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High Level Skills in Yorkshire and Humber

Understanding the Drivers of Change: Summary

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Introduction

Growing the base of high level skills[1] in Yorkshire and Humber is identified as a key priority by the Regional Work and Skills Partnership in order to boost business competitiveness and achieve greater prosperity. In recent years, substantial investment has been made by the public sector in skills development programmes targeted at both individuals and employers in Yorkshire and Humber, many of which have had a high level skills element. Whilst progress has been made (25% of the workforce were qualified to NVQ4 or equivalent in 2008 compared to 19% a decade earlier), the region faces a major challenge if it is to achieve the Leitch Review aspirations of 40% of the workforce possessing high level skills by 2020.

Undertaken over five months between March and July 2010, the study has sought to assess the high level skills context in Yorkshire and Humber and to examine what works in relation to high level skills development. The research has been undertaken in two parts:

- Phase 1 set out the performance of Yorkshire and Humber on key measures of high level skills. It benchmarked the region against UK and international comparators and reviewed the evidence on mechanisms to boost high level skills. The analysis and conclusions were drawn together to develop a conceptual framework on the key factors which drive high level skills.

- Phase 2 used the Realist Synthesis approach[2] to evidence review in order to assess the effectiveness of interventions to boost high level skills. Realist Synthesis is designed specifically to assess the potential effectiveness of social interventions through testing assumptions about causal mechanisms and the outcomes they are likely to deliver. Consideration of contextual factors is central to the approach, with emphasis on the relationship between context, mechanism and outcome. Building on the Phase 1 analysis, a programme theory was developed to consider the effectiveness of incentives to use graduate placements to boost skills utilisation in small and medium sized firms as a way to increase the demand for high level skills.

A wide range of statistical data, evaluation evidence and academic literature has been examined in order to inform the analysis. The findings have also benefited from a number of stakeholder consultations and the input of representatives of Yorkshire Futures and Yorkshire Forward through the study steering group.

This document provides a summary of key points from across the two phases of the study. The detailed Phase 1 and Phase 2 findings are presented in separate reports and are available to download from www.yorkshirefutures.com.

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[1] High level skills are defined as the attainment of NVQ Level 4 or equivalent.
[2] Developed by Ray Pawson (see Pawson R (2006) Evidence-based Policy: A Realist Perspective, London: Sage).

Phase 1: The High Level Skills Context

High Level Skills in Yorkshire and Humber

A body of evidence was examined on the relationship between supply (e.g. participation in higher education) and demand (e.g. levels of innovation) factors and their influence on high level skills characteristics. The evidence base included:

- Evaluation reports sourced through the Office of Project and Programme Advice and Training (Offpat).

- Labour market data from the Office for National Statistics.

- Economic and labour market forecasts from the Regional Econometric Model.

- Graduate destinations data from the Higher Education Statistics Agency via the University of Strathclyde.

- Acxiom lifestyle data held by Yorkshire Futures.

- Academic literature including the work of Keep, Arnold and McKenzie Davey, Sung and Ashton, and Drummond and Stone. A full bibliography is presented in the Phase 1 report.

In summary, the analysis shows that, whilst the supply of high level skills has expanded, Yorkshire and Humber's relative gap with better performing regions has not narrowed. For example, the region's ranking dropped from sixth to seventh of the nine English regions on the proportion of the workforce with Level 4 qualifications between 1998 and 2008.

On other measures, such as workforce skills aspirations, Yorkshire and Humber is close to the national average. Retention rates for graduates are, however, moderate with a rate of 57% of graduates remaining in Yorkshire and Humber after six months, ranking it sixth amongst the nine English regions (see Table 1).

Table 1 Initial Graduate Labour Flows, 2002/3 to 2006/7, pooled		
	% of graduates remaining in region after 6 months	% of graduate workers in the region who studied in the region
East	60	35
East Midlands	43	62
London	72	42
North East	62	79
North West	70	60
South East	42	54
South West	57	59
West Midlands	53	62
Yorkshire & Humber	57	71
Source: HESA from analysis conducted by the University of Strathclyde.		

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This is likely to be due to a combination of factors, including the availability of better career opportunities in other regions - Yorkshire and Humber is a more popular place to study than it is to remain in to work and the region loses a number of graduates who originated from other regions. Moreover, the projections for growth in high skilled occupations are modest, suggesting that economic growth across Yorkshire and Humber is, on its own, unlikely to deliver a significant increase in aggregate demand for high level skills.

Currently, demand for high level skills appears muted, with parts of the Yorkshire and Humber economy locked into a path dependency[3] characterised by high levels of low value-added activity. There is evidence that high level skills are coalescing around the knowledge economy sectors – in Yorkshire and Humber, the linkage between high level skills and the knowledge economy is quite strong in the Leeds City Region, with the apparent mismatch in York and North Yorkshire accounted for in part by commuting patterns. The Hull and Humber City Region, and to a lesser extent the Sheffield City Region, perform modestly against a range of indicators including employment in knowledge based sectors and attainment of high level skills (see Figure 1).

Figure 1 High Level Skills and the Knowledge Economy
Source: ABI and APS, ONS
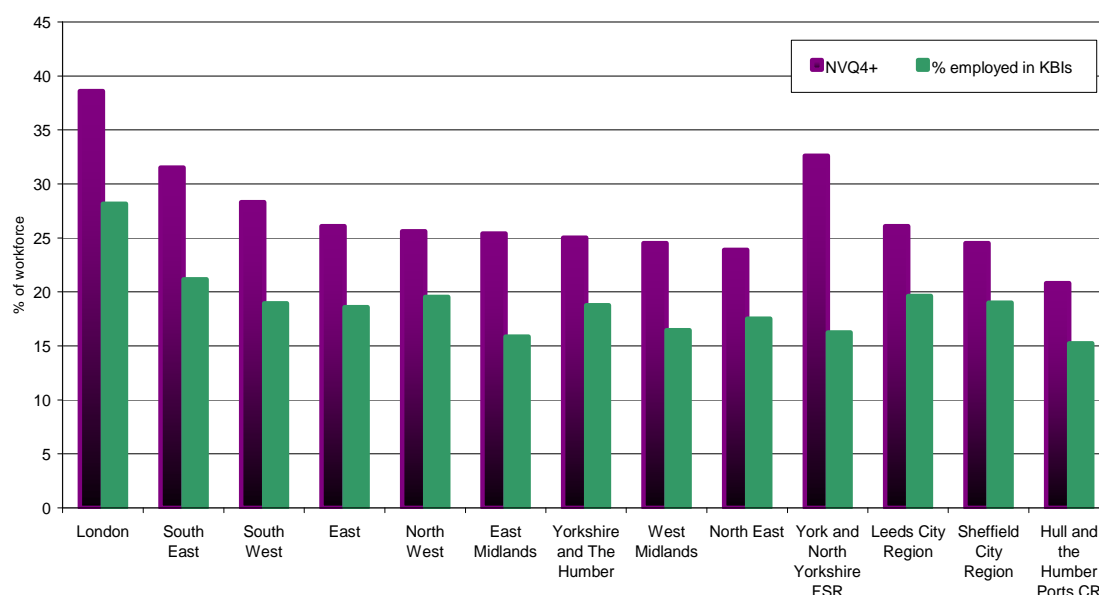
Although skills gaps are apparent in a number of sectors, the evidence suggests that demand side factors, and in particular the relatively small scale of high value added activities in the region's firms (in comparison with other regions), act as a big constraint on achieving a transformation in high level skills.

In combination, the evidence points towards a **low skills equilibrium[4]**, particularly in the Hull and Humber Ports and Sheffield City Regions. Only in the Leeds City Region, and in York and North

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[3] Path dependency is defined as the existence of a set of economic and labour market which are locked in and very difficult to change

[4] A Low Skills Equilibrium exists where firms use low levels of skill to produce relatively low specification goods or services, which are sold on the basis of low price. Firms do not invest sufficiently in skills development and demand for skills is limited.

Yorkshire, does the evidence suggest that there is a coming together of the characteristics necessary to achieve market driven growth in high level skills, including high rates of employment in knowledge industries, good levels of enterprise potential and accelerated employment growth.

As a consequence, **it makes little sense to attempt to boost aggregate levels of skills if this is not matched by demand**. The findings suggest that skills-related interventions to meet high level skills objectives should be spatially targeted e.g. in the Leeds City Region, although it is also recognised that there may be equity or social inclusion implications of such a policy[5].

A second key implication stems from the finding that shortages in high level skills can still exist within particular sub-sectors even if overall levels of demand are muted. For example, higher than average skills gaps are evident in the creative industries, transport, and financial services sectors as well as parts of the manufacturing sector such as food manufacturing. **This highlights the importance of a fine-grained analysis of the demand for skills across, and within, industries to identify the potential for targeted interventions.** It should not be assumed that the position is homogenous across geographies and sectors.

Do Comparator Regions in Europe Offer Any Lessons?

Our review of comparator regions highlights the complexity of the relationship between high level skills and accelerated economic performance. Initially, a broad review was undertaken using the OECD Regional Statistics portal to identify those regions with similar characteristics to Yorkshire and Humber with regard to employment in high technology manufacturing, employment in knowledge intensive services, and Gross Domestic Product. Trial mapping involved comparing these three indicators against levels of tertiary education across the regions of the European Union, European Economic Area, Canada, the USA, Australia, New Zealand and South Korea. Overall, the results suggest that there is little association between levels of tertiary education attainment and a region's innovation and economic performance. **Yorkshire and the Humber generally occupied a middling position amongst comparators with average levels of educational attainment, employment and GDP growth – performance was consistently average.**

Further comparator analysis was then undertaken on a more inductive basis, using regions known to share a similar starting point with Yorkshire and Humber in relation to historic employment and sector structure[6]. The analysis identified that adjustment and adaptation to the loss of a region's traditional economic base is a very long-term process, and ensuring that increased proportions of the workforce have high level skills appears to be a necessary, but not a sufficient, element in the response. **It is evident that high level skills are a key ingredient in improving regional economic performance but the study found that some caution is required in attempts to 'read-off' policy lessons from other areas**. The one area where applicable lessons for Yorkshire and Humber were evident related

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[5] For areas of low demand, the focus should be on policies to boost innovation, diversification and higher value added activity in order to boost demand for high level skills.
[6] Länsi Suomi (West Finland);Limburg (southern Netherlands);Lorraine (eastern France);Nordrhein-Westfalen (North Rhine-Westphalia, western Germany);País Vasco (Basque Country, northern Spain); Ślaskie (Upper Silesia, Poland); and Scotland (northern UK).

to policies around skills utilisation[7]. These findings fed into the programme theory developed as part of Phase 2 of the study.

Which Mechanisms Might Be Effective in Boosting High Level Skills?

The study considered 12 different types of intervention, ranging from incentives through to levies and regulatory approaches, in order to inform a more in-depth assessment of a specific mechanism intended to boost high level skills using the Realist Synthesis method. For most interventions (including employer collaboration and networks, occupational licensing and tax breaks), only limited evidence was available, which constrained the ability of the study team to draw precise policy recommendations. It was also recognised that some interventions, such as occupation licensing or individual training rights, would be difficult to implement on a sub national basis, although tailored or pilot options could be explored. The approach taken in this study focused on evidence of successful application elsewhere and, broadly, whether intervention types/mechanisms would be practically deliverable in Yorkshire and Humber.

The relevance of each mechanism was assessed, with a score of 5 being awarded to the most relevant to the study scope (see Table 2). Four mechanisms were identified as being highly relevant, although this reflects in part the dominance of supply side measures in the UK and elsewhere to boost high level skills. Interventions to attract/retain people with high level skills were also relevant, although other evidence suggests that efforts to boost graduate retention would not be appropriate in the absence of additional demand.

| Table 2 Intervention Relevance Assessment	
Intervention Type	**Relevance**
Employer networks / inter-employer collaboration	5
Information advice and guidance (IAG) for employers	5
Collaboration with higher education / supporting the infrastructure for learning	5
Developing skills for clusters	5
Attracting and retaining people with high level skills	4-5
Skills utilisation	4
Raising demand for high level skills training by individuals	4
General subsidies	4
Quality assurance standards	3
Levies	2
Occupational licensing	1
Tax breaks	1

Given the Yorkshire and Humber context, it was considered that measures which increase demand through encouraging innovation and growth would potentially be the most effective. This conclusion also helped to frame the scope of the Realist Synthesis.

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[7] The concept of skills utilisation can be defined as individuals who are aware of the skills they possess working in environments that provide the opportunity for them to use their skills effectively in order to boost productivity and stimulate investment.

Conceptualising the Key Drivers of High Level Skills

In order to provide the foundation for the exploration of a limited number of programme theories as to how high level skills performance may be boosted in Phase 2, a conceptual framework was developed (see Figure 2 overleaf). This seeks to capture all of the key variables which may determine the drivers of high level skills and their contribution to economic performance. In particular, it highlights the importance of understanding high level skills within a national system of innovation and the influence that innovation has on the supply of, and demand for, high level skills.

Figure 2 High Level Skills Conceptual Framework
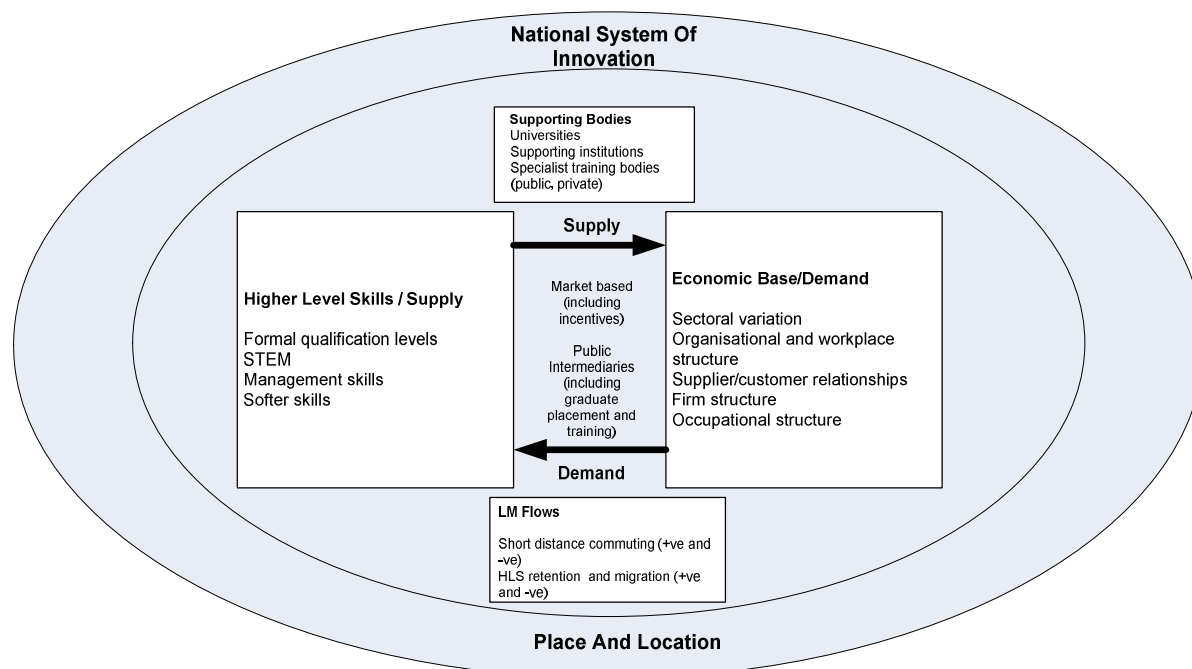
Source: High Level Skills in Yorkshire and Humber: Understanding the Drivers of Change – Phase 1 Report (ekosgen/CRESR, August 2010).

Drawing on all of the evidence gathered through Phase 1, the framework positioned high level skills in Yorkshire and Humber as relating to a set of interacting systems which comprise the following factors:

- Place, demography and migration.

- Institutional support.

- Sector, organisation and workplace.

- Skills, qualifications and occupational structure.

The framework reinforced the findings from Phase 1 that simple market failure arguments to explain varying performance are inadequate and there is a need to adopt a systems-based approach. The focus of the next phase of the study, therefore, was to explore the effectiveness of a select number of mechanisms using a context-mechanism-outcome approach.

Phase 2 Realist Synthesis – What Works And In What Context?

Overview of the Approach

The second phase of the study sought to apply the Realist Synthesis method of evidence review to consider the efficacy of specific interventions to boost high level skills. The method is very prescriptive and requires a specific intervention to be identified. It comprises six stages (see Table 3 overleaf), with significant emphasis placed on understanding causal processes as theories.

| Table 3 Stages in a Realist Synthesis |
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| **Stage 1: Formulating the review question** where the key focus is on understanding the theory which underpins an intervention. This involved a mapping of the territory through an initial literature search, prioritising review questions, and formalising a model to show the assumed theories of change between implementation and outcome. An initial list of 800 references was identified. |
| **Stage 2: Searching for primary studies** comprised three main elements. Firstly, the application of standard search approaches (using terms focused on graduates and graduate development with incentives, productivity, commitment etc). Secondly, other theories which might explain skills utilisation were identified, such as 'sectoral issues' and 'graduate development programmes'. Finally, a more purposive searching strategy was used, focused on 'high performance working'. The outcome of this stage was a long list of 66 references. |
| **Stage 3: Quality appraisal** where articles were assessed for relevance using five broad tests including presentation of original empirical evidence. A scoring system was established and a relevance threshold identified: i.e. articles need to be at least 70 percent relevant. The result of the appraisal was that the long list of 66 articles was reduced to 20 articles. |
| **Stage 4: Extracting the data** involved three inter-related tasks: annotation (extracting data against original theories of change), collation (comparing data against each other to support or refute rival theories); and reportage (where evidence on each step of the Realist Synthesis is pieced together). The focus for this section has been to test the model identified in Stage 1, in particular the interaction between demand (employer) and supply (graduate) factors. |
| **Stage 5: Synthesising the data** examined whether all of the key aspects of high level skills incentives for employers have been considered, where other processes might be at work or whether the same theory would work better for some firms, in certain sectors or different locations. This analysis informed the final conclusions and policy implications. |
| **Stage 6: Dissemination** comprised primarily preparation of the final report and review and challenge by the study steering group. |

In order that the Realist Synthesis approach could be adhered to, a single proposition or programme theory was specified involving **incentives to boost skills utilisation amongst small and medium sized enterprises (SMEs), specifically looking at the implementation of graduate development programmes.** The type of incentive (which could range from cash, training discounts or access to other business support services) was not directly specified as this was outside the scope of the study.

Rather than increasing the supply of skills among the population, **skills utilisation** seeks to ensure the effective application of skills within the workplace leading to increased business productivity and competitiveness and, ultimately to increase demand for high level skills. Although there are clearly wider issues around skills utilisation, **it was decided to focus on graduate skills utilisation as this would ensure a clear focus on high level skills and a balance between demand and supply side factors**. With a large pool of graduates in Yorkshire and Humber, it was also considered that the intervention would potentially be applicable across a wide range of sectors and firms in Yorkshire and Humber.

A model was developed that incorporates a number of theories about how such an intervention might work to generate the desired outcomes of increased skills utilisation and improved business competitiveness. This is set out in Figure 3.

Figure 3: Realist Synthesis Programme Theory
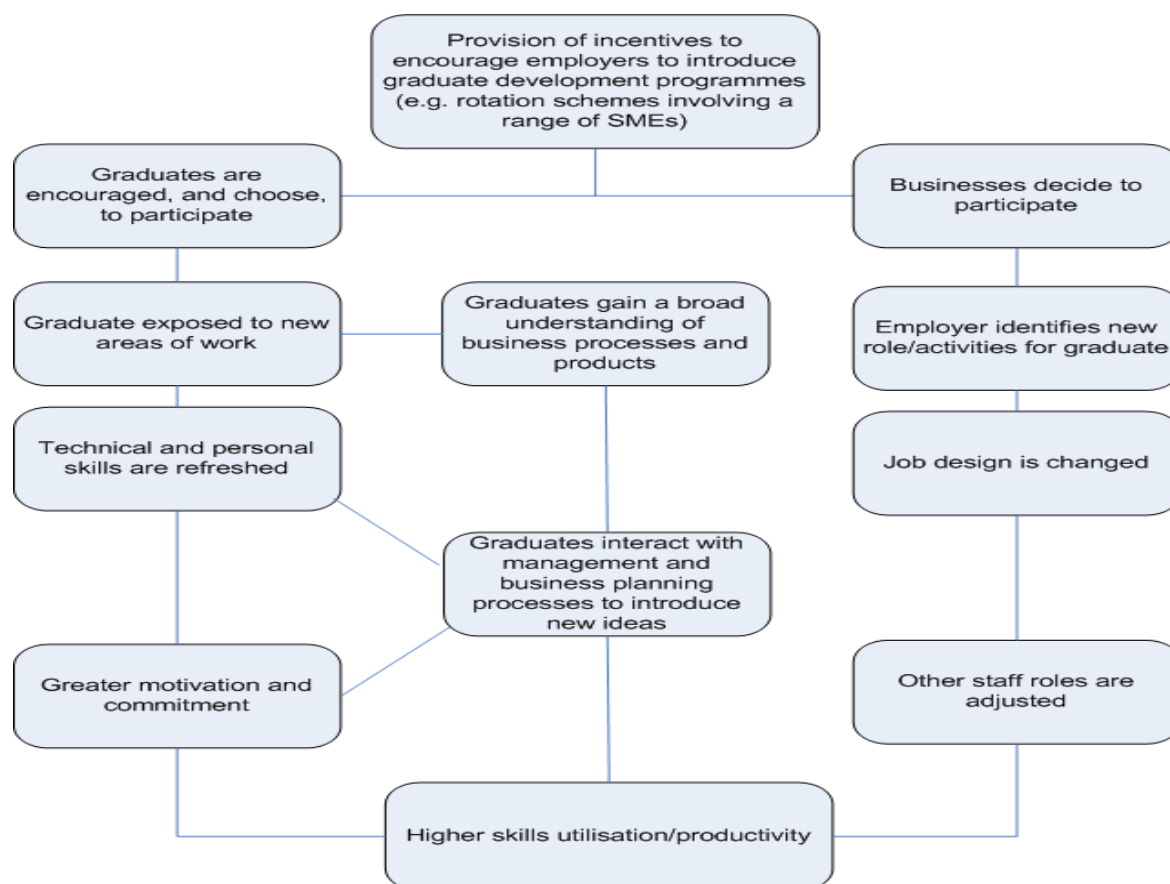
Source: High Level Skills in Yorkshire and Humber: Understanding the Drivers of Change – Phase 2 report (ekosgen/CRESR, August 2010).

In total, 20 studies were included in the final synthesis. These were mainly from the UK, were a mixture of academic studies, material from the professional press and covered research undertaken on behalf of government departments. The material covered a time span of 41 years, with the majority produced within the last 20 years.

Realist Synthesis Results and Policy Implications

From the graduate perspective, there is **reasonably strong evidence that graduates will be motivated to take part in schemes that use and develop their skills and further their career opportunities** (albeit this may overstate the motivation of some graduates in non-graduate roles). Significant emphasis is placed on **developing soft skills**, the effectiveness of which is strongly linked to the presence of **effective management skills within the business**. Given the high levels of turnover in graduate roles, a focus on retention is also essential if the employer's return on investment

is to be maximised[8]. Generally, a scheme involving a number of different companies, with graduates either in close contact or potentially being placed in different organisations may raise particular challenges in this respect as firms worry about competitor poaching.

The evidence on potential employer involvement in any graduate skills scheme reinforced the Phase 1 findings that skills are a derived demand i.e. linked directly to product strategy. **A common theme is that the burden of adjustment lies largely with employees rather than employers** – the expansion of higher education, for example, has led to a one-off upgrading of jobs in some areas (notably HQ administrative and clerical functions) but not to greater skills utilisation.

Moreover, the evidence indicates that any **potential scheme would only work if there is a latent demand amongst participating firms.** The scope for employers to redefine graduate roles in companies will be driven by their particular product strategies or market area. Similarly, **the evidence for the impact of job design, including high performance working, on skills utilisation is mixed** (skills utilisation is directly connected with wider corporate objectives and levels of investment in innovation).

Turning to potential outcomes, there was mixed evidence on the extent to which graduates increase their understanding of business processes and products through participating in schemes which rely heavily on rotation and placement elements. Rotation schemes and placements were assessed as not always having positive benefits, highlighting the need for careful design and implementation. Networking with other staff was considered to generate more positive results. **Overall, whilst the potential for graduates to gain exposure to wider working practices is clear, how this is best achieved is less obvious from the evidence reviewed.**

The final part of the review looked at the link between skills utilisation/high performance working practices and improvements in business performance. Here, the evidence was clear **– skills utilisation measures do have a wide range of positive impacts, including enhanced innovation and productivity.** Caution was placed, however, on the transferability of successful practices between high and low value added firms. This might limit the applicability of an incentive scheme to a wide range of firms in Yorkshire and Humber. The way in which interventions are implemented is very important – key features include effective management, consistent (but flexible) application and clear alignment with organisational goals.

In conclusion, the synthesis has identified the potential efficacy of incentives to enhance the deployment of graduate skills as a means to boost skills utilisation and in-firm productivity. It also highlights, however, the strength of contextual factors, such as existing levels of innovation and leadership and management within firms, in determining whether they will work or not.

These findings led to a number of policy implications for partners in Yorkshire and Humber:

- **Targeting within the company base will be crucial to the scale of potential outcomes generated** - it is evident that there is a trade-off between a narrow focus on working with firms who already generate medium to high levels of value added and a broader targeting strategy.

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[8] It should be noted that generating a public sector return on investment does not necessarily require continued employment with the original firm but does imply retention within a given geographical area.

- **A focus on a narrow segment of the graduate cohort would be appropriate** – there is increasing segmentation in the graduate labour market, reflected in the levels of staff turnover and the consequent returns to the employer of investing in skills development. It will be important to differentiate through candidate screening between those in non-graduate employment who are using it as a stepping stone and those who are able to grow their job. An alternative focus could be on those whose skills are most likely to be under-utilised such as those employed in non graduate jobs.

- **Securing employer commitment is very difficult,** highlighting the importance of the incentive as a mechanism to secure behaviour change. In designing such a scheme, careful consideration would need to be given to minimising deadweight (the extent to which impacts would have occurred without the intervention) alongside balancing the firm's return on investment with that of the public sector.

- **The design of the scheme is crucial** with mentoring, peer support and the quality of the receiving manager just three of a number of success factors identified as essential to the achievement of positive outcomes.

Lessons from Undertaking a Realist Synthesis

An important objective of the study was to examine the potential of the Realist Synthesis method to inform policy in other aspects of economic development. Most realist syntheses to date have been conducted around social policy interventions e.g. crime or healthcare.

Realist Synthesis is a time consuming and iterative activity. In the time and resources available, we were able to provide an introductory application of the Realist Synthesis approach. Even within the scope of this exercise, it has been possible to produce a reasonably comprehensive assessment. Given further time and resources, an extended search within other policy areas/academic fields may have yielded useful evidence about different aspects of implementing incentives, employer and employee behaviours and more generally about how introducing organisational change impacts on business competitiveness.

Our experience suggests that, if the approach was to be applied again, a much narrower intervention type should be selected for which a body of comparable evidence exists. In this way, the likelihood that precise conclusions emerge on whether it will work will be maximised.