

***D3.9 Communication and  
Participation at City Level  
Manchester***

***WP 3, Del 3.9***

***January, 2020(M60)***



Project Acronym	TRIANGULUM		
Project Title	Triangulum: The Three Point Project / Demonstrate. Disseminate. Replicate		
Project Coordinator	Trinidad Fernandez (trinidad.fernandez@iao.fraunhofer.de) Fraunhofer IAO		
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DoA	The production of a Communications Plan that incorporates a strategy for communicating and disseminating the key elements of the Project with the principal aim of enhancing the uptake of activities and technologies across a wider geographical area.		
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02/12/2019	0.1	Martine Tommis (MCC)	First draft
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28/01/2020	V1.1	Catalina Diaz, Trinidad Fernandez (Fhg)	Cross-check and comments.
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*TRIANGULUM - GA No.  
646578*



# 1. Introduction

## Purpose of this document

The purpose of this document is to describe the communication and dissemination work of the Manchester partnership and details the communication activity undertaken by the Manchester partners at a city level context delivered during M48 – M60.

## Communication Objectives

The communication objectives aim to:

- Identify common communication tools for use by project partners,
- Ensure a consistent message to be communicated by project partners,
- Identify relevant channels of communication to stakeholders,
- Produce a defined set of actions to communicate and disseminate project outcomes.

## Communication Levels

There are two communication levels:

- Project level: Steinbeis-Europa-Zentrum (SEZ) is leader of WP7 Communication and Dissemination. They are responsible for the global Triangulum D&C work and for the management and coordination of all dissemination and communication within the wider Triangulum project. For this reason, the references in this document to the wider project actions are not presented in detail.
- City and WP level: there are designated local dissemination and communication coordinators for each Lighthouse and Follower city. Manchester City Council (MCC) is responsible for the coordination of communication and dissemination at a city level for Manchester and WP3.

## Manchester Partnership

The Manchester partners are updated on the main communication issues via a monthly board meeting - all Manchester Triangulum partners (MCC, MMU, UNIMAN, Siemens, and Pixel Mill (formerly Clicks & Links) and Oxford Road Corridor are represented at the board meetings.

## Target Groups

The focus of the communications WP3 Manchester programme is on the organisations based in the Corridor Manchester area, including employees, local businesses and the student population. Manchester-i and the data work broadened the target groups to include other stakeholders, including citizens, for example via the innovation challenges.

Overall the Manchester communication work targets a wide range of stakeholders at both national and local level. These include: building managers, global experts, local residents, political members.



## 2. Subtask 3.5.2 Communication Tools

### 2.1 Promotional Videos

#### Video Media

There have been four videos produced during this period, as detailed in the communications plan M48 – M60 (D3.8). They were delivered slightly later than had been scheduled, principally due to production issues i.e. availability to the supplier, gaining access the required resources and suitable weather conditions for filming.

- Energy film –produced by Zest. <https://youtu.be/nff65-0l3kl>. Funded by Siemens released M56. The film focused on the energy assets in Manchester and includes footage of the solar PV, battery installation, art gallery as well as the central controllers system in the Town Hall Extension. The format used two actors to walk the viewer through a journey, using eBikes from the project.
- Data film – produced by We Are Flow. <https://youtu.be/AQBXC0-dbFY>. Funded by Triangulum (MCC) - released M57. The film presents the various data assets across the project in Manchester and uses animation to present the different data sources and elements combined with real footage and a voice over. The film is subtitled.
- Manchester Triangulum Advert Video –produced by We Are Flow. [https://youtu.be/BZAPlvB4\\_jo](https://youtu.be/BZAPlvB4_jo) Funded by Triangulum (MCC) - released M60. The film brings together the different elements of the Triangulum project in a 45 sec “teaser” in the context of the issue of the climate change emergency in Manchester and the 2038 carbon reduction targets.



## 2.2 International Conference Roll-Ups

WP3 partners authored content and supplied images for the Triangulum International Conference roll-ups/posters for each of the WP3 mobility and energy tasks.

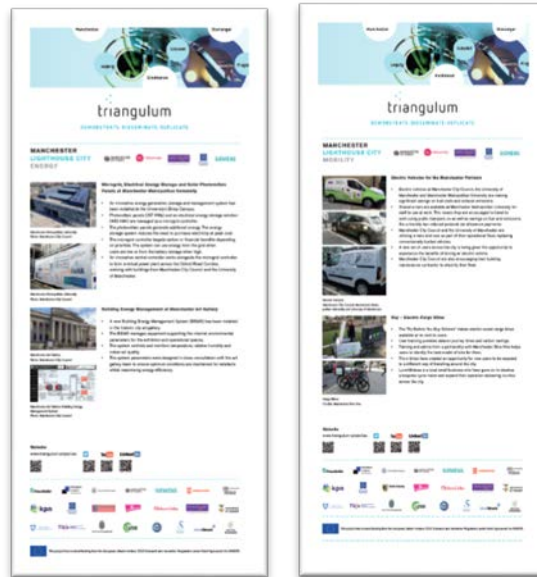


Figure 1 Siemens Post Triangulum Workshop

## 2.3 Web

The Manchester partners maintain a Triangulum presence on their organisational websites. .

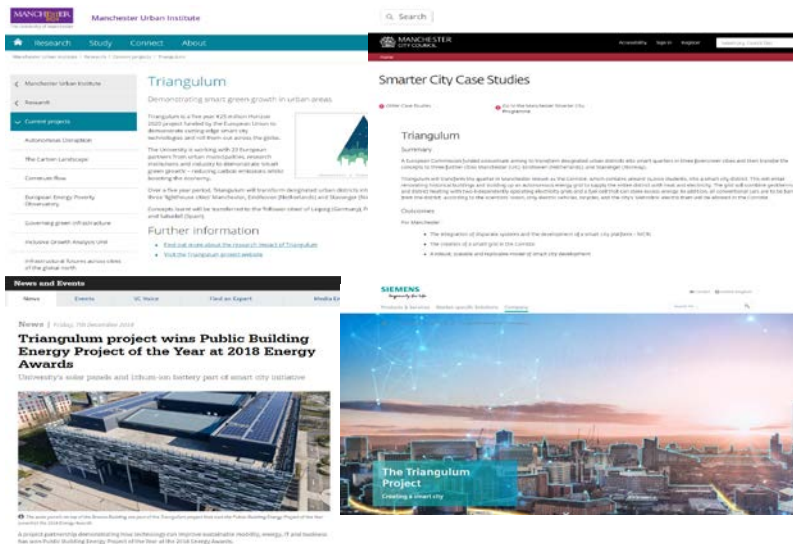


Figure 2 Manchester Partner Websites





## 2.4 Social Media

### Social Media

The Manchester partners all maintain their own Twitter and social media accounts. The Twitter account used by Manchester City Council is @smartercitymcr with 4,500 followers.

MCC tweeted/re-tweeted 25+ posts via the @smartercitymcr and the @Triangulum\_EU Twitter accounts mentioning the Triangulum Project during the period.

The other partner's accounts are as follows:

- Siemens – @SiemensUKNews
- Pixel Mill – @wearepixelmill
- MMU - @MMUEnvironment
- UNIMAN - @OfficialUoM. Other relevant departments within the University include @UoMUrban and @UoMSust. Also tweets from Prof James Evans, WP2 lead, @JZCos

## 2.5 Communications Plan

In M48, MCC created a new communications plan in conjunction with the Manchester partners. This was published as an annex to D3.8. This was reviewed at a board meeting in M55. There were no significant changes made to the document.

## 3. Subtask 3.5.3 Communication Events

There has been significant participation in the wider Triangulum events and the delivery of local events in Manchester. A broad range of presentations and workshops were given to external organisations. A detailed list is presented in Table 2

### 3.1 Presentations - Internal

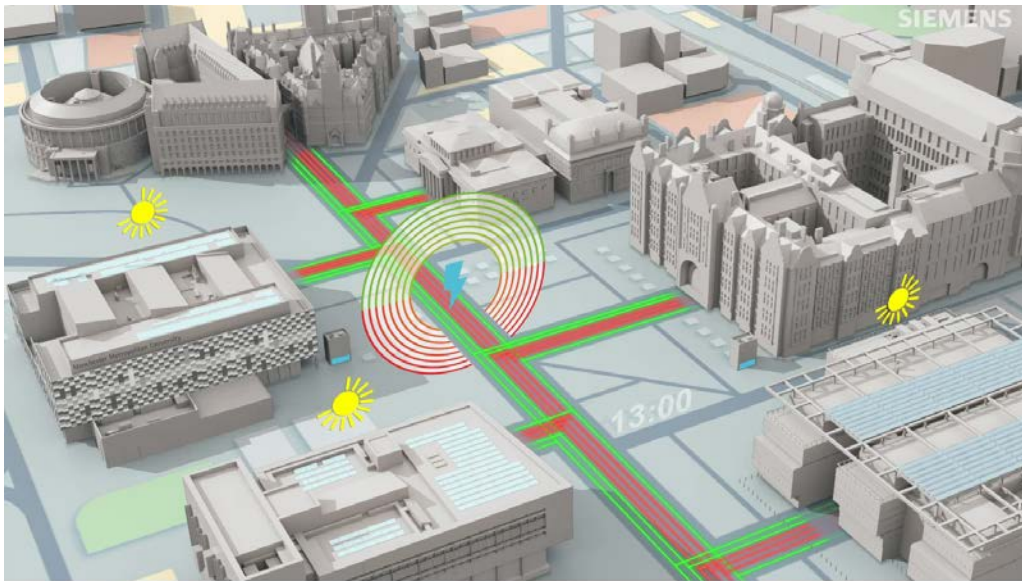
There were a number of important events held for partners which have been particularly significant in terms of the exploitation of Triangulum:

In M58, two workshops were hosted by Siemens at their UK headquarters in Manchester. The idea originated from a meeting between Councillor Stogia (Lead Councillor for Planning and Environment at MCC) and Robin Phillips (Site Director Siemens Manchester) earlier 2019. The workshop drew on the city's ambitious Zero Carbon 2038 objectives and recently announced Climate Emergency Declaration. The objective was to look at how the experience of Triangulum could be used to inform developments for both MCC's own estates and wider city stakeholders. Many of the actions that the City Council and its partners need to take to deliver actions on climate change have been tried and tested through Triangulum. Through the project, there is five years of experience, data and learning to share with partners and stakeholders on what has worked well,





Siemens also produced an animation of energy movement Oxford Road in M57 (produced by Maad Digital). Funded by Triangulum (Siemens). It shows a scenario where a range of energy assets are connected. The animation is intended to be used as part of a presentation.



 This project has received funding from the European Union's Horizon 2020 Research and Innovation Program under Grant Agreement No 646578

Figure 4 Energy Asset Animation

Date	Event and location	Description	Audience size and type	Who
M52	22.05.19 Data visualisation workshop	Workshop	15 Stakeholders	MCR partners plus MCC stakeholders
M57	Zero Carbon Coordination Group – Manchester City Council - The Group is Chaired by Carol Culley, Deputy Chief Executive and City Treasurer.	Presentation	12 Senior leaders at MCC	Mark Duncan (MCC)
M58	Post Triangulum Workshop for MCC city directors and senior leaders to look at how Triangulum can inform future carbon reduction activities. Siemens HQ, Manchester - 25/11/19 AM. Facilitated by Siemens.	Workshop	13 Senior leaders at MCC. Politician - Cllr Angeliki Stogia Lead Member, Environment, Transport and Planning  Senior leaders at Siemens including CEO UK Carl Ennis.	Mark Duncan (MCC) Ivan Hewlett (Siemens) Robin Phillips (Siemens) Carl Ennis (Siemens) Martine Tommis (MCC)



M58	Post Triangulum Workshop for Corridor leaders to look at how Triangulum can inform future carbon reduction activities. Siemens HQ, Manchester - 25/11/19 PM. Facilitated by Siemens.	Workshop	<p>Cllr Angeliki Stogia Lead Member, Environment, Transport and Planning</p> <p>Richard Munns Head of Estates</p> <p>Richard Elliott Head of Local Planning and Infrastructure</p> <p>Carol Culley Deputy Chief Executive and City Treasurer</p> <p>Jared Allen Director of Capital Programmes</p> <p>Mark Duncan MCC</p> <p>Martine Tommis MCC</p> <p>Sophie Sheil - MCC</p> <p>Janice Gotts Deputy City Treasurer</p> <p>MMU- Mike Sheppard Head of Estates</p> <p>MMU - Prof. Bamidele Adebisi</p> <p>Bruntwood- Bev Taylor Energy Manager</p> <p>UNIMAN -Emma Gardner</p> <p>MFT- Claire Igoe</p> <p>MCCA- Jonny Sadler – Director</p> <p>ENW- Peter Emery, CEO</p>	<p>Mark Duncan (MCC)</p> <p>Ivan Hewlett (Siemens)</p> <p>Martine Tommis (MCC)</p>
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Table 1 Internal Events



## 3.2 Presentations – External

Month	Date	Event and location	Type of dissemination	Audience size and type	MCC / partner Triangulum staff presence
M49	04.02.19	Delegates from the Japanese Ministry of Land, Infrastructure, Transport and Tourism. Location - Manchester	Presentation	3 Japanese ministry staff	Martine Tommis (MCC)
M49	18.02.19	South Korean Inward Investment - Department for International Trade (DIT) hosted an inward delegation from South Korea. Connected to the Presidential Committee on the 4th Industrial Revolution responsible for strategy and policy for South Korea. Senior members of the committee and ministry directors. Location - Manchester	Presentation	8 representatives from South Korean cities	Martine Tommis (MCC), Bamidele Adebisi (MMU)
M49	19.02.19	Russian Trade visit - Innovative Technologies in Urban Infrastructure” Trade Russia Visit - organised by the Department for International Trade Russia, Delegates from Russian on a business mission “Innovative Technologies in Urban Infrastructure”. - included a Birley Energy Centre. Location - Manchester	Presentation / Site Visit	10 SMEs from Russia	Martine Tommis (MCC) Andrew Smyth (Siemens); Bamidele Adebisi (MMU)
M50	15.03.19	Connectivity and Energy management in Smart City: The Triangulum Experience – New Jersey, USA	Presentation	40 - researchers	Bamidele Adebisi (MMU)
M50	26.03.19	Governing Urban Transformation Lecture. Location – Manchester.	Presentation	90 - students	James Evans (UNIMAN)



M50	26.03.19	Smart Energy Partnership Manchester – hosted by Innovate UK - Smart Systems and Heat– a new approach to decarbonising heat. Location - Manchester	Networking event	35 delegates from NW UK energy sector (SMEs)	Martine Tommis (MCC)
M50	28.03.19	Innovation Challenge #2 Joint initiative PM and MMU to present Triangulum data and opportunities for innovate. Location - Manchester	Innovation challenge	15 PhDs and Masters students Oxford Road, Manchester	Martine Tommis (MCC) Michael King (PM), Bamidele Adebisi (MMU)
M51	02.04.19	How will smarter cities change our lives? A discussion followed by a question and answer session for members of the public. The panel also included 2 young people from a local high school and an SME. Location - Manchester	Panel member	100 members of general public	Martine Tommis (MCC)
M52	09.05.19	Delegates from the Jeonnam Provincial Government, Republic of Korea. Location - Manchester	Presentation	5 - government	Adrian Slatcher (MCC)
M52	16.05.19	Smart campus development, Keynote at SUSTAINLAB, Stockholm, Sweden	Presentation	50 - researchers	James Evans (UNIMAN)
M53	24.06.19	Case study - Manchester China Forum Investment Portfolio - The Investment Portfolio documents the investment opportunities. <a href="https://www.investinmanchester.com/about-us/manchester-china-forum">https://www.investinmanchester.com/about-us/manchester-china-forum</a>	Case study	500 – international	Martine Tommis (MCC)
M53	27.06.19	Smart Travel – Can big data save our cities? The Sustainable Housing & Urban Studies Unit (SHUSU) Sustainable Transport Futures seminar. Location - Salford	Presentation	50 – sector professionals	Adrian Slatcher (MCC)
M53	27.06.19	British Irish Council Summit. Stand. Location - Manchester	Exhibition stand	200 - politicians	James Evans (UNIMAN)



M53	26 .06.19	EV Summit 2019, Oxford - electric vehicles, energy, and information technology and charging infrastructure. Location - Oxford	Presentation	300 – sector professionals, academics, companies, SMEs, corporates	Beate Kubitz (MCC)
M53	15.06 19	Smart City Delegation from Tartu City, Estonia. Location - Manchester	Presentation / tour of energy centre	2 – Tartu City Officials	Martine Tommis (MCC)
M53	20.06 19	Clean Air Day - Stand. Location - Manchester	Display stand	100 – members of the public	Martine Tommis (MCC)
M53	20.06.19	Bike and Electric Vehicle Roadshow - Clean Air Day - eBike try event. Location - Manchester	Display stand	30 - General public	Manchester Bike Hire (MCC)
M53	17.06.19	EU Sustainable Energy Week - Shaping Europe's Energy Future - EU Sustainable Energy Awards – not shortlisted.	Award entry	n/a	Martine Tommis (MCC)
M53	11.06.19	Open Geospatial Consortium (OGC) CityGML Hackathon. Location - London	Presentation	50 - developers	Adrian Slatcher (MCC)
M54	11.07.19	Transfer of Technical and Experiential Knowledge In Intelligent Distributed Energy Resources (DER) Management Systems. Location -Nigeria	Workshop/ Presentation	50 Stakeholders	Bamidele Adebisi (MMU)
M54	11.07.19	Smarter Power Grid Forum conference – Location - London	Presentation	200 – local government, industry	Ivan Hewlett (Siemens)
M54	11.07.19	Greater Manchester Combined Authority: Energy and buildings task group. Location – Manchester.	Presentation	35 – policy, industry	James Evans (UNIMAN)
M54	12.07.19	Association for Public Service Excellence (APSE) seminar on climate change action and energy. Location – Liverpool.	Workshop	200 – local gov, industry	Sophie Sheil (MCC)



M54	07.07.19	TransTech Mobility Award Submission – Air Quality Impact Category – not shortlisted	Competition Entry	10 – corporate judging panel	Martine Tommis (MCC)
M54	10.07.19	Westminster Transport Event – Mobility. Location - London	Workshop	100 - government	Martine Tommis (MCC)
M55	28.08.19	Chapel St East Consultation, Salford, GM. Consultation event with VR Bike as innovative part of consultation process with a purpose-built 3D model. Salford City Council to discuss plans for the work to be carried out. Location - Salford	Workshop	25 -general public, city officers	Laura Helfer (PM)
M56	03.09.19	UK Energy Storage Conference. Location - Newcastle <a href="https://conferences.ncl.ac.uk/ukes2019/">https://conferences.ncl.ac.uk/ukes2019/</a> <a href="https://conferences.ncl.ac.uk/media/wwwnclacuk/engineering/Carl%20Ennis%20-%20Siemens%20-%20UK%20Energy%20Storage%20conference.pdf">https://conferences.ncl.ac.uk/media/wwwnclacuk/engineering/Carl%20Ennis%20-%20Siemens%20-%20UK%20Energy%20Storage%20conference.pdf</a>	Presentation	300- corporate, local government	Carl Ennis (Siemens)
M56	05.09.20	Power Network analysis workshop. Location - Manchester	Workshop	8 researchers and Siemens	MMU and Siemens partners
M56	07.09.19	Saba-tic 2019, –follower city event. Workshops for general public to engage with digital technologies and how they can be used to support innovative and sustainable ideas. Location - Sabadell, Spain	VR Bike demonstration	170 – public, city officers and mayor	Laura Helfer (PM)
M56	16.09.19	Living Lab: Triangulum Experience Presentations - Vice Chancellor On Igbinedon University. Location - Nigeria	Presentation	3 - academics	Olamide Jogunola (MMU)
M56	18.09.19	Clean Air for Manchester Launch. Stand. Location - Manchester	Exhibition stand	50 – policy makers, industry	James Evans (UNIMAN)





M56	23.09.19	EU China Workshop – Guangzhou Development District, China as part of Greater Manchester Smart Cities delegation. Included Rome, Bolonga, Mannheim, Barcelona, Lyon, Granada, Guangzhou Government and other Chinese smart cities. Location – Guangzhou, China	Presentation	50 - government	Rebecca Drakeford – Manchester China Forum (MCC)
M56	23.09.19	Stavanger – final event - Energising Cities. Location - Stavanger, Norway	Presentation and workshop	150 – stakeholders involved in smart cities project	Martine Tommis, Mark Duncan (MCC) Laura Hefler (PM) Ivan Hewlett (MCC) James Evans (UNIMAN)
M57	01.10.19	Leadership in Action Lecture: smart cities. Location - Manchester	Presentation	250- students	James Evans (UNIMAN)
M57	03.10.19	UK100 regional Clean Energy workshops– Leicester. UK100 is the network for UK local authorities, urban, suburban and rural, focused climate and clean energy policy. Location – Leicester. <a href="http://www.uk100.org">www.uk100.org</a>	Presentation	75 - local government leaders	Carl Ennis (Siemens)
M57	04.10.19	Living Lab: Triangulum Experience Presentations - UK Power network services Managing Director and Northwest CTO. Location – Manchester.	Presentation	3 - corporate	Olamide Jogunola (MMU)
M57	10.10.19	Urban Experiments: Keynote at Eco-Cities symposium. Location - Manchester	Presentation	50 - researchers	James Evans (UNIMAN)



M57	18.10.19	SCC1 conference about the challenges facing urban data platforms, and what is needed to improve and align European platforms - Smart Cities & Communities Lighthouse network event. Location - Lyon.	Presentation	150 – stakeholders involved in smart cities project	Joe Rees (UNIMAN)
M57	18.10.19	SCC1 Monitoring and Assessment - cross project group to improve monitoring and assessment of smart city projects and infrastructure - Smart Cities & Communities Lighthouse network. Location – Manchester.	Presentation	30 – stakeholders involved in smart cities project	Joe Rees (UNIMAN)
M57	23.10.19	Smarter Tomorrow event - Exhibition Centre Liverpool - Smarter travel: travel demand, walking and cycling, shared / autonomous / connected modes, electric transport, smarter commuting, DRT, intelligent mobility innovation, freight and e-cargo, first and last mile solutions, ticketing and enhanced public transport services. Location - Liverpool	Exhibition stand	200 – corporate / government	Michael King (PM)
M57	30.10.19	eCargo Bike Empowerment Workshop- Cycle Logistics Ahead – EC funded project – demonstration session and presentations. Location – Manchester.	Participation	20 – local government	Martine Tommis (MCC)
M58	04.11.19	Living Lab: Triangulum Experience Presentations - Malaysian University students. Location – Manchester.	Presentation and site visit	50 - students	Olamide Jogunola (MMU)
M58	05.11 19	Energy and Clean Growth in the Northern Powerhouse, Hull <a href="https://npenergyconference.com/">https://npenergyconference.com/</a> Energy Strategy in the North - Energy Systems and Storage Zone. Location – Hull	Presentation	200 – corporate / government	Carl Ennis – Chief Executive, Siemens UK & Ireland



M58	08.11.19	Empowering Smart Cities: Keynote at Smartline, Turo, UK. Location – Turo, Devon.	Presentation	100 – researchers, industry	James Evans (UNIMAN)
M58	13.11.19	UK Smart Cities Group Meeting – telco for UK Smart Cities / Lighthouse Cities.	Participation	13 - government	Martine Tommis (MCC)
M58	14.11.19	CityX, The Connected Places Business Expo Connected Places Catapult - Urban Innovation Centre, London <a href="https://cityxpo.org.uk/exhibit/">https://cityxpo.org.uk/exhibit/</a> . Location - London	Exhibition stand	200 - government	Vin Sumner (PM)
M58	15.11.19	UK100 regional Clean Energy workshops– Bristol. UK100 is the network for UK local authorities, urban, suburban and rural, focused climate and clean energy policy. Location - Bristol. <a href="http://www.uk100.org">www.uk100.org</a>	Presentation	60 - local government leaders	Carl Ennis (Siemens)
M58	19.11.19	Smart Cities Expo – UNIMAN hosted a panel to discuss the wider project learning and development, at the Barcelona Smart City Expo with panel member from Triangulum. Location – Barcelona.	Panel host	10 – international: academics, city officials, smart city community	Joe Rees - UNIMAN
M58	26-27.11.19	Innovate4Manchester - a collaborative event that aims to address some of the most pressing concerns we face on energy and mobility in Manchester in partnership with Ordnance Survey. Location – Manchester.	Workshop	30 –developers, general public	Martine Tommis, Adrian Slatcher (MCC)
M59	04.12.19	Innovate4Manchester – follow up event on developing value proposition. Location – Manchester.	Workshop	3 –developers, ,general public	Martine Tommis (MCC)
M59	04.12.19	UK100 regional Clean Energy workshops – Manchester. UK100 is the network for UK local authorities, urban, suburban and rural, focused climate and clean energy policy. <a href="http://www.uk100.org">www.uk100.org</a>	Presentation	70 - local government leaders	Carl Ennis (Siemens)



M59	10.12.19	Foreign and Commonwealth China Office - Head of Sustainable Urban Environments Programme, British Consulate in Guangzhou Serena Tan, Prosperity Programme Manager, British Embassy Beijing. Conducting research across the UK and China to better understand how UK expertise in technology can be implemented in China climate change and smart city programmes. Location – Manchester.	Presentation	4 – Chinese FCO, local government	Martine Tommis, Mark Duncan (MCC), Kelly Watson (UNIMAN) Helena Tinker (MMU)
M59	13.12.20	Triangulum included in presentation to Mayor of Haidian District in Beijing - Silicon Valley of China. Location - Manchester	Presentation	4 – city officials	Adrian Slatcher (MCC)
M60	21.01.20	Energising Manchester – A celebration of the work of Triangulum in Manchester. An event to showcase the work in Manchester. Location – Manchester. Included release of short summary video of Manchester Triangulum in context of climate change <a href="https://youtu.be/BZAPlvB4_jo">https://youtu.be/BZAPlvB4_jo</a>	Event	80 – city stakeholders across the UK/ politicians/ researchers / corporate	Martine Tommis (MCC)
M60	21.01.20	UK Smart Cities Group Meeting – following Energising Manchester, the city hosted a UK Smart Cities Group Meeting for UK Lighthouse Cities. Location - Manchester	Participation	8 representatives from UK EC Lighthouse and Smart City projects	Martine Tommis (MCC)
M60	22.01.20	Governing Smart Cities: keynote at IPR. Location - Prague	Presentation	Policy makers / 50 Researchers /50	James Evans (UNIMAN)
M60	28.01.20	The wider impacts of Triangulum WO2 webinar	Webinar	Policy makers / 25 Researchers /25	James Evans (UNIMAN)

Table 2 External Presentations



### 3.3 Conferences

“Energising Manchester” was the final celebration event held in Manchester in M60 (21 January 2020). The aim was to showcase the work of the project and share the project’s key findings. Speakers included keynote input from Councillor Stogia, Carl Ennis (CEO Siemens UK), Ivan Hewlett, Martine Tommis, Beate Kubitz (transport consultant) and Ordnance Survey’s Director of Innovation, Miranda Sharp. Miranda Sharp spoke about innovation and data in the context of the innovation challenges and the use of city data. The event kicked off with a showing of a short summary video of Triangulum in Manchester in the context of climate change. [https://youtu.be/BZAPlvB4\\_jo](https://youtu.be/BZAPlvB4_jo)

It also included the opportunity to meet with the e-Bike supplier Manchester Bike Hire and take a closer look at Manchester-I / Manchester Observatory and also Pixel Mill’s virtual platform.

There were 80 attendees to the event from across public and private sectors. This included delegates from other the other smart cities in UK as well as Europe. The event included the wider Triangulum context with a focus on the work in Manchester and the achievements of the project locally.

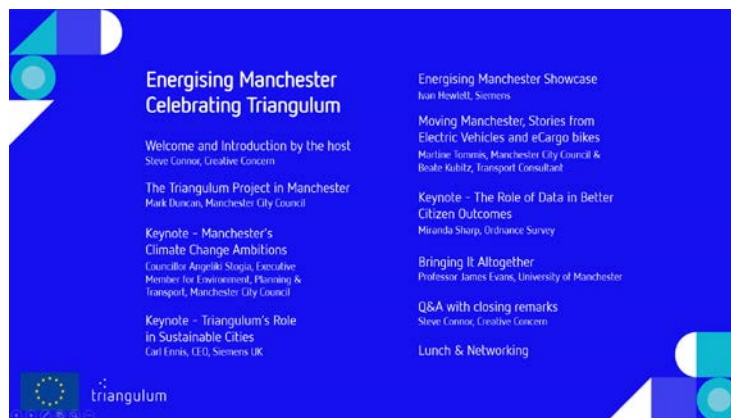


Figure 5 Energising Manchester –Agenda Triangulum Showcase in Manchester



Figure 6 Energising Manchester – Q&A Session



### 3.4 Press Releases

M55 – 25.09.19 €30 million Triangulum sustainable cities project reaches successful completion. The focus of the release was to showcase the energy solutions and how they have improved the city's Oxford Road Corridor. It included quotes from partners (see below). The press release was picked up by numerous other media sources including: Engineering Update, Chief Sustainability Officer, Business Chief Europe, Work Place Insight, Intelligent Transport, Telegraph Business Reporter, Cordis EU Research Results, IfG.CC - The Potsdam eGovernment Competence Centre and Eurais Review.

<https://news.siemens.co.uk/news/30-million-triangulum-sustainable-cities-project-reaches-successful-completion>.



Figure 7 Siemens Press Release Online

*Juergen Maier, CEO Siemens UK said: "We are immensely proud to have participated in Manchester's smart city vision and have learned and demonstrated, in equal measures, that with the right blend of investment, technologies, governance and citizen engagement, cities can evolve to be eco-efficient and fit-for-the-future."*

*Martine Tommis, Manchester Triangulum Coordinator at Manchester City Council added: "Working with Siemens as part of the Triangulum project has been a really exciting contribution to supporting our journey to meet our ambitious target of becoming a zero-carbon city by 2038. The project is a tribute to what partnerships can achieve for our city."*

*Amanda Wallace, Deputy Director of Manchester Art Gallery continued: "Working with Siemens, and being part of the Triangulum project, has been a rewarding and productive process that we hope will take us one large step closer to becoming a carbon neutral organisation."*

*Prof James Evans, Professor of Geography & Manchester Urban Institute Smart City Lead at The University of Manchester: "Working with Siemens has really established the potential benefits of*



*moving to a smarter and more sustainable urban energy paradigm in Manchester, especially the importance of sharing energy and data across different organisations."*

*Professor Bamidele Adebisi, Smart City lead at Manchester Metropolitan, said: "The technology has helped us to boost green energy solutions, and we can effectively balance energy demand, storage and usage – creating a more sustainable Oxford Road Corridor."*

### 3.5 Publications

There have been numerous publications and articles. These have focused on particular areas of the project and aimed at different audiences. For example, the article in MCC's Buzz magazine covered the roll out of the electric vehicles in the city. The article in the Telegraph covered the wider energy deployments.

The journal articles have been produced by the academic members of the Manchester consortium, The UNIMAN publications take a smart city approach, similarly the book chapter. MMU focuses on technical aspects of the project.

The student engagement activity includes PhD thesis' along with contributions to Msc Course and projects entitled Smart Technologies for Power Management (25 Masters students)

*Journals & magazine articles, Conference publications, Academic dissemination*

#### Magazine Articles

- 15.05.19 MCC Staff Magazine – The Buzz – article regarding EVs at MCC – internal publication.
- M58 Article in Telegraph – Business Reporter (online):
- <https://business-reporter.foleon.com/business-reporter-2019/smart-cities/30-million-triangulum-sustainable-cities-project-reaches-successful-completion>

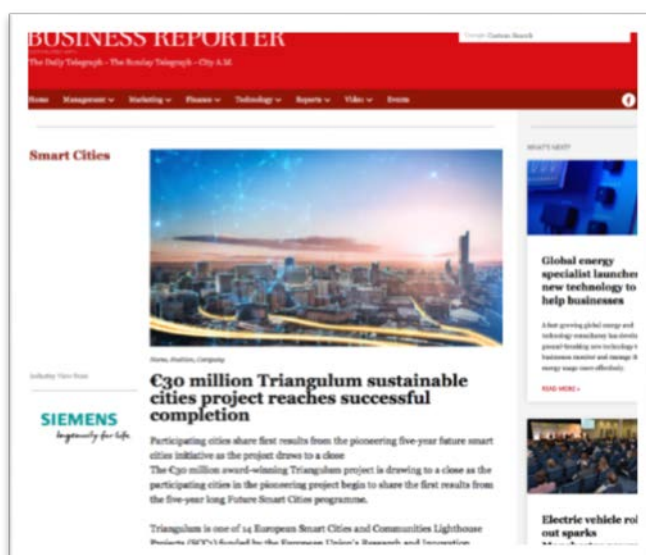


Figure 8 Business Report - Telegraph Article



## Journal Papers

- Martin, C., Evans, J., Karvonen, A. Paskaleva, K., Yang, D. and Linjordet, T. (2018) Smart-sustainability: A new urban fix? *Sustainable Cities and Society* 45, 640-648. doi.org/10.1016/j.scs.2018.11.028. Impact Factor 3.073
- Martin, C., Evans, J. and Karvonen, A. (2018) Smart and sustainable? Five tensions in the visions and practices of the smart-sustainable city. *Technological Forecasting and Social Change*. <https://doi.org/10.1016/j.techfore.2018.01.005> Impact Factor: 2.625|ISI Ranking 6/55 (Planning)
- Data Governance in the Sustainable Smart City. *Informatics* 4(41) (2018)., <https://doi.org/10.3390/informatics4040041>. Martin, C., Evans, J., Karvonen, A. Paskaleva, K., Yang, D. and Linjordet, T.
- M. Rozman, A. Ikpehai, B. Adebisi, K. Rabie, H. Gacarin, et al. (2018) Smart Wireless Power Transmission System for Autonomous EV Charging. *IEEE Access Journal* Impact factor 3.5
- Anoh, K., Maharjan, S., Ikpehai, A., Zhang, Y., & Adebisi, B. (2019). Energy Peer-to-Peer Trading in Virtual Microgrids in Smart Grids: A Game-Theoretic Approach. *IEEE Transactions on Smart Grid* impact factor 10.48.

## Book Chapter

- University campuses as testbeds of smart urban innovation. In: Coletta, C., Evans, L., Heaphy, L. and Kitchin R. (Eds) (2018) *Creating Smart Cities*. Routledge, London. Karvonen, A., Martin, C. and Evans, J.

## PhD Thesis and Student Engagement

- PhD Thesis: Distributed Algorithms for Peer-to-peer Energy Trading (Olamide Jogunola).
- PhD Thesis: Socio-technical Challenges to the Smart City: a citizen-centric perspective (Regine Sonderland Saga).

## 3.6 Communication Next Steps

It is anticipated that there will be further presentations for dissemination purposes beyond M60. This will be financed externally to the project i.e. from the partners own resources.

For example, Triangulum Manchester has been asked to present to the Institution of Engineering & Technology (IET) Manchester Power Technical Group, a Manchester Smart City Event in March 2020. Siemens will present at this event.

MCC will use Triangulum a case study for the event Smart IOT London in March 2020. This event covers smart cities, mobility and connected buildings.

The Royal Academy of Engineering are running a programme, Frontiers of Engineering Development. They will be hosting a symposium in Manchester (May 2020) to look at building inclusive cities whilst also engaging in green growth and would like to use the opportunity to learn more about Triangulum. Siemens and MCC are coordinating input in to this event.





<https://www.raeng.org.uk/grants-prizes/grants/international-research-and-collaborations/frontiers/frontiers-of-engineering-for-development>

The mobility evaluation will be shared widely and it is proposed to submit a paper on the deployment of the eCargo bikes to Cycle County Active County, Oxford, 8th and 9th July. This the UK's premier networking event for public and private sector professionals tasked with enabling, designing, implementing and improving provision for active travel. The evaluation is also being used to support a further bid to the UK government for eCargo bikes in the city.

In terms of next steps within the city, MCC intend to investigate ways to continue a non-commercial relationship with Siemens. The project will continue to be discussed and promoted within the city authority as part city solutions and the climate change ambitions and the Zero Carbon Coordination Group in the city. The city and project partners (MCC, MMU, UNIMAN) are all members of the Corridor Manchester Board and work will continue in forum.



TRIANGULUM - GA No.  
646578

The logo for Triangulum, consisting of three small teal dots arranged in a triangle above the word "triangulum" in a lowercase, sans-serif font.  
triangulum  
DEMONSTRATE · DISSEMINATE · REPLICATE