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Accelerating the Active Travel Market

A routemap, to accelerate innovation, investment and exports, for the UK's active travel market



Contents

Why it is time to accelerate innovation, investment and exports for the UK’s active travel market	4
Definition, outcomes, and areas for market action	6
The UK’s active travel market: the size of the prize	8
The UK as a hotbed for active travel innovation	10
Addressing market failure	13
Area for Market Action 1 – Design of the built environment	14
Area for Market Action 2 – Innovation in combo travel	16
Area for Market Action 3 – Levelling up active travel	18
Area for Market Action 4 – Active movement of goods	20
Area for Market Action 5 – The supply chain	22
Area for Market Action 6 – Research, testbeds, and robust evaluation	24
A high growth market, with a purpose	26

Why it is time to accelerate innovation, investment and exports of the UK's active travel market

It is time to intentionally accelerate the UK's innovative active travel market. The benefits from, and opportunities for, more walking, cycling, wheeling, and running are huge – whether journeys are for practical or leisurely purposes.

We can decarbonise transport and accelerate net zero in response to the climate crisis. As we glimpsed during the pandemic, we can reconfigure places and streets to make them healthier, connected and people-friendly whilst tackling the obesity crisis and improving mental health. The UK can become a leading exporter of active travel innovations by stimulating the development and sharing of exciting solutions.

We need to grasp this moment of opportunity. We need to tell a clearer, more deliberate story that celebrates the ingenuity and enterprise of UK innovators who are pioneering ways to open up active travel for all. From new models of insurance and financing, bikes on buses, e-bikes that flatten the hardest of hills, and cargo bikes that can deliver to your door more quickly and efficiently than traditional vans, the UK is at the forefront of developing hardware and software for the active travel revolution¹.

UK universities and businesses help develop advanced and ultra-light materials, human-centred designs as well as a rich array of tools and accessories that help travellers navigate, understand their movement, keep safe, and both look and feel good. We pioneer the apps that plot the most accessible routes to walk or run or ride to our destinations and show the facilities available to let us arrive happily and with ease. Meanwhile, our master planning, design, and engineering firms use the power of multidisciplinary collaboration to shape active travel-friendly cities and places worldwide.

The governments of all four UK nations have made clear their ambitions for active travel, as have city, regional and national governments across the globe. HM Government recently published 'Gear Change'², with a vision for half of all urban journeys in England walked or cycled by 2030. Additional resources for regional, local and transport authorities are being made available, with new standards and oversight from a new body called 'Active Travel England'. As we will mention below, similar commitments have been made by governments in Holyrood, Cardiff, and Belfast.

Yet, a more deliberate approach will help UK firms develop the products and services 'Gear Change' calls for. Such focus will also enhance the likelihood that innovations will contribute to the growth of jobs, trade and the economy.

As part of this bold vision, we need to leverage our existing knowledge while also encouraging the development and testing of new ideas across the entire active travel ecosystem. We may invest in facilities (like e-bike testing centres) or focus on bringing people from different backgrounds (like materials science or cycling infrastructure industries) together to encourage cross-pollination of ideas. Doing so will equip UK innovators, investors, commissioners, and leaders right across the active travel market with the tools they need to develop the best possible solutions.

As we do this, we simultaneously make it easier and safer for people right across the country to travel in more active ways, and we grow our share of a large and expanding export market.

The Connected Places Catapult is the UK's innovation accelerator for cities, places, and transport. In preparation for hosting an Active Travel Summit on 29 September, the Catapult has spoken to manufacturers, consumers, policymakers, inventors, leaders, and buyers. We have heard about both resolvable market barriers and lucrative opportunities.

Here follows the first iteration of a 'routemap to accelerate innovation, investment and exports for the UK's Active Travel Market', which we hope will help direct the innovation effort of UK businesses and universities in support of the 'Gear Change' vision.

Of course, this routemap is but a valiant first effort, flawed and incomplete, yet we hope it can be the start of collaborations which tell a better and more joined-up story of the trade and export potential for UK plc in this global renaissance in active travel. The routemap is designed to align with the goals of Gear Change and its equivalents domestically, and begin to shape the wider global market opportunity for UK firms.

What next?

The Connected Places Catapult will share this paper at the Active Travel Summit on 29 September 2021, revise it with what we hear, invite further comment and critique, and then take it to back to industry leaders in the coming months. That, in turn, will lead to more clearly defined suggestions for what can be done to deliberately grow the innovation capacity of businesses to deliver what Prime Minister Boris Johnson calls this "new golden age" of cycling, walking and active travel³.

Definition, outcomes, and areas for market action

What do we mean by active travel

Active travel is often seen as the collective term for cycling and walking. For the purposes of this routemap, we think more broadly and inclusively, to take in all human-powered mobility as well as sustainable freight.

Think beyond your typical image of everyday walking and cycling to consider the full diversity of pedal-powered designs. Consider the range of form factors, not least those used by disabled cyclists and wheelers (people in wheelchairs) as well as scooters and skaters. Picture the growing array of e-cargo and electric bikes, which are partly assisted but principally human-powered, as well as all kinds of journeys on foot - including running - as forms of healthy, active travel.

What do we mean by 'accelerate innovation in the active travel market'?

- We want innovators in the UK market to design and develop the active travel products and services that meet the changing needs of people and places. These should be inclusive and accessible, providing attractive and seamless active travel experiences for people of all ages and abilities.
- We want to see increased investment in Collaborative Research & Development in knotty active travel challenges and opportunities. This means designing places, products and services in ways that are good for people, planet and profit.
- We want commercial developers, asset owners and authorities to clearly see the long-term trends towards more healthy and active travel, which unlocks investment.
- We want political and place leaders at all levels to look to the market, trialling new active travel solutions in this rapidly changing ecosystem.

Ultimately, this is about spurring the creation of environmentally and socially sustainable active travel jobs and growth - together delivering the well-documented societal benefits that are there for the taking.

Areas for market action

This routemap starts with some analysis of the Active Travel Innovation Market. It will provide six areas where we want to encourage collaborative action across stakeholders.

First, **the built environment**. The biggest opportunity of all is that posed by the question: how do we design our cities and places for people, and which enable more active and healthy lifestyles by default? This includes the development of 'iconic' street furniture that integrates active travel into everyday life, homes and workplaces, as well as sharing UK designs and master planning across the world.

Second, **innovation in combo-travel**. This is about how we integrate active with different transport modes, particularly encouraging an active first and last mile. We need to build transport systems for people to 'hop' between with ease, not least in ways that reduce short car trips in our towns and cities that can be done actively, and with e-assistance, instead.

Third, the **levelling up of active travel**. The UK is globally admired for its human-centred and human-connected design capabilities. If we design for all needs, market actors can make active travel safer, more inclusive and, ultimately, more attractive to people of all ages and abilities.

Fourth, the **active movement of goods**. How do we embrace the potential of actively moving goods to where they need to be? This could include enabling infrastructure or encouraging new designs and business models. Such new designs or business models could include cargo-bikes or partly human powered Light Electric Vehicles (LEVs) as a system.

Fifth, the **supply chain for materials and components**. Here, we want to work together with our sister organisation, the High Value Manufacturing Catapult, and industry bodies like the Bicycle Association to enable more seamless design, testing, manufacture, assembly, and distribution of active travel innovations. This is to ensure that solutions better respond to user needs and industry preferences.

Sixth, and across the above areas, we want to ensure all development is supported by robust **research, testing and evaluation**.

The UK's active travel market: the size of the prize

The cycling market

We know a lot about the market for cycling, not least because it revolves around a single core product. HM Government's report, 'Gear Change: One Year On' told us that the value of the UK's cycling market in 2020 is estimated at £2.31bn, a 45% increase compared to 2019. The volume of pedal cycle sales increased by 18%, reaching an estimated 3.1 million units⁴. In a paper published in June 2018, the Bicycle Association and consultancy Transport for the Quality of Life sought to quantify the wider economic contribution of the UK cycle industry, concluding that it would contribute £5.4bn per year and support 64,000 jobs⁵. We can reasonably imagine that this number is much higher in 2021.

In particular, we can see a lot of growth in the market for e-cycles. In 2020 sales of e-cycles rose by 67% to an estimated 160,000 units and 12% of the market for bicycle sales⁶. As battery technology improves, 'range anxiety' will likely become a thing of the past.

The potential for bicycle exports is vast. There is good data on Europe: the Confederation of the European Bicycle Industry (CONEBI)'s analysis of the European bicycle market in 2020 speaks of a sector turnover of €18.3bn and 22 million bicycles⁷.

Areas for potential cycle market growth include all aspects of electrification, e-bikes and e-cargo bikes; and improving the accessibility of cycling for all ages and abilities, not least riders of non standard cycles as well as the market for young families and children. There is certainly demand for more electric-assisted bikes, as evidenced by data from the Bicycle Association and CONEBI. Likewise accessible bicycles. In a Sustrans study quoted by Wheels for Wellbeing, 33% of the disabled people surveyed said that they would cycle if they had the opportunity to do so⁸. The future of the market also lies with our children. We hope further iterations of this routemap can contain more analysis of the market opportunity for bikes and cargo bikes for young families and children. Furthermore, children's active travel can form patterns that continue through adult life.

Other types of active travel

As we develop this routemap we would like to gain a better understanding of the UK market for other types of active travel, especially those that make other forms of active travel (beyond cycling) more accessible. In preparation for the Active Travel Summit, we heard about companies that focus on the generation of energy from walkers, technologies that promote walking or running, and the significant growth of the health/well-being technology markets. We welcome further evidence in this area.

The enablers of active travel

The UK has a thriving market for products and services that enable all forms of active travel. When it comes to cycling, expenditure on parts and accessories increased to £880 million in 2020 with £40 million spent on services such as cycle repair and maintenance, boosted by the Government's Fix Your Bike Voucher Scheme⁹. Then there are the digital and data-driven tools for consumers to mitigate barriers to active travel, for example, digital tools which help lone travellers choose safe routes.

Infrastructure investment represents perhaps the most significant market potential in active travel. Local authorities, developers, and place leaders are all looking to design public and shared spaces that better promote active lifestyles. As highlighted by UCL Bartlett, the UK's world-leading design and engineering firms can support required changes in the 'structure of urban environments'¹⁰. We heard about exciting new technologies that make active travel safer, including for lone travellers.

Analytical tools and software can help local planners and developers leverage the increasing quantity of data and insight on active behaviours, whether from mobile phone geolocation, satellite imaging, agent-based models, or smart-bike lights

UK firms are rising to the design challenge. From the boldest visions and regional plans to public-realm enhancing bike parking, to digital and physical wayfinding or new types of end-of-trip infrastructure installed by forward-thinking asset owners. Excitingly, the option for active travel is increasingly an expectation of prospective residents, customers and employees. In turn, offering these options to employees will generate productivity benefits.

Wider economic benefits of active travel

The active travel market is not exclusively about the sale of consumer products. Far from it. The £5.4bn market estimate by the Bicycle Association includes Gross Value Added of sales of products and services and also values congestion and health benefits associated with these sales. The King's Fund has estimated that for every £1 spent on cycling provision, the NHS recoups £4 in reduced health costs¹¹. Then there's congestion: e-cargo bikes can potentially impact the c.£8bn lost by the economy to congestion¹². These studies have only scratched the surface: the potential for active travel to make savings to the public purse's spend on public health is immense. The Bicycle Association has begun working to develop 'local economic cases' for cycling - this is an exciting prospect.

From those market leaders we have spoken to, we have heard how active travel is far from mutually exclusive of other modes. Instead, an exciting area of R&D investment is in 'combo-travel' or the mixing of modes from active to long-distance travel. In many ways, with integration, active travel could be a driver of rail and bus demand for those longer distances.

The UK as a hotbed for active travel innovation

The UK offers a healthy environment for innovation in active travel products and services. There are at least five reasons for this:

First, we have a favourable policy environment across all four nations, which signals a stable, long-term domestic market.

- In England, the government has published 'Gear Change', a vision for a significant increase in cycling and walking grounded in health, wellbeing, and carbon reduction (referenced above).
- In 2021 Welsh government's new transport policy promised £75m to get more people walking and cycling¹³.
- Transport Scotland has a clear plan on how it will develop 'an Active Nation'¹⁴, with the Scottish government announcing £500m of active travel funding in September 2020¹⁵ with the 2021-22 Scottish Budget citing the contribution of active travel in the development of a low carbon economy¹⁶.
- Active travel sits at the heart of the Northern Irish Department for Infrastructure's 'Planning for the Future of Transport: Time for Change', published in June 2021¹⁷. Other parts of the Northern Irish government have partnered with Sustrans to create an 'Active Travel Challenge'¹⁸.

Together, these initiatives are a strong market signal of the nations' commitment to change how we move around. Sustained and increased funding will direct market attention to solving persistent challenges that will further unlock new market opportunities.

Second, the move towards more active travel is in the context of the whole country's push to **decarbonise**. The UK is a leader in developing green technologies and can coalesce around its automotive industry and existing battery technology strengths. If thoughtfully directed via market signals and government challenges (e.g. akin to the Faraday Challenge and the Driving the Electric Revolution Challenge), this competence can improve the UK's competitiveness on power electric and e-cargo bikes.

Third, we must build on the UK's **design economy**, creating products and services that meet the needs of people, communities, and the planet - making active travel more accessible, inclusive, and attractive. The Design Council recently estimated that the design economy contributed £85.2bn in gross value add to the UK economy, the equivalent of 7% of the insurance and financial services sector¹⁹. In 2018, their research found that 1.69m people are employed in design roles in the UK, adding social, environmental, and economic value²⁰.

The UK has great potential to be a leader in designing more accessible forms of active travel.

“ When we talk about removing barriers to active travel for disabled people, we are talking about removing barriers to active travel for people full stop”.

Isabelle Clement, Director of Wheels for Wellbeing



Fourth, the UK has a thriving **digital and data** sector with lots to teach us about how we design for active travel. Whether it be the digitalisation of parking or kerbside management, from the likes of AppyWay²¹, Kerb²², Parkopedia²³ or standards work by the Alliance for Parking Data Standards²⁴, this innovative use of data can be an enabler for more dynamic street space management by local authorities.

Finally, UK firms have built on the country's **architectural heritage** and can advise globally on planning, urban design and placemaking. Advisory and knowledge sharing opens up global market opportunities and allows the UK to learn from the best around the world.

“ We can smash this out the park.” “Let's be the next Taiwan.”

Will Butler-Adams, Brompton



Addressing market barriers

To realise the opportunities posed by active travel, the industry must work collaboratively to address market barriers.

The Connected Places Catapult team spoke to a range of industry leaders and policymakers about market conditions, and where they felt there were signs of particular barriers to or opportunities for innovation. We asked where, and for whom specifically, there is potential for targeted research, development, and innovation (RD&I) in the active travel market.

The Active Travel Summit provides an opportunity to explore the key issues that business and place leaders see as material to unlocking innovation in the active travel market, look at what is most addressable, and determine some actionable priorities and immediate steps. Emerging themes going into the Summit include:

- Opportunities for improved **monitoring and evaluation of interventions, innovations, and solutions**.
- A focus on **sustainable business models** which allow a new technology to outlive trials or initial capital investment, to assist with business and investment cases.
- Innovation in the **development of street furniture that makes active travel easier for all, and more sympathetic to its context**. The opportunity exists to leverage the UK's rich transport design heritage to reimagine the shared realm and social infrastructure, in turn further boosting demand.

- **Supply chain innovation, including the advanced manufacturing** of technologies like battery-powered electric bikes and other critical aspects of smart and connected mobility, positioning e-assisted active travel as part of the wider EV and LEV growth story. The High Value Manufacturing Catapult and Warwick Manufacturing Group's Micromobility Roadmaps provide an opportunity to align innovation resources with opportunities to stimulate the UK's micromobility supply chain, inclusive of active mobility²⁵.
- **Mobility hubs and 'combo travel' innovations**. This is all about supporting people to transfer from active travel to long-distance modes. Greater adoption of combo-travel will mean that active travel can reach out to both rural and urban areas.
- Further priority to the design of **products and services that promote inclusion, accessibility**, and safety in all types of active travel.

The Bicycle Association has looked across its wide membership of producers and retailers and has built a strong case for developing shared testing facilities in the UK. This would stimulate investment in R&D, as well as accelerating the on-shoring of the supply chain for bicycles.

Having listened to these and other key themes, we have identified six addressable areas for market action, as follows:



Area for Market Action

1

Design of the built environment

The vision

Streets, places and workplaces are designed to make active travel attractive to all.

Signals of progress

We will know we are on the way to achieving this vision when we see:

- Design competitions that spark the invention of new types of iconic infrastructure and urban design that makes it easier to travel actively.
- The emergence of new urban designers, in the lineage of David Mellor, Jock Kinneir, and Margaret Calvert, this time creating new ways to design for active travel.
- Electric charging infrastructure and ‘end-of-trip’ facilities for e-powered and assisted mobility focusing every bit as much on e-bikes, e-cargo bikes, light electric vehicles (LEVs) and other micromobility options as they do standard EVs.
- New ways to pre-design and retrofit for active travel in different types of housing and office development (e.g. high-rise tower blocks and shared housing).
- New types of smart technology for cycle safety and priority at junctions, as part of addressing the wider smart and connected cycling and active travel opportunity.

What market actors can do

- Innovators can use shared platforms to showcase new designs, working with place leaders to see them tested.
- Investors and asset owners can come together to create the competitions needed to spark innovation.
- Employers and developers can embrace inclusive design of workspaces and residential areas for all forms of active travel, meeting the changing needs of their employees, visitors and residents.
- Place and hub leaders can explore the rich range of UK innovation in the design of the built environment, working with innovators and investors to conduct trials.

How the Connected Places Catapult could support

- CPC could channel investment and run competitions for public and private sector actors.
- CPC could collaborate to conduct R&D on new types of (data-driven) infrastructure and street furniture modules that make active travel more attractive.
- CPC could collaborate with the likes of the Design Council to conduct R&D on a new national visual ‘language’ for active travel.
- CPC could conduct specific studies, for example building the investment case for cycle parking to support developers and local authorities make the case when put against car parking.
- CPC could work with specific landowners, developers, and asset owners to help them reimagine and pioneer space for the promotion of active travel.
- CPC could work with the Bicycle Association and its members to lead the smart and connected cycling opportunity globally, in close collaboration with urban designers.



Area for Market Action

2

Innovation in Combo Travel

The vision

Innovative and integrated products and services enable our streets, transport systems and lifestyles to be optimised for, and in turn increase, the active aspect of everyday journeys and commutes.

We recommend that interested parties read a recent report published by Innovate UK entitled: *“Combo Travel: Active and motorised modes working better together”*²⁶. The report defines combo travel as: *“human-powered mobility in combination with a motorised mode as an enabler of healthier lifestyles and lower carbon journeys”*.

Signals of progress

We will know we are on the way to achieving this vision when we start to see the following things, all defined by Innovate UK as ‘Combo Travel’:

- Greater provision for bikes and mobility aids on buses or for secure bike parking to be added at bus stops to allow for different lengths of active journey depending on an individual’s energy levels, mood, weather, etc.
- The intentional design of a proportion of car parking provision for bike parking, as well as individuals choosing to park by preference, further away from car journey destinations as part of active environments
- Products and services that support Combo Travel by preference, such as bike parking at bus stops or helping people to choose to walk to a more distant bus stop to add steps.
- Mobility hubs at transport interchanges, with amenities like dry cleaning, secure bike parking, towels, charging infrastructure for e-bikes and e-cargo bikes and on-demand showers.
- Park and rides, whereby the ride is a bike, e-bike or cargo bike.
- Car retailers that include fold-up bikes and e-bikes in the vehicle, either as a single, integrated branded offer or through brand partnerships. Business models may use integrated digital ticketing and app platforms to promote and incentivise active mode options, not least at peak times.

What market actors can do

- Innovators can come together to integrate their product and service offerings to make it easier for users to switch between different modes.
- Investors can collaborate to commission Research and Development into new ways to integrate active modes with longer-distance modes, e.g. bikes on trains.
- Software solutions that can be optimised for active rather than inactive mobility.
- Employers and developers can find ways to reward and incentivise the combination of active and longer-distance modes in employees and potential residents.
- Place and hub leaders, working with transport authorities, can commission the development of services that make it easier for travellers to move between modes of transport, especially when it has an active element.

How the Connected Places Catapult could support

- CPC could work with transport and train operating companies, strategic bodies, academics and investors and place leaders to develop business models for combo travel.
- CPC could pull together consortia of partners with a shared interest in investment in combo travel R&D from the perspectives of place leadership, health and wellbeing, net-zero, and academic excellence. Partners could include strategic bodies like Sport England and its equivalents, the Advanced Wellbeing Research Centre, and primary and secondary healthcare providers.
- CPC could convene industry leaders to develop standards for combo travel, not least the integration of active and longer-distance modes.
- CPC could work intensively with place leaders, strategic bodies, health professionals, sport and leisure providers, transport network owners, Disabled People’s organisations and active travel commissioners to innovate and trial new approaches to integrated system design.

Area for Market Action

3

Levelling up active travel

The vision

It is easy and attractive for everyone to choose active travel.

Signals of progress

We will know we are on the way to achieving this vision when we see:

- A levelling up of active travel, with the uptake of active travel by those people who might, for whatever reason, not consider themselves to be a 'cyclist', 'walker' or 'runner'.
- New active travel options (e.g. pay per cycle) for user groups to whom affordability is a barrier.
- Innovation in cycle safety, e.g. new forms of virtual cycle training and hazard perception.
- New types of active travel that mitigate the impact of phenomena that currently disincentivise active choices (e.g. cold weather, rain, bumpy roads).
- Products and services that speak to the different ways that different people walk, cycle, wheel, roll and run.
- Greater adoption of e-cycles across all user segments.
- Innovation in active travel safety, especially for lone travellers. Prevention of theft of active travel assets.
- A greater variety of well-designed active travel products and services tailored to the needs of older people and those with visible or invisible disabilities.
- New digital infrastructure for seamless active travel experiences (e.g. payment, shared cargo bike schemes, etc.).
- UK-based active travel brands and innovators are admired for products and services that not only meet practical needs brilliantly but are emotionally engaging and aspirational as symbols of freedom, independence, identity, success and even luxury.

What market actors can do

- Innovators can design new products that make it easier and more attractive for people of all ages and abilities to choose active travel. This is an exciting design challenge.
- Investors can make long term plays on new types of active travel, putting the needs of users and society at the forefront of investments.
- Employers and developers can start with the end-user when designing schemes and developments, considering the increasing customer desire for active lifestyles.
- Place and hub leaders can design spaces for adaptation and the emergence of new behaviours.
- Businesses, place leaders, transport authorities, strategic bodies and innovation, research, development and innovation funders - from UKRI to Sport England to Nesta - can be intentional in directing more funding and programmes to stimulate innovations and provide a context that helps active travel innovators thrive and scale.

How the Connected Places Catapult could support

- CPC could run an SME competition or accelerator programme on a specific area of active travel, such as technologies that enhance security and both lone traveller and asset safety.
- CPC could run a Technology and Research Innovation Grant programme on a specific area of active travel as above.
- CPC could leverage human connected design to develop design 'patterns', toolkits and principles, making it easier for innovators to design for different needs.
- CPC could leverage human connected design to develop design 'patterns', toolkits and principles, making it easier for innovators to design for different needs.
- CPC could leverage human connected design to explore the experiences of non-traditional active travellers to understand how to make active travel easier for these groups.
- CPC could work with the centre for inclusive micromobility to transfer lessons for active travel.





Area for Market Action

4

Active movement of goods

The vision

It is easy and attractive to send, receive and transfer goods in a way that includes an active element.

Signals of progress

We will know we are on the way to achieving this vision when we see:

- Streets, developments, and urban areas accessible by e-cargo bikes and other forms of active deliveries (e.g. cycle-couriers) rather than van-based deliveries.
- New approaches to secure parking of e-cargo bikes and the systematic removal of all legacy barriers that hinder riders of non-standard cycles.
- A steady increase in goods moved by e-cargo bikes until it is the predominant mode and further year-on-year growth after that.
- Increasing numbers of micro-consolidation centres in population centres and business districts.
- Logistics companies working with local authorities to develop new active offers using the data generated through active deliveries.
- A notable shift in consumer expectations, creating demand for ‘active’ deliveries of the goods they need.
- New market solutions that cater to the needs of the delivery workforce (i.e. those who are actively moving goods). For example, solutions that reduce the risk of repetitive strain injury.

What market actors can do

- Innovators can continue developing technologies that augment deliveries through active travel, such as e-cargo bikes.
- Investors can develop new business models that make the most of human energies to power deliveries and the transfer of goods.
- Employers and developers can develop workplaces and residential spaces that make it easy to receive goods that have come through an active mode.
- Place and hub leaders can design the urban landscape to facilitate last-mile deliveries through cargo bikes and remove legacy barriers to non-standard cycles and e-cargo bikes.

How the Connected Places Catapult could support

- CPC could work with local areas, universities, and logistics providers to develop sustainable business models using technologies like e-cargo bikes that last beyond initial capital investments.
- CPC could work with the High Value Manufacturing Catapult and the Energy Systems Catapult to conduct R&D on battery technologies in the urban environment - as well as promoting e-bikes as a means of deploying the best of battery technologies.
- CPC could partner with places and large businesses to conduct trials and reimagine design for active last-mile deliveries.
- CPC could work with the market to identify and help remove barriers to e-cargo bikes and other non-standard bikes.



Area for Market Action

5

The supply chain

The vision

The UK develops and produces a range of products that facilitate and augment active travel for all.

The Connected Places Catapult eagerly anticipates the work of the High Value Manufacturing Catapult and Warwick Manufacturing Group as they convene industry to develop a 'Micromobility Roadmap' that will help accelerate a market that includes e-bikes and e-cargo bikes. This area for market action will benefit from being undertaken in tandem with the work of other Catapults and industry bodies, including the Connected Places Catapult's collaboration with Bicycle Association.

Signals of progress

We will know we are on the way to achieving this vision when we see:

- An e-bike, e-cargo bike and bike component testing facility in the UK and an associated increase in the production of components in the UK.
- Increased activity in the market for active travel products like bicycles and assisted mobility equipment, including the entrance of new firms into the market.
- Promotion of principles of circular design and zero waste in manufacture and end-of-life processes for products that augment active travel (e.g. e-bikes and street furniture).
- Active travel products and services, and supporting infrastructure, is being innovated and produced in the UK for all ages and abilities.

What market actors can do

- All parties can partake in the process led by the High Value Manufacturing Catapult and Warwick Manufacturing Group to develop a 'Micromobility Roadmap' in which active travel features prominently.
- Innovators can work across the sector to develop components and products that are interoperable and integrated.
- Investors can collaboratively develop the business case for bike development and testing facilities in the UK.
- Active engagement with the Bicycle Association and CPC-led industry working group to develop commercial, strategic and business cases and models for assets that will grow the UK's innovation, assembly, and production capacity.

How the Connected Places Catapult could support

- CPC could convene market actors working across the active travel sector in a similar way as we have for ForuMM (a platform open to public, private, and academic members, ForuMM will be a neutral venue for knowledge-sharing on global best practices on micromobility)²⁷. This can relate to key themes like the built environment and infrastructure, the supply chain and testing, and place-based trials and learning.
- CPC could collaboratively develop campaigns and events that promote the use of battery technologies in active travel, particularly to augment cycle journeys.
- CPC could work with the High Value Manufacturing Catapult to develop business cases and business models for innovations in the supply chain, particularly focused on their application in the urban environment.

Area for Market Action

6

Research, testbeds, and robust evaluation

The vision

The combination of research, testbeds, a leveraging of rich datasets in connected places, evaluation and widespread dissemination leads to rapid market growth to meet the increasingly ‘active’ needs of consumers and the market.

Signals of progress

We will know we are on the way to achieving this vision when we see:

- A coming together of the UK’s advanced manufacturing sector, world-leading design and engineering consultancies, digital economy firms and innovators in finance and insurance to invest in CR&D in active travel.
- The development and proliferation of new business models which involve active travel.
- A flurry of trials and testbeds benefitting from a range of experimental technologies and approaches to active travel.

What market actors can do

- Innovators can work with place leaders, investors, and others to develop routes to testing their new products and services.
- Academics can work across the sector to ensure effective monitoring and evaluation, benefiting from the best research methodologies.
- Investors can collaborate widely, especially with academia, to fund new types of active travel CR&D.
- Employers and developers can turn their sites into trials, giving new and exciting experiences to users of workplaces and residents.
- Place and hub leaders can conduct exciting trials like those innovating in ‘zero emission’ or ‘15 minute’ cities.

How the Connected Places Catapult could support

- CPC could work with trials to develop business models for the innovations that are validated by trials, ensuring more viable and sustainable models.
- CPC could work across the sector to develop a set of standards for the monitoring and evaluation of active travel interventions and research.
- CPC could work with a range of employers to develop best practice in incentivising active travel amongst employees.
- CPC could act as an evaluation partner for major developers who are trialling particularly effective approaches and want to share insights with others.
- CPC could run trials and testbeds, particularly those focused on a particular place or type of journey.
- CPC could work with academic partners and bodies like the Bicycle Association and the Advanced Wellbeing Research Centre to conduct research programmes to quantify public health benefits and cross-sector savings generated by active travel.



A high growth market, with a purpose

A defining feature that has shone through the last several months of industry round-tables, business interviews, podcasts, and sessions with policymakers, place leaders and investors is a clarity of purpose.

That's in terms of a vision of how people and places can thrive, the role that active travel can play in achieving that vision, and - vitally - why, as a market, active travel is extensive, growing, global and in all probability - given headwinds and tailwinds - likely to endure over the long run.

Active travel is a market that is already delivering high financial, economic, societal, and environmental returns, and with a ton of latent potential for more.

In terms of UK plc, this has primarily been done to date without significant directed and intentional R&D. There is a good case to be made that now is the perfect moment to ramp this up - with the climate and health crises top of mind, and a sustainable, resource-efficient, net-zero economy a must and not a nice-to-have.

There is the opportunity to tell a stronger, more deliberate and joined up story of this opportunity. UK innovators and place leaders also have the chance to develop and deploy the active travel products and services that people and places need here in the UK, while also exporting these products and services to the world.

This early draft of the routemap calls for the leaders and innovators in the UK active travel market to seize the opportunity with conviction so that we can deliver a world-leading active travel market, investment environment, and economy.

Our thanks go to the diverse voices that we have heard from, as individuals and organisations, when developing this first version of a roadmap.

We would like to acknowledge particular thanks to those individuals, organisations and groups listed below. Thank you for speaking to us and sharing your views. We must be clear that this draft does not necessarily represent the opinions of those listed.

Accell Group	Go Jauntly	Strava
Amey	Grid Smarter Cities	TCPA
Avison Young	Hammerson Plc	Telefonnica
Arup	High Value Manufacturing Catapult	TfGM
AWRC (Advanced Wellbeing Research Centre)	Innovate UK	The Planner
AXA-IM	ITS UK	TIER Mobility
Beryl	JLL	TfL
Bicycle Association	Nothng	Transport for Wales
#BIKEISBEST	Laka	Transport for West Midlands
Bikmo	Loffi	Transport for Quality of Life
British Land	London Cycling Campaign	TRL
Brompton Bikes	McLaren	University of Westminster
Campaign for Better Transport	Mott MacDonaldPashley	University of Salford
City of Coventry	Pedal Me	University of West of England
Citymapper	Plexal	UKRI
City Science	Pure Electric	Warwick Manufacturing Group (WMG)
CoMoUK	Raleigh	West Midlands Combined Authority
Cyclehoop	Rapha	Westminster City Council
Decathlon	See.Sense	Wheels for Wellbeing
DfT	Sheffield City Region	Zedify
EAV	Siemens	22 Bishopsgate
Five at Heart	Southern Railways	
Fitlink	South Yorkshire Combined Authority	
Frog Bikes	Sport England	
Go-Ahead Group Plc	Sustrans	

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