



Cabinet Office

Good Practice in Data Analytics

Yvonne Addison and Sarah Windress 16th May 2019

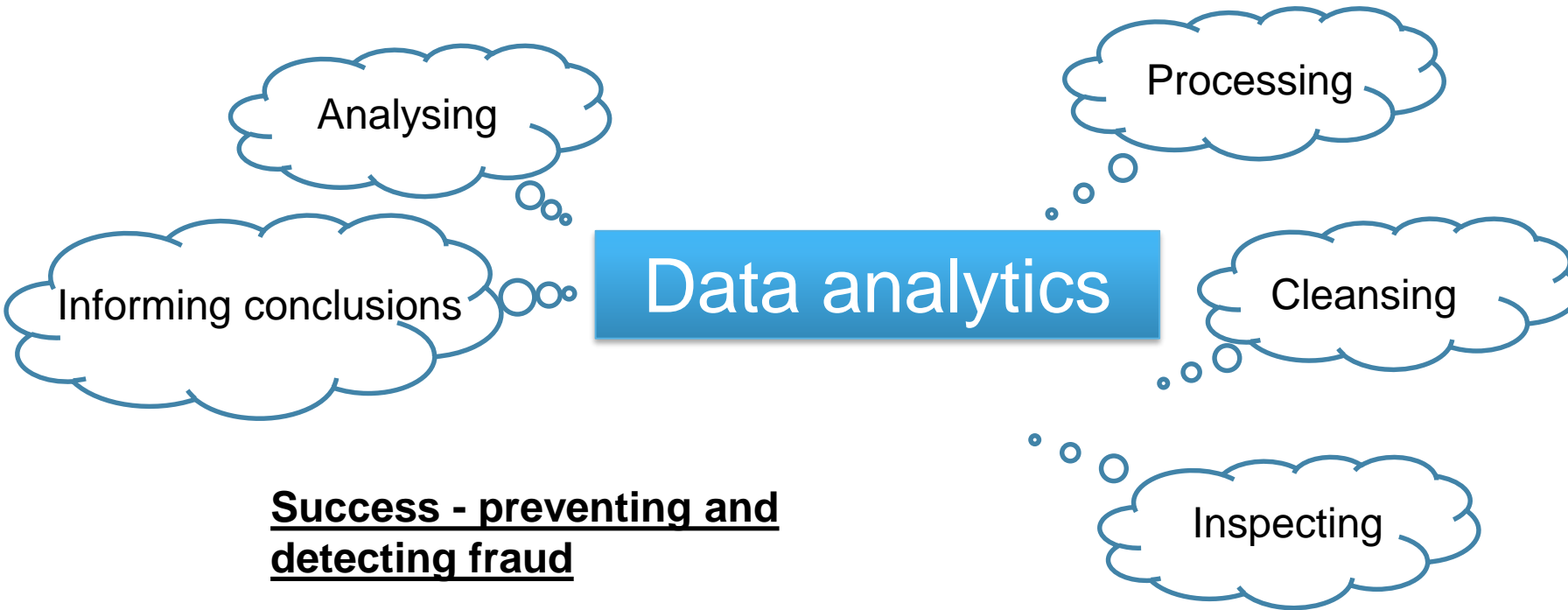


Overview

1. Data Analytics – Definition
2. Challenges
3. Good Practice Examples
4. Running a Pilot/Project
5. Detection and Prevention
6. AppCheck – A tool available to you
7. Your Fraud Problems



Definition – a broad and ever evolving one!



Success - preventing and detecting fraud

- Data mining
- Predictive analytics
- Machine Learning
- Artificial Intelligence
- Data matching
- Outlier Analysis



Challenges - Which camp(s) are you in?

Legal issues prevent data sharing	A lack of available capability
Poor data quality	Capable and equipped with good data quality





Good Practice: Successful data analytics pilots

Fraud Problem or Risk

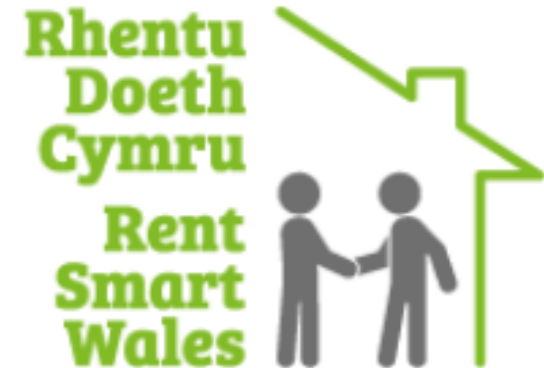
- Landlords not registering themselves and their rental properties with RSW

Solution

- Match RSW data (264,000 records) to:
 - Housing Benefit data with 'privately rented' flag (67,000 records)
 - LA Landlord information to append Landlord details
- Identify where privately rented properties were not registered
- Options to scale and bring into business as usual (BAU)

Outcomes

- Initial phase progressing 400 matches
 - Resulted in 268 (67%) registrations





Good Practice: Successful data analytics pilots

Fraud Problem or Risk

Recipients of English Local Authority benefits and services are fraudulently under-declaring or omitting their income, capital or property.



Solution

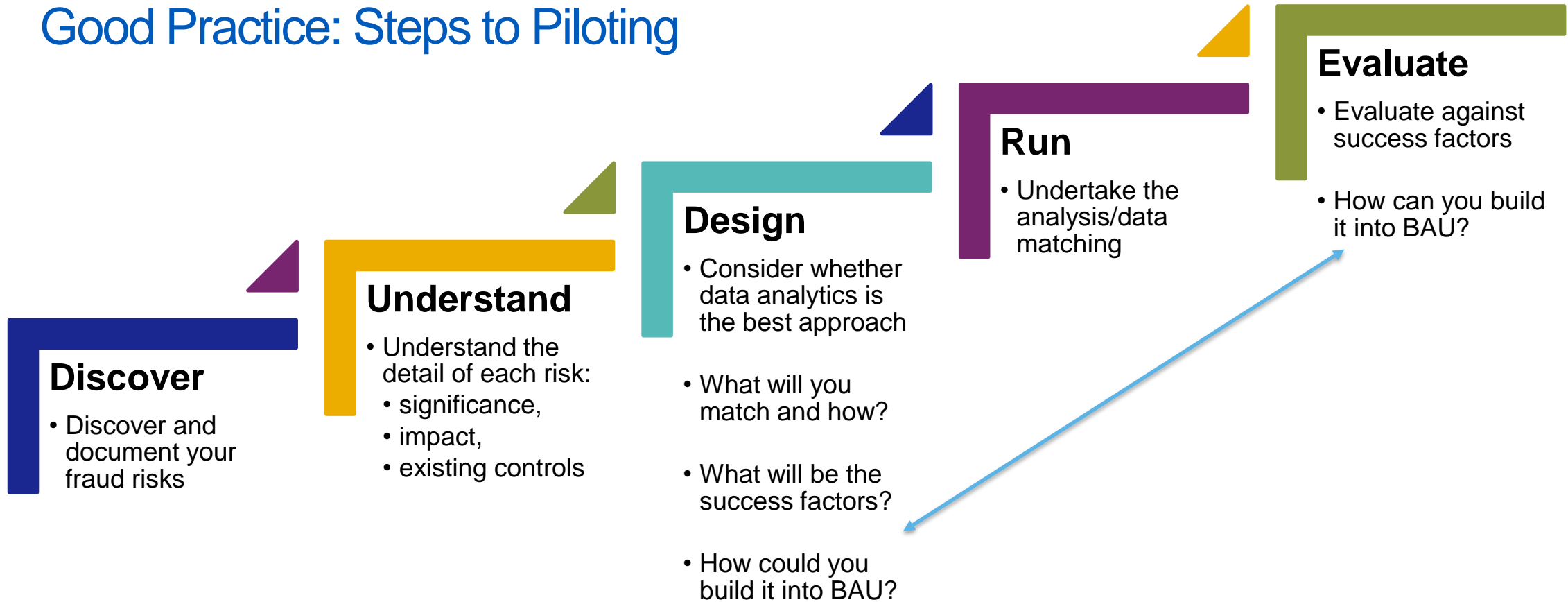
- Match HMRC data:
 - Employment Earnings
 - Self Assessment
 - Stamp Duty Land Tax
- Match to NFI data:
 - Housing Tenants
 - Right to Buy
 - Housing Benefits
 - Council Tax Reduction Scheme
 - Personal Budgets
 - Payroll
 - Residential Care Home
 - Council Tax Single Person's Discount

Outcomes

The pilot is being trialed with 10 Local Authorities with an interim report to the Digital Economy Act (DEA) review board in May 2019. Subject to approval, matches will then be rolled out to all English Local Authorities and we will report back to DEA in April 2020.



Good Practice: Steps to Piloting

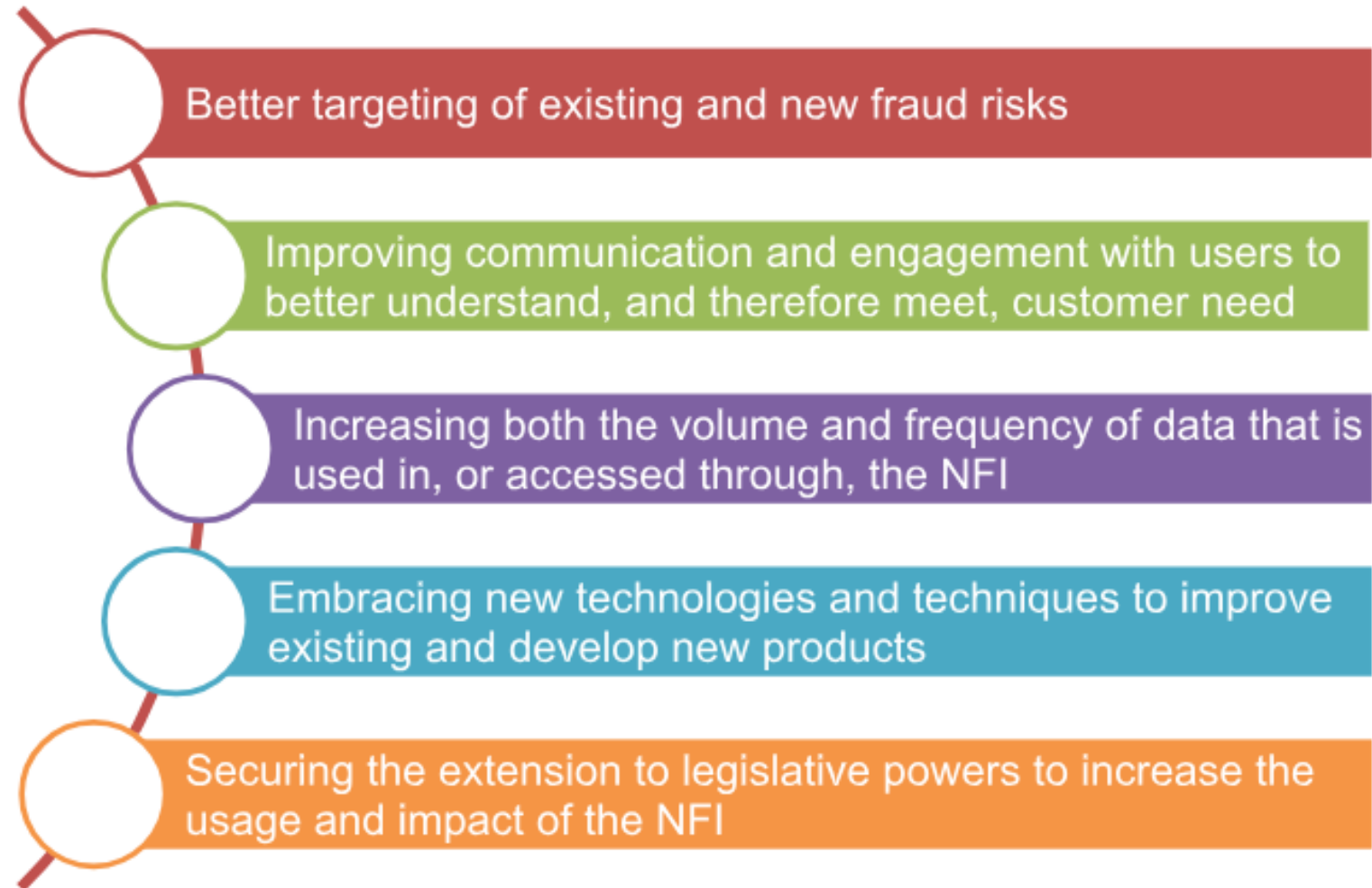




NFI Strategy

National Fraud Initiative

4 Year Strategy (2018 – 2022)





Detection **AND** Prevention

- Public sector data analytics relating to fraud in the UK has been largely focused on detection
- UK Legislation (PAA (Wales), LAAA, DEA) allows public bodies to share data for data matching and ICO regime is designed to facilitate data sharing not obstruct
- To address the changing counter fraud focus to prevention, in 2015 the NFI introduced AppCheck
- The challenge is to use data analytics more to prevent fraud

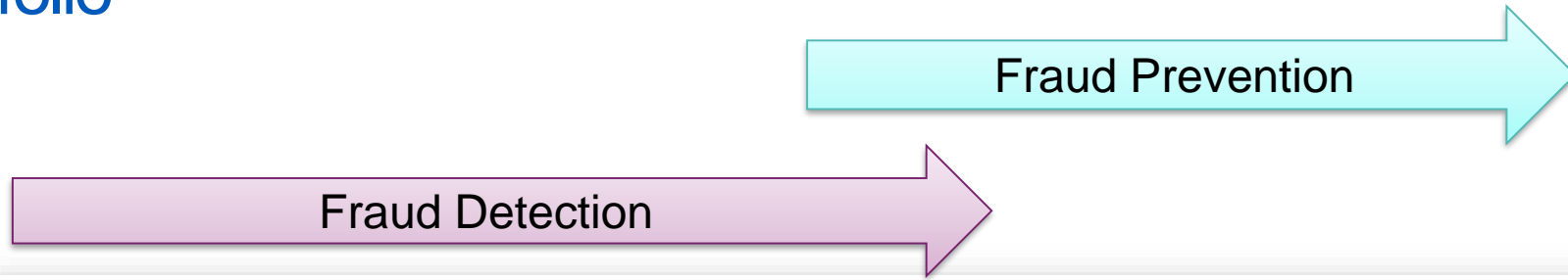
Prevention +/-

- + Stops fraud getting into your systems
- + No costly investigation
- + No lost £ (write offs)
- More administration at application stage
- £ benefits not always as visible





NFI Portfolio



A grid of four items, each with a title and a background image:

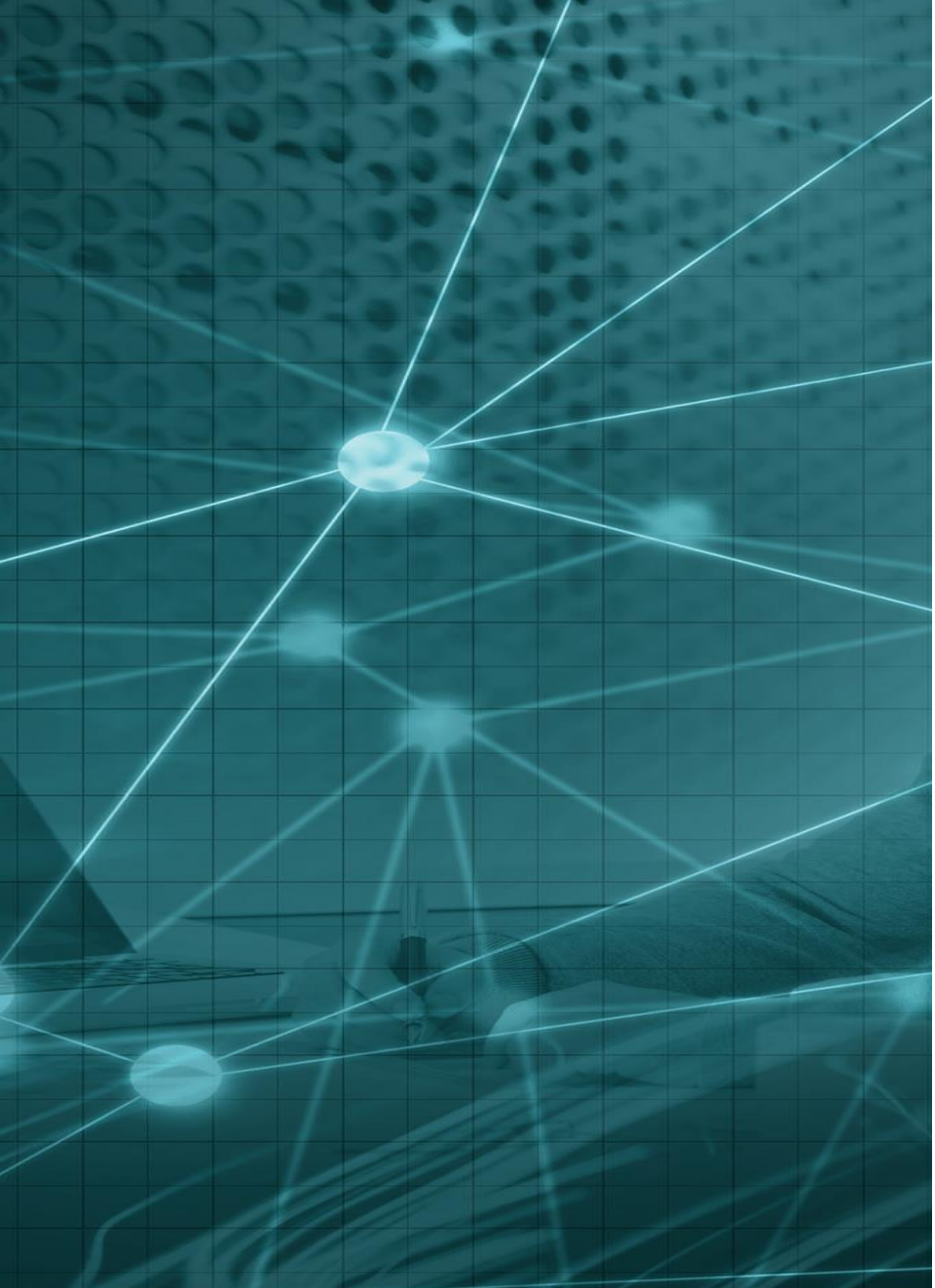
- NATIONAL EXERCISES**: Background image of a purple and pink abstract pattern.
- RECHECK**: Background image of a blue abstract pattern.
- FRAUDHUB**: Background image of a green abstract pattern.
- APPCHECK**: Background image of a blue abstract pattern.



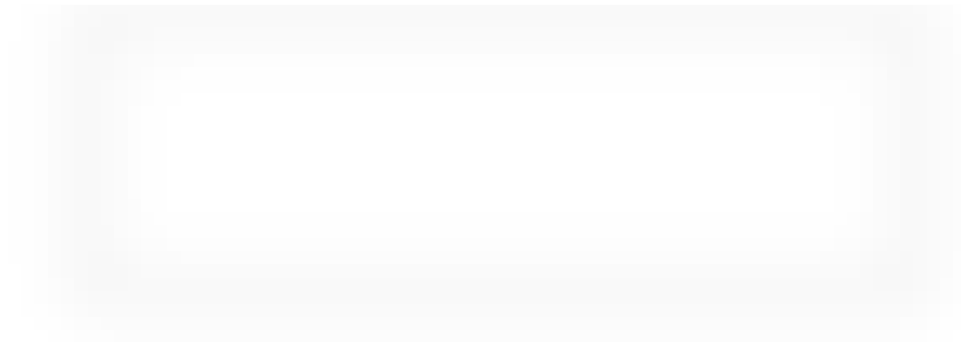
AppCheck – Why should I use it?

- Fraud prevention capability stopping fraud entering systems
- Designed for use by public bodies, in particular local government
- Provides you with a LEGAL, CAPABLE, DATA RICH solution
- AppCheck annual membership cost is covered for Welsh bodies
- Case studies show it works





AppCheck Demo





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Log in to the NFI web application and navigate to AppCheck

HOME ▾ NATIONAL EXERCISES ▾ RECHECK ▾ **APPCHECK ▾** FRAUDHUB ▾ ADMINISTRATION ▾ CONTACT ▾ HELP ▾

MAINTENANCE
Please Note - The NFI Web Application will be unavailable from 5pm 16 May 2019 until 8am 17 May 2019 for scheduled maintenance.

THE NFI TEAM

Home | AppCheck

APPCHECK

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AppCheck

AppCheck is the fraud prevention and application verification solutions, powered by the intelligence gathered as part of the National Fraud Initiative.

By validating and authenticating an individual against one of the most sophisticated datasets available AppCheck can help your organisation reduce the number of fraudulent or mistaken claims made.

Moving to a fraud prevention model is far more cost effective and easier than you think. AppCheck can also be linked to your existing systems via API (Application Process Interface) allowing you to check the validity of the application in seconds.

The application can be used by multiple departments or users across your organisation to ensure you are fully protected.

If you are not already using AppCheck for a free no obligation trial select the option below or for more information and charges please email nfiqueries@cabinetoffice.gov.uk.

▶ APPCHECK SEARCH **▶ ALL PREVIOUS SEARCHES**

▶ MY PREVIOUS SEARCHES **▶ APPCHECK ADMINISTRATION**

▶ PRIVACY NOTICE COMPLIANCE (APPLICATIONS)



You are presented with the AppCheck data entry screen

1. Select application type

Blue Badge Parking Permit	Concessionary Travel Pass	Council Tax (single person discount)	Council Tax Reduction Scheme	Deferred Pensions
Electoral Register	Financial Data	Housing Benefit Claimants	Housing Tenants	Market Traders
Payroll	Pensions	Pensions Gratuities	Personal Alcohol Licence	Personal Budgets
Private Residential Care Homes	Resident Parking Permit	Right to Buy	Student Loans	Taxi Drivers
Waiting List				

2. Enter applicant's details

NI Number

Forename

Surname

Middle Names

Date of Birth

[+ Search for another applicant](#)

[✓ Search](#)



Select the Application Type

Example 1: Housing Tenancy Application

1. Select application type

Blue Badge Parking Permit	Concessionary Travel Pass	Deferred Pensions	Housing Benefit Claimants	Housing Tenants
Insurance Claimants	Market Traders	Payroll	Pensions	Pensions Gratuities
Personal Alcohol Licence	Personal Budgets	Private Residential Care Homes	Resident Parking Permit	Right to Buy
Student Loans	Taxi Drivers	Waiting List		



Enter the applicants details

2. Enter applicant's details

NI Number

Forename

Surname

Middle Names

Date of Birth

229 Unix Street
Haslinghall
Haslingshir
ZF839PP

DUMMY DATA

Applicant does not have an address

[+ Search for another applicant](#)

[✓ Search](#)



The results are displayed side by side – Search data versus Matched Data

Matching Date : 13/05/2019 16:42:12

Previous Searches
Previous Match
Next Match
Match 1 Of 2814

Your Search Data

Match Type	Housing Tenants
Forename	Drew
Surname	Carey
Date Of Birth	17/12/1982
NI Number	MF845628
Addresses	229 Unix Street Haslinghall Haslingshire ZF839PP
Gender	
Reference Number	
Unique ID	8a5156a9-9575-e911-8ef5-0050569c743c Copy To Clipboard
	Run Credit Check

Comment/Outcome History

Application Outcome? Application Accepted Application Declined Application Withdrawn Application Under Review

Reason for application being declined?



Match Data [Expand](#)

Name	Drew Carey	Match Type	Housing Benefits
Address 1	266 Manhattan Road	Postcode	BS53 6BB
	Run Credit Check		



Match Data [Expand](#)

Name	Drew Carey	Match Type	Payroll
Address 1	229 Unix Street	Postcode	ZF83 9PP
	Run Credit Check		



Match Data [Expand](#)

Name	Drew Carey	Match Type	Council Tax
Address 1	229 Unix Street	Postcode	ZF83 9PP
	Run Credit Check		



Result Indicators



Verified: the data match verifies the details of the application



Review: the data match contradicts the details of the application



Potential Fraud: the data match indicates the application may be fraudulent



Left hand side:

- Search details
- Outcomes recording

Your Search Data	
Match Type	Housing Tenants
Forename	Drew
Surname	Carey
Date Of Birth	17/12/1982
NI Number	MF845628
Addresses	229 Unix Street Haslingstall Haslingshire ZF839PP
Gender	
Reference Number	
Unique ID	b150b833-a3b5-e611-aabb-005056a85a18
Comment/Outcome History	
Application Outcome?	<input type="radio"/> Application Accepted <input type="radio"/> Application Declined <input type="radio"/> Application Withdrawn
Reason for application being declined?	<input type="text"/>
<input type="button" value="Record Outcome"/>	

DUMMY DATA



The results are displayed side by side – Search data versus Matched Data

Matching Date : 13/05/2019 16:42:12

Your Search Data

Match Type	Housing Tenants
Forename	Drew
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Match Data [Expand](#)

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Address 1	266 Manhattan Road	Postcode	BS53 6BB
	Run Credit Check		

Match Data [Expand](#)

Name	Drew Carey	Match Type	Payroll
Address 1	229 Unix Street	Postcode	ZF83 9PP
	Run Credit Check		

Match Data [Expand](#)




Name	Drew Carey	Match Type	Council Tax
Address 1	229 Unix Street	Postcode	ZF83 9PP
	Run Credit Check		



Conclusion:
AppCheck has confirmed the applicant's details to a payroll record and a council tax record.

This provides assurance that the individual is who they say they are and have a footprint at the address.

However, AppCheck has also identified a current HB claim  at a different address

	Match Data Expand		
	Name	Drew Carey	Match Type
	Address 1	266 Manhattan Road	Postcode
			Housing Benefits
			BS53 6BB
	Match Data Expand		
	Name	Drew Carey	Match Type
	Address 1	229 Unix Street	Postcode
			Payroll
			ZF83 9PP
	Match Data Expand		
	Name	Drew Carey	Match Type
	Address 1	229 Unix Street	Postcode
			Council Tax
			ZF83 9PP

DUMMY DATA



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Example 2 : Council Tax Single Person Discount Application

Check the Search details

Your Search Data	
Match Type	Council Tax (single person discount)
Forename	Nancy
Surname	Carmen
Date Of Birth	06/03/1973
NI Number	
Addresses	208 Sesame Street Haslingstall Haslingshire ZD657DD
Gender	
Reference Number	
Unique ID	352ef522-a5b5-e611-aabb-005056a85a18
Comment/Outcome History	
Application Outcome?	<input type="radio"/> Application Accepted <input type="radio"/> Application Declined <input type="radio"/> Application Withdrawn
Reason for application being declined?	<input type="text"/>
<input type="button" value="Record Outcome"/>	

DUMMY DATA



Conclusion: In this example, AppCheck has identified that the applicant is living at the property.

However, it has also identified two other individuals living at the property who may have not been declared and may invalidate the applicants right to Single Person Discount.



Match Data Expand			
Name	Mariah Carey	Match Type	Payroll
Address 1	208 Sesame Street	Postcode	ZD65 7DD
Match Data Expand			
Name	Eric Carmen	Match Type	Housing Tenants
Address 1	208 Sesame Street	Postcode	ZD65 7DD
Match Data Expand			
Name	Eric Carmen	Match Type	Housing Benefit Claimants
Address 1	208 Sesame Street	Postcode	ZD65 7DD
Match Data Expand			
Name	Nancy Carmen	Match Type	Housing Tenants
Address 1	208 Sesame Street	Postcode	ZD65 7DD

DUMMY DATA



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Additional AppCheck functionality (fee applies)

You can request a Pre- Investigation Credit Check or List of Residents Report

- A credit check form will appear on screen and will be pre-populated ready to send to CRA
- The report is returned in AppCheck

Credit Check

Title	<input type="text"/>
First Name	<input type="text"/>
Surname	<input type="text"/>
Date of Birth (dd/mm/yyyy)	<input type="text"/>
House Name/Number	<input type="text"/>
Street	<input type="text"/>
Street2	<input type="text"/>
District	<input type="text"/>
City	<input type="text"/>
Postcode	<input type="text"/>

Split

Select "Split" to separate the house number from the street name. If the first line of the address is a property name, please split the property name and street name manually.

Credit Check Report Type

Pre Investigation Report

List Residents Report

Section 29 Confirmation Statement

- We certify that we are making enquiries concerning the prevention and detection of crime and / or the apprehension or prosecution of offenders and / or the assessment or collection of any tax or duty or of any imposition of a similar nature.
- The personal data requested is required for that / those purpose(s) and we believe that to apply the principles of the Data Protection Act 1998 would be likely to prejudice the investigation.
- We confirm that this search has been authorised by a officer of appropriate authority.

I confirm the above statement as true.

Section 35 Confirmation Statement

- We certify that we are making enquiries where the disclosure is required by or under any enactment, by any rule of law or by the order of a court, or for the purpose of, or in connection with, legal proceedings, or prospective legal proceedings.
- The personal data requested is required for that / those purpose(s) and we believe that to apply the principles of the Data Protection Act 1998 would be likely to prejudice the investigation.
- We confirm that this search has been authorised by a officer of appropriate authority.

I confirm the above statement as true.

Charges for a Credit Check report are NOT included in your standard NFI contract. By clicking on [Run Credit Check], you agree to be charged £1.00 + VAT for the report. Please ensure that you have the relevant authority from within your organisation to make this purchase.

Previous Searches
PreInvestigation 10/09/2017



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AppCheck can help you reduce your application fraud risks



CT Single Person Discount



Personal Budgets



Housing Tenancy



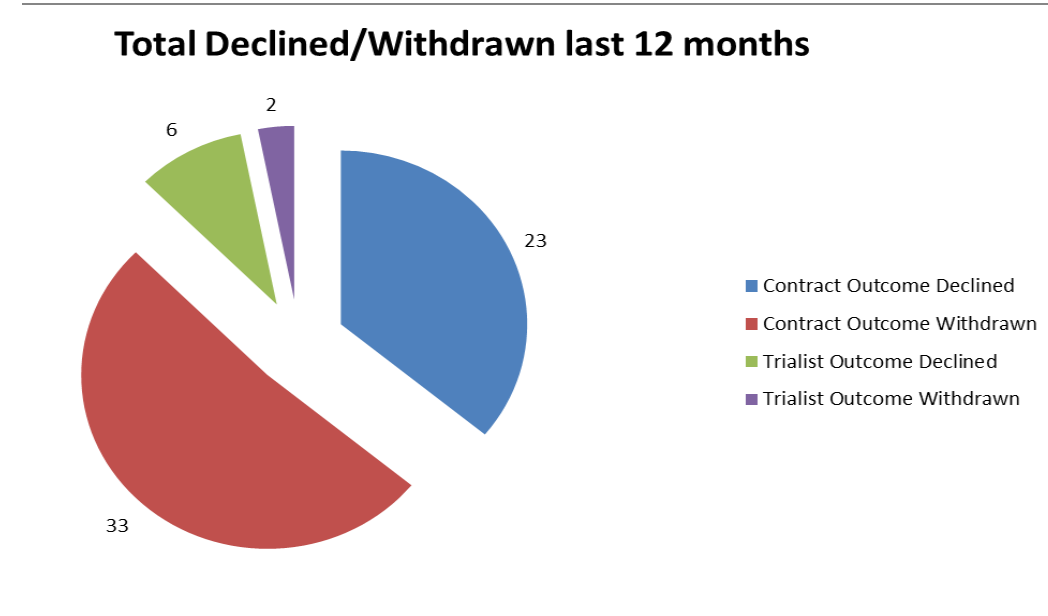
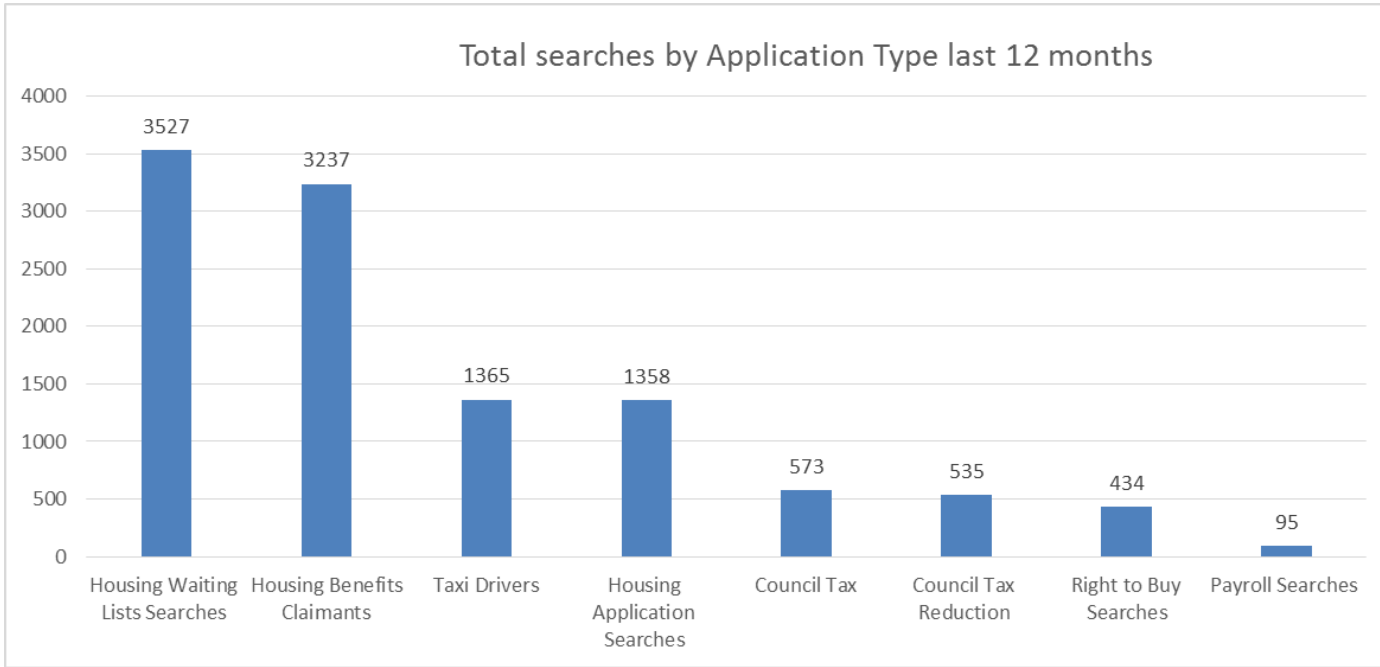
Housing Waiting List



Housing Benefit



Total searches by application type – English Bodies





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Group Discussion



DISCOVER - What risks are on your radar?





TAXI DRIVERS



OCCUPATIONAL PENSIONS



PERSONAL ALCOHOL LICENSES



RIGHT TO BUY



ELECTORAL ROLL



MARKET TRADERS



STUDENT LOANS



FRAUDULENT IDENTITIES (AMBERHILL DATA)



STATE BENEFITS

1/3

Billion Records



HOUSING BENEFIT CLAIMANTS



PERSONAL BUDGETS



DEFERRED PENSIONS



INSURANCE CLAIMANTS



HOUSING TENANTS



PRIVATE RESIDENTIAL CARE HOMES



HOUSING WAITING LISTS



CONCESSIONARY TRAVEL PASSES



CREDIT REFERENCING DATA



DDRI DECEASED PERSONS



BLUE BADGE HOLDERS



Companies House



PAYROLL



Group Discussion

List two fraud risks on your radar you think AppCheck specifically might help you address.

List two further fraud risks where AppCheck would not work and why.

(10 minutes)

One person to feedback from each group

