Reducing NHS's Environmental Impact through Digital Transformation

Document management

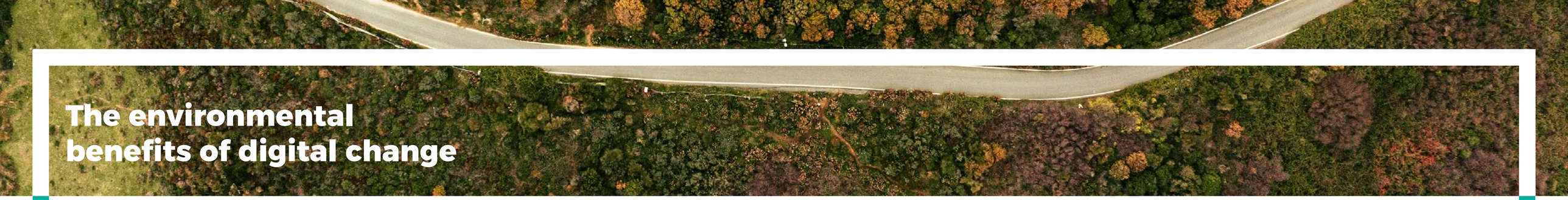
Author: Alex Drew

Version: 2.0 **Version comments:** Updated commentary from Wayfinder Programme

Reviewed by: Greener NHS, PKB, PCA Team, Wayfinder Programme

Contents

1 Introduction



The environmental benefits of digital change

Digital transformation offers significant environmental benefits that align with NHS sustainability objectives whilst enhancing overall public health outcomes.

Digital channels enable resource efficiencies and reduction of environmental impact by reducing waste and replacing physical processes like travel and paper based communications with lower carbon emitting alternatives.

However, the digital industry is also a significant contributor of global carbon emissions; data centres alone contribute more CO2e per annum than the entire aviation industry. With continuous developments in Virtual Reality and high-resolution images and the emergence of Artificial Intelligence, the impact of digital is projected to increase.

Low carbon software and application design is a very new area of focus. As responsible digital leaders and citizens it is incumbent on us to build a more mature understanding of the relationship between our impact on the environment and how climate change is likely to impact on the stability of digital services and thus their potential to bring wider resilience to the health system.

The Greener NHS

The Greener NHS is the NHS response to the climate challenge with a main focus on decarbonisation by 2045. The Greener NHS Vision is "To deliver the world's first net zero health service and respond to climate change, improving health now and for future generations".

With around 4% of the United Kingdom's carbon emissions, and over 7% of the economy, the NHS has an essential role to play in meeting the net zero targets set under the Climate Change Act (Delivering a 'Net Zero' National Health Service)[1].

Greener Digital takes a 'net-gain' perspective on digitisation – well managed digitisation unlocks multiple benefits including sustainability and net-zero improvements; architecting for sustainability ensure we are not eroding the benefits enabled by digitised healthcare.

This paper

This paper provides an example of the benefits that can be realised when considering the impacts and benefits of Digital Transformation from an Environmental perspective. We hope to inspire others to collaborate and share lessons and good practice. We are also pleased to share our findings and Carbon Equivalent calculations that can be utilised across the NHS for Carbon Measuring and reporting. We welcome your feedback, comments and suggestions and look forward to sharing more and collaborating further with this community.

1 https://www.england.nhs.uk/greenernhs/national-ambition/

2 Wayfinder

2.1

The purpose of Wayfinder

In September 2021, NHS England approached NHSX to explore the feasibility of providing patients with direct access to their referral and appointment information in the NHS App or NHS website for those waiting for elective care. This led to the creation of the Wayfinder NHS App service.

Wayfinder leverages national digital channels (NHS App both in mobile and web formats, NHS login, the NHS e-Referral Service, a new NHS England Patient Care Aggregator (PCA) and trust systems, such as Patient Engagement Platforms (PEPs)) to provide users with a simple and secure way to manage their care information.

- In September 2022, Wayfinder went live in three NHS acute trusts with the core functionality of enabling users to view and manage their referrals and appointments via the NHS App.
- As of April 2025, 112 NHS trusts are now connected to the NHS App, with 12 PEP suppliers, and the service has been used over 118 million times.

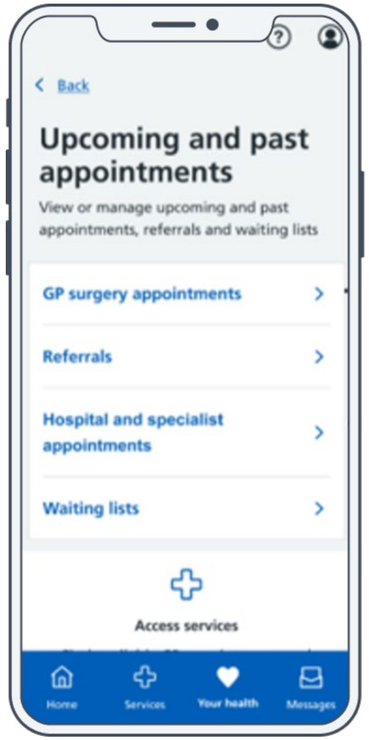
In parallel to increasing the coverage of Wayfinder across England, the service continues to surface additional features in the NHS App including Notifications and Messaging, Documents, and Questionnaires. These additional features enable app users to receive appointment reminders, view appointment letters, and complete pre-appointment questionnaires. Wayfinder is currently delivering a phase 3 scope that includes allowing users to select their paperless preferences and view their past appointments, as well as improving management information and analytics, surfacing inpatient and day case appointments in the NHS App, and extending coverage to mental health trusts.

Wayfinder is having a positive impact on helping trusts reduce waiting times and missed appointments or did not attend (DNA) rates; it has also increased traffic to the NHS App, and is now consistently the second most used service after viewing a health record, with 21% of app users viewing and managing their referrals and appointments in March 2025.

>118m
Transactions

112
Live Trusts

Wayfinder overview



Primary care appointments

- Accessed through existing IM1 implementation.
- Book a new GP appointment.
- See all booked appointments including type, location and date.
- Ability to link directly into an appointment to cancel a booking.

Secondary care appointments

- New: Secondary referrals and appointments screen.

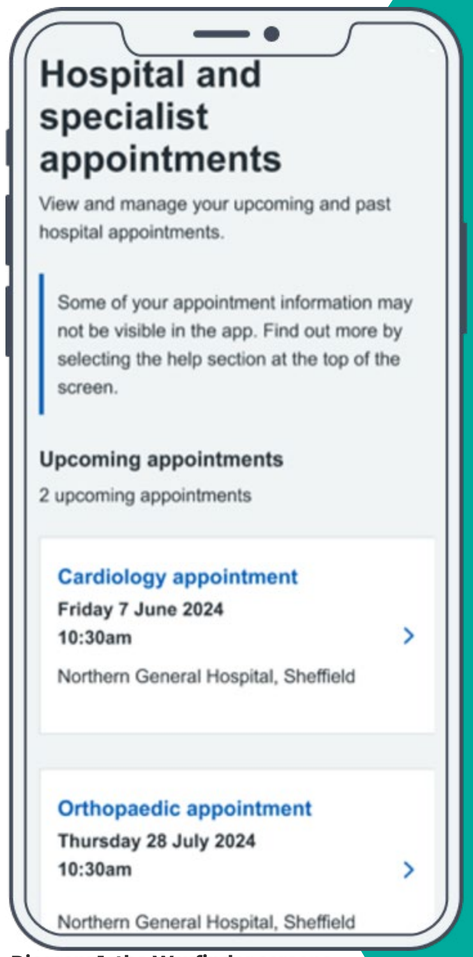


Diagram 1: the Wayfinder screens

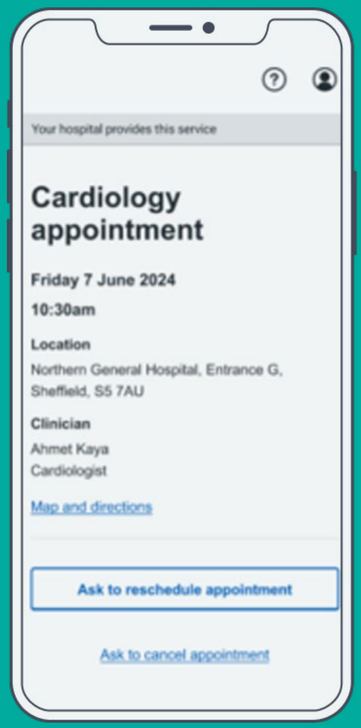
ERS via aggregator API

- See directly bookable and indirectly bookable referrals.
- See all Referral Advisory Service requests including status.
- See booked appointments from directly bookable referrals.
- Ability to deep-link into an eRS item to edit or cancel a booking.

Portal provider data via aggregator API

- See all secondary care appointments including location and date.
- Ability to seamlessly deep-link into a Portal to view more detail.

NHS Login is required for all integrated parties as a single authentication mechanism.

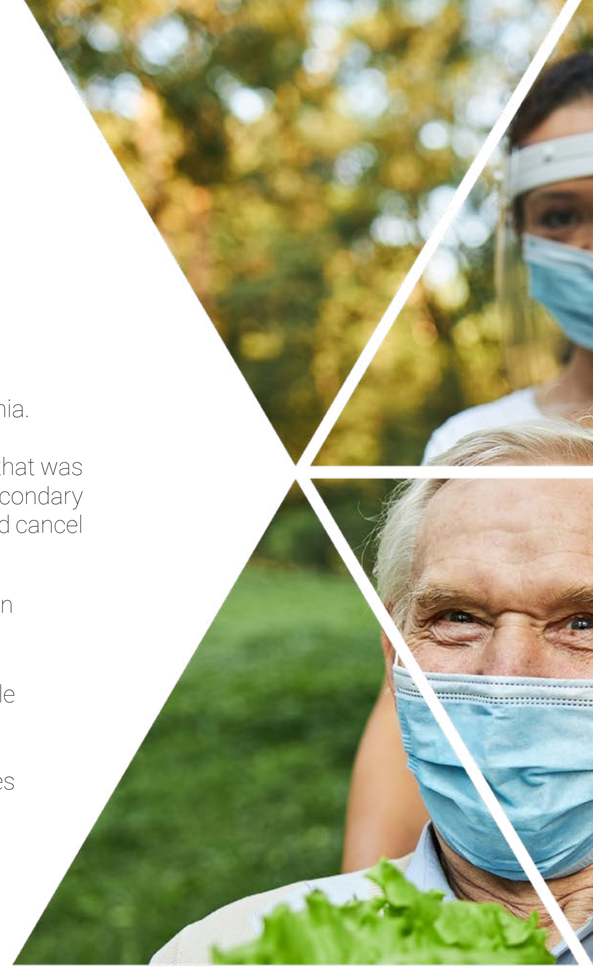


Portal providers via deep link

- Providing patients with a single point of contact for the services currently administering their care.
- Locally provided guidance which can help prepare for appointments.
- Cancelling/amending bookings — where existing and simple to implement.

2.3

ACE and Servita: Architecting for Sustainability



The Accelerated Capability Environment (ACE) are a UK Government initiative committed to solving public challenges through sourcing innovative expertise from industry and academia.

The community of industry and academia within ACE is known as the Vivace Community, of which Servita are a member. ACE began working with NHS in relation to an API Aggregator that was aimed at helping alleviate the elective care backlog in late 2021. This capability was identified as reducing the administrative burden on the NHS whilst seeking to reduce waste in the secondary care ecosystem through things like reduction in 'Did Not Attend' (DNA) rates. The idea of the API Aggregator was to bring secondary care appointment services such as book, amend and cancel appointments into the hands of citizens in England through the NHS App, and that through giving patients more control, waste in the NHS is reduced.

Through the ACE, Servita were engaged in January 2022 by NHS to build a health information exchange, patient consent engine and national API integrations to provide patients with an end-to-end view of their care pathways on a single screen on the NHS App. The service Servita built to do this is called the Patient Care Aggregator (PCA).

Servita's mission is to keep themselves and the clients they work with at the forefront of science and technology, and in doing so to constantly push the industry to achieve sustainable cloud and sustainable software solutions.

The patient care aggregator (PCA) benefits from a stateless architecture which queries and processes Trust data in real time minimising the need for storage. The PCA leverages Kubernetes to achieve horizontal auto-scaling, ensuring the compute power provisioned does not exceed that which is required.

Further optimisation of compute power is achieved using a NodeJS codebase. NodeJS is commonly regarded as the most performant code base available and was therefore chosen to yield a platform that can efficiently deliver a national service in line with a sustainability agenda.

The PCA is cloud-hosted on Amazon Web Services (AWS) and was architected to adhere to the sustainability pillar of AWS's Well-Architected Framework, adopting a "minimise compute" philosophy to aggressively mitigate carbon emissions by treating compute as a privilege, not a right[2].

2 https://docs.aws.amazon.com/wellarchitected/latest/sustainability-pillar/sustainability-pillar.html?ref=wellarchitected-wp

This philosophy guided most architectural choices, including

- The adoption of a stateless architecture, avoiding duplicating data in a centralised store in favour of relying on local data stores and thus avoiding significant compute overhead typically associated with data storage.
- The "right-sizing" of compute resources to demand, using Kubernetes and horizontal auto-scaling to ensure that compute resources are decreased as demand decreases overnight.
- The use of schedulers to automatically deactivate non-production compute resources overnight, or after a period of inactivity.
- The provision of a single, shared development cluster to avoid the excess compute caused by developers running code in a local development environment.
- The right-sizing of non-prod environments, scaling test environments to use production-level compute resources only when required for performance testing.
- The use of serverless technologies where appropriate, including lambda functions and managed services, to avoid excess compute caused by provisioning dedicated virtual machines/servers.
- Use of slim docker images to reduce storage requirements and processing used when building the image.
- Use of "tree shaking" to ensure all dependencies are actually required and to remove dead code, ensuring minimal carbon emissions by reducing bundle size for storage and network transmission, while ensuring a lean application that uses only the compute resources it needs to run.

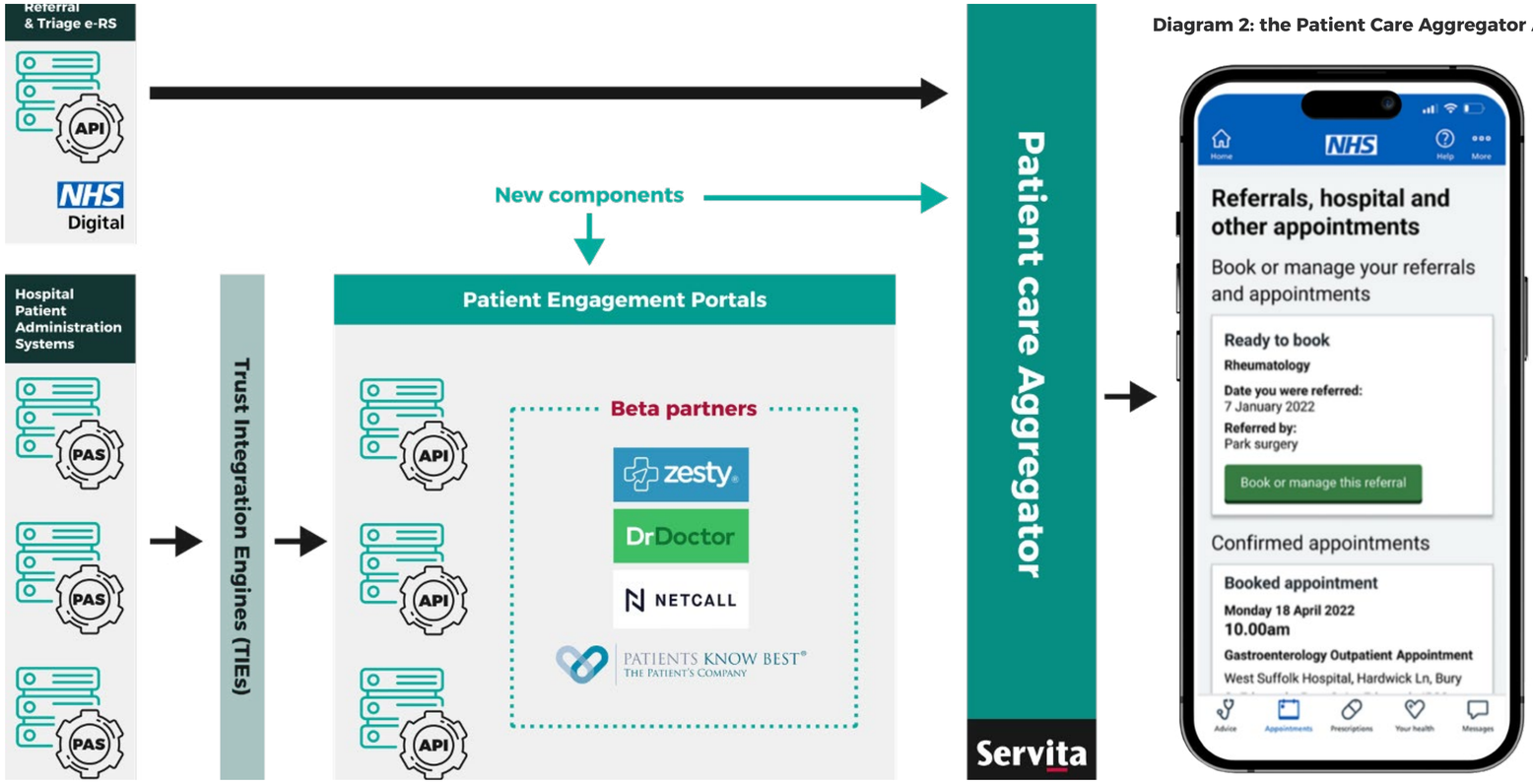
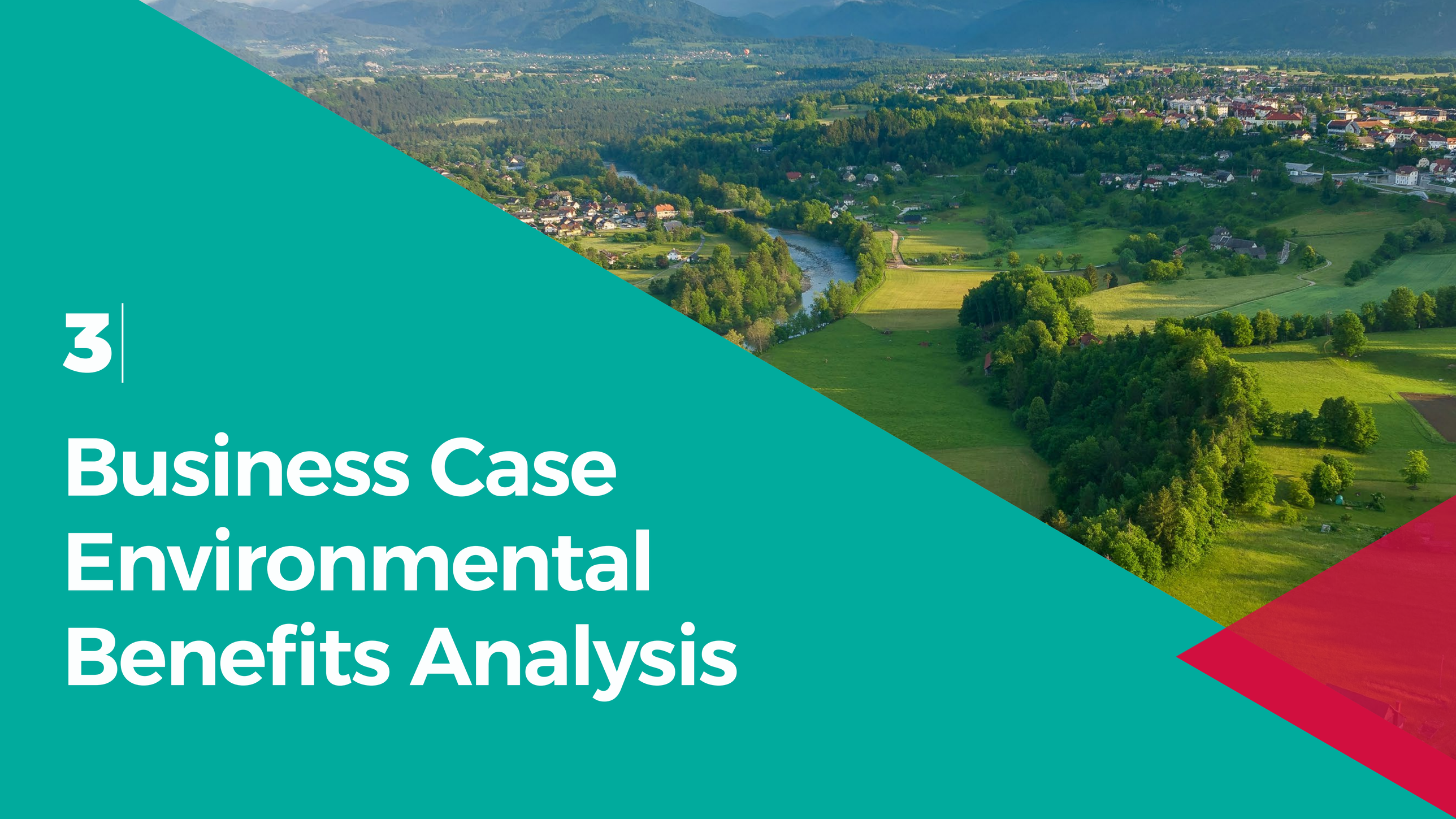


Diagram 2: the Patient Care Aggregator Architecture diagram

According to AWS's official metrics, the emissions created due to the storage and processing of data in the PCA were under **0.1 tCO2e** (Tons of Carbon Emissions), given Amazon's power purchase agreements and purchase of renewable energy credits. AWS report the PCA to be Net Zero, naturally we wanted to interrogate this statement. Please refer to section 4.3.



3

Business Case Environmental Benefits Analysis

Business case environmental benefits analysis

By reviewing the business case of Wayfinder (WF)[3] we were able to identify changes that would lead to environmental benefits. Wayfinder enables the following reductions: Did Not Attends (DNA's), patient travel, paper and time spent on the telephone.

In collaboration with the Greener NHS and the Wayfinder Benefits team we modelled the Wayfinder benefit volumes with CO2e forecasts and forecasted the following benefits.

3.1| Reduction of 'Did Not Attend' (DNA) Appointments

The NHS report **7,900,000 DNAs** per annum (equating to 51,974 DNAs per Trust).

The Greener NHS calculates **17.5 kgCO2e** is emitted by a hospital to service an appointment (not including patient travel).

Wayfinder functionality will enable a reduction of **488,111 DNAs** per annum.

By avoiding a wasted appointment through the patient not attending we are able to avoid "wasting" resources and their associated emissions. The CO2e footprint of this waste is **8.5ktCO2e**.

We are aware that some trusts use DNAs as an opportunity to manage demand, this would naturally mitigate the wastage of resource. The principle of managing DNAs and demand is out of scope of this study.

3.2| Reduction of paper

The NHS produce **158 million** letters annually. Each letter requires an envelope, stamps and resources to deliver the letters. Reducing the number of printed letters will also reduce CO2e relating to production of paper, printers, inks etc.

The functionality introduced by Wayfinder will enable **30 million fewer A4 sheets of paper** including **10 million fewer letters** to be posted / annum. The Mobile First Benefits Stack estimated the carbon footprint associated with printing paper letters will reduce by 65% by the 2024/25 financial year and a saving of **6,635 tCO2/year**; the equivalent of more than 3,250,000 patients travelling to an outpatient appointment.

3 MF Benefits Stack

3.3

Reduction in patient travel for clinical cancellation

The NHS estimate **21,874** per year are made on the day of a clinical procedure @ Wayfinder enabled trusts, because the patient is not clinically ready to proceed. From an environmental perspective this constitutes a wasted journey to and from the secondary care site.

Greener NHS have modelled the average patient journey to a secondary care appointment to emit **4.5 kg CO2e**. By surfacing pre-operative questionnaires through Wayfinder, a clinician will be able to assess patient readiness before the day of the appointment and before the patient leaves home. This will reduce the number of one day cancellations and **avoid 1,470 associated wasted journeys**.

This will enable a reduction of **6,615 kg CO2e** per year.

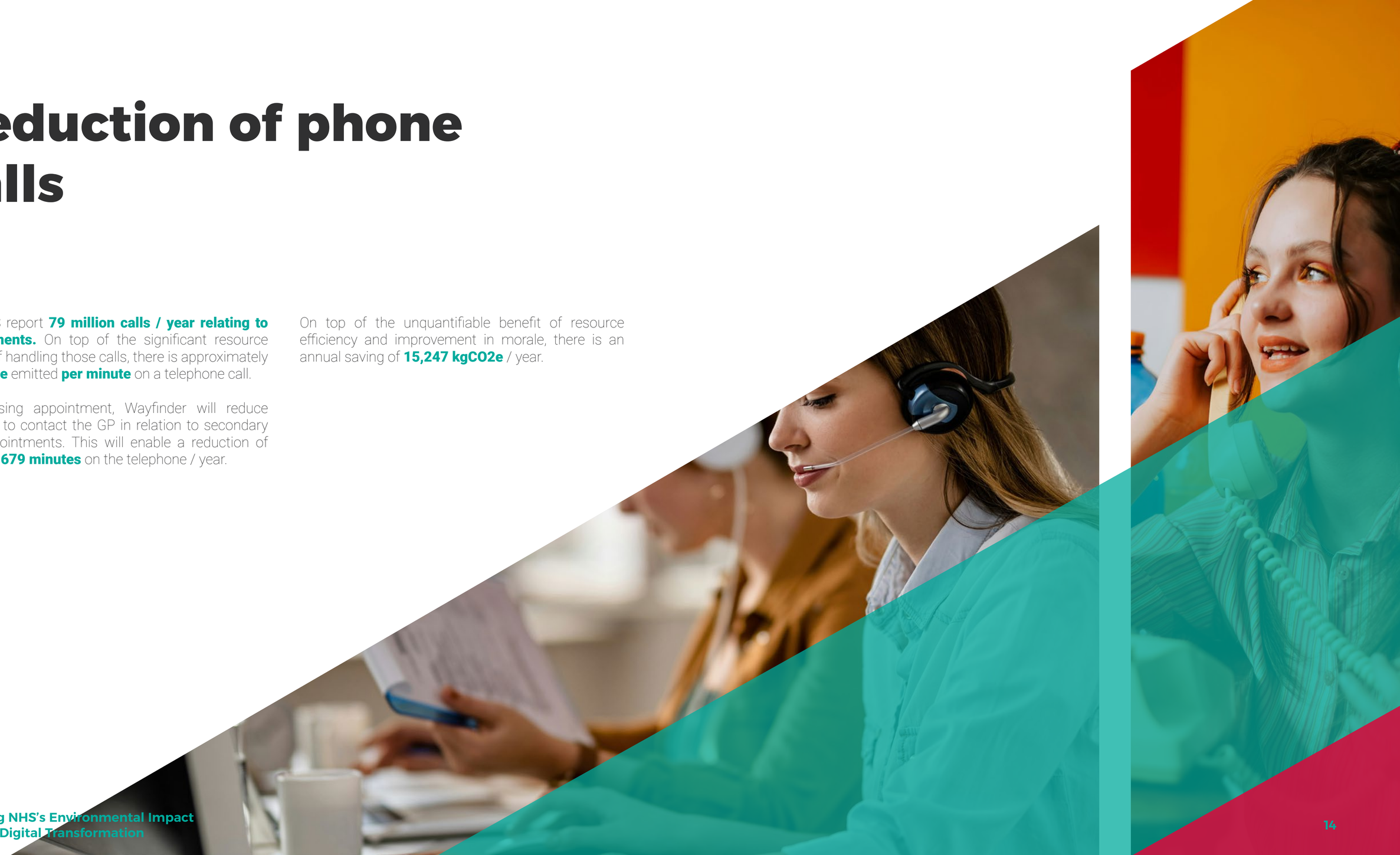
3.4|

Reduction of phone calls

The NHS report **79 million calls / year relating to appointments.** On top of the significant resource impact of handling those calls, there is approximately **0.1gCO2e** emitted **per minute** on a telephone call.

By digitising appointment, Wayfinder will reduce the need to contact the GP in relation to secondary care appointments. This will enable a reduction of **152,473,679 minutes** on the telephone / year.

On top of the unquantifiable benefit of resource efficiency and improvement in morale, there is an annual saving of **15,247 kgCO2e** / year.



3.5

Key takeaways from initial analysis of the benefits

This initial analysis was based on forecasted benefits in the Wayfinder Programme Business Case (model 7.1) and modelling completed by Greener NHS.

From this analysis alone, we have identified the opportunity for significant environmental benefits to be enabled by the Wayfinder digital transformation..

According to the Business Case, **18,037 ktCO2e** reduced as a result of switching to a Digital Channel (i.e. Wayfinder).

22
tCO2e reduced

63M
Less A4 sheets

8.5
tCO2e not wasted

152M
Minutes saved on the phone!

3.6|

The need for a better understanding

In 2023 we shared the aforementioned analysis across NHSE, the Greener NHS and Government offices via the STAR (Sustainable Transformation Advisory and Reporting) committee. The Wayfinder programme became the first Live Service to report on Carbon Impact and is now considering Environmental benefits as part of the business and benefit cases.

The benefits illustrated in section 3 were derived from business case forecasts, we needed to test these projections, therefore, we engaged the Wayfinder enabled trusts to better understand their processes and behaviours and qualify our projections. We also needed to better understand the impact. As with all changes of process, there is an impact to consider. Wayfinder reduces paper and travel but it increases the digital footprint, it changes patient behaviour and channels. The benefits could be eroded if the new digital channel is not sustainable.

4

Deeper dive into the CO2e benefits and impact of reducing patient appointment letters

The NHS produces 158 million letters annually. The average letter consists of 2 x A4 Sheets of paper, an A5 envelope and uses 2nd class postage.

Each letter requires an envelope, stamps and resources to deliver the letters. Reducing the number of printed letters will also reduce CO2e relating to production of paper, printers, inks etc.

The core functionality introduced by Wayfinder will enable 63 million fewer A4 sheets of paper including 10 million fewer letters to be posted / annum. The Mobile First Benefits Stack estimated the carbon footprint associated with printing paper letters will reduce by 65% by the 2024/25 financial year and a saving of 13,902 tCO2e/year; the equivalent of more than 3,250,000 patients travelling to an outpatient appointment.

The NHS did not previously have a carbon equivalent calculation for a physical outpatient appointment letter – i.e. There was no CO2e measurement for the NHS to produce and deliver outpatient appointment letters.

4.1|

Trusts and CO2e of paper appointment letters

The Wayfinder Reference Group (WRG) is a trust-led advisory group which provides advice, challenge, and co-design for the Wayfinder Programme in NHS England. Established in May 2023, and open to representatives from all our live trusts to join, the group meets online every month..

4.1.1| Trust Engagement

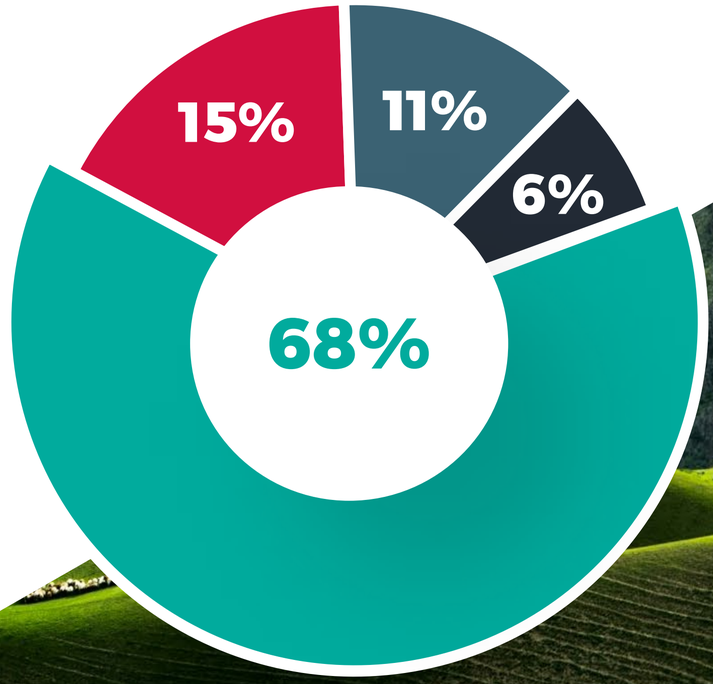
In February 2024, we engaged with the WRG, presented our findings and plans and invited Wayfinder enabled trusts to participate in a study into CO2e measurement of patient appointment letters. 13 out of 15 Trusts expressed an interest in participating.

We hosted 2 initial focus groups to refine our survey. These sessions were incredibly useful and insightful. Not only did we identify several trusts that print and store copies of letters, but leaflets were also highlighted as another environmental consideration. We discovered that trusts would often enclose uncanvassed promotional/marketing leaflets (coloured print) with their appointment letters. Although out of scope of this study, we recommend further analysis into leaflets as a cost and environmental opportunity for the NHS..

There was clearly an interest in the study with Trusts wanting to do more to reduce their own CO2e, success stories and lessons learned were shared. Advice and support on CO2e reduction strategies was also highlighted as something the trusts would welcome..

The key output of the focus groups was a survey that the trusts understood and were confident in being able to complete.

To date, of the 9 trusts that attended the focus groups, only 5 have completed the survey.



A pie chart showing trust engagement of Wayfinder enabled Trusts via the Wayfinder Reference Group.

4.1.2| Trust survey results

There were some key themes derived from the trust engagement and survey responses.

Enthusiasm and Challenges
The community is enthusiastic about minimising their environmental impact, there are some excellent examples of best practice and lessons learned. We found trusts wanting to share and support and trusts seeking advice and support. 86% of trusts wanting to participate in the study, that enthusiasm was stifled however through **data availability** and **sponsorship**. There are challenges across the trust community in accessing reliable, accurate data.

Resources available to engage with and complete this exercise has varied significantly across the trusts. There are trusts with sustainability capabilities and trusts where this does not yet appear to be on the agenda.

CO2e measuring is not yet common practice
The majority of the trusts we spoke with are not yet calculating/ reporting their carbon footprint, all of the trusts have their own unique processes and challenges. Many trusts are not utilising or optimising their digital channels.

Patients want to understand Environmental impact
One trust reported a hike in paperless preferences enabled by patients when they were presented by the number of trees saved per year as opposed to the number of £s saved.

Significant opportunities
By speaking with the trusts, it is evident that are significant further opportunities to help reduce waste and carbon emissions. For example, we heard from trusts that enclose unsolicited glossy marketing collateral with appointment letters. We also heard from trusts that print and store copies of the letters.

4.1.3| CO2e of patient appointment letters

Through responses to the survey, the Greener NHS calculated that an average of **48g of CO2 is emitted every time a Trust posts a patient appointment letter**.

The model assumes the average letter consists of 2 A4 sheets of paper, which are mixed between virgin and recycled paper. The letter is posted in an A5 Envelopes using 2nd Class Postage. It is assumed that there are no additional leaflets or other items enclosed in the letter and that there have been no clinical copies printed and stored.

Table 1: Showing the Carbon Boundary of calculating the CO2e impact of an outpatient letter

		A recyled letter (standard postage)	A recyled letter (first class postage)	A non-recycled letter	A non-recycled letter
Paper	Raw materials	0.002490546	0.002490546	0.001496	0.001496
	Production	0.007963222	0.007963222	0.009911	0.009911
	Transport	7.26322E-05	7.26322E-05	0.000238	0.000238
	Printing	0.004984568	0.004984568	0.004984568	0.004984568
	Ink	0.00803	0.00803	0.00803	0.00803
	Postage	0.001040664	0.000980701	0.001040664	0.000980701
	End of life	0.006239	0.006239	0.006239	0.006239
Envelope	Raw materials, production + transport	0.01483	0.01483	0.01483	0.01483
	End of life	0.00248	0.00248	0.00248	0.00248
Total KgCO2e/letter (assuming 2 A4 sheets and an A5 envelope)		0.048130632	0.048070669	0.049249232	0.049189269

An appointment letter is posted every time an appointment is confirmed. An additional letter is posted should the appointment be cancelled. A 3rd letter is posted should the appointment be rescheduled. On average, **1.5 letters** are posted for every patient appointment.

This means an average of **72g of CO2e** is emitted per appointment. That is almost the same footprint as an NHS Apron (65g) or a duckbill FFP respirator (76g CO2e) [4].

4 Business Case Carbon Impact Tooling v3.2

4.2|

Patient engagement platforms

An NHS patient engagement platform is a digital tool that allows patients to access their health information, communicate with their healthcare team and manage their appointments.

4.2.1| Patients Know Best (PKB)

PKB is a social enterprise with a mission to empower people to access and use their medical records to help manage their health. A certified B Corporation, it has been net zero since 2021 and its platform supports the NHS on its own journey to net zero by helping to make paper obsolete, reduce face-to-face consultations, facilitate self-care, and ensure that medical data is accessible to all. As of September 2024, PKB has supported over 3.5m letters being sent digitally, rather than physically, avoiding 168t CO2e.

PKB and Hull University Teaching Hospitals NHS Trust provided the perfect case study for calculating the net CO2e benefit of replacing face-to-face appointments with a digital pathway for data collection. This enabled certain assessments to be conducted over the phone or eliminated altogether, avoiding 5.25t CO2e in patient travel over a nine-month period. During this time, the trust also avoided 7.14t CO2e by not sending 148,815 physical letters as patients could access these digitally on their PKB record.

Based on PKB's long standing commitment to net zero and experience in delivering sustainable clinical transformation to the NHS, PKB was ready equipped to support the Greener NHS Programme and lead the way for other PEP's to do the same. PKB has always maintained a transparent and collaborative approach when it comes to sustainability, and other PEP's can do the same by calculating their own carbon footprint.

PKB used the following method to calculate the carbon footprint of a Wayfinder patient transacting on their platform:

PKB's Wayfinder Carbon Footprint = Wayfinder Platform Usage (T of CO2e) + Remote Working on Wayfinder (T of CO2e) + Cloud and Data Centre for Wayfinder Data (T of CO2e)

PKB's Wayfinder Cost per Transaction = [Platform Usage (T of CO2e) + Remote Working (T of CO2e) + Cloud and Data Centre (T of CO2e)] / N of Transactions

PKB's Wayfinder CO2e per Transaction = 3.59g CO2e[5]

5 2022 data (PKB went live in Nov 2022) Visibility of PKB's Green Stats can be found at https://patientsknowbest.com/green/

4.3

The patient care aggregator

Greener NHS engaged "Greenpixie" an impartial, cloud emissions specialist to conduct a thorough assessment of the PCA's carbon usage data from July 2023 to April 2024.

Total Carbon Emissions and Savings

During the analysis period, the NHS Wayfinder application's total cloud carbon emissions were 1.8 tonnes of CO2e. By transitioning from paper-based letters to digital communications, Wayfinder enabled the avoidance of 1.96 million letters, resulting in a significant carbon saving of almost 100 tonnes. This figure includes the operational carbon of the AWS platform.

The per transaction carbon impact of the PCA is **1.37g CO2e**.

Greenpixie reported that after the implementation of the Wayfinder platform, carbon emissions per appointment letter dropped to a remarkable 0.057g, representing a 99% reduction in carbon emissions per appointment. A total of 2.83 million Wayfinder documents were opened during the period. Using this as a proxy for appointments, the average carbon per Wayfinder document was calculated at 1.6g, demonstrating a 97.8% reduction in carbon compared to sending physical letters.

4.4|

Benefits enabled by Wayfinder

4.4.1| The net environmental benefit of reducing paper letters

The following calculations are based on a PKB patient using Wayfinder to manage their appointment and using the models explained in section 4.

Average CO2e of paper appointment letter (gCO2e)	72
PKB CO2e / transaction	3.59
PCA CO2e / transaction	1.37
NET Benefit of WF instead of Paper	**67.04**

Between July 2023 – June 2024, Wayfinder sent an average of **571,096 letters / month**. Once fully rolled out, we forecast **17,132,880** letters to be sent via Wayfinder / annum.

At **67.04g CO2e** / letter this equates to **1,114,859 kgCO2eg** / year or **1,114 tCO2eg** / year. This equates to carbon footprint of **over 50,000** Outpatient attendances or the carbon footprint of more than **262,000** outpatients travelling to their outpatient appointment[6].

4.4.2| Wider Wayfinder benefits

The Wayfinder platform has delivered substantial environmental and operational benefits:

- **Massive Carbon Reduction**
  The shift from physical letters to digital communications reduced carbon emissions by over 97%, helping NHS contribute to the UK's broader sustainability goals..

- **NHS Carbon Footprint**
  The carbon footprint of the NHS in 2022/23 was 21,700 Mtco2e.

  Wayfinder can help reduce and avoid between **29ktco23** or **36ktco23** / year.

  Wayfinder is one digital channel. It is quite possible that this opportunity could be applied to all Live Services and NHS Digital channels and represent a significant percentage of the entire carbon footprint of the NHS.

  Carbon equivalents:

  Between 71 – 89 million miles of an average petrol car emitting 404g CO2e/mile or heating between 10 – 13,000 UK homes / year!

6 CO2e equivalents taken from Business Case Carbon Impact Tooling v3.2

- **Compounding Benefits**
  Since producing the original business case, costs have increased exponentially. In 2022 we modelled the cost of a patient letter at 55p. We understand that to have increased across the trust community by as much as double in some cases (range quoted as 66p to £1).

- **Saving £s and reducing CO2e**
  There is a correlation between reducing costs and reducing carbon emissions. Carbon is a proxy for energy, the use of natural resources and quantities of materials; therefore, reducing carbon usually reduces cost.

- **Operational Efficiency**
  With 40.5 million appointment updates digitally managed, the NHS significantly improved its ability to communicate with patients efficiently while reducing costs related to paper, printing, and postage.

- **Sustainability Leadership**
  This transformation underscores NHS's commitment to sustainability by showcasing the environmental impact of digitisation, setting a benchmark for other public services and industries aiming to reduce their carbon footprint.

Wayfinder not only enhanced patient engagement but also demonstrated a leading example of how technology can drive significant carbon savings and operational efficiencies in healthcare.

5

Further opportunities

5.1|

Wayfinder programme

The programme has already recognised and applauded by the Greener NHS for trailblazing, Wayfinder are now working on adding in Environmental benefits into the 2025/26 business case.

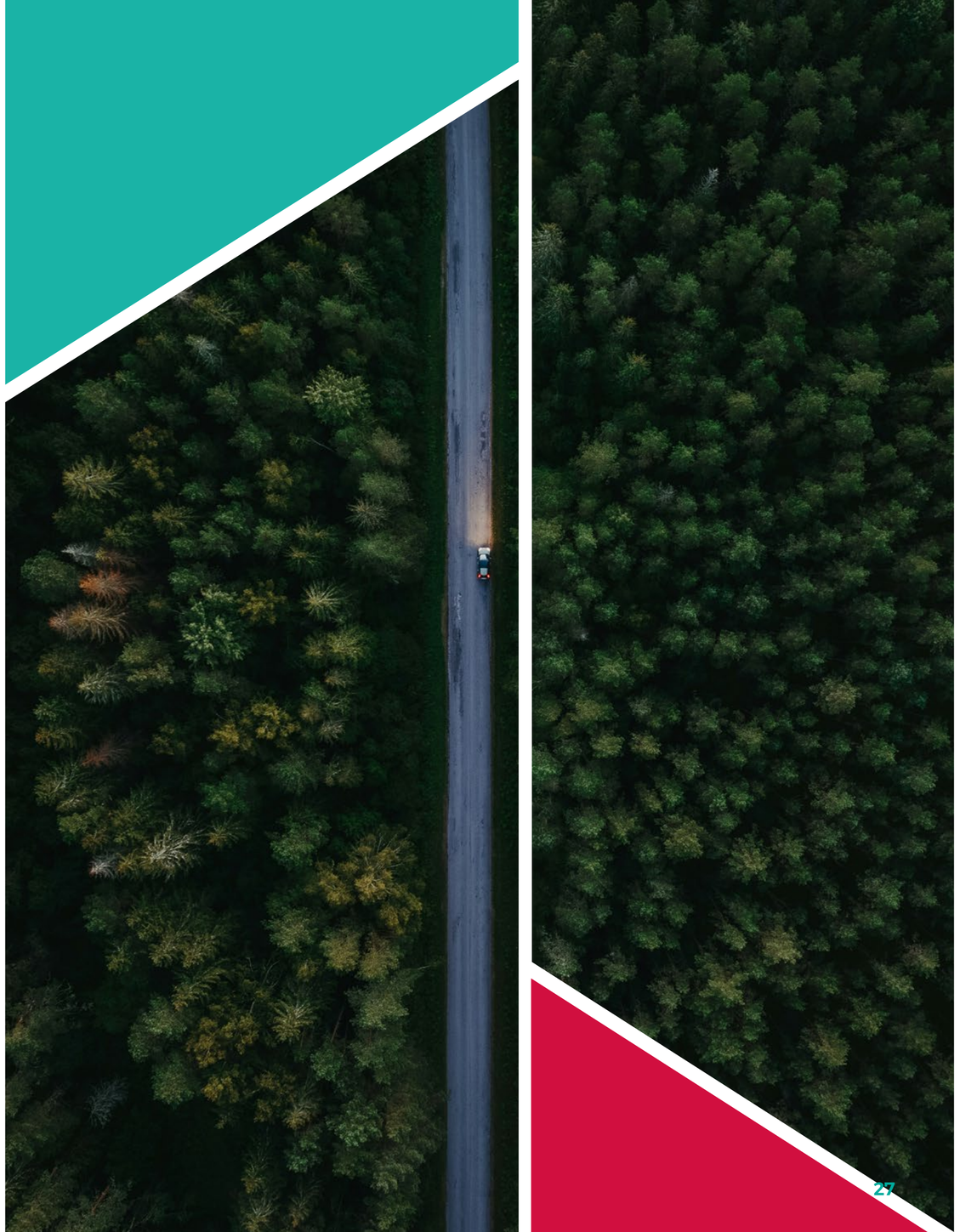
There is a significant opportunity to work with Trusts to reduce the number of physical leaflets being printed and distributed.

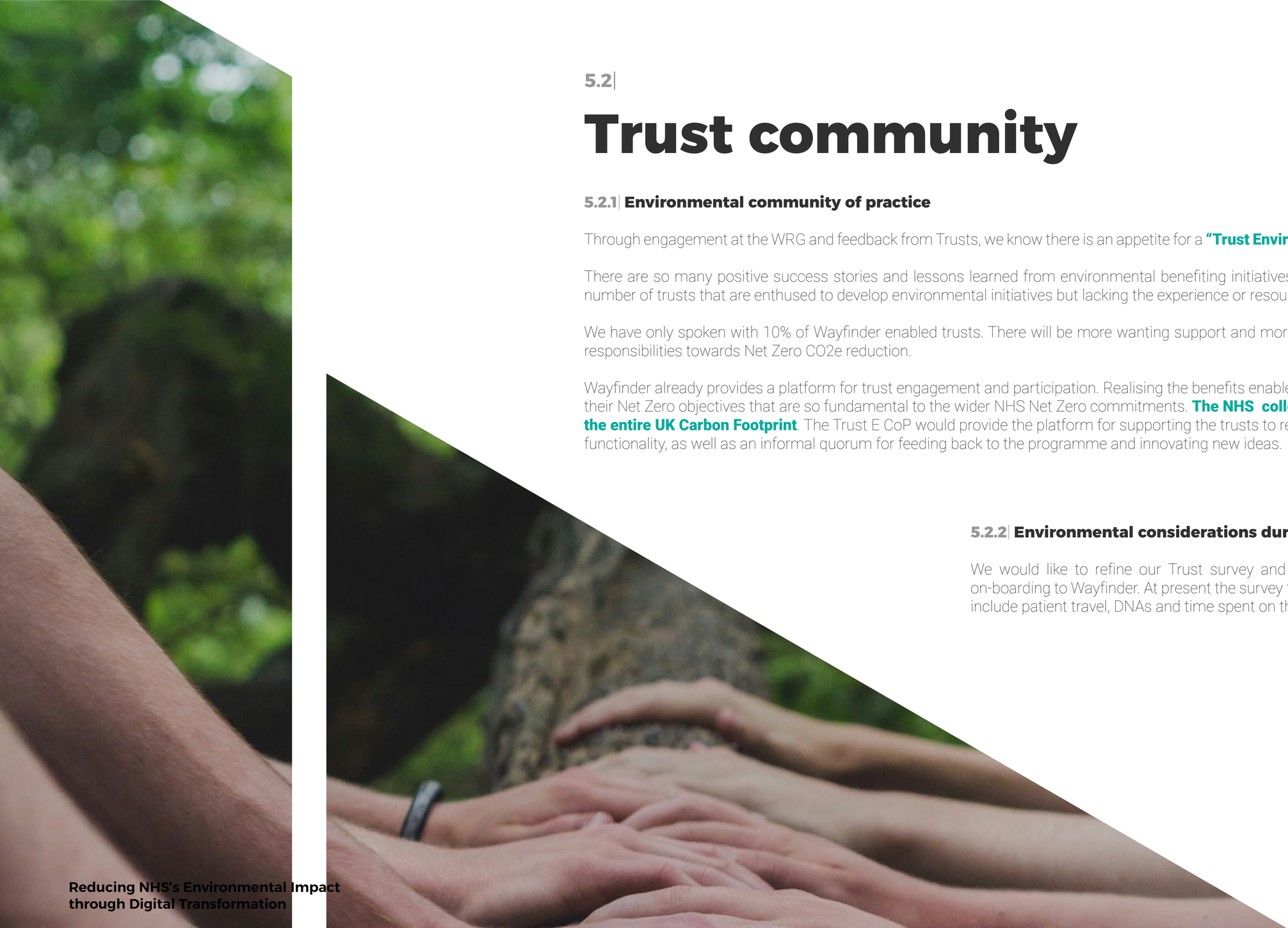
Further analysis could be done on the reduction of Travel enabled by Wayfinder. We have not explored the number of patients showing up to the wrong appointment or looked into the health care provider traveling to the patient (particularly in the case of Mental Health patients)

Wayfinder has demonstrated the value of considering and reporting on Environmental impacts and benefits and would welcome the opportunity to collaborate with other national services across the NHS.

5.1.1| NHS App and Live Services

Greener NHS would like to take these findings and principles apply their principles to all Live Services as well as NHS App functionality. Inspiring environmental impact to be considered a principle factor of business and benefit cases that will contribute to the wider NHS NET Zero objectives.





5.2|

Trust community

5.2.1| Environmental community of practice

Through engagement at the WRG and feedback from Trusts, we know there is an appetite for a **“Trust Environmental Community of Practice” (E CoP)**.

There are so many positive success stories and lessons learned from environmental benefiting initiatives across the trust, we have also identified a number of trusts that are enthused to develop environmental initiatives but lacking the experience or resource.

We have only spoken with 10% of Wayfinder enabled trusts. There will be more wanting support and more that do not yet realise the benefits or their responsibilities towards Net Zero CO2e reduction.

Wayfinder already provides a platform for trust engagement and participation. Realising the benefits enabled by Wayfinder will help the trusts with their Net Zero objectives that are so fundamental to the wider NHS Net Zero commitments. **The NHS collectively makes up between 4% - 7% of the entire UK Carbon Footprint**. The Trust E CoP would provide the platform for supporting the trusts to realise the benefits enabled by Wayfinder functionality, as well as an informal quorum for feeding back to the programme and innovating new ideas.

5.2.2| Environmental considerations during trust on-boarding to Wayfinder

We would like to refine our Trust survey and mandate its completion as part of trusts on-boarding to Wayfinder. At present the survey focuses on paper, this could be elaborated to include patient travel, DNAs and time spent on the phone.

6 Credits and lessons

6.1. Credits

The Wayfinder Programme team
Led by SRO Ian Lowry and Programme Director Peter Ward. Previous Director Alison Ward. Operations Managers Shirley Gaynor and Trevor Ward. Head of Digital Roarke Batten and PMO Lead Joe Evans

Greener NHS
Ben Tongue and Leeds University Placement Student Luke Minchin

ACE and Servita
For architecting with sustainability in mind; Rich Story, Des Kelleher, Goran Nikic, Dan Lynagh

Patients Know Best
For leading on the measurement of the CO2e footprint of Wayfinder, being fully transparent and collaborative with other PEPs

Wayfinder Enabled NHS Trusts
For completing the survey and enabling Greener NHS to model CO2e of Patient Appointment letters:

- Hull University Teaching Hospital c/o Helen Etherington

- Norfolk and Norwich University Hospital c/o Tim Ford

- North Bristol NHS Trust c/o Ben Chantrell

- North Tees and Hartlepool c/o Oliver Randall

- Royal Berkshire c/o Andrew Hubbard

For supporting the programme in defining the survey and participation at the WRG, the aforementioned trusts plus the following:

- Doncaster and Bassetlaw Teaching Hospital c/o Helen Etherington and Marcus Sowersby

- Hampshire Hospitals NHS Foundation Trust c/o Phil Thwaites and Gillian Brown

- Leeds Teaching Hospital c/o Rob Child

- Milton Keynes c/o Jacqui Page

- Royal Orthopaedic Hospital c/o Gavin Newman

- Sherwood Forest Hospitals c/o Martin Hogg and Kira Foster

- The Dudley Group c/o Rebecca Ward

- QEH Kings Lynn c/o Trudy Taylor

- University Hospitals Birmingham c/o Theresa Price

- West Hertfordshire Teaching Hospital c/o Jo Wilder and Paul Howard

6.2. Lessons learned

Following are some of the key lessons learned during our analysis of Environmental Benefits.

- **Get the ball rolling!**
  Don't wait to be told or asked to spot an opportunity to improve efficiency or report an environmental opportunity or risk and don't let perfect be the enemy of good. By starting conversations and engaging peers/stakeholders you will gain momentum. Looking after our environment is a vested interest for all citizens.

- **Sustainable Tech = Greener Tech**
  Achieving a Carbon Reduction was not a requirement of the Patient Care Aggregator but it was achieved through optimising the efficiency of the solution. By removing waste from a process, saving time, reducing costs, you are improving the sustainability of a product or service. This is a win for the environment.

- **Team effort**
  A full stack assessment of the environmental impact and benefits of a digital transformation requires input and leadership from many teams including; the business responsible for the change and the live service, the suppliers and technical teams developing the solution, the carbon accountants, the communications teams etc. Naturally the work will require co-ordination and is recommended to align with existing the business case and benefits assessments.

- **Share good news**
  Environmental Stewardship and CO2e measuring can be a daunting task. The subject itself is very concerning and regulation and guidelines can often be unclear. Good news and success can not only inspire others, the responses can galvanise your own endeavours.

- **No one has all the answers**
  There are a growing number of resources, case references and support platforms but it is likely you will be breaking new ground in your specific analysis. Whether that be because of a new technology stack, a new supplier or even just a new reporting year, the data set will likely be unique. As long as you can explain the calculations, consider the full end to end value chain and engage the appropriate stakeholders then you will arrive at the most informed position.

- **Don't shy away from the impacts**
  Non-disclosure of the impacts of a product or service is commonly referred to as "Green Washing". It is not possible to only deliver benefit when considering a digital change, there has to be an impact. An impact of replacing physical paper letters with a digital channel is an increase in data processing and storage. As mentioned previously, it is essential that the new solution does not erode the benefit, or worse, increase the impact on the environment, as this would render the solution un-sustainable.

All the impacts of the change should be considered, assessed and controlled. Through continuous improvement in technology and energy efficiency, impacts can be further reduced over time which have the added advantage of increasing net benefits!

Servita