



Predicting Harm & Contextual Safeguarding: Insight Bristol Case Study

2nd March 2020

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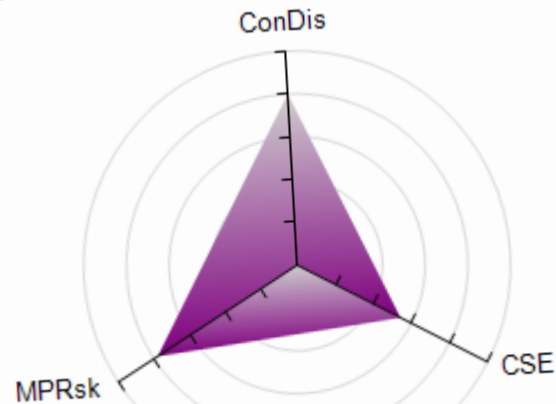
Business Intelligence Developer



Bristol Insight Analytical Products

Think Family Database

Qlik[®] Sense 



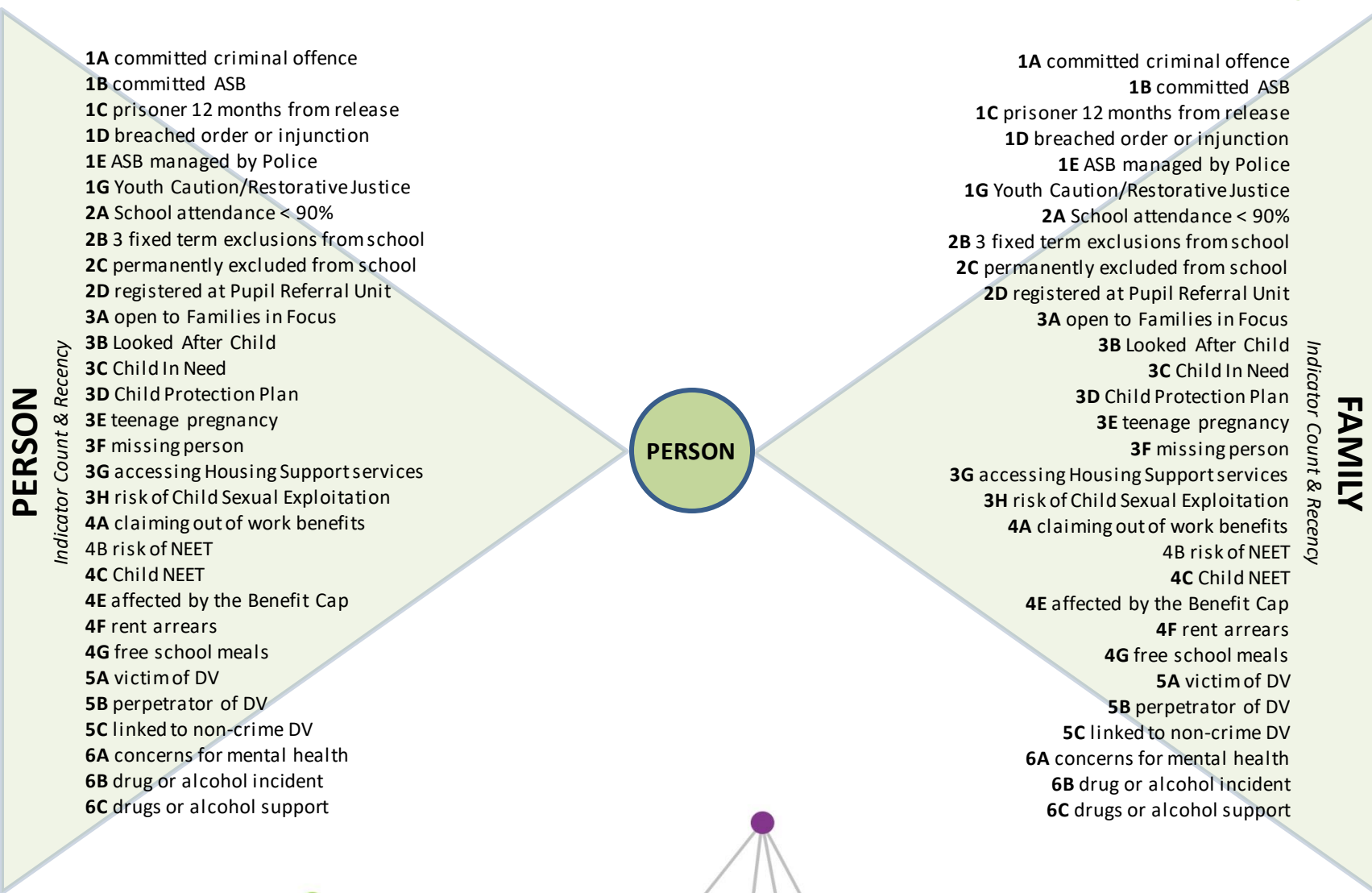
Think Family Database

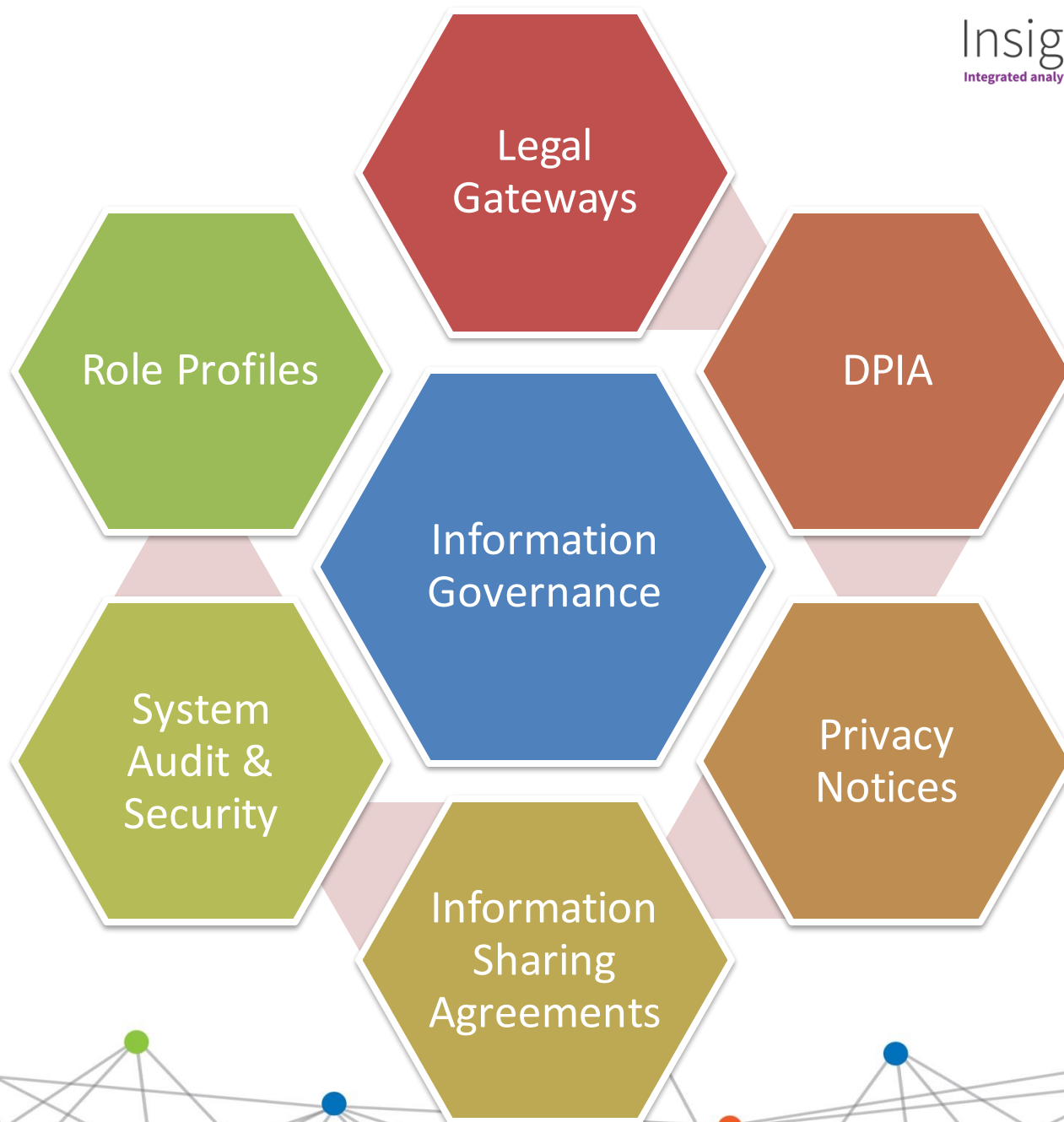
35 Datasets

170,000 People
54,000 families



Think Family Database Indicators





Legal Gateways

- The Digital Economy Act 2017 and the Public Service Delivery, Fraud and Debt: Data Sharing Code of Practice
- Sections 10 and 11 of The Children's Act 2004,
- Section 82 of The National Health Service Act 2006
- Section 1 of The Childcare Act 2006
- Section 23 and 25 of The Children's and Families Act 2014
- Section 17, 37 and 115 of The Crime and Disorder Act 1998
- Section 11, 21, 157 and 175 of The Education Act 2002
- Section 1 of The Localism Act 2011
- Section 1 of The Children (Leaving Care) Act 2000
- Special Education Needs and Disability Regulations 2014
- Immigration and Asylum Act 1999
- Education and Skills Act 2008 (ESA 2008)

<http://www.Bristol.gov.uk/policies-plans-strategies/the-troubled-families-scheme>



Who's it used by?

- FIF staff
- Social workers
- YOT
- First Response
- School Safeguarding Leads
- Safeguarding GPs
- Police staff
- Council Benefits team
- Employment, skills and learning team

100-120 users
per month

Around 3000
searches per
month

54,604 searches
since Feb 17

Ingrained in
working
practices



Social Network Analysis

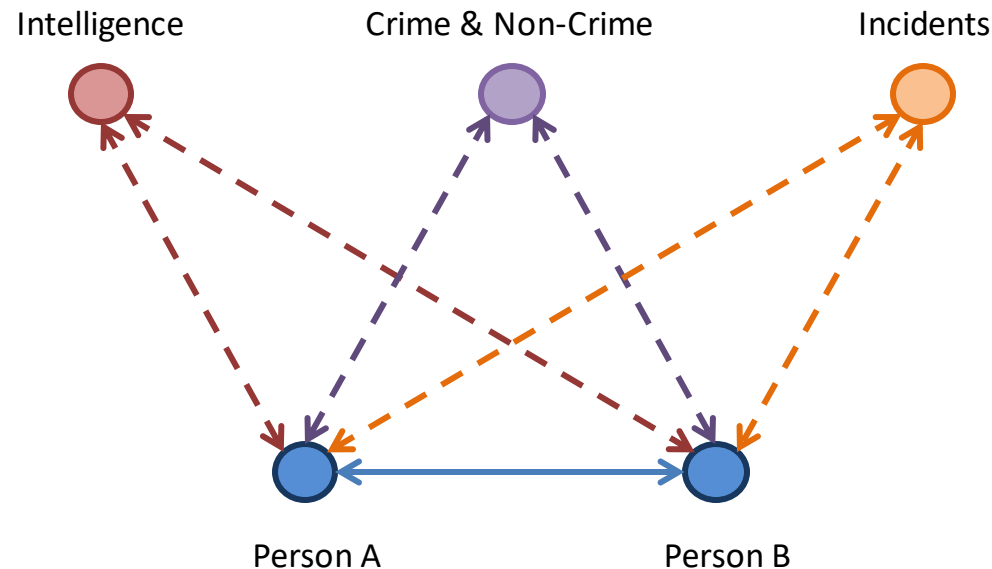
Operational Learning

- Building on previous work: Operation Barrier (CSE) & Anti-Social Behaviour analysis
- CSE risk is introduced into a child's life through social environment / extra-familial relationships
- However: DATA QUALITY!



Solution: The Person Link Table

Building the Person Link Table allowed us to overcome our data quality issues!



All relationships are scored based on recency, frequency and gravity.



Person Link Table Scoring Method

- Thematic risk scores derived for every person.
- The Person Link Table identifies subjects in that individual's social network who also have that risk type.
- New measures are derived for the count of subjects in the individual's network who share that risk type; the sum of their risk score; and the proximity of the risk.
- The risk score of the network is used to modulate the risk score of the individual.



Contextual Safeguarding

“Contextual Safeguarding is an approach to understanding, and responding to, young people’s experiences of significant harm beyond their families.

It recognises that the different relationships that young people form in their neighbourhoods, schools and online can feature violence and abuse.

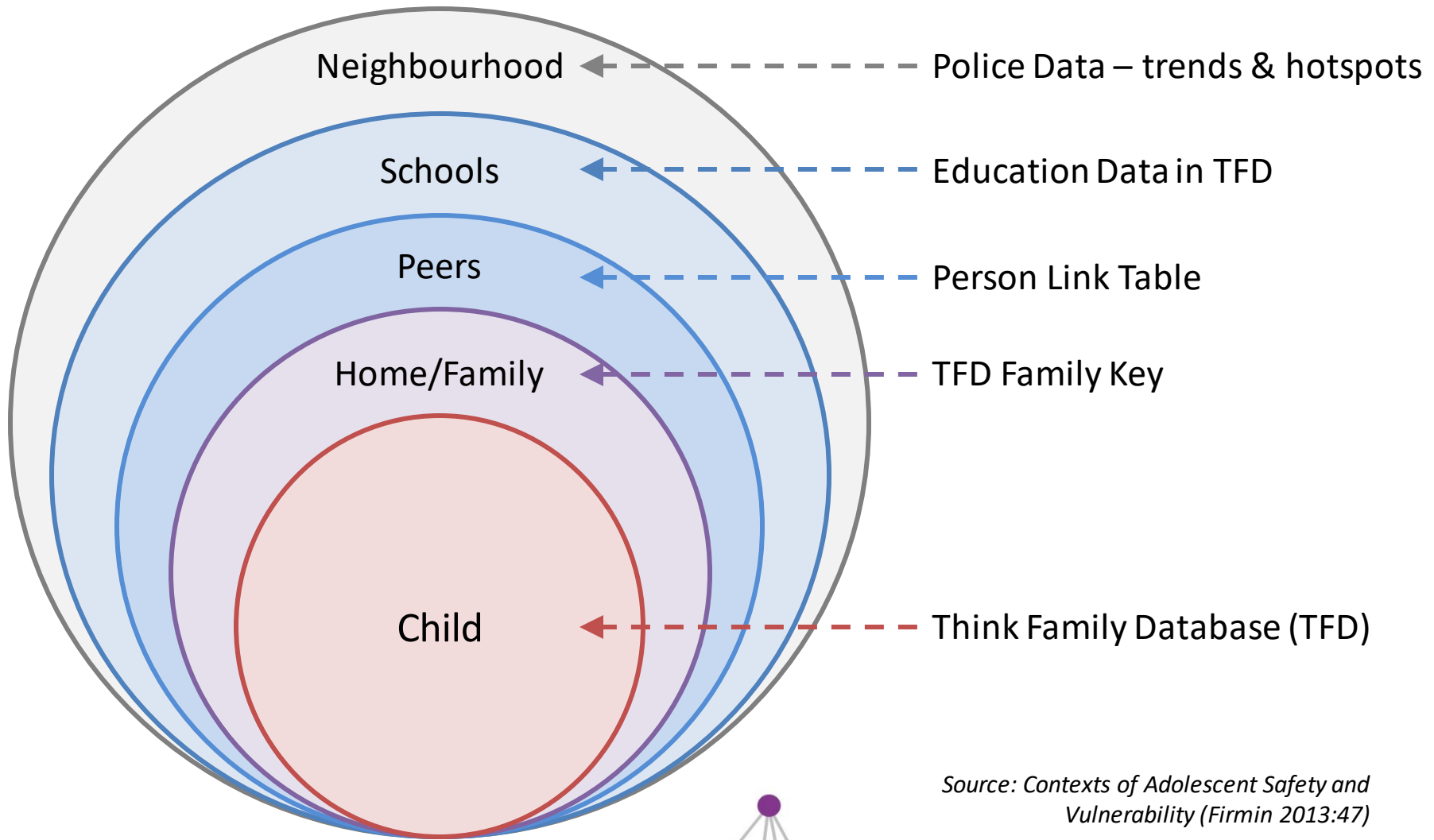
Parents and carers have little influence over these contexts, and young people’s experiences of extra-familial abuse can undermine parent-child relationships.

Therefore children’s social care practitioners need to engage with individuals and sectors who do have influence over/within extra-familial contexts, and recognise that assessment of, and intervention with, these spaces are a critical part of safeguarding practices.”

Carlene Firmin, Contextual Safeguarding
University of Bedfordshire (2017)



Data for Contextual Safeguarding

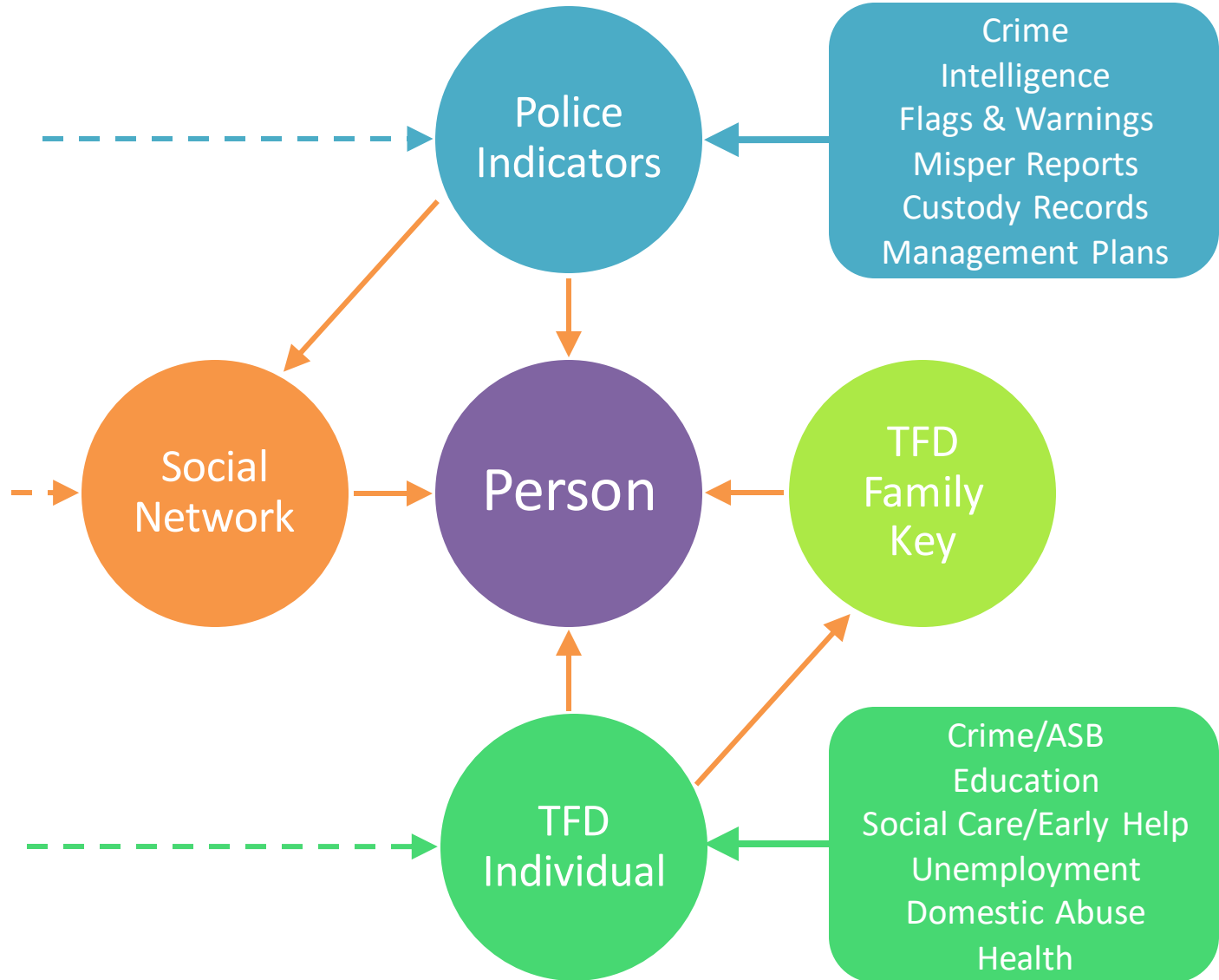


Insight Bristol Modelling Approach

1. Index score based on known risk factors (Recency, Frequency, Gravity scoring)

2. Person Link Table (Contextual Safeguarding)

3. Predictive risk modelling based on partnership data for individual and family



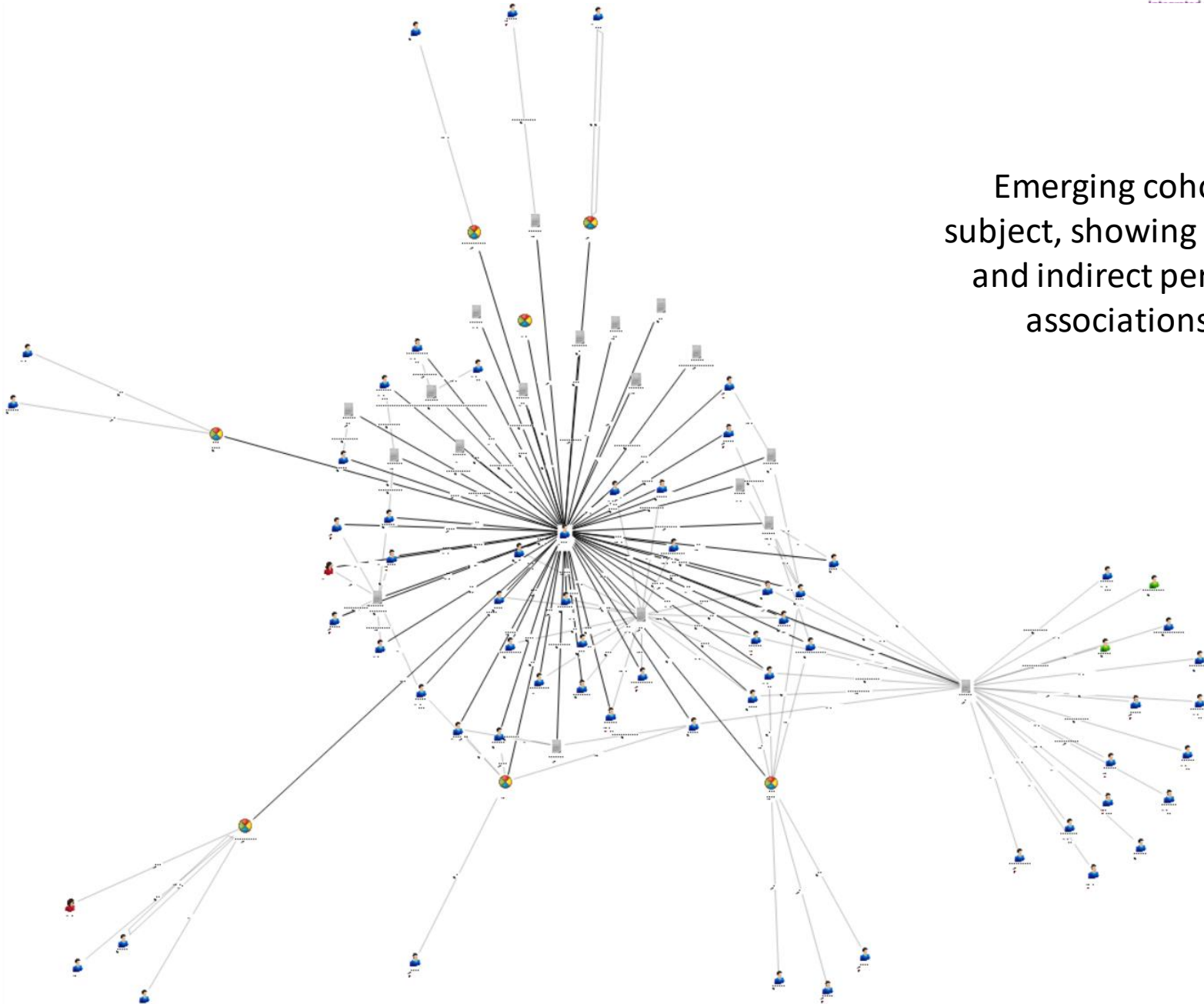
Benefits of Social Network Analysis

- Risk to individuals is appropriately weighted based on the risk in their network
- Identification of emerging cohort
- Clear risk vectors identified for targeted intervention
- Associations are thematic-agnostic – there is a high risk that they would be missed by any thematic scanning practice
- Delivers both depth and efficiency, leveraging volume data

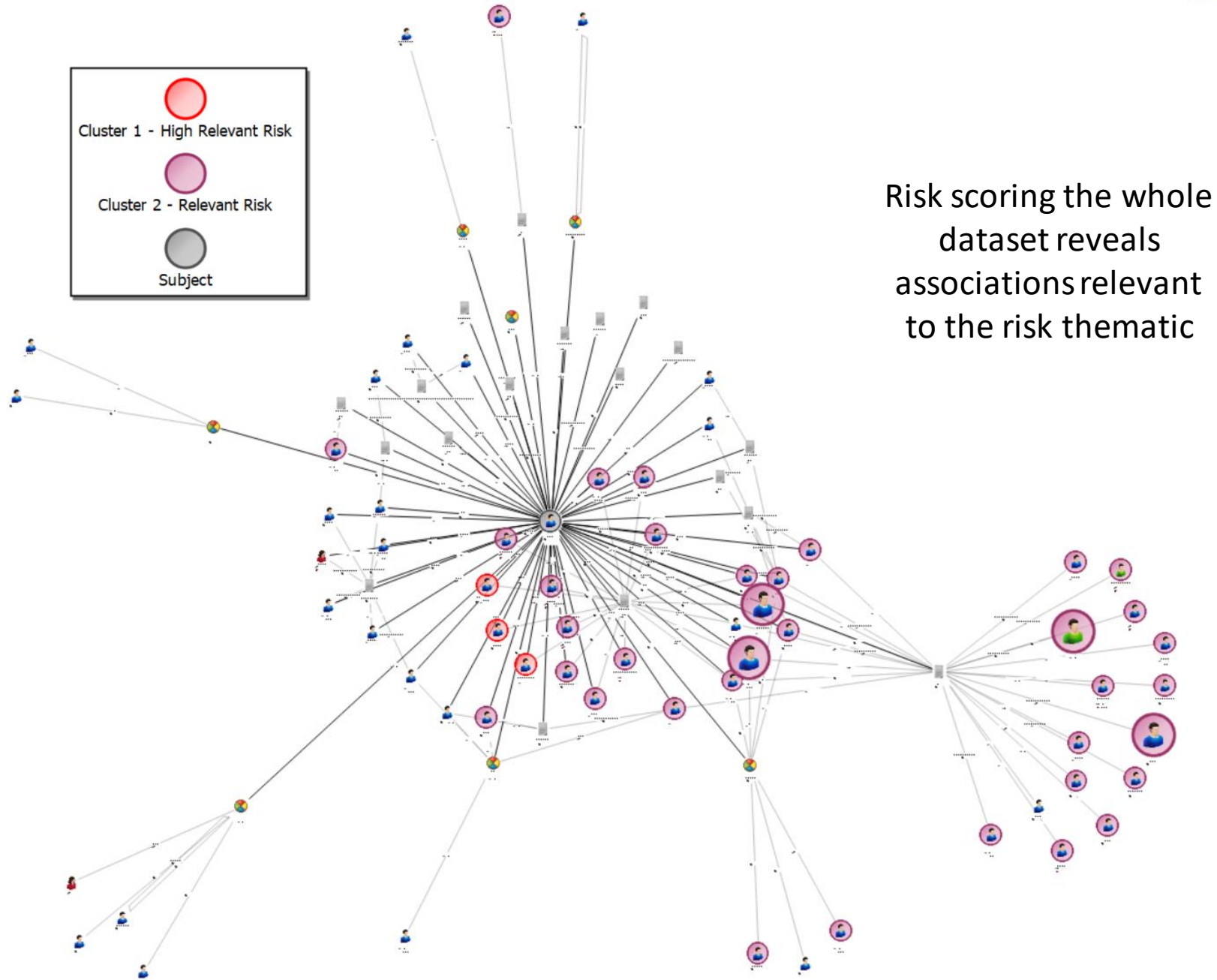


Example: Depth, Efficiency & Volume

Emerging cohort
subject, showing direct
and indirect person
associations

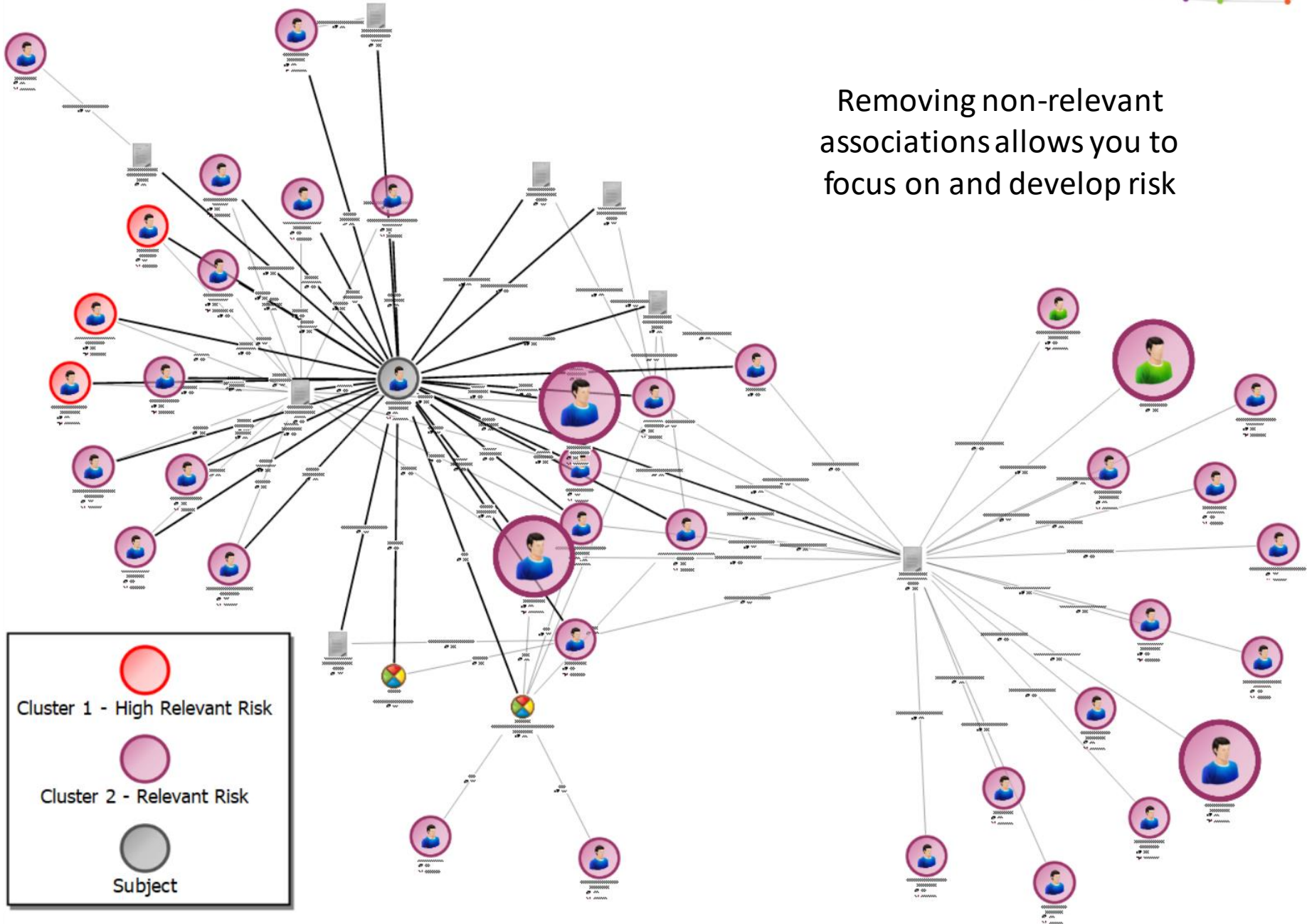


Example: Depth, Efficiency & Volume



Example: Depth, Efficiency & Volume

Removing non-relevant associations allows you to focus on and develop risk

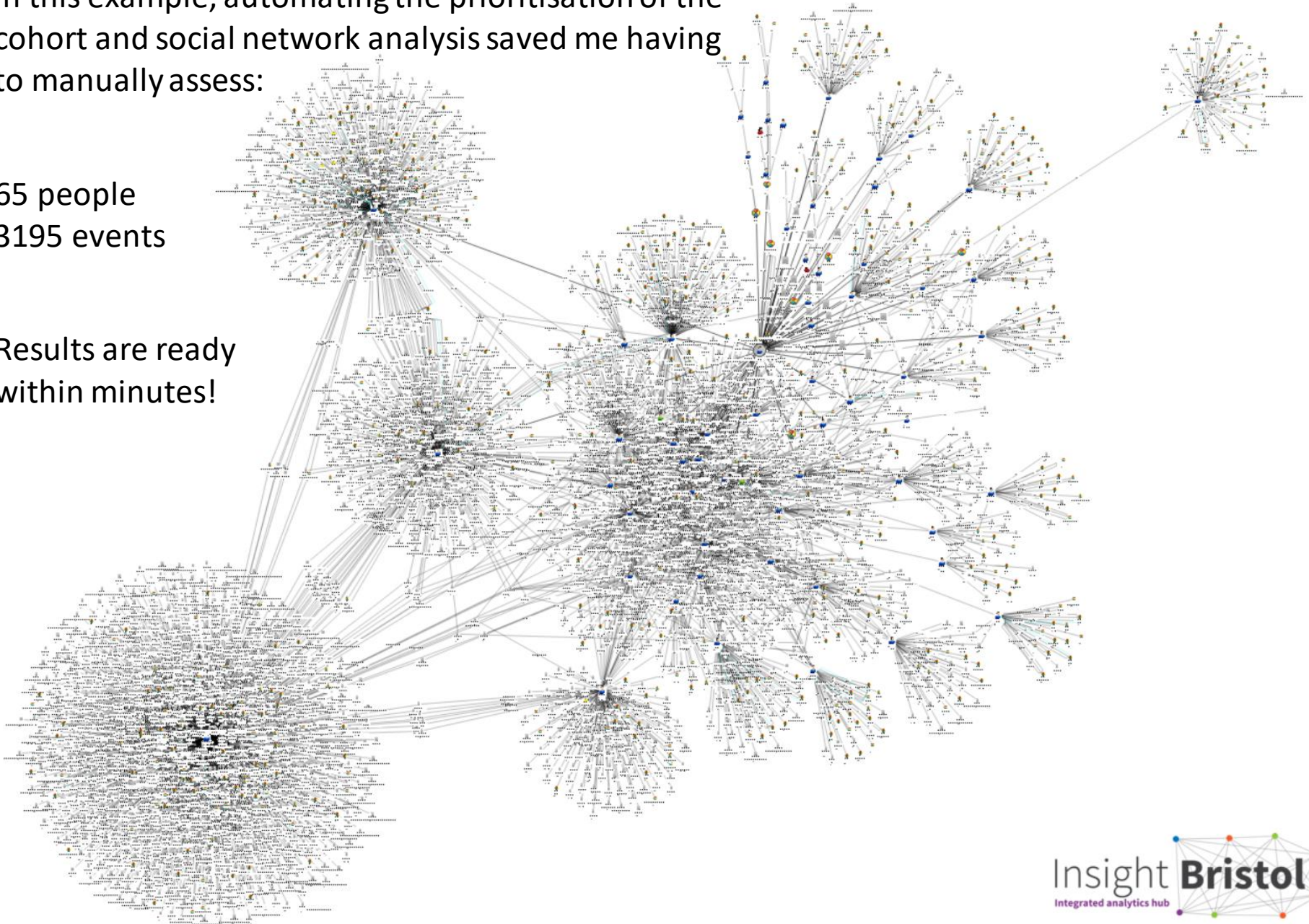


Example: Depth, Efficiency & Volume

In this example, automating the prioritisation of the cohort and social network analysis saved me having to manually assess:

65 people
3195 events

Results are ready
within minutes!



Risk Models & Analytical Products

Our social network analytical methods have been developed through the following products:

- Child Sexual Exploitation (CSE) Model
- Child Criminal Exploitation (CCE) Report
- Violence Reduction (VRU) Model
- Hate Ideology Problem Profile



- Modelled on subjects accepted onto the Barnardos Against Sexual Exploitation (BASE) cohort
- Combines predictive and index scoring methods
- Recall 92%, Precision 83%
“recall expresses the ability to find all relevant instances in a dataset; precision expresses the proportion of the data points that the model says were relevant actually were relevant”
- Evaluated by Operation Topaz & TFD users



Evaluation - CCE

- Index scored rather than predictive
- VRUs and Safer Options Bristol
- County Lines Thematic Analyst & Researcher



- Modelled on subjects found guilty of GBH or more severe violence, or victims of the same
- Combines predictive, index scoring and community detection methods
- Recall 90%, Precision 90%
“recall expresses the ability to find all relevant instances in a dataset; precision expresses the proportion of the data points that the model says were relevant actually were relevant”
- VRU, Safer Options, Violence Thematic Analyst



Operational Use

- Scoring memory used to calculate score trend for all subjects – highlighting high risk, increasing risk and emerging risk
- Scored cohorts feed into Think Family Database and dashboard products for dissemination.
- Cohort teams (VRU, Safer Options, Op Topaz) review subjects according to capacity. Prioritisation supports & informs human judgement – no automated decision making!
- Intelligence staff feed into Police tasking processes & partners for Contextual Safeguarding interventions

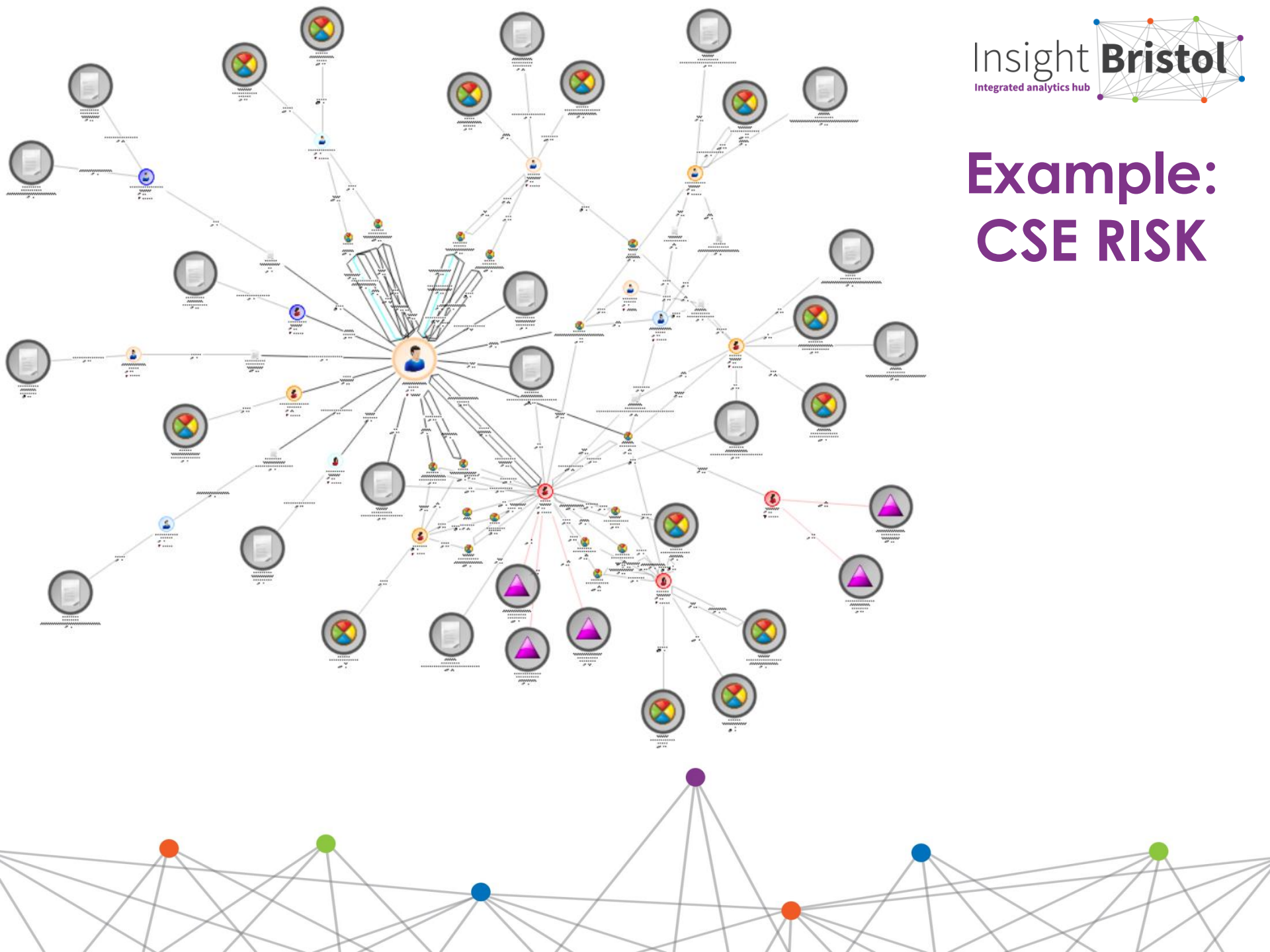


Considerations

- “If you always do what you’ve always done, you’ll always get what you’ve always got.”
- Access to products – systems & data sharing
- Thematic silos – too many cooks!
- The deeper the data, the deeper the validation

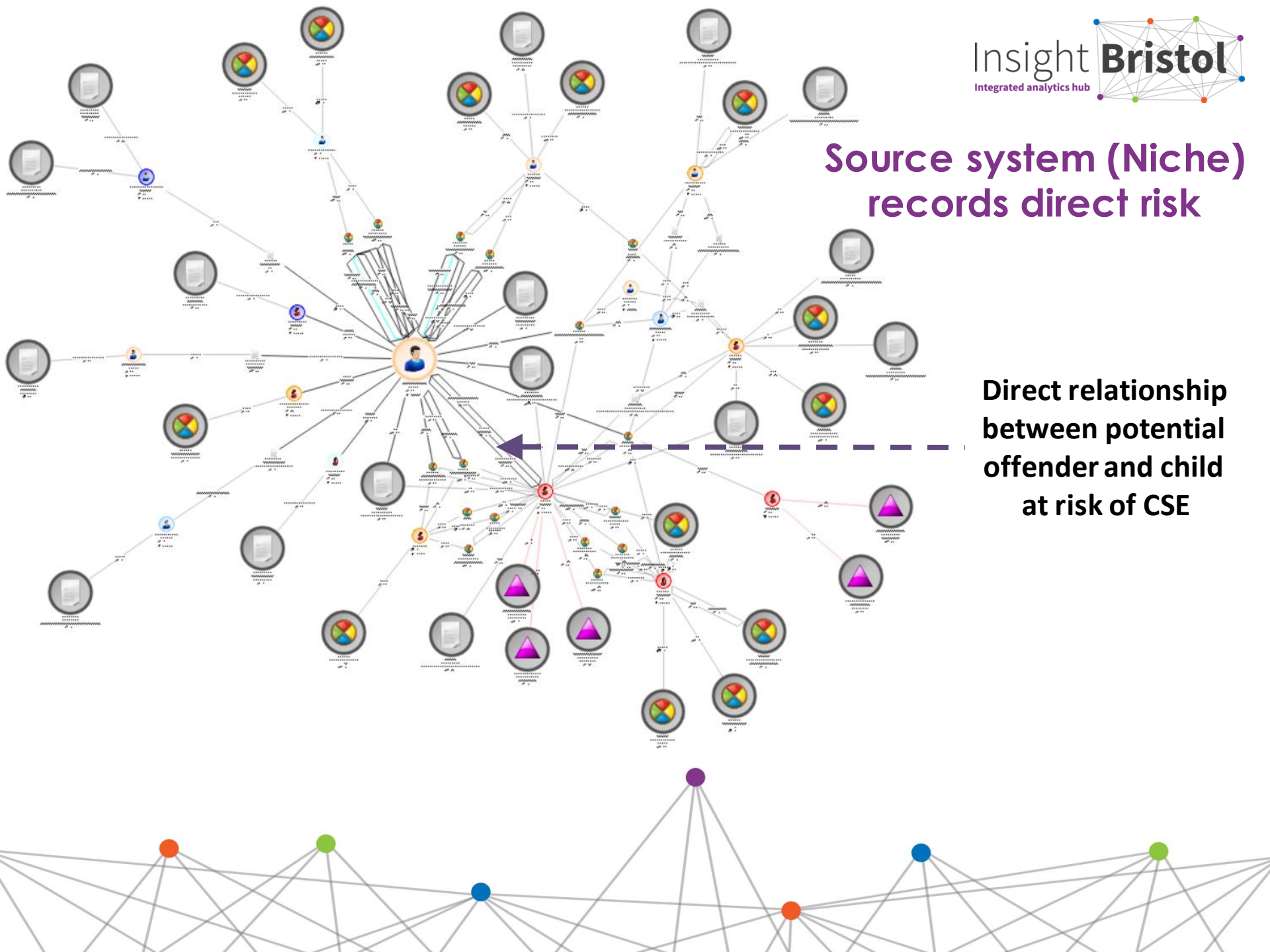


Example: CSE RISK

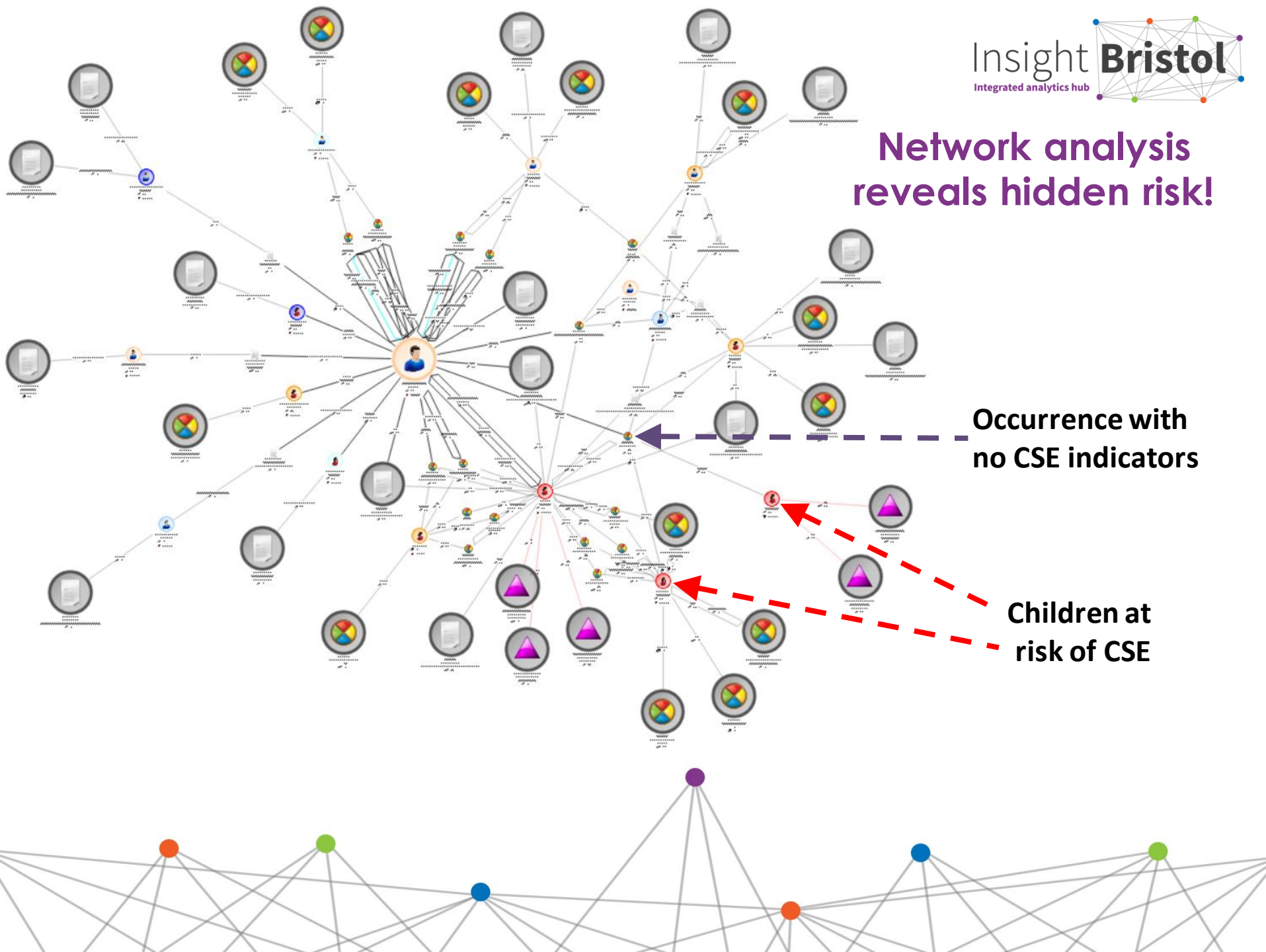


**Source system (Niche)
records direct risk**

**Direct relationship
between potential
offender and child
at risk of CSE**



Network analysis reveals hidden risk!



Any Questions?

**Social Network Analysis
& Contextual Safeguarding
Ethics & Law Workshop**

Bristol, Tuesday 24th March



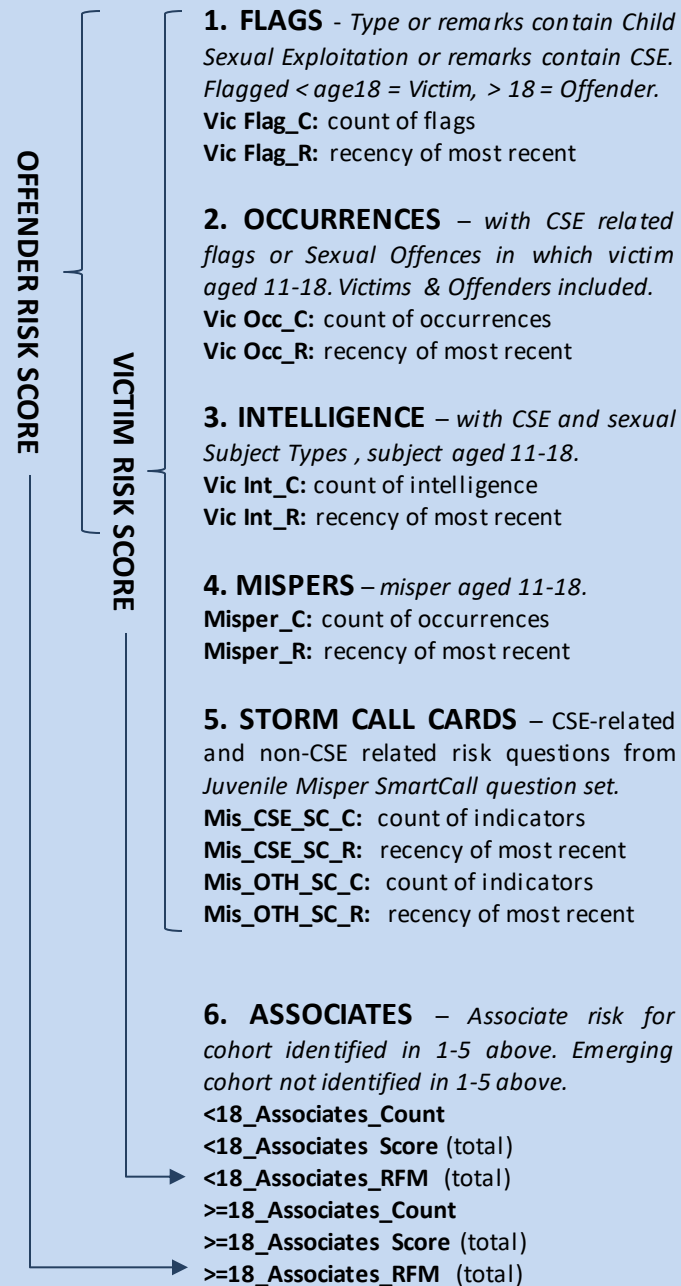
Insight **Bristol**
Integrated analytics hub



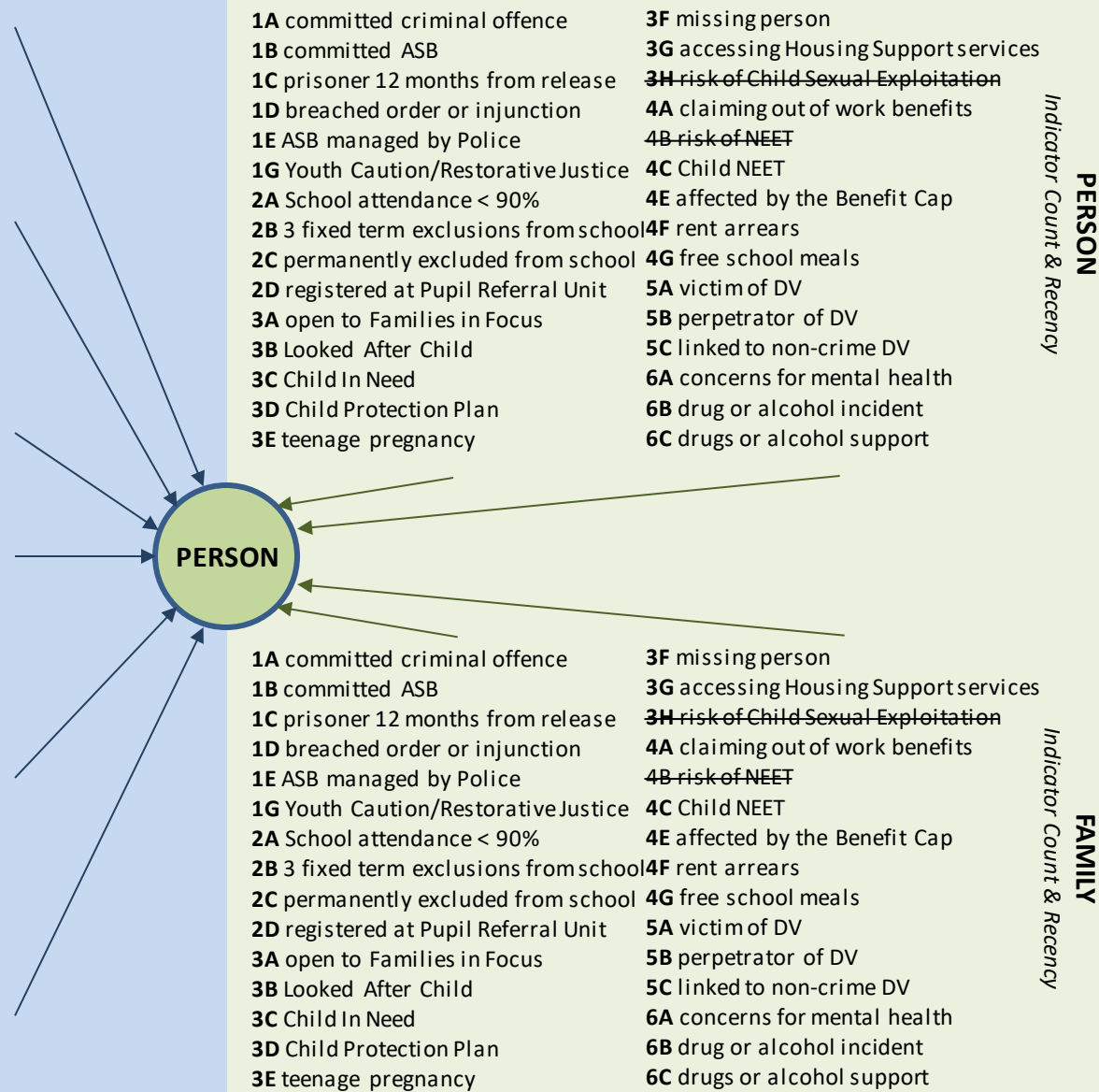
Thank you for listening!



ASC Data



CSE MODEL



ASC Data

CCE REPORT

Think Family Data

