

A group of diverse young people, including men and women of various ethnicities, are smiling and holding hands in a circle outdoors. The scene is bright and sunny, with a warm, golden light. The people are dressed in casual clothing like sweaters and jeans. The background is a soft-focus green lawn.

Using Teradata Business Analytics Solutions to Understand and Improve the Human Experience



Vulnerable families face complex challenges. They deal with homelessness, estrangement, mental health, child abuse, and other social issues.

Buttle UK, a charity, assists families and young people from vulnerable backgrounds by providing financial aid and services. The organization wanted to gain a deeper understanding of social challenges to identify the actual

DataKind Empowers Charities With Data Science

DataKind projects, like the Teradata-sponsored event with Buttle UK, are a way for charities to benefit from the highly-skilled abilities of in-demand data scientists. Data scientists volunteer their time and expertise to analyze data that helps charities improve the effectiveness of their programs, services, and grants. As a result, charities can better meet the needs of individuals, families, and communities, which benefits all of society.

causes of problems rather than responding to surface issues. Knowing what influences the experience of families would allow Buttle UK to focus resources, including grant money, where they would make the biggest impact.

Teradata data scientists and business analytics consultants volunteered to work with staff from Buttle UK who had varying backgrounds, skills, and expertise to analyze the charity's data over the course of a weekend. The event was organized by DataKind, which brings high-impact organizations together with leading data scientists to use data in the service of humanity.

The Teradata engagement with Buttle UK had two primary goals:

- Determine how to optimize grant money to help the most needy families.
- Uncover relationships between social issues and determine how they progress over time.

Gaining these insights ultimately enabled Buttle UK to improve its services by providing the right support at the right time to minimize the problems the families face.

Case Worker Notes Reveal Hidden Connections

Buttle UK case workers had notes detailing their interactions with families. The notes contained valuable information from the front lines of social work that unlocked the patterns and trends driving social issues. This intelligence held the key to revealing the factors that caused some families to experience deep-rooted problems, which were harder to solve.

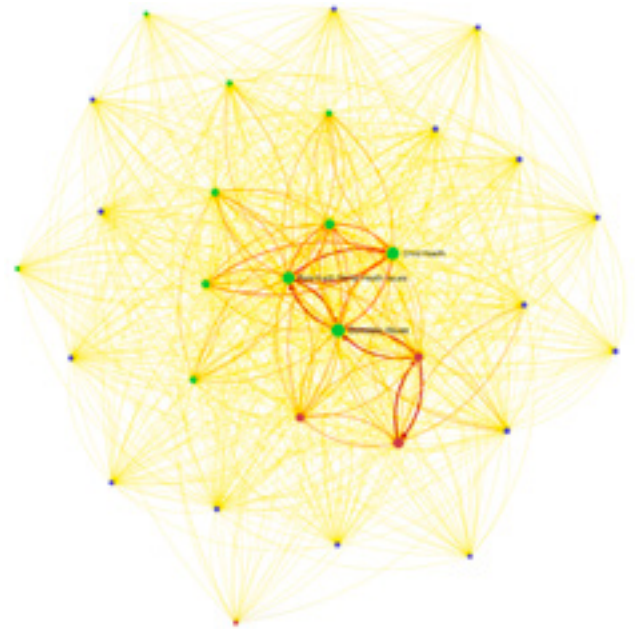
Data scientists and business consultants from Teradata collaborated with Buttle UK personnel to deliver important new insights. Data from the notes was wrangled and integrated with data that described the families themselves along with details from grant applications that had been approved or denied. The data was loaded into a Teradata Aster Discovery Platform, which allowed rapid integration of datasets and provided access to pre-built algorithms that could be customized for the use case.

Text analytic functions including n-gram along with term frequency-inverse and document frequency were applied to identify key words and phrases. Collaborate filter methods analyzed those words and phrases to find issues that commonly appeared together and therefore had a high affinity, or correlation, which showed how problems were related.

Telling a Visual Story

Teradata data scientists and Business Analytics Solutions consultants used data visualization techniques to create interactive sigma graphs. These graphs allowed the Teradata team to visually present the insights so that patterns and insights immediately stood out.

Problems that Buttle UK staff had been trying to understand for years were now clearly identified, giving case workers visibility into the obstacles families were facing. The charity can now have a global perspective of issues, recognize the ones most likely to cause problems, determine what happens to children from domestic abuse households, and realize barriers faced by small minority communities.



Seeing the Impact of Social Issues

Teradata and Buttle UK employees joined forces and used affinity analytics on integrated data to identify relationships that negatively impact families. The team leveraged the Teradata Aster Discovery Platform and used Aster Lens to create the image "Impact Of Social Issues." This Teradata Art of Analytics visualization shows the complex relationships between social issues and identifies common, shared family experiences.

The artwork lets viewers see that domestic abuse, poverty, and child-health problems are related and can push families into a position of need. In the image, the dots, or nodes, represent social issues mentioned by case workers. The larger the node size, the more likely the family is in need, while the lines between the nodes show how the issues are connected. For example, the image shows that parents living with mental health challenges, domestic abuse, homelessness, or estrangement have highly-connected issues. This information helps Buttle UK better understand the progression of social issues that affect families and deliver help accordingly.



The data visualization lead to multiple insights:

- A strong link showing domestic abuse leading to mental health issues for children, and in extreme cases estrangement and homelessness.
- The needs of individuals from minority communities differed from the majority of family cases.
- Families were referred by various agencies.
- The most difficult cases came from social services and children's trusts, where there would often be repeat referrals.
- Families refused twice for a grant due to a lack of funds would not come back.
- Contrary to policy, multiple grants should be allowed when an individual was forced out of his or her first home and made homeless.

The engagement followed the same approach Teradata uses to tackle traditional business problems. Teradata data scientists and consultants applied the same analytic techniques used by businesses such as retailers, financial services, and telecommunications companies to identify relationships, pain points, and opportunities.

The Aster Connection Analytics that provided insights for Buttle UK can also help companies better understand the customer journey. The affinity analytics can uncover

details about the customer experience and customer paths to enable businesses to better know individual customers so they can meet their wants and needs across all touch points.

Actionable Results Enable a Customized Service Approach

Analyzing case worker notes and data about families enabled Buttle UK to gain actionable insights into the challenges vulnerable families deal with everyday. Armed with those insights, the charity was able to customize its services to better meet those families' needs.

Buttle UK can now focus its efforts in areas that will provide the biggest benefit. The charity can also offer resources—such as a washing machine, clothes, a bed, a dining room table so families can eat together, or money—at critical times to offset new or worsening problems.

Connect with Teradata

Watch our video series, **The Art of Analytics, featuring Impact of Social Issues**, for more details on ways Teradata analytic consultants enabled the human experience for a charity. To find out more about how Teradata Business Analytics Solutions can deliver high-impact business outcomes, visit Teradata.com.

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