The Marsden Fund which supports excellence in science, engineering, maths, social sciences and humanities by providing grants for investigator-initiated research. It is highly sought after by New Zealand scientists.
- An estimated $30.4m to increase tuition subsidies for science (5%), agriculture (16%) and veterinary science students (9%) and to fund additional places in engineering and medicine;
- $35m for new innovation initiatives in the university sector.

**Regionalisation of Funding**
- No evidence of regionalisation of funding.

**CIAG Services**
- **Careers New Zealand** delivers CIAG via their website, provides a helpline, offers training and development, and works with/references to other related organisations to address local and national education-to-employment needs (OECD, 2013b). The agency:
  - Provides the same level of support, and subsidy, for all apprentices regardless of age.
  - Boosts apprenticeship funding (up 20% with government/business split going from 70:30 to 80:20), education content and status.
  - Sets clear performance criteria in terms of completion and qualification attainment rates.
  - Increases competition by allowing employers direct access to apprentices.

**Managing Performance**
- The Government (i.e. Ministry of Education) has some levers over tertiary education – but institutions are largely autonomous. The levers are:
  - The Tertiary Education Strategy.
  - ‘Letters of expectation’ from the responsible minister.
  - Formal ministerial directions.
  - Feedback on draft Statements of Intent.
  - Powers to determine the constitution and membership of institutions’ Councils (i.e. Boards).
- The **New Zealand Qualifications Authority (NZQA)** ensures quality assurance is effective and efficient in colleges.
- **Universities New Zealand** does the quality assurance role for universities.
- New Zealand is now making greater use of data to assess the performance of institutions and the Tertiary Education Commission and NZQA are becoming more active and intervening when there are concerns about particular institutions. The Tertiary Education Commission intends to undertake 75 institutional audits in 2015/16 as opposed to 30 in previous years (Cannicott, 2016).

**Evaluations of Systems**
- New Zealand has a highly devolved education system, meaning that the Ministry of Education must act as a steward and support collaboration across the sector (ME, 2014a).
- Quality assurance in New Zealand tertiary education is strong with increased focus over time on outcomes rather than demand for courses from students (OECD, 2013b).
- Funding and regulation should be more outcome-focused – as this will help inform the Tertiary Education Commission’s funding decisions (ME, 2014a). For example:
  - TEC being more active in reallocating funding to providers who are performing well and signalling when it will fund more student places in programmes with high demand and are achieving good outcomes.
- Enabling the TEC to fund more innovative types of activities, such as consortium arrangements or to purchase programmes that require provider/industry connections.

**Emerging Issues and Challenges**

- Despite high levels of qualifications in New Zealand, productivity is lower than might be expected. Other challenges noted by MBIE (2014) are:
  - Placing firms at the centre of skills development to increase productivity levels, skills utilisation in workplaces, and employer investment in training.
  - Ensuring the education systems delivers students that meet labour market needs – and particularly skills shortages.
  - Improving the economic outcomes of tertiary education – the current system could better incentivize providers to deliver economic relevance and better outcomes for at-risk groups, and contribute to wider economic growth.
- A focus on institutional autonomy highlights an awkward tension in New Zealand’s higher education system. With the New Zealand Government still responsible for most of the income received by universities (and many private institutions), ministers have considerable power as the ones who hold the purse strings – despite the development of a quasi-market. Ministers also have the remarkable power to affect the management of institutions. They appoint members of university councils and have recently implemented changes to force a restructure of university boards. Although universities have the freedom to run their own quality assurance regime, ministers have the power to influence the running of individual universities through their ability to appoint members of governing boards (Cannicott, 2016).

**Significant Recent Changes**

- In 2014, the Government announced industry training reforms that remove the modern apprenticeship and create a single apprenticeship programme for youth and adults under the ‘New Zealand apprenticeship’. The key differences between the old and new apprenticeship schemes are:
  - Unlike Modern Apprenticeships, which were designed for people between the ages of 16 and 21, New Zealand Apprenticeships will be available to anyone over the age of 16.
  - Under the Modern Apprenticeships scheme you could work towards a Level 3 national certificate, but under the New Zealand Apprenticeships programme you must work towards a minimum of a Level 4 national certificate.
- New Zealand is now making greater use of data to assess the performance of institutions and the Tertiary Education Commission and NZQA are becoming more active and intervening when there are concerns about particular institutions. The Tertiary Education Commission intends to undertake 75 institutional audits in 2015/16 as opposed to 30 in previous years (Cannicott, 2016).

**Summary Overview**

- New Zealand package all their post-secondary skills provision under the term ‘tertiary education’ and this gives the sense of an integrated system under the direction of the Ministry of Education and with funding allocated through the Tertiary Education Commission.
- In practice, it is not as integrated as it may first seem – partly because the tertiary education institutions are autonomous and government has limited
levers to influence their actions (though it is trying to increase these to help improve educational outcomes and workforce productivity).

- In terms of working across skills and economic development, the Ministry of Business, Innovation and Employment (MBIE) and Ministry of Education work together under the Tertiary Education, Skills and Employment portfolio and have the same minister.

References:

- Ministry of Education (2014b) *We Get the Job Done – Organisation: Briefing to Incoming Minister.*

Websites:

- Education New Zealand – [www.enz.govt.nz](http://www.enz.govt.nz)
Policies
- No clear education and skills policy identified for Norway.
- However, reading across the available documentation:
  - Norway’s post-secondary education and skills system has been under strong government review in recent years with key concerns about the quality of provision (and research) of institutions, despite the high levels of funding spent on education. In general, the OECD report that Norway has a complicated and diverse system and there is a need for a more strategic, coordinated approach led and driven by the government.
  - The big policy focus is on Norway’s HE institutions, which numbered 53 in 2015. This is a very high number and came about due to the need to serve Norway’s more remote areas and help prevent a ‘brain drain’ to its more populous areas. However, this situation meant a lot of small institutions, quality issues, high levels of duplication in provision, and competition rather than collaboration between institutions.
  - Reforms are afoot with the OECD involved and an Expert Group appointed. These reforms will reduce the number of HE institutions (primarily through mergers) and potentially establish multi-year contracts between the Ministry of Education and Research and each HE institution. These contracts will likely increase the performance-related funding element that has existed in Norway since 2002.
  - Norway’s HE system is far greater in scale than its college system and the college sector has suffered from a lack of political attention, weak governance and leadership (including from national government), and limited employer buy-in. Again reforms are underway (or at least recommended) that will aim to increase the quality of provision and increase employer input into college provision.

Government
- Inside the Ministry of Education and Research, the **Department of Higher Education** has overall responsibility for HE, post-secondary vocational education and training, as well as research and researcher training. It has sections for:
  - Ownership and Governance.
  - Budget and Finance.
  - Research and Innovation.
  - Higher Education Structure and Quality Assurance.

Agencies
- **NOKUT** – Norwegian Agency for Quality Assurance in Education – is responsible for the accreditation and quality assessment of HE and tertiary vocational education. It sits under the Ministry of Education and Research.
- **Vox – the Norwegian Agency for Lifelong Learning**, which is an agency of the Ministry of Education and Research. VOX’s main goal is to contribute to supporting active citizenship, improving employability and increasing participation in education. It promotes access and participation in formal, non-formal and informal adult education through research, basic skills, integration, career guidance and programmes and subsidies. Overall it is focused on the more basic, community learning type activities rather than colleges and work-based learning.
Other agencies:

- **Regional/county authorities** – their specific role is unclear but they are involved in managing education and skills provision in their areas. The education budget for primary and secondary education for adults is the responsibility of the municipal and county educational authorities, which are given a state grant for these purposes.

- **Upper secondary schools** are administered by the regional authorities, the counties. The large majority of the schools are public, owned by the counties. While the schools to some extent specialise and offer a full education in different areas, the goal is that every county should offer most educational programmes.

- The lead enterprise/economic development agency is **Innovation Norway** – and it supports start ups, growth companies and clusters, internationalisation and sustainability. However, while there is mention of a tripartite approach to education and skills policy, Innovation Norway is not clearly involved.

**Stakeholder Engagement in Service Design and Delivery**

- Norway’s county authorities are responsible for ensuring provision of accredited tertiary vocational education considers and meets local, regional and national competence requirements within priority sectors.

**Funding of HE, FE and Work-Based Learning**

- **For HE** – HE institutions are funded directly by the Ministry of Education and Research. The allocation is an annual block grant for each HE institution consisting of one part long-term and strategic funds, and one part based on results on indicators of performance within the areas of education and research. The amount of long-term and strategic funds for each institution depends on a long history of specific priorities made over time, while result based funding is determined by a system of indicators with incentives for improving performance in higher education and research. Thus both the total block grant and the proportion of it that consists of long term and strategic funds and result based funds, vary between institutions.

- **For FE and Work-Based Learning** – the education budget for primary and secondary education for adults is the responsibility of the municipal and county educational authorities, which are given a state grant for these purposes. The remaining adult education programmes are financed by earmarked grants or subsidised by the government. Grants are given to county authorities, municipalities, organisations and institutions, companies and national associations of companies in accordance with the requirements of the Adult Education Act.

**Funding Long-Term HE Innovation**

- The **Research Council of Norway**’s sphere of action encompasses all subjects and disciplines, all thematic areas and all aspects of society, from basic research to research-based innovation and commercialisation. Research funding allocated via the Research Council’s competitive arenas may be awarded to all qualified Norwegian research environments, companies and public entities.

- Allocations to infrastructural and institutional measures make up slightly less than 25% of the Research Council’s overall annual budget. These include:
  - Basic funding to research institutes receiving government funding – and these are allocated by means of closed application rounds.
  - Support to R&D groups that fall outside the framework for government funding.
- Funding to Centres of Excellence and Centres for Research-based Innovation.
- Funding for scientific equipment and databases/collections.

**Regionalisation of Funding**
- Norway’s county authorities are responsible for ensuring provision of accredited tertiary vocational education considers and meets local, regional and national competence requirements within priority sectors. The education budget for primary and secondary education for adults is the responsibility of the municipal and county educational authorities, which are given a state grant for these purposes.

**CIAG Services**
- **Vox** – the Norwegian Agency for Lifelong Learning – coordinates CIAG services in Norway through the National Unit for Lifelong Guidance. The main objective of the Unit is to improve the quality and accessibility of CIAG services.
- In terms of delivery of CIAG services, the picture is very fragmented. The need for national coordination and for overarching guidelines was the initial motivation for establishing the National Unit for Lifelong Guidance.

**Managing Performance**
- In HE, a new system of institutional governance was introduced in 2003 – and gave institutions more autonomy in internal organisation and leadership. This was accompanied by a new funding system and stronger monitoring mechanisms through the establishment of a national quality assurance agency (NOKUT).
- OECD (2016) states that funding is 96% from public sources, compared with 70% average across OECD countries. Most (c.80%) comes through a block grant from central government – and from 2002 there is a performance-based element to this (accounting for 1/3 of the block grant). The performance-based element is determined by a number of indicators, such as study credit points, student exchanges with foreign institutions and research publications.
- Reported in OECD (2016) the Expert Group recommend multi-year performance agreements (contracts) between the Ministry of Education and Research and each HE institution with the aim of incentivising differentiation and quality improvement. The Government agrees with these – and plans to increase the performance-related aspect to them.

**Evaluations of Systems**
- Norway has one of the highest levels of spending on education – and, as a result, could reasonably expect a higher level of performance from its national skills system (OECD, 2014).
- In 2013, the Government appointed a public commission to review the tertiary vocational education sector in order to examine how the sector can be further developed (Grund et al, 2014).
  - The strengths the commission identified included the tripartite cooperation (government, industry and education) on technical and vocational education which will help adapt colleges to new challenges.
  - The weaknesses the commission identified included that the sector has:
    - Lacked political attention, and so is described as having ‘dormant potential’.
- Not been developed according to a long-term strategic approach.
- An ‘unfortunate line of governance’.
- An inappropriate financing system and structure that does not encourage quality.
- Industry’s lack of ownership of the sector.
- Is too large and diverse and lacks structure and control.

- In HE, OECD (2016) states that Norway’s HE system is well-run overall, with a strong commitment to inclusiveness and equity, and an emphasis on quality. However, weaknesses are:
  - Weak learning outcomes.
  - Relatively low completion rates.
  - Long duration of studies.
  - A fairly dispersed structure – there were 53 HE institutions in 2015, many of which are small.
  - Fewer internationally top-ranking universities than in Nordic peers.
  - Relatively high costs of the system in terms of spending per student or share of GDP – point to efficiency and quality issues.

**Emerging Issues and Challenges**
- OECD (2014) highlight the need to facilitate a ‘whole-of-government approach to skills’ with effective horizontal co-ordination across ministerial silos and concrete mechanisms to develop and deliver on shared goals.
- Vertical co-ordination across national, county and municipal levels is seen as particularly complex in Norway where overlapping boundaries of different agencies for education, labour and migrant integration services do not correspond with county limits (OECD, 2014).
- Norway’s HE sector has too many small institutions, with related issues in terms of quality of teaching and research, high levels of duplication in provision, and competition rather than collaboration between institutions.
- Norway’s college sector has suffered from a lack of political attention, weak governance and leadership (including from national government), and limited employer buy-in. Again reforms are underway (or at least recommended) that will aim to increase the quality of provision and increase employer input into college provision.

**Significant Recent Changes**
- In relation to colleges, the Grund review (2013) proposed the move towards larger, regional public vocational colleges – with the State owning these. In time, all colleges should be fully financed by the State, with colleges having robust financial management in place.
- In relation to HE, in 2014 the Government outlined seven measures for HE and research over the next four years. Those most relevant to this review are:
  - Appoint an expert group to examine the funding for universities and university colleges. The overall goal is to see how changes in the funding system can help strengthen the quality of HE and research.
  - Produce a White Paper on the structures of HE – with the aim of ensuring high quality across all courses. This may lead to a reduction in the number of HE institutions. The **Storting White Paper** is being worked on and, in essence, will establish which universities and university colleges are to be kept (this will likely lead to mergers rather than a loss of campuses).
  - Produce a long-term plan for HE and research – so supporting and encouraging long-term planning among HE institutions.
Government funding/contributions to employers for apprenticeships is increasing.

Summary Overview
- Norway’s existing post-secondary education and skills system is not delivering as effectively as it should given the high levels of public funding invested in it. It has a complex and diverse system that consists of a large number of small institutions under (a combination of) national and regional control. Quality of provision is seen to be suffering and reforms are underway to address the system’s shortcomings.
- Key reforms in HE include a greater strategic role for national government, an increase in performance-related funding to universities, and mergers of institutions to reduce their number and increase their quality.
- The college sector is far smaller in scale but again quality of provision is seen to be relatively poor. The profile of the colleges, standards/quality, and employer engagement in colleges all need to be increased.
- In terms of who is overseeing these reforms, the Ministry of Education and Research is the key organisation, as is its NOKUT agency which will see its role shifting from course/programme approval to institutional accreditation, supervision and quality development.

References:

Websites:
- Vox - www.vox.no/English
Policies

- **SkillsFuture** (Singapore’s skills strategy) is focused on encouraging lifelong learning and increasing productivity, with this facilitated by a responsive and high quality skills system. It has four key ‘thrusts’:
  - Help individuals make well-informed choices in education, training and careers.
  - Develop an integrated high-quality system of education and training that responds to constantly evolving needs.
  - Promote employer recognition and career development based on skills and mastery.
  - Foster a culture that supports and celebrates lifelong learning.

- The next step of SkillsFuture is to implement a sector-focused effort to develop quality careers through skills. This matches the sectoral approach to productivity transformation under the National Productivity Council (MOE, 2016b).

- **Sectoral Manpower Development Plans** have been developed in collaboration with sector lead agencies, employers and unions. Their purpose is to produce medium-term manpower and skills plans for each sector to support industry growth and productivity efforts.

Government

- Singapore’s governmental education and skills bodies are seemingly in a period of change at the moment.
- The main government departments are the **Ministry of Education** and **Ministry of Manpower** and these remain – but the agencies beneath them have changed, while there are new national Councils being established to provide more strategic and coordinated drive and overview across the different agencies.
  - **The Ministry of Education** (MOE) formulates and implements education policies on education structure, curriculum, pedagogy, and assessment. It oversees the management and development of Government-funded schools, and the Institute of Technical Education, polytechnics and universities.
  - **The Ministry of Manpower** is responsible for work passes and permits, employment practices, skills and training, and workplace safety and health.

Agencies

- **SkillsFuture Singapore** drives and coordinates the implementation of SkillsFuture (Singapore’s skills strategy) and has a holistic view of the adult education and training industry. It sits under the Ministry of Education, with its board including the Ministry of Education, Ministry of Manpower, Ministry of Trade and Industry, employers, universities and polytechnics.
- **Singapore Workforce Development Agency** (soon to be re-constituted into a new statutory board – **Workforce Singapore**) will focus on CIAG, jobs, employability, up-skilling and ensuring enterprises can become manpower-lean while remaining competitive.

Other agencies:

- The tripartite **Council for Skills, Innovation and Productivity** (CSIP) has been established in 2016 comprising members from government, industry,
unions and education and training. It will integrate and achieve maximum synergies between skills, innovation and productivity efforts.

- There is also mention of the SkillsFuture Council but this may have been superseded by SkillsFuture Singapore (see above).
- Economic development/enterprise is separately directed and managed through the Singapore Economic Development Board.

**Stakeholder Engagement in Service Design and Delivery**

- Singapore has a very strong tripartite approach to skills planning with government, education and industry all involved. This is reflected in the Council for Skills, Innovation and Productivity and SkillsFuture Singapore.

**Funding of HE, FE and Work-Based Learning**

- The MOE directly funds the Institute of Technical Education, polytechnics and universities and is increasingly looking at the economic relevance, quality of provision and cost-effectiveness (i.e. return on investment) of funding allocations.

**Funding Long-Term HE Innovation**

- The universities have encouraged innovation and knowledge exchange with industry through (Lim, 2014):
  - Student internships in industry.
  - Integrating innovation into curricula.
  - Encouraging entrepreneurialism — e.g. incubation and accelerator units.
  - Research Institutes established with industry.
- The Singapore Government encourages and supports university-industry collaboration in helping to deliver the Research, Innovation and Enterprise 2015 plan. In the next five years (2016 to 2020), under the sixth science and technology plan for Singapore - the RIE2020 Plan - the government has committed $19 billion to research, innovation and enterprise in order to take Singapore to the next stage of development.
- The National Framework for Innovation and Enterprise (NFIE) is a national programme to grow innovation and entrepreneurship in Singapore. The NFIE aims to encourage universities and polytechnics to translate their research into commercial products for the market and assist entrepreneurs to set up technology-based companies. The NFIE is administered by the National Research Foundation (NRF) and the Prime Minister’s Office and currently supports the following schemes:
  - **Early Stage Venture Fund** (ESVF) - the NRF invests S$10 million on a 1:1 matching basis, to seed several venture capital (VC) funds that invest in Singapore-based early stage high-tech companies.
  - **Proof-Of-Concept Grants** (POC) - This grant of up to S$250,000 is for technology proof-of-concept projects. NRF administers the scheme for university and polytechnic researchers while SPRING Singapore (the government agency responsible for small businesses) runs a parallel scheme for companies.
  - **Technology Incubation Scheme** (TIS) The NRF co-invests up to 85% (capped at S$500,000) in Singapore-based start-up companies incubated by seeded technology incubators who provide their investee companies with physical space, mentorship and guidance.
  - **Innovation Cluster Programme** - encourages technology organisations and economic agencies to work with industry to form innovation clusters. It seeks to strengthen partnerships across companies, universities, research institutes and government to bring
ideas quickly to market, raise productivity, create jobs and grow the sector.

Regionalisation of Funding
- There is no regionalisation of funding due to the small size of Singapore.

CIAG Services
- The Singapore Workforce Development Agency (to soon become Workforce Singapore) is responsible for delivery of CIAG services.
- It delivers the all-age Education and Career Guidance (ECG) service which is available in schools to universities to adults in WDA centres
- As set out in the Continuing Education and Training (CET) Masterplan (WDA, 2014), it will:
  - Develop an online education, training and career guidance portal for individuals to chart and review their education, training and career developments, starting from when they are in schools and through their careers.
  - Continue to support the Lifelong Learning Exploration Centre at the Lifelong Learning Institute (LLI) for visitors to learn more about themselves through profiling tests and games, and explore learning pathways that can help them fulfil their career aspirations.
  - Continue to raise the professionalism of its career coaches to deliver education, training and career guidance, particularly in providing support to different workforce segments. The number of career coaches at its career centres will also be increased to enhance outreach and assistance to individuals.

Managing Performance
- Very limited information on this but Singapore’s universities are publicly-funded and have been autonomous since 2005. While ‘autonomous’, there would appear to be strong government influence through annual Policy and Performance Agreements and government representation on the universities’ Board of Trustees.

Evaluations of Systems
- Fitzpatrick (2015) states that the strong direction provided by ministers and civil servants have been instrumental in the development of Singapore from the 1960s inwards. However, this may have led to conformist and ‘safety first’ citizens.
- Long (2014) notes Singapore’s workforce development approach is deliberate and systematic and has four key features:
  - Government-shaped national human resources policies, tailored to each phase of economic development.
  - Incentives for foreign investors to collaborate with the state on establishing training centres.
  - An education policy that promotes long-term skills development
  - Facilitation of communication and coordination among government agencies, via a tripartite structure.

Emerging Issues and Challenges
- Fitzpatrick (2015) notes that Singapore’s education system needs to move from uniformity to diversity, from rigidity to flexibility, from conformity to resilience, and from molding to empowering. By doing so, the education system can encourage greater creativity and innovation.
Significant Recent Changes

- In place now for 10 years, Singapore’s universities have been made publicly-funded, autonomous institutions to enable them to be more responsive to opportunities and challenges, and to become world-leading institutions. At the time (i.e. 2005), there was mention of the universities having to develop and agree annual Policy and Performance Agreements but hard to find any later mention of these.
- As set out in the Continuing Education and Training (CET) Masterplan (WDA, 2014), the Singapore Workforce Development Agency will introduce more structured workplace-based learning. Workplace-based learning is an integral component of the CET system, and complements institution-based training. Such training is conducted in authentic learning environments, which enable trainees to apply the skills acquired immediately. SWDA will work with training providers, sector lead agencies and industry to mount more Place-and-Train programmes, including those targeted at fresh polytechnic and ITE graduates.
- As indicated above, there is an increasing shift towards the skills system encouraging lifelong learning and boosting productivity – particularly in key sectors (with the Sector Manpower Development Plans prominent here).
- With SkillsFuture, there has been a shift from frontloading education in the first 20 years of a person’s life to lifelong learning. This will also help develop a career-resilient and future ready workforce (Tan, 2014).

Summary Overview

- Notwithstanding some difficulties sourcing key information, the Singapore government places a very strong emphasis on skills and building the productivity of its workforce. It has instigated a number of recent changes to boost productivity with tripartite planning continuing as part of this, while organising activities around key sectors is also important.
- Central/tripartite planning is therefore very strong in Singapore and this ensures industry is involved, but the apparent exception is Singapore’s universities which are publicly-funded and autonomous. This change was made in 2005 to enable the universities to be more globally responsive and competitive. While ‘autonomous’, there would appear to be strong government influence through annual Policy and Performance Agreements and government representation on the universities’ Board of Trustees.

References:

• Singapore Workforce Development Agency (2014) *Continuing Education and Training Masterplan*.
• Tan, J (2014) *The Prospect of Future Skill Development in Singapore*.

**Websites:**
• Ministry of Manpower – [www.mom.gov.sg](http://www.mom.gov.sg)
SWEDEN

Policies
- There is no clear, evident national skills strategy but the government's website highlights the importance of high quality of provision, stronger linkages with employers and the workplace, and equality of opportunity for all young people across school, vocational and high education.

Government
- The Ministry of Education and Research is the lead government department responsible for the whole education and skills agenda in Sweden. The Ministry sets the policy for the education system and its agencies are tasked with implementing these.
- The administration of the Swedish education system is decentralised to municipal level and there is no regional administrative level for education although county councils may be responsible for upper secondary schools and adult education. The municipalities are responsible for the organisation of practically all public education below university level (with universities managed by the Ministry).

Agencies
- **Swedish National Agency for Higher Vocational Education**, which is responsible for vocational education but with this delivered in and/or organised by secondary schools. This provision is the closest equivalent Sweden has for colleges and WBL. Its responsibilities are:
  - Deciding which programmes qualify to be offered as Higher Vocational Education.
  - Allocating government grants.
  - Analysing labour market demands for qualifications.
  - Carrying quality assurance.
- **Swedish Higher Education Authority** (UKA) is primarily involved with the quality assurance of Sweden’s HE provision. Its three main functions:
  - Quality assurance of higher education and appraisal of the degree-awarding powers of public-sector HE institutions.
  - Legal supervision of HE.
  - Monitoring efficiency and outcomes, horizon scanning and statistics for the sector.

Other agencies:
- **Arbetsformedlingen** (Public Employment Service) is responsible for the management and delivery of labour market policies in Sweden – effectively it is like DWP/Jobcentre Plus with activities mainly focusing on employability and jobseekers.
- **Upper secondary schools** – for organising, funding and managing apprenticeships and vocational education. They are overseen by the Swedish National Agency for Higher Vocational Education.
- **Swedish Agency for Economic and Regional Growth** is the national government agency tasked with promoting entrepreneurship and regional growth.
- **Vinnova** is Sweden’s innovation agency working under the Ministry of Enterprise and Innovation. Founded in 2001, it promotes collaborations between companies, universities, research institutes and the public sector.
Stakeholder Engagement in Service Design and Delivery

- Businesses and organisations actively input into the planning and delivery of Higher Vocational Education (HVE) programmes – for example, employers and industry representatives are members of programme steering group committees; and may also give lectures and offer work placements.
- In 2010, the government introduced Skills Platforms and asked local, regional and national actors to participate to stimulate collaboration, with this co-ordinated by the regions (OECD, 2015b).

Funding of HE, FE and Work-Based Learning

- **For HE** – the Ministry of Education and Research funds universities and university colleges. In receiving allocations for undergraduate education, HE institutions are provided with the goals and framework for the coming year. The goals stipulate:
  - Targets for certain courses in terms of number of degrees over a four-year period, as well as planning forecasts for a four-year period.
  - Targets for the number of full time students in certain subject areas which are a national priority (at present in science and technology).
  - Maximum total remuneration, i.e. the maximum amount that may be generated by the number of full-time students and their performance for the budget year.
  - Specific commitments that may require additional compensation.

- **For FE and work-based learning**, which is delivered through secondary schools, funding is shared between the state and the municipalities. The municipalities receive revenues from municipal taxes to finance municipal activities. State funds are paid as what is called ‘the general state grant’ to the 290 municipalities. Each municipality then allocates resources to individual schools.

Funding Long-Term HE Innovation

- The **Knowledge Foundation** is the research financier for universities with the task of strengthening Sweden’s competitiveness and ability to create value.
  - The Knowledge Foundation was established in 1994 and since then it has invested some SEK 9.1 billion in more than 2,500 projects.
  - The Knowledge Foundation strives to help Sweden’s new universities create internationally competitive research environments, work long-term on strategic profiling and increase cooperation between academia, industry, institutes and society. Universities are responsible for a significant portion of knowledge development and research. Many are leaders in their own special areas, cooperate extensively with industry and contribute to strengthening Sweden’s competitiveness and creating growth.
  - The Knowledge Fund was once just a balance sheet item, left over from when the employee funds were discontinued, and has developed into an important funding body for the country’s new universities and HEIs.

- **Vinnova** is Sweden’s innovation agency working under the Ministry of Enterprise and Innovation and acts as the national contact agency for the EU Framework Programme for R&D. Founded in 2001, it promotes collaborations between companies, universities, research institutes and the public sector. It does this by stimulating a greater use of research, by making long-term investment in strong research and innovation environments and by developing catalytic meeting places. Its activities also focus on strengthening international cooperation.
Regionalisation of Funding

- Sweden has a strong federalist tradition and this means that in many broad areas policy goals are set by the Swedish Parliament and national government, while the implementation is carried out by other levels of government – particularly the municipalities. The two major exceptions are the national employment agency (Arbetsformedlingen) and the social insurance agency (OECD, 2015b).

CIAG Services

- Educational and vocational guidance is offered through the entire educational system, as well as by the Swedish Public Employment Service (PES) (SCHE, 2015).
- There are several publicly funded websites that offer information about education and working life to Swedish citizens. These online services mainly provide information and advice, rather than eGuidance, but online career guidance tools are also available (SCHE, 2015).
- Financing for guidance services is part of total funding, so this is not directly allocated unless there are specific initiatives or investments from the two ministries involved – the Ministry for Education and Research and the Ministry of Employment (SCHE, 2015).

Managing Performance

- Higher education is delivered by independent universities, but with 80% of funding coming through public budgets. Within the sector, there has been a definite emphasis in the last 5 years on raising quality standards with the Swedish Higher Education Authority leading this work. Their quality assurance work focuses on the delivering of learning outcomes, rather than destinations and outcomes of students.
- The Swedish Higher Education Authority has been commissioned to develop a new system to ensure the quality of Sweden's higher education programmes. The decision about the new system is scheduled for September 2016.

Evaluations of Systems

- Overall, Sweden can be described as pursuing a policy of disciplined collaboration, rather than a geographical integration of all policy instruments (OECD, 2015b). There is an encouragement of collaboration but the division of responsibilities across the different levels and layers of government represents a major challenge.
- At college level, OECD (2015a) report that Sweden’s HVE programme appears to be an innovative and flexible model, which involves employers and includes a workplace training component.

Emerging Issues and Challenges

- OECD (2015a) report that Sweden has a well-educated population but the education system could be better connected to the labour market. Enhancing the engagement of employers, providing more part-time training options and increasing work-based training opportunities could help to reduce potential skills mismatches.
- OECD (2015a) note considerable geographical variations with some areas characterised by a ‘high skills equilibrium’ and others a ‘low skills equilibrium’ where a combination of low productivity and a low-skilled workforce can act as barriers to job creation.
Significant Recent Changes

- Sweden’s post-secondary skills system has been in place for many years, with the introduction of apprenticeships in 2008 the only evident recent change. Vocational education is organised and delivered through schools – with apprenticeships seen as an alternative delivery model within this system. Typically, vocational education requires 15 weeks of work-based learning, while apprenticeships (with c.3,000 starts per annum) require half of the programme in work-based learning. The Swedish National Agency for Higher Vocational Education is the government agency for assessing quality standards in the sector and allocating funding for courses depending on labour market need.
- The Swedish Higher Education Authority has been commissioned to develop a new system to ensure the quality of Sweden’s higher education programmes. The decision about the new system is scheduled for September 2016.

Summary Overview

- Sweden appears to have a stable post-secondary skills system with schools leading on vocational education, with universities leading on HE.
- To ensure quality provision in schools and universities, the government has two agencies that are primarily focused on quality assurance – although the Swedish National Agency for Higher Vocational Education is also involved in allocating funding for vocational education courses depending on labour market need.
- The OECD view is that the system could work more closely with industry but there is evidence that employers are involved – with work-based learning prominent in the vocational education system.
- The OECD also note that employment policy could better respond to and meet local and regional needs, but this is a reflection of the national government having a national labour market perspective that emphasises labour market mobility within the country to meet skills needs.

References:


Websites:

- Ministry of Education and Research – www.government.se/education
- Swedish National Agency for Higher Vocational Education – www.myh.se
- Swedish Higher Education Authority – www.uka.se
Policies

- The Swiss Education Report has been published every 4 years since 2006 and includes data and research on the Swiss education system. The Swiss Education Report is intended to guide the development of education and skills policy making in Switzerland. The most recent Swiss Education Report was published in 2014.
- The Federal Department of Economic Affairs, Education and Research (EAER) has presented 6 main objectives for 2016 – one of which relates to skills namely:
  - “Switzerland remains a leader in education, research and innovation and makes the most of the potential of its labour force.”
- More specifically, with the agreement of the cantons, EAER has established Promotion of Education, Research and Innovation 2013-2016, which aims to:
  - Satisfy the demand for workers with general education or vocational and professional education and training qualifications.
  - Consolidate the high level of grant funding awarded on a competitive basis and further strengthen Switzerland’s internationally competitive position.
  - Establish Switzerland as a location where research and economic activities are based on the principles of equal opportunity, sustainability and competitiveness.

Government

- Switzerland is a federal state composed of 26 cantons (with the government referred to as the Confederation).
- At the federal level, the Federal Department of Economic Affairs, Education and Research (EAER) is responsible for skills.
- The Swiss Conference of Cantonal Ministers of Education (EDK) co-ordinate the work of the cantons at the national level. There are a number of EDK agencies – but most focus on primary and secondary-level education.

Agencies

- Under the Federal Department of Economic Affairs, Education and Research, there are 5 agencies and 8 organisations. Those with most relevance to skills are:
  - State Secretariat for Education Research and Innovation (SERI).
  The remit of SERI is to:
    - Establish a strategic overview of the Swiss education, research and innovation system and preparing federal performance and resource plans.
    - Pursue international networking activities and ensuring that Switzerland remains involved in European and global education, research and innovation efforts.
    - Foster a broad and diverse range of education opportunities, ensuring that academic and vocational/professional pathways remain fully equivalent and compatible with one another.
    - Maintain and improve the quality and appeal of vocational/professional pathways in keeping with changes taking place on the labour market.
    - Safeguard the high quality of teaching and research at higher education institutions.
- Encourage research and innovation, coordinating tasks and measures of federal research funding institutions.
  - Encourage and coordinate Swiss space research activities.
  - **Swiss Federal Institute for Vocational Education and Training** (SFIVET) is the Swiss expert organisation for vocational education and training.

- There are four types of universities.
  - Canton universities.
  - The Federal Institutes of Technology (ETH).
  - Universities of applied sciences (UAS).
  - Universities of teacher education (UTE).

- The Federal Act on the Funding and Coordination of the Higher Education Sector has established three new bodies with responsibility for coordinating higher education policy.
  - The **Swiss University Conference (SUC)** has responsibility for higher education policy and ensures that federal and cantonal activities are coordinated. The Confederation acts as the President of the SUC and is responsible for its management and operation.
  - **swissuniversities** replaces the previous three rectors’ conferences. Each institution is represented on swissuniversities by its rector or president. The focus of swissuniversities is on strengthening collaboration between Swiss higher education institutions.
  - The **Swiss Accreditation Council** is responsible for accrediting Swiss higher education institutions. Universities must be accredited to receive public funding.

- One of the other EAER agencies – the **Commission for Technology and Innovation** (CTI) – is responsible for funding and encouraging innovation.

Other agencies:
- Enterprise and economic development functions also sit within the Federal Department of Economic Affairs, Education and Research.
  - The lead agency within the Department responsible for enterprise and economic development is the **State Secretariat for Economic Affairs** (SECO).
  - Whilst skills and economic development activities sit within the same Department, there are no clear links between the activities, with separate agencies/organisations in place.

**Stakeholder Engagement in Service Design and Delivery**
- Professional organisations – including trade associations, social partners and employers – play a key role in the development and delivery of vocational and professional education and training (VPET) including:
  - Establishing the training content of VPET courses.
  - Providing apprenticeship positions.
  - Managing VPET funds – with professional organisations able to request the establishment of mandatory VPET funds payable by all companies within their sector.
  - Developing new courses.

- Stakeholders do not appear to play a significant role within the university sector.

**Funding of HE, FE and Work-Based Learning**
- The majority of funding is allocated either by agencies or organisations of the Federal Department of Economic Affairs, Education and Research (most commonly SERI) or by the cantons.
• Little detail is available on how funding is allocated.

Funding Long-Term HE Innovation
• Most publicly-funded research is carried out by cantonal universities and institutions under the ETH Domain. This includes:
  - 2 Federal Institutes of Technology (FIT) – ETH Zurich and EPF Lausanne. These are essentially research-led universities.
  - 4 affiliated research institutes – Paul Scherrer Institute (PSI), Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Swiss Institute for Materials Science and Technology (EMPA) and Swiss Federal Institute of Aquatic Science and Technology (EAWAG).
• Universities of applied sciences also receive funding for research – but this tends to be applied in nature.
• The Confederation also provides funding to around 30 other non-university research institutions such as the Swiss Institute for Allergy and Asthma Research, the Swiss Institute of Bioinformatics and the Swiss Tropical and Public Health Institute.
• A range of other funding is also available for research including through the Swiss National Science Foundation.
  - One of its key funding streams is for the National Centres of Competence in Research (NCCRs). Funding is provided for research initiatives that have a nationwide scope, with a particular focus on those that take interdisciplinary or innovative approaches. NCCRs also have a key role in facilitating knowledge transfer. Each NCCR involves a lead competence centre and a network of national and international partners. There are approximately 20 NCCRs currently receiving funding.
• The Commission for Innovation and Technology (CTI) is an agency of the Federal Department of Economic Affairs, Education and Research and is focused on promoting innovation. As well as funding innovation, it also helps encourage knowledge exchange and commercialisation and offers training, mentoring, start-up support, consultancy and networking opportunities.
• National Thematic Networks (NTN) help build links between research institutes and companies in fields of particular importance to Switzerland.

Regionalisation of Funding
• As Switzerland is a federal state composed of 26 cantons, there is significant activity at the regional (canton) level.
• In relation to higher education:
  - Cantons are the main funders of the cantonal universities, the universities of applied sciences and the universities of teacher education. These universities are normally funded by the cantons through a service level agreement.
  - Cantons make lump-sum contributions for its students that are being educated in another canton.
  - The cantons receive some financial support from the Confederation in relation to higher education.
• In relation to vocational education:
  - Cantons provide 75% of the public funding for vocational education and training (VET) – with the remaining 25% coming from the Confederation. The lump-sum funding paid by the Confederation to the cantons is based mainly on the number of learners enrolled in VET programmes.
  - Cantons also provide some funding for professional education and training (PET) – but this does not appear to be a fixed amount.
- Cantonal VET offices are responsible for implementing VET at the cantonal level. The 26 offices coordinate their activities through the Swiss Conference of VET Offices (SBBK), part of EDK.
- Careers information, advice and guidance is funded and organised at the regional level.

**CIAG Services**
- The Swiss Service Centre for Vocational Training, Study and Careers Counselling (SDBB) provides CIAG. This service was established in 2007.
- This is funded by the cantons. They are required by the Federal Vocational and Professional Education and Training Act to ensure CIAG is provided.
- The directors of occupational, educational and career guidance in each canton coordinate on national issues through the Swiss Conference of the Directors of Occupational and Educational Guidance.

**Managing Performance**
- The Swiss Education Report is published every 4 years and provides data on the performance of the Swiss education system. In the most recent report (published in 2014), almost 300 indicators were presented. This data is used to inform policy making.
- The Federal Institutes of Technology (FITs) and associated research institutes (collectively known as ETH domain) have been subject to a Performance Mandate since 2000. This sets out the objectives and sub-objectives that the FITs are expected to achieve. In relation to managing performance against this:
  - The institutions provide an annual report outlining how they have delivered against the mandate and progress that has been made against the objectives and sub-objectives.
  - The ETH Board provides a mid-term and final report on progress. The final report is submitted to Swiss Federal Assembly.
  - The EAER reviews the extent to which the institutions have met the Mandate.
- Cantons are responsible for regulating universities (with the exception of the Federal Institutes of Technology). They are the maintaining body for the universities – but the universities have a high degree of autonomy, regulating and administrating their own affairs. The cantons and the Confederation jointly regulate the universities of applied sciences. Whilst there are processes for quality assurance it is not clear whether contribution toward policy goals is measured as part of this process.
- SERI is responsible for regulating VPET. Unclear how performance is measured.

**Evaluations of Systems**
- As the Swiss system of VPET is highly regarded, there have been a number of evaluations. Some key findings include:
  - The system is considered to have strong institutional leadership in terms of policy development.
  - Employers play a key role in both development and delivery – helping ensure that the system is highly responsive to labour market needs.
  - Providing pathways from VET to higher professional education and training or onto university makes it more attractive to young people and helps ensure the specialist skills required by employers are being developed.
Emerging Issues and Challenges
- Declining numbers of young people is resulting in some apprenticeships being unfilled – and concerns have been raised about whether parents will continue to view vocational pathways as positively as in the past.
- SFIVET is currently assessing the potential for developing vocational qualifications for adults. There are 400,000 people aged between 25 and 54 who lack vocational qualifications.

Significant Recent Changes
- None – although some recent reforms of higher education legislation.
  - The Higher Education Act HEdA sets out the responsibilities of a number of joint bodies (the Swiss Conference of Higher Education Institutions, the Swiss Conference of Rectors of Higher Education Institutions and the Swiss Accreditation Council) and establishes the principles of coordination for the Swiss higher education sector. In addition, it reinforces the constitutional obligation of the Confederation to provide funding for cantonal universities and universities of applied sciences (although cantons remain the main funders).
  - The joint bodies and the coordination came into effect on 1 January 2015.
  - The funding elements will come into effect on 1 January 2017.

Summary Overview
- Skills and economic development activities are located within a single government department. However, skills and economic development activities are located in separate agencies/organisations – with no obvious linkages made between these different functions.
- SERI play the main role in both setting out the policy objectives and providing funding for skills. However, cantons also play a major role – especially in relation to funding VET, canton universities, universities of applied science and (through EDK) and in providing career information, advice and guidance services.
- The Performance Mandate for Federal Institutes of Technology is used to help ensure these high-profile universities are delivering the Confederation’s policy goals. There do not appear to be similar processes in place for other skills provision – and there is no commentary on how effective this has been in encouraging a greater focus on these policy priorities.

References
Websites

- Educa.ch (Swiss Media Institute for Education and Culture) – http://swisseducation.educa.ch/en
APPENDIX 2: EXAMPLES OF POTENTIAL GOOD PRACTICE

Approach
The examples of potential good practice in different aspects of education and skills in the 10 comparator economies in this section are based on a review of various documentary sources, but are sometimes dependent simply on government websites. Fundamentally, there is very little by way of evidence-based good practice examples. Additionally, it is important to appreciate that even if what is presented here are examples of effective practice in a specific country this would not necessarily transfer to the Scottish context due to variations in institutional arrangements, likely resourcing levels, labour market conditions and potentially cultural differences. It is probably better to regard these examples as possible sources of ideas on how things might be done better in Scotland.

Case Study 1: Students, Employers and Educators – Making It Work (Ireland)

Every year thousands of students complete work experience with employers. There are examples of good practice across the system which highlights the benefits of students, employers and educators working together. For example, University College Cork has a very successful work placement model which involves structured pre-planning to maximise the success of the placement for both student and employer. In Year 1, students get CV and skills development advice and employers meet students for the first time. In Year 2 students benefit from guidance workshops which focus on the student’s self-awareness of their skills and strengths. In Year 3 employers recruit students for the available placements. Students are given a list of options to ensure they are placed into industries in which they are interested and suited. This model leads to conversion rate of placements to recruitment as high as 80% in some disciplines.

In Galway-Mayo Institute of Technology, the Hotel School runs a very successful work placement module for all Level 7 and 8 awards that includes a particular focus on students reflecting on their experience. When placements are finished, students complete a formal business report on their experience and this report is graded. This report, coupled with post-placement meetings with GMIT staff, facilitates co-ordinated and structured reflection on the student’s placement experience. This significantly enhances the learning outcomes for the student, institution and the employer and feeds into further learning and development of the module.


Case Study 2: Flexible Labour Market Policy at the Local Level (Denmark)

The Danish system for the management of labour market policy has undertaken an important transition in recent years, with responsibility being progressively awarded to municipalities, while maintaining a strong system of control from the National Labour Market Authority, facilitated by the four employment regions. Municipalities are well placed to play a significant role in combining an approach which meets both individual and community needs. They have the potential to work across policy silos and take broad community issues into account when planning employment policies and programmes. The local employment councils also ensure that the system includes a degree of local horizontal accountability, through the involvement of the local social partners.
At the same time, the role of the National Labour Market Authority and the employment regions is essential in setting targets, ensuring minimum standards are met, sharing good practice and research findings, and measuring whether the sum of local actions allows Denmark to meet national employment policy objectives. The Danish employment system achieves a balance between accountability and flexibility within the management system through a number of different instruments, legislation, financing, performance-based and dialogue-based management, IT tools, methodology requirements, and organisational requirements. The system appears to underpin both high accountability with regard to national goals and focus areas, and moderate to high local flexibility, meaning that local players and stakeholders can cooperate on targeting employment measures to local challenges and needs.

**Programme Design and Strategy Setting**

In Denmark, national labour market regulations by law set down minimum measures for the municipalities, the frequency of contact, and the right of citizens to receive employability enhancement programmes. Legislation also stipulates general tools to be applied. For example, job centres are typically required to provide jobseekers with a CV/contact interview every three months as a minimum, access to an employability enhancement programme after a certain period of unemployment, and a job plan. However, within the legal minimum requirements, municipalities and job centres can determine the content of employability enhancement schemes and develop their own measures. The municipality may structure and develop its own programmes/municipal projects for specific target groups, compose programmes based on local challenges, needs and economic situation, and decide how to plan co-operation with enterprises.

**Budget Management**

In Denmark, all expenditures for active and passive labour market measures are guaranteed to municipalities by the national government through a block fund with no earmarking for specific policy areas. The financial management system gives each municipality considerable flexibility with regard to deciding budget levels and resource allocations, allowing municipalities to prioritise and enhance active measures according to local needs. Generally, the municipalities obtain a financial benefit every time a citizen becomes employed; spending on public benefits is reduced and tax revenues are increased. There are also a number of financial incentives for meeting timelines and putting in place active measures through a system of refunds, and good results that can generate revenue for the municipalities.

**Target Setting**

The minister for employment sets three to four national goals and targets through an annual planning process to be incorporated into local employment plans, and approved by the municipal council. These goals are designed to be the central focus of the dialogue which the four employment regions have with each municipality and to raise ambitions in the employment area. If a ministerial goal is not thought to be particularly relevant to the locality (e.g., reducing the number of non-Danes on public assistance in an area with few non-natives), it is not given much focus in the performance follow-up and dialogue with the employment region. Outside of the four principal targets, municipal job centres can locally identify and prioritise special target groups for measures and freely organise enterprise-directed measures. Decisions on prioritising target groups locally are usually a political choice, dealt with by the political committee and local employment council. To support the job centres’ work, the four Danish employment regions regularly prepare analyses of target groups for employment measures for use by the job centres, supplemented by information available on municipal/job centre databases and an online portal (jobindsats.dk). These resources can assist in identifying barriers facing target groups, options
Performance Management
Local offices also determine which performance requirements are to be included in the employment plan, whether supplementary local targets and performance requirements are to be laid down, and the strategies to be launched. Each year, municipalities are expected to undertake a performance audit (a short status report on the results of employment measures) and prepare an income statement (a comparison between municipalities). Full transparency of local, regional, and national outcomes is offered through an internet portal which allows municipalities to benchmark their own measures and performance against clusters of comparable municipalities. All of this data is available without charge. The primary goal of the regional and local employment councils is to monitor trends in performance results and the impact of local employment measures. Using this available data, they then discuss approaches for improvements with the appropriate managers.


Case Study 3: Partner Involvement in Designing Work-Based Learning (Norway and Switzerland)

Working with the social partners to agree the shape of work-based learning is key to well-designed schemes. In many countries where apprenticeships are a widely used pathway to jobs, both employer and employee representatives are strongly engaged in the design and implementation of work-based learning schemes.

Norway
National authorities define the content and duration of apprenticeships with advice from the social partners. Both the length and the content of the training are laid down in law (regulations to The Education Act). According to the Education Act, the social partners have the majority of the representatives in the advisory bodies at national level for upper secondary VET. The National Council for Vocational Education and Training which gives advice on an overarching level. Each of the nine upper secondary VET programmes are closely monitored by the nine trade-specific Vocational Training Councils. This includes the need to revise the length and content of the training.

When the social partners have identified a need to revise the content, the Directorate for Education and Training appoints teams for curriculum development consisting of professionals (typically proposed by the employer and employee organisations) and VET teachers. Within three months, the team sends a draft version of the curriculum to the Directorate. The draft is sent out for a three-month consultation process to the sector and their feedback is subsequently incorporated in the draft curriculum. With support from external representatives from the sector, the quality of the curriculum is assured by the Directorate. Depending on the subject, the curriculum is finally set by the Ministry or the Directorate.

Switzerland
The legal basis for each apprenticeship programme is defined in VET ordinances prepared jointly by the three key actors in the apprenticeship system: the Confederation, the cantons and professional associations (employers, trade unions and trade associations). They are then issued by the Federal Office for Professional Education and Technology (OPET). The ordinances define both content and duration
– training plans set out the skills to be acquired, the content to be covered at school and in a company and how the acquired skills are assessed.

All VET ordinances provide for the creation of a Commission for Quality and Development for the given occupation or occupational group. Each Commission for Career Development and Quality is composed of members representing all of the VET partners (Confederation, cantons and professional organisations). Their role is to adapt training plans for specific VET programmes to the current needs of the labour market. If necessary, they submit a request to OPET to have changes made to the VET ordinance.


Case Study 4: Widening Access to Higher Education (Ireland)

Ireland has the most comprehensive set of targets related to under-represented groups. The national plan has five objectives:

- Institution-Wide Approaches to Access.
- Enhancing Access Through Lifelong Learning.
- Investment in Widening Participation.
- Modernisation of Student Support.
- Widening Participation for People with Disabilities.

Quantitative objectives relate to students entering, participating and completing higher education and these are set for specific groups of students – students with disabilities, unemployed, adults/mature students, students with vocational education and training, travellers, students from a disadvantaged socio-economic background.

The objective is to reach a 72% participation rate and a 60% attainment rate in tertiary education for 30-34 year olds by 2020, and for all socio-economic groups to have entry rates of at least 54 per cent by 2020. There is systematic monitoring in place for all the categories. All institutions are obliged to return details on all new entrants, progressing students and those graduating through the Student Record System, including data on the socio-economic, ethnic and disability status of new entrants.


Case Study 5: Reforming Vocational Education and Training (Finland, Netherlands, Denmark and Sweden)

In Finland, the flexibility of vocational qualifications at upper secondary level will be increased through a four-year programme (2013-2016) which aims, for example, to diversify opportunities by allowing students to take modules from other vocational qualifications (including further vocational qualifications and specialist vocational qualifications) or to undertake polytechnic degrees in existing subject areas. The programme will also enhance the development of guidance counselling and pedagogical solutions to help students complete their studies. The goal of the programme is to allow students to create individual learning paths and increase their motivation for graduating, as well giving education providers more opportunities to meet the demands of the regional and local economy.
In the Netherlands, the government has launched a programme intended to encourage young people in secondary VET to continue to study longer and to choose a course with greater relevance for the labour market. Central exams for Dutch (2014/15) and maths (2015/16) that will give access to higher professional education are being introduced for students in secondary VET level 4. The central exams for students in secondary VET level 2 and 3 will start a year later. Most level-4 VET courses (Middle-Management VET ‘Middenkaderopleiding’) will be shortened from 4 to 3 years, while the number of supervised teaching hours will be increased.

In Denmark, in line with one of the 2012 and 2013 CSRs, the government entered an agreement on improved VET programmes as part of the Finance Act Agreement in 2013. Among other things, the agreement is expected to contribute to reducing drop-out from VET by increasing the number of available places for students to enter in-company practical work experience and enhancing schools’ responsibility in finding apprenticeship places. In addition, the most recent measures require all VET schools to prepare an action plan for improving completion rates.

In Sweden, in 2011, at upper secondary level, general education and vocational pathways have been further differentiated. To reduce the number of students who fail to complete upper secondary school and improve transition from school to work, since 2011 more time has been devoted to vocational subjects in the vocational pathway.


Case Study 6: Investing in CIAG (Sweden)

In Sweden, the Government is investing in strengthening guidance and careers counselling. The Government set aside SEK 10 million for 2013, primarily for further training guidance and careers counsellors and calculates SEK 26 million for the same purpose for 2014-2016. In addition, the Government intends to develop further training measures for guidance and career counsellors at upper secondary schools, focusing in particular on how to help young people with disabilities gain a foothold in the labour market, and focusing on the various kinds of support young people can obtain from different authorities.


Case Study 7: Financing of HE Institutions to Improve Outcomes (Finland)

In Finland, in 2013, the university funding model was revised to further take into account the number of completed qualifications and study progress. The reform aims, amongst other things, to improve completion rates and accelerate the transition to working life. In 2014, the funding model of the universities of applied sciences (‘polytechnics’) will be revised along the same lines.


Case Study 8: Labour Market Relevance of Vocational Education and Training (Ireland)
In Ireland, decisions by Solas, the new further education and training authority, on a training course mix to be provided in centres at local level will be based on a variety of local data including the expected recruitment demand from new or expanding companies and intelligence gathered from employers making direct contact with the authority when seeking training programmes to supply them with entry-level skilled workers. National level data from the Expert Group on Future Skills Needs will also be used.


Case Study 9: Expert Group on Future Skills Needs (Ireland)

The Expert Group on Future Skills Needs (EGFSN) advises the Irish Government on current and future skills needs of the economy and on other labour market issues that impact on Ireland’s enterprise and employment growth. It has a central role in ensuring that labour market needs for skilled workers are anticipated and met.

Established in 1997, the EGFSN reports to the Minister for Jobs, Enterprise and Innovation and the Minister for Education and Skills.

- The Department of Jobs, Enterprise and Innovation, in conjunction with SOLAS, provides the EGFSN with research and secretariat support.
- The SOLAS Skills and Labour Market Research Unit provides the Group with data, analysis and research and manages the National Skills Database. The Department of Jobs, Enterprise and Innovation provides the Group with research and secretariat support.

The Group’s work programme is managed by the Head of Secretariat based in the Department of Jobs, Enterprise and Innovation. The EGFSN’s budget comes from the National Training Fund.

The Expert Group on Future Skills Needs provides advice to Government on skills issues impacting enterprise through:

- Skills foresight & benchmarking.
- Strategic advice on building skills through education and training.
- Data collection and analysis on demand and supply of skilled labour.
- Influencing and monitoring implementation.

Case Study 10: Promoting Lifelong Learning (Singapore)

SkillsFuture is a national movement to provide Singaporeans with the opportunities to develop their fullest potential throughout life, regardless of their starting points. Through this movement, the skills, passion and contributions of every individual will drive Singapore’s next phase of development towards an advanced economy and inclusive society.

No matter where individuals are in their life – schooling years, early career, mid-career or silver years – there are a variety of resources to help attain mastery of skills. Skills mastery is more than having the right paper qualifications and being good at what you do currently; it is a mindset of continually striving towards greater excellence through knowledge, application and experience. With the help of the SkillsFuture Council, education and training providers, employers, unions – everyone can own a better future with skills mastery and lifelong learning. Within SkillsFuture there are four key thrusts:
1. Help individuals make well-informed choices in education, training and careers.
2. Develop an integrated high quality system of education and training that responds to constantly evolving needs.
3. Promote employer recognition and career development based on skills and mastery.
4. Foster a culture that supports and celebrates lifelong learning.

The national movement is being driven by the SkillsFuture Council and it will develop an integrated system of education, training and career progression for all Singaporeans, promote industry support for individuals to advance based on skills, and foster a culture of lifelong learning.

Programmes that form part of Skills Future are as follows:

- **Education and Career Guidance (ECG)** - With the help of trained ECG counsellors, students in secondary schools will be exposed to a wide range of education and career options, and given opportunities to make informed post-secondary education choices. This will continue in ITE, polytechnics, junior colleges and universities to help students make informed choices for their careers.

- **Enhanced Internships** - these will be rolled out to two-thirds of polytechnic courses and half of ITE courses over the next two years, so that students can learn through meaningful work assignments and industry exposure to deepen and apply both technical and soft skills. This will also help students make better career choices through real-world exposure to the industries.

- **Individual Learning Portfolio (ILP)** - a one-stop education, training and career guidance online portal that will empower every Singaporean to plan their education and training into their working life. They can discover their interests, abilities and career aspirations, and explore various education pathways before they enter the workforce. Individuals can also use ILP to search for suitable jobs and manage their careers. For individuals in their mid-careers, the ILP serves to inform individuals of skills gaps that they may need to remain relevant in the workforce. This will be rolled out in 2017.

- **Young Talent Programme (YTP)** - The overseas market immersion programme will be extended to polytechnic and ITE students, beyond the local university students. Polytechnic and ITE students can sign up for overseas internships and work and study programmes so as to prepare them to take on international assignments in their careers.

- **P-Max** - an enhanced Place-and-Train programme that aims to place 3,000 Professionals, Managers and Executives (PMEs) in Small and Medium Enterprises (SME) by 31 December 2017. Facilitated by WDA's five Career Centres and CaliberLink, job-seeking PMEs will be matched into suitable positions in SMEs. Through P-Max, PMEs will also be able to acquire skills e.g. workplace ethics, and strategic planning, to help them excel in an SME work environment.

- **SkillsFuture Credit** - aims to encourage individual ownership of skills development and lifelong learning. All Singaporeans aged 25 and above will receive an opening credit of S$500 from January 2016. The credit will not expire and the government will provide periodic top-ups, so that credits can be accumulated.

- **SkillsFuture Earn and Learn Programme** - This is a place-and-train programme for fresh polytechnic and ITE graduates, so they can be placed with an employer and have opportunities to learn through structured on-the-job training and institution-based training. This programme will equip graduates with industry-relevant skills. Those who successfully complete this
programme will receive industry-recognised qualifications and a sign-on incentive.

- **SkillsFuture Qualification Award** - This award recognises the efforts of Singapore Citizens in attaining WSQ full qualifications, which equip them with comprehensive and robust sets of skills to perform their jobs competently, pursue career progression and explore new job opportunities.

- **SkillsFuture Study Awards** - This programme is for those in their early and mid-career so they can develop and deepen their skills in future growth clusters. A monetary award of S$5000 will be given to over 500 study awards recipients from October 2015, with up to 2,000 study awards given annually at a later stage.

- **Skills-Based Modular Courses** - There will be a wider range and scale of short, skills-focused modular courses relevant to industry needs to help Singaporeans with more opportunities to acquire relevant skills.

- **SkillsFuture Fellowships** - This programme develops individuals with deep skills expertise or mastery in growth and priority sectors. It will also sponsor a range of education and training options, in both craft-based and knowledge-based areas. $10,000 cash will be given to up to 100 individuals with deep skills expertise to recognise their skills and enable them to achieve mastery in their respective fields. This will take effect in 2016.

- **SkillsFuture Leadership Development Initiative** - Under this initiative, there will be increased collaborations with companies to design and enhance developmental opportunities for high-potential talents.

- **SkillsFuture Mid-Career Enhanced Subsidy** - All Singaporeans aged 40 and above will receive up to 90% course fee subsidy for WDA-funded courses, including modular courses in publicly funded post-secondary education institutions, and additional reductions in MOE-funded diploma and degree courses. This is an additional 20 to 40 per cent increase in subsidy for WDA-funded courses at the PME level and a 6 to 20 per cent increase for diploma and degree courses subsidised by MOE.

- **Sectoral Manpower Plans (SMP)** - Under the SMP, there will be tighter efforts with industry and unions to encourage employers to proactively develop every worker, career pathways and value mastery of skills as employees advance in their careers.

- **SkillsFuture Employer Awards** - The awards provide recognition to employers who support the SkillsFuture effort and make an exemplary effort in the training and development of employees through structured skills-based career pathways.

- **SkillsFuture Mentors** - There will be a central pool of mentors who specialise in industry-relevant skills to provide guidance to small and medium enterprises (SMEs) in the implementation of skills deepening initiative.

- **iN.LAB** - iN.LAB will spur and support innovation efforts in training, creating a conducive environment for training providers and adult educators to collaborate, experiment and innovate pedagogical and learning solutions.

Source: [www.skillsfuture.sg](http://www.skillsfuture.sg)

**Case Study 11: Supporting Innovation (Singapore)**

The National Framework for Innovation and Enterprise (NFIE) is a national programme to grow innovation and entrepreneurship in Singapore. The NFIE aims to encourage universities and polytechnics to translate their research into commercial products for the market and assist entrepreneurs to set up technology-based companies. The NFIE is administered by the National Research Foundation (NRF) and the Prime Minister’s Office.
The NFIE has two goals:

- It seeks to commercialise cutting-edge technologies developed out of R&D labs through the formation of start-up companies.
- It aims to encourage universities and polytechnics to pursue academic entrepreneurship and turn their R&D results into commercial products for the market. It also helps entrepreneurs to set up technology-based companies.

Through NFIE, the following schemes are supported:

- **Early Stage Venture Fund** (ESVF) - the NRF invests S$10 million on a 1:1 matching basis, to seed several venture capital (VC) funds that invest in Singapore-based early stage high-tech companies.
- **Proof-Of-Concept Grants** (POC) - This grant of up to S$250,000 is for technology proof-of-concept projects. NRF administers the scheme for university and polytechnic researchers while SPRING Singapore (the government agency responsible for small businesses) runs a parallel scheme for companies.
- **Technology Incubation Scheme** (TIS) The NRF co-invests up to 85% (capped at S$500,000) in Singapore-based start-up companies incubated by seeded technology incubators who provide their investee companies with physical space, mentorship and guidance.
- **Innovation Cluster Programme** - encourages technology organisations and economic agencies to work with industry to form innovation clusters. It seeks to strengthen partnerships across companies, universities, research institutes and government to bring ideas quickly to market, raise productivity, create jobs and grow the sector. Four innovation cluster development plans have been shortlisted for funding – medical diagnostics, speech and language technologies, membranes, and additive manufacturing. Cluster development plans encompass funding for collaborative projects, shared infrastructure, capacity building and bridging gaps in the value chain.

Source: [www.nrf.gov.sg](http://www.nrf.gov.sg)