



# Returns on Investment into the Careers Service: Current Estimates and Future Analysis

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## dmh associates background

In 2008, Dr Deirdre Hughes OBE established dmh associates to encourage collaboration and fresh thinking in careers, education and skills policy, research and practice. The outcomes from the organisation's work are designed to inform and influence policies, research and practice in the UK, Europe and internationally.

Our expertise includes: consultancy, evaluation, evidence and impact assessment, literature reviews, qualitative and quantitative research, digital and labour market intelligence / information (LMI). We provide a full range of activities each tailored to meet specific organisational or individual needs. Visit: [DMH Associates – dmhassociates.org website](https://dmhassociates.org)

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## Executive summary

The main purpose of this report is to offer an independent estimate of the return on investment (ROI) associated with specific Careers Service activities in Northern Ireland, along with ideas for how future analysis or data collection could both improve ROI estimates and support the continuous improvement of service delivery. It complements a parallel study undertaken by my colleague Associate Professor Deirdre Hughes OBE to review careers policies and practices in 15 countries in the UK, parts of Europe, and beyond. The research was undertaken jointly from late October 2023 – early February 2024.

**Based on the analysis to date, stakeholders should be confident that current investments in the Department for the Economy's Careers Service generate positive returns for the taxpayer, with each pound (£) invested estimated to return at least two pounds (£) of future fiscal benefit.**

The Careers Service resides within the Apprenticeship, Careers and Vocational Education (ACVE) Division in the Department for the Economy. It provides impartial guidance on career planning to individuals in education, employment, training and to the unemployed, with a priority focus on clients who are facing or vulnerable to social exclusion. It offers personalised careers information, advice and guidance on an all-age basis provided by professionally trained and qualified advisers. The aim is to support individuals to make informed decisions about the opportunities available in education, training and apprenticeships to help them fulfil their potential, leading to rewarding and sustained employment.

This fiscal ROI analysis focuses on two beneficiary groups, students in school (Years 10-15) and unemployed adults, representing 86% and 3% of frontline delivery time respectively during the 2022/23 academic year. Using frontline delivery time as a proxy for allocating overall organisational costs, we identify £4.5m of direct spend for students in school and £0.1m for unemployed adults.

Table i provides the fiscal breakeven rates against example appropriate labour market outcomes from careers provision, i.e. what minimum proportion of support recipients would need to gain a particular benefit, so that taxpayer gains would cover the direct taxpayer costs for the service. For instance, the service to students in schools would be covered if around one in 300 were prevented from a youth NEET outcome as a result of the careers support provided each year, even assuming no other benefits. Alternatively, breakeven would be achieved if around one in 20 gained a 5% wage premium (applying the premium only for full-time workers up to age 35). For unemployed adults, two months fewer Universal Credit claims for one in 7 customers would be sufficient for fiscal breakeven.<sup>1</sup>

<sup>1</sup> This analysis does not focus on efficiency versus inefficiency. The top-down analysis approach reflects business as usual and actually achieved delivery of services.

Beneficiary group	Benefit to monetise (excl. any other possible benefits)	Fiscal value of benefit in net present value*	Number receiving any support	Breakeven rate**
Students in school	Youth NEET prevention	£47.4k (lifetime value)	30,737	0.3%
Students in school	Improved wages	£3.1k (5% wage gain for FT workers to age 35)	30,737	4.6%
Unemployed adults	2 months fewer Universal Credit (excl. any extra tax paid)	£680 (i.e. £85 / week as low end universal credit claim)	1,414	14.1%

\* See main report for references and motivation

\*\* Minimum proportion of support recipients achieving the benefit for taxpayer investments to be recouped

**Table i. Breakeven rates by beneficiary group for example standalone benefits**

The key question for this ROI is whether these breakeven assumptions are reasonable, given the academic and evaluation evidence base. The qualitative case for impact from the service is supported through external evaluations, such as the positive Matrix assessments in 2022 (and positive follow-up in 2023), and the internal data capture on client feedback. The Matrix assessment includes a review of processes and data and interviews with young people, adult clients, and staff, providing a robust basis for confidence in the service. Internal data shared on client feedback reinforces this position. For instance, out of 2248 surveys from young people received in the academic year 2022/23 and out of 259 surveys from adults, 80% or more of each said they were satisfied with the service and that they were more aware of their career options and the skills needed for their careers of interest. The free text feedback in surveys also contains a range of encouraging examples of specific positive outcomes, such as “I received an extremely responsive and informative service which helped to strengthen my interview skills and understand my options for career development. I would thoroughly recommend the service.” and “As I reflected over what she had said and my options I see a different view to my future.”

To support a quantitative assessment of the breakeven assumptions, we have prepared a point estimate of the ROI for the two beneficiary groups, combining several non-overlapping benefits into a single estimate. Stakeholders are invited to review the underlying assumptions in the ROI model, as laid out in this document. The accompanying spreadsheet is available to government colleagues to explore the effects of adjusting to other plausible values, if necessary. This ROI analysis has implemented three main principles, designed to produce estimates can be interpreted as minimum estimates with a reasonable level of confidence:

- (i) Using robust evidence sources for impact, connecting Northern Ireland data on costs, activity volume and beneficiaries to impact data for comparable activities that have been analysed in academic-quality research, with access to a suitable comparison group via either experimental or quasi-experimental methodologies.
- (ii) Using transparent calculations that are suitable for scenario testing, allowing exploration of different assumptions in the spreadsheet that accompanies this report.
- (iii) Adopting a conservative approach to modelling, such as adopting parameters at the bottom end of estimates from the research literature or excluding groups of beneficiaries where there is not a confident connection to the impact literature, and by only estimating a subset of the more direct, fiscal benefits in each impact area.

### **Provision of careers information, advice and guidance (CIAG) to mainstream Key Stage 3 and 4 students: estimated 2.4x ROI**

- We estimate c. 6k of careers support recipients in these year groups were or will be at risk of a youth NEET outcome, with a further c. 24k unlikely to be at risk.
- Research from meta-analyses of comparison trials and longitudinal datasets suggest the level of support provided by the Careers Service should support some 0.5k 'at-risk' students to form an improved education/career plan, which in turn is associated with a 2x reduction in NEET outcomes.
- This modelling results in an estimated 160 students prevented from a future NEET outcome per annum, the equivalent of about 6% of the whole NEET cohort – the prevention of which is worth £7.7m in lifetime taxpayer benefits.
- The same longitudinal dataset research points towards an average 5% earnings lift for about one in 25 of the remaining students who might similarly address substantial issues in their career plans as a result of Careers Service support, worth a further £2.9m in tax in net present value.

### **Support to unemployed adults: estimated 3.8x ROI**

- Focusing primarily on the 30% of clients who have over one hour of careers information, advice and guidance (CIAG) support, we identify that the type and level of support from the Careers Service is comparable to a well-evaluated programme called RES/REA from Nevada, USA (Michaelides et al., 2012 – discussed in the main report).
- RES/REA has been evaluated using a randomised assignment methodology, providing high confidence that the impacts can be accurately assigned to the programme; it finds a reduction in benefits claiming of 3.1 weeks and increase in earnings of c. 3% as averaged across all participants.
- Translating these benefits into the Careers Service context results in an estimated £0.5m of fiscal benefit, realised in the two years following the support.

### **Limitations**

The key caveat for the in-school ROI is the need to chain together a number of assumptions from different surveys, short-term comparison trials, and long-term longitudinal datasets from different settings. While each evidence point is individually reasonable (and typically interpreted conservatively), modelling uncertainties compound with each additional assumption.

Unfortunately, in the absence of multi-decade randomised trials anywhere in the world to trace the impact of careers provision during education to long-term careers benefits, there is as yet no more solid evidence available. Even were such trials available, they would necessarily refer to historical careers practice from 2-3 decades ago, which would not necessarily be a good proxy for practice today. As with many long-term social interventions, ROI proceeds on the basis of a pragmatic, best-available estimate. The key caveat for the unemployed adults ROI is whether the randomised trial from the US setting is appropriately applied to Northern Ireland. Various adjustments have been made to localise the benefits and to exclude support recipients who are unlikely to be a good match for the US benchmark, but this remains a key area of uncertainty over the analysis.

In common with other analyses, we assume only some minimal, ignorable displacement of benefits elsewhere, i.e. that the unemployed person fills a vacancy rather than takes a job causing someone else to be made unemployed and begin claiming universal credit. Displacement is particularly unlikely to be material for support based around improved careers understanding, self-knowledge and confidence, as significant diversity between people is such that a better match for one person does not preclude a good match for another, and for better education pathway decision-making, since such pathways are available in most cases to all qualifying students regardless of demand. This assumption applies with less confidence for unemployed adults, where support sometimes focuses on tactical or presentational support to find and secure jobs ahead of other applicants. Nonetheless, there is too little quantitative research on displacement to incorporate directly into the ROI. Instead, we have sought to choose conservative assumptions elsewhere and to provide sensitivity analysis to help users of this report make informed decisions.

Example key conservative assumption choices are:

**1. Conservative interpretations of research evidence in estimating fiscal benefits, e.g.**

- Future wage premia for students applied only to those likely to be in full-time work and only up to age 35 (aligning to the latest point of measurement in research for pathway certainty/alignment)
- Estimating NEET reduction and wage premia benefits from improved pathway planning at the bottom end of the scale identified in academic research, rather than the midpoint
- Wage benefits for adults helped to secure work persisting only for two years.

**2. Estimating only a subset of the direct fiscal benefits in each impact area, e.g. excluding any benefits related to:**

- Improved resilience in response to future periods of job loss beyond any immediate job search activity
- Reduced waste of public funds through subsidised education/training pathways being poorly chosen, not leveraged in future careers, or dropped out of
- Gains that might accrue to unemployed adults who receive less than 30 minutes of one-to-one support or to students that benefit from CIAG support but who did not initially have a problematic career plan.

### 3. Estimating only a subset of the broader benefits that typically indirectly support prosperity, e.g. excluding any benefits related to:

- Higher earnings inducing multiplier benefits in the economy
- Better skills alignment for economy/ employers (through more informed career choices, more mobile labour force, or reduced disconnect between ambitions and available jobs)
- Reduced time spent unemployed being associated with improved health outcomes that support future individual prosperity and reduce costs to the state.

#### Ideas for improving the evidence base and analytical insights

The Careers Service in the Department for the Economy made significant progress in summer 2022 with the launch of a new client support database (CIMS), allowing the capture of more detailed client-level information in a standardised format that supports future analysis.

Leveraging this dataset and building on this ROI analysis, we identify five categories for high potential future work to support quantitative impact analysis, particularly for in-school provision reflecting the resource allocation, with (b), (d) and (e) relevant across all client groups including adults:

- a) Customer journey analysis, e.g. for impact around Year 12 transitions.
- b) Data enrichment, e.g. to drive a “RONI” tool or better outcomes data.
- c) Additional data capture by advisers for one-to-one IAG e.g. a focus on career guidance and wellbeing for youth and/or adults or an alternative theme linked to career decision making.
- d) Sample-based focused follow-up e.g. a selected cohort of young people (or adults) over a specific period of time to monitor e.g. decision making, progress, enablers/barriers to success and destinations etc.
- e) Monitoring policy/delivery environment proactively for low friction experimental design opportunities.

These five categories provide a useful starting point for discussion, but there is considerable value in working with stakeholders to develop a long list of options as an organisation as the basis for prioritisation. Stakeholder, staff and beneficiary workshops can also be facilitated to help surface ideas for research, both process-focused research and impact-focused research (the latter being the focus of this report). The main report provides detail on each of the ideas (a) to (e), as well as process-level suggestions for how ideas for better data collection/analysis could be scanned and assessed in general.

## 1. Scope definition

The ROI method to be applied in this report is 'linked ROI' (Percy & Hughes, 2022). Linked ROI is designed for circumstances when a quantified, monetised understanding of the costs and benefits of a programme is requested but a large-scale, long-term programmatic randomised control trial (RCT) or similar research exercise is not feasible, due perhaps to cost, complexity, and/or ethical considerations.

The objective in 'linked ROI' is to connect internal programme data on costs and delivery volumes to appropriately evaluated evidence on outcomes from third party programmes, which are as similar as available to the target programmes for the ROI. The assumption in linking to third party evidence is that the caveat around different contexts is worth accepting in order to gain a higher level of robustness to requirements such as attribution and counterfactual considerations. However, even considering a global scope of potential research studies, multi-decade RCTs are vanishingly rare in education, such as would be required for understanding the medium-term career impacts of lower secondary education careers support. Fortunately, high quality longitudinal research is available to estimate long-term impacts, alongside comparison group trials for short-term impacts, adopting a pragmatic perspective of identifying the most plausible estimate given our available data and theory.

By applying conservative choices in key areas of uncertainty and addressing only a partial set of the anticipated benefits (but including the full cost), the method generates an initial estimate that stakeholders will often be able to recognise as a minimum ROI. As a floor estimate, such calculations can usefully inform go/no-go investment decisions. A further benefit is that the methodology produces a transparent calculation chain and acknowledgement of uncertainty, resulting in a framework within which to target future research activity and to address questions about specific assumptions from any key stakeholders where further precision or confidence in the estimate might be necessary to inform funding decisions.

In consultation with the Careers Service team, we agreed to focus on the academic year 2022/23 (from 1 September 2022 to 31 August 2023) for all analyses. This period has natural alignment to reporting on clients in full-time education and was applied also to adults for consistency, noting that it was the only full period aligning to reporting activities since the launch of the new database in summer 2022, since the equivalent financial year would not end until April 2024.

The project scope allowed for the estimation of three ROI impact strands, being the estimated ROI of a particular set of activities, for a particular client group, on a specific outcome. The impact strands were identified and agreed based on activities with significant coverage of the total budget, grouped in a way that aligns with available high quality research from other jurisdictions on economic outcomes of careers support. Based on an initial review of the data and discussion with the DfE team, we identified the three impact strands specified in Table 1.

Impact strand	Beneficiary group	Activity	Outcome	Share of budget spend (Table 7)
<b>1. “Youth NEET”</b>	School students in Years 10-15 at higher risk of NEET (excl. those who only received SEND-dedicated support)	All careers support provided by DfE team to this client type	Reduced likelihood of having a significant period of youth NEET aged 16-20	83%
<b>2. “Student career plans”</b>	School students in Years 10-15 at lower risk of NEET (excl. those who only received SEND-dedicated support)	All careers support provided by DfE team to this client type	Improved wages among those in full-time work in early adulthood	<i>Combined to reflect a delivery model in which support is available universally and risk level partly determined via support provision</i>
<b>3. “Adult W2W”</b>	Unemployed clients	All careers support provided by DfE team to this client type	More rapid return to higher quality work	3%

**Table 1: Prioritised impact strands for ROI estimation**

Table 2 describes the distribution of careers support by number of activities across client types. 83% of activities were focused on students in schools, particularly Year 12 in line with the organisational objective to provide a one-on-one interview to 95%+ of Year 12 students as they choose and prepare for post-16 transitions, along with modest amounts of support in other years. Given support across multiple years in school can be seen as collectively driving towards improved transitions and reduced risk both in-year and across several transitions, support to these students is seen holistically within the ROI framework.

Given the large proportion of activity focus, students in school are a natural high priority beneficiary group for ROI estimation. As discussed further below, we exclude the small number of students who only received support<sup>2</sup> aimed at students with special education needs or disabilities (SEND) since quantified impact evaluations are not available for this type of support and beneficiary group and it may be inappropriate to apply economic benefits on NEET prevention and wage gains estimated from mainstream cohorts. The very small proportion of activities provided to FE and HE students are excluded, since the restricted sample provides more confidence in identifying students in full-time education in school receiving the standard offer of support and since the FE/HE provision is not material from a budget perspective.

Unemployed clients are the remaining specified client type with greatest volume of activity provision. The other client types were discussed but not prioritised for reasons of scope at this stage. For instance, the next largest, “trainee”, refers primarily to those effectively using traineeships to transition out of education into work, with much of the activity reflecting the fact that trainee credits have to be issued for young people by careers advisers, rather than denoting a particularly high unemployment risk. As such, it reflects a particular feature of the current Careers Service system and we are not aware of high quality evaluations of the impact

<sup>2</sup> Annual Reviews; Transition Plan Meetings; and Case Conferences, as Contact Reason values in the CIMS database. Students who receive some other forms of support in addition to these three contact reasons are retained in the ROI.

of this type of provision in other jurisdictions. In terms of provision for employed clients, there is insufficient statistical data available on their prior and changing circumstances to drive an ROI, such as their wages, promotion prospects, career sustainability, or career satisfaction at key points, such as upon accessing careers support, upon ending careers support, and following the execution or completion of an action plan developed with the help of that support.

In discussion with the data team, we agreed to exclude clients who only had a status type of Other or Unclassified (NA), both in terms of potential impacts and budget associated with supporting them. The former primarily reflects the recent database migration exercise from CMS to CIMS where “Other” was used as an initial category for all clients, to be updated by advisers in reviewing and progressing their caseloads. It would be hard to quantify if any of these clients could be considered at particularly high unemployment risk or currently unemployed. “NA” reflects a small proportion of interventions recorded as general enquires which are not linked to a client record, i.e. insufficient information was available to create a new client record or link to an existing client record.

Client type	Number of activities logged in AY 22/23	As % of total number of activities
<b>Students in schools, typically in full-time education</b>		
Year 10	3417	6%
Year 11	835	1%
Year 12	41867	68%
Year 13	1596	3%
Year 14	3303	5%
Year 15	480	1%
<b>Students in Further and Higher Education</b>		
FE Student	267	0%
HE Student	25	0%
Unemployed	3536	6%
Economically Inactive	43	0%
Trainee	1729	3%
Employed	724	1%
Unclassified/Other	3855	6%

**Table 2: Careers support provision by client type, AY 2022/23**

Tables 3 and 4 describe the types of activities available to analyse via the Careers Service databases. The primary theory of change for careers support, especially personalised careers support with professionals comprising the majority of in-scope provision, is one in which different types of activities work together to achieve improvements in careers planning, readiness, and confidence, as well as tactical support in such areas as job search or application processes where appropriate. The right blend of activities and careers information, advice, or guidance provision is provided based on what is most relevant to the young person, but ultimately aimed towards a similar broad outcome category of improved transitions towards a future life.

Most quantitative research on economic outcomes similarly groups careers support in a fairly holistic manner, assesses multimodal interventions, or assesses the economic impact associated with short-term outcomes targeted by careers support, such as having ideas about future jobs, career confidence, career decision-making self-efficacy, or having better aligned education/career pathway plans. Some economic impact research focuses on specific activities, particularly different categories like work experience or employer talks alongside professionally-delivered impartial CIAG or short-term outcomes or specific job search support to adults (see, e.g. the indicators in Covacevich et al., 2021). However, the vast majority of Careers Service provision falls within the professional CIAG category. Additionally, standard database entries do not reliably identify the activities which have been analysed in greater detail, such as talks by employers which careers advisers might broker or facilitate. For these reasons, we include all types of careers support in the ROI and take a holistic perspective on how they relate to outcomes.

Contact reason	Number of activities logged in AY 22/23	As % of total number of activities
Careers	54389	88%
Support to Parent/Guardian	1890	3%
Annual Review	1531	2%
Post Results	1321	2%
Transition Plan Meeting	830	1%
Support to Client Representative	584	1%
E.T.E Forum	320	1%
Pre-Entry Guidance	212	0%
C.V. Building	171	0%
Job Search	131	0%
Refer to a Careers Adviser	60	0%
Interview Techniques	42	0%
Other	41	0%
Case Conference	38	0%
ECCTIS	33	0%
Careers Event	26	0%
Redundancy	25	0%
Job Fair	23	0%
Parent/Guardian/Client Rep on behalf of client	8	0%
Training	2	0%
<b>Total</b>	<b>61677</b>	<b>100%</b>

**Table 3: Careers support provision by contact reason, AY 2022/23**

Contact method	Number of activities logged in AY 22/23	As % of total number of activities
Class Talk	15727	25%
F2F Interview	15376	25%
Phone Call	7474	12%
Email	7192	12%
Group Session	4343	7%
Meetings	2899	5%
Video Call	2641	4%
Brief Intervention	2277	4%
Letter	1467	2%
SMS	1420	2%
Presentation (In Person)	254	0%
Ask Careers	244	0%
Event	176	0%
Careers Text Alert	145	0%
Assessment	33	0%
Presentation (Virtual)	9	0%
<b>Total</b>	<b>61677</b>	<b>100%</b>

**Table 4: Careers support provision by contact method, AY 2022/23**

The outcomes to be assessed depend on the availability of sufficiently high quality evaluations with comparison groups in other jurisdictions, where the beneficiary groups and activity types are sufficiently similar to Northern Ireland circumstances and where it is possible to develop a link through to approximately quantified fiscal benefits. These are discussed in the following sections, but effectively follow the same literature review and prioritisation process as Percy & Hughes (2022) for adult welfare-to-work provision and Percy (2020) for school support, with any relevant new evidence identified via Percy (2023) and Percy, Adriaanse, & Hughes (2023a).

## 2. Budget analysis and cost allocation

Costs for the ROI are attributed on the basis of top-down analysis, in which the total budget of the organisation is contrasted with the total volume of services actually delivered. As such, it reflects achieved unit costs, influenced by the challenges of the particular year. Achieved unit costs are different from hypothetical unit costs, which might be estimated based on the time and resources required to deliver an example activity. Such bottom-up analyses of the ingredients of an activity can be particularly helpful for considering changes to a delivery model, but typically account less accurately for the total costs of delivering a service in a particular setting and hence are less useful for analysing fiscal return on investment. This analysis does not focus on efficiency versus inefficiency. The top-down analysis approach reflects business as usual and actually-achieved delivery of services.

The finance team provided monthly spend data to allow the construction of approximate spend data over the September 2022 to August 2023 period. The method followed Hughes & Percy (2022) prior work with Northern Ireland. The costs available cover the full budget of the DfE Careers Service Northern Ireland, including all frontline staff, all managers/administrative staff, as well as general administrative expenditure, premises overheads, and training budgets. The main category of costs excluded is the rental value equivalent of premises used, since facilities are primarily government buildings whose cost is not assigned to individual departments. Contributing activity by schools is also excluded, such as premises/facilities' costs for guidance that takes place on school premises or the cost of school staff time in supporting guidance. Since the analysis focuses on fiscal costs, the opportunity cost to individuals of participating is not analysed.

Table 5 describes the budget categories and total amount for allocation. In line with the 2022 assumptions, 4% of the budget is assumed to be allocated to activities not otherwise captured, e.g. making digital resources and information freely available online, and to represent activities not well categorised elsewhere, such that we cannot use the below allocation method to address them.

Budget Category	Actual Spend AY 22/23 (GBP)
Staffing costs	5,184,182
GAE	95,236
CIAG	97,263
Total	5,376,681
Minus estimate for activity not addressed in frontline delivery database capture	4%
<b>To allocate according to frontline delivery database</b>	<b>5,161,614</b>

**Table 5: Budget analysis for ROI, AY 2022/23**

This approach to cost estimates for the ROI allocates the total budget of the organisation across all frontline activities delivered in the relevant period. In this approach, all supportive activities (e.g. management, administration, overheads) are understood as contributing indirectly to the frontline activities and must be allocated to those activities according to some proportion. Given the vast majority of costs are for frontline CIAG time, we allocate indirect costs in line with the estimated proportion of CIAG time across different activities, with any small inaccuracies in this approach not being material for the overall ROI estimates. All non-delivery time by advisers, such as breaks, inefficiencies in scheduling, continuous professional development (CPD) or holiday periods, are similarly assumed to be allocated against categories using the same apportioning.

The allocation of activities over beneficiary groups to reflect the impact strands chosen in Table 1 is based on the CIMS database, where each instance of activity support to a particular client is specified individually. Average time amounts for each activity are shown in Table 6 and are based on the 2022 analysis, so that we can arrive at an approximate distribution of frontline adviser time.

Average time for activity (inc. time for preparation and follow-up)	Activity types as differentiable in CIMS database
<b>90 minutes</b>	Transition Plan Meetings
<b>75 minutes</b>	Annual Review Meetings
<b>60 minutes</b>	Case Conference Meetings Events (e.g. CV building, careers events, job fairs, job search, adviser referrals) Group careers or CV sessions Careers presentations (virtual or in-person)
<b>45 minutes</b>	Class career talks ECCTIS assessment Face-to-face interviews, phone calls, video calls, or Ask Careers support for CIAG topics, e.g. guidance, job search, CV building, pre-entry guidance, interview techniques, support to parent/carer/client rep, adviser referrals, etc.
<b>30 minutes</b>	Higher support CIAG emails, e.g. for careers IAG, CV building, job search, post results support, or support to parent/carer/client rep
<b>20 minutes</b>	ETE Forum meeting input Input at meetings providing support to parents/carers/client reps Lower support CIAG emails, e.g. for interview techniques, job fair support, adviser referrals, training, redundancy, or emails on behalf of client
<b>15 minutes</b>	Brief interventions for careers or support to parents/carers/client reps
<b>4 minutes</b>	SMS or letters for careers or support to parents/carers/client reps (typically standard letters sent to groups of recipients)
<b>0 minutes</b>	Careers text alerts (typically automated or easy to send)

**Table 6: Average time allocation per activity**

The next step is to identify the in-scope beneficiary group at the level of specific individuals (being the level at which outcomes accrue), rather than the activity-participation level, which is the base unit of analysis in the provided data. There were 37,349 unique client IDs registered as receiving at least some support in AY 2022/23.

The vast majority of clients were always assigned against the same client type, given the options as in Table 2, which is unsurprising because the data covers a single academic year so most students would remain in a single client type over that period and because support to those outside of school only rarely covers clients long enough to trace through to a change in employment status (and follow-up data are not routinely sought for or captured in the database). Nonetheless, 2% have more than one status, so we need a principle for assigning ambiguous clients to one of the impact strands in Table 1. Any client that had at least one client type of Year 10-15 is potentially assigned to be allocated within impact strands 1 and 2, being 31,557 individuals, including 151 who also had a status of unemployed at some point during the year. However, we exclude the very small proportion who only received SEND-dedicated support over that year, leaving 30,737. Any client that had a status of unemployment at least once during the year was assigned to impact strand 3, unless they had already been allocated to strands 1 and 2, resulting in 1,414 individuals for strand 3.

All activities against the individuals lined up against the impact strands are then added up on the basis of the time allocation in Table 6, to produce a cost to assign to delivering each impact strand as in Table 7. The analysed activities account for 89% of the total budget over the period.

Impact strand	# interventions	Frontline delivery time	Time as %	Allocated cost
"In School" i.e. 1. "Youth NEET" & 2. "Student career plans"	51,623	2,257,522	86%	4,452,630
3. "Adult W2W"	3,404	68,848	3%	135,793
SEND-only clients	837	71,505	3%	141,033
All other activities	5,813	219,108	8%	432,158
<b>Total</b>	<b>61,677</b>	<b>2,616,983</b>	<b>100%</b>	<b>5,161,614</b>

**Table 7: Budget allocation for ROI impact strands**

### 3. ROI estimate for in-school activities

#### Identifying population size for strands 1 & 2

Level of need is a key differentiator between impact strands 1 and 2 for in-school activities. Similar to England, but unlike in jurisdictions such as Wales, Northern Ireland does not capture detailed data on student need or self-reported career readiness in a centralised, standardised manner. As a result, we develop a proxy approach for estimating the proportion of students in different categories.

The overall percentage of those at risk of NEET at some point during their youth transition is estimated at 20%, recognising risks may materialise in different years and in non-linear fashions for different young people. 20% is based on approximately double the actual youth NEET rate in Northern Ireland, to include both those who actually end up NEET and one extra marginal person at risk who (perhaps narrowly) avoids it for each person who does end up NEET. For instance, NISRA used Labour Force Survey data to report a 9.8% NEET rate for those aged 16 to 24 in July to September 2023<sup>3</sup>. This assumption of 20% is in line with our evidence on high future NEET risk among school students in other UK jurisdictions.

Although Northern Ireland does not have survey data on youth NEET risk identifiable against clients within CIMS, we do know how much support different students receive. We assume that students who receive more careers support are more likely to be in need, in that support provided proactively is often triaged by estimated need and support requested is more likely to be requested by those with a need for it. We also assume, in line with the research base, that increased volumes of support correlate on average with increased impact (Percy, 2022), which will be incorporated into the ROI estimate at a later stage. The exact distribution of risk across different support level categories is uncertain, subject to the requirement that the eventual weighted average is 20%. We have developed an initial estimate in Table 8 based on our understanding of survey data and youth risks from across the dmh project spectrum, but invite discussion and consideration of alternative assumptions. For instance, we have applied the 20% average to the population of student clients, assuming they are broadly representative of the overall population of students. Given the majority of students are in Year 12 where delivery of careers support is routinely over 95%, this is a reasonable initial position, but it may be possible to refine it for other years.

Level of support	Average minutes of CIAG from the Careers Service	At Risk of NEET	Not at Risk of NEET	All students	% assumed to be at risk of NEET
Very low	1-29 mins	57	1,074	1,131	5%
Low	30-59 mins	1,902	10,780	12,682	15%
Medium	60-2hr59 mins	4,003	12,007	16,010	25%
High	3+ hrs	320	594	914	35%
<b>Total</b>		<b>6,282</b>	<b>24,455</b>	<b>30,737</b>	<b>20%</b>

3 [Northern Ireland Labour Force Survey – Young People Not in Education, Employment or Training \(NEET\) - Department for the Economy - economy-ni.gov.uk website](https://www.economy-ni.gov.uk)

**Table 8: Estimated NEET risk**

However, not all students at risk of NEET are at risk for reasons where CIAG has the potential to make a material difference. Risks related to vocational self-identity, decision making self-efficacy, career planning, education choices, and study motivation (among others) are directly within the remit of careers support to tackle. Others, perhaps related to illness, teen pregnancy, bereavement, or criminal activities, are less amenable to CIAG support. Pastoral care and support from careers advisers may be able to form part of a package of activities that reduce such factors or the link between such factors and NEET outcomes, but only at reduced efficiency compared to the former set of risks.

Within the more directly careers-related risks, we need to identify those that have been related to economic outcomes in prior research and develop a series of assumptions for modelling these on the Northern Ireland cohort. As with all other assumptions, the accompanying spreadsheet allows government colleagues to explore the impact of different choices on the ROI. This necessary focus on the extant quantitative evidence reflects the historic interests and idiosyncrasies of previous researchers and funders, rather than necessarily where the activities have the greatest ROI.

### CIAG impact on career planning and destination outcomes

Meta-analyses of comparison group trials<sup>4</sup> have revealed statistically significant benefits from careers provision compared to no-treatment control groups, with one-to-one provision over multiple sessions having the highest effect size in terms of changing career attitudes, confidence, motivation and plans.

Considering the number of minutes of CIAG support, conservative effect sizes for low, medium and high levels of support are assumed as in Table 8, measured in terms of standard deviations progress on standardised career questionnaires: 0.25, 0.50 and 0.75. Such questionnaires typically reflect aspects like career decidedness and career decision-making self-efficacy. No benefit is assumed for very low levels of support, treating any benefit here as upside to the ROI.

Improvements in careers-related attitudes, behaviours and planning can in turn be related to longitudinal dataset analysis that has shown increased earnings and reduced NEET rates among 16 year olds who are able to name a job they are interested in and able to choose an educational pathway that is aligned with their occupational ambitions.<sup>5</sup> In general, a 1.5 standard deviation shift in confidence, motivation and planning is likely to correspond on average to triggering such a mindset/pathway shift among students.<sup>6</sup>

4 Oliver and Spokane (1988); Whiston et al (2017). Studies cover a wide range of age ranges from age 12-15 up to adult, different channels of delivery and different content/topic focuses for the support. The estimates included in this document have been adjusted to reflect the school-age population that is relevant for the Careers Service.

5 Yates et al (2011); Sabates et al (2011); and Schoon & Polek (2011) – all analysing the British Cohort Study (BCS) of individuals born in 1970.

6 For instance, a one standard deviation improvement would correspond to someone moving from the 16th percentile to the median or from the median up to the 84th percentile, relating conservatively to the ~10%/~25%/~40% sample size survey subcategories in the BCS.

Among students with initially problematic future plans, for instance being highly uncertain, unrealistic or misaligned with respect to education/occupation pathways, this analysis suggests that around half would be able to shift to having an effective plan as a result of receiving a high level of support, around a third among those who receive a medium level of support, and around a sixth among those who receive a low level of support.

The proportion with initially problematic plans is a highly uncertain assumption that would ideally be driven by recent, Northern Ireland specific data. One starting point, in line with recent project evidence from England on the proportion of young people without an idea for a future job, is an average of about 15%-20% across the whole population. This starting point is conservative since it does not consider other sources of poor career pathway readiness or planning which CIAG can support, although these are likely to be correlated with each other.

This estimate is indirectly supported by recent surveys in Northern Ireland, as conducted for the 2021/22 review (Hughes & Percy, 2022). When asked “How important do you think career guidance is for you?”, 33% of 2504 young people provided the strongest possible affirmation out of four options available, selecting “essential”. While not all of these 33% will have (or have had at some point) a career plan with particular issues to address, most of them are likely to have material questions or uncertainties that they would appreciate support with. Other respondents may also have problematic plans, but not use the term “essential” to describe career guidance (only 2% of respondents said that career guidance was “not important at all”), with everyone else describing it as at least “important”. Meanwhile, among parents/carers of secondary education students<sup>7</sup>, 18% of 730 answering the question said “definitely not” about their children having some good ideas about their future career aspirations (a further 7% were unsure), 25% said their children were “not at all proactive” about exploring/planning for their future career options, and 27% disagreed that their children knew how to link school/college subjects to future career opportunities. Overall, this survey evidence suggests a 15%-20% rate of plans that have scope for substantial improvement is a conservative assumption.

Evidence from other projects suggest assessed poor career planning is twice as prevalent in at-risk NEET groups as those not at risk, such that 30% and 15% problematic plan prevalence respectively across the groups would produce approximately the anticipated overall population prevalence. These assumptions result in 8.7% of in-scope students whose career planning/readiness sees a material improvement as a result of the support, i.e. improving the plans of about 29% of the 30% of students assumed initially to have a problematic plan in scope to address.

What outcomes might we estimate such improvements in planning to translate into? The historic British Cohort Study (BCS) dataset provides an initial reference point for NEET reductions (2-3x higher NEET rates among those with unclear/misaligned career plans, relative to overall age 16-18 6+ month NEET rates of 5-5.5%) and increased earnings (+10-15%), known to persist at least up until age 35 and likely longer. This is an imperfect proxy, as it is based on the other UK nations rather than Northern Ireland, but remains the best reference point available for these impact strands.

<sup>7</sup> 80% had a child aged 13 or over (and 32% aged 16 or over), so these results cannot be put down to students simply being too young for career awareness to be relevant. Motivation at school given the future relevance of subjects being studied and decisions made around what subjects to study for GCSE is already important in Key Stage 3, as well as extracurricular activities and building a general understanding of the world of work.

## Strand 1 estimates: Youth NEET

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A conservative interpretation for strand 1 is a 2x higher NEET rate, with actual NEET rates with a problematic plan vs a supported plan calibrated to 60% and 30% in order to result in the 9%-10% observed future youth NEET rate post-intervention (treating the support cohort as approximately representative of the whole cohort, given the prominence of the universal Year 12 interview). The overall effect of this is a 0.9%pt drop in youth NEET rate, corresponding to 163 students averted from a future NEET outcome per year of support. This is equivalent to 0.5% of the school students worked with over the reference period or 2.6% of the 6.3k estimated to be at risk of NEET. In other words, for the fifth of students at highest NEET risk, where most receive 1-2 hours equivalent of support, the model requires us to believe that one in 40 would have their NEET outcome averted due to this support.

Preventing NEET outcomes aged 16-18 is considered by most governments to merit significant investment, ultimately relating to much better lifetime outcomes and benefits for the Treasury. There are different ways of costing this benefit, resulting in a wide range of possible estimates. This study follows the approach published by The Careers & Enterprise Company for the Department of Education in England, having been peer reviewed by third party economists (Percy, 2020) and applied also in analysis for Careers Wales. This approach averages two approaches to estimation:

- Estimated full value of NEET prevention. One prevented NEET at age 16-17 has been related to major lifetime benefits, accounting for £57k value to the Exchequer for a reference year of 2009 and about twice that for society<sup>8</sup>. This Audit Commission estimate is treated as a ceiling, given the incorporation of high costs for students whose NEET status is unlikely to change due to interventions.
- Willingness to pay. The Treasury has also proved willing to pay a material proportion of these costs for confirmed reductions in NEET levels: £7k with a 2011 reference year<sup>9</sup>. The Treasury rate card can be considered a floor estimate, given the need for returns to the policy and measurement uncertainty.

This midpoint approach suggests £47.4k value for the Exchequer updating the source figures via the Bank of England inflation calculator to 2023. Across the 163 NEET outcomes averted, we arrive at an estimated £7.7m in benefits as a result of Careers Service work on NEET reduction among Key Stage 3 and 4 students.

## Strand 2 estimates: Student career plans

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Assumptions on problematic plan prevalence and the impact of CIAG activities on improving those plans are as detailed above. The result of those assumptions is 3.7% of the 24.5k in-scope students seeing a substantial improvement in their planning/readiness, i.e. benefits for 25% of the 15% of students assumed to have some problematic planning in-scope to address.

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8 Coles et al, 2010, in analysis for the Audit Commission.

9 The Youth Unemployment Innovation Fund Round 2 rate card issued in 2011 (DWP, 2011).

What economic benefit should be assumed for these students with a substantial improvement to their career plan? As with before, we lean on the BCS evidence to motivate an initial assumption. Labour market transitions since the 1990s have become longer, more contested, and with higher stakes decision points for young people. As such, it is likely that the wage premium identified in the British Cohort Study applies more strongly today than before. Nonetheless, given the principle of conservatism applied throughout this ROI and the uncertainty over the fit of the BCS reference point, a low end 5% earnings premium is applied.

The wage premium is applied only to the subgroup who are likely to end up in full-time employment, applying a 3.5% discount rate to aggregate benefits from age 18 to age 35, in line with the published analysis on the BCS cohort data, but conservative given the persistence of earnings year-on-year. The wage model is driven by 2022 ASHE data for Northern Ireland (i.e. HMRC PAYE data) with employment rates based on the LFS, with bridging assumptions applied to drive the model by gender and approximate age banding across the lifecycle (for details please see the accompanying spreadsheet).

For each of the ~0.9k students whose career plans are developed or fixed with Careers Service support, this equates to a £8.3k earnings uplift (in net present value terms) and £3.1k for the Exchequer, considering only direct taxation benefits, with any indirect or multiplier benefits treated as upside for the ROI. £2.9m in fiscal value is generated in total as a result.

### Overall ROI estimates for in-school impact strands

Combining the benefits from strands 1 and 2 produces £10.6m in net present value per year, as compared to costs of £4.5m, giving a fiscal ROI of 2.4x. The overall analysis remains highly uncertain, in line with many long-term impact estimates of social interventions in the absence of equally long-term RCT data, but assumptions have sought to err on the conservative side at several points as specified throughout. As a result, we anticipate the actual ROI would be higher than presented here.

A simple sensitivity table is presented below for the in-school impact strand.

		Wage premium for an improved career/education plan (only applied to those not at risk of NEET, up to age 35, full-time workers only)				
		0%	2.50%	5%	7.50%	10%
Value of NEET prevention (only applied to those at risk of NEET)	0	0.0	0.3	0.6	1.0	1.3
	£25,000	0.9	1.2	1.6	1.9	2.2
	£50,000	1.8	2.2	2.5	2.8	3.1
	£75,000	2.7	3.1	3.4	3.7	4.0
	£100,000	3.7	4.0	4.3	4.6	4.9

## 4. ROI estimate for unemployed adults

### Economic impact of support to adults not in paid work

The economic impact of careers support for strand 3 follows the literature review in Percy & Hughes (2022). To summarise:

- The search strategy looks for ROI studies on approximately comparable activities via academic articles published since 2000 and indexed on Scopus, requiring both an ROI relevant term and a guidance-related term in the title, abstract or keywords. A grey literature search using similar terms on internet search engines and citation tracing and direct enquiry to a small number of experts in the field identified additional candidate papers for review.
- Having identified a number of potentially relevant studies above a methodological quality threshold for (quasi-) experimental design, the best fit study was then chosen based on proximity to the target programme against four criteria: activities involved in the intervention, scale/cost of the intervention, labour market context, and delivery provider type (e.g. a publicly funded national service being preferred to a small-scale charity).
- Among the small number of candidate studies, the most appropriate reference study for the calculation chain was the REA/RES RCT in Nevada (Michaelides et al., 2012). The activities involved are similar, being mostly conversation-driven advice and guidance support to help individuals, e.g. support in benefits claiming, LMI, development of a plan and training referrals where appropriate, plus activities like job search assistance and CV support where required.
- Compared to other ROI studies available, the low-cost, light-touch nature of the Nevada intervention was a better fit to Careers Service provision, as was delivery through a universal state-funded service in a mixed market economy where unemployment benefits are designed to strongly encourage a return to work. The study is also high quality, having already passed one replication test, and was given an evidence rating of “near top tier” by one of its later evaluation funders (Arnold Ventures, 2020).
- Nonetheless, there are important differences in the programmes. Ideally a comparator would come from one of the other UK regions, rather than the US. The US programme is compulsory and integrated formally into unemployment benefits claims, whereas the Careers Service provision relies on voluntary engagement by clients. More generally, the project scope restricted the search strategy as above, whereas a broader strategy could look for estimated impacts prior to monetisation or develop a weighted average across multiple studies, rather than adopting the single best fit study.

The decision to use impacts from the Nevada study is supported by other studies which identify comparable outcomes from other activities that are also similar to Northern Ireland provision. Notably, a meta-analysis of 47 job search interventions by Liu et al. (2014), covering 9.6k job seekers, found statistically significant benefits from interventions that ranged from a few hours in duration to several months. In several studies, a small number of hours was associated with a positive effect size, with respect to the odds ratio (OR) for the odds of being in employment at the point of measurement, such as five 20-minute sessions (OR 3.3), four 90-minute sessions

(OR 2.7), a two to three hour workshop (OR 4.2), four hours of support (OR 3.6) etc. Liu et al. (2014) also demonstrate that it is easier to support short-term unemployed job seekers, where the odds of obtaining employment were 3.5 times higher in the intervention group than in the control group; for long-term unemployed job seekers, the odds of obtaining employment were 1.7 times higher in the experimental group than in the control group. Other studies are discussed in section 7.2.3 of Percy & Hughes (2022).

The RCT evaluation of REA/RES in Nevada identified an average 3.1 week reduction in unemployment benefits claims and a 3% earnings uplift<sup>10</sup> across all participants tracked for 1.5 years (Michaelides et al., 2012). Further supporting the comparison to the Careers Service, there were only light criteria for support eligibility. The majority of new unemployment insurance (UI) claimants were eligible for selection into the programme, requiring that they had received at least one week of UI, had no return to work date already confirmed, and were not active in other training/support/hiring programmes. For the purposes of the ROI, we assume the vast majority of those with a client type of Unemployed in the CIMS dataset are on benefits and that the government may save on some universal credit payments if they were to access paid work.

## ROI estimation

Applying these REA/RES outcomes in a Northern Ireland context, we can relate the reduction in unemployment benefits claimed to a typical standard 2023/24 allowance for single persons aged 25 and older under universal credit with no housing costs, using an online benefits calculator to arrive at £85 per week or £264 on average per participant given the 3.1 week reduction in benefits claiming: [Benefits Calculator - entitledto.co.uk website](#).

The 3% earnings uplift can be applied to an example job with a £20k annual gross salary, being c. 60% of the Northern Ireland full-time gross median salary in 2023, assuming unemployed adults typically enter the labour market at a below median level.<sup>11</sup> At this level of income, a marginal increase in wage accrues 46% to the state in direct taxation.<sup>12</sup> A conservative interpretation of labour market participation by formerly unemployed workers and the RCT applies this wage increase for 2 years. The result of these assumptions is £632 in direct fiscal return to the Exchequer per equivalent participant, cashed over the two years following programme completion. In addition, we can anticipate these income-related taxes being gained by government on the full income for the extra 3.1 weeks spent in work at the beginning. Working with the same assumptions, there is a full average tax rate equivalent of 19% on a typical £20k salary, equivalent to £223 extra per person.

Combining the fiscal benefits of benefits reduction and increased taxation, we arrive at an average fiscal value of £1k per eligible participant. However, not all clients should be considered eligible for inclusion in this benchmark comparison. For instance, those who received very little support should likely not be compared to a programme that typically

10 US\$2.6k or 18% higher wages in total, but partly driven by an earlier return to work. With average quarterly wages of US\$7k and ~19 weeks average on UI in the control group, the wage uplift is ~3%.

11 [Employee Earnings in Northern Ireland - northernireland.gov.uk website](#)

12 Benchmarked relative to £20k salary for 2023/24 tax year (e.g. 12% NICs; 13.8% employer NICs; 20% income tax band). Standard HMRC calculator: [Estimate your Income Tax for the current year - www.gov.uk website](#)

spanned a few hours of support (albeit likely also with a wide range of time provided across participants). The ROI assumes that the REA/RES benchmark can be applied in full to participants having one hour or more of CIAG support and applies partially (25%) to those receiving 30 min – 59 min support.

This modelling results in £520k in fiscal benefits unlocked over the reference period. With a cost of £140k to serve unemployed adults in the reference period, the ROI is comfortably positive, at 3.8x, fully cashed within two years. This estimate is likely to be conservative as wage benefits in particular are likely to extend beyond two years, for at least a subset of workers, and additional economic benefits might be gained in the form of improved resilience or preparedness in response to future periods of job loss and instability. Any benefits for the 48% of clients who receive less than 30 minutes of support also represents upside to the ROI, with the costs to serve them already fully included.

A sensitivity analysis based just on the number of weeks saved of benefits claimed is provided below, assuming zero benefits via any wage uplift.

		Proportion of relevant client base in scope for average reduction in weeks unemployed					
		0%	20%	40%	60%	80%	100%
Fewer weeks of unemployment claim (sole benefit; excl. extra tax on income)	0	0.0	0.0	0.0	0.0	0.0	0.0
	2	0.0	0.4	0.7	1.1	1.4	1.8
	4	0.0	0.7	1.4	2.1	2.8	3.5
	6	0.0	1.1	2.1	3.2	4.2	5.3
	8	0.0	1.4	2.8	4.2	5.7	7.1
	10	0.0	1.8	3.5	5.3	7.1	8.9

## 5. Ideas for improved data collection and future analysis

The Careers Service made significant progress in summer 2022 with the launch of a new client support database (CIMS), allowing the capture of more detailed client-level information in a standardised format that supports analysis. Leveraging this dataset and building on this ROI analysis, we identify five categories for potential future work to support quantitative impact analysis, particularly for in-school provision (reflecting the resource allocation), with (b), (d) and (e) also relevant across all client groups including adults:

- a) Customer journey analysis, e.g. for impact around Year 12 transitions.
- b) Data enrichment, e.g. to drive a “RONI” tool or better outcomes data.
- c) Additional data capture by advisers for one-to-one IAG e.g. a focus on career guidance and wellbeing for youth and/or adults or an alternative theme linked to enhancing career decision making.
- d) Sample-based focused follow-up e.g. a selected cohort of young people (or adults) over a specific period of time to monitor e.g. decision making, progress, enablers/barriers to success and destinations etc.
- e) Monitoring policy/delivery environment proactively for low friction experimental design opportunities.

These five categories provide a useful starting point for discussion, but there is considerable value in developing a long list of options as an organisation (along with your stakeholders) and prioritising from there. Stakeholder, staff and beneficiary workshops can also be facilitated to help surface ideas for research, both process-focused research and impact-focused research (the latter being the focus of this report).

The most policy-relevant findings will be identified where potential data collection/analysis activities are designed and prioritised based on stakeholder discussions. One helpful tool for such an exercise is to develop a confidence-coded theory of change, where colour or shading is used to code parts of the theory of change given the strength of the evidence base and the level of stakeholder confidence in that particular step or outcome. Lower confidence areas can then be prioritised for future research, particularly those related to parts of provision at risk of defunding or with large resource requirements. With the confidence-coding subtracted, the theory of change can also be a useful communication and organisational tool for internal-, stakeholder-, or public-facing initiatives.

A wide range of evidence can help inform confidence assessments, including case studies, qualitative feedback, quantitative analysis, and theoretical mechanisms with a close understanding of transitions and local circumstances. Useful evidence can come from other jurisdictions as well, ideally with adjustments to better fit the Northern Ireland context or from countries with similar context. As a result, research to bolster confidence in key parts of a theory of change can come from focus groups, interviews, international literature review, and good practice overseas visits, as well as the quantitative techniques that are the focus of the rest of this section.

High quality quantitative impact research requires two circumstances: a comparison group (perhaps indirectly identified) who receive different careers support and data on outcomes, ideally with data also on circumstances and starting points.<sup>13</sup> Research capable of robustly identifying small effect sizes often requires a large scale effort, such as a significant sample size, operational design around randomised comparison groups, and a research budget. However, some benefits can also be gained from small-scale, relatively low budget research that does not require operational compromises such as imposing randomisation into a pre-existing service delivery plan. Nonetheless, if a service is under funding pressure to produce very high quality evidence lest it be discontinued, the funders of that service should also commit to budgets and operational designs that enable the generation of such evidence, including potentially a public and political commitment to identifying eligible beneficiaries that temporarily do not receive the full service in question.

**a) Customer journey analysis, e.g. impact around Year 12 transitions**

CIMS provides point in time data on specific support provided to specific beneficiaries. The support provided to a specific beneficiary can therefore be tracked through time, through multiple instances of support provided, in order to better understand customer journeys. In some cases, ad hoc or online support might be untracked, but in the vast majority of cases where a beneficiary receives substantial support from the Careers Service, it is possible to track them from one instance of support to the next. This dataset provides a foundation for substantial impact analysis, but unlocking its potential requires adding at least one of several additional data-collection mechanisms to enrich it, such as the examples in (b), (c), and (d) below. As an example of the type of customer journey analysis that would be possible with more extensive data collection, we can consider support for re-entry into EET. This analysis is possible in principle because clients are also assigned a “client type”, with values including “unemployed” (see Table 2), which potentially provides a way to track changing status over time as well.

An initial scan of the data identifies 99 customers receiving some substantial support who had a “client type” status at one point of unemployed/inactive and, at another point, an EET status no younger than Year 13 (of whom 19 were young people or under 18). In principle, we can examine the specific dates of interventions and “client type” status changes, to get an understanding of when a confirmed EET re-entry has happened. However, at present such an analysis would have only limited value. While it might identify some customer journeys of interest, status changes may not be routinely captured in CIMS as a new client type coding at each point of intervention (fixable through guidance to staff) and, more importantly, most status changes happen after interventions finish and are not routinely collected/updated in CIMS, since the opportunity to collect data typically only happens during an instance of support provision. This second issue is less easily addressed and likely requires an approach similar to (b) or (d) to generate data with better coverage.

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13 For instance, direct comparison groups simply reflect making a service not available to otherwise eligible individuals (potentially by providing them a different service instead). Indirect comparison groups can often be more feasible from an operational or ethical perspective, e.g. gradual roll-out, limited capacity waitlists or turn-taking, eligibility criteria, or well-designed surveys. DMH Associates can provide more detail on techniques and opportunities tailored to assessing careers provision, building on the examples and discussion in this paper as helpful.

A second example of the type of valuable impact analysis that would be unlocked with additional data is the post-16 transition. The Careers Service collects student-level destinations after Year 12, available in January following the completion of Year 12 the previous summer. These data can be linked to student-level identifiers within CIMS in order to explore how destinations might relate to previous provision. In principle, we can analyse whether students receiving more support have better outcomes, as well as patterns among groups of students or types of support, potentially identifying insights to drive programme improvement as well as overall impact data to motivate programme funding. However, there are two major limitations to such an analysis if working with the current data alone.

The first limitation is that we need sufficient variation in support provision across individuals to create comparison groups of interest. With the majority of support premised on the universal Year 12 interview, this variation is limited. One solution is to focus on support provided in different years or in excess of the first interview, albeit at the cost of excluding the single largest resource driver in the Careers Service. Such a solution also brings in the second problem: in order to exploit the variation in support, we need to understand what causes the variation, so that we can model it directly or adjust our analysis for it.

Most careers provision is such that more support is provided to those in greater need. That additional support is normally hypothesised to mitigate but rarely to fully resolve the drivers of that need. In other words, a direct comparison will often reveal that those receiving more support have worse outcomes, even if the support is helping and the outcomes are better for those individuals than they otherwise would have been.

The standard analytical solution to this kind of “selection effect” problem is to understand initial level of need across both participants and non-participants in the additional support and to adjust for this in the analysis, using one of a range of techniques available depending on the data structure (e.g. regression discontinuity design, multivariable regression, matching techniques, etc.). Understanding this level of need requires additional data, such as via data enrichment (b) or new data collection (c; d). An alternative solution is to analyse only activities which are provided at the class or year group level, such that there is very limited selection effect due to individual student need. Such activities potentially include group work, careers fairs, employer visits, and class talks.

Where the Year 12 destinations are collected by asking or surveying students directly, one simple data capture approach would be to add a small number of simple scaled questions into the existing survey. For instance, having just been asked what their current activities are, Year 12 graduates could be asked how confident they feel about the future given what that current activity, how well informed they felt overall making the decisions that led to that current activity, and how much careers adviser support helped in terms of that decision making or their current confidence about the future.

**b) Data enrichment, e.g. to drive a “RONI” tool**

If we want additional data, where might it come from? From a policy efficiency perspective, it is particularly attractive to make better use of data that already exists elsewhere in the system. Such data can be merged into CIMS or otherwise made available for analysis, potentially in a secure facility for data matching to alleviate any data security concerns. For example, Careers Wales has made significant progress with such data enrichment and research efforts in recent years, with sufficient benefits to motivate the proposal of a “data intelligence hub” to apply such techniques at a broader scale. Two examples illustrate the potential in a Careers Service within the Department for the Economy context: one for post-16 transition support triage & impact analysis (a RONI tool) and one for better understanding support to adults on state welfare.

Many local authorities and other organisations collate data to drive a statistical assessment of a young person’s risk of NEET, typically called a Risk of NEET Indicator (RONI) tool. The tools vary in terms of the type of data they use to predict risk (e.g. prior school absence, behavioural issues, exclusions, predicted grades etc.) and how they relate such data to outcomes (e.g. descriptive statistical analysis, supervised machine learning etc.) With a sufficient sample size and rich input data, historic student-level survey data on post Year 12 destinations could be used to create a powerful predictive model using recent AI developments, to build something at or beyond the current state of the art globally.

RONI tools are typically run by or with the support of local authorities and schools since that is where the best predictive data might be available. Designing a secure system to collate and analyse such sensitive data is not trivial, but can be worthwhile given the potentially high impact outcomes and a social obligation to make the best use of data already available to government. RONI tools are typically updated once a year for all students with at least some input data available, to help triage early support to students in higher need, with a view to reducing NEET risk and preventing some NEET outcomes. For instance, the tool might be run at the end of Year 10 to tailor support to higher need groups in Year 11, as preparatory work prior to the universal interview in Year 12. It is worth emphasising that such universal interview programmes typically provide updated, personalised, and higher quality NEET risk assessments than the initial “arms-length” statistical estimate via a RONI tool. From an impact analysis perspective, once we have a RONI tool being regularly updated and understand how it is used to triage support (if at all), we can use its input data and output estimates to address the selection problem described in (a). As a result, we would be able to analyse the impact of careers provision on Year 12 transitions with higher confidence.

A second example is based on sector-leading practice from Working Wales, where they have secured a data sharing agreement with DWP. DWP regularly share data with Working Wales on the benefits status of the clients that the careers advisers have supported, such that we can track monthly benefits status as well as other descriptive/classification data available in DWP systems on beneficiaries before the support was provided, during the provision, and for many months following support. In this way, we can track outcomes at no extra survey cost to the organisation or to beneficiaries, even if it takes a few months after a last intervention point with a careers adviser for an agreed action plan to be implemented and bear fruit.

Identifying appropriate comparison groups remains challenging, but having the outcome data is a necessary first step to understanding customer journeys descriptively and identifying potential comparison group techniques. For instance, matching methods on descriptive data and prior benefits trajectories has been used to analyse job search support provided in England, albeit with some limitations in analytical robustness.

### **c) Additional data capture by advisers for one-to-one IAG**

Additional data can also come from novel data capture, such as of advisers (this subsection) or of beneficiaries (subsection d). There are many options for additional data capture from advisers' rich understanding of the clients they work with. Some initial suggestions are provided here, but these should be considered initial inputs for a conversation rather than a final proposal. Expertise from the frontline, IT, and management should be used to gather additional ideas, discuss proposals, and refine them before making a final decision.

This kind of data capture leads to useful service/management information in addition to supporting impact assessment and future ROI analysis. The example four questions and answer options below are designed to capture insight on student need and the support journey, so that we adjust impact analyses for need-based selection effects and understand when support has been provided as intended (e.g. planned follow-up sessions may not happen and such cases should be treated differently analytically to young people supported in full as intended).

There are complementary ways of achieving this data capture. For instance, bringing together a subgroup of practitioners to apply post-pre-impact assessment of the careers support provided, as a one off analysis to provide an initial understanding of the topic. Careers services in Scotland, Wales and Canada have previously successfully applied this methodology for wellbeing outcomes of guidance, including a specific link to wellbeing-driven ROI (Percy et al., 2023b).<sup>14</sup> Alternatively, questions could be added into a CIMS data collection flow as part of advisers' making notes on their sessions. If well designed, including structured questions could also introduce more consistency in case notes and reduce the burden on free text in case notes.

These initial four questions are designed with one-on-one CIAG in mind but could be adapted for other applications.

#### **Q1. What initiated the careers meeting?**

[please tick all that apply]

- Year 12 universal meeting
- At request of student
- At request of teacher
- At request of someone else
- Follow-up by adviser
- (Other, please specify)

14 This work also produced a practical toolkit on integrating wellbeing more explicitly into career guidance conversations, available for free at [CAREER DEVELOPMENT AND WELLBEING – A PRACTICAL TOOLKIT – dmhassociates.org website](https://www.dmhassociates.org/website)

**Q2. What were the main focus areas in the meeting**

[please tick all that apply]

- Future career interests
- KS4 exam choices
- Post-16 pathway choice
- Post-16 applications
- Post-18 pathway choice
- Post-18 applications
- Academic motivation
- Decision making efficacy/confidence
- Pastoral issues
- (Other, please specify)

**Q3. What were the intended next steps**

[please tick all that apply]

- None needed
- Develop/review an action plan
- Explore new career ideas
- Apply for an identified educational opportunity
- Apply for an identified employment opportunity
- Apply for an identified extra-curricular opportunity
- Have a follow-up meeting with adviser
- (Other, please specify)

**Q4. Careers adviser view on level of career readiness at close of the interview**

[please tick one]

- High (e.g. has well-informed, well-aligned education/career ideas and knows what to do to pursue them)
- Medium (e.g. has some ideas about immediate next steps and a future career, but would benefit from more input/challenge on their thinking or more understanding of the options and what it takes to succeed)
- Low (e.g. few/no future ideas or lacking detail; or ideas not well-informed, e.g. based on stereotypes/guesses)
- CIAG at-risk (e.g. at substantial risk of youth NEET outcomes, with issues that good careers support can help with)
- Non-CIAG at-risk (e.g. at substantial risk of youth NEET outcomes, but primarily for reasons that careers support has little traction on)
- (Other, please specify)

Data capture of a Q4 type might also be gathered directly from young people, via a survey that helps assess their careers thinking and decision-making readiness. Many such surveys are available and some schools are likely to already have some solutions in place. At a local operational level, such data could be gathered in Year 10 or 11 prior to universal interviewing in Year 12 to help prepare for and personalise that universal interview support or triaging support

more generally (e.g. CareerCheck tool in Wales or the matrix needs assessment in Scotland) or it could be gathered after the provision of support or on a regular annual basis (e.g. Future Skills Questionnaire in England). Another example is the Skills Development Scotland survey of young people's career ambitions (2023).<sup>15</sup> Where some common core survey questions are used by many schools with the data collated by the Careers Service, the data can also help support impact analysis, selection effects, and adjustments for initial circumstances, as is being done productively with similar data in the Wales and England examples.

#### **d) Sample-based focused follow-up**

Additional data capture also comes from following up with beneficiaries to ask what has happened to them since the support was provided and to what extent they credit the support received, e.g. for helping them have better outcomes or to be on track to better outcomes in the future. The key point to emphasise with such data capture is that it is more valuable to compromise data coverage for response rate. Rather than try to gather the data for everyone, which could have high operational costs and potentially low response rate, it is analytically more valuable to focus on a random sample and dedicate the resource to greater follow-up efforts to increase the response rate. Similarly, a small longitudinal sample is likely to yield greater and more novel impact insights than a large one-off survey.

Sample-based follow-up may be particularly valuable for understanding the outcomes for clients not well covered by the kinds of data capture described above. For instance, support provided to adults in work would not be well captured by tracking data on state welfare (e.g. from the Department for Communities) or the tracking of in-school students over time. For such individuals, we might want to understand level of confidence and satisfaction in their current job and progression potential, as well as job changes or changes in job conditions (e.g. hours) which can be used to drive impact analysis. Of particular value is insight on improved wellbeing, which can be translated into a financial outcome to drive ROI analysis and has previously shown good value for adult careers interventions in an unemployment context (Percy et al., 2023b). At the current volume of adult support, such follow-up surveys would likely add greater value than seeking to analyse displacement or attribution directly.

#### **e) Monitor policy/delivery environment proactively for low friction experimental design opportunities**

The gold standard in analysing intervention impact is a randomised trial, recognising caveats that such methodologies only work for certain types of interventions (typically incremental changes relative to a stable context/status quo) and certain types of outcomes (typically short-term and easily quantified outcomes). Where such randomised trials are too costly or impractical to organise (e.g. ethical concerns), there are a range of policy change or initiatives which can lead to comparable quality of data, enabling "natural experiments" or "quasi-experimental analysis". Such analytical opportunities may emerge automatically from a policy set-up or it may be possible to make a small, acceptable change to a policy roll-out that unlocks such high-quality impact analysis.

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15 [What drives young people's career ambitions? - Skills Development Scotland – skillsdevelopmentscotland.co.uk website](https://www.skillsdevelopmentscotland.co.uk/what-drives-young-people-s-career-ambitions/)

At a process level, the key capability is to monitor emerging and confirmed policy changes in order to spot whether such changes might permit appropriately robust analysis, ideally early enough in the policy process that small adjustments to roll-out plans may still be suggested, where those adjustments would unlock significantly better analysis options. This capability can be achieved in-house, with training provided to managers and policy officials to know what is required for analysis and previous policy examples where it has worked well. The capability can also be achieved with an external partner, for instance a workshop could be run (and perhaps repeated annually) at which emerging policy ideas are discussed in confidence and then tested against the standard tool-kit of causal inference techniques.

A few examples from the tool-kit of causal inference techniques will help understand circumstances that typically permit high quality impact analysis. For instance, if doing a pilot for a new policy, we might select at least some of the initial areas at random (perhaps within a subset of potential areas, i.e. to identify those more applicable for the pilot, using quantitative measures to identify suitability wherever possible). Even if pilot areas have differences to non-pilot areas, provided these differences are captured or the selection process can be modelled quantitatively, it is possible to back out causal effects with greater confidence. Even where a formal test & learn pilot is not required, rolling out a policy in stages is often well-motivated in order to manage costs, operational upskilling, incremental hiring, and so on. Such roll-outs can also be structured with data collection similar to the pilot example to generate equivalent quality data. A symmetrical opportunity can occur if a programme is to be defunded. Similar impact analysis is possible where the defunding can be structured in stages, e.g. by geography or by beneficiary group.

A final example commonly applies where a triage or cost-efficiency rationale is present. If support is to be provided to only a subset of potential beneficiaries, perhaps identifying those in greatest need, a powerful statistical technique becomes available where that eligibility is based on a threshold assessed against a sliding scale, where there are sufficient potential beneficiaries just above and just below a threshold. For instance, extra support might be provided to those scoring as in high need relative to a threshold on a “CareerCheck” style survey or be provided to those with predicted grades below a certain threshold. Since both of these measures have continuous scales and have many students above/below a sensibly-chosen threshold, we can generate quasi-experimental evidence on the impact of the intervention triggered by the threshold.

This document provides an input for the Department for the Economy and Department for Analytical Services to aid in the formulation of strategic plans and ongoing dialogue with Ministers, policymakers, and key stakeholders committed to building dynamic and sustainable career guidance support mechanisms for the people of Northern Ireland, both now and in the future.

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