Marie Skłodowska-Curie Actions (MSCA)

Research and Innovation Staff Exchange (RISE)

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Intelligence-Driven Urban Internet-of-Things Ecosystems for Circular, SAfe and IncLusive Smart CITIES

D6.1: Impact creation, dissemination and exploitation plan

Abstract: This deliverable outlines the actions and plan of the *IDEAL-CITIES* consortium with regards impact creation, exploitation and dissemination of *IDEAL-CITIES* Project. It describes our plan and efforts up to date to identify the most relevant stakeholders and disseminate project progress and results to them. It provides both in individual and joint level exploitation possibilities for the project as well as it gives the actions and plans for dissemination of the project both on the scientific community and on the general public

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ECOLE NATIONALE DES PONTS ET CHAUSSEES	ENPC	FR
BOURNEMOUTH UNIVERSITY	BU	UK
BLUESOFT SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA	BLS	PL
CABLENET COMMUNICATION SYSTEMS LTD	CBN	CY
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Table of Contents

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Revisions

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1 Introduction

IDEAL-CITIES is an EU H2020 project funded by the Marie Skłodowska-Curie RISE action. The aim of IDEAL-CITIES is to provide a novel, open and extensible platform to enable secure, resilient acquisition and sharing of information with the goal to improve the well-being and inclusivity of citizens, produce more effective response to crime or other emergencies, and make Smart Cities feel more secure and safe to the citizens living in them.

The technical contributions as well as the knowledge exchange within the consortium members of the project are, without doubt, the main priority of this project. However, the exploitation and dissemination of the developed ideas and the obtained results to a wide audience, ranging from the research community to non-scientific public, is critical for the overall success and the impact of the project on society.

To that end this deliverable provide consortium's activities, tools and plans, that are been utilized to promote the IDEAL-CITIES approach both to the expert and non-expert audience.

The structure of the deliverable is as follows. First, we present the impact creation strategy of the project in section 2. Then section 3 sketches up the exploitation plans in both individual and joint level. Section 4 outlines both the dissemination activities during the first year of the project as well as the plans for the rest of the project duration. Finally, conclusions are given in section 5.

2 Impact

2.1 Self-sustainability of the partnership after the end of the project

Participation in RISE projects brings enormous opportunities for the consortium to exchange knowledge and build better understanding across sectors. Cooperation of commercial partners with academia and vice versa allows to advance the business perspective with newest advancements of research while in reverse to provide insight of business sector perspective and needs to researchers. During 4 years of project cooperation, consortium will perform many dissemination and exploitation activities strengthening cooperation between each partners as per strategical cooperation lasting beyond the project.

Building Institutional-level Memorandum of Understanding (MoU) is one of the planned initiatives which enabled extended collaboration in research and education. Market exploitation and presentation of the project results is one of the ambitions of the commercial partners and might be performed within commercial conferences enabling wide the discussions among relevant stakeholders in various sectors. Such wide discussions will bring added value of enhancing the impact of smart cities and circular economy ideas. Moreover, research findings of *IDEAL-CITIES* project will be exploited and used to solve the most advanced problems and challenges met within business activities of commercial partners.

Envisaged joint supervision for Early Stage Researchers, allowing to advance the research field will be reinforced beyond the end of the *IDEAL-CITIES* project in a form of tutorship provided by academia partners (FORTH, ENPC and BU) and internships opportunities provided by commercial partners (CBN, BLS and NP). This enables to strengthen the academia position as an advisory body for top notch solution delivery to the most complex and manifold challenges encountered in the ICT sector in particular in the areas of IoT, Data Security and trustworthy applications and services for Smart Cities. In reverse, commercial sector will act as an inspiration for tackling new research fields and bringing real life challenges to research field in order to further advance the existing problem solutions.

Such an approach closely relates to patent applications for newest research findings which is the way to ensure the intellectual property rights protection. Patents being the strategic value for the business planning and ensuring proper financial backup, consortium will be closely monitoring the project outcomes from the perspective of potential for patent applications and joint patents applications will be submitted whenever relevant. As per the Consortium is strongly devoted to continue the cooperation beyond the project, joint patents are another factor bolstering the cooperation in a long term horizon.

The composition of the *IDEAL-CITIES* is a very solid foundation for possible research-based spin-offs. Bringing together the perspective of most urgent and complex commercial challenges and the most recent research fields and findings, allows to combine those into most innovative products, services or business models for emerging companies. Consortium membered with an experience in that field are willing to provide their experience in any moment when such a spin-off opportunity will be identified. The Consortium is willing to cooperate in that matter during the project as well as after the project ends and considers various opportunities to build non-profit organizations, self-sustainable companies or joint venture initiatives.

2.2 Relevant Stakeholders

IDEAL-CITIES will have an ongoing approach to identifying relevant stakeholders which can be grouped into two sectors:

1. Private/Corporate
2. Local Authorities

2.2.1 Private / Corporate.

The private and corporate businesses identified here will be those that are either directly impacted or have a direct impact on the *IDEAL-CITIES* scope. Examples of these will be Business partners such as White goods resellers, technology resellers, Automobile Dealerships (These would be the authorised resellers of main car dealers such as Mercedez, BMW, Toyota, Honda, Volkswagen etc), Shopping Malls, Sports and Leisure facilities,

2.2.2 Local Authorities

Local authorities will be impacted especially those that are trending towards the IoT and Circular Economy solutions. These would include but are not limited to:

- Emergency Services
- Local Electrical Authority
- Local Councils
- Public Transport Authority
- Citizen Advice Offices
- Local Water Board Authority
- Local Educational Establishments (schools, Colleges, Universities)
- Ports (Airports, Harbours, Cross-border railways, Check-points)
- Border Control Authority
- Local Weather Authority

2.3 Indirect Potential Users

IDEAL-CITIES aims to have a positive impact on the communities it serves, however, consideration will also be given on security and software services markets who will be indirectly impacted as technology advances and communities become reliant on the *IDEAL-CITIES* culture.

Indirect potential users need to be considered at design phase as they may be required to become direct users at some future stage and the framework for *IDEAL-CITIES* needs to accommodate for these changes.

Therefore, a matrix will be developed to list both direct and indirect users which can be kept up to date as it gets populated allowing the Matrix administrator to have a full and comprehensive list of all current and potential users.

The matrix will also include columns for impact analysis purposes to ensure dependencies are also kept up to date through interrelation interaction lines between users.

2.4 General Public

To increase the impact of the *IDEAL-CITIES* project, it is deemed necessary that the results are disseminated in the research community, and towards the general public. This report includes the initial plan for the impact creation and the plan for the assessment of the socioeconomic impact of the project.

The general public's awareness is targeted via online publicity including direct interactive dissemination that will give enable the opportunity for personal interaction with external stakeholders and for community building and access to information tailored to different target groups. Additional impact will be created via the provision of advanced technical material and free (open source) software prototypes, discussions via participation in forums and events, frequent updates on professional Social Networks and Twitter hashtags as well as via the presence in European integration activities and other associations.

In this respect, the project deploys the following communication & outreach strategy:

Outreach to youth and young undergraduates: Fellows of *IDEAL-CITIES* will promote the project results and expected impact to young people, via visiting schools/universities and giving presentations. The goal is to inform students about the European vision of sustainable, trustworthy and inclusive smart cities, the concept of circular economy and the benefits arising from the interplay between them. The current research towards this vision will be highlighted. Each seconded *IDEAL-CITIES* fellow is expected to conduct the activity at least one university and one school at each host city. To measure the impact of the lectures, questionnaires could be used with the audience to fill twice: before and after the lecture. This way, by cross-examining the answers, the project can quantitatively measure how much the students have become aware of the research activities in a broad context.

A series of summer schools could also be organized for delivering knowledge to young undergraduates along the areas of interest of *IDEAL-CITIES*. The summer schools could be organized one per year at one of the academic partners and last approximately one week. It could be expected that on average 50 bachelor students will attend. The lectures may start from general content (i.e. research and innovation in the ERA, the Marie Skłodowska-Curie grant scheme, etc.), and continue with specific content related to the project (i.e. IoTPS applications, intelligent assets, security and privacy, Smart Cities, life-logging, circularity etc.). The last day, an exam could be applied to quantify the added value of summer school.

Information days: Project partners will organize information days for outreaching the general public. These events will be open to all citizens that are interested in learning about IoTPS systems and inclusive smart cities applications. These events will be organized at least once per year (at the partner's facilities, thus with negligible expense). The events will be publicized via several means to gather as many citizens as possible, also targeting specific all communities (e.g. visually or hearing impaired) that may leverage the inclusivity benefits of the proposed approach.

Marie Skłodowska-Curie Open Research Days: The events will enable students and the general public to visit the premises of the project partners to get hands-on experience of networked IoTPS systems and respective applications. FORTH, ENPC and BU have continuously hosted schools from their respective cities (Heraklion, Paris and Bournemouth), and will continue the success within *IDEAL-CITIES*, promoting the importance of the Marie

Skłodowska-Curie project and how it has benefited the institutes. Since this is an open information day, no questionnaires will be given to the visitors.

Web-Site: The *IDEAL-CITIES* accessible web-portal will act as an information channel disseminating the project's results and providing useful information about the scientific and technical areas of interest of the project. The web portal will contain the following items: 1) information of the project, e.g., scope, objectives, contact persons and partner organizations; 2) Landscape of research activities and outcomes; 3) a searchable multi-media document archive, e.g. for research reports; 4) a course registry for on-line material and tutorials; 5) a specific section for news and announcements; 6) publications (reports and popular science material), and 7) calendar and event dates.

Newsletters: A newsletter (one per quarter) serves as an effective instrument in the *IDEAL-CITIES* communication and information dissemination strategy among the project partners, the research community, and towards general public. The newsletter will constitute a primary means to collect the results achieved through project activities, and to timely spread and promote them. All partner organizations will contribute to the newsletter, which will be made available through electronic means. The newsletters are made available will free of charge to all external subscribers.

Webcasts: The outreaching talks given in events organized by *IDEAL-CITIES* will be made available online as webcasts, so that anyone interested in the project activities but unable to attend the events will have the opportunity to watch the talks and be informed of *IDEAL-CITIES* research and the Marie Skłodowska-Curie Programme.

Media releases: Fellows of *IDEAL-CITIES* will also submit articles in newspapers, discussing key innovative areas of the project and how the results can benefit the general public. Similarly, press releases could be another instrument to promote the project and the benefits of the organizations from the Marie Skłodowska-Curie action. In addition, opportunities of TV or radio interview will be pursued to bring, at a high level, the knowledge, achievement, and importance of the scientific domain of *IDEAL-CITIES*, and the impact of the Marie Skłodowska-Curie programme for the ERA.

Social Media: The content of the preceding four items will be also released and published in popular social networking sites such as LinkedIn, Facebook, Twitter, and Google+. These are very cost-efficient ways of having a continuous outreach effects to complement the more formal events.

Public demos: Another complementary approach is live demonstration of the project outcome and its added benefit to the community. In the final year of the project, the *IDEAL-CITIES* partners will organize public demos in open technical days, showing the developed system operating and functioning. Since the project focuses on Smart City applications, the audience will be triggered to participate in the demos using their mobile devices and having hands on experience of the benefit and potential of the underlying advanced IoTPS system infrastructure. A questionnaire at the end of the demo will be used to provide feedback of the experience and outlook of application ideas from the audience.

3 Exploitation

3.1 Exploitation Overall Aim

The exploitation strategy is essential to ensure collaboration and effective dissemination of the results between all partners for the long-term sustainability of *IDEAL-CITIES* solution. Collaboration between partners will enable the best use of their business and technical know-how in order to transform the results of the project into marketable products and services, and promote *IDEAL-CITIES* to companies outside the consortium, through the identification of products and services, on the basis of a market analysis and in line with actual market needs while taking in consideration any policy, privacy and legal issues.

Thus, the *IDEAL-CITIES* project is open to collaborate and support the liaison and co-operation activities with other projects similar or complementary projects. Collaboration is a fundamental concept in terms of approaching and driving innovation. In this context, *IDEAL-CITIES* focuses on cooperating with other related European projects in order to achieve cross-fertilization of ideas and exchange of good practices. This will ensure the wide diffusion and active promotion of ideas as well as projects results to a broader target audience. Collaboration activities among projects are strongly encouraged. This has been the case for several years and has taken different forms. The basic idea behind the collaboration is that projects working in the same areas can have synergies to exploit, can complement each other both in research and business, can join forces to reach their target audience and reach the necessary critical mass to have a real impact.

This section defines the project's exploitation plan for each participating partner, which will allow elaborating the exploitation strategy for the whole consortium comprehensively. Thus, the primary purpose of the exploitation plan is to develop the framework of an effective dissemination strategy for the project, via specific means and activities. Such activities will be continuously monitored and measured to ensure the project's maximum awareness, with the aim of assessing the potential availability and strategic conclusion for each of the business imperatives of the Smart City value chain.

To this end, *IDEAL-CITIES* consortium members will strive to provide contributions to the following activities:

- Exploitation of synergies / technical concentration: participation in workshops, joint meetings with other projects,
- Joint activities for exchange, dissemination and training,
- Production and dissemination of publications aimed for communication with the general public
- Co-ordination of possible standardisation efforts, and
- Contribution to Open Source repositories and other projects.

3.2 Individual Partner Exploitation Plans

3.2.1 FORTH

Through *IDEAL-CITIES* FORTH will enhance its collaboration with key players in the fields of telecommunications and Internet of Things Participatory sensing (IoTPS), and will continue performing high-quality research in the areas of IoTPS security and the formal definition of Security, Privacy and Dependability properties. FORTH intents to enhance such research activities in light of enabling new services in the context of the new paradigm of circular economy. The new scientific and technical knowledge that will be obtained within the project will enhance the training of new scientists and engineers in cutting-edge sustainable technologies that will play an important role in future developments in the areas of IoT and circular economy. To this extent FORTH will exploit secondees' gained knowledge by transferring such knowledge to other staff not involved in the project.

This way FORTH will continue its leading role in facilitating the use of advanced network and security applications and services in Greece's private and public sector. Finally, it will enhance its expertise in providing consulting services in the area of secure next generation networking for smart environments.

IDEAL-CITIES will also be exploited as an enabler for tighter cooperation with public entities (Bournemouth Borough Council UK, Crépy-en-Valois FR, Municipality of Heraklion GR, Municipality of Egnomi CY and the Guide Dogs UK) in areas of citizen-centric smart city applications with emphasis in the improvement of citizens' security perception and the quality of their lives.

Moreover, FORTH has adopted an evolving strategy towards promoting the commercial exploitation of R&D results by providing consulting services, licensing specific products to industrial partners, contracting with industrial partners to jointly develop new products, and participating in start-up / spin-off companies and joint ventures. The results of *IDEAL-CITIES* will be exploited by the established mechanisms of FORTH. Those include the PRAXI network and the Science and Technology Park of Crete (STEP-C). PRAXI Network is an established technology transfer organization with long-standing experience in assisting SMEs and research organizations throughout Greece. The other initiative of FORTH, the Science and Technology Park of Crete (STEP-C), offers, in addition to incubating facilities and services to start-up companies with new and emerging technologies, specialized professional services that are difficult to find under one roof and geared to assisting and guiding companies in various aspects such as transfer of technological advancements into the manufacturing of innovative products and services and unleashing their potential through innovation.

3.2.2 ENPC

The results of the research project will be exploited via the Ecole des Ponts Business School part of the ENPC offering cutting-edge executive education programs on hot topics in the circular economy, smart city management, technology management and big data.

The *IDEAL-CITIES* project will serve to strengthen the bonds between the partners and within the ENPC ecosystem. The ENPC is part of the "Cité Descartes" labelled as "Sustainable Cities Clusters" and is also considered as a Technologic Hub of the Grand Paris Program that includes several actors from the institutional, socio-economic and transport sector.

At present, nearly 25% of French research on city-related themes is conducted at Cité Descartes. Furthermore, The ENPC is also a member of the consortium FUTURE project, which in all forms a research force of 1,200 scientists and academics and 17,000 students, including 720 PhD candidates. The active participation of the *IDEAL-CITIES* project on the different activities and events organised by the cluster could be used as an enabler to explore possible synergies between the secondments and the other members of the Cité Descartes cluster. The continued monitoring of the activities of the cluster will enable the identification of the most appropriate workshops, conferences, etc. to communicate the results of the project.

Furthermore, the Ecole des Ponts Business School in collaboration with the Circular Economy Research Center (CERC) organise a yearly event focused on Circular Economy. The main results of the *IDEAL-CITIES* project could be presented on 2020 edition as well as in the Circular Economy and New Business Models study trip organised for the E-MBA which will be held in Helsinki, Finland on November 2019.

Concerning the publications of articles, the *IDEAL-CITIES* offers the opportunity to both, E-DBA candidates from the Business School and PhD students to work on collaborative R&D projects with external stakeholders which will result in the publication of articles. The research will also be carried out in close collaboration with the Center for Policy and Competitiveness as well as the other research centres of the Business School in order to fuse knowledge and infuse elements from other sectors which could add considerable value to the deliberations of the project. Acknowledging the fact that big-data will have a considerable impact to the *IDEAL-CITIES* project and will become a key and standard element of "doing business" and developing solutions for smart cities, the Business School intends to develop Big Data projects as part of its project-based programs and integrate Big Data into its different program curricula (MBA, E-MBA, E-DBA).

The ENPC has been disseminating knowledge, to embody this approach, the School has decided to propose a new journal, Le Cahier des Ponts. The next issue to be published in July 2019 will be focused on Circular Economy in which the CERC from the Ecole des Ponts Business School might participate presenting, among others, the research activities of the *IDEAL-CITIES* project.

Finally, the result of the secondments carried out at the ENPC could be presented in the seminars of the different research laboratories (CIRED, LIGM, etc.); the realisation of meetings, workshops, and targeted sessions aiming at achieving key transfer of knowledge. In addition, and of incremental value is the possibility of exchanges with the different programs such as the Advanced Master in Smart Cities Engineering and Management, the MSc TRADD (sustainable development) and MSc GeoSIS (big data).

3.2.3 BU

BU exploitation plan provisioned a series of actions towards achieving multifaceted impact. Firstly, as a major academic research center, BU provisioned to use *IDEAL-CITIES* results to further improve its capability of proposing innovative topics to working groups and conferences where BU is present as an organizer or technical leader (e.g., IEEE Transactions on Service Computing). Secondly, it provisioned targeting prestigious publication venues including top research conferences, workshops, and journals for publication, to widely disseminate the goals and results of the *IDEAL-CITIES* project. At a national level, BU provisioned to exploit *IDEAL-CITIES* results in the framework of the initiatives on Smart City services carried out in partnership with regional and national institutions, including the Region

of Dorset. Finally, given its privileged position as a major IT university working on security and IoT, BU provisioned the set–up of a program of basic and advanced courses to integrate *IDEAL-CITIES* results, and the potential of circular economy in general, in its post-graduate courses' offerings.

In this context, BU has already achieved the following. Firstly, BU led the organization of the 1st International Workshop on Smart Circular Economy (SmaCE) – for more details, please refer to sections 3.5 and 4.3.2. This is an important step forward on creating the core research community in Europe to specialize on future and emerging ICT as key enablers for the transition to the Circular Economy and for BU to be established as one of the leading research organisations in the field. Secondly, BU has been working closely with the Intelligent Traffic Systems team of Siemens AG, which is based in the broader Bournemouth area, towards implementing and deploying a smart pedestrian crossing solution particularly targeting the visually impaired – for more details, kindly refer to section 3.6. Thirdly, BU has already incorporated in the curriculum of its three master programmes on Internet of Things (namely, MSc Internet of Things; MSc IoT with Cyber Security; MSc IoT with Data Analytics) topics related to Circular Economy and how emerging ICTs, such as IoT, are positioned within broader economic and societal paradigms (Circular Economy, inclusive growth, etc.)

3.2.4 BLS

BLS foresee possible exploitation opportunities coming from the *IDEAL-CITIES* project in the context of the solutions offered to our customers. As a Solution Provider specializing in cloud and Big Data solutions, we offer services to mobile and land line telecommunications operators, content providers, media and broadcasters logistics and public sector. Offering application solutions, platforms and solution integrations, *IDEAL-CITIES* project results will enhance our offer capabilities in terms of cloud service operations, with proven data and access security and circularity capabilities. Such enhanced capabilities, will open opportunities for new business models based on service model rather than products within our company. Additionally, with the expertise and experience gathered within the *IDEAL-CITIES* project, BlueSoft will be capable of providing consulting services for our customers in term of business transformation towards circularity principles by leveraging IoT opportunities, building new products or services models and implement them in the most innovative ways.

3.2.5 CBN

CBN will utilise its experience in the development of International Standards Organisation (ISO) Integrated Management System (IMS) for the following 4 Management Systems:

i. Quality Management System IS 9001
ii. Business Continuity Management System ISO 22301
iii. Information Security Management System ISO 27001
iv. Health and Safety Management System ISO 45001

By using the CBN IMS, we aim to add value, (being the only ISP in the country to have a holistic Scope of all activities, assets and human resources) and possibly Standardise *IDEAL-CITIES* through our collaboration with the ISO representatives in Cyprus who will be added to the list of stakeholders.

IDEAL-CITIES provides CBN with the opportunity to leverage the proven security and circularity by design principles that are relevant to the telecom sector. CBN is in a very strategic position

due to the commercial activities as an Internet Service Provider and we aim to exploit the ability to gain in-depth understanding of the technical knowledge required to build the *IDEAL-CITIES* platform by acting as the service provider for *IDEAL-CITIES* with regards to Internet connectivity requirements.

A core aim of CBN is to solidify the exploitation potential and partner dynamics as early in the project as possible thus allowing us to provide a secure service offering by integrating carrier – class cloud computing facilities to enhance QoS and performance guarantees, adequate resource management, application of smart security policies as well as service sustainability and reliability not available through current approaches.

Target Customers are public and private sectors which are current or potential clients of CBN and the objective will be to develop and market a product through close collaboration with the project's domain experts to ensure a high quality and validated technical result with particular technical focus on security and circularity by design which is as close to market as possible. The expected benefits are envisaged from the CAPEX and OPEX perspectives as well as Security and resilience, also enriching the service portfolio and enabling an extended offering to existing clients but also the opportunity to unlock the market for new customers.

3.2.6 NPS

Through *IDEAL-CITIES*, NPS will bring their core expertise in artificial intelligence (AI) and big data analytics into focus for an IoTPS and Smart Cities framework. This will create new know-how, and will open new business opportunities for the company in a currently growing market of global reach and impact, including the possibility of actual products and/or services emerging as direct result of the project itself, and especially of the assisted mobility pilot.

More specifically, NPS will exploit newly developed expertise in non-GPS geolocation services, based on AI and computer vision techniques. Such services, apart from their apparent use in outdoors urban environments with poor GPS reception, are expected to find their use in indoors geolocation and navigation, especially in large spaces (malls, airports etc.). Coordination with public institutions and research partners, as well as aspects of crowdsourcing and circularity by design are also elements expected to be put in use in future business.

Finally, since NPS has already entered the market of intelligent applications based on satellite data, it is envisioned that the expertise gained from *IDEAL-CITIES* will facilitate new business in the form of novel added-value solutions based upon integration and fusion of data coming from both remote (satellite) and local (IoTPS) sensing.

3.3 Joint Potential Exploitation Plans

A key accomplishment metric of *IDEAL-CITIES* is the degree of joint exploitation of the project's results. Towards this end, the consortium's joint exploitation strategy is based on the following pillars:

1. Joint knowledge dissemination activities: Creation of awareness of the project by the project team, in particular when presenting/demonstrating *IDEAL-CITIES* to groups stemming from diverse backgrounds. The consortium members will actively take advantage of their different areas of expertise to effectively engage with stakeholders from similar domains to their own, thus widening the target audience and increasing the dissemination impact.

2. Joint funding: Building upon the strong collaboration network and leveraging the synergies made possible by the projects, the partners will continue to pursue EC funding opportunities with the H2020 framework and beyond.
3. Joint protection of *IDEAL-CITIES* results: generated intellectual property resulting from joint partner results will be published by the involved partners and, depending on the extent of its importance, actively protected via joint patents.
4. Long-lasting collaboration between partners: This can take place in the form of:
    a. Institutional MoUs for the pursuit of joint technological, research or business goals applying to the cross-section of individual exploitation domains as described above
    b. Joint supervision of resources for research and development, initially within the context of *IDEAL-CITIES* and ultimately for establishing cross-functional teams which can be summoned for future endeavours.
    c. Privileged provision of internships by the industry partners for the students of the academic partners; conversely, the academic partners will facilitate the participation of the staff of the industrial partners in academic programs.

3.4 Creation of Spin-offs

IDEAL-CITIES will pursue the creation of Research-Based Spin-offs (RBSOs) as technology transfer vehicles which will commercialize academic research and stimulating industrial innovation. Through these mechanisms, innovative products and services can be delivered to the market, and their respective commercial viability can be explored.
In this light, the approach for the creation of spin-offs can be summarized as follows:

1. Identification of the spin-off idea/purpose
2. Evaluation through market research/participation in domain challenges (hackathons)
3. Seeking of mentors and domain experts to further refine the concept and promote networking (this can be compounded by partner synergies)
4. Formulation of business plans/revenue streams
5. Securing of funding
6. Establishment of legal and formal requirements to set up company

3.5 Exploitation Plan Workshops

Members of the Ideal Cities consortium have lead the organising of the 1st International Workshop on Smart Circular Economy – SmaCE. In particular, Bournemouth University lead the organising committee with members from ENPC and FORTH serving as Co-Chairs. The organising committee was also consisted by external high-profile academics from University of Cambridge (UK) and University of Patras (GR), while the Technical Programme Committee consisted of a highly diverse and multidisciplinary team of leading academics. Also, a keynote talk was arranged by Prof. David Langley of TNO and University of Groningen (NL).

The Workshop was organised in the context of IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS 2019) that took place in Santorini. It is worth noting that

DCOSS is the leading international conference in the area of distributed and sensor systems and the SmaCE proceedings were published in the same tome as DCOSS and were listed on IEEE Xplore. Furthermore, SmaCE received support by the Alliance for IoT Innovation (AIOTI) – an European Commission related body – and by three on going European projects in the area of IoT and Circular Economy; namely Ideal Cities, Semiotics and CE-IoT.

The Workshop was a great success featuring eight papers covering state of the art research in the areas of IoT, Cyber Security, Business and Economics and Chemical Engineering. SmaCE was successful not only in discussing latest results and advancements in the area of Smart Circular Economy but also in setting the scene for establishing and growing the relevant community – e.g. eliciting formal definitions on key topics, such as what is a data-driven circular economy, establishing a dedicated IEEE journal on smart circular economy,

3.6 Pilots

3.6.1 Assisting the movement of the visually and mobility impaired

In developing the subject pilot, NPS, working closely with BU, has already taken into account the existing assistive applications for the visually impaired, hence ensuring that the proposed solution will not duplicate existing functionality found elsewhere. Therefore, the solution pilot, based upon advanced AI processing of participatory data, as well as incorporating state of the art systems from the Intelligent Traffic Systems team of Siemens AG (headquartered in the Bournemouth area, where the pilot will be deployed), is expected to form the basis for a future commercially exploitable system, addressing issues that are currently open in the movement of visually impaired people in urban environments.

3.6.2 Increasing citizen safety through lifelogging

The motivation of this scenario is to make use of lifelogging as an enabler for increasing citizen safety, inclusivity, security, and well-being. This will be done by empowering of the participation of citizens via usage of lifelogging application. The empowering participation approach came from the experience of the city of Barcelona claimed as the smartest city of Europe or even World. Taking a closer look at the success of the city of Barcelona [6], it can be noticed that active participation of the city stakeholders and citizens leads to effective smart cities development.

The overall aim of this scenario is to progress an overall development of a smart secure urban environment and enabling authorities and first responders or even emergency services to be instantly notified and updated with field information depending on the level of alerts and to react on them.

The potential outcome of the lifelogging scenario is the enhancement of citizens living environment and creating Smart Cities that are more responding to the citizen's needs, more secure, safe as well as providing a more effective response to the crime and other emergencies like citizen health danger. The improvement of well-being and inclusivity of the citizens might be a consequence of these changes.

Development and possible demonstration is currently under the investigation with various cities.

4 Dissemination Strategy and Communication Channels

IDEAL-CITIES plans to disseminate project outcomes to all relevant stakeholders.

The three main communication channels for dissemination will be:

1. Direct Interactive Dissemination
2. Organisation of industry and scientific events
3. Scientific Publications

The various means at our disposal are the following:

- Website
- Social Media
- Industrial Events
- Networking Events
- Mailing lists
- Press releases
- Publications in Business and Normal Press
- Publications in journals
- Conferences
- Working Groups
- Workshops

4.1 Publications and Articles

4.1.1 Translating Contextual Integrity into Practice using CLIFOD

Reference	Henriksen-Bulmer, J., Faily, S., and Katos, V. Translating Contextual Integrity into Practice using CLIFOD. In Proceedings of the 2018 Networked Privacy Workshop at CSCW (2018).
IDEAL-CITIES partner(s)	BU
Abstract	Public open data increases transparency but raises questions about the privacy implications of affected individuals. We present a case for using CLIFOD (ContextuaL Integrity for Open Data), a step-by-step privacy decision framework derived from contextual integrity, to assess the hidden risks of making data obtained from Internet of Things (IoT) and Smart City devices before any data is released and made openly available. We believe CLIFOD helps reduce the risk of any personal or sensitive data being inadvertently published or made available by guiding decision makers into thinking about privacy in context and what privacy risks might be associated with making the data available and how this might impact prosumers.

IDEAL-CITIES relevance	Discusses how privacy may impact the collection of personal data as part of the project and how privacy risk assessment can be used to ensure any data collected is thoroughly assessed before data is shared.

4.1.2 IDEAL-CITIES – A Trustworthy and Sustainable Framework for Circular Smart Cities

Reference	Angelopoulos M., Katos V., Kostoulas T., Miaoudakis A., Petroulakis N., Alexandris G., Demetriou G., Morandi G., Rak U., Walędzik K., Panayiotou M., and Tsatsoulis C., IDEAL-CITIES – A Trustworthy and Sustainable Framework for Circular Smart Cities, Proceedings of the 1st Int. Workshop on Smart Circular Economy (SmaCE 2019) – IEEE DCOSS, Santorini, Greece.
IDEAL-CITIES partner(s)	all
Abstract	Reflecting upon the sustainability challenges cities will be facing in the near future and the recent technological developments allowing cities to become "smart", we introduce IDEAL-CITIES; a framework aiming to provide an architecture for cyber-physical systems to deliver a data-driven Circular Economy model in a city context. In the IDEAL-CITIES ecosystem, the city's finite resources, as well as citizens, will form the pool of intelligent assets in order to contribute to high utilization through crowdsourcing and real-time decision making and planning. We describe two use cases as a vehicle to demonstrate how a smart city can serve the Circular Economy paradigm.
IDEAL-CITIES relevance	The paper presents the IDEAL CITIES scope, methodological approach and reports on early research findings and progress

4.1.3 An Architecture for Blockchain over Edge-enabled IoT for Smart Circular Cities

Reference	Damianou A, Angelopoulos M. and Katos V., An Architecture for Blockchain over Edge-enabled IoT for Smart Circular Cities. Proceedings of the 1st Int. Workshop on Smart Circular Economy (SmaCE 2019) – IEEE DCOSS, Santorini, Greece.
IDEAL-CITIES partner(s)	BU
Abstract	Circular Economy is a novel economic model, where every 'asset' is not wasted but reused. IoT networks can underpin the transition to a Circular Economy by enabling fine-grained asset tracking and continuous. However, there are issues related to security and privacy of IoT devices that handle personal and sensitive data. The use of Blockchain technology could be a solution to this problem, however, its application on problems related to the highly-constrained nature of these networks. In this paper, Edge Computing is presented as a solution to this problem and the way in which Blockchain and Edge Computing can be used together to address the constrained nature of IoT. Furthermore, we present the challenges that this combination poses and the opportunities that it brings. We propose an architecture that decreases the demand from IoT devices for memory capacity and increases the overall performance. Finally, we discuss the architecture design and the

	challenges that it has, comparing it with the traditional Blockchain architecture and with an Edge Computing-based architecture for Mobile Blockchain. A discussion and future extensions of our work are presented, as well.
IDEAL-CITIES relevance	The paper presents a novel architecture enabling the use of blockchain by highly constrained IoT devices in the context of a smart, data-driven urban environment.

4.1.4 Online Peer Support Groups to Combat Digital Addiction: User Acceptance and Rejection Factors

Reference	Aldhayan M., Cham S., Kostoulas T., Almourad M.B., Ali R. (2019) Online Peer Support Groups to Combat Digital Addiction: User Acceptance and Rejection Factors. In: Rocha Á., Adeli H., Reis L., Costanzo S. (eds) New Knowledge in Information Systems and Technologies. WorldCIST'19 2019. Advances in Intelligent Systems and Computing, vol 932. Springer, Cham
IDEAL-CITIES partner(s)	BU
Abstract	The obsessive usage of digital media may exhibit symptoms traditionally associated with behavioural addictions such as mood modification, salience, tolerance, and conflict. The educational methods, interventions, and treatments available to prevent or control such a digital addiction are, currently, very limited. Digital Addiction (DA) is yet not formally recognised as a mental disorder by the Diagnostic and Statistical Manual of Mental Disorders. Recently, in 2018, the World Health Organization recognised gaming disorder. Fortunately, the nature of digital media can also help the hosting of methods and mechanics to combat DA, e.g. in the monitoring of online usage and enabling individuals to stay in control of it. One of the techniques proposed in the literature is Online Peer Groups platforms, towards allowing people to form a group and provide peer support to control and regulate their usage, collectively. Online peer support groups are meant to provide peer support, counselling, motivational and learning environment, and ambivalence reduction through sharing and hope installation. However, there is a lack of research about the factors influencing people with DA to accept or reject online peer support groups. In this work, we conduct user studies and explore the acceptance and rejection factors to join and participate in such DA regulation and relapse prevention method. This will help to design and introduce the method and increase its adoption.
IDEAL-CITIES relevance	Technology can be associated with wellbeing issues. The notion of positive technology is on the rise to denote the importance of digital wellness and the need for inclusivity in the design so that personality and culture and potential for problematic usage patterns are accommodated. The paper explores the acceptance and rejection factors for online peer support groups for providing people with support when they express such a problematic

	usage of technology and when they perceive it to damage aspects of their life.

4.1.5 Digital Addiction: Negative Life Experiences and Potential for Technology-Assisted Solutions

Reference	Cham S. et al. (2019) Digital Addiction: Negative Life Experiences and Potential for Technology-Assisted Solutions. In: Rocha Á., Adeli H., Reis L., Costanzo S. (eds) New Knowledge in Information Systems and Technologies. WorldCIST'19 2019. Advances in Intelligent Systems and Computing, vol 931. Springer, Cham
IDEAL-CITIES partner(s)	BU
Abstract	There is a growing acceptance of the association between obsessive, compulsive and excessive usage of digital media, e.g., games and social networks, and users' wellbeing, whether personal, economic or social. While specific causal relations between such Digital Addiction (DA) and the negative life experience can be debated, we argue in this paper that, nevertheless, technology can play a role in preventing or raising awareness of its pathological or problematic usage styles, e.g. through monitoring usage and enabling interactive awareness messages. We perform a literature review, with the primary aim of gathering the range negative life experiences associated with DA. We then conduct two focus groups to help gather users' perception of the key findings from the literature. Finally, we perform a qualitative analysis of experts and practitioners' interviews and comments from a user survey on DA warning labels. As a result, we develop eight families of the negative life experiences associated with DA, examine the role of software in facilitating the reduction of such negative experiences, and consider the challenges that may be encountered in the process.
IDEAL-CITIES relevance	The paper investigates the negative life experiences certain people may have due to their problematic relationship with technology. The paper also examines the potential to have a software-assisted tool to be embedded in the next generation of digital media to help people regulate that relation.

4.1.6 Problematic Attachment to Social Media: Lived Experience and Emotions

Reference	Altuwairiqi M., Kostoulas T., Powell G., Ali R. (2019) Problematic Attachment to Social Media: Lived Experience and Emotions. In: Rocha Á., Adeli H., Reis L., Costanzo S. (eds) New Knowledge in Information Systems and Technologies. WorldCIST'19 2019. Advances in Intelligent Systems and Computing, vol 931. Springer, Cham
IDEAL-CITIES partner(s)	BU
Abstract	People's relationship with social media and their contacts on them can be problematic. People may engage in social media in a compulsive and hasty

	style to increase their popularity, reputation and enhance their self-esteem. However, this problematic attachment to social media may result in side effects on people's well-being. Therefore, people may need assistance to reform their relationship with social media in a way that it maintains different aspects of their online interaction, such as empathy with others and maintaining their popularity and relatedness. In order to provide the tools and methods to support people in reforming their relationship with social media, towards a healthier usage style, we need to understand the experience of people who suffer a problematic relationship with them. Most studies on the topic are based on methods which would lack *ecological validity*, e.g. using surveys and interviews, and do not capture or imitate such a digital experience as lived. In an attempt to better explore how people experience problematic attachment and relationship with social media, and their associated emotions, we conducted a multistage qualitative method study including a *diary study* to gather lived experience. We aim to inform both users and designers towards a managed and tool-supported reform of their problematic relationship with social media and, ultimately, having a healthier online interaction..
IDEAL-CITIES relevance	The paper examines the lived experience in the real-world context of people who self-declare to have a problematic attachment to digital media. This is meant to inform the validation and testing of such media from a wellbeing perspective and also to help the design of future media to support a regulated usage.

4.1.7 Gender Differences in Attitudes Towards Prevention and Intervention Messages for Digital Addiction

Reference	McAlaney J., Close E.A., Ali R. (2019) Gender Differences in Attitudes Towards Prevention and Intervention Messages for Digital Addiction. In: Rocha Á., Adeli H., Reis L., Costanzo S. (eds) New Knowledge in Information Systems and Technologies. WorldCIST'19 2019. Advances in Intelligent Systems and Computing, vol 931. Springer, Cham
IDEAL-CITIES partner(s)	BU
Abstract	It has been suggested that excessive use of the internet and digital devices can lead to digital addiction (DA). In contrast to other industries such as the alcohol industry there appears to be very little expectation on the software industry to position itself as a primary actor in the development of DA; even though software providers have unique capabilities to engage with users in real time and in a personalized way through multi-modal interactive and intelligent prevention and intervention messages. One aspect of personalization that has been demonstrated to be of importance in relation to DA and other compulsive behaviours is gender. This study consisted of a series of initial exploratory interviews followed by a survey of 150 respondents and several same-sex focus groups, the latter of which was recruited from a university student sample. Thematic and quantitative

	analyses were then conducted on the data gathered. Overall participants welcomed the idea of DA prevention and intervention messages, although they also demonstrated a clear preference for any DA prevention and intervention messages system to be adaptive and context-aware. Some gender differences were evident, such as in terms of acceptance of messages generated by friends or the preference for graphical messages. The results of this study suggest that DA prevention and intervention messages may be useful and welcomed by individuals who use digital technologies excessively. However, these users also appear to have expectations of what a successful DA prevention and intervention messages system should be able to achieve. Further research is needed on this emergent topic.
IDEAL-CITIES relevance	The paper examines the gender-related difference in relation to the acceptance and effectiveness of tools meant to help people in adopting a healthy usage style of their digital media. The paper highlights the importance of avoiding a one-size-fits-all approach and the need for accommodating diversity in such tools.

4.1.8 Problematic Attachment to Social Media: Five Behavioural Archetypes

Reference	Altuwairiqi, M., Jiang, N. and Ali, R (2019). Problematic Attachment to Social Media: Five Behavioural Archetypes. Int. J. Environ. Res. Public Health 16, 2136 ; doi:10.3390/ijerph16122136
IDEAL-CITIES partner(s)	BU
Abstract	Today, social media play an important role in people's daily lives. Many people use social media to satisfy their personal and social needs, such as enhancing self-image, acquiring self-esteem, and gaining popularity. However, when social media are used obsessively and excessively, behavioural addiction symptoms can occur, leading to negative impacts on one's life, which is defined as a problematic attachment to social media. Research suggests that tools can be provided to assist the change of problematic attachment behaviour, but it remains unclear how such tools should be designed and personalized to meet individual needs and profiles. This study makes the first attempt to tackle this problem by developing five behavioural archetypes, characterising how social media users di_er in their problematic attachments to them. The archetypes are meant to facilitate elective ideation, creativity, and communication during the design process and helping the elicitation and customisation of the variability in the requirements and design of behaviour change tools for combatting problematic usage of social media. This was achieved by using a four-phase qualitative study where the diary study method was considered at the initial stage, and also the refinement and confirmation stage, to enhance ecological validity.
IDEAL-CITIES relevance	The paper is about inclusivity and being accountable to those who may develop problematic dependence on technology especially when it has

	social media and game elements. Not the new paradigm of Social Internet of Things which advocates that.

4.1.9 The CE-IoT Framework for Green ICT Organizations

Reference	Hatzivasilis G., Christodoulakis N., Tzagkarakis C., Ioannidis S., Fysarakis, K., Demetriou G. and Panayiotou M. (2019),The CE-IoT Framework for Green ICT Organizations, Proceedings of the 1st Int. Workshop on Smart Circular Economy (SmaCE 2019) – IEEE DCOSS, Santorini, Greece.
IDEAL-CITIES partner(s)	FORTH, ENPC, CBN
Abstract	The growth of the global middle class provokes significant increment in product consumption. As the available resources are limited, Circular Economy (CE) raises as a promising initiative towards the sustainable development. Except from the traditional approaches of reusing or recycling products, the current trend utilizes modern computer technologies and involves a data-driven aspect. The Internet of Things (IoT) is the main enabler for the integration of CE with technology. This paper proposes a framework for implementing the cooperative vision of CE and IoT. Via this solution, a pilot system is developed in a medium size telecommunication company for administrating the lifecycle of the deployed electronic equipment and the management of the related supply chains. Mechanisms and devices are maintained/repaired/fabricated in a regular basis, green computing techniques are efficiently applied, and the productive period is prolonged. When the business upgrades the system, the retired counterparts can be sold in start-ups or gifted in third-world countries. The overall approach extends the working period of the well-maintained electronic assets not only for the examined business but for the collaborating organizations as well. Recycling companies can then trace this supply chain and the assets' status in order to define their investment strategy at the end-consumer, contributing in the reduction of the electronic waste problem in the third-world.
IDEAL-CITIES relevance	This paper presents a framework for promoting green computing and sustainability in modern ICT organizations. The main contribution is the integration of the two concepts for Circular Economy and Internet of Things. Smart technologies are utilized in order to enhance the green operation of the cyber system and prolong its beneficial lifecycle. The framework is also applied along the smart city value chain and assists in the reduction of the e-waste problem.

4.1.10 Review of Security and Privacy for the Internet of Medical Things (IoMT)

Reference	Hatzivasilis G., Soultatos O., Ioannidis S., Verikoukis C., Demetriou G. and Tsatsoulis C. (2019), Review of Security and Privacy for the Internet of

	Medical Things (IoMT), Proceedings of the 1st Int. Workshop on Smart Circular Economy (SmaCE 2019) – IEEE DCOSS, Santorini, Greece.
IDEAL-CITIES partner(s)	FORTH, ECNP,NPS
Abstract	Day-by-day modern circular economy (CE) models gain ground and penetrate the traditional business sectors. The Internet of Medical Things (IoMT) is the main enabler for this interplay of CE with healthcare. Novel services, like remote sensing, assisting of elder people, and e-visit, enhance the people's health and convenience, while reducing the per-patient cost for the medical institutions. However, the rise of mobile, wearable, and telemedicine solutions means that security can no longer be examined within the neat, physical walls as it was considered before. The problem for a healthcare system further increases as the Bring Your Own Device (BYOD) reality, affects the way that the health services are accommodated nowadays. Both patients and healthcare staff utilize their personal devices (e.g. smart phones or tablets) in order to access, deliver, and process medical data. As the IoMT is materialized and the underlying devices maintain so valuable data, they become a popular target for ransomware and other attacks. In the CE case, the problem is further emerging as several of these assets can be used over-and-over by many actuators. However, medical users and vendors are less aware of the underlying vulnerabilities and spend less on the IoMT security. Nevertheless, the risk from exploiting vulnerabilities can be drastically reduced when the known and relevant controls are placed. This paper presents an overview of the core security and privacy controls that must be deployed in modern IoMT settings in order to safeguard the involved users and stakeholders. The overall approach can be considered as a best-practices guide towards the safe implementation of IoMT systems, featuring CE.
IDEAL-CITIES relevance	This paper reviews the state-of-the-art solutions towards the end-to-end security and privacy in the sensitive domain of the Internet of Medical Things (IoMT). It acts as a best practices guide for developing modern e-health systems, promoting the users'/patients' safety and the establishment of trust among the service providers and the smart city's residents.

4.2 Talks/Presentations

4.2.1 WCEF2018

On 22-24 October 2018, a team from ENPC and a team from Cablenet participated at the World Circular Economy Forum 2018, held in Tokyo, Japan. Giorgos Demetriou, ENPC CERC Director, was a speaker at the session Circular Economy's Frontier of Knowledge on the topic "The Future of Information Technology for Circular Economy". In this regard, he presented to a worldwide public the objectives and initial achievements of *IDEAL-CITIES*, in addition to making reference and giving visibility to all partners involved in the project and the related innovation strains.

The presentation, which also includes an animation, was uploaded by the organisers to the site: https://youtu.be/3eUmJm19LJI and may be also downloaded at the following link: https://www.sugarsync.com/pf/D935890_08308765_908816

Immediate feedback was received after the presentation at the WCEF. A Chinese and a Taiwanese company expressed their interest in the project. In addition, both Politecnico di Milano and University of Tampere reached for potential collaboration.

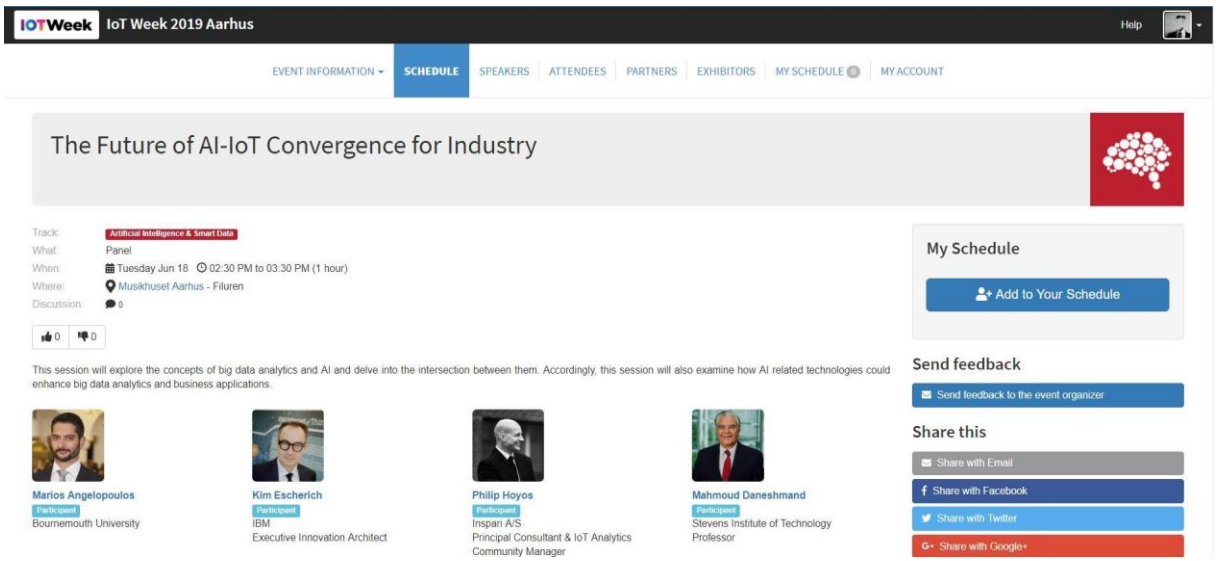
4.2.2 British Geological Survey

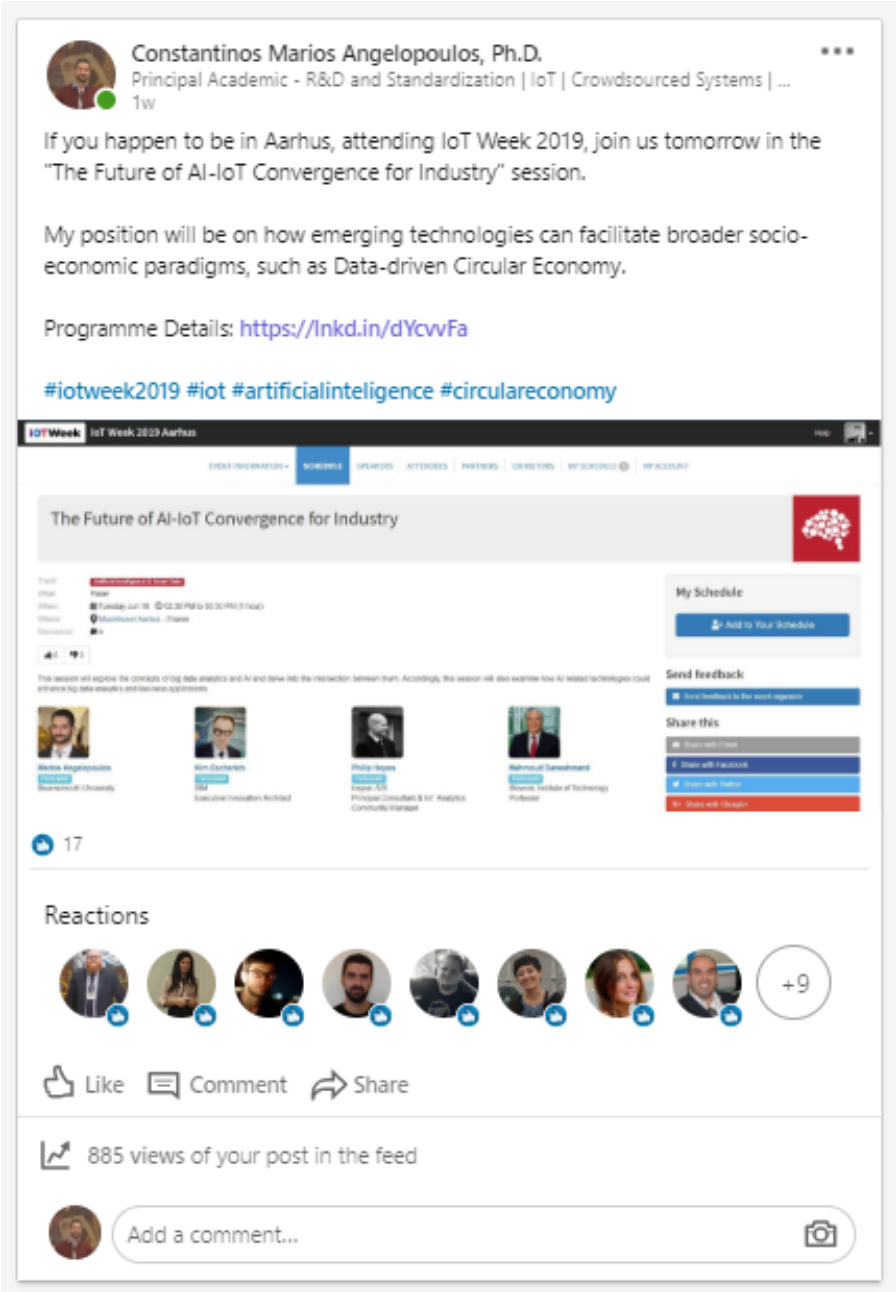
On November 20th, 2018 Dr Marios Angelopoulos of Bournemouth University was invited to the British Geological Survey (est. 1835 with the aim to advance geoscientific knowledge of the United Kingdom landmass and its continental shelf by means of systematic surveying, monitoring and research) to present his work on IoT-enabled landslide monitoring as well as to deliver an open talk to all BGS staff titled “Internet of Things: Towards Cyber-Physical Convergence”.

The talk addressed the IoT paradigm, as well as novel business models and broader paradigms, such as the Circular Economy. In this context, Ideal Cities was presented in detail as pioneering on-going research on data driven Circular Economy.

4.2.3 IoT Week 2019

On June 19th, 2019 Dr. Marios Angelopoulos of Bournemouth University delivered the keynote talk of the "The Future AI-IoT Convergence for Industry" session in the context of IoT Week 2019, held in Aarhus Denmark. IoT Week is a prominent event primarily focusing on IoT technologies and it role in industry and society. It is a large scale event – in 2019 attended by more than 1600 participants coming from Industry, Academia and Local Authorities. The talk addressed the IoT paradigm, as well as novel business models and broader paradigms, such as the Circular Economy. In this context, Ideal Cities was presented in detail as pioneering on-going research on data driven Circular Economy.


IoT Week 2019 Aarhus
Help
EVENT INFORMATION
SCHEDULE
SPEAKERS
ATTENDEES
PARTNERS
EXHIBITORS
MY SCHEDULE
MY ACCOUNT
The Future of AI-IoT Convergence for Industry
Track: Artificial Intelligence & Smart Data
What: Panel
When: Tuesday Jun 18 02:30 PM to 03:30 PM (1 hour)
Where: Musikhuset Aarhus - Filuren
Discussion:
This session will explore the concepts of big data analytics and AI and delve into the intersection between them. Accordingly, this session will also examine how AI related technologies could enhance big data analytics and business applications.
Marios Angelopoulos
Participant
Bournemouth University
Kim Escherich
Participant
IBM
Executive Innovation Architect
Philip Hoyos
Participant
Inspari A/S
Principal Consultant & IoT Analytics Community Manager
Mahmoud Daneshmand
Participant
Stevens Institute of Technology
Professor
My Schedule
Add to Your Schedule
Send feedback
Send feedback to the event organizer
Share this
Share with Email
Share with Facebook
Share with Twitter
Share with Google+


Constantinos Marios Angelopoulos, Ph.D.
Principal Academic - R&D and Standardization | IoT | Crowdsourced Systems | ...
1w
If you happen to be in Aarhus, attending IoT Week 2019, join us tomorrow in the "The Future of AI-IoT Convergence for Industry" session.
My position will be on how emerging technologies can facilitate broader socio-economic paradigms, such as Data-driven Circular Economy.
Programme Details: https://lnkd.in/dYcvvFa
#iotweek2019 #iot #artificialinteligence #circulareconomy
17
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885 views of your post in the feed
Add a comment...

4.2.4 SECSOFT 2019

The 1st International Workshop on Cyber-Security Threats, Trust and Privacy Management in Software-defined and Virtualized Infrastructures. On June 24th, Vasilis Katos delivered the keynote speech with entitled: "On the security of Cyber Physical Systems for Smart, Circular cities". The workshop was held in Paris, co-located with the 5th IEEE International Conference on Network Softwarization (NetSoft 2019). The privacy and security aspects as seen through the lens of IDEAL-CITIES were presented. The workshop was an opportunity to exchange ideas with the main projects sponsoring and running the event: ASTRID, REACT, SHIELD, CYBER-TRUST, SPEAR.

4.2.5 20th UK Systems Society Conference

On June 24th, 2019 Dr. Marios Angelopoulos gave the Keynote talk at the 20th Conference of the UK Systems Society. The theme of UKSS 2019 was on "Systems Thinking and the Circular Economy" and was attended by 60 researchers and academics with a highly diverse disciplinary background – ranging from system engineers, archaeologists, neuroscientists, economists, and so on. The talk addressed the IoT paradigm, as well as novel business models and broader paradigms, such as the Circular Economy. In this context, Ideal Cities was presented in detail as pioneering on-going research on data driven Circular Economy.

4.3 Workshops

4.3.1 PACT

A workshop related with the Privacy and Compliance Tool (PACT) was organized by Cablenet and BU in Cyprus on 5-6 February 2019 UCLaN University.

The workshop was a result of the demands for protection of personal data through all European funded projects, and Cablenet in cooperation with Bournemouth University, have developed a Privacy Assessment and Compliance Tool (PACT), which addresses the various deliverables that may require the use of personal data during the implementation of the EU funded projects.

The three consortiums invited for the workshop are all members of the following projects:

1. Cybersure - Development of a Cyber Security Platform for Cyber Insurance.
2. Ideal Cities - This is a smart Cities project, which brings Circular Economy and smart technology together.
3. CE-IoT - This project aims to increase the natural life cycle of products and minimise the waste of natural resources such as metals, plastics, and technology materials by combining Circular Economy with the Internet of Things technology.

As a member of all three projects leading on Privacy and Security as one of our deliverables Cablenet hopes that the consortium members together from Universities, Research facilities and Industry, and through cooperation and guidance from Bournemouth University, develop a standard tool that may be used for all current or future EU Horizon 2020 projects.

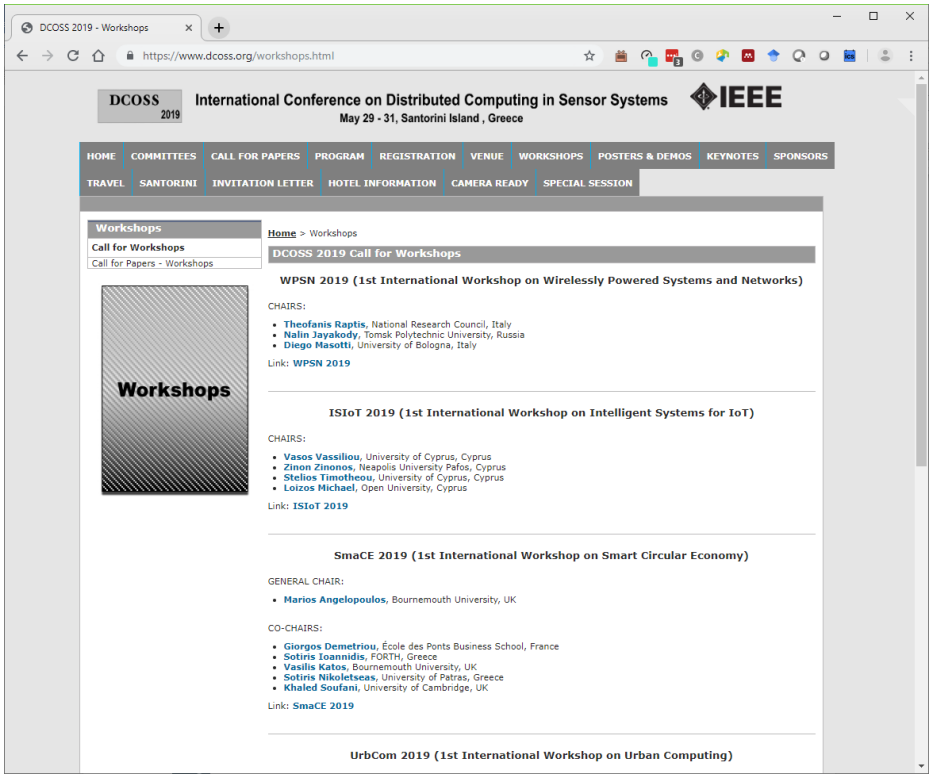
The Workshop was attended by all consortiums and a follow up workshop will be conducted to evaluate the PACT of each participant by end of 2019. The evaluation will allow us to develop the final version for the tool which will then be submitted for consideration to the European Commission for this and other H2020 projects as a standard or guidance paper.

4.3.2 SmaCE

In the context of *IDEAL-CITIES* the 1st International Workshop on Smart Circular Economy [4] was organized. The workshop was co-located with the IEEE annual International Conference on Distributed Computing in Sensor Systems (DCOSS 2019) [5] at Santorini Island, Greece on May 30th, 2019.

SmaCE is an international workshop focusing on the role of ICT as an enabler for Circular Economy. This workshop will bring together scientists, researchers as well as relevant stakeholders from the industry and local communities to share and exchange their experiences, discuss challenges, and report state-of-the-art and in-progress research lying in the intersection of ICT and Circular Economy. SmaCE is a peer review conference and accepted and presented papers appear in IEEE Xplore and all major publication indexes (DBLP, Scopus, etc.)

SMACE 2019 had 9 paper submissions where 7 papers where accepted and presented among with a Key note speech in the smart Circular Economy domain by Prof. David Langley of the University of Groningen. The event was highly successful as all delegates attended the whole day. Moreover, the workshop attracted also researchers from the main conference (DCOSS) as well as the other satellite workshops. As there was a lively discussion and dialogue, significant progress was made in terms of agreeing on a definition of the newly introduced term “Smart Circular Economy”. It was also agreed to explore the possibility of starting up an international journal in the topic.



Sponsored by:

4.4 General Public dissemination

4.4.1 RAID 2018

The 21st International Symposium on Research in Attacks, Intrusions, and Defenses (RAID 2018) [2] aims at bringing together leading researchers and practitioners from academia,

government, and industry to discuss novel research contributions related to computer and information security. RAID 2018 was held in Heraklion, Crete, Greece on 10-12 September 2018. *IDEAL-CITIES* was present on the RAID 2018 Symposium with:

- A poster with the project overview present in the coffee break area where visitor had the opportunity to discuss about Ideal Cities with member from *IDEAL-CITIES* consortium
- A leaflet was created and was included in the conference bags. The bags were distributed to all registered persons (more than 175)
- A Presentation of the *IDEAL-CITIES* project was presented in a big screen in the RAID venue
- The *IDEAL-CITIES* logo was present in the RAID 2018 program

4.4.2 NIS 2018

The 5th Network and Information Security (NIS'18)**Error! Reference source not found.** Summer S chool took place in Crete, Greece, 24 September - 28 September 2018. This event, having a different "special theme" every year, was jointly organised by the European Union Agency for Network and Information Security (ENISA) and the Foundation for Research and Technology - Hellas (FORTH). During the event several experts from the security domain gave talk in hot topics. *IDEAL-CITIES* was present on the NIS 2018 Symposium with:

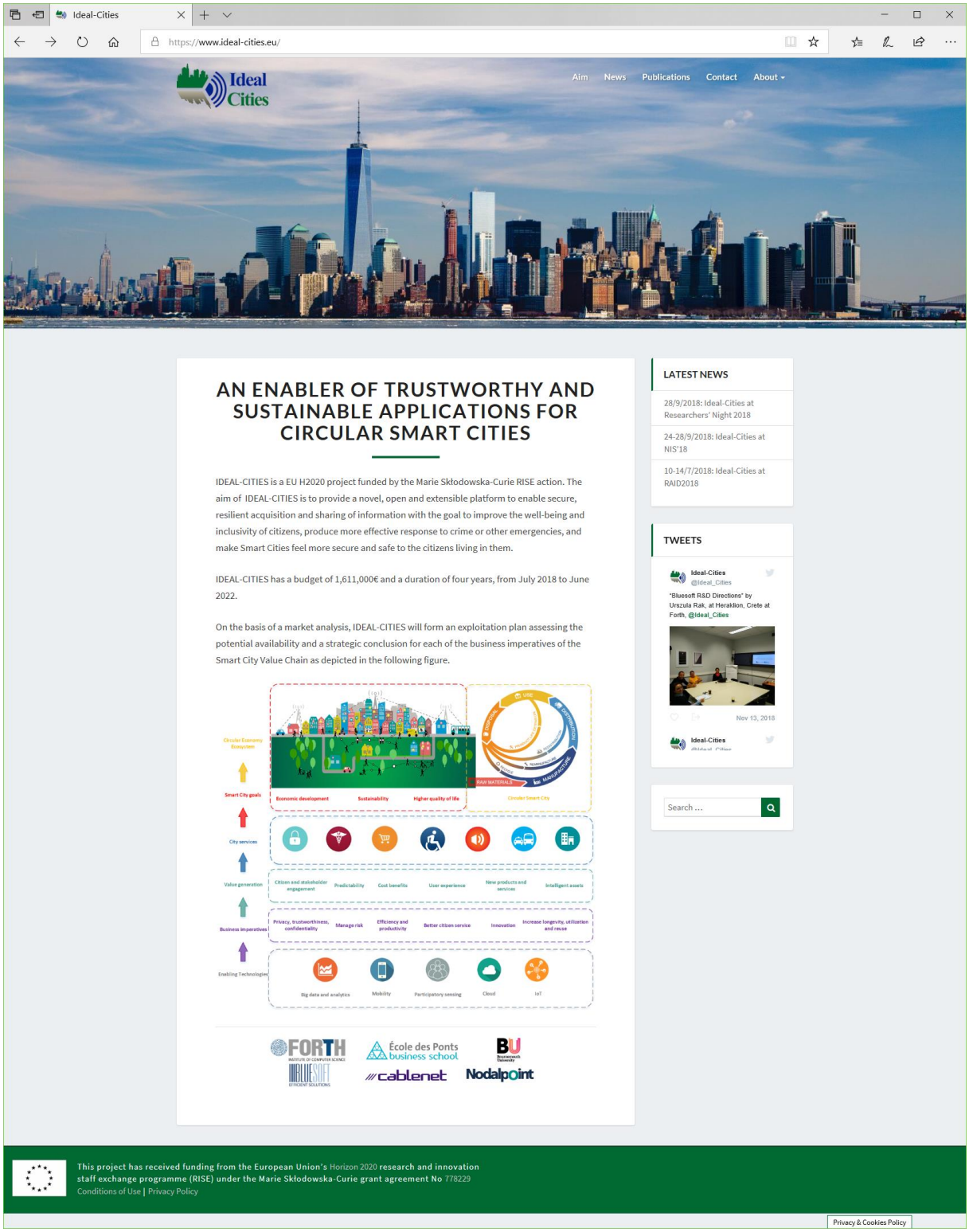
- A poster with the project overview present in the coffee break area where visitor had the opportunity to discuss about Ideal Cities with member from *IDEAL-CITIES* consortium
- A leaflet was created and was included in the conference bags. The bags were distributed to all registered persons (more than 130)
- A Presentation of the *IDEAL-CITIES* project was presented in a big screen in the NIS venue
- The *IDEAL-CITIES* logo was present in the NIS 2018 program

4.4.3 Forth Researcher's Night

On 29th of September the door of Foundation for Research and Technology-Hellas (FORTH) was open for the public in the context of the Pan European event of Researchers Night. Hundreds of people visited FORTH premises where FORTH research activities were showcased. In this event *IDEAL-CITIES* was present with an Ideal Cities poster and FORTH colleagues where discussing with visitors about *IDEAL-CITIES*.

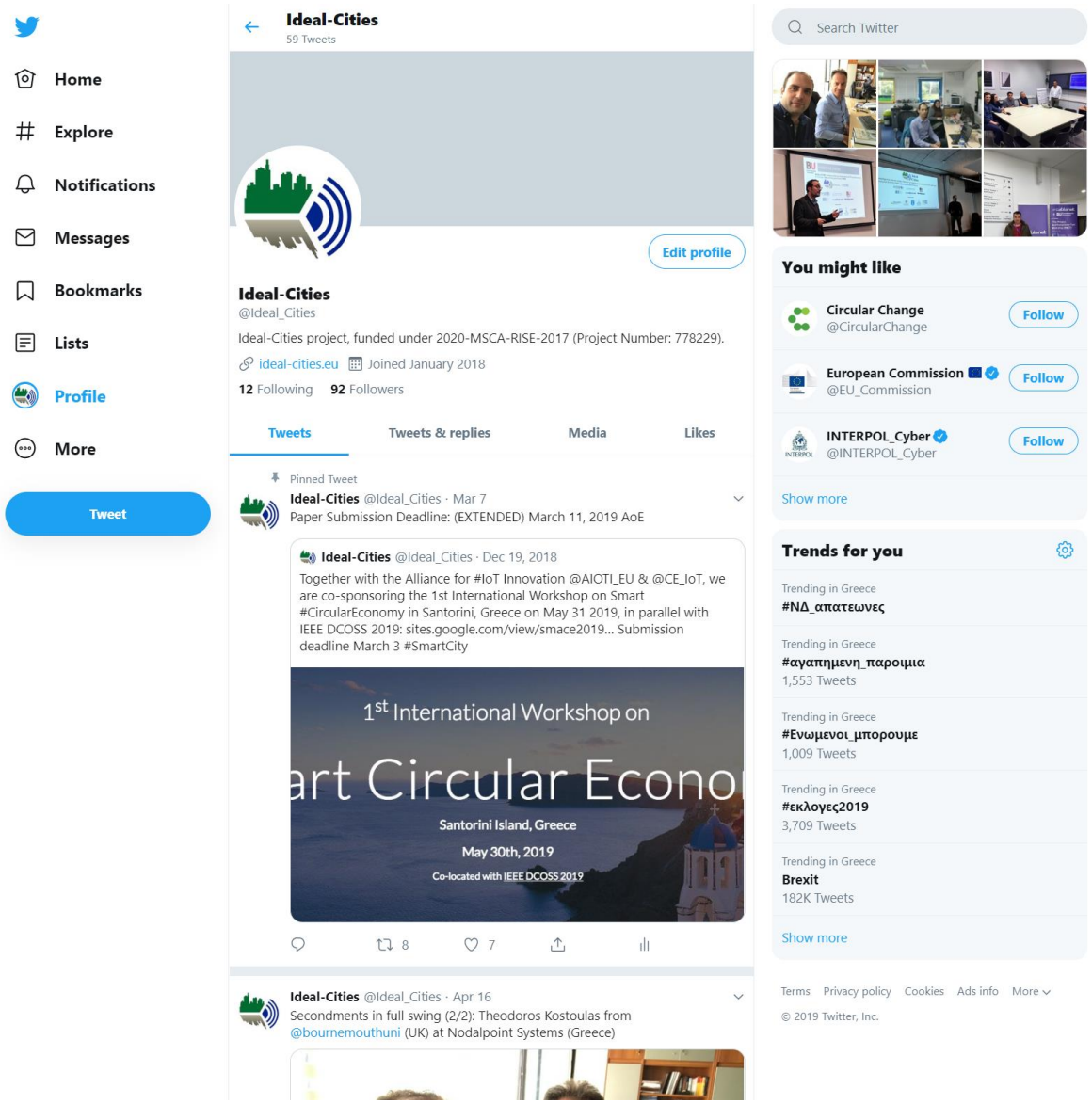
4.4.4 Web Site

A web page is designed for *IDEAL-CITIES*. The page is CMS based (wordpress) and is available at https://www.ideal-cities.eu. The web page is hosted and maintained by FORTH.



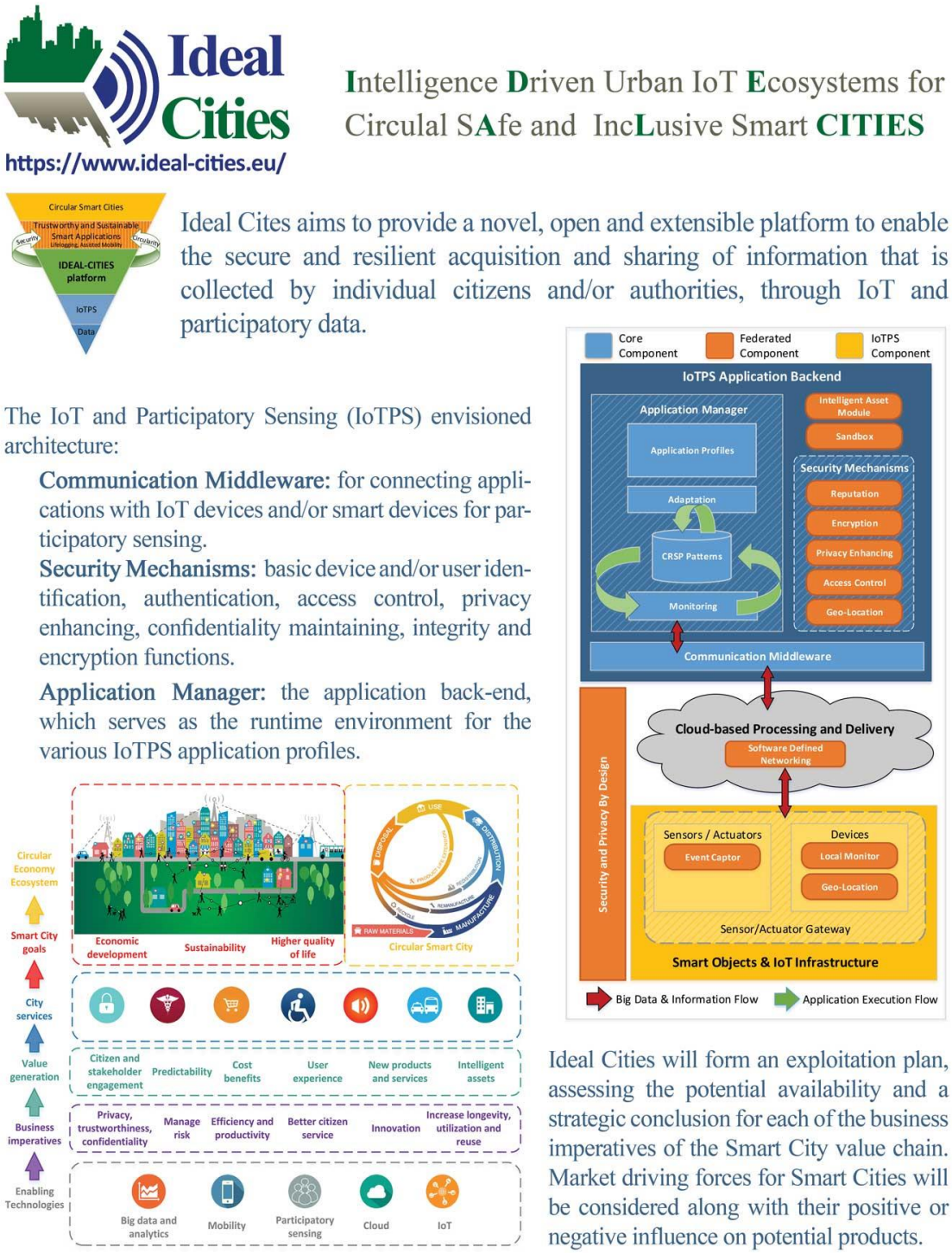
4.4.5 Social Media

A twitter account for *IDEAL-CITIES* is created and used for the project. The twitter feed is also displayed in the *IDEAL-CITIES* Web page.



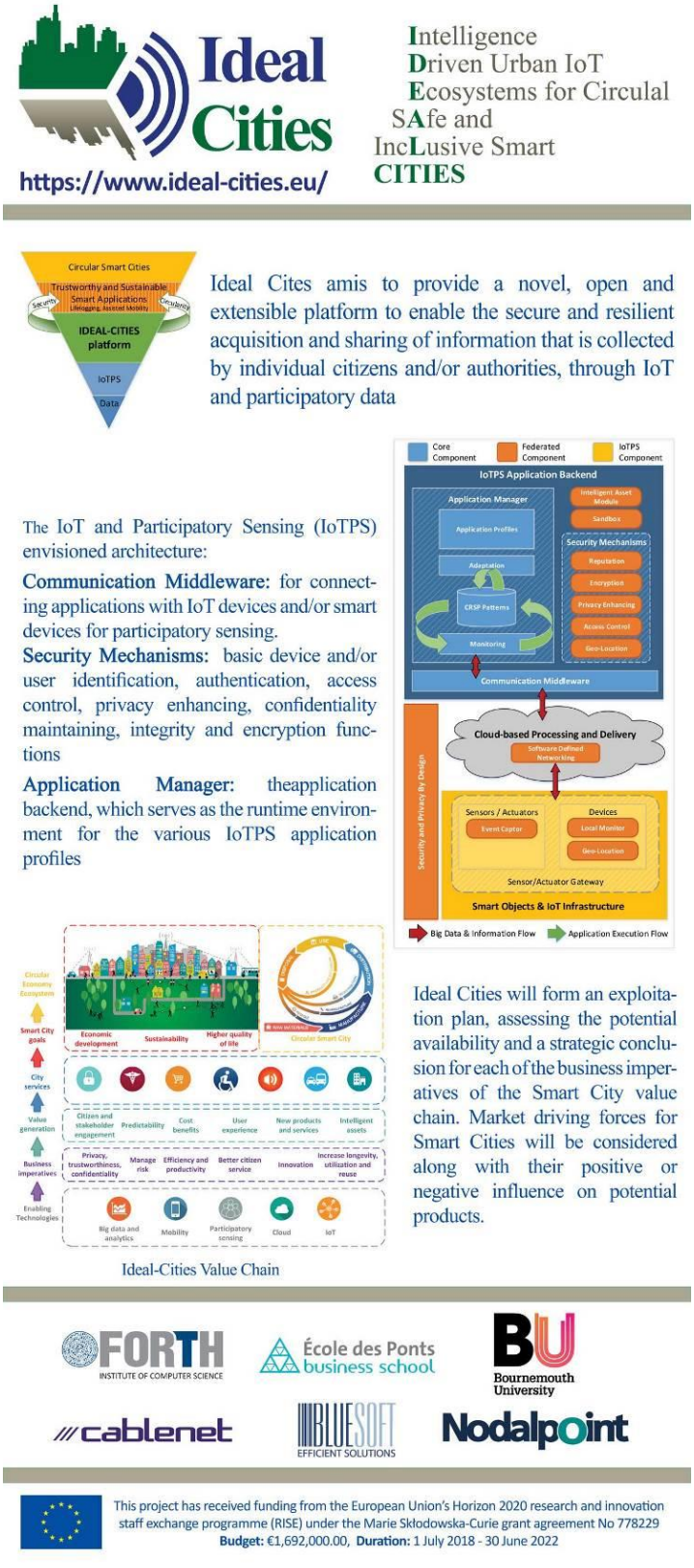
4.4.6 Leaflet

An A4 leaflet is designed for *IDEAL-CITIES* dissemination purposes. The Leaflet is available in high quality on the project file repository for reprinting by the partners.



4.4.7 Banner

A roll up banner was designed and printed for the dissemination purposed of *IDEAL-CITIES*. The banner dimensions are 85cm x 200cm and can be easily folded to carry. The banner is available in high resolution in the project's file repository for reprinting.



4.5 Future events

The 6th Network and Information Security (NIS'19) Summer School co-organized by FORTH and ENISA at Heraklion Crete [7]

The second iteration of the SmaCE workshop will take place in collocation with IEEE DCOSS 2020 (venue will be either at Miami, FL or in Tuscany, IT).

Summer schools such as the Intensive Program on Information Communication Security (IPICS) will host a special session on the scientific outcomes of *IDEAL-CITIES* relating to security in Cyber Physical Systems in the context of smart cities.

5 Conclusions

This deliverable summarises the direction our project has taken over the first year of its execution as well as the plan for the future in terms of impact creation, exploitation dissemination.

We have explored the self-sustainability of *IDEAL-CITIES* after the project ends, identified relevant stakeholders that may be interest and impacted by *IDEAL-CITIES* outcomes. We have also explored the indirect impact to potential users and general public.

With regards exploitation the deliverable sketch up the overall exploitation aim of the project and briefly describes the specific exploitation aims of each member of the consortium which range from commercial uses to consulting services and teaching material for the academic partners.

Finally, the dissemination actions and plans of *IDEAL-CITIES* are presented. Dissemination for *IDEAL-CITIES* include channels for both the scientific community and the general public including form scientific publication end event organization to leaflets, website, and social media.

6 References

[1] IDEAL-CITIES web page, https://www.ideal-cities.eu/

[2] 21st International Symposium on Research in Attacks, Intrusions, and Defenses (RAID 2018) https://www.raid2018.org/

[3] 5th Network and Information Security (NIS'18) https://nis-summer-school.enisa.europa.eu/2018/index.html

[4] 1st international workshop on Smart Circular Economy, Santorini island, 30 May 2019 https://sites.google.com/view/smace2019/programme

[5] IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS 2019), https://www.dcoss.org/

[6] M. Gascó-Hernandez, Building a Smart City: Lessons from Barcelona. Commun. ACM 2018, 61, 50–58

[7] 6th Network and Information Security (NIS'19) Summer School, https://nis-summer-school.enisa.europa.eu/