Just economics

TEAM LONDON BRIDGE

Supported by Impact on Urban Health

Bikes for Business evaluation

Final report

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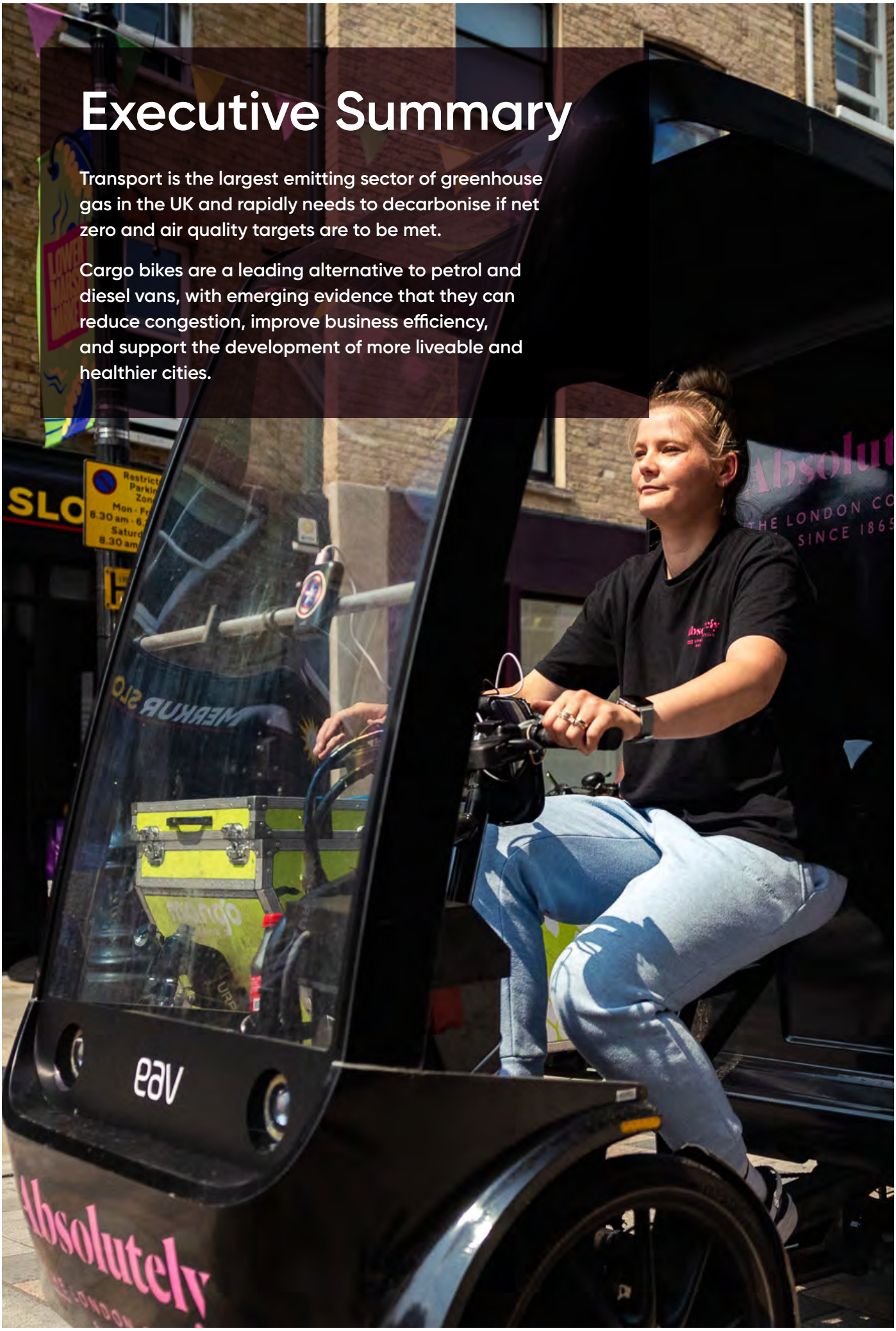
Executive Summary

Transport is the largest emitting sector of greenhouse gas in the UK and rapidly needs to decarbonise if net zero and air quality targets are to be met.

Cargo bikes are a leading alternative to petrol and diesel vans, with emerging evidence that they can reduce congestion, improve business efficiency, and support the development of more liveable and healthier cities.



Bikes for Business is an innovative programme that sought to promote cargo bikes as a mainstream solution for business freight in London Bridge and north Southwark.

Hosted by Team London Bridge, a Business Improvement District, and funded by Impact on Urban Health, the programme sought to encourage businesses to switch to cargo bike deliveries through the provision of tailored advice and a subsidy towards bike purchase or courier trial.

This report presents the findings of the programme evaluation conducted by Just Economics between May 2021 and June 2023.

Evaluation methodology

Just Economics undertook a prospective, mixed-methods evaluation. Interim learnings were shared throughout the evaluation to enable programme refinement, including around programme targets, the subsidy and engagement methods.

Results

By project end, the following results had been achieved:

- 150 businesses had either purchased a cargo bike or tried a cargo bike courier service
- A total of 1043 businesses had been given guidance on cargo bikes
- The majority of businesses switching to cargo bikes did so from polluting delivery modes, with 30% switching from a traditional courier and 36% from their own diesel/petrol van
- Annual carbon savings attributable to the programme from the 34 businesses purchasing their own bike are estimated at 16.9 tonnes

The businesses purchasing their own bike reported very high levels of satisfaction with their cargo bike. The average satisfaction rating on the 1-month feedback form was 4.6 out of 5 and 100% of businesses said they would continue using their cargo bike.

The most cited benefit was environmental sustainability, with 85% of businesses purchasing their own bike saying this applied 'a lot'. Businesses also reported that deliveries were more efficient, reliable, and easier to make, and that staff satisfaction/wellbeing improved. Brand and image benefits were also significant, as were cost-savings from reduced spending on fuel, parking tickets and the increased efficiency of deliveries.

Businesses switching to a cargo bike courier service were also very satisfied, with the average satisfaction rating for the cargo bike courier 4.6 out of 5. Two-thirds of the businesses (66%) said they plan to grow the amount of cargo bike deliveries in the future.

As with own purchase, the most cited benefit was increased environmental sustainability, with 79% of businesses saying this applied to them a 'a lot' and a further 21% stating 'a little'. Deliveries were generally also described as more efficient and reliable. Some businesses reported brand and image benefits, but to a lesser degree than in the own bike pathway.

A significant finding is that cost-savings were much less of a benefit for those using cargo bike couriers than for businesses purchasing their own bike. This is consistent with the interview data which identified that cargo bike couriers are often more expensive on a like-for-like basis than van couriers. This presented a significant barrier to businesses switching and also to the sustainability of switches in this pathway, with a number of businesses reverting to prior delivery arrangements after the subsidy period had ended.

Learnings and recommendations

While 150 businesses switching is a significant achievement, encouraging businesses to make the switch to cargo bikes was often time-consuming and difficult. Many businesses were strongly anchored in their existing delivery arrangements, making switching both practically and financially challenging.

This points to the limitations of behaviour change programmes in the absence of wider policy action to encourage a transition to cleaner deliveries.

To this end, the report makes a series of recommendations for a range of stakeholders to increase cargo bike uptake. Key recommendations for funders and policy-makers include the following:

- Provide continued funding for programmes that provide tailored advice and subsidy in order to facilitate behaviour change by acting as a 'pull' factor
- Implement policies that level the playing field between cargo bikes and more polluting delivery modes, such as smart road pricing that more accurately reflects environmental and social costs of different modes

A number of recommendations are also made for organisations delivering cargo bike promotion programmes, including around how to engage and target businesses effectively.

1. Introduction

Transport is the largest emitting sector of greenhouse gas in the UK and rapidly needs to be decarbonised if net zero and air quality targets are to be met. Freight makes a significant contribution to these problems and is set to grow in absolute and relative terms. For this growth to be sustainable, there is an urgent need to prioritise low emission vehicles.

Cargo bikes are a leading alternative to vans, especially for last-mile deliveries. They demonstrate potential to tackle the twin environmental problems of greenhouse gas emissions and air pollution,[1] with emerging evidence that they can reduce congestion, improve business efficiency, and support the development of more liveable and healthier cities.

Yet, despite the mounting evidence base in support of cargo bikes, uptake is slow. If current trends continue, a modal shift in freight is still some way off.

This report summarises the evaluation findings for Bikes for Business, a programme to promote the uptake of cargo bike deliveries by businesses in and around London Bridge and north Southwark.

The Bikes for Business programme was initiated by Team London Bridge, a Business Improvement District (BID), and funded by Impact on Urban Health (IOUH). It ran for 27 months from April 2021 and was delivered by MP Smarter Travel, a sustainable travel consultancy working alongside business partnerships in North Southwark.

1.1 About this report

In June 2021, Team London Bridge commissioned Just Economics to undertake an evaluation of the Bikes for Business programme.

This is the final report of the evaluation, setting out the main findings and learnings from the project.

The report is structured as follows:

Section 2 provides a brief summary of the Bikes for Business programme

Section 3 presents the findings of the literature review setting out the evidence for cargo bikes

Section 4 sets out the evaluation methodology

Section 5 summarises the programme results, including outcomes and impact

Section 6 presents key learnings from the programme

Section 7 concludes the report with recommendations for key stakeholders

[1] Air pollution has many adverse health effects that are not experienced equally across the UK. Research shows it's the most vulnerable and marginalised people in our communities, particularly those living in urban areas, who are disproportionately affected by air pollution. Air pollution is an environmental risk to health that can, and must, be solved systematically (see for example, Chief Medical Officer: Annual Report, https://www.gov.uk/government/collections/chief-medical-officer-annual-reports?msclkid=4eaafe9ab4f211ecb739d1b4a4226e0c).

2. About Bikes for Business

Bikes for Business is a programme that sought to promote cargo bikes as a mainstream solution for business freight in London Bridge and north Southwark. It was hosted by Team London Bridge, a Business Improvement District (BID) that works with businesses in and around London's Low Line corridor in Southwark, and funded by Impact on Urban Health (IOUH).

The current programme followed a smaller scale pilot in the London Bridge area between 2018-2020, which had been funded by Transport for London.

MP Smarter Travel was commissioned by Team London Bridge as the delivery partner for both the pilot and follow-on project. Their role was to provide a marketing, engagement and advice service to identify businesses and then encourage and support those businesses to switch to cargo bikes.

Subsidies to incentivise the switch were available via three pathways:

- **Courier switch**: Businesses could sign up with a courier service that uses cargo bikes for its deliveries (maximum subsidy £345)[2]
- **Own bike:** Businesses could purchase their own cargo bike (maximum subsidy £1500)
- **Service:** Businesses could use a service provider (e.g. electrician, window cleaner) that arrives by cargo bike (maximum subsidy £345)

MP Smarter Travel supported businesses through the process of deciding which solution is optimal for their business and then, as appropriate, choosing a bike or courier/service provider. To avoid discouraging businesses from participating, the subsidy process kept paperwork to a minimum.

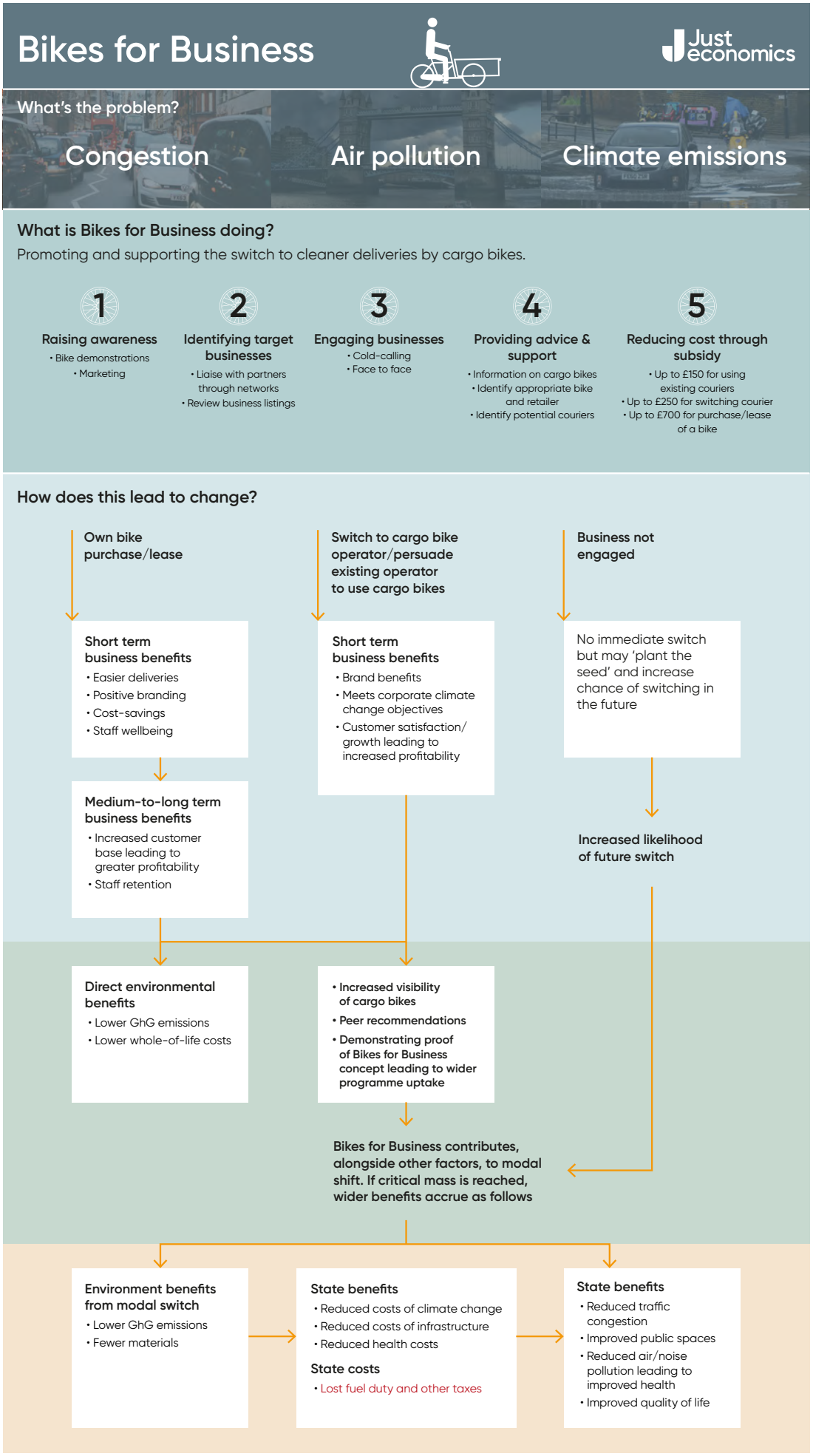
MP Smarter Travel also undertook extensive market development in the Southwark area to grow the size of the cargo bike market. This consisted of maintaining a directory of services available by cargo bike, establishing an Operator Code of Conduct (now adopted by TfL), and assisting cargo bike couriers and service providers with the purchase of their first cargo bike.

Through the course of the project, the Bikes for Business team became a known and trusted source of information on cargo bikes, cargo bike operators and cargo bike promotion. They were regularly contacted by business improvement districts, local authorities and businesses outside the area seeking advice and they were invited to speak at various conferences and forums. This reflected the world-leading nature of the programme. At the time of the initial pilot, the programme was unique in the way it targeted businesses directly with a combination of promotion, advice and subsidy.

The Bikes for Business programme Theory of Change is summarised in Figure 1 and presented in detail in Appendix 1.

[2] Subsidies were increased during the programme in response to evaluation feedback and increases in bike prices. Initial subsidy levels were: courier switch up to £250, bike purchase up to £700, service up to £250.

Figure 1: Bikes for Business Theory of Change



3. Why cargo bikes?

Although cargo bikes have been in existence since the 19th century, it is only in recent years with the advent of electrically assisted, high-performance batteries that they have emerged as a potential solution to the growing problems relating to urban freight, especially last mile delivery.

There is a rapidly increasing research base that supports long-held hypotheses relating to the potential of cargo bikes. Potential benefits (and costs) fall into four areas:

- Environmental benefits
- Health benefits
- Business benefits
- Savings or benefits to the state

3.1 Environmental benefits

Transport is the largest contributor to **greenhouse gas emissions** in the UK, accounting for over a third of emissions that are leading contributors to climate change and also poor air quality (see 3.2 below). Unlike other sectors, only small improvements have been made in recent years. In 2019, Light Commercial Vehicles (LCVs) accounted for 15% of greenhouse gas emissions and 23% of NOx from transport in the UK.[3] Their use has been on the rise and is set to rise further with the growth in importance of e-commerce to the economy.[4] Last-mile fulfilment is among the most energy consuming logistics operations in the supply chain,[5] and is also a key challenge in transport planning.[6]

There are various estimates of the volume of CO2 emissions avoided by switching to cargo bikes[7]. In a simulation, Browne et al. find that switching to e-cargo bikes leads to a 20% decrease in total distance travelled and a 54% decrease in CO2 equivalent emissions in London.

As well as tailpipe emissions, the manufacturing of vans – including electric vans – generates substantial carbon emissions. While there are no direct studies of vans and cargo bikes, motor vehicles and bikes has been examined. These find that around 5000kg of CO2[8] are emitted during production and disposal of vehicles, compared to 96 kg for a typical Dutch commuter bike.[9]

3.2 Health benefits

In 2020 it was reported that, despite some improvements in **air quality**, 99% of London exceeds the WHO recommended limits for PM2.5 and that people living in areas of deprivation, as well as those from minoritised communities, were more likely to be exposed.[10]

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[3] Department for Transport (2019) Energy and environment: Data tables

[4] ONS (2020) Internet sales as a percentage of total retail sales

[5] Halldorsson, A., & Wehner, J. (2020). Last-mile logistics fulfilment: A framework for energy efficiency. Research in Transportation Business & Management, 37, 100481

[6] Blazejewski, L., Sherriff, G., & Davies, N. (2020). Delivering the last mile: scoping the potential for E-cargo bikes.

[7] Hagen, J., Lobo, Z., & Mendonça, C. (2013). The Benefits of Cargo Bikes in Rio de Janeiro: A Case Study.

[8] https://www.transportenvironment.org/sites/te/files/publications/2018_04_CO2_emissions_cars_The_facts_report_final_0_0.pdf

[9] https://www.bikeradar.com/features/long-reads/cycling-environmental-impact/

[10] https://www.london.gov.uk/press-releases/mayoral/dramatic-improvement-in-londons-air-quality

Vans cause over 30% of NOx and particulate emissions.[11] One London-based study found that premature deaths from exposure to diesel emissions from vans could be reduced by 91.5% if local authorities were to introduce measures that lead to the replacement of the van fleet with e-cargo in the last mile.[12] Finally, road traffic is also linked to **water and soil pollution**.[13]

Despite a range of alternatives and disincentives to vehicle use, **congestion** continues to rise in London and with it the impacts on air quality.[14] One of the main reasons for worsening congestion is the growth in van traffic. Some 20-25% of freight vehicle kilometres is related to goods leaving urban areas, and 40-50% is related to incoming goods.[15] Since 2008, van mileage has increased by a fifth in the UK, and vans now make up about 15% of traffic.[16] The OECD projects global freight demand to triple between 2015 and 2050 based on the current demand pathway.[17]

Research also shows that only a small proportion of deliveries currently made by vans in Europe require the use of motorised vehicles, with one study in Belgium finding that 40% of deliveries are for just one box.[18] Cargo bikes can address this problem by using road and storage space more efficiently, and by shortening journey times, either through dedicated lanes or from the benefits of smaller size and greater manoeuvrability. A Department of Transport demonstration project found that 96.7% of orders could be fulfilled in a single cargo bike drop with shorter delivery routes and time journeys.[19]

About 1,600 people are killed in **road traffic accidents** in the UK each year. This figure rises to 24,470 when seriously injured casualties are included and 131,220 casualties of all severities.[20] It is estimated that a third of road deaths are incidents relating to people driving for work, more than the number of people killed in workplace accidents.[21] According to a report by UCL, despite a rapid increase in vans, this sector falls outside the strict regulations governing other occupational drivers such as HGVs.[22] Although there are

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11 Cairns, S., & Sloman, L. (2019). Potential for e-cargo bikes to reduce congestion and pollution from vans in cities. Transport for Quality of Life Ltd. https://www. bicycleassociation. org. uk/wpcontent/uploads/2019/07/Potential-for-e-Cargo bikes-to-reduce-congestion-and-pollution-from-vans-FINAL. pdf.

12 Colson, J. R. (2019). The Financial Viability and Sustainability Benefits of Using Cargo Trikes Instead of Vans for 'Last-Mile Logistics in London in the Age of Online Shopping (Doctoral dissertation, Harvard University).

13 Goonetilleke, A., Wijesiri, B., & Bandala, E. R. (2017). Water and soil pollution implications of road traffic. Environmental impacts of road vehicles: past, present and future, 44, 86-106.

14 Cairns, S., & Sloman, L. (2019). Potential for e-cargo bikes to reduce congestion and pollution from vans in cities. Transport for Quality of Life Ltd. https://www. bicycleassociation. org. uk/wpcontent/uploads/2019/07/Potential-for-e-Cargo bikes-to-reduce-congestion-and-pollution-from-vans-FINAL. pdf.

15 Wiki, C. (2015). Smart Choices for Cities. Making Urban Freight Logistics More Sustainable.https://civitas.eu/sites/default/files/civ_pol-an5_urban_web.pdf

16 Cairns, S., & Sloman, L. (2019). Potential for e-cargo bikes to reduce congestion and pollution from vans in cities. Transport for Quality of Life Ltd. https://www. bicycleassociation. org. uk/wpcontent/uploads/2019/07/Potential-for-e-Cargo bikes-to-reduce-congestion-and-pollution-from-vans-FINAL. pdf.

17 OECD (2019) ITF Transport Outlook 2019 https://www.oecd-ilibrary.org/sites/c013afc7-en/index.html?itemId=/content/component/c013afc7-en

18 Government Office for Science (2019) Last mile urban freight in the UK: how and why is it changing? https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/777682/fom_last_mile_road_freight.pdf

19 Department for Transport (2020) Decarbonising transport: Setting the challenge https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/932122/decarbonising-transport-setting-the-challenge.pdf

20 Department for Transport (2021) Reported road casualties in Great Britain: provisional estimates year ending June 2020 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/956524/road-casualties-year-ending-june-2020.pdf

21 Ward, H., Christie, N., & Walton, B. (2020). Driving for work: A strategic review of risks associated with cars and light vans and implications for policy and practice.

22 Ward, H., Christie, N., & Walton, B. (2020). Driving for work: A strategic review of risks associated with cars and light vans and implications for policy and practice.

some issues with road safety in relation to cargo bikes, these predominantly come from motorised vehicles and could be addressed through better infrastructure (e.g. separate lanes) and training for both van drivers and cargo bike riders.

Switching to cargo bikes also has the potential to improve the **health of drivers**. Research has found poor health outcomes amongst truck drivers as a result of unfavourable working conditions including long work hours, sleep deprivation, sedentary lifestyle and unhealthy diet.[23] This in turn has resulted in below average life expectancy for male truck drivers.[24] Cargo bikes by contrast are an active form of transport that promotes health. Van drivers are also highly exposed to air pollution, due to long periods sitting in traffic,[25] and studies show that exposure of motorists is higher than that of cyclists.[26]

Finally, displacing vans with cargo bikes could improve **quality of life and thereby lead to other health benefits**. Noise pollution is of particular importance here due to the physical and psychological effects. Noise pollution has been linked to a range of mental and physical health problems, such as cardiac disease, birth defects and immune system problems.[27] Health risks from noise are correlated with road traffic, suggesting that they are the consequences of elevated sound levels.[28] In 2008, the social costs of traffic noise in the EU22 was estimated at more than €40 billion per year; with passenger cars and lorries responsible for the bulk of costs.[29] In addition to noise impacts, people report lower overall quality of life when they live near road traffic.[30] This is certainly partly mediated by noise but may also be linked to vibration and visual pollution,[31] or reduced social capital.

3.3 Business benefits

In a review of the literature, Hagen and Mendonça (2013) identify a number of potential benefits to businesses from cargo bikes.[32] These are i) lower purchase, maintenance and running costs; ii) greater ease of access and thus shorter delivery times (during business hours London traffic speed is about 9 mph compared with 12 mph for cargo bikes);[33] and iii) reputational benefits from green branding.

Although there is much anecdotal evidence to support the argument that cargo bikes should be cheaper and more productive than diesel vans – and therefore able to outcompete them on cost grounds – there are currently no robust examples where monetary benefits have been quantified. Indeed, our own research has found that – with

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[23] Taylor, A. H., & Dorn, L. (2006). Stress, Fatigue, Health and Risk of Road Traffic Accidents Among Professional Drivers: The Contribution of Physical Inactivity.

[24] Ng, M. K., Yousuf, B., Bigelow, P. L., & Van Eerd, D. (2015). Effectiveness of health promotion programmes for truck drivers: a systematic review. Health Education Journal, 74(3), 270-286.

[25] Lim, S., Barratt, B., Holliday, L., Griffiths, C. J., & Mudway, I. S. (2021). Characterising professional drivers' exposure to traffic-related air pollution: Evidence for reduction strategies from in-vehicle personal exposure monitoring. Environment International, 153, 106532.

[26] Rank, J., Folke, J., & Jespersen, P. H. (2001). Differences in cyclists and car drivers exposure to air pollution from traffic in the city of Copenhagen. Science of the Total Environment, 279(1-3), 131-136.

[27] Geravandi, S., Takdastan, A., Zallaghi, E., Vousoghi Niri, M., Mohammadi, M. J., Saki, H., & Naiemabadi, A. (2015). Noise pollution and health effects. Jundishapur Journal of Health Sciences, 7(1).

[28] Geravandi, S., Takdastan, A., Zallaghi, E., Vousoghi Niri, M., Mohammadi, M. J., Saki, H., & Naiemabadi, A. (2015). Noise pollution and health effects. Jundishapur Journal of Health Sciences, 7(1).

[29] Biddulph, M. (2012). Radical streets? The impact of innovative street designs on liveability and activity in residential areas. Urban Design International, 17(3), 178-205.den Boer LC, Schroten A. Traffic noise reduction in Europe. 2008;

[30] Foley, L., Prins, R., Crawford, F., Humphreys, D., Mitchell, R., Sahlqvist, S., ... & M74 Study Team. (2017). Effects of living near an urban motorway on the wellbeing of local residents in deprived areas: Natural experimental study. Plos one, 12(4), e0174882.

[31] Slabinac, M. (2015). Innovative solutions for a "Last-Mile" delivery–a European experience. Business Logistics in Modern Management.

[32] Hagen, J., Lobo, Z., & Mendonça, C. (2013). The benefits of cargo bikes in Rio De Janeiro: a case study.

[33] Conway, A., Fatisson, P. E., Eickemeyer, P., Cheng, J., & Peters, D. (2012, January). Urban micro-consolidation and last mile goods delivery by freight-tricycle in Manhattan: Opportunities and challenges. In Conference proceedings, Transportation Research Board 91st Annual Meeting.

the exception of the purchase of bikes by businesses themselves – the cost of courier deliveries by cargo bike is often more expensive with employee wages and benefits being the main source of this cost differential.[34]

3.4 State benefits

Most state benefits derive indirectly from the benefits set out above (e.g., improved health as a result of reduced air and noise pollution).

One direct benefit to the state is lower infrastructure costs. Motor vehicles, and particularly heavy trucks, cause substantial damage to roads and bridges, requiring expensive maintenance regimes.[35]

Governments will also incur a cost from cleaner transport because of reduced fuel duty and other costs. However, these are largely neutralised in a holistic economic analysis as they are mainly transfers from businesses that would have to meet these costs.

Transitioning to robust cycling infrastructure will also require investment and the economic feasibility of cargo bikes is more pronounced with the presence of bike lanes and local depots close to or within the delivery areas.[36] However, studies that consider costs and benefits at the national level tend to find a positive net present value from these investments due to the size and value of the positive externalities from cycling.[37] Encouraging businesses to adopt cargo bike deliveries can also ensure that cycling infrastructure is utilised throughout the day, rather than solely at commuter times.

Finally, the total benefits of cargo bikes should increase relative to the costs over time. As with other transport systems, cycling exhibits some network effects (i.e. their value increases as more people participate).[38] However, it is not until we see a 'modal shift' (i.e. where cargo bikes are mainstream, displacing large numbers of cars and vans) that we will start to see material changes to air quality, emissions and quality of life outcomes. There are many estimates of the potential for cargo bikes to replace vans ranging from as low as 15% to as high as 51%.[39] [40] The potential benefits discussed above, therefore, should be viewed as having a similar range, suggesting that the greater the transition to cargo bikes the greater the benefits.

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[34] Just Economics (2022) Delivering value https://www.justeconomics.co.uk/health-and-well-being/delivering-value

[35] Hagen, J., Lobo, Z., & Mendonça, C. (2013). The Benefits of Cargo Bikes in Rio de Janeiro: A Case Study.

[36] Choubassi, C., Seedah, D. P., Jiang, N., & Walton, C. M. (2016). Economic analysis of cargo cycles for urban mail delivery. Transportation Research Record, 2547(1), 102-110.

[37] Rajé, F., & Saffrey, A. (2016). The value of cycling. Cycling Embassy.

[38] Schoner, J. E., & Levinson, D. M. (2014). The missing link: Bicycle infrastructure networks and ridership in 74 US cities. Transportation, 41(6), 1187-1204.

[39] Gruber, J., Ehrler, V., & Lenz, B. (2013). Technical potential and user requirements for the implementation of electric cargo bikes in courier logistics services. In 13th World Conference on Transport Research (WCTR).

[40] www.cyclelogistics.eu

4. Evaluation approach and methodology

Just Economics was commissioned by Team London Bridge to undertake a prospective evaluation of the Bikes for Business programme. This commenced in May 2021 and continued to the end of the project in June 2023.

4.1 Evaluation approach

The evaluation was informed by the Developmental Evaluation approach.

At the heart of Development Evaluation is a recognition that interventions which seek to address complex issues, such as behaviour change, are more effective when there is acknowledgement that intervening is unlikely to proceed in a linear, straightforward way. Mechanisms are then put in place for capturing feedback and learning to enable course correction within the lifetime of the intervention. As such, it is particularly useful when an intervention is still under development or being tested, as was the case with Bikes for Business.

Developmental Evaluation positions the evaluator as walking alongside those implementing the intervention, providing regular feedback to enable continuous improvement that ensures maximum impact. In this way, Developmental Evaluation brings together **process**, **outcomes** and **impact evaluation**.

The Developmental approach necessitates a **mixed-methods** design that recognises the complementarity between qualitative and quantitative methods. While the quantitative measures provide insight into how much change is observed against key indicators, the qualitative measures assist with:

1. Understanding why and how that change has occurred;
2. Capturing feedback and learning to inform programme improvement.

Learning was shared throughout the evaluation, enabling the refinement of the Bikes for Business programme. As set out in later sections of the report, findings from the evaluation informed key aspects of the project, including:

- The subsidy level and logic that underpinned it
- The business engagement methods, and
- The project targets.

Moreover, the research activities were also adapted in response to evaluation findings in real-time. In response to a finding – contrary to expectations – that cost was a significant barrier to switching, two additional pieces of research were carried out: a rapid review with businesses to better understand this and a policy paper to explore structural barriers to switching.

4.2 Research questions

There were three main research questions guiding the evaluation:

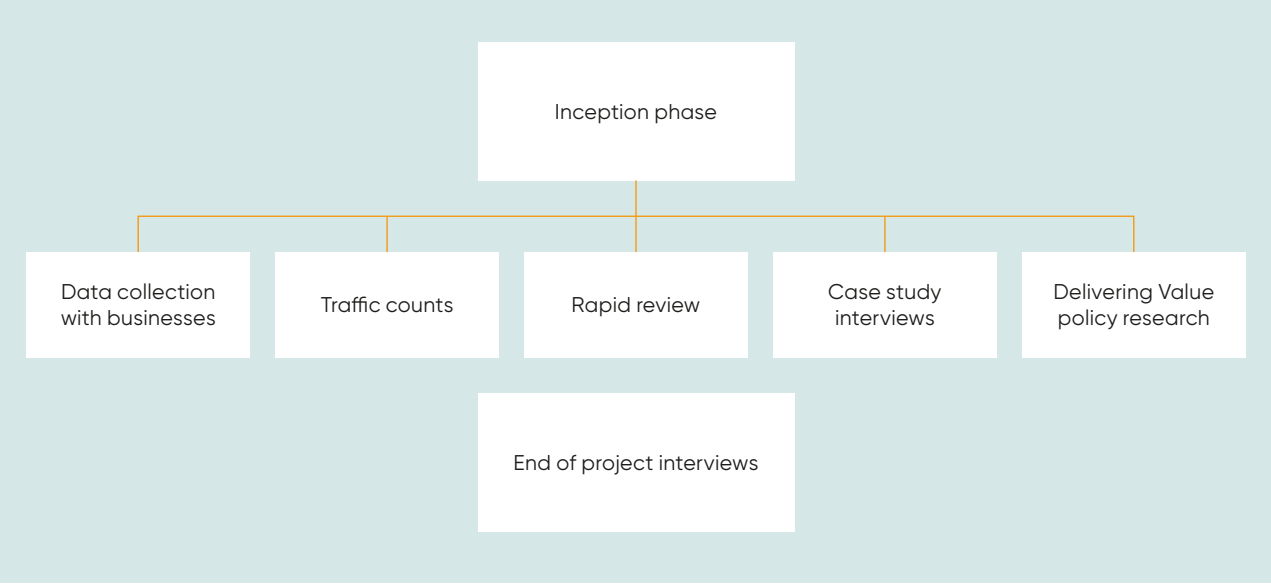
1. What is the impact of the programme?
2. What are the barriers and enablers to achieving that impact, including for businesses and operators, and how could programme design and implementation be improved to maximise impact?
3. What is the potential for scaling/replicating the programme more widely (either in Southwark, Lambeth, or elsewhere in the UK) and what are the barriers and enablers to achieving this?

Throughout the evaluation, it was vital to distinguish between the benefit of cargo bikes per se and the value added by this programme. For example, a business may have experienced significant benefits from purchasing a cargo bike. However, this benefit is only attributable to Bikes for Business if the programme contributed in some way to the business making the decision to buy the bike (i.e. if it wouldn't have happened anyway in the absence of the Bikes for Business intervention).

4.3 Research activities

The main components of the Bikes for Business evaluation are set out in Figure 2, with activities under each discussed in more detail below.

Figure 2: Bikes for Business Research Activities



Inception phase

The purpose of the inception phase was to develop a comprehensive Theory of Change (ToC) and measurement framework for Bikes for Business.

To this end, a total of 14 individuals were engaged (see Table 1). Businesses and couriers were sampled in a purposeful way to ensure that a diverse sample (e.g. business sector, size of business, own bike vs. courier switch) was interviewed.

As the engagement took place when Covid restrictions were still in place, the workshops and interviews and were conducted via Zoom video-conferencing. All participants were asked to provide informed consent.

Table 1: Stakeholder groups included in the research

Stakeholder group	Method of engagement	Number of people
Business (courier switch)	Interview	2
Business (own bike)	Interview	1
Couriers and service providers	Interview	3
Steering group	Workshop	3
Partners	Workshop	5

The stakeholder engagement enabled the development of the Bikes for Business ToC (see Appendix 1) and the measurement framework, including the traffic counts and data collection with businesses set out below.

Furthermore, the engagement with businesses and operators highlighted that there were potentially significant barriers to uptake that had implications for the way the Bikes for Business programme was implemented. To this end, it was recommended that a rapid review investigate the business engagement activities, subsidy logic and barriers to uptake (see more details below).

Data collection with businesses

There were two primary modes of collecting data from businesses:

1. Recording of key business information and project-related outputs in the business engagement spreadsheet (see below)
2. Feedback forms for businesses that were supported via one of the three project pathways (i.e., own bike purchase, switch to cargo bike courier, or switch to cargo bike service).

In addition, qualitative data was gathered via ad hoc interviews (N=10), including case study research with three businesses.

Traffic counts

Cargo bike counts were commissioned from Tracsis Traffic Data in September 2021 and again as a follow up 12 months later. The 24-hour counts were conducted at several key locations within the project area. Video footage was manually coded by Tracsis researchers. The objective was to establish the change in the number of cargo bikes on the road within the project area.

However, the results proved inconclusive, most likely due to difficulties coding cargo bikes correctly. Although guidance was provided on what constitutes a cargo bike as opposed to a delivery by ordinary pedal cycle, the existence of a wide variety of cargo bike models – from 2-wheel through to 4-wheel models – meant there was likely variability in coding that undermined the robustness of results.

Discussions were also held with providers of AI traffic counts. However, the same difficulties around correctly identifying cargo bikes have also held back development of AI cargo bike counts. At the conclusion of the project, the count algorithm was still under development.

Rapid review

The rapid review was conducted in February 2022 with the aim of capturing learning to improve project delivery – and impact – in the remainder of the project. There was particular interest in any learnings that might help encourage the large number of 'engaged' businesses, who had expressed an interest in Bikes for Business, to undertake a trial as there was awareness that the conversion rate was behind target.

The review consisted of two main research activities:

- Online survey of engaged businesses consisting of three questions about level of interest in switching, potential enablers or incentives that would encourage them to switch, and what support Bikes for Business could provide (this survey had 21 responses).
- Telephone interviews with six of the 18 businesses that had recently completed a trial with a cargo bike. Questions were tailored to each business based on their responses to the 1-month feedback form and focused on reasons for switching, experience of switching, likelihood they would continue to use cargo bikes, and benefits/disbenefits of doing so.

Several recommendations were made to Bikes for Business based on the rapid review. The review also identified that the cost of cargo bike courier services (relative to van couriers) was a significant barrier to uptake of these services, both at the trial stage and longer-term. It was, therefore, recommended that policy-focused research be undertaken to identify levers that can help shift pricing structures so that cargo bike couriers can be competitive on price. This resulted in IOUH funding an additional piece of research, Delivering Value (see Box 1).

Box 1: Delivering Value policy research

Delivering Value was a standalone research project that sought to advocate for policy change to level the playing field for cargo bikes by making visible the true cost of deliveries by three different modes: diesel van, electric van and cargo bike.

As well as environmental and social externalities, such as air quality and congestion, our qualitative research found that cargo bike riders had better pay and conditions, which was driving up the cost of deliveries relative vans. To this end, an economic model was constructed to directly compare the environmental, social and economic costs of delivery with diesel vans, electric vans, and cargo bikes in central London.

The model's results were used to:

1. Estimate the social and environmental costs of cargo bikes compared with diesel and electric vans, once all externalities have been considered; and
2. Estimate the minimum cost of a single delivery in London if couriers – regardless of the mode of delivery – were paid a living wage, received standard non-wage benefits and did not have to meet costs that would be expected to be met by the delivery firm (e.g. fuel).

The report made a number of recommendations to various stakeholders – local and national government, Business Improvement Districts (BIDs) and developers – for how cargo bike uptake can be increased. It was presented to the GLA Economy Committee session investigating the transition to Net Zero Freight and Deliveries. The full report is available here: https://www.justeconomics.co.uk/health-and-well-being/delivering-value

End of project interviews

Prior the conclusion of the project, in-depth interviews were held with stakeholders to capture key learnings from the programme.

Interviews were conducted with;

- MP Smarter Delivery Team (n=3, in person)
- Team London Bridge Bikes for Business Lead (in person)
- IOUH Bikes for Business Lead (online)
- Project partners (n=2, online)

The findings are presented in Section 6.

4.4 Limitations

The primary limitations are as follows:

- While a good response rate was achieved for the 1-month feedback form (own bike = 59%; courier switch = 56%), the response rate for the 3-month form was only 14%. This means that we do not have robust quantitative data on how long cargo bike switches are maintained for. We sought to mitigate this by asking about long-term use and impacts in our interviews with businesses.
- It was difficult to assess indirect impacts of the project quantitatively. As noted, Bikes for Business became a trusted source of information on cargo bikes. A number of larger businesses, bike manufacturers and other localities received advice and guidance from the delivery team. Moreover, the increased visibility of cargo bikes may have prompted others to adopt their use without contacting the programme directly. It is difficult to robustly quantify these impacts as there was no ongoing, direct relationship with these organisations to enable data capture. We have sought to use the interviews with project stakeholders to capture as many indirect impacts as possible (see 5.2).
- The inability to obtain conclusive traffic counts also presented a barrier to assessing the degree to which Bikes for Business contributed to mainstreaming cargo bikes in the project area. At the outset of the project, it had been intended to use AI traffic counts in the project area and a control location to help estimate the extent to which the project had resulted in additional uptake of cargo bikes. However, the AI methodology has been slower to develop than anticipated and was still not on the market at time of project end.
- Emission savings are difficult to estimate for the project as a whole. While we have been able to estimate carbon emission savings from the own bike purchases, this is more difficult for the courier switch. Data was collected on the number of deliveries that businesses switched to cargo bike courier, but without detailed information on destinations and consignment sizes, which it was felt would make the feedback form too long for businesses, it is not possible to reliably estimate carbon savings from the courier switch pathway. We recommend that future research undertakes detailed delivery mapping with a randomly selected sample of courier switch businesses.

5. Findings

This section sets out the main findings from the Bikes for Business evaluation.

Drawing on both the quantitative and qualitative data, findings are presented as follows:

1. About the businesses in the programme
2. Outcomes for businesses
3. Additionality and impact
4. Environmental and wider impacts
5. Satisfaction with the programme

The learnings on how to successfully scale cargo bike use and replicate similar programmes are captured in Section 6.

5.1 About the businesses

The project provided guidance on cargo bikes to 1043 businesses (see Table 2).

By the time the project ended, 119 businesses had either purchased their own bike or trialled a cargo bike courier company or service. A further 31 businesses had a trial or purchase in progress. This brings the total number of businesses that either purchased a cargo bike or gone through a trial to 150.

Table 2: Final status (Source: Bikes for Business Final Report, MP Smarter Travel, June 2023)

Status	Number of Businesses
Businesses provided with guidance on cargo bikes	1043
Trial complated/bike purchased	119
Trial/bike purchase in progress	31

Of the 150 businesses, 34 purchased their own bike and the remainder switched to a cargo bike courier or service provider.

The majority of businesses switched from more polluting delivery modes (see Figure 3). The most common delivery method was a courier not using cargo bikes (30% of businesses) and own diesel/petrol van (26%). A further 10% were primarily using their own diesel/petrol car and 8% were using a gig economy provider (e.g. Uber, Deliveroo).

Figure 3: Prior delivery arrangments (Source: Engagement spreadsheet)

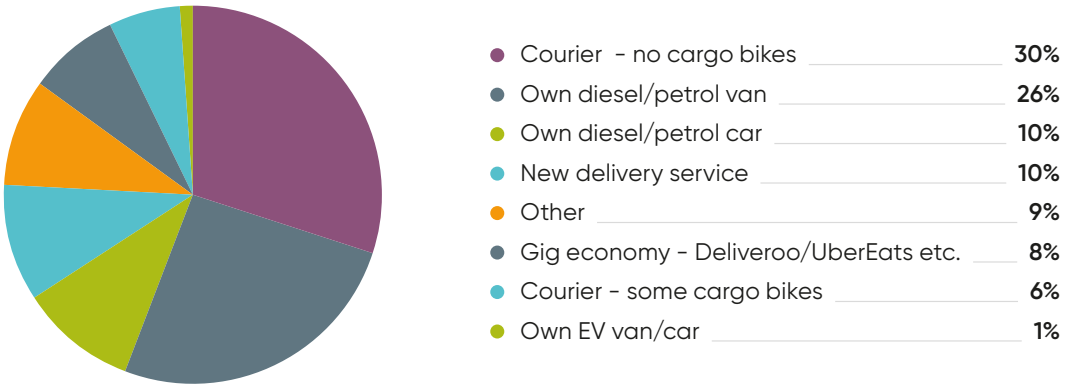
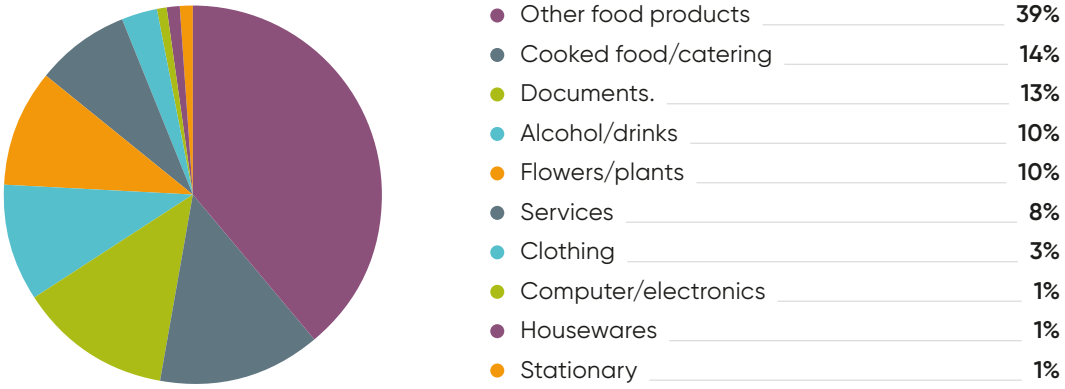


Figure 4 sets out the types of goods and services these businesses were delivering. Most businesses were delivering food products, catering or drinks (63% across these categories).

Figure 4: Types of goods being delivered by the businesses purchasing own bike/undertaking trial (Source: Engagement spreadsheet)



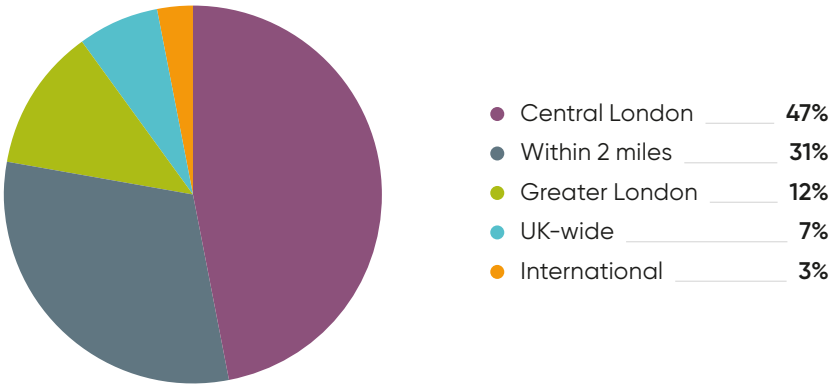
Examples of businesses purchasing their own cargo bike through the programme included a butcher, wine shop, and florist. These all used their cargo bikes to make deliveries within the local area and had previously used a diesel van.[41] There were also examples of businesses purchasing cargo bikes to provide a service. For example, an electrician that travels to jobs by cargo bike and a window cleaning company (see 3Cycle Case Study below).

Businesses switching to cargo bike courier companies tended to either be companies working towards environmental accreditation (e.g. a law firm) or businesses with sustainability at their core. For example, one company that trialled a cargo bike courier through the programme was a sustainable catering company. While they already had their own cargo bike, they wanted a relationship with a cargo bike courier company for any days when they needed to make more deliveries than their bike could take. The business manager said to us "we can't be seen to have our food arrive by diesel van."

Most businesses had a highly local delivery area (Figure 5), which is not surprising given that cargo bikes are often positioned as a last mile delivery solution. Some 31% said their deliveries were within 2 miles of their business, a further 47% said within central London and another 7% said within 'Greater London'.

[41] See here for more case studies: https://www.mpsmartertravel.co.uk/projects/case-studies

Figure 5: Delivery area for goods



5.2 Outcomes for businesses

Although both those purchasing their own bikes and switching to couriers reported high levels of satisfaction, the benefits experienced by businesses varied depending on the pathway.

Own bike

The businesses purchasing their own bike reported very high levels of satisfaction with their cargo bikes. The average satisfaction rating on the 1-month feedback form was 4.6 out of 5 and 100% of businesses said they would continue using their cargo bike. Moreover, 85% of businesses said they would consider buying another cargo bike for their business if they had a need for it.

The most cited benefit to businesses was environmental sustainability, with 85% saying this applied 'a lot' and a further 15% saying 'a little' (see Table 3). This fed into improved brand/image, with 95% of businesses saying this applied either 'a lot' or 'a little'. Many businesses reported that this resulted in new customers – with 75% saying this applied 'a lot' or 'a little'. In the interviews, business owners recounted numerous examples of new customers getting in touch after seeing their branded cargo bike. This is consistent with consumer research that documents that individuals are increasingly choosing to purchase from companies that have environmentally sustainable practices or values.[42]

Environmental sustainability was closely followed by staff satisfaction/wellbeing, with 80% of businesses saying they experienced this a 'a lot' and a further 15% saying they experienced this 'a little'. This was reiterated in the interviews, with a number of the business owners talking about the benefits of replacing van driving with active travel for themselves and their employees.

It was also clear that businesses purchasing their own cargo bike found deliveries easier and quicker to make. Some 75% responding that they experienced 'easier/less stressful deliveries' 'a lot' and a further 20% saying this applied 'a little'. Relatedly, time-savings were also a key benefit to these businesses – 70% said this applied 'a lot' and 25% said this applied 'a little'.

[42] Deloittes UK (2022) How consumers are embracing sustainability https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html

Cost-savings were also a significant benefit, with 100% of businesses saying they experienced these either a lot (55%) or a little (45%). There were multiple reasons for these cost-savings, including more efficient deliveries and lower running costs, but also reduced parking fines.

Table 3: Benefits to businesses from cargo bike purchase (Source: 1-month feedback form, N=20)

Benefit	A lot	A little	Not at all
Environmental sustainability	85%	15%	0%
Staff satisfaction/wellbeing	80%	15%	5%
Easier/less stressful deliveries	75%	20%	5%
Time-savings	70%	25%	5%
Fewer parking fines	70%	15%	15%
More reliable deliveries	60%	40%	0%
Improved brand/image	60%	35%	5%
Cost-savings	55%	45%	
More satisfied customers	45%	45%	10%
New customers	35%	40%	25%

Case Study: 3Cycle Window Cleaning

Founder, Felipe Ramirez-Castrillon, started 3Cycle after accompanying a friend on a job and seeing first-hand the environmental footprint of conventional cleaning companies.

Felipe started his business on a standard pedal bike but soon realised this was an inefficient way to carry water to multiple jobs.

The Bikes for Business team discussed Felipe's requirements, taking into account the equipment, cleaning supplies and ability to transport water, and helped him choose the right bike for his business: an Urban Arrow XL.

For Felipe, the Bikes for Business subsidy was a huge help to his start-up business.

Felipe loves his bike and now has two. Benefits have included:

Reduced emissions – covering more than 3,300 miles in a year, using a cargo bike has helped 3Cycle avert approximately 850kg of CO2 emissions.

Faster service – as cargo bikes are able to use cycle lanes and side streets and don't need to use a parking spot, 3Cycle can complete more jobs in a shorter space of time.

Health – riders are active and burning calories, rather than sitting behind the wheel of a van.

Great PR – having a cargo bike has proven popular with 3Cycle'ss clients, particularly their corporate clients, and has helped to attract and retain customers.

Cost-effective – cargo bikes have significantly lower upfront and running costs than a van and there are no parking fines to contend with.

Courier switch

Businesses switching to a cargo bike courier service were also very satisfied with the service, with the average satisfaction rating 4.6 out of 5. Two-thirds of the businesses (66%) said they plan to grow the amount of cargo bike deliveries in the future.

As with own bike, the most commonly cited benefit was increased environmental sustainability, with 79% of businesses saying this applied to them 'a lot' and a further 21% stating 'a little' (Table 4). Brand benefits were also often mentioned in interviews, as was the potential to attract/retain customers as a result. This was especially the case for corporates and offices - such as law firms - that were seeking sustainability accreditation. However, these were less pronounced than in the own bike purchase pathway. This likely reflects the fact that a product arriving via cargo bike courier does not have the same immediate brand link as goods arriving on the businesses' own-branded cargo bike.

Deliveries were generally also described as more efficient and reliable. 86% of businesses said they benefitted from more reliable deliveries either a 'a lot' or 'a little' and 79% said they experienced time-savings.

Cost-savings were much less of a benefit here and this is not surprising given that the qualitative research had already identified that cargo bike couriers are often more expensive on a like-for-like basis than van couriers and that this is especially true when used in an ad hoc way. Nearly a third (30%) said they did not experience cost-savings, 53% said 'a little' and 17% said they experienced this 'a lot'.

Table 4: Business benefits from switching to cargo bike courier (1-month feedback form, N=53)

Benefit	A lot	A little	Not at all
Environmental sustainability	79%	21%	0%
More reliable deliveries	43%	43%	13%
Easier/less stressful deliveries	43%	38%	19%
More satisfied customers	43%	36%	21%
Improved brand/image	38%	45%	17%
Time-savings	36%	43%	21%
Cost-savings	17%	53%	30%
New customers	8%	38%	55%

Case study: Recorra

Founded in 1988, Recorra services thousands of businesses in London and the UK through its recycling collection and office supplies.

Prior to switching to cargo bikes courier deliveries, Recorra's office supplies were sent out in vans direct from wholesalers.

Recorra worked with Bikes for Business to find a cargo bike courier company to take over its London deliveries. The Bikes for Business team matched them with Zedify, a Living Wage Employer and cargo bike courier with a large enough fleet to meet Recorra's needs.

Recorra undertook a successful pilot with Zedify, in which 75% of central London deliveries were sent by cargo bike. Since then, Recorra has continued to use Zedify for its central London deliveries, where possible.

Benefits have included:

Reduced emissions – in the trial period alone, 500 van deliveries were avoided

Great PR – the switch to cargo bikes has benefitted the brand and customer satisfaction. As the only office supply company using cargo bikes in central London, this has helped set Recorra apart from their competitors.

Indirect benefits

The businesses that purchased cargo bikes or received a subsidy for trialling a cargo bike represent the direct beneficiaries of the Bikes for Business programme. There are also likely to be significant indirect beneficiaries. Some of these will derive from the greater visibility of cargo bikes in the area encouraging businesses to make the switch independently of the programme and from other localities being inspired to set up similar cargo bike promotion projects. Bikes for Business also maintained a Directory of Cargo Bike Services that any business could access.[43]

More specifically, however, the Bikes for Business team also provided support to several large businesses to bring cargo bike services to the area. These included:

- Supporting First Mile Recycling to start cargo bike collections in the north Southwark area around nine months earlier than they had planned, thus saving the emissions for this period.
- Supporting Amazon to establish cargo bike deliveries in SE1 (London Bridge), only their second location in the UK.

Such indirect benefits are more difficult to evidence robustly as the programme often does not have a direct relationship with the beneficiaries that would enable data collection. Due to the strength of the anecdotal and qualitative evidence, however, it should be noted that the direct switches represent only a proportion of the total impact of the programme.

5.3 Additionality and impact

The previous section highlighted that, firstly, cargo bikes benefit the businesses that use them and, secondly, that this is true whether a business purchases their own bike or engages a cargo bike courier service. The evaluation, therefore, clearly evidenced the benefits to businesses of using cargo bikes for deliveries in central and inner London.

However, this is distinct from evidencing the value of a programme, such as Bikes for Business, which seeks to promote cargo bikes. To evidence the effectiveness and value of Bikes for Business we need to establish additionality – that is, that the switches counted in the programme outputs were above and beyond what would have happened anyway in the absence of the programme.

Establishing how much of the observed change is truly additional is often one of the most challenging aspects of an evaluation. In the case of the Bikes for Business programme, the stakeholder engagement at the outset of the evaluation indicated that it was likely to be complex, particularly in the bike purchase workstream.

Several of the businesses we spoke to had already been thinking about purchasing a cargo bike. Indeed, in more than one instance the business found out about the Bikes for Business subsidy from a cargo bike retailer. Yet, it is also true, that a number of businesses told us that the subsidy and support from Bikes for Business either "brought them over the line" or meant they did it sooner than they otherwise would have (therefore, reducing harmful emissions from their previous delivery mode for those months).

[43] See here for the Services Directory: https://static1.squarespace.com/static/58d15ded6a49638c26e0888c/t/625fe412887f814c655cd7a6/1650451475387/Cargo+Bike+Services+Directory+April+2022.pdf

Given these complexities, we sought to triangulate data sources from the interviews, engagement spreadsheet and feedback forms in order to estimate additionality for the programme as a whole and in each workstream.

Programme-level

In terms of the programme as a whole, MP Smarter Travel recorded on the engagement spreadsheet whether a business had previously considered switching to cargo bikes. Data is available for 75 out of the 150 businesses that either purchased a bike or undertook a trial (completed or in progress). Two-thirds had previously considered using cargo bikes with 20% having considered purchasing their own bike and 45% having considered using a cargo bike courier. This means that just one-third of those switching had not previously considered doing so.

Own bike additionality and impact

The 1-month feedback form provides us with more nuanced data from the businesses that went on to purchase their own bike.

Businesses that purchased their own cargo bike were asked to indicate their agreement with the following statement: "Our business would have bought a cargo bike in the next 12 months anyway, even if Bikes for Business didn't exist". 40% of business responded "yes" and a further 45% said "maybe", with only 15% replying "no".

This suggest that there is low additionality for the own bike workstream. This is consistent with qualitative data from the interviews where a number of businesses told us they were already in the process of purchasing a bike when they found out about Bikes for Business (e.g. they found out about the subsidy from a cargo bike retailer). As it appears that a significant number of the businesses which received the subsidy for the bike purchase would likely have purchased a cargo bike anyway in the near future, value is principally derived from them taking this decision sooner than they otherwise might have. Undoubtedly, in some instances it might also have ensured that they went through with the purchase, but the proportion this applies to is difficult to establish.

While additionality was low, the long-term sustainability of the switches was high. As already noted above, 100% of the businesses indicated that they would continue to use their cargo bike and this was also confirmed in the interviews, where all the businesses we spoke to within this workstream indicated that they would continue to use their bike and a number were also looking to purchase additional bikes for their business.

Courier switch additionality and impact

For the courier switch workstream, this picture is reversed: Additionality is somewhat higher but the "stickiness" of the switches is lower.

Responding to the statement "Our business would have switched to cargo bike deliveries in the next 12 months anyway, even if Bikes for Business didn't exist", only 12% of businesses said "yes", 54% said "maybe", and 34% said "no".

However, the interviews with businesses undertaking trials found that a number had stopped using cargo bikes several months after their trial. The most commonly cited reason in the interviews was cost. This suggests that stickiness – and therefore long-term impact – is lower for the courier switch route.

5.4 Environmental impacts

As noted in the theory of change, a central rationale for the programme is achieving environmental impacts from businesses making the switch.

The key determinant, therefore, of the extent to which the programme resulted in environmental impact is the reduction in miles travelled by more harmful and polluting vehicle types (i.e. diesel/petrol vehicles) that are attributable to the programme.

The previous section on additionality goes partway to addressing this by helping us to estimate the proportion of any reduction that is attributable to the programme as opposed to what would have happened anyway.

The other element that is required to robustly estimate environmental and community impacts (e.g. air quality, amenity, congestion) is data on the reduction in miles travelled.

This is inherently difficult to obtain for the courier switch workstream as businesses can only give an indication of the number of deliveries and it would have to be the courier companies, with whom the programme does not have a direct relationship, that could provide the mileage. The feedback form data showed that the number of deliveries were generally low, with 77% of the businesses saying they used the cargo bike courier service for less than 10 deliveries (individual drops) per week. This corresponded with data from the interviews, which suggested that most of the businesses undertaking the trials were using the cargo bikes on an ad hoc basis or to cover an overflow that their existing method (e.g. own van, existing courier) couldn't take. This suggests, particularly when additionality is taken into account, that additional environmental impacts for this workstream are likely to be small. There is insufficient data to robustly calculate emissions savings.

For the own bike workstream, very few businesses responded with an estimate of their weekly mileage, meaning that this data must be treated with some caution. One business was an outlier (6x higher mileage than the next highest mileage) and so was eliminated when calculating the average estimated weekly mileage in order to avoid distorting the mean. Using the data from the remainder, the estimated average weekly mileage by cargo bike is 58 miles. If this is extended to all 34 bikes purchased using a Bikes for Business subsidy, this would be the equivalent to 3712 miles travelled per week by cargo bike. Based on the additionality information above, a conservative estimate is that 40% of this reduction in miles is truly additional. This results in a reduction of 788 miles being attributable to the own bike workstream per week. If we assume that the majority were using diesel vans for deliveries prior to this, this translates into total emissions savings of 325 kg of carbon emissions per week or 16.9 tonnes per year. Given the findings around stickiness, this is likely to be maintained into the future.

5.5 Satisfaction with the programme and wider benefits

Across both workstreams, satisfaction with the Bikes for Business programme and staff was extremely high. Throughout the interviews and in the free-text responses on the feedback form, businesses accessing both workstreams praised the professionalism and expertise of the Bikes for Business delivery team. They repeatedly stated that the team turned the daunting prospect of selecting a courier company or choosing an appropriate bike into a much simpler undertaking.

This is illustrated in some of the following quotes:

> "Staff member [name removed] was pleasant and exceptionally helpful with any query we had about Bikes for Business"

> "Particularly helpful in linking us with a provider of the right bike for our business needs"

> "Great idea for London"

> "Great support from staff member [name anonymised]"

> "The staff were really supportive and informative"

> "We loved working with you guys"

As the expertise of the Bikes for Business team became more widely known, they received enquiries not just from businesses looking to participate in the programme but also from other organisations seeking to either roll-out cargo bikes or promote cargo bikes in their area. This led to the team advising Local Authorities, cargo bike manufacturers, and a number of larger logistics firms. This likely contributed to significant indirect impacts, which are not possible to quantify within the scope of this evaluation but should be noted.

In addition, the team was also regularly asked to speak at conferences and other forums. For example, the lead consultant gave evidence to the GLA Economy Committee Evidence Session on the 'race to net zero' and was asked to support the organisation of the National Cargo Bike Summit (as well as speaking at the Summit). The team also supported Glimpse with the 'Cargo Bike Revolution' campaign. These efforts all raise the profile of cargo bikes, thereby contributing to their mainstreaming.

6. Key project learnings

The research literature points to the significant benefits that derive from the use of cargo bikes for deliveries within urban settings and as a first-and-last mile solution for those delivering further afield. This was confirmed by the businesses that received support through Bikes for Business, who were all highly satisfied with cargo bikes and reported more reliable, efficient and sustainable deliveries and flow-on benefits from this for their business.

Yet, despite this, the uptake of cargo bikes remains slow in general, and even Bikes for Business, which provided advice and a subsidy towards switching, found it difficult to persuade large numbers of businesses to convert to cargo bikes, either by purchasing one or by signing up with a cargo bike courier.

This section explores, the key learnings for those seeking to promote cargo bike use within urban centres.

Lesson 1: People like cargo bikes and want to be sustainable, but this does not automatically lead to behaviour change due to strong anchoring factors

Increasing awareness of climate change and visibility of cargo bikes means that a substantial number of businesses want to be more sustainable and see cargo bikes as a good idea.

But these positive sentiments, on their own, do not translate into large numbers of businesses making the switch, even with the offer of a subsidised bike purchase or courier trial.

In line with the behavioural economics literature (see Appendix 1), this demonstrates how strongly many businesses are anchored in their existing delivery arrangements and the limited time they have to invest in switching.

As a result, initiatives that solely seek to promote or raise awareness of cargo bikes, without any additional "push" or "pull" levers to encourage behaviour change, are likely to be of limited effectiveness.

Bikes for Business sought to overcome this by making switching as easy as possible for businesses and by subsidising some of the cost. As noted in this report, the delivery team had in-depth knowledge of cargo bikes and the cargo bike delivery sector. This means that advisors could match-make bikes and/or delivery companies to businesses. Those that switched said the process had been made simpler by Bikes for Business.

As the project progressed, the subsidy period for the courier trial was extended from one month to two months to increase the likelihood of 'sticky' switches by making it more likely that new habits are formed.

However, the combination of support and subsidy did not create a sufficiently attractive incentive for businesses to switch in large numbers. The effort required to convert businesses was high and any future iteration of the programme would benefit from more work to optimise the offer.

Moreover, the funder, Impact on Urban Health, also recognised the importance of wider policy advocacy to shift the broader constellation of push and pull factors. To this end, they commissioned Delivering Value[44] which sought to advocate for shifts in the policy environment to create a level playing field between van couriers and cargo bikes couriers as the cost of cargo bike deliveries had emerged as a significant barrier (see more on this in Lesson 2).

[44] See here: https://www.justeconomics.co.uk/health-and-well-being/delivering-value

Lesson 2: Cargo bikes have lower running costs, but whether they are a cheaper delivery option for a business depends on how they are used

Delivery costs are key to competitiveness for many businesses, especially those delivering goods of lower value where the delivery charge makes up a bigger proportion of the overall cost.

Given that research has consistently established that cargo bikes have lower per mile running costs than petrol or diesel vehicles, this should mean that it would be a straightforward win for cargo bikes on a cost per delivery basis and one of the key reasons for businesses to make the switch.

Unfortunately, it's more complicated.

As reported in Section 5, businesses that purchased their own cargo bike to replace an existing petrol or diesel vehicle (usually a van) benefitted from cost-savings. These were both direct cost-savings because of lower upfront purchase price, savings on fuel and fewer parking tickets, as well as indirect savings due to faster and more efficient deliveries (cargo bikes can get around congested roads faster).

Businesses that made the switch to a delivery company using cargo bikes had mixed experiences when it comes to direct cost-savings. Those using cargo bikes for ad hoc or one-off deliveries tended to find them more expensive than van alternatives and cost was cited as the biggest reason for discontinuing cargo bike use after the trial period.

Cargo bike courier companies struggle to be competitive on price for ad hoc, one-off deliveries because they are often competing against van courier companies that operate a gig economy model.

Most cargo bike delivery companies have riders on their payroll and usually pay at least London living wage, as well as provide holiday and sick pay and a pension contribution (see Delivering Value for a comprehensive discussion of the relative cost of van and cargo bike couriers). They also supply the bikes and all the infrastructure around them (e.g. charging, storage, maintenance etc.). Storage in central London can, in particular, be a significant cost.

Van couriers, on the other hand, are usually self-employed contractors. This means that the delivery companies are not responsible for the cost of supplying the vehicle, fuel, maintenance, providing a minimum wage or any employee benefits.[45] In short, by externalising costs onto their drivers, van couriers are able to push down their costs to customers.

Some cargo bike couriers are starting to respond to this challenge and are finding ways to be cost-effective. For example, by trying out a new model where they charge businesses that can cluster deliveries on a 'per hour' basis rather than 'per drop'. This has meant they have been able to drive down costs for businesses and pick up customers that have found other 'per drop' cargo bike courier operators prohibitively expensive.

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[45] Cargo bike delivery companies told us that riders were given employee status to overcome rider shortages by increasing retention. Even within courier companies that use both vans and cargo bikes to fulfil deliveries this difference in status was evident, with cargo bike riders on the payroll and van drivers engaged as contractors. We were told that there was no shortage of van drivers and, as such, not necessary to bring these in-house.

However, achieving a modal shift will require a clear cost advantage for cargo bikes to incentivise businesses that are anchored in their current transport behaviour patterns. In Delivering Value, we set out a series of policy recommendations that would level the playing field between vans and cargo bikes to enable the latter to compete more robustly for business.[46]

Lesson 3: Target businesses for whom cargo bikes are likely to work and educate them on how to use cargo bikes cost-effectively

Reducing the negative impacts of urban freight depends on businesses making a lasting switch away from diesel and petrol vehicles. Focusing on businesses for whom cargo bikes are likely to work is, therefore, going to be key to delivering an effective cargo bike promotion initiative.

The Bikes for Business evaluation identified that long-term switches are most likely to occur under certain conditions and for certain types of businesses.

Most immediately, lasting impact is achieved through businesses that do their own deliveries and can purchase a cargo bike to replace a diesel or petrol vehicle. Not only are these businesses making a sizeable investment to purchase a bike which results in 'stickiness', they also experience significant benefits in terms of cost-savings, faster and more reliable deliveries, improved brand/image, and higher employee wellbeing. All of those who purchased a bike using the Bikes for Business subsidy said they would continue using their bike (3 months post-purchase survey) and 85% said they would consider purchasing another bike if their business had a need for it (1-month post-purchase survey).

In instances where own bike purchase is not appropriate, lasting switches can still be achieved by focusing on particular types of businesses and educating them on how to use cargo bike delivery companies in a cost-effective way. The experience at Bikes for Business suggests targeting:

1. **Businesses that can cluster deliveries** and, therefore, would benefit from the most cost-effective pricing by cargo bike couriers. Businesses that have a high volume of drops within a geographic area can work with an operator that provides a per hour charge for their bike(s) and rider(s), which works out significantly cheaper than ad hoc or one-off deliveries. We have been told that this can work well for food and beverage businesses (e.g. butchers, deli's, bakeries, coffee roasters), florists, and pharmacies. The rise of gig economy deliveries has meant that many businesses have gotten out of the habit of clustering deliveries in this way. There is a role for cargo bike promotion initiatives to educate businesses that clustering deliveries can unlock significant savings and make greener deliveries also the most cost-effective option.
2. **Businesses that have mid-to-high value goods and require express delivery** with high-level of service and reliability. These types of businesses are able, and willing, to pay for a premium service, where that might be a cargo bike. Fashion and beauty businesses sending samples to media outlets and influencers for reviews/photoshoots were examples during this evaluation. Others could, however, include boutiques that are sending higher value goods where the cost of the delivery is

[46] Just Economics (2022) Delivering value https://www.justeconomics.co.uk/health-and-well-being/delivering-value

a smaller proportion of the purchase price and where a trusted and fast service provider is valued. Another example might be businesses that are couriering sensitive material – legal documents and so on – where price is usually not factored into the transport decision.

3. **Businesses that have sustainability central to their branding**. These are businesses that cannot afford – from a brand/reputation perspective – to have their goods be delivered by diesel/petrol vans and, as such, are more likely to absorb the higher charges of a cargo bike courier with responsible labour standards.

Lesson 4: Programme targets matter and should incentivise the delivery of impact, not throughput

Bikes for Business started with a target to engage 1,300 businesses and encourage 300 of these to switch, where this was defined as either purchasing a cargo bike or undertaking a 1-month trial with a cargo bike courier.

Within the first nine months of the project, it became clear that these targets (1) risked distorting project activities away from achieving impact and (2) were not giving a good indication of effectiveness and impact.

Just Economics became aware that a number of businesses signing up for the 1-month subsidised cargo bike courier trial were not continuing beyond the trial period or only using it for occasional, surplus deliveries rather than as their main courier. This meant that numbers signing up to a trial were not a good proxy for impact because the desired change – switching away from diesel/petrol deliveries – was not sustained in a significant proportion of cases. It was also not a reliable proxy for vans displaced off the road as there was no distinction between switches that involve a handful of deliveries versus higher volumes.

In addition, the target incentivised the team to deliver throughput rather than putting the time into delivering impactful switches. Because any business signing up to the trial counted the same, irrespective of volume of deliveries and/or whether the change was sustained beyond the trial, the emphasis was simply on getting as many businesses to sign up to the trial.

The high target also created pressure on the delivery team, which may have meant they felt constrained in the early stages of the project to spend time educating businesses on how they can use cargo bikes cost-effectively and may have also contributed to turnover within the team. We note that the team engaged 60% more businesses than they had planned but achieved about half the switches that were originally envisaged. This highlights the greater amount of effort that was required per switch than was originally envisaged.

In response to these learnings, revised targets to more effectively drive and evidence impact were proposed. Specifically, the Bikes for Business programme was recommended to:

- Develop separate targets for ‘own bike’ purchases and ‘courier switch’ workstreams

- For the own bike purchase, the number of bike purchases was seen as a reliable indicator of long-term change as all businesses that purchased a bike continued to use it. To more thoroughly measure impact, this could be coupled with miles travelled per week so that the impact on emissions and air quality can be quantified.
- For courier switches, the number of switches should be monitored but not operate as a target. Instead, programme performance should be measured through a set of overlapping indicators relating to a) switches sustained at 3 months, b) number of deliveries/miles travelled at 3 months and c) number of long-term relationships between businesses and cargo bike delivery companies.
- Across both workstreams, additionality should be encouraged by setting a target around the number of switched businesses that had not previously considered cargo bikes as an option.

Getting targets right is more than a technical point. Targets matter because they ultimately drive behaviour. To drive impact, targets must incentivise impactful switches over the volume of switches.

Lesson 5: Both how and what is communicated matters

The Bikes for Business project started in April 2021 when Covid restrictions were still in place that limited the type of engagement that could be undertaken. During the initial months, the majority of staff time was dedicated to cold-calling businesses. This had limited effect, with the stakeholder engagement and rapid review finding that very few businesses had signed up where the first approach was via an unsolicited phone call.

With the lifting of Covid restrictions, the Bikes for Business team was able to try out a variety of engagement techniques. The focus shifted increasingly to in-person engagement. This could include, for example, walking around the project area with a project partner or coming around with a cargo bike as a demonstration. On some occasions the team was able to be joined by a business that had already benefitted from the programme. For example, the team went around Borough market with a trader that had purchased their own cargo bike. This was described as particularly effective.

As well as how communications are undertaken, it is also worth reflecting on what the message is. Another project in central London that started out as an attempt to promote cargo bikes as a solution to market traders found that focusing just on cargo bikes, rather than sustainable freight, discouraged those who perceived cargo bikes to be unsuitable to their needs (perception was key to engagement).[47]

This particular initiative shifted the focus to emissions and rebranded as ‘Cleaner Air Markets’. It still continued to push cargo bikes as the most environmentally-friendly solution but did not lose participants before they could raise awareness about the capacity of cargo bikes. A consideration for future projects, therefore, is whether leading with messaging around zero tail-pipe deliveries or similar might increase engagement with the project, even if the main solution that is advocated by the project is cargo bikes.

[47] Fare City (2023) Pioneering a future model for public markets, available at: https://farecity.org/wp-content/uploads/2023/01/FC_CAM_V01.pdf

Lesson 6: Context matters

Given the environmental benefits of cargo bikes there is a temptation to see them as a panacea in any context. It is important, however, to recognise the role of context.

Inner London is an ideal place for cargo bike deliveries, with high-density and various mechanisms (Low Traffic Neighbourhoods, Ultra Low Emission Zone) making it more difficult and costly to use diesel/petrol vehicles. Moreover, there is now a suite of cargo bike operators and services available. Some of these in the London Bridge area started out with assistance from the Bikes for Business programme (both the pilot phase in 2019/20 and the current iteration).

Without the existence of this marketplace of providers, Bikes for Business could not operate as a programme. This is important for those considering replicating the initiative in other localities.

Any future programmes should invest more time in a pre-implementation phase that includes a mapping exercise to ascertain existing providers. If there is a shortage, then prior to starting a programme that encourages a switch to cargo bike operators, market development work should be undertaken to grow the number of providers. This might include, as it did for Bikes for Business, subsidising the first bike purchases for service providers and establishing a directory to promote providers as they come on stream. This phase of work could also explore local barriers to cargo bike adoption and conduct market research on the optimum support/subsidy package to overcome these barriers.

7. Conclusion and recommendations

Widespread uptake of cargo bikes for business deliveries has the potential to significantly reduce air pollution and carbon emissions, improve road safety and make our cities healthier and more liveable.

The experience of the Bikes for Business programme demonstrates that behaviour change towards lower emission deliveries can be time-consuming and difficult to achieve. Many businesses are strongly anchored in harmful delivery modes, making switching both financially and practically difficult.

This points to the ongoing need for incentives for businesses to make the switch. Coupled with this, it is vital that policymakers act to create a context that supports the mainstreaming of cargo bikes.

To this end, we make recommendations for a number of stakeholders to support the promotion and uptake of cargo bikes in the future.

For organisations delivering future cargo bike projects

Recommendation 1: Prioritise in-person and peer-to-peer methods when promoting cargo bikes to businesses.

Recommendation 2: Recognise that preconceptions about cargo bikes may limit their engagement potential among some businesses; consider leading with messaging that businesses find more engaging, for example focusing on zero and low emission deliveries.

Recommendation 3: Undertake scoping to ensure that you understand your context, including the cargo bike market and barriers to uptake, prior to designing your programme.

Recommendation 4: Target businesses for whom cargo bikes are likely to work, specifically businesses that can cluster deliveries, have sustainability at their core, or are selling mid-to-high value goods.

Recommendation 5: Educate businesses on how to use cargo bike couriers most cost-effectively, including by using per hour charging models.

For funders and future project commissioners

Recommendation 6: To enable scale up of cargo bikes in urban areas, further programmes are needed, which subsidise switches for businesses and promote cargo bikes

Recommendation 7: Funders and commissioners of cargo bike promotion projects should set outcomes-based targets that incentivise the delivery of impact, for example by tracking delivery volume or miles travelled and the length of time for which the switch is sustained.

For local and national policymakers

Recommendation 8: Implement policies that level the playing field between cargo bikes and more polluting delivery modes, such as smart road pricing and vehicle tax that more accurately reflects environmental and social costs of different modes

Recommendation 9: Invest in cargo bike infrastructure, including consolidation hubs and cycle lanes.

Appendix 1: Bikes for Business Theory of Change

This section sets out in detail the Bikes for Business theory of change, including the evidence base for such programmes in achieving transport-related behaviour change. It draws on extensive qualitative stakeholder engagement with businesses, project stakeholders and project partners as well as a review of the literature relating to transport-related behaviour change.

A1.1 Overview

Cargo bikes are one solution to the problem of urban congestion and associated environmental, health and social impacts. Their adoption at scale will require a range of infrastructural as well as attitudinal and cultural changes. Bikes for Business cannot address all of these. The primary purpose of the programme is to achieve business behaviour change through promotion, advice and by defraying the cost of switching to cargo bikes through the provision of a subsidy.

The main stakeholders that Bikes for Business targets, therefore, are businesses. Bikes for Business are seeking to persuade those businesses to switch deliveries to cargo bikes either by purchasing their own bike or signing-up to a cargo bike courier or service. Unless businesses make the switch, the intended wider and longer-term environmental, social and community outcomes will not happen. Hence the emphasis placed within the programme on securing a 'switch'.

A1.2 Programme relevance: evidence for information and transport-related behaviour change

A switch to a more sustainable transport system requires both top-down (policy, infrastructure, economic incentives) and bottom-up (individual) decisions. The latter can be influenced by top-down measures, but in their absence, it relies on many people individually deciding to make a sustainable choice.

In London, a number of top-down measures have been introduced, such as Low Traffic Neighbourhoods (LTNs) and the Ultra-Low Emission Zone (ULEZ). However, bottom-up choices continue to be a key factor. The logic of Bikes for Business is to intervene at this level to incentivise and convince large numbers of businesses to make the switch,[48] whilst also working with partners to push for more top-down measures. An important part of the context for Bikes for Business is the evidence around information sharing and promotion to influence transport-related behaviour, which we now discuss.

Research suggests that people's decision-making in this field is complex. Hoffmann et al. identify 26 cognitive mechanisms (and over 205 size effects) that have been related to car use and the use of alternative transport modes, where each could be potentially modifiable.[49] An interesting finding from this literature is that the main factor determining behaviour, such as the daily choice of mode, is the previous decision made on that matter. In other words, habit has been recognised as a powerful travel behaviour factor, which means that once people lock into a certain behaviour, such as relying on a private car or van, it is difficult to change this practice.[50]

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[48] The initial target for the programm was to encourage 300 businesses to 'switch'

[49] Hoffmann, C., Abraham, C., White, M. P., Ball, S., & Skippon, S. M. (2017). What cognitive mechanisms predict travel mode choice? A systematic review with meta-analysis. Transport reviews, 37(5), 631-652.

[50] Dijk, M., Givoni, M., & Diederiks, K. (2018). Piling up or packaging policies? An ex-post analysis of modal shift in four cities. Energies, 11(6), 1400.

Some research finds that people with higher environmental awareness are more likely to take up cycling.[51] However, other researchers argue that attitudes do not causally predict travel behaviour. For example, the convenience of using a car takes a central role irrespective of attitudes such as environmental concerns.[52] These findings align with findings from behavioural economics more generally, which recognises the role of seemingly irrational factors, such as habit and loss aversion, in decision-making. At the same time, lessons from behavioural economics in relation to peer pressure and social influence could potentially be harnessed to support the programme.[53]

Cairns et al. (2004) have reviewed the evidence on 'soft' transport measures (e.g. campaigns or information provision) and have found that an intensive and prolonged application of these measures over wide geographical areas and over time could reduce traffic levels by as much as 20% in congested urban areas. However, the campaign or intervention must be of good quality and be sustained over a long period of time (possibly between 10 and 20 years). In contrast, simple information provision about a journey does not have much effect on travel behaviour because – in line with the discussion above - most journeys are routine and habitual and therefore do not require people to seek information about them.[54]

Alvineri and Goodwin[55] have reviewed the effectiveness of information, education, training and advertising in relation to transport and public health (e.g. seat belts, drink driving etc.) and find a mixed evidence base, which is dependent on context. They conclude:

> "the success of persuasion measures, such as advertising campaigns, is not a matter of simply deciding to have a campaign, but the salience of the creative content, targeting, and the nature of the improvement sought. Meeting the needs of different audience groups through a single campaign is difficult; to make persuasion measures successful it is important to segment the targeted population… In each case there are examples of successes where well-designed initiatives have had significant effects on participants. (p2)"

Evidence also suggests that experience of using bikes increases the likelihood that people will adopt them. One study from the US focused on increasing take-up amongst women found that 69% of users change to active modes of travel after owning a cargo bike (especially for women and parents) (this research was based on personal use).[56]

Bikes for Business combines persuasion with a financial incentive to encourage businesses to switch. Subsidies are widely used across the EU to promote cycling: Germany has more than 70 such schemes and Belgium has more than 40. Further, there is some evidence to support specific initiatives such as cycle to work schemes.[57] [58] [59] In a UK survey, the scheme

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[51] Mishra, R. K., Pandey, A., Pandey, G., & Kumar, A. (2019). The effect of odd-even driving scheme on PM2. 5 and PM1. 0 emission. Transportation Research Part D: Transport and Environment, 67, 541-552.

[52] Kroesen, M., & Chorus, C. (2018). The role of general and specific attitudes in predicting travel behavior–A fatal dilemma?. Travel behaviour and society, 10, 33-41.

[53] Metcalfe, R., & Dolan, P. (2012). Behavioural economics and its implications for transport. Journal of transport geography, 24, 503-511.

[54] Chorus, C. G., Molin, E. J., Van Wee, B., Arentze, T. A., & Timmermans, H. J. (2006). Responses to transit information among car-drivers: regret-based models and simulations. Transportation Planning and Technology, 29(4), 249-271.

[55] Avineri, E., & Goodwin, P. (2010). Individual behaviour change: Evidence in transport and public health.

[56] Riggs, W. (2016). Cargo bikes as a growth area for bicycle vs. auto trips: Exploring the potential for mode substitution behavior. Transportation research part F: traffic psychology and behaviour, 43, 48-55.

[57] https://mobilit.belgium.be/sites/default/files/resources/files/final_report_wwv_2017-2018fr_0.pdf

[58] https://www.lemonde.fr/blog/transports/2017/10/08/profil-acquereurs-vae/

[59] Swift, S., Green, M., Hillage, J., & Nafilyan, V. (2016). Impact of the Cycle to Work Scheme.

was associated with more take-up of cycling and a greater number of miles cycled. The researchers, using the DfT model, estimated that even if 5% of participants cycled to work as a result of the scheme it would generate £72 million a year in reduced absence and increased physical fitness alone, which is more than twice the cost of the scheme to the Treasury.[60]

In general, there is good econometric evidence on the responsiveness of demand to price in both transport and health sectors (e.g. alcohol, tobacco, food). However, it is not a straightforward relationship, and incentives can take time build up sufficiently to break habits.[61] There has been considerable experience of using financial incentives to influence individual health behaviour, but the results are mixed. They are sometimes thought to be rather expensive ways of producing relatively small effects, so tend to be confined to very specific circumstances. A recent systematic review has concluded that there is still 'considerable uncertainty' about the exact effects of specific policies on walking or cycling rates.[62]

A1.3 Conceptual framework for Bikes for Business

An important factor in understanding the Bikes for Business initiative is to see it as part of a package of wider policies. As Dijk et al. point out there is no 'silver bullet' solution, nor will 'piling up' policies work given the complexity of urban logistics. Instead, a careful set of complementary policies is required.[63]

There are many (mainly top-down) measures[64] that could contribute to a modal shift in urban settings, many of which are outside of the scope of Bikes for Business. One framework for thinking about these measures is drawn from Wang et al. (2020), who explores the role of **push**, **pull** and **mooring** factors in transport-related behaviour change.[65]

Push factors include:

- Increased direct costs (fuel prices, parking charges, road pricing, tolls)
- Increased indirect costs (levelling the taxation playing field so that all modes pay the full costs of freight delivery)
- Decreased availability (vehicle access restrictions, reduced parking, speed limits)
- Concerns about environmental threats and congestion
- Campaigns and promotional activity to raise awareness (negative messaging re vans)

Pull factors might include:

- Reduced direct and indirect costs

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[60] Swift, S., Green, M., Hillage, J., & Nafilyan, V. (2016). Impact of the Cycle to Work Scheme.

[61] Avineri, E., & Goodwin, P. (2010). Individual behaviour change: Evidence in transport and public health.

[62] Winters, M., Buehler, R., & Götschi, T. (2017). Policies to promote active travel: evidence from reviews of the literature. Current environmental health reports, 4(3), 278-285.

[63] Dijk, M., Givoni, M., & Diederiks, K. (2018). Piling up or packaging policies? An ex-post analysis of modal shift in four cities. Energies, 11(6), 1400.

[64] https://research4committees.blog/2018/11/29/modal-shift-in-european-transport-a-way-forward/

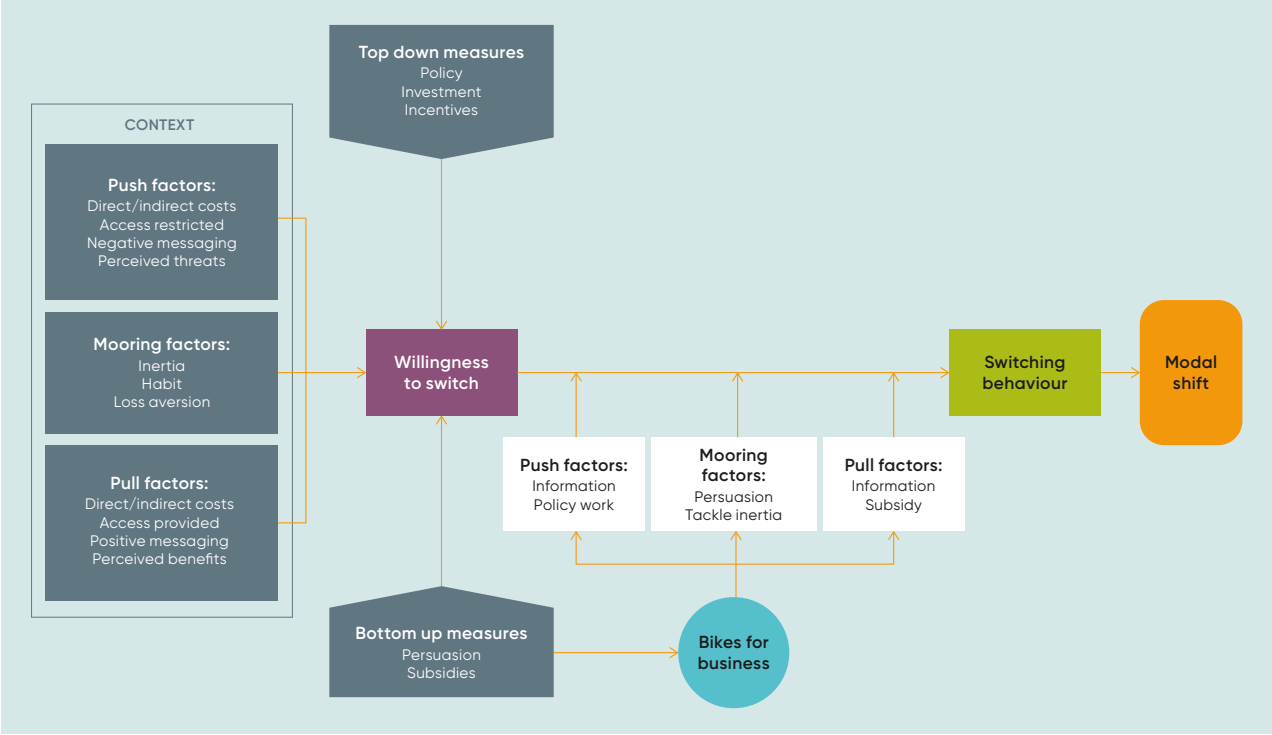
[65] Wang, S., Wang, J., & Yang, F. (2020). From willingness to action: Do push-pull-mooring factors matter for shifting to green transportation?. Transportation Research Part D: Transport and Environment, 79, 102242.

- More integrated transport modes (multimodal)
- Improved availability (parking, dedicated lanes and storage facilities)
- Campaigns and promotional activity to raise awareness (positive messaging re cargo bikes)
- Consumer demand for green transportation
- Flexi-time and teleworking
- Positive role models (seeing more people cycling, council support etc.)

Mooring factors, namely inertia, has been found to negatively affect individual's willingness to shift but also reduce the impact of push and pull factors on willingness to shift.[66] This concept links to the earlier discussion on behaviour change, especially the role of habit in transport-related decisions. People have strong attachments to motorised transport and travel habits are hard to break, even for those that possess rational awareness of the environmental costs, or of the lack of convenience.

Nonetheless, research does suggest that willingness to shift can be increased and that it in turn affects behaviour. Importantly for this project, the literature findings suggest that carefully designed information campaigns can increase willingness to shift. See Figure 2 for a summary of the conceptual framework for the programme.

Figure 2: Conceptual framework for Bikes for Business (derived from Wang et al. (2020)



Although push factors have been identified as an important element of the overall policy mix, research suggests that commuters have a negative perception of push factors. Eriksson et al (2008) studied the acceptability of different pull and push measures in a questionnaire survey of car drivers in Sweden and found that while respondents found

[66] Wang, S., Wang, J., & Yang, F. (2020). From willingness to action: Do push-pull-mooring factors matter for shifting to green transportation?. Transportation Research Part D: Transport and Environment, 79, 102242.

the pull measures to be effective, fair and acceptable, the reverse was found for the push measures (in line with loss aversion theory). It may be that the optimal policy mix is to focus on pull/mooring factors.

A1.4 Programme activities

In this section, we describe the programme activities directly and how we expect them to lead to outcomes for each of the stakeholder groups set out above, drawing on the conceptual framework and literature already described.

Activities

The main engagement and promotion activities undertaken as part of Bikes for Business were as follows:

1. **Identifying businesses** that may be suitable for switching and engaging these businesses directly. Businesses were either identified directly by Bikes for Businesses or by project partners (for example, Team London Bridge, Southwark Local Authority, Blue Bermondsey, and Better Bankside).
2. **Engaging businesses**: Due to Covid restrictions during the early phases of the project, the programme mostly engaged businesses via telephone calls (cold-calls) and, to a lesser extent, emails (directly from Bikes for Business and partners via their newsletters and mailing lists). The gradual removal of restrictions enabled a wider range of engagement techniques, including walkabouts in local areas (sometimes with a project partner or an already engaged business).
3. **Running or attending promotional outreach events** to highlight the benefits of cargo bikes (e.g. bike demonstrations).
4. **Online marketing via social media**, including telling case studies' stories.
5. **Liaising with partners to promote the initiative**, for example speaking at an event organised by a partner or submitting content for one of their newsletters.
6. **Liaising with cargo bike couriers and service providers** to enable them to raise awareness about Bikes for Business and the subsidy with potential new customers.

If a business was interested in switching as a result of one of these engagement activities, MP Smarter Travel provided further support and a subsidy to facilitate a switch.

If the business was interested in purchasing their own bike, MP Smarter Travel would advise on the most appropriate bike for the needs of the business.

If the business was interested in using a cargo bike courier or service, MP Smarter Travel would recommend two to three operators or service providers.

On switching to cargo bike, the business would receive a subsidy. The size of the subsidy was determined by the type of switch and was adapted during the course of the project in response to feedback from the evaluation. The initial subsidy levels were as follows:

- Up to £700 towards purchase of own bike;
- Up to £250 towards switching to a cargo bike courier;

- Up to £150 for persuading an existing supplier to use cargo bikes to service their business.

The activities that fall under the programme, therefore, are primarily information sharing in nature and their aim is to influence willingness to shift with the subsidy helping to defray cost factors. The trial is an attempt to create a new habit, thereby disrupting the inertia that may be causing a business to remain with their current delivery service or mode. The subsidy is a 'pull' factor in that it reduces the cost of switching.

A1.5 Programme outcomes and impact

Businesses

The theory of change for businesses depends on whether they pursue the 'purchase own bike' or 'third party cargo bike' route. As such, we discuss these separately.

Own bike

Businesses that buy their own bike tend to be small and medium sized enterprises (SMEs) that deliver a good or service (e.g. butcher, wine retailer, greengrocer). They might find out about Bikes for Business in a number of ways, including through direct contact (e.g. phone call, face-to-face conversation during a Bikes for Business walkaround), from cargo bike retailers and/or other businesses or project partners.

A number of the businesses were already thinking about purchasing a cargo bike prior to coming into contact with the programme but had not taken action yet. One of the businesses we spoke to early in the evaluation said they "had been kicking the can" for a long time and the various subsidies – including the Energy Saving Trust (which ceased partway through the project) and Bikes for Business – helped to bring them "over the line" by reducing the upfront cost of purchasing a cargo bike. In this way, Bikes for Business may play a role in accelerating a switch to cargo bike.

The businesses we spoke to said there had "only been positives" from purchasing their bike. They described significant cost-savings relative to the diesel van they used to have for local deliveries, both in terms of fuel costs and parking fines. Moreover, they found it easier to make deliveries because they could often park closer to the delivery address. In some cases, those operating the bikes reported wellbeing benefits, both from reduced stress of making deliveries and from being active.

Finally, businesses can experience benefits for their brand. Cycling with a branded cargo bike can increase the visibility of their business in the local area, thereby attracting new customers, particularly those that are environmentally-minded.

There may also be snowball effects that might encourage further switches to greener modes of delivery and transport. One business owner we spoke to said he was now telling lots of other similar businesses about the benefits of cargo bikes. In this way, each switch supported by Bikes for Business may help to support a broader modal shift towards cargo bikes. In addition, the same business owner was now looking into replacing his last diesel van – used for longer range deliveries – with an electric van.

Courier switch

Businesses that pursue the third-party cargo bike route tend to be larger businesses or businesses with sustainability at their core. Some are corporates that are seeking to improve their sustainability credentials. For example, we spoke with a business services firm that was aiming to achieve sustainability accreditation and the switch to cargo bikes was key to the company fulfilling the requirements of the accreditation.

Others might be NGOs or public sector organisations (e.g. NHS Trusts) that are aligning their operations and objectives (i.e. using cleaner delivery services to reduce health-related effects of poor air quality).

SMEs that were switching tended to be highly focused on sustainability. For example a sustainable catering company said they could not be seen to have their goods arrive by a petrol or diesel van.

The businesses in this pathway are engaged using the same methods as those that go on to purchase their own bike.

Bikes for Business can play an important role in tackling 'inertia' factors. Businesses described in extremely positive terms the help they received from Bikes for Businesses to identify an operator that could meet their needs.

This made switching easier as it meant that, rather than having to research different providers, they were presented with a shortlist of 2-3 to consider. The 1-month trial, in turn, is intended to create a new habit as the business is required to set up an account with the cargo bike courier and pay for the service as though they are a new, ongoing customer, with the subsidy being paid against invoices by Team London Bridge. The subsidy itself is a 'pull factor' reducing the cost of switching.

In terms of benefits, the most common immediate benefit for businesses in courier switch pathway relates to sustainability objectives and/or achieving environmental accreditation. This can have brand benefits, helping them to attract more environmentally aware customers. In some cases, businesses also reported faster, more reliable deliveries which increased customer satisfaction and/or efficiency of their operations.

Over the medium term, taken together, these initial changes can lead to a growing customer base and increased profitability. However, these benefits may only exist while other businesses rely on traditional transport. As the use of cargo bikes become more widespread, there will be fewer comparative brand advantages available.

Cost-savings were not identified as a benefit in the interviews, with the opposite being the case: many of the businesses said that the cargo bike courier services were more expensive than van couriers. This may explain the typical Bikes for Business customer, with corporates and those focused on sustainability in a better position to absorb the higher costs. This was especially the case coming out of Covid lockdowns and then into a recession, where businesses were particularly cost-sensitive (see Delivering Value policy research for further discussion of this).

Local communities

By local communities, we mean those living, working, and regularly socialising or shopping in the London Bridge and North Southwark area. As noted in Section 3, benefits to the local community depend on a critical mass of businesses making the switch to cargo bikes such that a modal shift occurs. Bikes for Business may make a contribution to this by increasing visibility of cargo bikes and, thereby, encouraging more widespread uptake over the medium-term (including beyond the lifetime of the programme). However, other push and pull factors are also needed to achieve the scale of change necessary for local communities to benefit from air quality improvements, noise reduction, increased road safety and public space being repurposed.

Environment

The environmental benefits largely stem from reduced GHG and particulate emissions, especially CO2 and NOx, where petrol and diesel vehicles are being displaced as discussed in Section 3. The switch to cargo bikes also contributes to circular economy objectives. Cargo bikes require far fewer materials to manufacture than cars meaning that the total carbon footprint is lower, even without considering tailpipe emissions. However, as with the community benefits, for there to be material environmental impacts, switches would need to be occurring at scale.

The State

Finally, the project supports wider local authority and central government objectives relating to climate change and the environment, air quality, road fatalities, noise pollution, health and urban policy as has been documented in the literature review above.

As with the benefits to local communities, some of these will require a critical mass of businesses to switch and, as such, Bikes for Business can only make a contribution to these in the absence of other 'push' and 'pull' factors. That is, even if the initial project target of 300 switches had been reached, this would not constitute a modal shift that, for example, has material impacts on health or climate change.

While on its own the Bikes for Business programme may not lead to material impacts for the State, it may be able to claim a contribution towards these through **demonstration and catalytic effects**. In terms of demonstration effects, the success in Southwark of Bikes for Business could lead to it being scaled up or out to other geographies, thereby amplifying the number of switches. Catalytic effects refer to the snowball effect that may occur as a result of the initial 300 switches. This could happen where word-of-mouth or greater visibility of bikes leads to other businesses using cargo bikes outside and beyond the life of the programme thereby contributing to a modal shift.

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