

# Dynamic decision making at HMRC

Moving to data as a product during a pandemic on  
HMRC's Customer Insight Platform

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HM Revenue  
& Customs

WHO ARE

# HMRC AND CIP

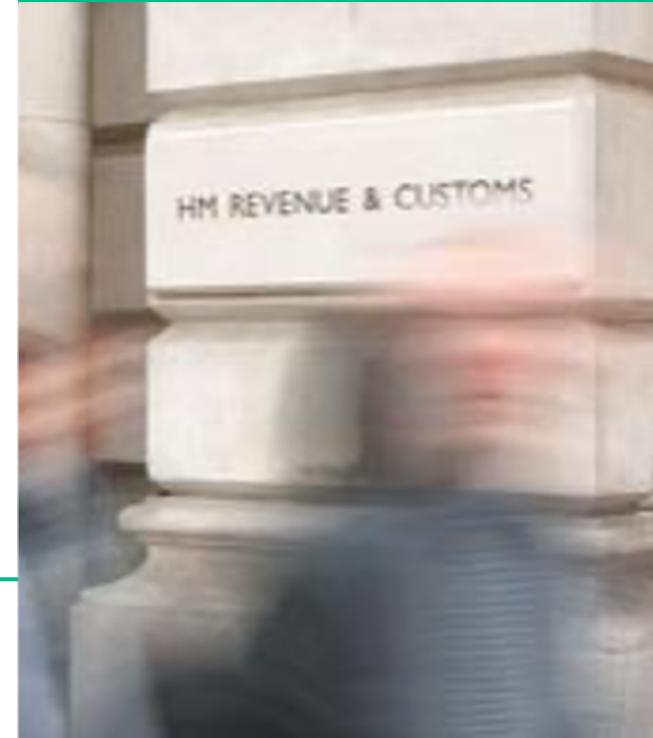


## WHO ARE HMRC AND CIP?

**HMRC are the UK's tax, payments and customs authority.**

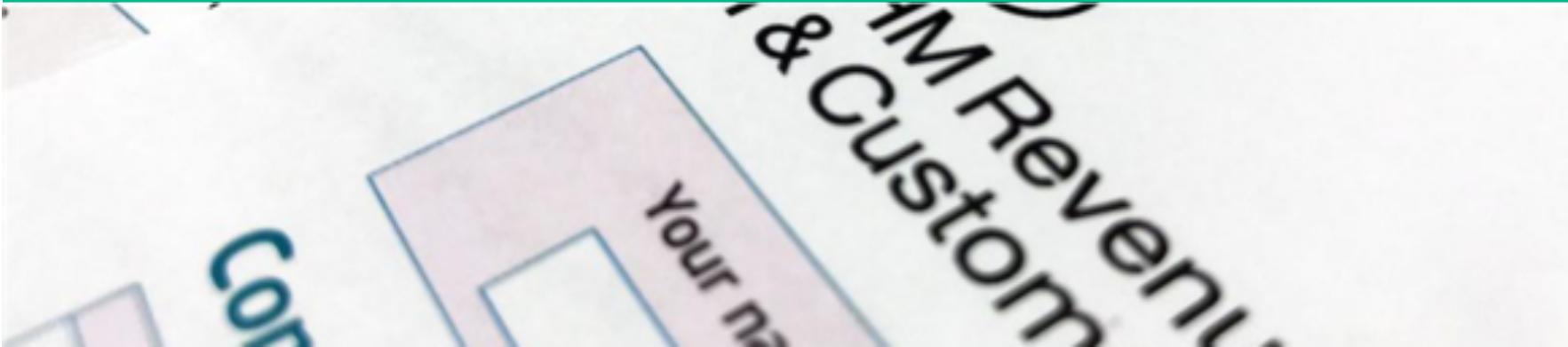
HMRC collect the money that pays for the UK's public services, CIP is the part of HMRC that collects, evaluates and helps analyse interaction data.

Our data is behind decision-making across the whole organisation.



OUR JOURNEY

# OUR OLD APPROACH



## OUR JOURNEY OUR OLD APPROACH



**Analysts did all the hard work, while our role was limited to collect and store data, far away from policy makers**

Analysts had a lot of control but their process was very manual, reactive and difficult to scale...we provided insight on the data but change was difficult working far from policy makers and with a rigid Cloud infrastructure

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OUR JOURNEY

# A PANDEMIC



COVID-19

# THE CHALLENGE



*City Hall Project and Other Local Initiatives.*

*Today I can announce the next step in the economic fight against the Coronavirus pandemic, with new support for the self-employed.*

*Our step-by-step action plan is aiming to slow the spread of Coronavirus so fewer people need hospital treatment at any one time, protecting the NHS's ability to cope.*

*At every point, we have followed expert advice to be controlled in our actions – taking the right measures at the right times.*

*We are taking unprecedented action to increase NHS capacity by increasing the numbers of beds, key staff and life-saving equipment on the front-line to give people the care they need.*

## OUR JOURNEY THE ASK

**Get financial help as fast as possible to those in need.**

It was very fluid, while we didn't know how many new services were going to be needed, we knew that they would attract organised crime so we had to build in cyber controls.

Our working conditions were also changing, moving to working from home, putting strain in the existing VPN infrastructure and working practices.

# OUR APPROACH



## OUR JOURNEY A PANDEMIC

We **re-assessed our role and offering** to give  
**what analysts needed.**

Analysts needed a lot more than just having all the data stored and available, **they needed insight.**

## OUR JOURNEY A PANDEMIC

To **prepare for uncertainty, we designed for flexibility.**

Our new service had to be adaptable, scalable and reusable, so we required an infrastructure that could support these changes and a team and an environment that could deliver it.

## OUR JOURNEY A PANDEMIC

**Our solution was not new.**

The data models and insights that we had worked on for years alongside our “day job” were now needed, we finally could industrialise them, **providing insights at scale and at speed.**

## OUR JOURNEY A PANDEMIC

**We focused on well understood problems with familiar concepts.**

We took a conscious decision to focus on features like blocking or reject claims that facilitated what our customers were already doing so they were still in control.

# OUR SOLUTION



## OUR JOURNEY OUR SOLUTION

An **insight service** for more intelligent,  
dynamic and upfront risk decisions.

Baked within the front-end COVID-19 schemes,  
we dynamically assessed and provided a  
response for every claim as they were submitted,  
improving the automated service with every  
decision logged.



## OUR JOURNEY OUR SOLUTION

The first COVID-19 scheme took  
**8 weeks to build** but later  
**services only took 2 weeks.**

Our design was scalable for the team we  
had so the team grew only when  
additional features were needed and  
then, it expanded rapidly.



## OUR JOURNEY OUR SOLUTION

We recognised that the product and the design could only be executed with the right team environment

The client quickly promoted and (almost artificially) created a team culture that unashamedly looked after people



# SCALE

**226K**

Claims / hr

**100%**

assessed

**22%**

flagged

At peak, our CIP service assesses 226,000 claims per hour (3,960 per minute).

This can not be matched by manual assessments.

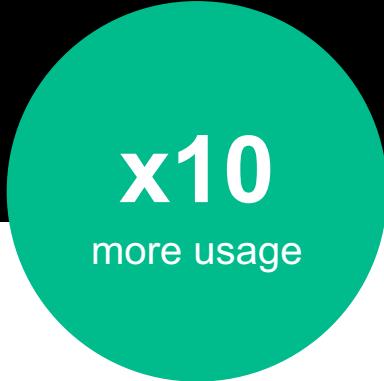
Every single one of the COVID-19 claims submitted was risk assessed upfront by CIP. The first few weeks of the schemes saw 8 million claims submitted

CIP enables fraud teams to prioritise claims.

For SSP, we accepted 78% of claims. Fraud services only needed to focus on flagged claims.

\*Figures for July 2020, the current figures are much higher

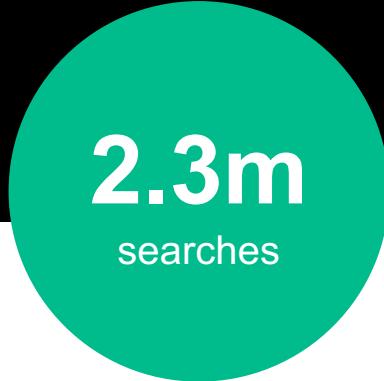
# SCOPE AND REACH



**x10**

more usage

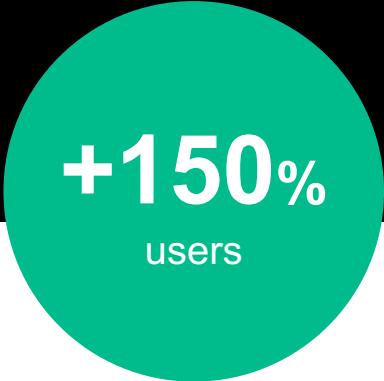
From case workers investigating cases to analysts looking for behavioral patterns, activity using our tools increased by 1,000%.



**2.3m**

searches

The number of searches made by users of the Insight Service increased by 230% (over an equivalent period).



**+150%**

users

Increase of daily internal HMRC users before and during COVID-19.

New users can use our tools quickly and at capacity.

\*Figures for July 2020, the current figures are much higher

OUR JOURNEY  
**TODAY**



## OUR JOURNEY **TODAY**

**We add value to our data by packaging it in  
products with reusable utility.**

We've decoupled business data objects that can be reused elsewhere, from the service that captures them and the intent of the data analyst.

## OUR JOURNEY TODAY

We are **expanding beyond HMRC, we have a gold plated case study.**

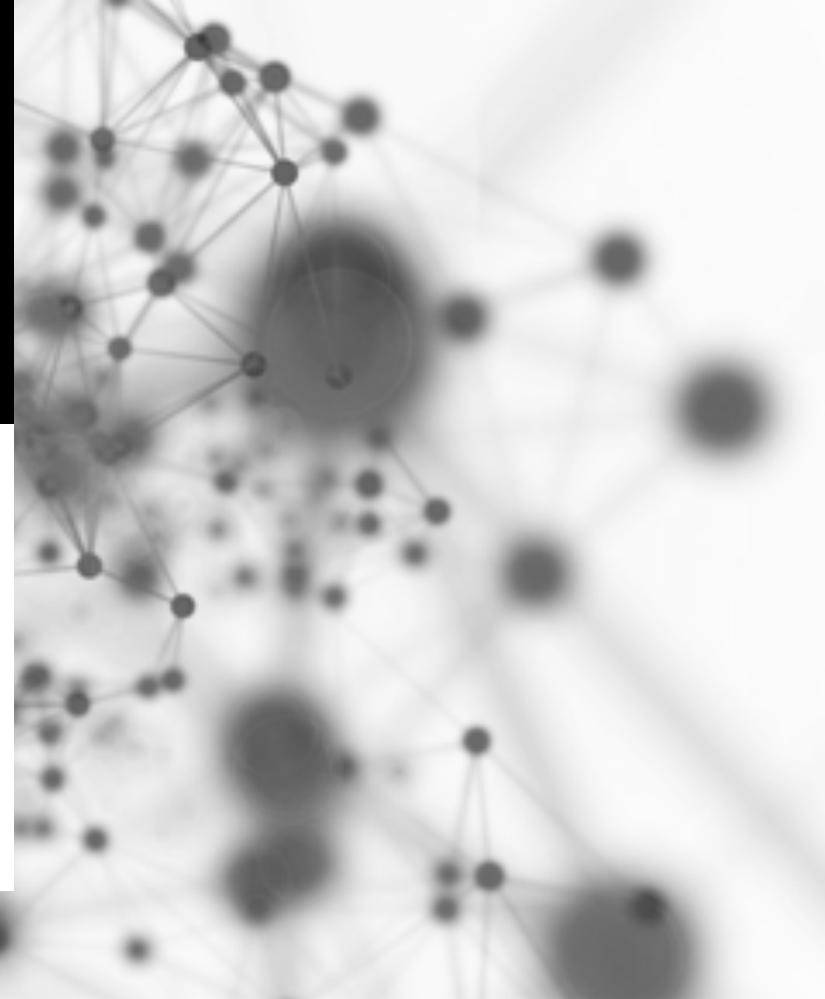
We have an **irrefutable body of evidence** proving our services support HMRC, our services have higher profile driving demand within HMRC and **wider government departments.**

# THE FUTURE ENTER THE MESH



# WE ARE NOW MOVING TOWARDS A DATA MESH ARCHITECTURE

To manage future demand we are setting ourselves up with a data mesh architecture that will allow us to build more accessible and scalable products, with end-to-end ownership of data products and pipelines.



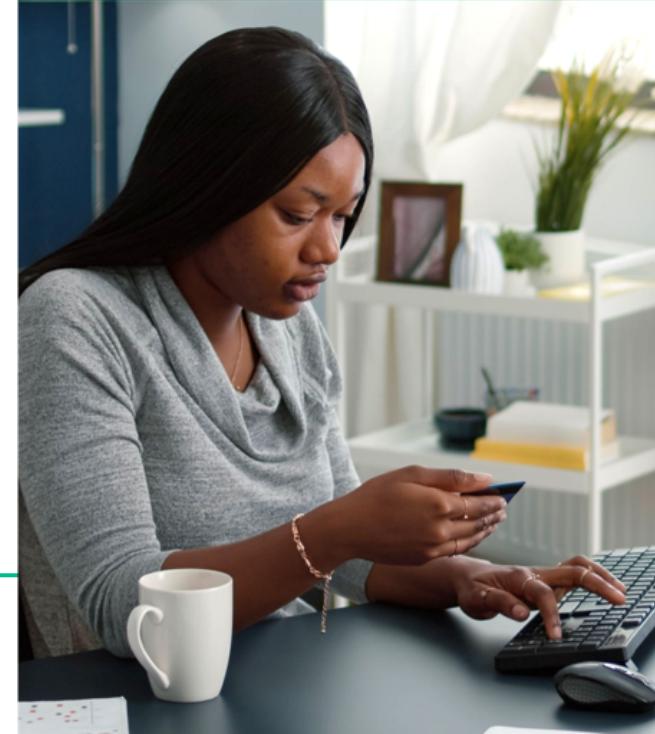
# IN SUMMARY



## IN SUMMARY

We thought deeply about how we could add value at a time of crisis.

Looking at data as a commodity and understanding its value for our customers and how it can be delivered, was key in transforming the mental model that team had of itself.



## IN SUMMARY



### Innovating in policy-making, technology, delivery and operations.

A direct line of communication with policy makers helped us to understand outcomes and innovate. A “forced” community structure, fostered from the top, helped us adapting to our new working practices.

## IN SUMMARY

Our **ability to change and scale is underpinned by our infrastructure.**

From having our own VPN to flexible cloud services, **adaptable infrastructure is essential to respond to disruption**, either from a pandemic, new threats, technologies, or changes in working practices.



# **HELP I'M LOOKING FOR**



## **HELP I'M LOOKING FOR**

### **Knowledge exchange with others working with similar challenges**

Talking to other organisations with similar experience, from data science and how to innovate in large organisations to how to fund that innovation.



# WE'D LOVE TO TALK

## THANK YOU

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