



Understanding audiences at the National Trust

Jonathon Lines, Data Scientist
Bristol Data Scientists meetup 12/02/2019



LP CENTRAL
DOT-LI MIA



A photograph of a man and a woman in National Trust uniforms. The man, on the left, is balding with glasses, wearing a dark jacket with a National Trust logo and a name tag that reads "Link Moreton". The woman, on the right, has short white hair and glasses, wearing a yellow quilted jacket and a blue and green patterned scarf. They are standing in a room with dark wooden beams and a window in the background. A green text box is overlaid on the left side of the image.

The National Trust is an independent **conservation charity** funded through memberships, donations, legacies and commercial operations

Our mission
has not *really*
changed
since 1895

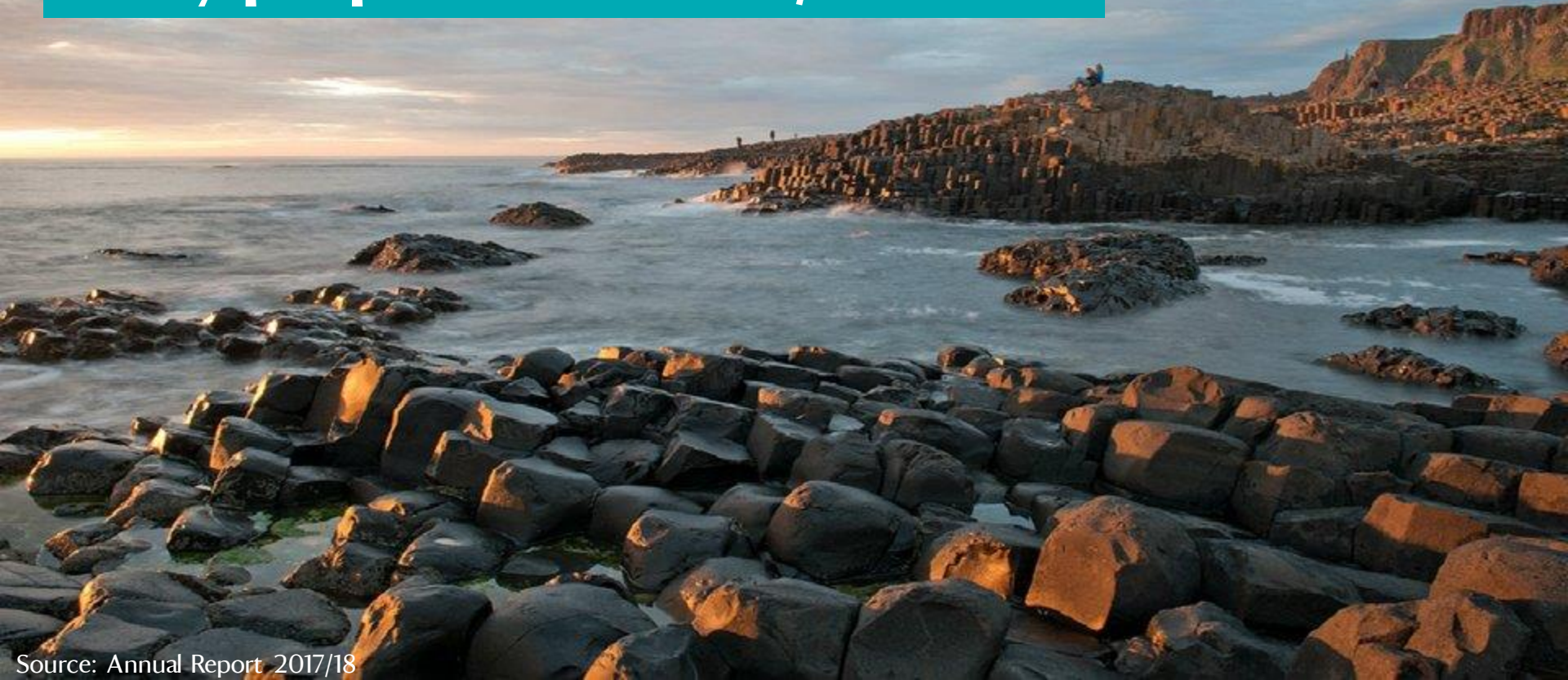


I think we want four things:
places to **sit** in,
places to **play** in,
places to **stroll** in,
places to **spend a day** in.

**Over 500 historic houses, castles,
ancient monuments, gardens, parks
and nature reserves**



**26.6m visitors to our pay for
entry properties in 2017/18**



A scenic view of a coastline featuring white cliffs, a harbor with ships, and a blue sky with clouds. The foreground shows a steep, white, rocky cliff face with some green vegetation on top. The middle ground shows a harbor area with several ships and a pier. The background shows a blue sky with scattered white clouds.

780 miles of coastline

An aerial photograph of a mountain valley. The foreground and middle ground are filled with vibrant green, patchwork fields separated by stone walls. A small cluster of buildings, likely a village or farmstead, is nestled in the center. The background features steep, rugged mountains with rocky outcrops and sparse vegetation. A dark semi-transparent banner is overlaid at the top, containing white text.

Over 248,000 hectares of land

...and 39 pubs



5.2m members
£220m membership income



A group of approximately 15 people, mostly women, are walking along a gravel path in front of a large, historic stone building with arched windows and doorways. They are all wearing green long-sleeved shirts, suggesting they are part of a volunteer or staff team. They are carrying a large, leafy green bush together, passing it from person to person. The scene is outdoors, with green grass on either side of the path. The building in the background has a mix of grey and brown stone and several arched windows, some with leaded glass. A dark grey semi-transparent box with white text is overlaid in the top right corner of the image.

8,000+ staff
60,000+ volunteers

DIANA'S UNSEEN PHOTO ALBUM

Our glorious series continues in Weekend

Fury of volunteers told to wear Gay Pride badges

MUTINY AT THE NATIONAL TRUST

By Andrew Levy and Larissa Brown

VOLUNTEERS last night accused the National Trust of trampling on their rights by making them wear gay pride badges.

Dozens of unpaid guides have quit or refused to work following the dictat to mark 50 years since the decriminalisation of homosexuality.

At least 16 volunteers at Felbridge Hall in Norfolk are said to be in revolt over the order, which requires them either to wear the rainbow ID badges or be relegated to backroom jobs.

Trust managers are now replacing the mutineers with untrained staff to keep the 17th century property open.

Among those to resign in disgust are Jane and Des Gallagher. It is a denial of volunteers' rights, said Mrs Gallagher, 51.

"Furthermore, we object to being told how to behave. The trust was always about conservation and preservation for future generations."

"Now it's motto is 'For ever, for everyone' but clearly that's not the case for volunteers with different views."

"We trust everybody who comes to the hall with the same respect. Visitors' social

EXCLUSIVE INTERVIEW

How we finally took our darling Charlie home

PAGES 10-13



Charlie Gard with his parents Connie and Chris in a hospice hours before he died. They then took him home for a precious few final days together



The Daily Telegraph

STAR STORY
The real David Bowie by Dylan Jones



BEYONCE GORDON
Why I'm just like the Duchess of Cambridge



National Trust 'is aiding hunt saboteurs'

Hunt masters accuse charity of 'painting targets' on them by publicising their events

By Andrew Davies

THE NATIONAL TRUST has been accused of aiding hunt saboteurs by publicising its events. Hunt masters have accused the charity of 'painting targets' on them by publicising their events. The National Trust has been accused of aiding hunt saboteurs by publicising its events. Hunt masters have accused the charity of 'painting targets' on them by publicising their events.

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Private schools to scrap their own exams

By Andrew Davies

Private schools are to scrap their own exams. The National Trust has been accused of aiding hunt saboteurs by publicising its events. Hunt masters have accused the charity of 'painting targets' on them by publicising their events.

To see, or not to see



David Bowie in a scene from the film 'The Thin Red Line'.

Yard pays out for VIP raids

By Andrew Davies

The Yard has paid out for VIP raids. The National Trust has been accused of aiding hunt saboteurs by publicising its events. Hunt masters have accused the charity of 'painting targets' on them by publicising their events.

Letters	17
What's on	28
Business	32
Member	38

5m+ members
create a lot of data

So what do we do with it?



Supporter retention

Surveys and text analysis

Marketing effectiveness

Cross sell propensity

**Single supporter view and
audience profiling**

Visit modelling and forecasting



Supporter retention

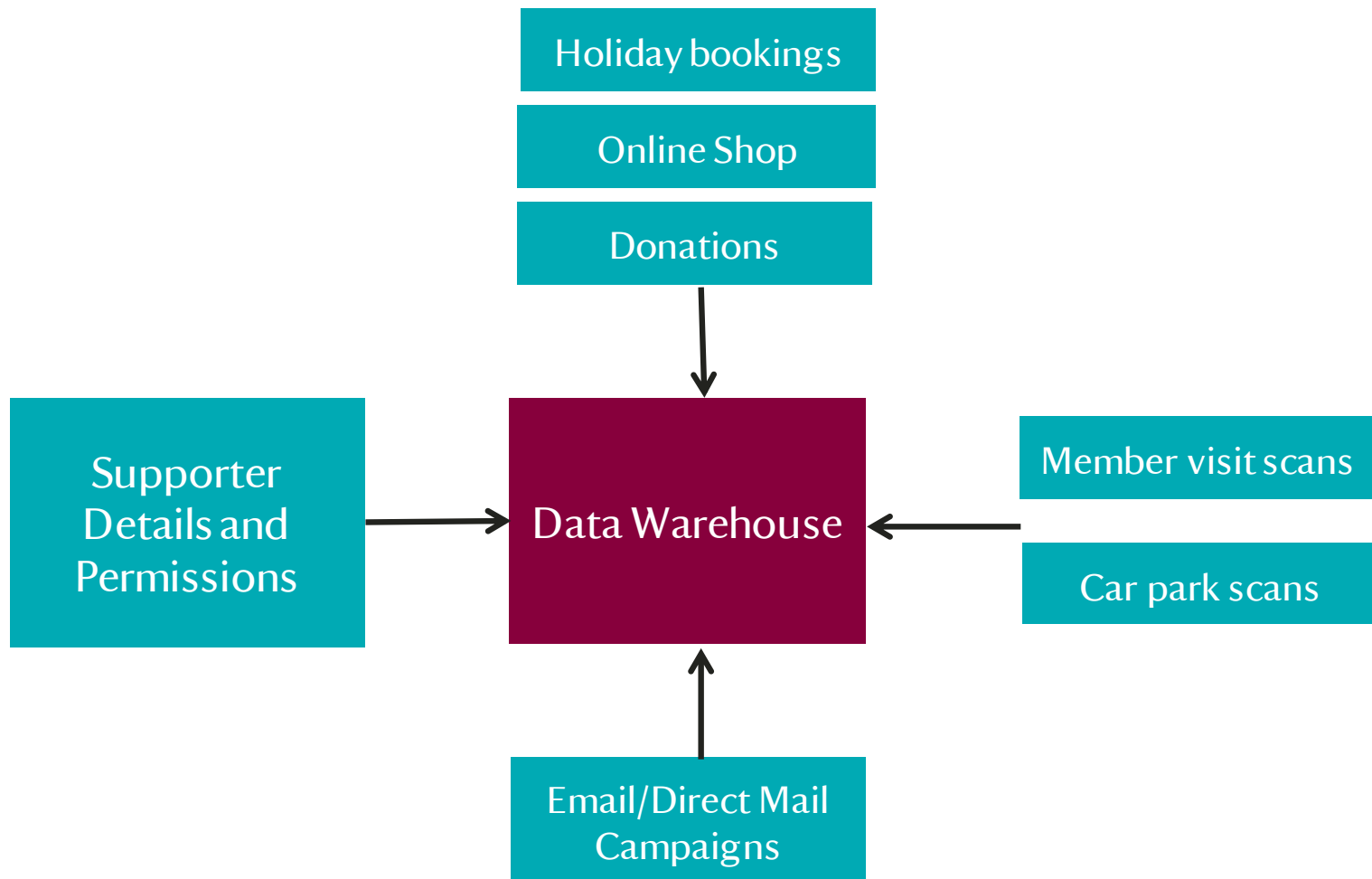
Surveys and text analysis

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Supporter Details and Permissions

- Supporter ID
- Membership
- Region
- Contact permissions (post GDPR)

Member visit scans

Car park scans

- Supporter ID
- Location
- Date/Time

Holiday bookings

Online Shop

Donations

- Supporter ID
- Total income
- Last order
- Product

Email/Direct Mail Campaigns

- Supporter ID
- Emails/DM sent
- Campaign type



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Online Shop

Campaigns

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Donations

1 dataset
14m+ records
100+ fields



Supporter retention

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Membership Retention

85.4%



Create dataset

**Explore and
visualise data**

**Build logistic
regression model
and test with hold
out sample**



What were the predictors of retention?

Payment method (and if it changes)

Membership tenure

Property visits

Membership type

Gift membership

Has another relationship



What next...?

Create dataset

Explore and
visualise data

Build logistic
regression model
and test with hold
out sample

Test and learn



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2017/18 Visits

26.6m

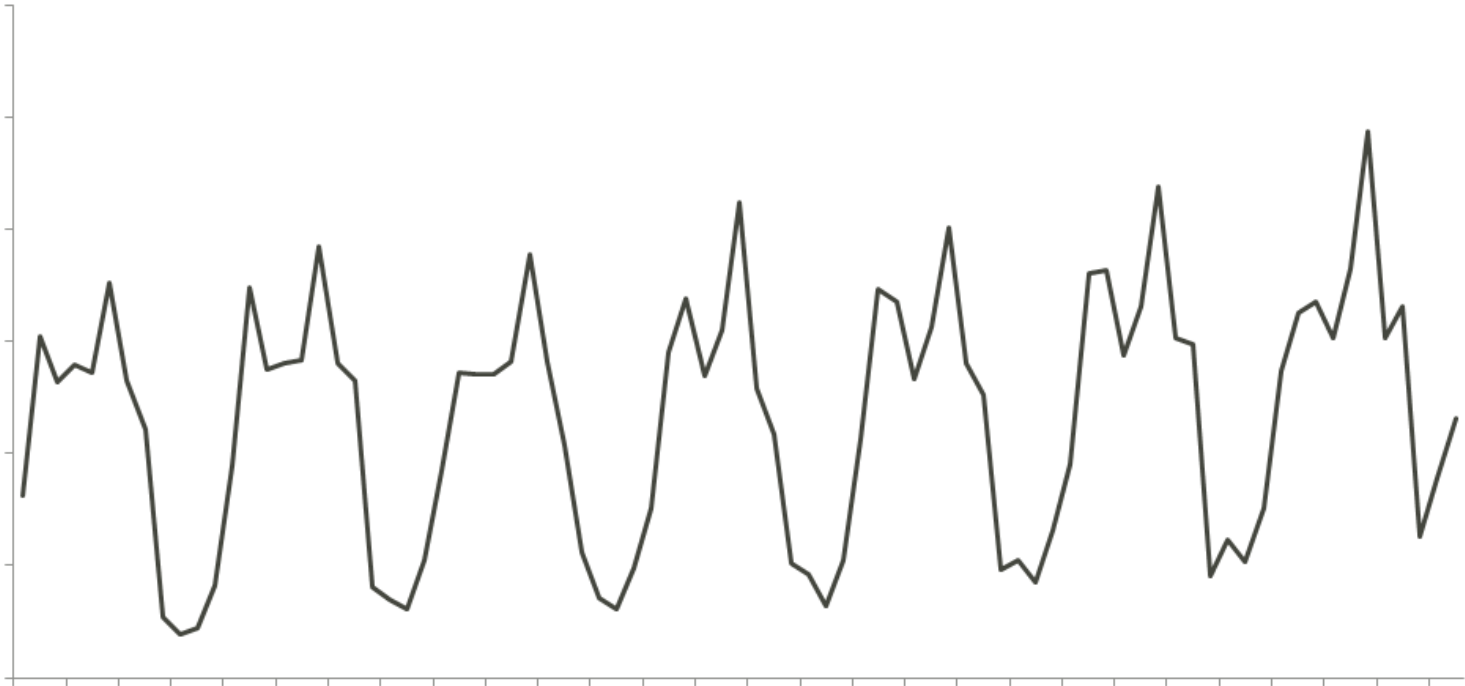


+55% since 2009/10

Source: National Trust Annual Report 2017/18 and 2009/10
17.2m visits 2009/10



Monthly
Visits



Time



Monthly
Visits

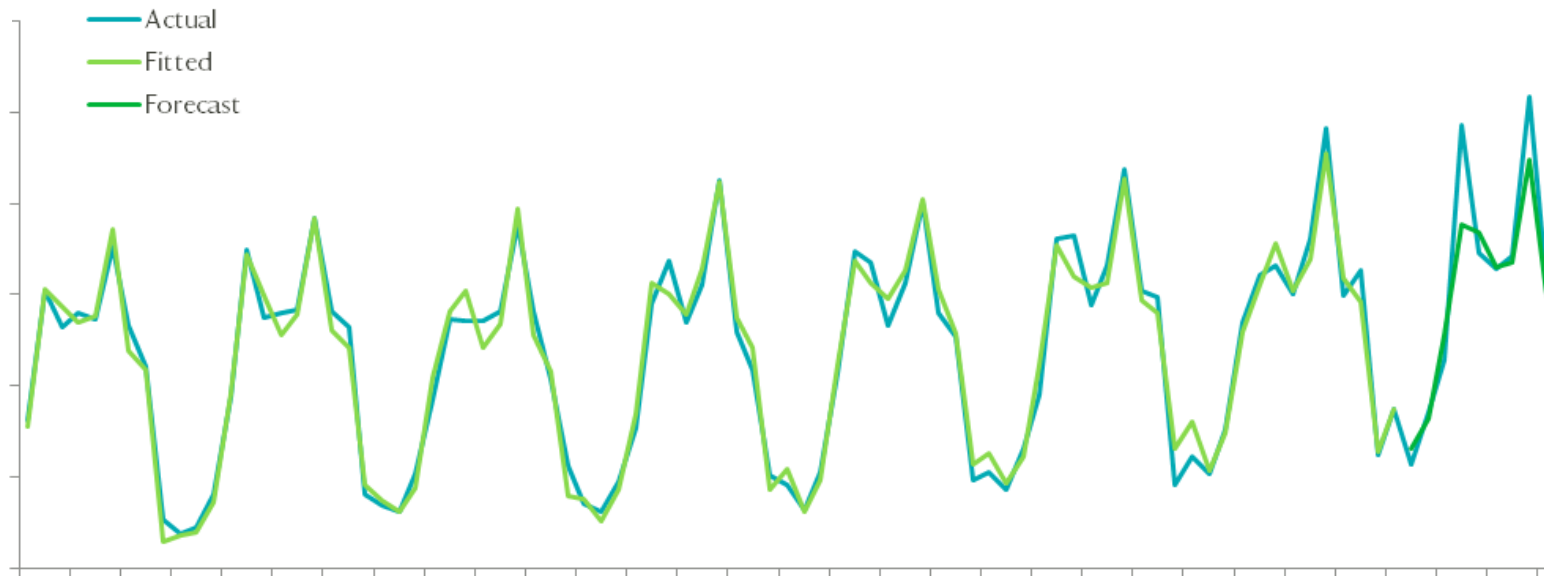
- Weather dependent
- Long term growth trend – more members every year
- Extra properties and investment
- On property events
- National and local advertising

Time



Built models with predictors, and hold out period to validate model

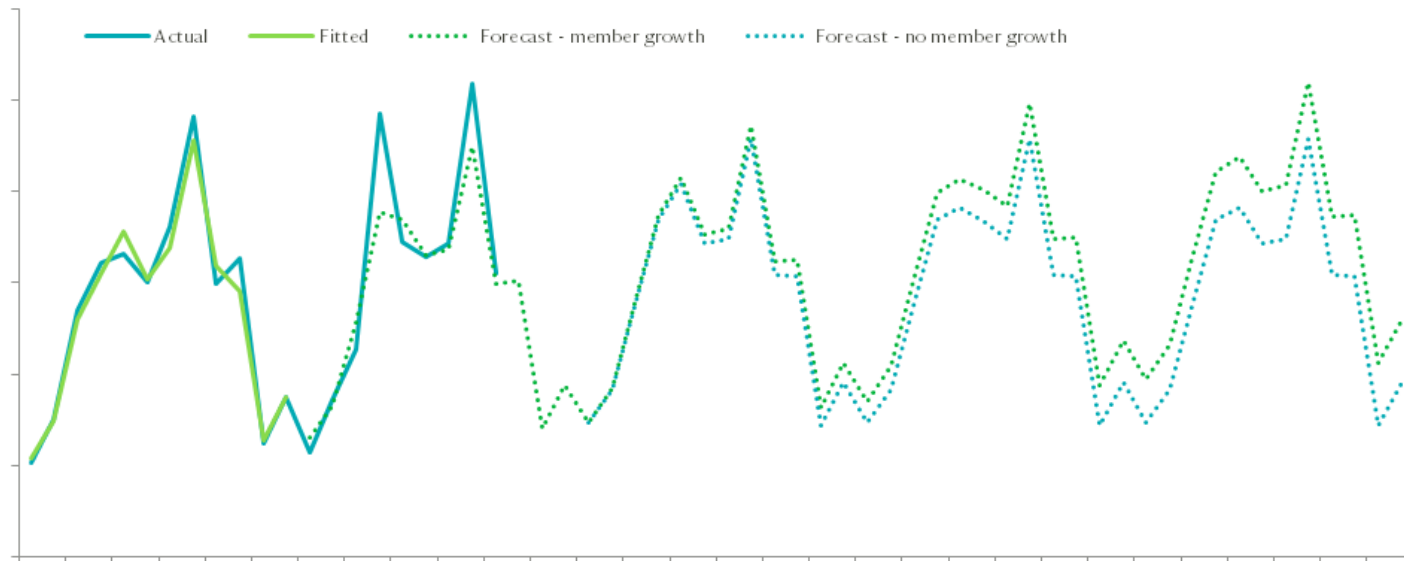
Monthly Visits





Use models to create forecast scenarios

Monthly
Visits





Supporter retention

Surveys and text analysis

Marketing effectiveness

Cross sell propensity

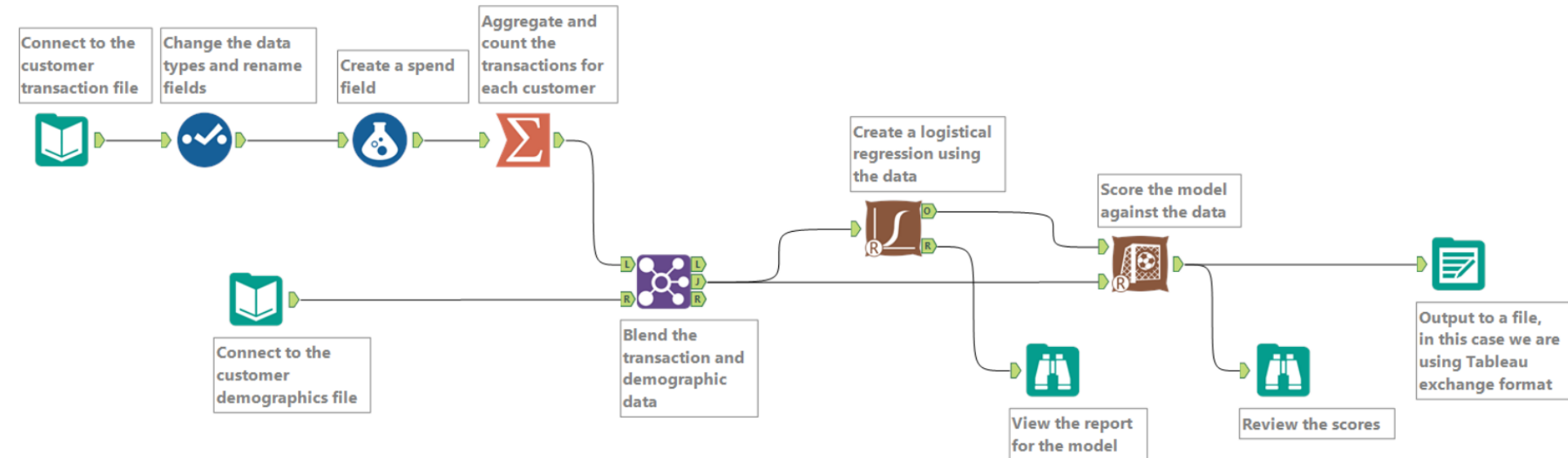
**Single supporter view and
audience profiling**

Visit modelling and forecasting



Some of the tools we use...







Some of the tools we use...





Some of the tools we use...





But we have some challenges

- Lots of adhoc analysis requests
- Small team for a large organisation
- Don't *yet* have our own database to write to
- Showcasing what we can do to the right people



Thank you

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