Management Of Networked IoT Wearables – Very Large Scale Demonstration of Cultural Societal Applications
(Grant Agreement No 732350)

D12.3 Project Advertising Material 1

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0.1	Louise Birch Riley (IN-JET)	2017-04-24	Table of Content and initial content
1.0	L. Riley (IN-JET)	2017-05-23	Adding changes to brochure, final check of 2nd layout, completed document.
1.0	L. Riley (IN-JET)	2017-05-24	Final version submitted to the European Commission

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Brochure reviewed by all partners	2017-05-15	Suggested changes for brochure

1 Executive Summary

This deliverable presents an overview of the first advertising material created at the beginning of the project with the project brochure as the main delivery. It also includes a presentation of the project logo, templates, presentations, flyer, video, temporary poster as well as planned material.

The first material has the purpose of presenting MONICA in general, covering all the main aspects of the project and being of usage to all partners.

A related communication, D12.4 Project Advertising Material 2, will be issued in M36.

2 Introduction

This deliverable is classified as a DEC (Dissemination, exploitation, communication) delivery, providing an overview of the first advertising material created and planned at the beginning of the project.

It is part of task T12.1 Communication Plan and is related to D12.1 Communication and Dissemination Strategy and D12.2 Project Website and Social Media Platforms. The document will be updated in M36.

In this document, the project's current and planned advertising material is described with the project brochure as the main delivery.

The advertising material has the purpose of presenting MONICA in general, covering all the main aspects of the project and being of usage to all partners. As use cases for the cities become more specific, material will reflect this at partner as well as at project level, and at the end of the project, the focus will be on the validation results and the selling points from the demonstrations.

3 Project Advertising Material

3.1 Logo

The MONICA logo was chosen from a set of options, symbolising sound, people, IoT and movement. A selection of different colours is available to indicate different communication platforms, topics or pilots. The logo will feature in all material produced (where possible) to generate recognisability.

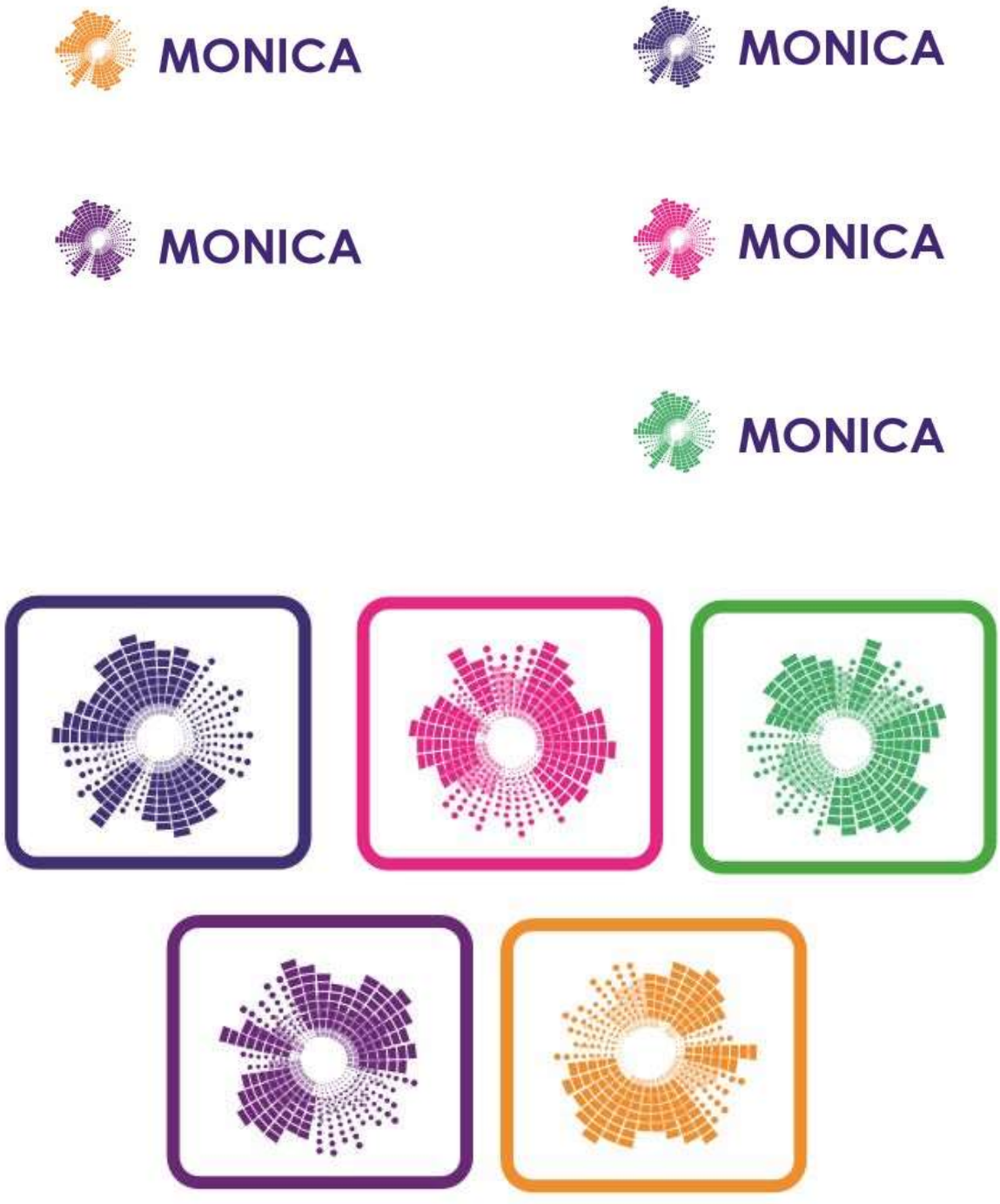

Figure 1 MONICA logo and variations

3.2 Templates

The project templates have the purpose of supporting partners in dissemination and communication activities, ensuring a uniform MONICA impression. All templates display the project logo and full title.

3.2.1 Presentation template

The presentation template is used for presentations at meetings and external events. A set of general slides has been created for partners to use and build upon. They can be seen in Appendix A.

A set of slides has also been produced as part of the participation in the European Large-Scale Pilots Programme. These slides are shown in Appendix C.

Figure 2 MONICA presentation template

3.2.2 Deliverable template

The deliverable template provides a structure for the MONICA deliverables as well as guidelines.

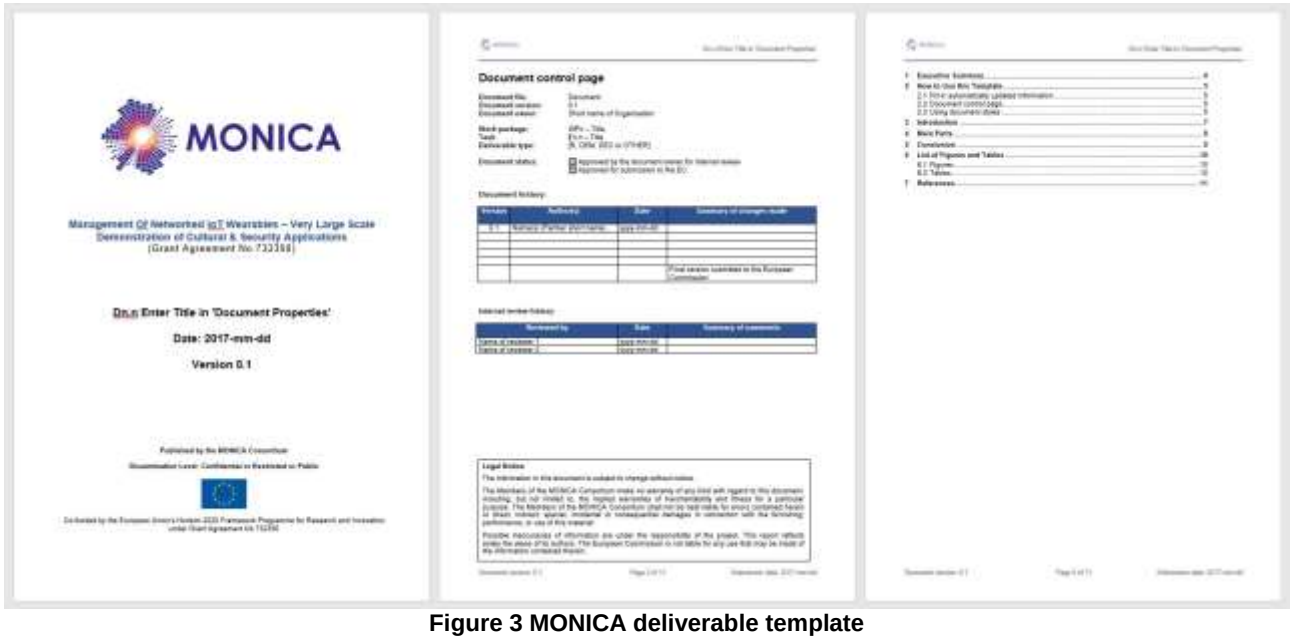

Figure 3 MONICA deliverable template

3.2.3 Press release template

The press release template contains recommendations on how to approach the writing of press releases and what to remember.

MONICA

Press release xx/xx/xx

Management of Networked IoT Wearables – Very Large Scale Demonstration of Cultural and Security Applications

The headline should be short and precise

The opening paragraph tells the most important elements of the story and encourages the reader to read on. Here you present the most significant aspects in four to ten lines and you answer the wh-questions: where, when, what, why, who.

A good press release has a clear message. It is short, precise and credible and should refer to facts and contacts. A good press release makes it easy for the press to follow up on and ideally you should keep your press release within one A4 page and maximum two pages.

The body text
The body text provides the details of what was presented in the opening paragraph and is divided into short paragraphs with short headings. Remember to stick to one message per paragraph.

Depending on who the press release is targeted at, it is a good thing to add quotes from important sources. Usually the main text starts with the most important points and ends with factual and general information.

Last paragraph
The last paragraph should present a list of contacts and more information e.g. links to relevant websites. It is also worth remembering that you are present and reachable after the press release is sent to make sure the journalists do not contact you in vain.

The press release can be released by one partner, if it is sensible and objective and pays due credit to the project and the other partners. A copy of such release should be circulated (or placed in a repository to be announced) as soon as the release has taken place.

Remember to include acknowledgement of funding
The MONICA project is a 36-month Innovation Action, co-funded by the European Commission through the Horizon 2020 Framework Programme for Research and Innovation, under Large Scale Pilots, Objective Pilot 3: Wearables for smart ecosystems, Grant Agreement No 732350. EU contribution: EUR 15 million. Duration January 2017 through December 2019.

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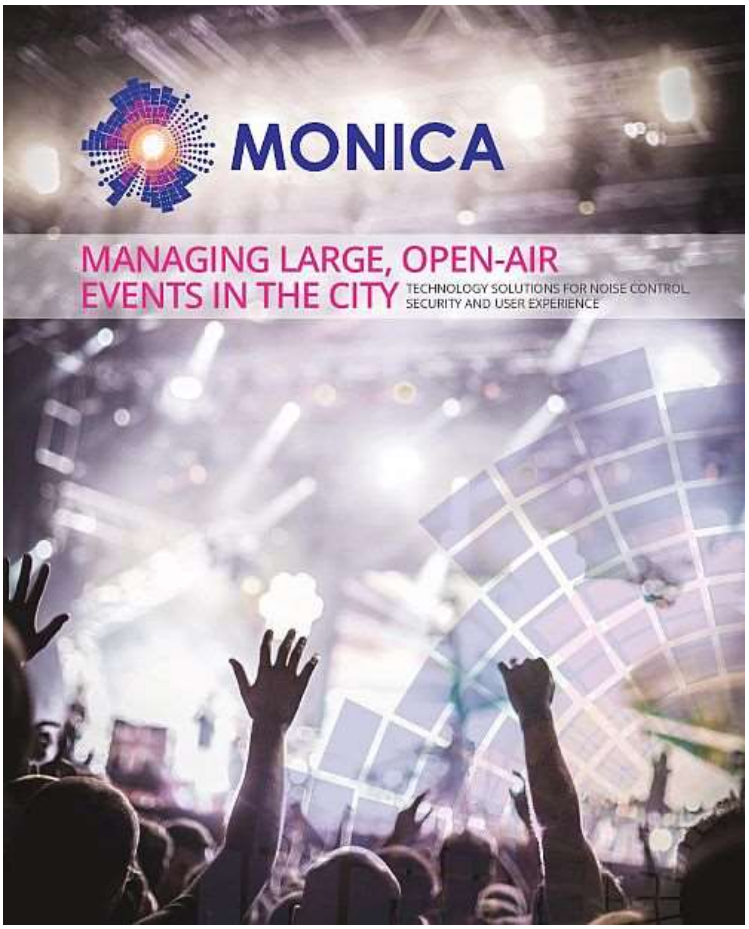
3.3 Brochure

The target group for the project brochure is mainly cities, looking to deploy IoT technologies and with an interest in sound, security, citizen and visitor applications. The brochure presents the main highlights of MONICA with illustrations of the main application areas to ease understanding. A short description of each pilot city, their challenge and plan features to make the MONICA offerings more concrete and relevant. A section on the technical concept is presented last, bridging the gaps and technical terms are explained to accommodate for a wider audience.

Design files and illustrations are made available to partners for reuse and localisation. Some partners have and will issue local flyers as well. See example from City of Hamburg in Appendix B.



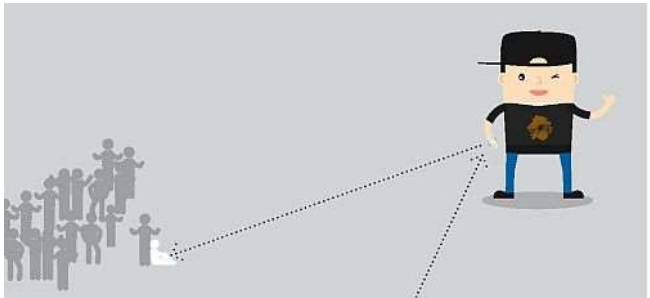
The MONICA Project is a large-scale demonstration of how cities can use IoT technologies to meet sound, noise and security challenges at big, open-air cultural and sport events, which attract and affect many people. Several applications are deployed at large events in six European cities from 2017 to 2020, involving more than 100,000 application users in total, out of which 10,000 will participate in the evaluation process.

ENHANCE SOUND PERCEPTION AND REDUCE NOISE

Sound zones are established at open-air concerts to enhance the sound experience for concertgoers and performers while at the same time mitigating the noise for neighbours. The sound levels are displayed for monitoring and control purposes.

People attending the concert or affected by it can also monitor the sound levels on their smartphone, whether it reflects a wish to move to a quieter spot or to assess compliance with noise regulations.

IoT= Internet of Things: Advanced wireless technologies connecting physical devices to the internet and making it possible to collect and exchange data and perform actions. Devices used in MONICA include smart wristbands, video cameras, loudspeakers, airships, smart glasses and mobile phones.



STRENGTHEN CROWD SAFETY AND SECURITY

Applications involving the use of cameras, tethered airships and wearables will enable security personnel to capture real-time data about crowd size and density for the purpose of analysing, predicting and handling emerging incidents, while being compliant with personal privacy provisions and rights.

An operational picture of the security situation is displayed on a graphical user interface, notifying the staff of any unusual behaviour, providing decision support and enabling timely information-sharing between security staff members.

IMPROVE USER EXPERIENCE

Communication to customers, crowds and citizens is improved by the use of mobile apps and IoT wristbands with value-adding features, enabling people to interact with and locate each other, informing visitors of the best place to park, the best way out or the bars with the shortest queue, and guiding participants to the nearest exit in case of an emergency. General data such as on sound levels are made accessible as open data on the hosting city's websites for citizen engagement and innovation.

SIX CITIES, SIXTEEN EVENTS, SEVERAL APPLICATIONS

COPENHAGEN

Tivoli Gardens is a world-famous amusement park and pleasure garden located in Copenhagen. The focus in the MONICA Project is on four out of +20 Friday Rock evening concerts which are held during the summer season, attracting a total of 500,000 guests.

Due to its central city location with residential neighbours, several challenges will be addressed in regard to improving sound management inside the park perimeter as well as security matters related to improving crowd management and safety.

BONN

Two major cultural events have been selected by the City of Bonn for trialling MONICA solutions. The first is the open-air festival **Rhine in Flames** with up to 90,000 visitors per day. With three performing stages, the primary aim is to achieve the best sound experience for the visitors and performers with due consideration of the neighbours. The second festival is the five-day **Pützchens Markt**, bringing together 1 million visitors in a residential area with narrow streets. Here, monitoring of crowd movement and prevention of critical situations is key.

HAMBURG

The **Hamburg Port Anniversary** and the DOM Festival are two well-attended open-air events that have been celebrated for years. During the Anniversary of Germany's largest port, more than 1 million visitors join the exciting atmosphere generated by ships from all parts of the world. Besides the Open Ship attraction, the Anniversary offers live music, funfair and food stalls along the waterfront of the River Elbe. **Hamburger DOM** is Northern Germany's biggest funfair with 7-10 million annual visitors during the 91 DOM days. The funfair takes place in the premises of the Heiligengeistfeld with a total of 251 attractions. For both events, crowd and noise management are important issues faced within MONICA.

LYON

Lyon hosts the famous light festival, **Fête des Lumières**, where the residents of Lyon celebrate the Virgin Mary for four days and the city fills up with performers and millions of visitors in the streets of the city centre. The second event involved in MONICA is **Nuits Sonores**: a huge electronic music festival which brings together DJs from France and from all over the world. For five days there are concerts, performances and shows in Lyon. Interest is in improving the tools for information sharing between security personnel and reducing noise complaints from citizens.

TURIN

The focus of Turin is twofold: a first happening is the **Movida nightlife** in the San Salvario District with bars, restaurants, shops and lively events. The aim here is to strike a balance between amusement, security and quality of public space.

The second happening is the summer festival **Kappa FuturFestival** that takes place every year with concerts and events in a residential area, attracting around 20,000 people with consequent problems of crowd management, security and noise propagation.

LEEDS

The iconic Headingley Carnegie Stadium in Leeds is home to **Yorkshire County Cricket Club** and **Leeds Rugby**, in 2016 attracting 158,000 and 258,000 visitors, respectively. In MONICA, the Stadium is looking to enhance the visitor experience at its matches through improved communication and day-to-day management of crowds.

The challenge for Leeds is the diversity of the visitors to the stadium due to the professional teams that play at the venue which now includes a women's professional cricket team - the Yorkshire Diamonds. The matches that will be selected to support the MONICA project will be representative of this diversity and include fixtures for Leeds Rhinos Rugby Super League, men's international and domestic cricket and women's KIA Super League.

THE TECHNICAL CONCEPT

To support the applications, MONICA deploys a cloud-based platform, wirelessly connecting and handling several IoT-enabled devices whether fixed, worn or moved around. Control systems monitor the data collected and can perform automated actions based on the information gathered. The platform also consists of components which analyse data and detect critical incidents, supporting operators in assessing the situation and making decisions. A strong toolbox for data security and trust management complements the platform.

The platform will be able to support multiple IoT applications for a smarter living and has a wide usage potential. Based on open standards and architectures, the platform can be reused across multiple use cases with only the application layer being specific to the deployment setting.

Features include:

- Integration of many different sensors, actuators, networks and data
- Open standards, protocols and architectures as well as Open Source
- Massive scale operation, demonstrated by 10,000 simultaneous end users
- Cost-efficient wearables and legacy smartphones
- Data Security, Privacy and Trust Framework, ensuring full data protection and privacy

MONICA WILL DEMONSTRATE THREE ECOSYSTEMS WHICH INVOLVE THE ENTIRE CHAIN OF STAKEHOLDERS AND THEIR NEEDS:

SECURITY ECOSYSTEM
Applications that can be used to monitor and manage security before, during and after an event

ACOUSTICS ECOSYSTEM
Applications that help monitor and manage the sound before, during and after a performance

INNOVATION ECOSYSTEM
Applications for public engagement and innovation based on open data and development tools

MONICA
Management of Networked IoT Wearables
– Very Large Demonstration of Cultural and Security Applications

29 PARTNERS, NINE COUNTRIES

Fraunhofer Institute for Applied Information Technology, Germany
City of Lyon – Acoucité, France
Atos IT Solutions and Services, Slovakia
Brüel & Kjær Sound & Vibration Measurement A/S, Denmark
City of Bonn, Germany
CERTH Information Technologies Institute, Greece
CNet Svenska AB, Sweden
Dexels BV, Netherlands
DigiSky SRL UAV & Robotic Systems, Italy
Technical University of Denmark, Denmark
City of Hamburg, Germany
Hamburg University of Applied Science, Germany
HW Communications Ltd, UK
In-JeT ApS, Denmark
ISMB Istituto Superiore Mario Bella, Italy
City of Copenhagen, Denmark
Kingston University, UK
Leeds Beckett University, UK
Movement Entertainment Srl, Italy
Optinvent S.A., France
Praesidio Group ApS, Denmark
Ring Advocacy ApS, Denmark
Telecom Italia S.p.A., Italy
Tivoli A/S, Denmark
City of Torino, Italy
VCA Technology Ltd, UK
Vaekstthus Zealand, Denmark
Yorkshire County Cricket Club Ltd, UK
Leeds Rugby, UK

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MONICA Project

Funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 732350. Project Coordinator and legal representative: Markus Eisenhauer, Fraunhofer FIT, markus.eisenhauer@fit.fraunhofer.de

Figure 4 The 8 page MONICA brochure

3.4 Video

At the kick-off meeting in January 2017, a video was produced, explaining the visions and plans of MONICA and interviewing partners about their participation. Followingly, the video was released on the MONICA YouTube Channel: https://www.youtube.com/watch?v=NTLNX1it2NU&t=88s

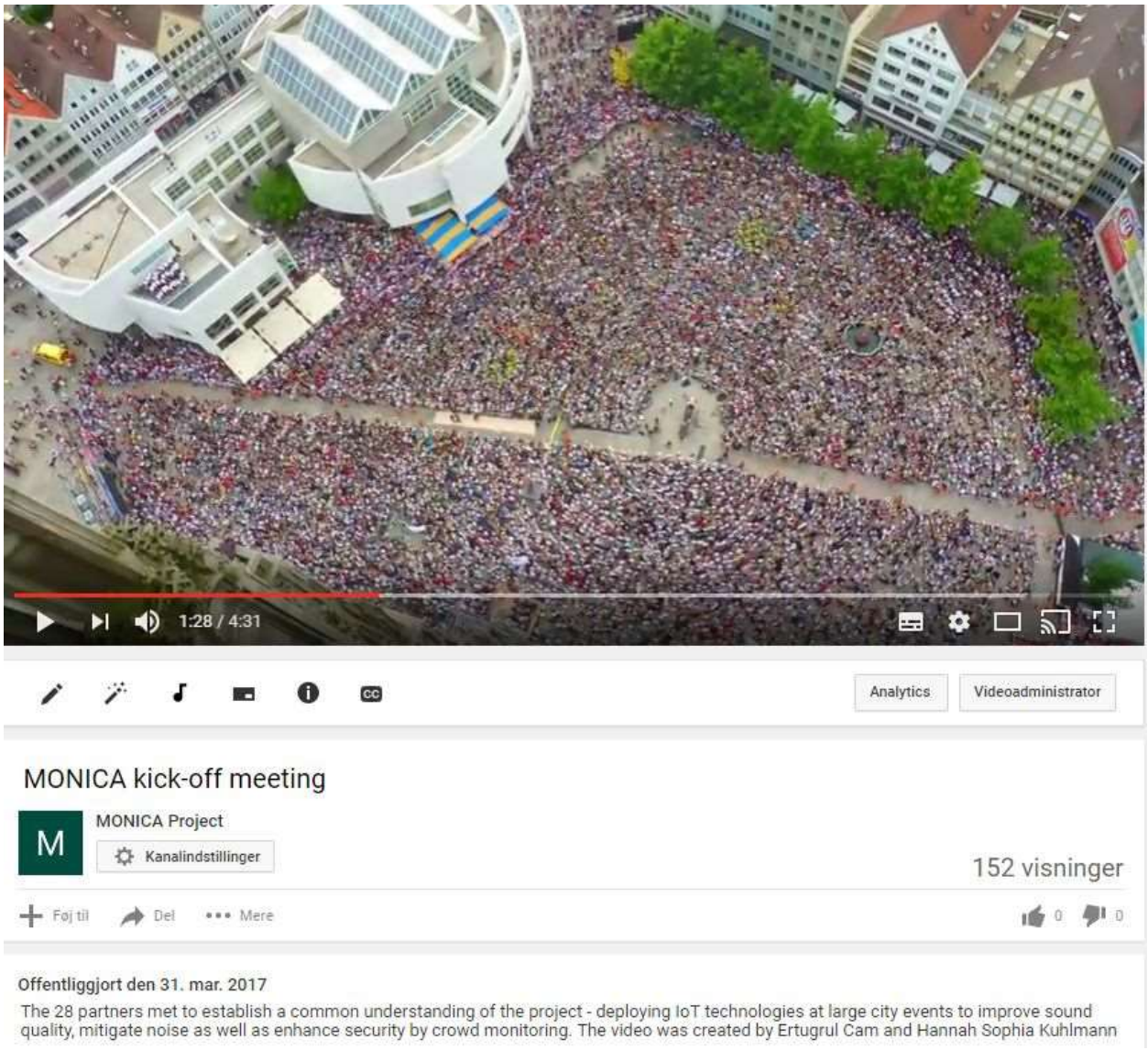


Figure 5 The first MONICA video

3.5 Other material planned

A general poster will be made to support partners at events. Like the brochure and set of presentation slides (Appendix A), the poster will assume a general position so it can be used by all partners as a general framework. A temporary poster was created to support activities of the European Large-Scale Pilots Programme. See Appendix D.

Newsletters will be issued continuously featuring the results of the project, with special focus on the city's use cases and the launch of demonstration events. As such, the newsletters can function as hand-outs at events and supplement the marketing material. The project newsletters are complemented by partners' own releases in various networks. Newsletters will be produced and distributed using the free email marketing tool MailChimp.

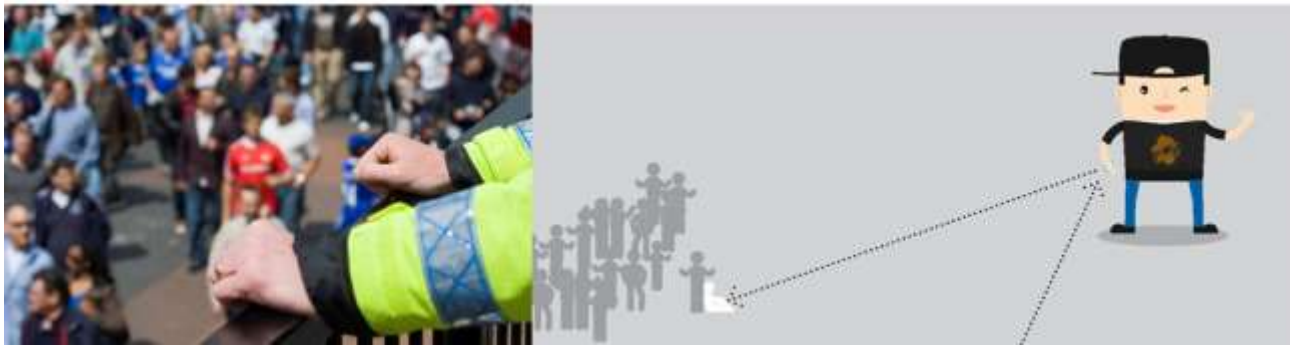
4 Appendix A: General Presentation Slides

Control the sound

- Sound zones are established based on the existing sound system to accommodate the needs of the audience, performers and neighbours
  - Main zone with best sound in terms of loudness, directionality and quality, quiet spots and mitigation of noise outside concert area
- Real-time display of sound levels for monitoring and control

Strengthen security

- Security set-up for private and public events using cameras, drones, wearables and smartphone apps
  - Real-time visualisation of crowd size and density
  - Early identification of emerging events
  - Guidance of security staff to incidents
  - Capture of images and behavioural characteristics for identification of perpetrators



Improve user experience

- Communication and engagement of crowds, customers and citizens using mobile apps, IoT bracelets, open data and collaborative platforms
  - Value-added information about the venue, locate each other, best place to park, the best way out, the shortest queue, a quieter spot, notification of emergency, guidance to the nearest exist etc.
  - Access to open data for citizen engagement and innovation

Pilot cities and events 2018-2019

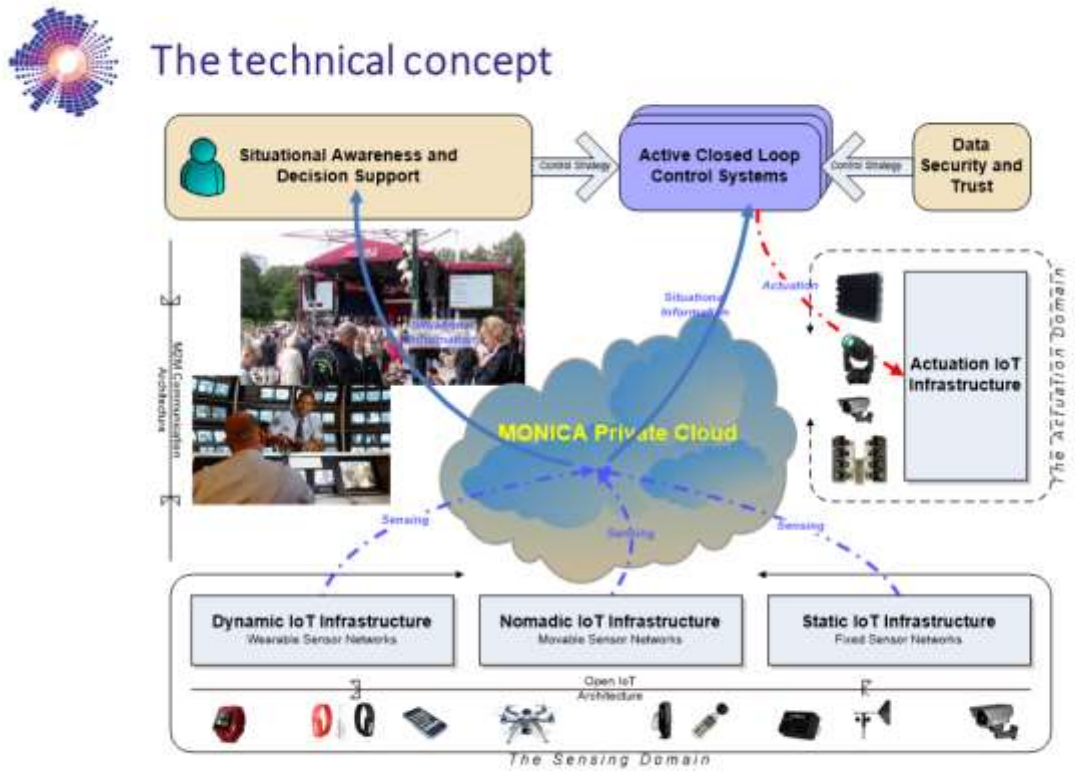
- Copenhagen
  - Four Friday Rock concerts at TIVOLI Gardens
    - 500,000 guests per season
- Bonn
  - Rhine in Flames festival
    - up to 90,000 visitors per day
  - Pützchens Markt festival, 5 days,
    - 1 million visitors in total
- Hamburg
  - Hamburger DOM funfair, 3 x 3 days
    - 7-10 million visitors yearly (91 days)
  - Port Anniversary, 2 x 3 days
    - 1 million visitors

Pilot cities and events 2018-2019

- Lyon
  - La Fête des Lumières festival, 4 days
- Turin
  - KappaFutur Festival, 2 days
    - 20,000 people
  - The Movida, 2 weekends
- Leeds, Headingly Stadium
  - Cricket matches, 2 events
    - 158,000 visitors (2016)
  - Rugby matches, 2 events
    - 250,000 visitors (2016)

Involving the entire chain of stakeholders

- Security ecosystem
  - Applications that can be used to monitor and manage security before, during and after an event
- Acoustics ecosystem
  - Applications that help monitor and manage the sound before, during and after a performance
- Innovation ecosystem
  - Applications for public engagement and innovation based on open data and development tools


The technical concept
Situational Awareness and Decision Support
Active Closed Loop Control Systems
Data Security and Trust
Actuation IoT Infrastructure
MONICA Private Cloud
Dynamic IoT Infrastructure
Wearable Sensor Networks
Nomadic IoT Infrastructure
Movable Sensor Networks
Static IoT Infrastructure
Fixed Sensor Networks
Open IoT Architecture
The Sensing Domain


Highlights
Massive scale operation, demonstrated by 10,000 simultaneous end users
Based on open standards and architecture with only the application layer specific to deployment
Using cost-efficient wearables and legacy smartphones
Data security and trust management framework, ensuring full data protection and privacy

Validation

- 100,000 application users of which 10,000 participate in evaluation and validation activities
  - Authorities, organisers and citizens
  - Technology, impact, user acceptance

Sustainable solutions

- Roadmaps to ensure further exploitation of MONICA apps
- Business models and cases to show potential of IoT platforms
- Plug-in possibility to other Smart City platforms
- Start-up services for entrepreneurs
- Open data repositories and tools for citizens and developers

Partners

Fraunhofer FIT, Germany
City of Lyon - Acoucité, France
Atos IT Solutions and Services, Slovakia
Brüel & Kjær Sound & Vibration Measurement A/S, Denmark
City of Bonn, Germany
CERTH Information Technologies Institute, Greece
CNet Svenska AB, Sweden
Dexels BV, Netherlands
DigiSky SRL UAV & Robotics Systems, Italy
Technical University of Denmark
City of Hamburg, Germany
Hamburg University of Applied Science, Germany
HW Communications Ltd, UK
In-JeT ApS, Denmark
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Tivoli A/S, Denmark
City of Torino, Italy
VCA Technology Ltd, UK
Vaeksthus Zealand, Denmark
Yorkshire County Cricket Club Ltd, UK
Leeds Rugby, UK

MONICA

Thanks for your attention

MONICA has received funding from the European Union's Horizon 2020 Framework Programme for Research and Innovation under Grant Agreement No 732350.

5 Appendix B: Flyer - City of Hamburg

Management Of Networked IoT Wearables – Very Large Scale Demonstration of Cultural Societal Applications

INTERNET OF THINGS

MONICA

At a Glance

Project acronym: MONICA

Programme: HORIZON 2020

Project coordinator:
Fraunhofer-Gesellschaft Angewandte Informationstechnik

Project partners:

In-JeT ApS (DK), Atos IT Solutions and Services (DK), Stadt Bonn (DE), AcouCité observatoire de l'environnement sonore du Lyon (FR), Informatics and Telematics Institute/CERTH (SE), Dexels BV (NL), DigiSky S.r.l. UAV & Robotic systems (IT), Technical University of Denmark, Electrical Engineering (DK), FHH (DE), Hochschule für Angewandte Wissenschaften (HAW) (DE), HW Communications Ltd. (UK), Fraunhofer-Gesellschaft Angewandte Informationstechnik (DE), ISMB Istituto Superiore Mario Boella (IT), Copenhagen Municipality (DK), Kingston University, Computer Science & Mathematics (UK), Leeds Becket University (UK), Movement Entertainment Srl (IT), Optinvent SA (FR), Praesidio Group (DK), Ring Advocacy (DK), Telecom Italia (IT), Tivoli A/S (DK), Comune di Torino (IT), VCA Technology Ltd. (UK), Vaeksthus Zealand (DK), Yorkshire County Cricket Club (UK), Brüel & Kjær Sound & Vibration Measurements (DK), CNet Svenska AB (SE)

Start date: 01/01/2017

Durtaion : 3 Years

In seiner Senatsdrucksache Nr. 2015/00014 „Die Digitalisierung der großen Stadt – Chancen für Wirtschaftskraft, Kommunikation und öffentliche Dienstleistungen" hat der Senat beschlossen, technische Innovationen für die Entwicklung der Freien und Hansestadt Hamburgs als Digitale Stadt nutzbar zu machen.

Der Senat strebt in Hamburg ein Innovationsklima an, das die Entwicklung moderner digitaler Anwendungen und Applikationen fördert. Ausdrücklich genannt ist dabei die die weitere Entwicklung des „Internets der Dinge".

Um von Erfahrungen vergleichbarer Städte und Regionen zu profitieren und zugleich Hamburg als Digitale Stadt international zu positionieren, sind internationale Netzwerke und Kooperationen zu nutzen und ausbauen.
Dies erfolgt auch mit dem Ziel, mithilfe dieser Partner insbesondere auf europäischer Ebene Fördermöglichkeiten zu erschließen.

Vor diesem Hintergrund koordiniert SK / ST3 im Staatsamt der Senatskanzlei die Beantragung von EU-Fördermitteln u.a. im Programm Horizon 2020.

Neben fünf weiteren Horizon-Projekten in Hamburg wurde auch für das internationale Projekt MONICA, das sich mit dem Management eines Netzwerkes von sogenannten „IoT Wearables" (tragbaren Komponenten eines „Internets der Dinge") beschäftigt, der Zuschlag erteilt.

Das Projekt umfasst ein Gesamtvolumen von 17,60 M €, davon EU-Fördermittel in Höhe von 14,99 M €. Rund eine halbe Millionen Fördergelder fließen davon nach Hamburg.

Projektbeteiligte aus Hamburg sind:

- Landesbetrieb Geoinformation und Vermessung (Datenmanagement)
- Senatskanzlei (Politische Begleitung)
- Hamburger Hochschule für Angewandte Wissenschaften (HAW)

Das dreijährige Projekt startet im Januar 2017 mit einer einwöchigen Kickoff-Veranstaltung beim Fraunhofer Institut in St. Augustin, an der Vertreter der Senatskanzlei, der HAW und des Landesbetriebs Geoinformation und Vermessung teilnehmen.

Ziel von MONICA ist die Erhöhung der Besuchersicherheit und –gesundheit bei großen öffentlichen Veranstaltungen.

Innovative Elemente
Tragbare vernetzte Sensoren in Alltagsgegenständen, neben Smartphones können das wie Schuhe oder Armbänder sein, werden zur Erhöhung der Sicherheit für Teilnehmer an Groß-Veranstaltungen entwickelt und in großem Maßstab getestet.
Zum anderen werden neue Technologien zur Reduzierung von Schallimmissionen bei Open-Air-Veranstaltungen zum Schutz der Teilnehmer und der Anwohner angewendet und evaluiert.

Als **Anwendungsbeispiele** dienen temporäre oder dauerhafte Großveranstaltungen in sechs europäischen Städten:
Neben Hamburg wurden Events in Kopenhagen (DK), Turin (IT), Lyon (FR), Bonn (DE) und Leeds (UK) im Rahmen des MONICA-Projektes ausgewählt.

Das **Ziel der Pilot-Demonstrationen** ist es, IoT-Plattformen und ihre Technologien in großem Maßstab zu testen und zu zeigen, wie sie zur Bewältigung realer Herausforderungen eingesetzt werden können.

Um alle Aspekte der IoT State-of-the-Art-Technologien zu demonstrieren, wird das Projekt vier grundlegende Arten von Anwendungen für verschiedene Bedürfnisse in der Wertschöpfungskette implementieren:

G (Global): Globale Anwendungen mit geschlossenen Schleifen, die IoT-Integration mit Aktivierungsschichten und Back-End-Systemen demonstrieren.
C (Crowd): Anwendungen für Massen-Interaktionen, die die Skalierbarkeit von IoT-Lösungen für Tausende von tragbaren Sensoren demonstrieren
S (Staff): Anwendungen zur Unterstützung von Sicherheitskräften / Sanitätern, die die dynamische Interoperabilität heterogener IoT-fähiger Produkte demonstrieren.
P (Public): Anwendungen, die Bürgerbeteiligung ermöglichen, z.B. zur Messung von Geräuschpegeln.

Hamburg als Pilot-Stadt im MONICA-Projekt

In einem dicht besiedelten urbanen Raum finden mehrtägige Events statt, die zum einen die Messung der Bewegungen großer Menschenmassen und von von Schallemissionen durch Open-Air-Konzerte ermöglichen.

Da sich in Hamburg mit dem Hafengeburtstag und dem DOM zwei hervorragend geeignete Testfelder befinden, die sowohl auf eindeutig begrenztem Gelände, anderseits als offene Veranstaltung ohne feste Grenzen stattfinden, wurde Hamburg als Pilot-Stadt akzeptiert.

Es ist Teil des Projektes, für jede Stadt individuelle Anwendungsmöglichkeiten in Rücksprache mit den zuständigen Behörden / Verantwortlichen zusammenzustellen.

Anwendungszeiträume sind für Hamburg der Hafengeburtstag 2018 und 2019 (2x3 Tage) und der Hamburger DOM 2018/2019 (3x3 Tage).

Aus einer Liste von 16 möglichen Anwendungsbeispielen sind bisher für Hamburg unverbindlich sechs Anwendungsfälle vorgemerkt.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 732350

Folgende Anwendungsfälle kommen voraussichtlich für Hamburg in Frage :

Aus dem Sicherheitsbereich:

1. (G) Eingangstore (für geschlossene Veranstaltungen) oder Zugangswege (für offene Veranstaltungen) können mit Ad-hoc-, IoT-aktivierten Kameras ausgestattet werden, die Bilder und Verhaltensmerkmale erfassen können, um eine spätere Identifizierung von Tätern zu erleichtern, falls eine Untersuchung erforderlich ist.
Ein Computerprogramm sucht nach den am besten geeigneten Kameras im IoT-Netzwerk und präsentiert detaillierte sicherheitsrelevante Umgebungsinformationen. Kameras können ferngesteuert werden, um Einzelpersonen zu verfolgen.

2. (G) Zur quantitativen Einschätzung von Menschenmassen können Algorithmen Personen zählen (ca. 95% genau in "idealen" Szenarien), ergänzt um „Profiling"- Methoden zur Alter / Geschlechts-Erkennung sowie Video-Analytik. Mengen und Szenarien können in Bezug auf erwartete Dynamik und abrupte Bewegungen modelliert werden.

4. (C) Die Echtzeit-Visualisierung des Verhaltens von Menschenmengen kann mit Hilfe von Wärmekarten auf Lageplänen mit Echtzeit-Tracking und Personen - Suche aufgebaut werden. Die Visualisierung basiert auf Bildanalysen und Daten von tragbaren IoT-Produkten in Kombination mit Smartphones basierend auf Wi-Fi MAC Adressen, Bluetooth MAC Adressen oder IMEI.

6. (S) Sicherheitspersonal und Sanitäter können mittels Armbändern, Schuhen mit genauen Ortungsvorrichtungen und Körper - Kameras durch Menschenmengen geführt werden, um vor Ort Störungen zu erfassen oder verletzte Menschen in der Menge zu finden. Tragbare IoT-Produkte („Wearables") von Zuschauern erleichtern Interaktion und Intervention durch Bodenpersonal mit mobilen Geräten.

Aus dem Akustik-Bereich:

10. (C) Anhand professioneller und verbraucherfreundlicher IoT-Schallpegelmesser, die von Zuschauern in Armbändern und / oder Smartphones verwendet werden, kann die Echtzeitanzeige von Geräuschpegeln auf Lageplänen dargestellt werden.

15. (P) Die Klangfelddaten können von der Gemeinde (im Hamburger Fall: vom Landesbetrieb Geoinformation und Vermessung (LGV)) als Open Data veröffentlicht werden. Apps könnten den Bürgern erlauben, auf diese Daten zuzugreifen, um in einen konstruktiven, faktenbasierten Dialog mit Stadt und Bürgern bzw. anderen Akteuren zu treten und Daten für die Erforschung der Umwelt-Auswirkungen auf die Gesundheit zur Verfügung zu stellen.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 732350

Management Of Networked IoT Wearables – Very Large Scale Demonstration of Cultural & Security Applications

(Grant Agreement No 732350)

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 732350

6 Appendix C: Presentation Slides for European Large-Scale Pilots Programme

MONICA - Facts - European Large-Scale Pilots Programme

Facts:

- **Title:** Management Of Networked IoT Wearables – Very Large Scale Demonstration of Cultural and Security Applications
- **Acronym:** MONICA
- **Type of Action:** IA - Innovation action (H2020-IoT-2016)
- **Coordinator:** FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V. (Germany)
- **Consortium:** 29 partners from 9 different countries
- **Objective:** Provide a very large scale demonstration of multiple existing and new IoT technologies for Smarter Living, and identify the official standardisation potential areas in all stages of the project

CREATE-IoT U4IoT ACTIVAGE IOF MONICA SYNCHRONICITY AUTOPILOT

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MONICA - Partners - European Large-Scale Pilots Programme

FRAUNHOFER Germany
ACCUCITE France
ATOS IT SOLUTIONS AND SERVICES SRO Slovakia
BRUEL&KJAER SOUND&VIBRATION MEASUREMENTS A/S Denmark
CITY OF BONN Germany
INFORMATICS AND TELEMATICS INSTITUTE CERTH Greece
CNET SVENSKA AB Sweden
DEXELS BV Netherlands
DIGISKY SRL UAV & ROBOTIC SYSTEMS Italy
DANMARKS TEKNISKE UNIVESITET Denmark
FREIE UND HANSESTADT HAMBURG Germany
HAMBURG UNIVERSITY OF APPLIED SCIENCE Germany
HW COMMUNICATIONS LTD UK
IN-JET APS Denmark
ISMB ISTITUTO SUPERIORE MARIO BOELLA Italy
COPENHAGEN MUNICIPALITY Denmark
KINGSTON UNIVERSITY UK
LEEDS BECKET UNIVERSITY UK
MOVEMENT ENTERTAIMENT SRL Italy
OPTINVENT SA France
PRAESIDIO GROUP APS Denmark
RING ADVOCACY APS Denmark
TELECOM ITALIA SPA Italy
TIVOLI AS Denmark
TORINO MUNICIPALITY Italy
VCA TECHNOLOGY LTD UK
VAEKSTHUS SJAELLAND Denmark
YORKSHIRE COUNTRY CRICKET CLUB LIMITED UK
LEEDS RUGBY UK

29 Partners
9 Countries

CREATE-IoT U4IoT ACTIVAGE IOF MONICA SYNCHRONICITY AUTOPILOT

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Security

- ✓Real-time visualisation of crowd behaviour.
- ✓Capture images and behavioural characteristics in order to ease later identification of perpetrators, if a criminal investigation is needed.
- ✓Early identification of emerging events.
- ✓Security staff and first aid workers can be guided through crowds to spot of disturbances or injured people.

Acoustics

- ✓Sound fields can be optimised with respect to both the performers and the concert audience in terms of loudness, directionality and quality.
- ✓Real-time display of noise levels on ground plans in 2D can be displayed.
- ✓Quiet spots can be created close to the audience area (“Silence Showers”).
- ✓The sound field data can be published by the municipality as Open Data and apps will allow the citizens to access these data and monitor the compliance of the City Ordinance.

MONICA - Demo Sites - European Large-Scale Pilots Programme

Demo Sites:

All ecosystems will be demonstrated in the scope of large scale city events - the project solutions will be deployed in six major cities in Europe

Copenhagen (DK):

Friday Rock – 4 events in Y2-Y3

Torino (IT):

KappaFutur Festival – 2 days in Y2-Y3

The Movida – 2 weekends in Y2-Y3

Leeds (UK):

Cricket matches– 2 events in Y2-Y3

Rugby matches– 2 events in Y2-Y3

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MONICA - Demo Sites - European Large-Scale Pilots Programme

Demo Sites:

Hamburg (DE):

Hamburger DOM – 3 x 3 days in Y2-Y3

Port Anniversary- 2 x 3 days in Y2-Y3

Lyon (FR):

La Fête des Lumières – 4 days in Y2-Y3

Nuits Sonores - 5 days in Y2-Y3

Bonn (DE):

Rhein in Flammen

Pützchen's Markt – 3 days in Y2-Y3

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MONICA - Highlights - European Large-Scale Pilots Programme

Highlights:

✓Demonstrate an IoT platform in massive scale operating conditions

✓Capable of handling at least 10.000 simultaneous real end-users

✓Wearable and portable sensors using existing and emerging technologies (TRL 5-6)

✓Based upon open standards and architectures

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MONICA - Impact - European Large-Scale Pilots Programme

Socio-economic impact

✓From supply-side actors (i.e. telecom industry) to demand-side actors (i.e. cultural events organizers, cities, public)

✓Business opportunities for industry, new opportunities for entrepreneurs

✓More comfortable, healthier and safer public events and spaces

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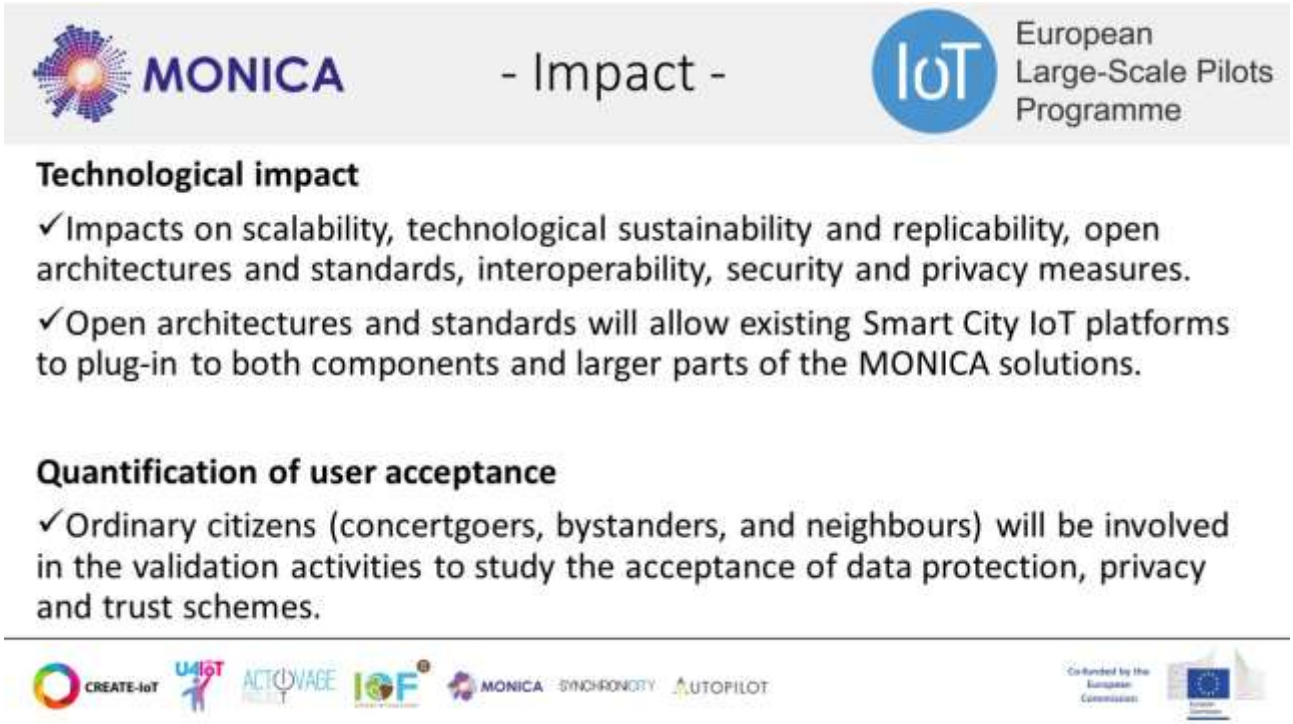
MONICA
- Impact -
IoT
European
Large-Scale Pilots
Programme
Technological impact
✓Impacts on scalability, technological sustainability and replicability, open architectures and standards, interoperability, security and privacy measures.
✓Open architectures and standards will allow existing Smart City IoT platforms to plug-in to both components and larger parts of the MONICA solutions.
Quantification of user acceptance
✓Ordinary citizens (concertgoers, bystanders, and neighbours) will be involved in the validation activities to study the acceptance of data protection, privacy and trust schemes.
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MONICA
- Sustainability -
IoT
European
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Programme
Sustainability roadmap:
✓Maintenance and further exploitation of the MONICA apps for the events at the end of the project by the pilots.
✓Development of sustainable business models and business cases based on value creation.
✓Interoperability of the MONICA platform and technologies with other Smart City platforms.
✓Creation of new market opportunities for entrepreneurs and developers, based on start-up services and open data tools.
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MONICA
- Thank You! -
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7 Appendix D: Temporary Poster for European Large-Scale Pilots Programme

Produced for Digital Innovation Forum 10-11th May 2017

MONICA

MANAGING LARGE SCALE OPEN AIR EVENTS IN THE CITY

The MONICA Project is a large-scale demonstration of how cities can use IoT technologies to deal with sound, noise and security challenges at big, cultural, open-air events, which attract and affect many people. A range of applications are deployed at 16 large cultural events in six different European cities from 2017 to 2020, involving more than 100,000 users in total, out of which 10,000 will participate in the evaluation process.

ENHANCE THE SOUND PERCEPTION AND REDUCE THE NOISE

Sound zones are established at open-air concerts to enhance the sound experience for concertgoers and performers while at the same time mitigating the noise for neighbours. The sound levels are displayed for monitoring and control purposes. People attending the concert or a affected by it can also monitor the sound levels on their smartphone, whether it reflects a wish to move to a quieter spot or to validate the compliance to noise regulations.

IMPROVE USER EXPERIENCE

Communication to customers, crowds and citizens is improved by the use of mobile apps and wristbands with value-adding features, enabling people to interact with and locate each other, informing visitors of the best place to park, the best way out or the bars with the shortest queue, and guiding participants to the nearest exit in case of an emergency. General data such as on sound levels are made accessible as open data on the city's websites for citizen engagement and innovation.

STRENGTHEN SECURITY AND TRUST

Applications involving the use of cameras, drones and wearables will enable security personnel to capture real-time data about crowd size and density for the purpose of predicting, analysing and handling emerging incidents, without violating privacy rights. An operational picture of the security situation is displayed on a graphical user interface, notifying the staff of any unusual behavior, providing decision support and enabling timely information-sharing between staff members.

OPEN IoT PLATFORM

To support the applications, MONICA deploys a cloud-based platform, handling several IoT-enabled devices whether fixed, worn or moved around. Control systems monitor the data collected and can perform automated actions based on the information gathered. The platform also consists of components for detecting critical incidents and supporting operators. Based on open standards and architectures, the platform can be reused across multiple use cases with only the application layer being specific to the deployment setting.

PILOTING IN SIX EUROPEAN CITIES

Six pilot sites will demonstrate how the use of IoT technologies can help solve security and noise challenges at large, outdoor events, covering music events, festivals, sport events and city happenings, which in total attract more than 100.000 people. Each of the sites will choose a number of relevant applications that they wish to deploy. Whereas some cities will emphasise optimal concert sound and enhanced noise control, and others look to optimising security, all pilots will actively involve their citizens, engaging more than 10.000 people in the evaluation process.

TIVOLI @ COPENHAGEN
RHEIN IN FLAMMEN, PÜTZCHENS MARKT @ BONN
HAMBURGER DOM, HARBOUR BIRTHDAY @ HAMBURG
FÊTE DES LUMIÈRES, NUITS SONORES @ LYON
KAPPAFUTUR FESTIVAL, MOVIDA @ TURIN
HEADINGLEY STADIUM @ LEEDS

The MONICA Project involves 28 partners from nine countries. It is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No 732350.
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