supporting vulnerable citizens with inter-agency collaboration
Introductions

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Vulnerability Intelligence Project
Strategic Context

- The Welsh Government recognised, from a series of events:
  - Baby P
  - Daniel Pelka
  - Ruthin Floods (Margaret Hughes);

- That they needed better, real time visibility of those citizens who were at risk of vulnerability

- To achieve this, they wanted public service organisations to work together

- **Sharing of intelligence and data** was crucial to this aim – Government, Health and Police (and 3rd Sector)
Vulnerability Intelligence Project
Scope of the Project

- To create a sustainable ‘vulnerable information sharing hub’ which provides the collation and presentation of data and information about vulnerable people

- To prove that sharing data was possible and would support partner agencies
  - An independent review showed this was not be a barrier

- Use data and information to provide key analysis and insight for strategic decision makers

- To enable public service organisations operating across regional boundaries to become more proactive and effective

- Delivered to an accelerated programme: **18 months**
  - Managed as a co-designed, joint working initiative – across five organisations
  - It featured use of an existing software application (Infoshare - SME)
  - Agile methodologies were core
Plan on a Page
Overall timeline 18 months; Atos Programme was 10 months
### Five organisations extracted data from their systems

Containing demographic and contextual data considered relevant to vulnerability ~230k records

<table>
<thead>
<tr>
<th>Data Provider</th>
<th>Data Source</th>
<th>Description of data</th>
<th>Number of Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaenau Gwent CBC</td>
<td>Social Care system extract (case mgmt)</td>
<td>Adults and Children in contact with Social Care in the last five years</td>
<td>32,501</td>
</tr>
<tr>
<td>Caerphilly CBC</td>
<td></td>
<td></td>
<td>67,816</td>
</tr>
<tr>
<td>Torfaen CBC</td>
<td></td>
<td></td>
<td>49,646</td>
</tr>
<tr>
<td>Aneurin Bevan HB</td>
<td>Data warehouse extract</td>
<td>Adults and Children in Acute Care in the last five years</td>
<td>13,076</td>
</tr>
<tr>
<td>Gwent Police</td>
<td>Data sharing project extract</td>
<td>Victims of crime during previous six months</td>
<td>70,045</td>
</tr>
</tbody>
</table>
Example of Vulnerability Intelligence Service
High-Level Solution Overview

VIS Data Repository
Holds Single View of Individual, all the associated raw and enriched data points

VIS Data Matching Engine
Matches records of Individual across all source systems

VIS Data Analytics & Insight
Derives Vulnerability Profiles
Generates strategic insight to improve planning decisions and potential individual-level interventions

SOURCE SYSTEMS
Raw Vulnerability Data
Enriched Vulnerability Data

GIS ANALYTICS
GIS Extract
Enriched Vulnerability Data

Secure Data Transfer
Raw Vulnerability Data
Raw Vulnerability Data

Data Visualisation Portal
END USERS & PRACTITIONERS
• Reports
• Dashboards

1. Blaenau Gwent social care system extract
2. Torfaen social care system extract
3. Caerphilly social care system extract
4. Aneurin Bevan systems / data warehouse extract
5. Gwent police systems / data sharing project extract

= To be provided by BG & Partners
= Core Solution: Matching + Analytics + Visualisation
Vulnerability Intelligence Project
Key Aspects

- Data governance and security
- Information Sharing Protocols – yes it is possible!
- Data Processing Agreements
- Using information from legacy systems
- Merging & Matching Business Rules to provide a single view of the citizen
- Conduct analytics on the combined data sets
  – practitioners and managers actively explored use cases for effective strategic planning and early cross-agency intervention
Survey and workshops showed practitioners and managers do not share a consistent, clear view of “vulnerability”

- The wide range of indicators characterising vulnerability demonstrates the varied interpretations amongst practitioners and strategic managers

- This led to an exploratory approach to investigate how the combined dataset might inform practitioners on potential vulnerability in individuals or groups

Source: Workshop/Survey participants (see separate Atos reports on Workshop and Survey Outputs)
Vulnerability Intelligence Project
Key Insights – joined up view

Cross agency view of previous interactions can provide insight into potential areas of early intervention

Male Born 1950

1995 OT Enquiry. September
1998 Car Badge Registration August
2009 OT Enquiry. September
2010 OT Enquiry. November
2010 POVA Alert. November

Known to have a physical disability

2012 Mental Health. 24 Counts
2012 Criminal Damage. January

Female Born 1986

1998 Child Protection. March
1999 Learning Disability March
2008 POVA Alert. January
2010 Carers Assessment August
2010 Victim of Violence. September
2012 Victim of Violence. December
2012 General Concern. March

2013 OT Enquiry. November
2013 Assistive Technology. July
2013 Community Care. April
2012 Mental Health. 24 Counts
2012 Criminal Damage. January

Areas Flagged by Practitioners Any adult has the right to refuse personal information to be shared between services, hence when this man was a victim of crime he may have refused referral to Social Care.

What could the saving in financial terms have been if intervention was made at this point?
Vulnerability Intelligence Service
Solution Overview

Data Acquisition
- Data from multiple source systems is delivered to the secure Portal

Data Storage & Processing
- Data is collected from the Portal
- Load delivered data into a data repository and store it for further processing
- Process and transform data if required

Data Matching
- Access stored data and match it
- If matching was successful, create a new single “golden” record of a vulnerable citizen
- Consolidate vulnerability indicators against the “golden record

Visualisations, Data Analysis & Insights
- Analyse matched data and vulnerability indicators
- Present information to support a decision
- Review predicted options
- Make decision

Identifying Vulnerable Individuals
Vulnerability Intelligence Service
Solution Overview

- Multiple data formats including CSV, XML, Excel, Messaging
- Secure data transmission
- Secure messaging
Vulnerability Intelligence Service
Solution Overview

- Data is collected from the data acquisition portal, and stored in a staging area
- Data is checked for validity and then, if valid, stored.
- All data loads are audited for traceability
- Data is transformed into the format required by the matching engine
- Vulnerability data from original source data records linked to the newly created matched “golden” records (a consolidated single record of a vulnerable citizen) produced by Data Matching element.
Vulnerability Intelligence Service
Solution Overview

- Data is matched to form the Golden (single view) Record
- Evidence based
- If successful, matched data is returned to the storage layer and linked to the original source data stored in the storage layer
- Matched data is also returned to the storage layer and linked to the vulnerability indicator data
_users are able to drill down on the data via a portal to support their decision making

- Insights into vulnerability gained from the matched data
- Analytics/Insights and standard Business Intelligence using reports/dashboards
- Geographical mapping of information
- The target solution can be expanded to include Predictive Analytics capabilities.
Vulnerability Intelligence Project
Learning Points

- It is possible to get agreement to share data between five different public bodies. **This was a major achievement**
- The Project has already exceeded other efforts – data was shared
- There is willingness by participants to pursue further data sharing
- Shared and derived data enhances understanding of vulnerability
- One potential vulnerability indicator, which was considered to be important by operational staff, is living alone.
  - This is not captured by any of the systems used
- **Modelling can precisely define individuals who are likely to become vulnerable,** potentially supporting more targeted service delivery
- It was possible to incorporate additional data in the predictive models, such as the Welsh Index of Multiple Deprivation.
  - This improved the accuracy of the prediction
Tangible Benefits

- **Cost savings**
  - resources used earlier in the cycle
  - invested where they will yield higher success rates
  - more effective outcomes
  - lower cost, long term involvement of the public sector

- **Improved prevention**

- **Demand reduction**

- **More effective intervention**

- **Better planning/commissioning – targeted use of resources**

- **A range of Use Cases illustrate ROI of 20:1**
  - Women experiencing domestic abuse
  - People with alcohol issues
  - People with substance misuse issues
  - Young people with support needs (16 - 24 years old)
Unforeseen Benefits

- The technical staff involved in the project highlighted a number of specific items:
  - The opportunity to see how other organisations have approached similar problems and arrived at different solutions
  - The opportunity to meet and discuss their use of data with peers in a practical operation context
  - The poor quality of some of the data in some places. The VI software solution was able to highlight duplications and other errors
  - Missing or wrong data in some cases. Date of death is particularly problematical. Health databases contain this information. Social Services tend not to
  - Exposure to state of the art data matching and analytic tools which have hitherto not been used to any great extent by any of the partner organisations
... Welsh Government agencies’ ability to identify vulnerable people in the community through predictive analytics, proving the case for cross-agency co-operation to enable more effective collaboration and better resources planning at a strategic level.

The challenge

Blaenau Gwent CBC led the Vulnerability Intelligence Project, exploring how local public service organisations can join up their information on people in the community who are potentially vulnerable. Other project partners are Caerphilly CBC, Torfaen CBC, Aneurin Bevan Health Board and Gwent Police.

The aim was to explore if the partner organisations can share and match their data, and if it is possible to derive intelligence on potential vulnerability. This would in turn enable services to collaborate more effectively when supporting individuals in the community, and to plan resources better at the strategic level.

Our impact

Data Matching & Analytics enabled partner organisations to:

▶ Identify, extract, match and cleanse data held within selected partner systems. Activities covered both technical and operational enablers

▶ Conduct analytics on the combined data sets, whereby practitioners and managers actively explored use cases for effective strategic planning and early cross-agency intervention (action learning through “sprint workshops” approach).

We demonstrated how shared and derived data has the potential to enhance understanding of vulnerability, form the basis to the provision through analytics of insight into potential areas of intervention.

We proved that data sharing and predictive modelling can identify vulnerable individuals, supporting more targeted public service delivery.

Client Feedback

“The Atos team brought a great level of experience, insight and high level of professionalism to the project, which helped us to deliver the end result. The team’s engagement with our variety of stakeholders was excellent, and the decision to bring them on board felt right from beginning to end.”

Client Project Manager
Welsh Government

“The three multi-agency Local Service Boards, covering Blaenau Gwent, Caerphilly and Torfaen, have been strong advocates of this regional project. The project was funded through a national European Social Fund (ESF) programme hosted by the Welsh Government to help drive the system change and support cultural changes needed to transform public services through more effective collaborative working. The solution will provide partner organisations with the opportunity to use the intelligence to deliver targeted preventative approaches to the most vulnerable people in our communities. This approach resonates with the key challenges facing public service providers across the UK.”

Bernadette Kias
Head of Policy and Performance, Blaenau Gwent County Borough Council