Department of Social Protection

Non-Compliance Analytics Pilot
Final Report

February 2013

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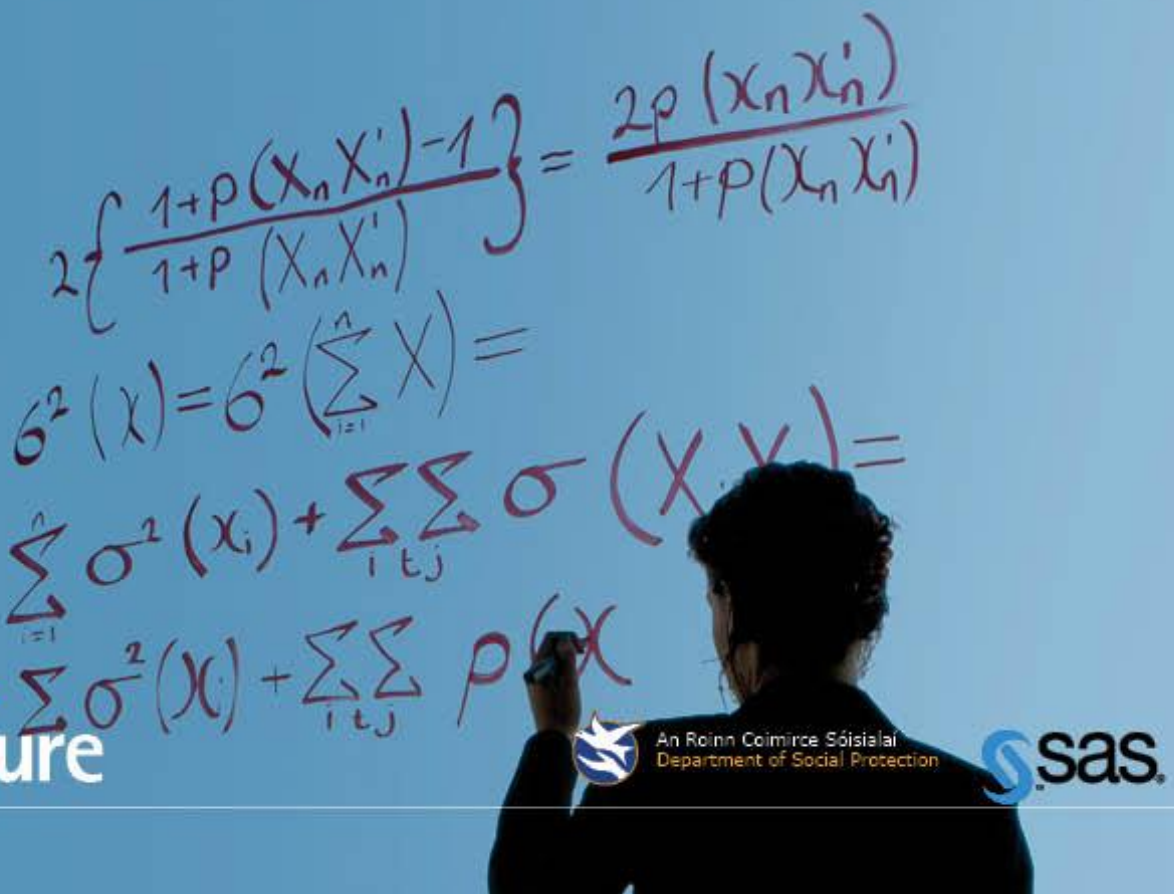

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An Roinn Coimirce Sóisialaí
Department of Social Protection

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1. Executive Summary

The Department of Social Protection (DSP) is responsible for the provision of income supports and employment services in Ireland and process around €20billion in social welfare payments per year across 2.2m citizens.

The DSP's Guiding Principles state that they will *"strive to minimise the levels of fraud and error in the social welfare system",* which they meet through a comprehensive set of controls and compliance activities. This includes completing over 1 million control investigations in 2012, yielding welfare savings of €669m.

The DSP recognises the importance of continuing to improve and evolve these controls both to maximise returns and to catch new types of fraud. Hence, they worked with Accenture and SAS, to explore the potential of Advanced Analytics to specifically improve control investigation performance. This builds on similar work that both Accenture and SAS have delivered for a number of other public sector clients in Ireland and internationally.

It should be noted that in progressing this work, the DSP is leading the way for Advanced Analytics for welfare organisations.

A 16 week pilot was initiated to prove the value of Advanced Analytics. It focused on building a predictive model to identify fraud and error cases for existing jobseekers. The model identified 1,000 jobseeker cases, which were investigated by the DSP to decide whether they were in fact non-compliant. The outcomes were then benchmarked against the DSP's existing investigations. The Accenture project team also worked with key DSP stakeholders to define the requirements for an Advanced Analytics service to support control and compliance activities.

This document is the final report from the pilot. The key conclusions are as follows:

1. The DSP control investigations process and associated customer data are robust and can readily incorporate Advanced Analytics with limited changes;
2. Using the jobseeker predictive model, the investigations 'hit rate' increased from the DSP baseline figure of 4.5% to 6.3%, which is an uplift of 1.8 percentage points, which is significant in expenditure terms;
3. Based on the findings from the pilot, using Advanced Analytics to drive jobseeker investigations is estimated to deliver a further €50m approximately in jobseeker welfare savings over three years; and
4. The controls and processes for managing jobseeker claims are similar to that for other schemes. There is, therefore, the potential that Advanced Analytics can also deliver improved control activity yield generally across DSP schemes.

These results demonstrate the business case for establishing an Advanced Analytics capability to drive control investigation activities at DSP.

Advanced Analytics is an on-going capability requirement, which evolves with changes in non-compliance and fraudulent activities. The predictive model under-pinning this capability can be quickly developed using the robust and comprehensive customer data set that already exists within DSP and the technical infrastructure and Analytics model delivered as part of the pilot.

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2. Introduction

This section introduces the Department of Social Protection (DSP) and explains their existing control activities. It also provides the background to applying Advanced Analytics for control investigations, including specifically for Social Welfare organisations.

2.1 DSP Control and Non-Compliance

The DSP is responsible for the provision of income supports and employment services in Ireland. The DSP processed around €20billion across 87 million social welfare payments to 2.2 million citizens in 2012.

The DSP's Guiding Principles state that they will "strive to minimise the levels of fraud and error in the social welfare system"[1]. A definition of the continuum of non-compliance is shown below.

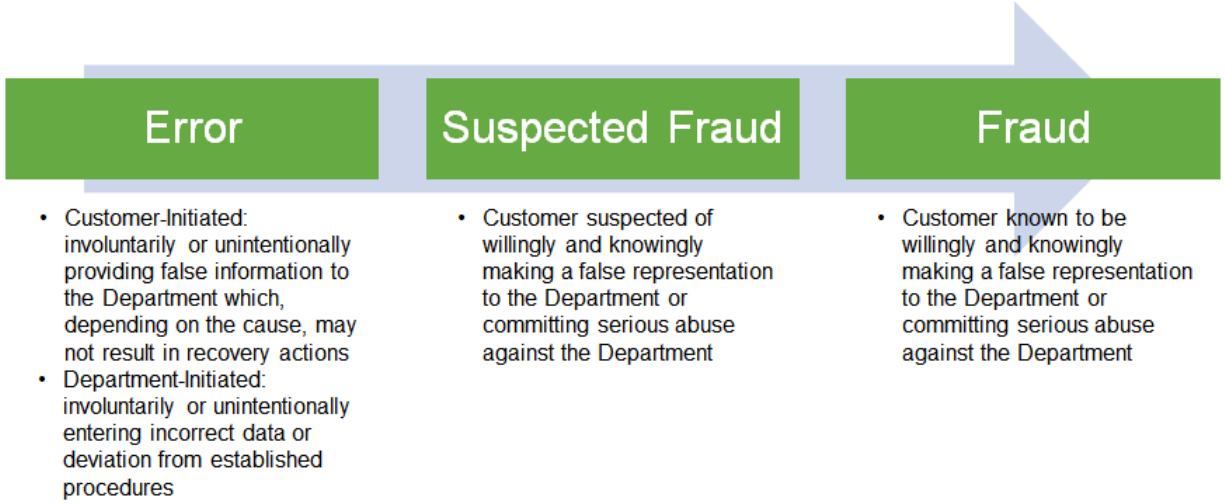


Figure 1. Control Continuum

There is a breadth of control and compliance activities delivered by the DSP to meet this guiding principle. This includes completing 1 million investigations in 2012 that yielded welfare savings of €669m.

Note: savings are not actual monies recovered by the Department but rather the estimated value of expenditure prevented as a result of the control activity.

The control investigations for jobseekers typically fall into two main categories:

1. **Local Office Investigations**, which are generally completed by front-line staff and focus on individual cases that are identified through a series of expert rules that are triggered periodically or "tip offs". These are typically higher volume investigations that often identify customer error cases or less serious fraud cases.

[1] http://www.welfare.ie/EN/Policy/CorporatePublications/StrategicPlansAndReports/Documents/strat1114.pdf

2. **Special Investigations**, which are completed by a separate specialist unit (Special Investigation Unit – SIU) and focus more on projects involving many linked cases. These investigations typically involve lower volume and more complex cases. They often identify hard fraud cases, which can also be of a far higher yield.

The DSP continues to improve and evolve their controls for addressing non-compliance. This helps to ensure that they minimise their non-compliance exposure and maximise any related non-compliance investigations yield. It is an on-going process that needs to evolve with changes in fraudulent practice.

Most recently, the DSP has been investigating the potential to use Advanced Analytics to reduce non-compliance. This journey is consistent with other organisations seeking to improve their non-compliance maturity, as illustrated below.

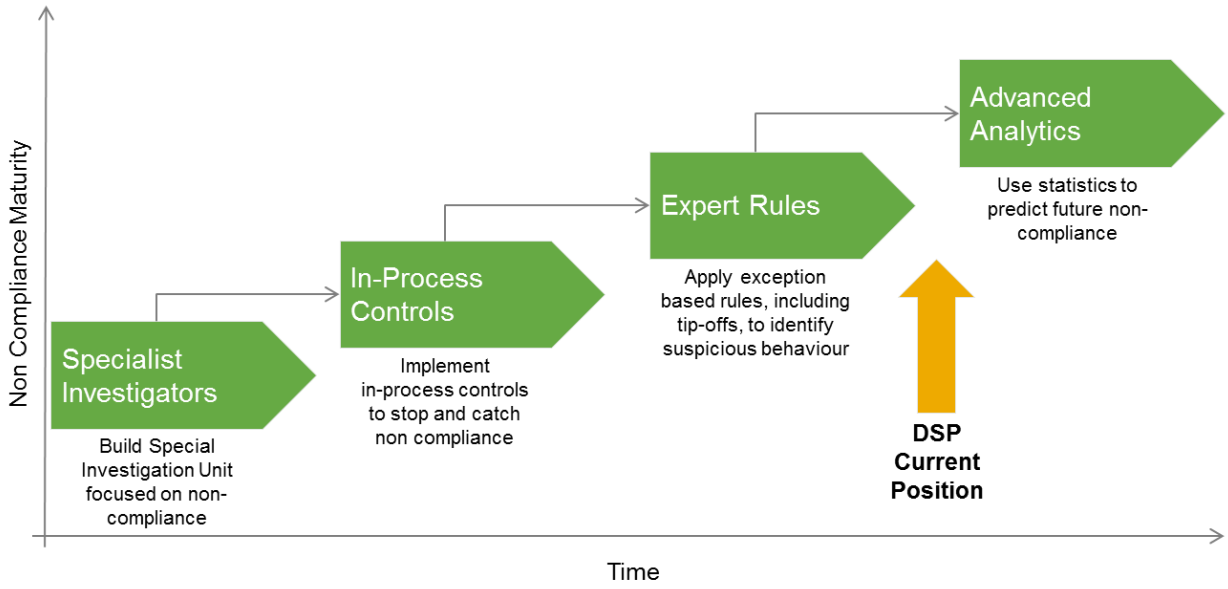


Figure 2. DSP Non-Compliance Maturity Journey

The DSP in conjunction with Accenture and SAS initiated a 16 week pilot in 2012 to prove the value of Advanced Analytics. The pilot focused on building a predictive model to identify fraud and error cases for jobseekers customers. It should be noted that in progressing this work, the DSP is leading the way for Advanced Analytics for welfare organisations.

2.2 Applying Advanced Analytics for Non-Compliance

Many organisations have made significant investments to deliver improved data infrastructure and business intelligence tools. For example, the DSP has a robust data and business intelligence suite built on Microsoft technology. This approach helps to enable a detailed understanding of past performance. These same organisations are now increasingly realising the value of applying advanced statistical and business modelling techniques, known as Advanced Analytics, to this same data infrastructure to predict future outcomes and so optimise performance.

This evolution towards Advanced Analytics is illustrated below.

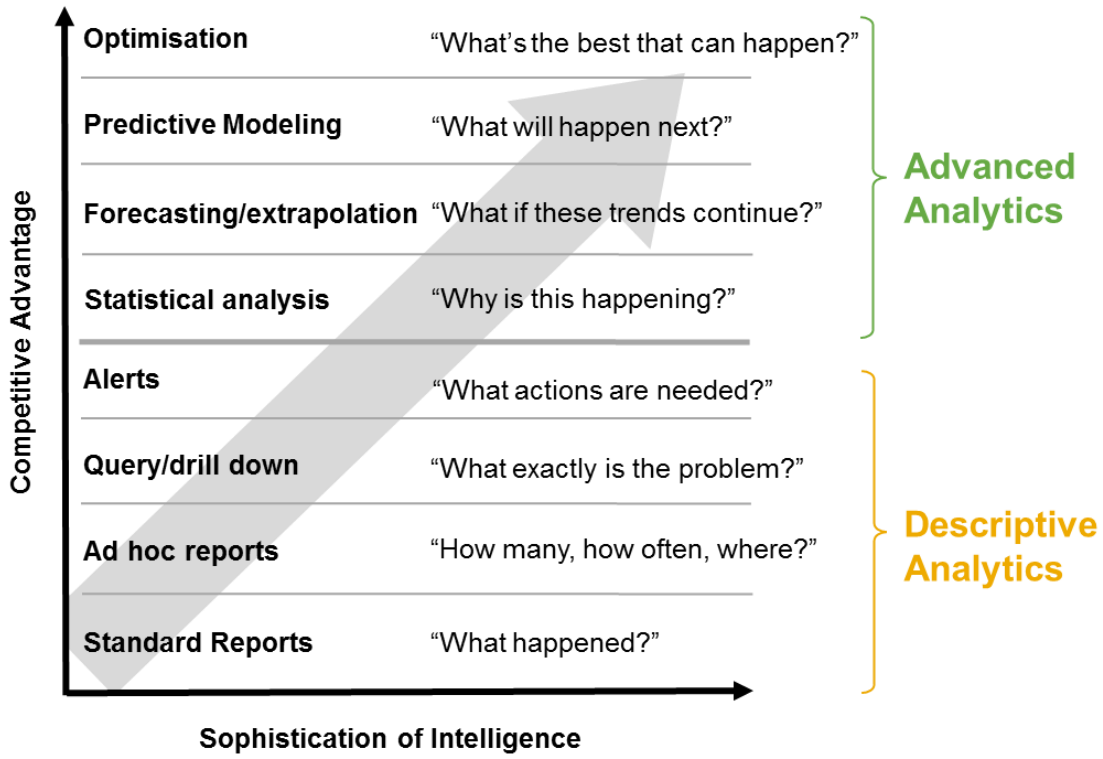


Figure 3. Journey towards Advanced Analytics[2]

Specifically, Advanced Analytics includes predictive modelling, where statistical techniques, such as Regression Analysis or Neural Network Analysis, are applied to assess the likelihood of a particular outcome. There are many examples of where organisations are improving performance through the use of predictive analytics. This includes:

- Telecoms companies developing customer management strategies based on a combination of a customer's future value and their likelihood of leaving to the competition;
- Banks setting credit limits for customers based on their likelihood to default;
- Healthcare organisations intervening for patients with a high risk of developing specific chronic illnesses, such as diabetes; and
- Utilities defining which customers to target for a specific marketing campaign based on their likelihood to buy a specific product.

[2] Competing on Analytics: The New Science of Winning (Davenport / Harris)

There are also many examples of where Advanced Analytics has been successfully applied to improve non-compliance. Examples from Accenture's recent relevant client work are shown below.

European Tax Authority	• Predictive Analytics deployed to PAYE submissions • More than doubled the fraud detection rates from 10% to 21%
Large General Insurer	• Fraud Analytics Service selecting claims for investigation • Identifying benefits in the range of 0.5% to 2% of indemnity
US Health Insurer	• Fraud Analytics Service selecting claims for investigation • Save 0.85% of Annual Medical Spend through fraud reduction
American Welfare Organisation	• Patented a fraud prevention and detection solution • Annual savings of 4% on a $2.5B income assistance program
Major U.S. City	• City Tax Fraud Analytics Solution • Yielding a 55% percent improvement and near 100% increase in value per case identified

Figure 4. Non-Compliance Advanced Analytics: Accenture Client Examples

2.3 Applying Advanced Analytics for Non-Compliance in Welfare Organisations

Specifically, Advanced Analytics can help welfare organisations address non-compliance through using a variety of techniques, including:

- Predictive analytics to score citizens for their risk of being non-compliant;
- Outlier analysis to identify citizens who vary significantly from their peer group, which may be an indication of a new type of fraud; and
- Social network analysis to better connect citizen groups and so more easily identify criminal gangs and identity fraud.

These and related techniques combine to improve six areas of welfare non-compliance:

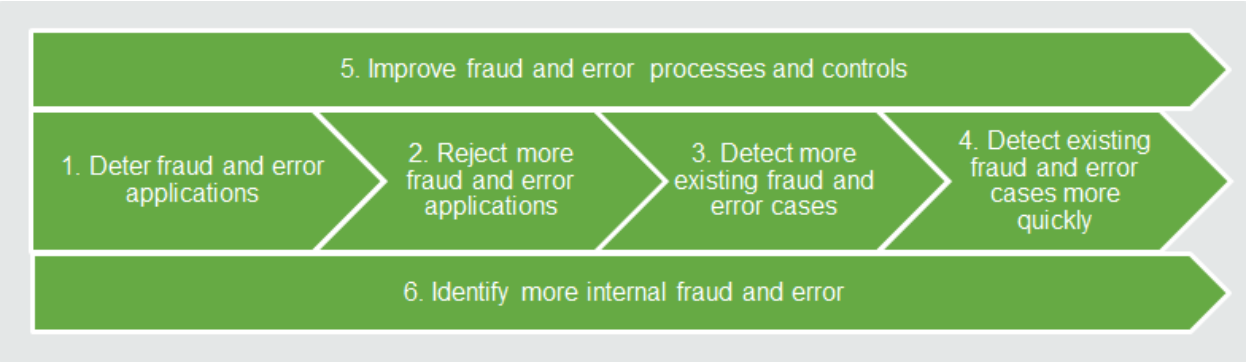


Figure 5. Six Advanced Analytics Non-Compliance Improvement Areas

1. **Better prevention by deterring non-compliant applications**
   Advanced Analytics helps to deter non-compliant applications through more targeted prevention campaigns based on risk profiling. Furthermore, citizens are less likely to submit a non-compliant application if they know they have a higher chance of getting caught.
2. **Reject more non-compliant applications**
   Advanced Analytics enables applications to be automatically risk scored prior to any payment decision. Hence, high risk cases can be diverted for investigation earlier. This approach is also proven to be more accurate than using traditional expert risk rules alone.
3. **Detect more existing non-compliant cases**
   Advanced Analytics can also be used to risk score those currently on benefit and so drive investigations. This approach is proven to deliver a higher non-compliance yield than just using expert fraud rules alone.
4. **Detect existing non-compliant cases more quickly**
   Similarly, Advanced Analytics is proven to identify existing non-compliance cases more quickly. This is especially important for welfare organisations as there can be challenges in collecting non-compliant payments from welfare recipients.
5. **Improve non-compliance processes and controls**
   Advanced Analytics also helps a welfare organisation understand the sources and key drivers of specific non-compliance, e.g. the relative risk of different payment methods. Hence, it enables more specific process improvements and controls to address non-compliance.
6. **Identify more internal non-compliance**
   The same Advanced Analytics approach can be used to better identify and so address risk areas for staff non-compliance.

3. Non Compliance Analytics Pilot

The DSP engaged Accenture and SAS to explore the potential for Advanced Analytics to specifically improve control investigation performance via an initial pilot. This section describes the pilot in detail and documents the associated results.

3.1 Pilot Scope and Methodology

The pilot was constructed to prove the value of Advanced Analytics. It was decided that the scope of the pilot would be Local Office investigations for existing jobseekers recipients (Jobseeker's Benefit and Jobseeker's Allowance). This ensured the pilot could be delivered in the 16 week timeframe while minimising the impact on DSP's existing investigations activities. Furthermore, the control processes for jobseekers are similar to that deployed for other schemes and so it highlighted the potential for the wider application of Advanced Analytics across all DSP control activities.

Specifically, the pilot would deliver a predictive model to detect a greater number of existing cases of fraud and error. It would also be assessed whether the same model detected these cases more quickly. The output of the pilot could then be used to validate the benefit of Advanced Analytics across all schemes and control activities.

The scope of the pilot, as applied to jobseekers schemes, is highlighted in figure 6 below.

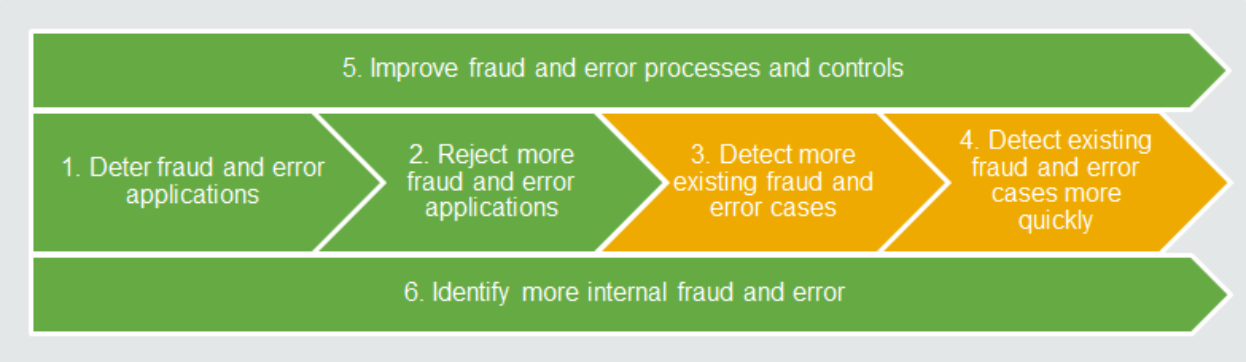
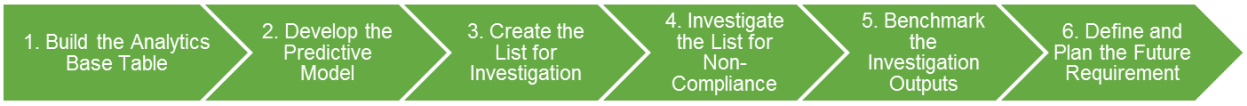


Figure 6. Scope of the Initial Pilot

The model identified 1,000 Local Office cases, which were investigated by the DSP to decide whether they were in fact non-compliant. The outcomes were then benchmarked against the DSP's existing investigations. Simply, the question was whether the Advanced Analytics approach created a "better list" and so helped identify more fraud and error. The future requirement and plan for Advanced Analytics to support control activity was also defined.

There were essentially six stages to the pilot:



Stage 1 developed an analytics base table (ABT), which provides a single connected record for each DSP customer from all the information held across DSP systems. This ABT is the core foundation of an Advanced Analytics approach and could be re-used for addressing non-compliance across all DSP schemes.

Stage 2 used the ABT to build a predictive model[3] to assess the likelihood of existing jobseekers being non-compliant[4].

Stage 3 applied this predictive model to the existing DSP jobseeker population to rank them based on their risk of being non-compliant. A list of the top 1,000 of the higher risk cases from across the country was selected for investigation.

Stage 4 involved DSP Local Office staff investigating the 1,000 cases for non-compliance. This correctly included a very onerous and conservative review process, which provided independent validation that each identified non-compliance case was correctly categorised as such.

Stage 5 assessed the output of these investigations and benchmarked performance against the DSP's current investigations. It should be noted that the DSP's current investigations against which the output were benchmarked were as completed in 2011 and excluded Special Investigation Unit type investigations as it was agreed that these groups of investigation are already well-functioning processes[5].

Stage 6 involved working with key DSP stakeholders to define the future operating model and roadmap for the potential expansion of the use of Advanced Analytics for welfare control activity.

The pilot was completed by a joint DSP, Accenture and SAS team. Specifically, there was significant involvement from across a breadth of DSP stakeholders to ensure the validity of the pilot and appropriateness of any recommendations.

The DSP's role included:

- Governing the overall pilot scope and delivery;
- Providing specific business process and data inputs to the development of the jobseeker predictive model;
- Investigating the identified 1,000 cases for non-compliance;
- Signing off the assumptions to be used in the associated business case; and
- Providing specific input to a series of related expert workshops on how the DSP can expand their use of Advanced Analytics to improve controls and compliance.

Detail of the DSP stakeholders involved in the pilot is shown in Appendix 5.

[3] Regression analysis was the specific technique used to develop the predictive analytics model
[4] See Appendix 1 for further details on the development of the predictive analytics model
[5] See Appendix 2 for details on the calculation of the existing investigations 'hit rate'

The pilot delivered:

- A predictive analytics model, which can be used to better identify non-compliant jobseekers;
- An initial list of 1,000 jobseeker cases for investigation;
- The conclusion of these fraud and error investigations and any related welfare savings;
- A business case quantifying the value of using Advanced Analytics for all jobseeker investigations; and
- An operating model and roadmap for the potential expansion of Advanced Analytics across all DSP control activities.

3.2 Pilot Results

As outlined above, the predictive model identified 1,000 jobseeker cases for fraud and error investigations by the Department to determine whether they were in fact non-compliant. Within the timeframe allocated to complete the investigations, 683 of the 1,000 cases were investigated and 43 investigations were confirmed as resulting in a savings and therefore, classified as a 'hit'.

A summary of the results of the pilot is shown below. In particular, the Advanced Analytics approach deployed in the pilot was shown to increase the investigations 'hit rate'[6] from 4.5%[7] to 6.3%[8]. This is an uplift of 1.8 percentage points.

Metric	Existing	Pilot	Difference
Local Office Investigations 'hit rate'	4.5%	6.3%	1.8 percentage points, which is a 40% uplift

Table 1. Summary of Pilot Results

In addition, the cases identified in the pilot were identified earlier that the baseline average. However, in this context, it is important to note that the pilot investigations were conducted in a closely managed timeframe and this may have impacted on the number of days that the cases were identified earlier, when compared with the baseline data. For that reason, the value of the reduction of the number of days in payment is not factored into the potential value of the model.

[6] 'Hit rate' defined as the percentage of investigations resulting in a reduction in or a termination of benefits received
[7] See Appendix 2 for details on the calculation of the 4.5% existing investigations 'hit rate'
[8] See Appendix 3 for details on the calculation of the 6.3% pilot investigations 'hit rate'

Improvement Opportunities for SIU

The pilot also highlighted opportunities and the potential use of other advanced analytics techniques in relation to fraud investigation including:

1. **Outlier analysis to identify unusual behaviour**

   The pilot completed an initial data mining analysis of jobseekers, which helped identify a number of very unusual and, after initial validation, suspicious cases. This demonstrates the value of deploying a more comprehensive approach for outlier analysis to support investigations.

2. **Specialist predictive models to identify high yield fraud cases**

   The focus of the pilot was jobseeker investigations. However, Accenture has also worked with other clients to develop predictive models focused on the highest yield frauds. This approach has relevance to the SIU.

3. **Ad hoc support for fraud investigation projects**

   Advanced Analytics can help distil information from across many sources more efficiently and effectively. It can also support the statistical validation of fraud hypothesis.

4. **Social Network Analysis to improve SIU Project Investigations**

   Social Network Analysis is a specific Advanced Analytics technique, which connects key information, such as telephone number and bank account, across individuals. It allows investigators to more readily confirm links between individuals and so identify potential fraud(s).

3.3 Jobseeker Advanced Analytics Business Case

This section explains how the results of the pilot were used to estimate the value to the DSP of using Advanced Analytics to drive jobseeker investigations.

A detailed set of assumptions were agreed with the DSP. These were incorporated into a Business Case model, which estimated the three year value of Advanced Analytics for jobseekers' non-compliance. The results, assumptions and resulting business case were agreed following a substantial sign off and validation process.

The following assumptions were applied to quantify the value of Advanced Analytics for jobseekers' control activity.

Assumption	Value	Evidence
Jobseeker investigations in scope	Only investigations generated by expert rules investigations generated by "tip offs" were excluded	Agreed with DSP Steering Group
Uplift in Jobseeker Investigations	40% from Year 1	Proven by output of pilot
Uplift in Special Investigations Unit	10% in Year 1 15% thereafter	Agreed with Special Investigations Unit based on examples identified in pilot. Confirmed by DSP Steering Group
Welfare Savings resulting from Investigations	Apply existing defined approach for quantifying value of non-compliance cases	Agreed with DSP Steering Group
Number of years to be included in Business Case	3 years	Agreed with DSP Steering Group

Table 2. Assumption to Quantify Value of Advanced Analytics

Applying the above assumptions, it is estimated that Advanced Analytics has the potential to deliver a further €50 million[9] approximately in jobseeker welfare savings over three years.

Note that the realization of this additional saving is fully dependent on an on-going Advanced Analytics service, which would evolve over the three years, in line with changes in non-compliance and fraudulent activities. Such an on-going improvement would not be delivered by applying a more static Analytics solution focused only on today's non-compliance.

Further, it is important to note that this same approach is equally appropriate for other schemes. The ABT developed during this pilot could be used to develop comparable predictive models to identify non-compliance and so drive further investigations across other DSP schemes.

[9] See Appendix 4 for details on the calculation of the further €50 million approximately in jobseeker welfare savings over three years

4. Key Conclusions from the Pilot

The key conclusions from the pilot are as follows:

- The DSP control investigations process and associated customer data is robust and can readily incorporate Advanced Analytics with limited changes;
- Using the jobseeker predictive model, the investigations 'hit rate' increased from the DSP baseline figure of 4.5% to 6.3%, which is an uplift of 1.8 percentage points;
- Based on the findings from the pilot, using Advanced Analytics to drive jobseeker investigations is estimated to deliver a further €50m approximately in jobseeker welfare savings over three years; and
- The controls and processes for managing jobseeker claims are similar to that for other schemes. There is, therefore, the potential that Advanced Analytics can also deliver improved control activity yield generally across DSP schemes.

5. Recommended Next Steps

Assuming the Department decide to proceed and establish an Advanced Analytics capability to drive non-compliance, there are a number of immediate next steps to be addressed.

The next steps as outlined below are based on Accenture's work with other clients and our work with the DSP. . The key work-streams for this programme are summarized below.

Workstream	Description
Specialist Provider	Procure a suitable supplier to deliver an appropriate Advanced Analytics service to deliver the required non-compliance savings (this assumes DSP decide not to develop this capability in-house).
Governance	Establish an appropriate governance structure to ensure the delivery of the Advanced Analytics non-compliance business case. Responsibilities include managing changes and ensuring the on-going effectiveness of the service lifecycle. For example, monitoring and commissioning new models as well as model refreshes when required.
Analytics Environment	Deliver a technical environment and specific Analytics solution suitable for Advanced Analytics to drive non-compliance. In particular, the Analytics solution should offer the full suite of Analytics approaches (predictive analysis, outlier analysis, social network analysis) as well as being proven to tackle non-compliance and fraud.
Analytics Base Table (ABT)	Build a detailed customer data structure which is suitable for Advanced Analytics. In particular, there is significant opportunity to continue the ABT developed during this pilot to provide this on-going data structure.
Advanced Analytics	Build an appropriate suite of analytics models to drive non-compliance investigations. This includes: • Expanding the suite of models for jobseekers • Building new models targeting other schemes and citizen sub-populations • Monitoring the performance of the deployed models and rules on an on-going basis • Refreshing the above models as their performance deteriorates (with changes in non-compliance and fraudulent practice).
SIU Advanced Analytics	Build an appropriate suite of analytics models and supports to aid SIU non-compliance investigations. This includes: • Developing specific models targeting higher yield non-compliance • Implementing social network analysis to help identify criminal gangs and identity fraud • Providing ad hoc support to investigations when required • Monitoring the performance of the deployed models and rules on an on-going basis • Refreshing the above models and solutions when required.

Workstream	Description
Management Reporting	Design and implement the appropriate suite of management reports to optimise performance. This includes reports monitoring overall control savings yield as well as specific reports looking at the effectiveness of individual investigations and model outputs.
Analytics Implementation	Implement the non-compliance models into the DSP operational systems to create lists of cases to be investigated. Integrate these non-compliance lists into the existing control processes. Update any changes on an on-going basis.

Table 3. Key Work-Streams for establishing Advanced Analytics Capability

Appendix 1 Development of the Predictive Analytics Model

The analytics base table (ABT) is the core foundation for building a predictive analytics model to assess the likelihood of existing jobseekers being non-compliant and was developed during stage 1 of the pilot. This ABT provides a single connected record for each DSP customer from all the data held across DSP systems and also from data provided by third party organisations to DSP such as the Revenue Commissioners. The ABT includes both existing data items and derived data items, which are all transformed into a suitable structure for Advanced Analytics i.e. the ABT. The final ABT for the pilot contained a total of 12,000+ data items or variables for each DSP customer.

The ABT developed was used during Stage 2 of the pilot to develop the predictive analytics model. An overview of the steps involved in this stage of the pilot is as follows:

1. Analysed data held in the ABT against known cases of jobseekers' non-compliance to identify attributes and behaviours deemed to predict non-compliant behaviour. This analysis involved:
    - Initial univariate analysis of each individual variable in the ABT, which refined the variables to those that were predictive of non-compliant behaviour and that correlated with the target non-compliant cases[10]
    - Comprehensive clustering multivariate analysis of the remaining data items, to identify which of the remaining variables combined were highly correlated to non-compliance

    Note that both univariate and multivariate analysis involved Department stakeholders reviewing and approving all correlated variables.

2. Applied analytical modelling techniques, and specifically iterative regression analysis techniques, to the key correlated variables identified, to develop the most appropriate predictive analytics model to better identify non-compliant jobseekers. Note that multiple modelling algorithms were developed and the outputs of each reviewed for predictive / explanatory power and usefulness to the business before a final modelling algorithm or predictive analytics model was selected.

The selected predictive analytics model included a total of 14 variables. Stage 3 of the pilot involved applying this predictive model to the existing DSP jobseeker population to rank them based on their risk of being non-compliant.

[10] Cases for which a fraud and error investigation resulted in a savings due to the reduction in or termination of benefits received

Appendix 2 Calculation of Existing Investigations 'Hit Rate'

The process for calculating the existing investigations 'hit rate' of 4.5% for jobseekers was as follows:

1. Determined the total number of investigations in 2011 from the Department's investigation outcome recording application, ERIN, for Jobseeker's Allowance (JA) and Jobseeker's Benefit (JB). The following were excluded from this calculation, as agreed in consultation with Department business subject matter experts:
    - Special Investigation Unit type investigations
        - Investigations initiated by tip offs or feeds from other organisations such as the Revenue Commissioners e.g. 'Commencement of Employment' information received.

    These groups of investigations were excluded on the basis that they are already well-functioning processes.

    A total of 138,025 distinct JA and JB investigations were determined.

2. Of the total number of investigations determined in step 1 above the project team, in consultation with Department business subject matter experts, determined the number of these investigations which resulted in savings. Note that savings are recorded by the Department against any investigation that results in the reduction in or termination of benefits received.

    A total of 6,215 distinct JA and JB investigations resulted in a savings.

3. The associated Existing Investigations 'Hit rate' for jobseekers of 4.5% was calculated using the results of step 1 and step 2 above.

Appendix 3 Calculation of Pilot Investigations 'Hit Rate'

The process for calculating the pilot investigations 'hit rate' of 6.3% for jobseekers was as follows:

1. The predictive model identified 1,000 jobseeker cases for fraud and error investigation by the DSP to determine whether they were in fact non-compliant

2. Local Office staff investigated the identified cases and concluded if there was any related welfare savings as a result of the reduction in or termination of benefits received

3. The Central Control Unit completed an independent validation of the results of all investigations completed

Note that in the timeframe allocated to complete the fraud and error investigations and associated independent validation of the 1,000 cases identified a total of:

- 683 investigations were completed[11]
- 43 investigations were confirmed as resulting in a saving

As a result the Pilot Investigations 'Hit rate' for jobseekers was calculated as 6.3%.

[11] The pilot investigations hit rate had to be calculated at a point in time, which meant that not all cases identified for investigation, were completed at this point in time. However this should not negatively affect the calculated pilot investigation 'hit rate'. This is because, based on Department experience, there is a greater likelihood that an investigation still on-going at this point in time would result in a 'hit'. As a result if can be assumed that the 6.3% pilot investigations 'hit rate' calculated is the minimum 'hit rate' that could have been achieved.

Appendix 4 Calculation of Business Case

The process for calculating the further €50 million approximately in jobseeker welfare savings over three years was as follows:

1. Determined the total number of investigations in 2011 from the Department's investigation outcome recording application, ERIN, for Jobseeker's Allowance (JA) and Jobseeker's Benefit (JB) which resulted in savings.

2. Determined the average or unit savings value per 'hit' based on the total savings from all jobseekers investigations in 2011.

3. Calculated, based on the 1.8 percentage point uplift in jobseeker investigations proven by the output of the pilot, the number of additional jobseekers investigations annually that would result in savings using Advanced Analytics to drive jobseekers investigations

4. The additional jobseeker welfare savings over three years was calculated using the results from step 2 and step 3 above:

   *Number of additional 'hits' per year * unit savings value per hit over three years*

Appendix 5 DSP Pilot Stakeholder List

There was significant involvement across a breadth of DSP Stakeholders throughout the Analytics Pilot project. Details of the stakeholders involved are outlined below.

Role Of Stakeholder	Named Resources
Executive Sponsor	Anne Vaughan Kathleen Stack Niall Barry Phil Cox Paul Morrin Brian McCormack Deirdre Shanley Sean Fay Paul O'Meara
Business Process Subject Matter Expert	Karen Usher Kevin Hannigan Bernie Noone Mary McGarry John Mangan
Data Subject Matter Expert	Mick Holohan Sean Gillard Edna Dowling Catherine O'Sullivan John Blaney
Validation Phase Support Team	Central Control Unit Regional Support Unit Divisional Managers Divisional Coordinators

Table 4. DSP Pilot Stakeholders