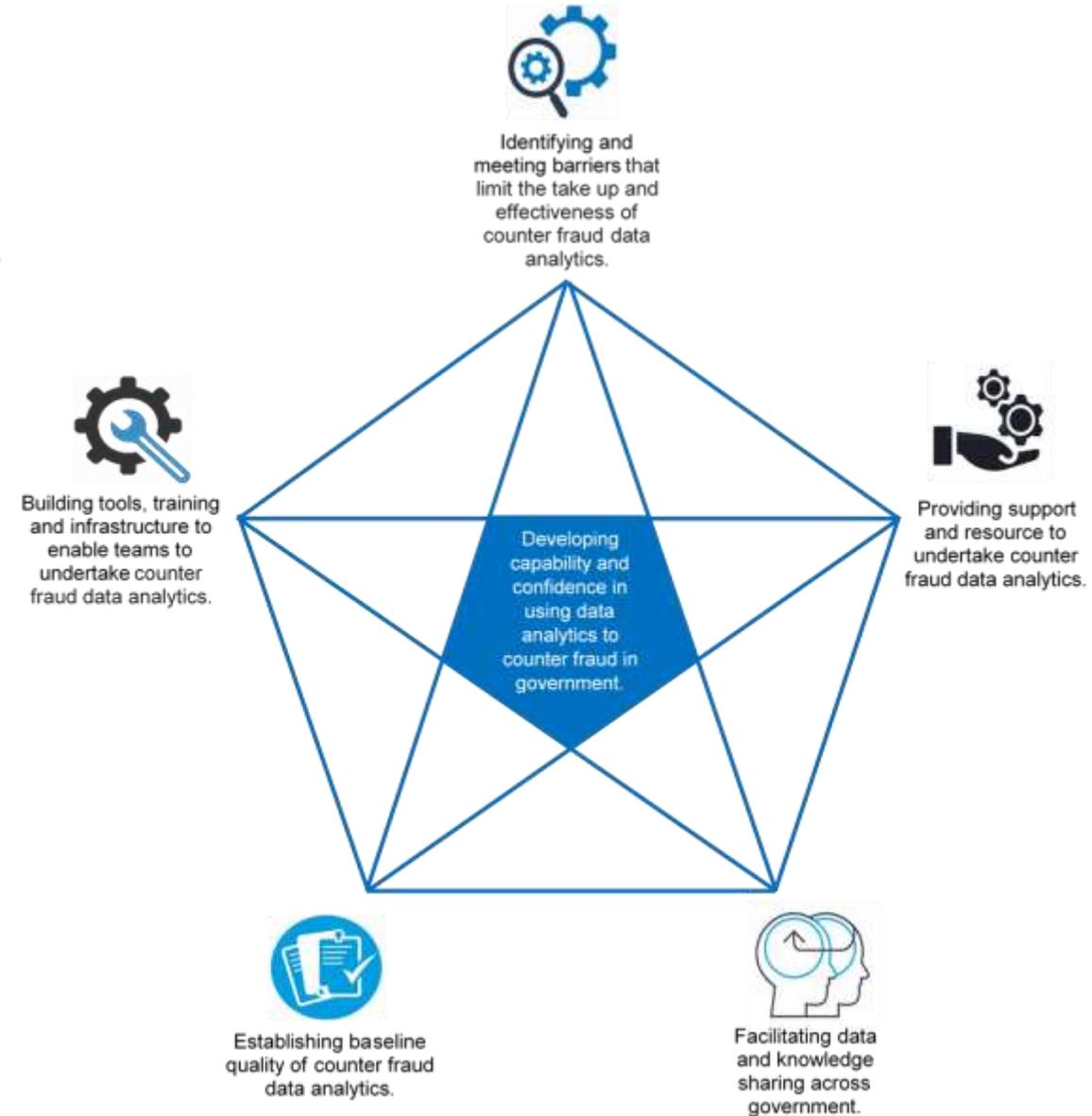**Cabinet Office**

The New Government Counter Fraud Data Analytics Standards: Professionalising Data Analytics Capability

The Data Analytics Development team

The Data Analytics Development (DAD) team is developing capability and confidence in using data analytics to counter fraud in government. We are doing this by:

➢ Engaging government to identify and meet barriers that prevent effective use and sharing of data and counter fraud data analytics.

➢ Building tools, training and infrastructure to enable data sharing and counter fraud data analytics capability: **Fraud Business Analysis toolkit** the **Best Practice Guide.**

➢ Providing support and resource to undertake counter fraud data analytics by working with government organisations to **set up and run data pilots.**

➢ **Facilitating data and knowledge sharing** across government organisations through our data pilots and Counter Fraud Analysts Forum.

➢ Establishing baseline quality of counter fraud data analytics activities and outputs across government through the **Use of Data and Analytics Standard.**

Identifying and meeting barriers that limit the take up and effectiveness of counter fraud data analytics.

Building tools, training and infrastructure to enable teams to undertake counter fraud data analytics.

Developing capability and confidence in using data analytics to counter fraud in government.

Providing support and resource to undertake counter fraud data analytics.

Establishing baseline quality of counter fraud data analytics.

Facilitating data and knowledge sharing across government.

Counter Fraud and Data Analytics

➢ Fraud is a continuously ongoing activity that all organisations face and one that is getting increasingly more complex as digital technology evolves.

➢ The nature of fraud means that organisations need to have both proactive and reactive approaches and responses in order to fight it effectively, from identifying, assessing and measuring potential fraud risks and threats, to gathering intelligence and undertaking investigation to detect and evidence fraud.

➢ Data & analytics has the potential to revolutionise how we fight fraud in government and is increasingly being used to counter fraud in the public sector rather than traditional case-by-case approaches.

➢ Through the effective use of data gathering, data sharing and application of analytical techniques on data to discover patterns and trends, organisation's can gather new insight that explores the extent of potential fraud and verifies significant amounts of information provided without having to undertake significant and labour intensive compliance activity, allowing them to gather more comprehensive intelligence and to identify fraud more efficiently and quickly.

➢ This not only helps you to identify the extent of potential fraud, but it also helps to understand the associated risks and patterns, providing organisations with greater insight on the fraud, allowing them to make better decisions and drive continuous improvement and innovation within their organisations' processes.

Counter Fraud Data & Analytics in government

Why do we need Standards for Counter Fraud Data & Analytics?

Across government there is a capability gap around the use of data & analytics; capability to undertake data pilots and analysis of data is limited to a few key departments, and insights from analysts who are currently working within the counter fraud area have shown capability gaps in using analytics for fraud problems. Therefore we are developing a discipline with the Government Counter Fraud Profession for government to be able to take further steps in using data as an asset and applying data analytics at a professional level, and aim to have a Standard for the discipline in place by the end of March 2020.

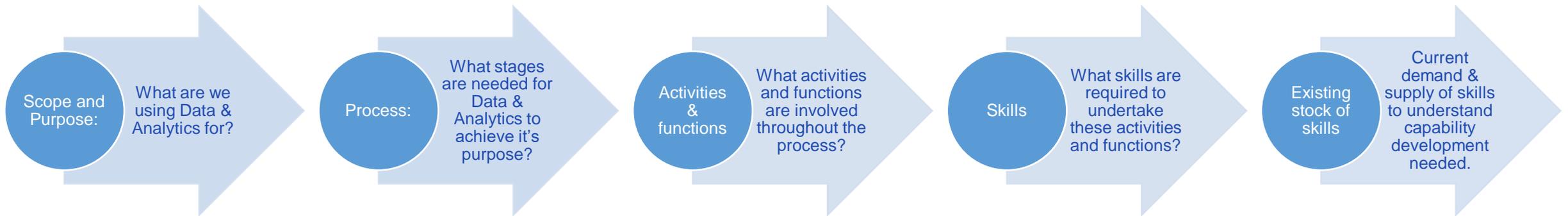## Overview of the Use of Data and Analytics Standard

The Use of Data and Analytics Standard identifies the knowledge, skills and experience required when using and applying data and analytics for counter fraud purposes. Individuals and organisations can use the Standards to develop skills, identify skill gaps and target learning and development to develop capability further.

The Government Counter Fraud Profession

Organisational Level	**Functional Standards** — The Functional Standards detail the basics that an organisation should have in place to have an effective counter fraud response. This includes a level of fraud awareness across the organisation.			
Functional Leadership	**Leadership, Management and Strategy** — An awareness across all specialist areas and the capability to define an effective counter-fraud response and how to deploy the specialisms in the business			
Functional Delivery	Risk Assessment	Measurement	Prevention and Deterrence	Data & Analytics
	Detection	Intelligence & Analysis	Investigation	Sanctions, Redress & Punishment
				Culture
Sub Disciplines	Bribery and Corruption	Money Laundering	Disruption	Cyber Fraud
				Criminal Justice

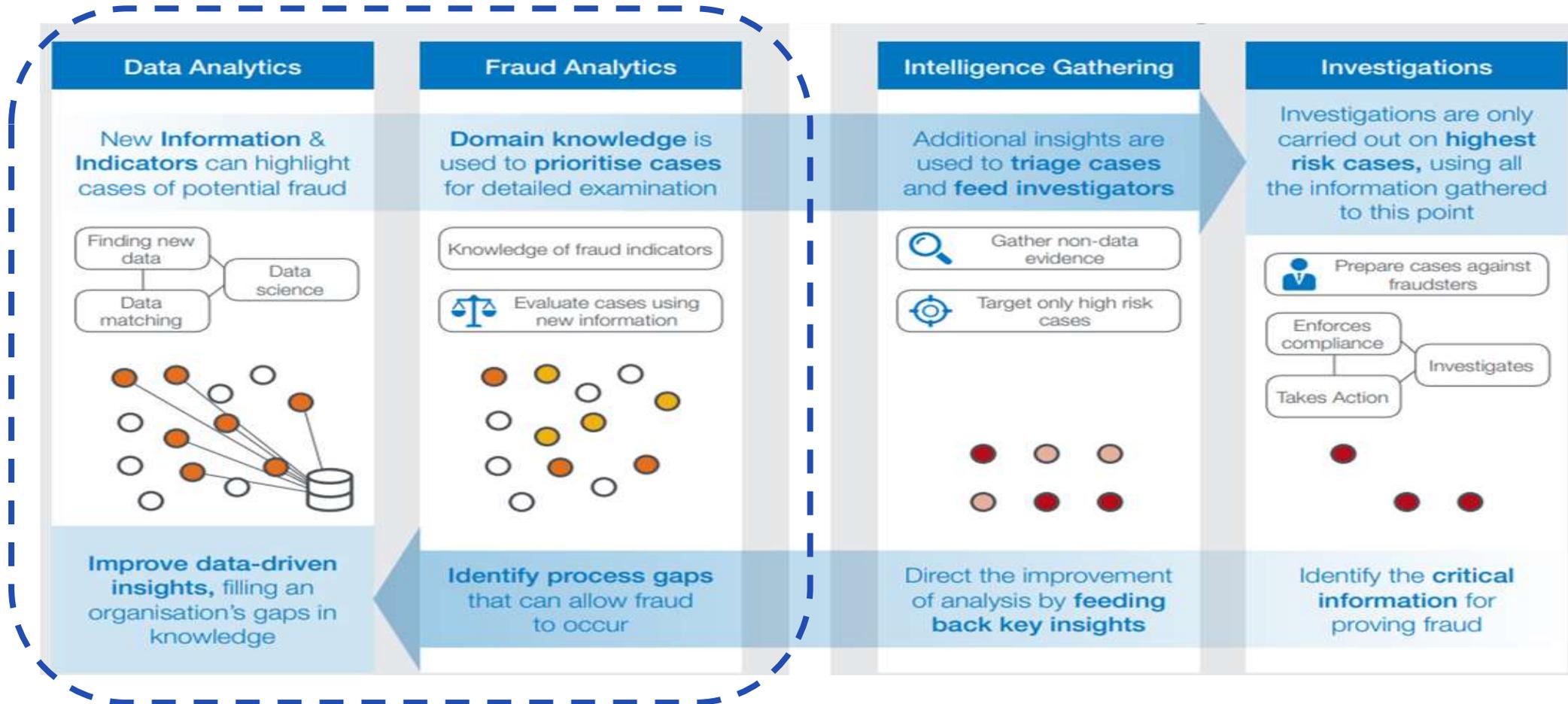# Overview of the Use of Data and Analytics Standard

The Use of Data and Analytics Standard identifies the knowledge, skills and experience required when using and applying data and analytics for counter fraud purposes. Individuals and organisations can use the Standards to develop skills, identify skill gaps and target learning and development to develop capability further.

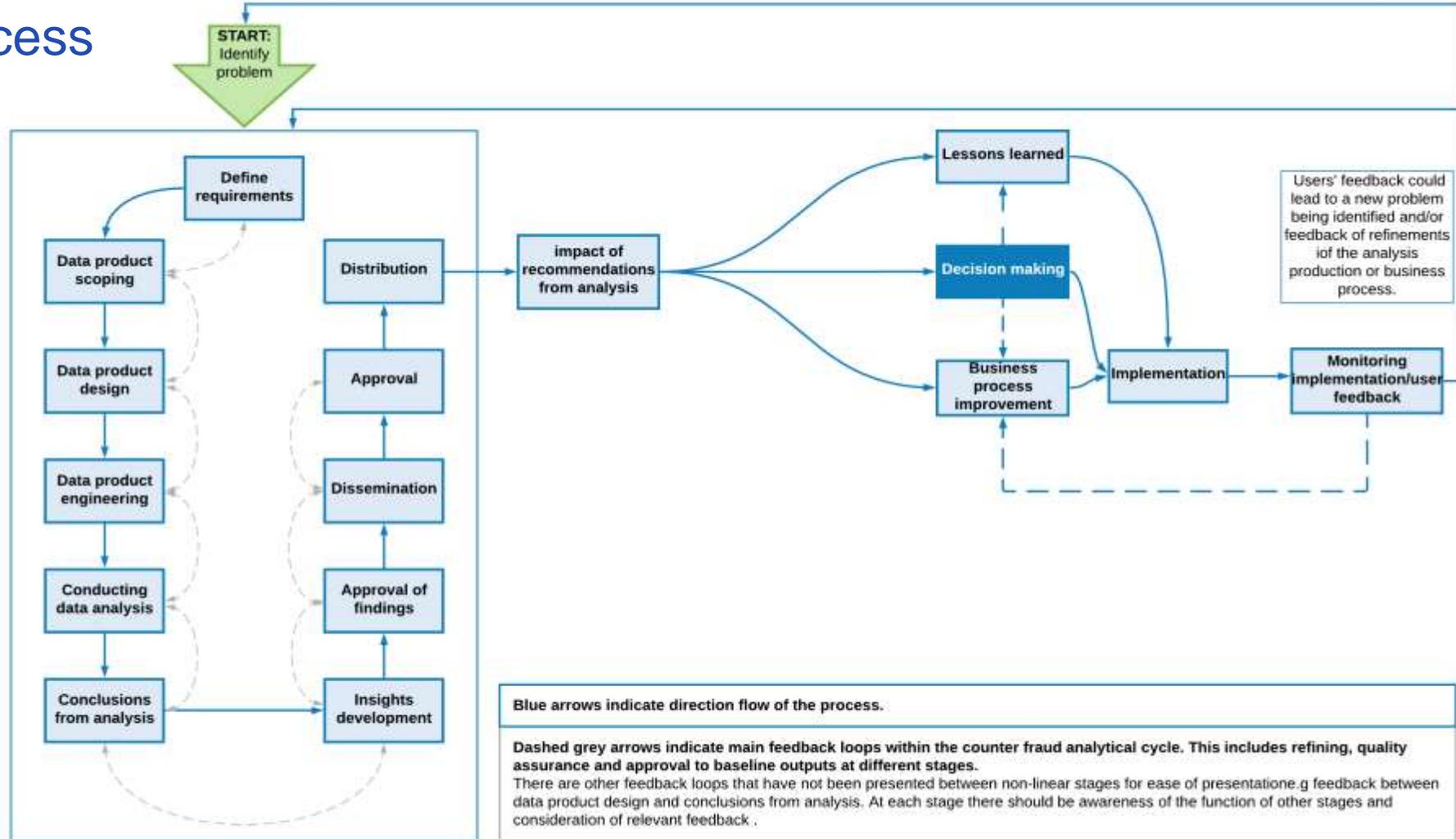# Developing the structure for the Counter Fraud 'Use of Data & Analytics' Standard

| Scope and Purpose: | What are we using Data & Analytics for? | Process: | What stages are needed for Data & Analytics to achieve it's purpose? | Activities & functions | What activities and functions are involved throughout the process? | Skills | What skills are required to undertake these activities and functions? | Existing stock of skills | Current demand & supply of skills to understand capability development needed. |

Purpose & Scope of the Use of Data & Analytics Standard

Process

Activities & functions within process stages
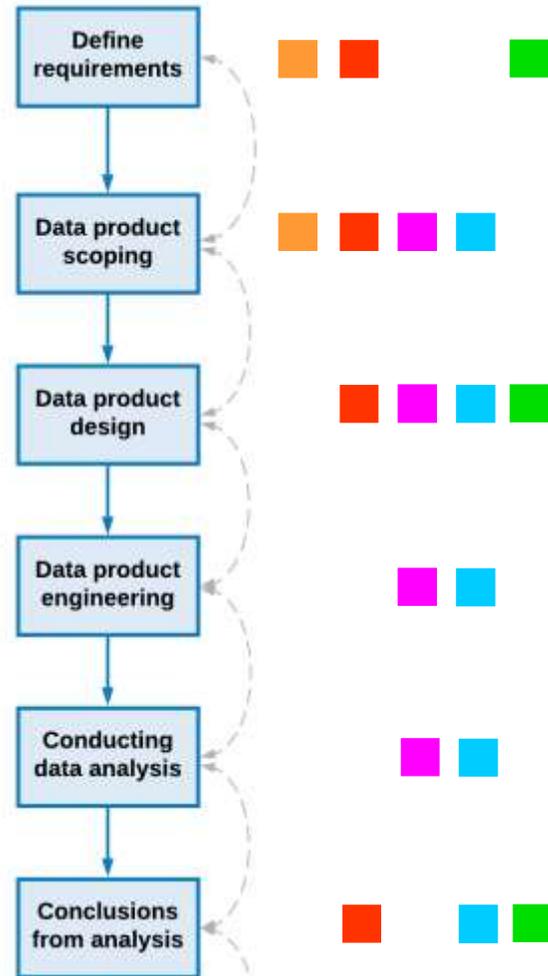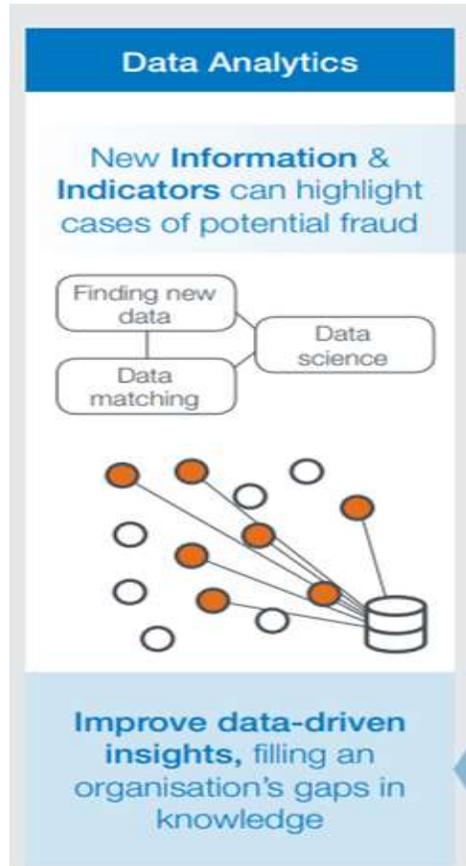
Data & Analytics Management

Fraud Business Analysis
Designs data and analytical projects. Translates and reframes fraud problem from data and analytics perspective. Builds picture of fraud risk and data required to identify it and scope out the work involved. Sets direction & maintains oversight of outcomes delivery for data and analytical projects.

Data Engineering
Building, maintaining and delivery of data products to be used for analysis for the data project. Could involve data warehousing, data architecture, data infrastructure, data engineering, data cleaning, data quality.

Data Analysis
Analyses and applies analytical techniques to transformed data to pull out potentially useful information to inform conclusions and develop insights.

Insights development

Cabinet Office

Skills for Data & Analytics

Components relating to delivery, management and best practice for data & analytics services and products.

Components relating to understanding users' & stakeholders' needs.

Components relating to specialist data & and analytical skills.

Components relating to impact & implementation.

Data & Analytics Service management

Management of the Data and Analytics Service; sets strategic direction, organises resources, establishes culture and implementation of best practice.
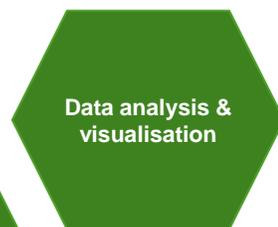
Counter fraud knowledge

Knowledge of counter fraud landscape; counter fraud context, business, processes environment and culture.

Stakeholder engagement & management

Building and maintaining a network of counter fraud stakeholders both internally and externally to the organisation.

Analytical projects delivery

Designing and delivering data and analytics solutions for fraud related problems.

Data and Analytics governance & ethics

Legislative, departmental and ethical policies, requirements and considerations when working with data.

Data management & preparation

Processes and practices for data management and preparing data for data analysis.

Data analysis & visualisation

Using and applying analytical methodologies, techniques and data visualisation to find, evaluate and present useful information to provide insights into counter fraud problems.

Interpretation & dissemination

Using and developing data analysis outputs to develop and share insights that Counter Fraud Professionals and operational stakeholders can use for decision making and/or improve processes.

Implementation & continuous improvement

Working with that Counter Fraud Professionals and operational stakeholders to translate insights into actionable changes and improve the quality and application of data and analytics.

Hexagon labels:
- Data & Analytics Service management
- Counter fraud knowledge
- Stakeholder engagement & management
- Analytical projects delivery
- Data and Analytics governance & ethics
- Data management & preparation
- Data analysis & visualisation
- Interpretation & dissemination
- Implementation & continuous improvement

Skills details

Data analysis

|			
1	Inquisitive mind-set	15	Data matching
2	Managing routine & ad-hoc data analysis requests	16	Analytical techniques for counter fraud data analysis
3	Using data tools to gather analysis	17	Exploratory data analysis
4	Using analytical approaches & methodologies for fraud problems	18	Qualitative & behavioural analysis
5	Data analysis	19	Technologies for counter fraud data analysis
6	Descriptive analytics	20	Testing counter fraud data analysis
7	Diagnostic analytics	21	Statistical interpretation
8	Predictive analytics	22	Inconsistencies between similar counter fraud analyses
9	Prescriptive analytics	23	Developing counter fraud metrics & statistical indicators
10	Cognitive analytics	24	Impact(s) of counter fraud data analysis
11	Statistical sampling	25	Presentation & visualisation for counter fraud data & analysis
12	Data collection types & methods	26	Technologies for counter fraud data & analysis visualisation
13	Working with large datasets	27	Quality assurance of counter fraud data analysis outputs & products
14	Working with incomplete datasets	28	Version control & documentation of counter fraud data analysis

Current skills stock

Use of Data & Analytics discipline: An intersection of specialist skills.
Requires some specialist skills from counter fraud and some from data analytics; these are currently sourced from two professions.

Counter Fraud Profession

Specialist skillset: Knowledge of counter fraud, prerequisite to entry: knowledge developed either through experience and/or relevant academic background.
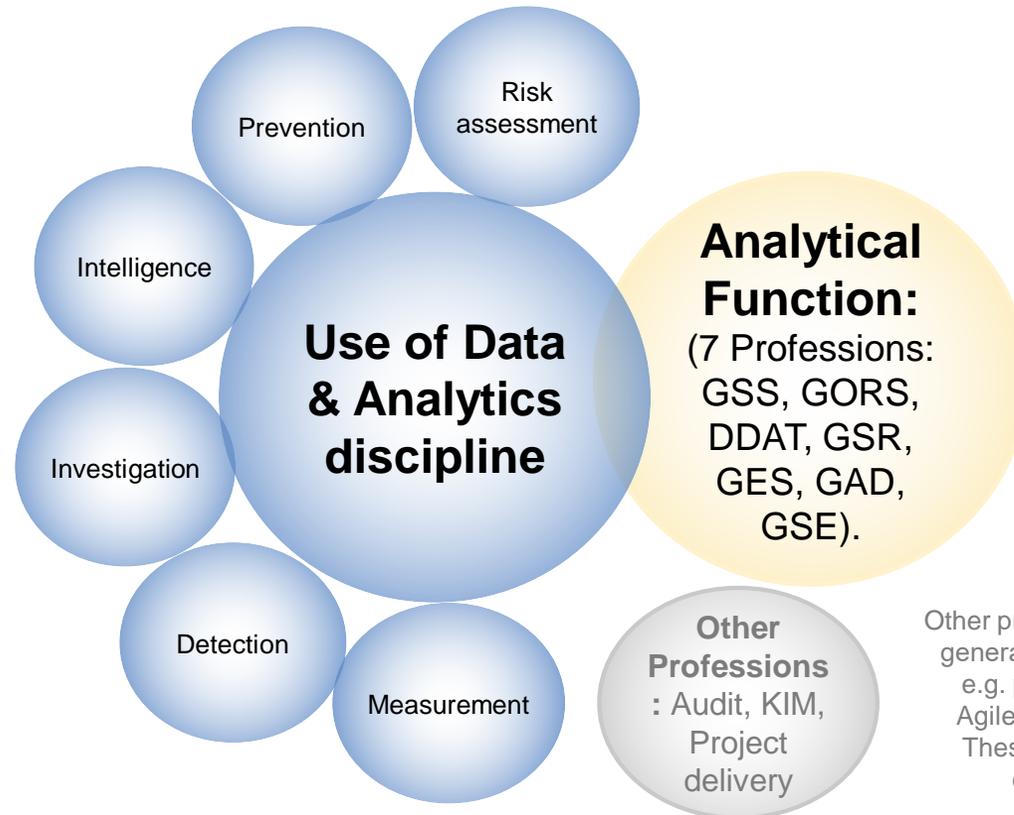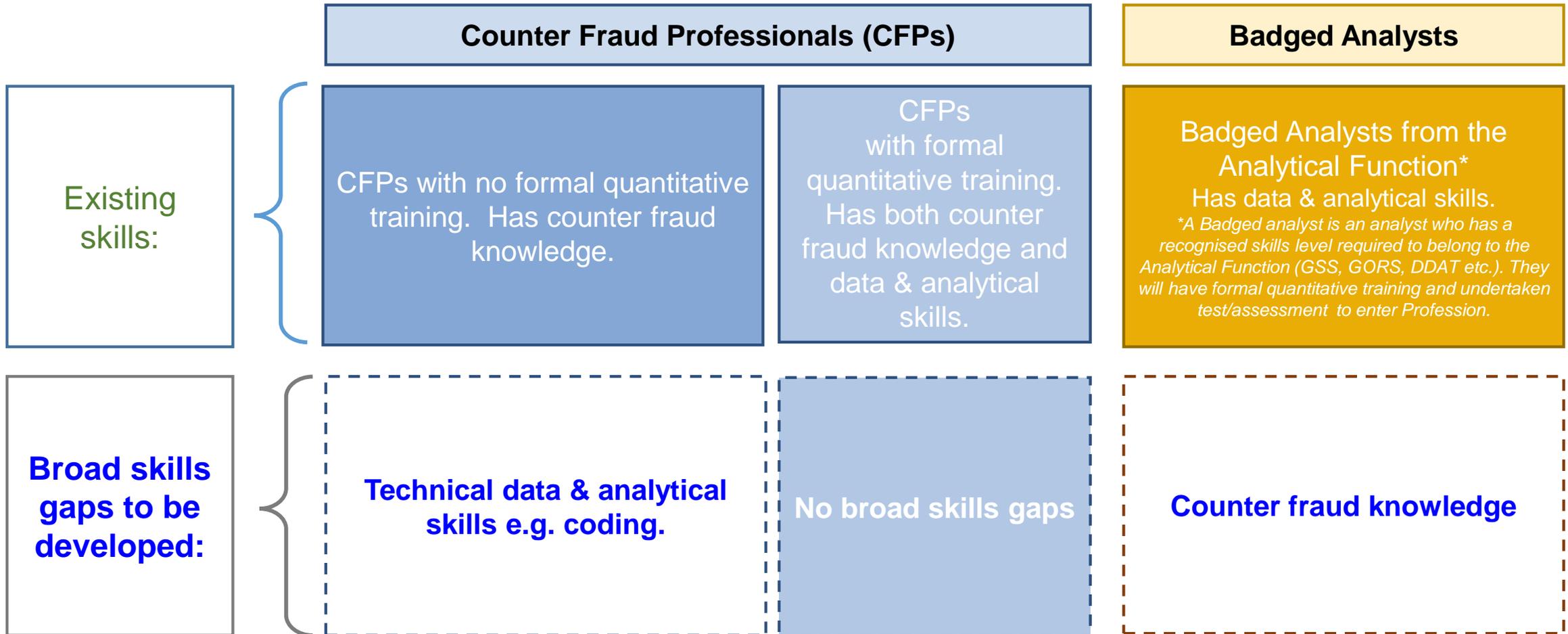
Analytical Professions

Analytical Function: Specialist skillset: Knowledge of data analytics, prerequisite to entry: formal quantitative training.

Prevention

Risk assessment

Intelligence

Use of Data & Analytics discipline

Analytical Function:
(7 Professions: GSS, GORS, DDAT, GSR, GES, GAD, GSE).

Investigation

Detection

Measurement

Other Professions: Audit, KIM, Project delivery

Other professions - skills that crossover are generally not required at 'specialist' level e.g. project delivery skills needed but Agile/Prince qualification not required. These skills are enablers to carry out counter fraud data analytics.

Current skills stock: Skills gaps

Counter Fraud Professionals (CFPs)		Badged Analysts

Existing skills:

CFPs with no formal quantitative training. Has counter fraud knowledge.	CFPs with formal quantitative training. Has both counter fraud knowledge and data & analytical skills.	Badged Analysts from the Analytical Function* Has data & analytical skills. *A Badged analyst is an analyst who has a recognised skills level required to belong to the Analytical Function (GSS, GORS, DDAT etc.). They will have formal quantitative training and undertaken test/assessment to enter Profession.

Broad skills gaps to be developed:

Technical data & analytical skills e.g. coding.	No broad skills gaps	Counter fraud knowledge

Implementation of the standard

Different organisations will have different uses for counter fraud data analytics and will vary in the level and maturity of their analytical resource, so there will be differences in how these resources are arranged.

We have identified three broad structures for arranging analytical resources:

1) **Organisation in infancy with developing counter fraud data analytics or with a lower requirement for counter fraud data analytics.**

2) **Organisation building analytical capability to take on more complex counter fraud analytics but still in development phase and/or with limited resource**

3) **Organisation that is mature in it's use of counter fraud analytics with an established counter fraud data and analytics service:**

Across these three structures the standard will:

➢ Develop access routes for professionals and non-professionals into counter fraud data analytics.

➢ Improve confidence across government organisations on the management and use of data to produce high quality outcomes.

➢ And thereby Develop government's capability to access and use data professionally to counter fruad

For further information contact:

fraud.data@cabinetoffice.gov.uk